Executive Summary of the Story Map

The Story Map studies the sustainability of the neighborhood of O'Hare, Chicago, in terms of its economic, equitable, and environmental ability to support its continuous future growth.

O'Hare is famous because of its major hub for industries: the O'Hare International Airport. In fact, the city annexed the neighborhood to its community areas probably because of its value in air transportation in the 20th century. The neighborhood is selected for the Story Map because of its uniqueness - people rarely know O'Hare as more than an airport, but it is indeed a neighborhood for airport development. It is incredibly hard to find materials about O'Hare other than the airport, demonstrating the crucial role of the airport in the neighborhood. However, it is important to think of O'Hare not only as a neighborhood which provided service to the rest of the world but also as a sustainable neighborhood by itself: it has workers,
residents, land values, and environmental impact. It is influenced by the city as much as it is influencing the city: for economic gains, for equity, and for the environment.

Whether O'Hare is moving closer or further away from sustainability is important but ambiguous, especially when O'Hare has been aggressively expanding its campus for the past decade. Since its opening, it has been adding runways, reconfiguring runways, and adding and changing facilities in the airport. Evaluations and studies about its sustainability from the governmental affiliated agencies or non-governmental affiliated agencies were published. While some people are excited about the increasing air transportation hub, other stakeholders are concerned about their quality of life being affected and want the expansion to stop. Most people are concerned about the noise pollution and the traffic congestion, hoping the state to add another airport in a more suburban location to relief traffic and reduce noise complaints. They also claimed that the promises of "reduced delays, increased convenience and more gates" have not been fulfilled. "If the money would actually be spent on the airport and building the South Suburban Airpot instead of the OMP," they said, "the reputation of O'Hare would not worsen." Therefore, the role of urban planners should care about both the economic benefit that the city could gain from the airport and the quality of life for the residents. From the sustainability standpoint, they should consider employment, integration, accessibility, location, revenue, environment impact, and so much more. Currently, O'Hare is not doing a bad job, but it could do better.

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The Neighborhood of O'Hare

Population 2000

- > 61,396
- 37,137
- < 12,879

Population 2010

- > 56,658
- 34,521
- < 12,385
O'Hare, Community Area 76, is the western most neighborhood of the city of Chicago. It is 14 miles Northwest of the loop. The first thing people will think about O'Hare is that it contains a large international airport. Indeed, the majority of O'Hare is the airport. However, that is not all. The quick growth of the airport have increased nearby land values. Office buildings are developed in the neighborhood to utilize their proximity to other cities by airplane. There are also high-rise apartments and single-family houses. Some of them occupied by employees of the airport and the airlines. It is important to view O'Hare not just as an airport but a neighborhood that is closely connected to the concept of sustainability.

The map shows the location of O'Hare in the City of Chicago. If you click on the tracts, the population of the community area in 2000 and 2010 will show up. Compared to the population with the rest of the city’s community areas, O'Hare is the 10th least populated area according to 2010 Census, SF1 Table P1. Indeed, it is hard to imagine living a life close by a busy airport with noises of the airplanes and congested traffic. In fact, Federal Aviation Administration has been closely evaluating O'Hare’s environmental impact. In the meantime, the population there had grown by 10% from 2000 to 2010. Who lives there? What is the neighborhood of O'Hare like?
Before WWII

Before the World War II, O’hare was barely developed. In the early 1840s, a few families settled there along with immigrants from Germany. There was a church and a cemetery called St. Johannes on the
southwest section of the area. A few residential sections were established in the 1930s but all had transformed drastically after the World War II. O'hare was occupied by Douglas Aircraft for the production of cargo planes at that time.

- **After WWII**
  The facility became a commercial airport after the war ended. In 1947, the city adopted the site for the new international airport and named it after an aviator named Edward O'Hare. Only the St. Johannes cemetery was preserved until today after the war.

- **The 76th Census Tract**
  Around the 1920s, Chicago's Department of Public Health and University of Chicago's Local Research Committee invented the 77 census tracts of the City of Chicago. O'hare was the only addition to the previous ones besides Edgewater.

The west part of O'hare was annexed to Chicago in 1956. The narrow area of Higgins Road was also put into O'hare because the city wanted the main body of the city to connect with the airport. Later on, expressway and additional lands were added, leading to the creation of a new community area, forming the O'hare neighborhood today - the red dots surrounding the airport on the map are homes/apartments for sale. As you can tell, there are not much residential development in O'Hare. However, it is evident that there are, more than the airport, in O'Hare.
Development of the O'Hare International Airport

- **Earliest Age**
  - In 1945, a site selection committee chose Orchard Field, the location of an aircraft assembly plant located on the northwest side of Chicago with four concrete runways, as the site for a new airport.
  - In 1949, this field was renamed as Chicago O’Hare International Airport to model a naval aviator O’Hare who died in World War II.
  - It was opened in 1955 and had served 176,902 passengers in its first year.
  - In 1957, a fifth runway was added.
  - In 1959, Mayor Richard J. Daley inaugurated the expansion of the airport to include another terminal and other facilities.
  - In the 1960s, the sixth runway and an eight-lane expressway that linked the airport to downtown Chicago were built.

- **Steady Growth**
  - The seventh runway and Hilton were added in the 70s.
  - CTA extended the Blue Line rail service to the airport in 1984.
• More terminals and cargo area were constructed, making O'Hare a large destination for freight and passengers.

• **Entering the 21th Century**
  • In the 1990s, the Airport Transit System was opened to improve intra-terminal transit, relieving roadway congestion and reducing air emissions.
  • Terminal 5 was opened in 1993.
  • The O'Hare and Midway Noise Compatibility Commissions were established to reduce noise impact from aircraft.
  • On June 29, 2001, the $6.8 billion O'Hare Modernization Program was announced. The OMP will increase airport’s efficiency, capacity, and safety by reconfiguring O'Hare into a modern, parallel runway layout. After the OMP is complete, O'Hare will have eight runways. Six of them will be East-West parallel runways and two of them will be crosswind runways.
  • In 2003, the OMP Sustainable Design Manual was released, making it the nationwide first airport that has a sustainability guidance.

![Video](image_url)

*This video can be viewed in the online version of this story map*

• **Redevelopment Plan**
  • O'Hare used to work in a circular manner with the terminal complex in the center and the runways surrounding it in triangular form.
  • After the OMP, O'Hare will be divided into three sections from north to south: the North Airfield, the terminal complex and ground transportation center, and the South Airfield.
  • Most recently, construction on the sixth and final parallel runway started in 2017 and is expected to be finished in 2020. The capacity had already raised and the delays had been reduced.
In March 2018, the city council just approved $8.5 billion expansion plan which will result in a 22% increase in gates and 75% more terminal space, hoping to generate more economic interest for the city.

This video can be viewed in the online version of this story map.
To be economic sustainable, the neighborhood should be able to support its economic production indefinitely. Instead of looking at the gross economic profit, planners should look at whether the economic opportunities provided could maintain sustainable employment and development of diverse industries. To examine the economic sustainability of O'Hare, employment status and job industries there will be taken into account.
Unemployment in O’Hare neighborhood is not too bad. According to the pie chart, among 7149 residents in labor force, 91% of them are employed. It is above the average unemployment rate of 15% for all neighborhoods in Chicago (link available only in online story). In O’Hare, 67% of the jobs are white collar jobs and 33% of them are blue collar jobs.
Employment Status of O'hare Neighborhood, Chicago

- Not in Labor Force: 3919
- Employed: 7146
- Unemployed: 624

Total: 6522

Source: 2011-2015 American Community Survey: Table B09019
Jobs offered in O'Hare are all directly or indirectly tied to the airport. Looking at the job lists, most job industries there are in accommodation and food services, transportation and warehousing and utilities, as well as administrative and waste management. The data from U.S. Census Bureau confirmed that the major industry in O'Hare is Transportation followed by Accommodation and Food Service, Information, Professional and Administration. However, it is obvious that the difference between Transportation and the other industries is huge. In fact, most of the known jobs offered at the airport are in low-wage industries. The wheelchair pusher, cabin cleaner, and the baggage handlers could hardly afford all their daily necessities, and over one-third of survey respondents were found earning below the Illinois minimum wage in 2012 according to 2011 Airport Workers Study. Other companies like Hilton, offered mostly blue-collar jobs and some white collar jobs, also provide jobs mostly in low-wage industries. There are also business and healthcare professions located in O'Hare, providing convenience for their professionals and consumers. Overall, the economic in O'Hare is pretty diverse but is more specialized in low-wage industries.
As a result, most employees of O'Hare do not live in the neighborhood because they could not afford the rent. Looking at the primary industries O'Hare residents work in, they are not the same as the primary industries in O'Hare. While most of the residents work in Health Care, Retail Trade, Accommodation and Food Service, Manufacturing, and professional, they are mostly employed at outside of Chicago. On the other hand, workers in O'Hare generally live in outside of Chicago, the Loop, followed by O'Hare.
Places Where Workers In O'Hare Live

- Outside of Chicago
- The Loop
- O'Hare
- Near North Side
- Near West Side

0 500 1000 1500 2000 2500 3000
The quality of life for those using and living near the airport is low because of O'Hare's priority of promoting economic growth. Therefore, O'Hare is not qualified as economic sustainable right now, as most of its industries do not guarantee jobs that secure the standard of living for their employers. On a Thursday afternoon, about 3,700 restaurant workers in O'Hare Airport went on a strike until 4:30 p.m. for higher wages and affordable healthcare. Workers with other duties had also claimed that their responsibilities and burden are disproportionate with their wages in 2014. Nevertheless, it is moving towards economic sustainability since the workers' right to join unions had been secured. The City Council lately guaranteed nearly 8,000 contract employees at O'Hare Airport a minimum wage of $13.45 an hour, implying a more affordable life for the workers in O'Hare. Yet this might affect the stakeholders: there might be even more expensive plane tickets for travelers, or less economic return for the city.
Equitable (Social) Sustainability

Equity is also crucial in terms of sustainability. It is important that the neighborhood is fair to people of all class, race, and income background. O'Hare as an neighborhood holding an international airport welcomes people from all regions, background and countries every day. It is a fairly integrated neighborhood. However, like any other neighborhood, it is still not close to equity in terms of class and race.
An airport is known as a place where racial profiling and discrimination happens, not only towards the passengers but also towards the workers. According to an Airport Workers Survey in 2011, employees of color in the sample generally earn $8.25 while white employees earned $8.50 per hour. The white workers also received $0.10 tips per hour than African-Americans. The workers of color also had more hour violations than white workers. Similar situations associated with equity were found in other airports such as Reagan National (link available only in online story) and Philadelphia International (link available only in online story) airports. Not only have workers of color been exposed to racial taunts, they were also given the most difficult tasks. Despite the unequal treatments to workers of color, O’Hare is a neighborhood with low Dissimilarity Index for African Americans, meaning that African Americans and Non-African Americans are distributed
evenly in the neighborhood. The Isolation Index for them is also low, implying great interactions between African Americans with Non-African Americans. Although O'Hare is not physically segregated for African Americans, the treatment for them is not fair enough, which hinders the equity sustainability.
The unequal treatments also apply to the Hispanic population. According to 2011 Airport Workers Study, Hispanic population takes up 25.7% of the worker population in the sample. 36.8% are black and 4.9% are Asian. Although the pay types for Hispanic population are roughly equal, they are tipped less than white workers. They experienced the greatest off-the-clock violations among white, black, Latino/a and Asian that they are not paid for off-the-clock work at least once in a week. They are also largely denied to have a scheduled break at least once in a week by the employees. Their Dissimilarity and Isolation Indexes in O'Hare are also low, but they are violated in their employment rights. But anyways, this is not just the problem of O'Hare but every low-wage industry. Planners should consider these and establish policies to help with equitable sustainability by eliminating workplace discrimination. For example, they could urge businesses to set wage standard for workers
of color to leverage some taxes. They could also implement subsidies for the workers. However, it is almost inevitable to immediately reduce discrimination. As much as O'Hare is racially integrated in the neighborhood, it is not as integrated in smaller geography measures.
Although 27% of O'Hare residents have obtained a Bachelor’s Degree or higher, which is a moderate rate compared to the rest of the community areas, only 14.8% of workers in O'Hare airport have obtained Associate Degree or higher. This implies that the airport employs workers with lower education level while the surrounding companies have higher education requirement. Yet, education level is not a significant factor of workplace violations in the airport but a crucial determinant for entering job industries. Therefore, although lots of low-skilled jobs are offered in O'Hare, higher degrees are mandatory for better-paid jobs.
People with Low Income

According to the pie chart for Income Distribution, 32% of the workers earn less than $25,000 every year. About 20% of the workers earn between $25,000 - $50,000 each year, 21% of them earn between $50,000 - $75,000, 16% earn between $75,000 - $100,000 and 11% earn more than $100,000 each year. The Dissimilarity Index and the Isolation Index are pretty low for the poor, meaning that O’Hare is integrated for different classes of people. The businesses in O’Hare is sustainable in a sense that they provides diverse jobs, but the gap between different kinds of jobs are big.
Referring to the median income of O'Hare compared to the other community areas of Chicago, O'Hare has the 30th highest income. The transportation industry in the U.S. is highly competitive. It represented 8% of annual GDP in 2015. Since all the major industries in O'Hare have been growing in GDP since 2008, it is likely that the income of the workers will be stabilized. In addition, regulations had been published to pay the workers fairly and the awareness is increasing in Chicago, although for now, only 8,000 contract workers had experienced the income rise, it is a good start for having equal income and working rights.
Airport transportation causes negative impacts on the environment and humans. The system could cause air pollutants, especially carbon dioxide. Emissions from air transportation have accounted for around 4% of carbon emissions from developed countries. O'Hare is listed as the world's busiest and best-connected airports. It is ranked number two in the number of passengers served. It has linked passengers to 208 destinations including 153 domestic and 55 international destinations. With the $8 million expansion plan, its space will increase by 72%. About thirty-five new gates will be added. The mayoral office predicts that this will increase the city's total number of passengers from 78 million in 2016 to around 100 million by 2026. This will have a huge impact on the environmental sustainability of the neighborhood and the city. There are always natural discrepancies between the economic value and the ecological impacts of an airport, how will the expansion affect the city in terms of sustainability?
In 2010, O’Hare ranked as the fourth largest consumer of electricity among all the community areas. The CDA reported O’Hare to have 14.8% electricity reduction in 2016 compared to 2010. They made
effort on implementing solar panels which power 10% of the airport lighting, the airport transit system, and the main parking garage.
Gas Usage

O'Hare also ranked as the fourth place in terms of energy usage in 2010. It is not hard to imagine the great volume of gas consumption for a transportation hub. The good news is, the CDA reported O'Hare to had reduction in natural gas usage per passenger as 4.6%. Although the reduction is not
great, it symbols the effort to save energy. In fact, the airport has been working with CDA to build an alternative fuel station. This will help O'Hare to reduce greenhouse gas emissions and improve air quality and create jobs in the meantime.

Besides simple reducing electricity and gas usage, the City of Chicago created the Sustainable Airport Manual to promote sustainable airport planning. It has helped O'Hare in construction efficiency, reduce pollution, and recycled materials. Although the economic gain is most important for the airport, the sustainable environment could lower utility cost for the airport sponsors.
In a normal weekday evening, one after another plane buzzed over Marie MacDonald's back porch in a middle-class residential neighborhood, approaching O'Hare International Airport. She was not the only one who found quietness to be elusive. According to a report from the city, the total noise complaints in 2015 was as much as 2,150,258 cases. The airport had altered its runways accordingly several times, as well as issuing voluntary “fly quiet” programs during overnight hours. However, it is a voluntary program which is not promissory. Although the residents and businesses are urging the city to deal with noise impact more aggressively, the city and the airport could only try to minimize the noise impact as much as possible. Yet according to the complaints, the mayor does not seem to care about the noise pollution that the expansion of the airport will intensify.

With the development of the airport, the city has been evaluating the noise impact of the runway expansion. In the Final Re-Evaluation of the O'Hare Modernization EIS, The Federal Aviation Administration analyzed the aircraft noise exposure and its effects on land use by the Integrated Noise Model which generated aircraft noise exposure contours. In 2020, compared the noise exposure between 2015 interim condition and 2020 interim condition, it did not get improved a lot. The number of affected population for both 65-70 DNL, 70-75 DNL, and 75 and more DNL all increased. Therefore, the O'Hare Modernization Plan does not offer too much hope for the noise reduction for the surrounding neighborhoods. It was mentioned in the report that airlines are replacing loud, huge airplanes with small and quieter ones. There are also alternative nighttime flights to help with the noise pollution. These might help with the nearby land value and reduce noise to some extent, but they all take time to work.
2020 Noise Contour
O'Hare's sustainability depends on its status of economic structure and performance, population distribution, and environmental impact. Initially, O'Hare was selected as the city airport to bring convenient air travel, jobs, and revenues while trying to reduce the negative impact on the city. However, as O'Hare has become busier and busier, the expansion of city airport is inevitable.

- **Planner's Viewpoint**

  In terms of economic, O'Hare has provided numerous low-wage jobs and a few professional jobs. The unemployment rate is relatively low, but most of the workers live outside of the city. Their wages are low, yet they have recently guaranteed their rights to join the union and 8,000 of them had received a wage raise, indicating positive effort in sustainability. In this case, the expansion of the airport could create more jobs but not much "good jobs," as most of the jobs created would be low-wage jobs. The expansion will bring more floating population into the neighborhood, but this only marginally benefits the economic sustainability. The wage and working condition will not change much from the expansion. However, this will generate lots of revenue for the city, which could be used to improve public facilities.
Speaking of equity, O'Hare is a model for an integrated neighborhood. However, the treatment for workers with different characteristics is troublesome. Discrimination and violation of working code exist, and would not be affected by the expansion plan. Education level and skills are required for higher-paid jobs. In addition, the floating population there will benefit the city more than the neighborhood itself. O'Hare is a neighborhood in its nature, so planners should make it more habitable that other revenue could be earned. One example could be Tacoma, Seattle, which is holding the airport but also has lots of residential areas. This lead to the environmental consideration: Leaving next to the airport right now is not pleasant at all.

Chicago has received lots of noise complaints, not to mention the energy used by an international airport. Although the city claims that the environmental impact has been monitored, not much progress had been made. Furthermore, the expansion will probably make the scenario worse. The middle ground has to be found, so it is the planners' responsibilities to limit the size and operation of the airport.

**Personal Expectation**

In my opinion, the OMP and the Development Plan will be finished under the city's plan. With few changes brought to the employment structure and environmental impact, more economic revenue would be generated in the near future. In terms of sustainability, it would remain basically the same. Although the energy use has been decreasing, the expansion will lead to more energy used in the city of Chicago. The neighborhood will still remain as a neighborhood for the airport with increasing passenger flow. However, it still is a great job provider for the city of Chicago. It will benefit its position as a global city since it demonstrates its command power and brings tourism.

The ideal sustainability of the neighborhood will be an self-sustain function neighborhood. In stead of a wage increase, the companies could provide accommodation in O'Hare to save expenses for the blue-collar workers. In the meantime, the population structure will change that accessibility and diversity of the neighborhood will be better: people will actually stay and work there instead of daily commute. But this needs the cooperation with the environmental aspect of sustainability: the airport should work in its most efficient way to reduce noise pollution and save electricity and gas. Depends on the need, opening another suburban airport might not be a bad idea to promote the sustainability of the neighborhood. Planners should initiate and advertise these policies if they want O'Hare to be a sustainable neighborhood.


