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SUPPLY CHAIN INNOVATION CENTER & BUSINESS INCUBATOR

2021 SSA Economic Impacts Report

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Executive Summary

Cities around the world are separated by physical distance, but individuals and cargos can travel relatively easily between cities using various forms of transportation. Airports are powerful engines of economic growth and possibility for local communities across the United States. The total economic output of U.S. commercial airports now exceeds $1.4 trillion, supporting more than 11.5 million jobs with a payroll of more than $428 billion. For Illinois, aviation is the sound of commerce as well as rail and trucking. This 2021 SSA Economic Impacts Report quantifies the economic impacts of a new South Suburban Airport (SSA) starting operation in 2030 and going to 2050.

The study estimated that, even in the Year 2030 low-case scenario, SSA will contribute $4 billion in annual economic benefit to the serving region, and support 10,000 jobs with the total annual taxes estimated at $522 million, in addition to $1,053 million in economic output and 5,700 jobs generated by the pre-operation capital investment, as shown in the table below.

The study reflects a year-long effort to investigate and study the economic impact of commercial, cargo, and general aviation activities. It also verifies the previous estimations provided in the original 2004 forecast for the Inaugural Airport Program (IAP) for the South Suburban Airport (SSA) and the updated 2009 forecast. Information in the study is intended to help the public understand the importance of a new local airport and the role it plays in supporting the economy of the state.

As this report summarizes, a new SSA in operation in Bult Field to serve Southland and more is responsible for generating billions of dollars in economic benefit and supporting hundreds of thousands of jobs. It will contribute to our state's economy and to the quality of life enjoyed by Illinois' businesses, residents, and visitors.

Total impacts of Pre-Operation activties	Employment	Labor Income	Value Added	Output	Tax Revenues
1 - Direct	5397.26	$420,740,488.22	$553,873,241.08	$966,309,373.06	$64,782,317.07
2 - Indirect	231.1	$21,963,126.68	$40,104,404.72	$75,387,195.63	$6,791,217.54
3 - Induced	64.88	$3,971,681.58	$7,312,855.27	$11,278,940.50	$1,389,704.48
	5693.23	$446,675,296.48	$601,290,501.06	$1,052,975,509.18	$72,963,239.08

Figure 1. Total Estimated Impacts of Three Pre-Operation Projects

Dollar YR 2030, Data YR 2019	Low-Case		Base-Case		High-Case	
Years	**DBO+1**	**DBO+20**	**DBO+1**	**DBO+20**	**DBO+1**	**DBO+20**
Total IMPACTS						
Employment	**110.65**	**10000.87**	**997.38**	**15131.3**	**1409.56**	**20232.25**
Labor Income	$12,866,736.88	$1,252,591,020.08	$105,892,666.97	$1,812,722,164.15	$149,063,055.74	$2,435,156,686.11
Value Added	$22,568,695.51	$2,225,459,326.76	$176,701,485.66	$3,136,042,866.14	$247,960,293.78	$4,221,776,793.30
Output total	**$40,506,459.60**	**$4,086,001,501.31**	**$338,601,166.82**	**$5,862,453,078.68**	**$477,295,296.12**	**$7,870,898,531.72**
Tax	$5,315,538.78	$522,854,051.45	$37,497,585.41	$722,344,810.84	$52,261,541.19	$976,620,004.99
Air Carriers						
Employment	66.73	5,408.26	443.36	9,788.26	599.08	13,578.91
Labor Income	$7,204,494.65	$694,434,417.62	$47,421,639.73	$1,256,847,903.25	$64,002,743.65	$1,743,579,113.93
Value Added	$12,448,266.34	$1,237,788,132.25	$81,710,191.52	$2,240,250,495.47	$110,213,752.95	$3,107,824,508.62
Output total	**$22,313,599.00**	**$2,227,010,835.43**	**$146,284,602.17**	**$4,030,633,274.16**	**$197,321,991.20**	**$5,591,556,828.72**
Tax	$2,836,733.24	$302,302,757.81	$18,537,502.61	$ 547,133,894.53	$24,978,650.75	$759,019,951.88
Air Cargo						
Employment	0.00	4,467.70	507.16	5,211.41	760.79	6,514.14
Labor Income	$0.00	$542,113,600.93	$52,449,637.29	$538,979,465.48	$78,680,134.92	$673,708,156.77
Value Added	$0.00	$959,063,947.67	$84,249,310.80	$865,689,899.33	$126,383,240.59	$1,082,096,703.52
Output total	**$0.00**	**$1,807,530,238.21**	**$172,996,800.60**	**$1,777,651,197.01**	**$259,521,222.87**	**$2,222,031,780.30**
Tax	$0.00	$213,565,850.58	$16,337,119.53	$167,858,564.66	$24,506,769.84	$209,821,019.96
General Aviation						
Employment	43.92	124.91	46.86	131.63	49.69	139.2
Labor Income	$5,662,242.23	$16,043,001.53	$6,021,389.95	$16,894,795.42	$6,380,177.17	$17,869,415.41
Value Added	$10,120,429.17	$28,607,246.84	$10,741,983.34	$30,102,471.34	$11,363,300.24	$31,855,581.16
Output total	**$18,192,860.60**	**$51,460,427.67**	**$19,319,764.05**	**$54,168,607.51**	**$20,452,082.05**	**$57,309,922.70**
Tax	$2,478,805.54	$6,985,443.06	$2,622,963.27	$7,352,351.65	$2,776,120.60	$7,779,033.15

Figure 2. SSA Operations Total Impacts Summary

Section I: Introduction

A. Project Background

In 1984, the FAA recommended that the State of Illinois identify the development of future runway capacity for the Chicago area. As a result, will County, Illinois, was identified as the location for the future home of South Suburban Airport (SSA) to provide increased aviation capacity.

SSA was initially envisioned as a supplemental commercial passenger service airport for the region and has undergone numerous planning milestones over the years, including the acquisition of more than 4,500 acres of property for the inaugural site. Till 2020, the State of Illinois has invested over $100 million in the project to date, with an additional $162 million appropriated to complete the Tier 2 environmental impact statement (EIS)[1], airport master plan, airport airspace analysis, and construct the necessary infrastructure and roadway interchanges to serve the project.

Several potential results of putting SSA into operations include reducing traffic stress, creating STEM jobs, and increasing cargo processing speed and life quality of IL residents. Industrial airports operating within a major metropolitan aviation system provide relief by moving corporate aviation services, logistics, cargo, and military operations away from primary passenger facilities and toward industrial airports. It will help to take advantage of the economic and STEM jobs by accommodating e-commerce, logistics, aviation manufacturing, and part supply, repair and overhaul (MRO), multimodal transportation, autonomous freight movement, consolidated air cargo, primary and secondary STEM education, and innovative space and aviation technology development. Industrial airports offer the improved speed of high-value goods to market in their metropolitan areas that will define the post-pandemic needs in the future. These airports will provide a competitive advantage by accommodating the rapidly changing markets such as life sciences, scientific devices and equipment, and high-value goods, while significant emergency recovery logistic support in food, medical supplies, and personnel movement. SSA will meet today's ever-increasing e-commerce and air cargo demands, complementing the existing Chicagoland aviation structure by adding unique industrial services.

Amazon Air's system is evolving quickly, and the company prefers to serve multiple airports in cities with extensive Amazon warehouse space. Chicago Rockford International Airport appears destined to remain an important hub, but the company's strategy involves diversifying to other airports, which we expect to include more service to other Chicago-area airports. The impetus to digging deeper into SSA at this time is threefold. First, Chicago is the largest Metro without 3 Airports. Other major U.S. Metros are all with three major airports. Second, the significant transportation assets at the South Chicago site haven't been utilized. Highways I-57, I-80, I-94, I-

[1] This site (Bult Field in Will County) was approved as a feasible location for an airport by the Federal Aviation Administration (FAA) in their Record of Decision on the Tier 1 Environmental Impact Statement (EIS) for SSA dated July 12, 2002.

294, I-394, and Class I railroads operated by CN, UP, BNSF, and CSX. The region is home to the largest inland intermodal port in North America, 300 distribution warehouses, and multiple fulfillment centers in different construction phases. Finally, a team of researchers, policy advisors, economic development experts, and businesses visited Alliance Airport multiple times and identified that SSA has the potential to become the next Alliance Airport. SSA will provide convenient and efficient air transportation for the e-commerce distribution and fulfillment facilities just minutes from the SSA project site. Today Alliance is the home to 525 companies and 50 million square feet for logistics, shopping, dining, health and entertainment. Next to interstates and railroads near Dallas and Ft. Worth, it's generated an estimated $84 billion in economic impacts, more than 15 million square feet of office space, and $668 million in annual taxes to local governments.

Related to the airport, the SSA Interchange project was appropriated $162 million in the current budget to engineer highway interchanges, upgrade local roads, finish the required project planning, and complete land acquisition for the construction of the essential infrastructure and roadway interchanges to serve the project.

Several past studies have been conducted. The most critical ones include *Socio-Economic Impact Assessment of Alternative Build/No-Build Forecasts for the South Suburban Airport: Inaugural Airport Program*[2] and *South Suburban Airport Master Plan – 2009 Forecast Verification of 2004 Forecast Report*[3]. Separately, an *Environmental Considerations Report (2013)* [4]has been prepared to support the SSA Airport Master Plan by Illinois Department of Transportation-Aeronautics.

[2] This is the first SSA Master Plan prepared by Prepared by ACG: The al Chalabi Group, Ltd and often referred to as '2004 forecasts'.

[3] The results in the report are often referred to as '2009 forecasts'. Both reports have been approved by the Federal Aviation Administration (FAA).

[4] The SSA Master Plan – Environmental Considerations was created by IDOT-Aeronautics and is consistent with the requirements contained in the AC 150/5070-6B. Link to IDOT SSA Environmental Considerations report (2013): https://www.southsuburbanairport.com/masterplan/reports/EC/12-2-13/EnvirionmentalConsiderationsReport.pdf

B. Project Objectives

Several airport governance models have been suggested to finance, develop, and operate SSA, including a separate SSA authority and public-private partnership. The information contained in the 2009 forecasts provided the difference between the original 2004 forecast for the Inaugural Airport Program (IAP) for the South Suburban Airport (SSA) and the updated 2009 forecasts. The 2009 forecasts verify the information presented in 2004 and deviate surprisingly little.

This report aims to update and describe the socio-economic impacts (direct, indirect, and induced jobs generated, visitor expenditures, total economic output, and revenues to local governments) of the various airport operation alternatives (low, base, high). The report was prepared in alignment with the previous FAA's preparation of the indirect and cumulative impacts of the South Suburban Airport for its Environmental Impact Statement.

It summarizes the impacts from DBO+1 (2030) to DBO+20(2050) for the following:

- Job impacts of commercial operations, air cargo operations, and GA/corporate operations
- Total industrial output (including Total visitor expenditures)
- Tax revenues to State governments

The forecasts are calculated and updated based on the 2009 forecasts and the following changes:

- Differences in aeronautical forecasts for the U.S. for passenger, GA, and cargo
- Differences in the Propensity to Fly (at the national level)
- Differences in the forecasts of population, jobs, and unemployment rates for the Chicago MSA and the primary serving area
- Differences in the proposed ground transportation improvements represent an integral part of defining the service area and its impacts.

The 2020 May Policy Brief[5] issued by DePaul University's Chaddick Institute for Metropolitan Development indicates that Amazon Air is putting more emphasis on cargo-only airports than most other package-shipment providers and could grow to 200 planes in 7-8 years, potentially making SSA a focal point. Therefore, another important goal for initiating this report study is to identify the competitive advantages of SSA and identify development opportunities with businesses to support freight development and e-commerce development in the region.

[5] Schwieterman, Joseph & Walls, Jacob. (2020). Insights into Amazon Air: 2020's Transportation Juggernaut Chaddick Policy Brief.

C. Project Area

Below is the SSA MAP showing that the State owns 89% of inaugural footprint of land. FAA has approved the need, the location, the size, the airspace, the ground access, the utility access, the environmental review, and finance options. Please go to the appendix 1 for the SSA Layout Plan Drawing.

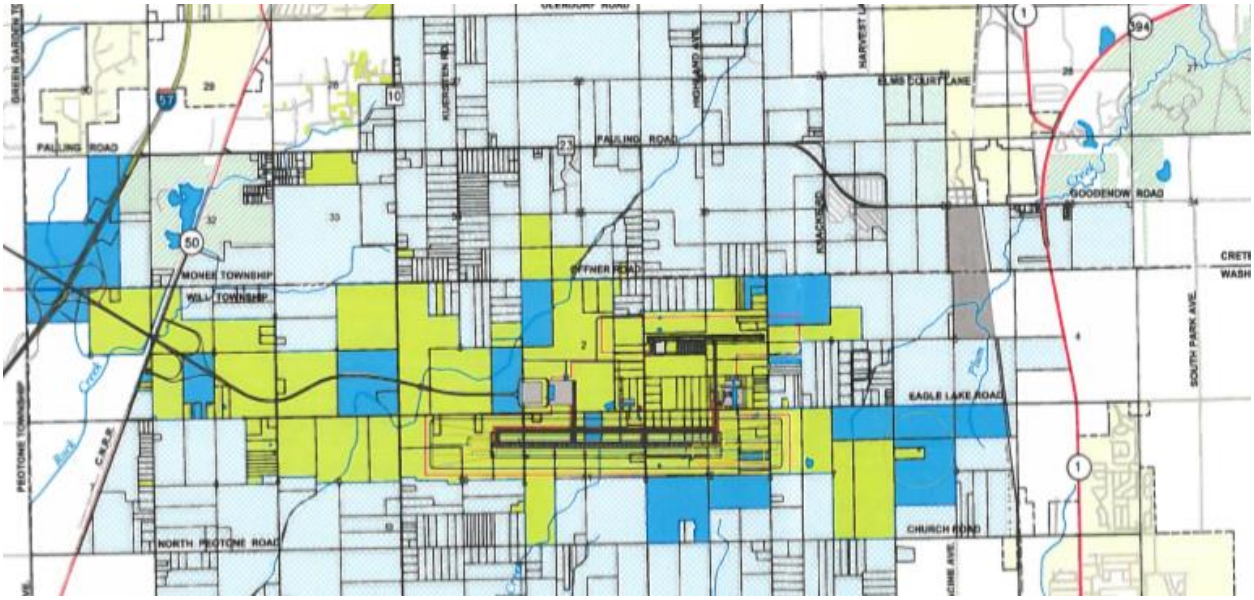

Figure 3. SSA Ownership Status (Green: State owned, Blue: to be purchased)[6]

SSA Facility Present and Future Status

As of now, the Bult Field (C56) (NPIAS 17-0118) is a public-use, general and corporate aviation airport with approximately 70 based aircraft. The C56 airport is owned and operated by the Illinois Department of Transportation, Division of Aeronautics. The spacious and modern GA terminal includes FBO/office opportunities and GA fueling facilities.[7]

Present	Future
Runway Data • Designation: 9/27; Non-precision instrument approach procedures – (RNAV) GPS – LNAV • Length: 5,001 ft.; Width: 75 ft. (full-length parallel taxiway – 35 ft. wide) *Representative Aircraft Classification* • ADG I: Cessna 182, Beechcraft Bonanza, Piper Cherokee, Cirrus R22, Cessna Citation M2	INAUGURAL AIRPORT PROGRAM (IAP) DETAILS • Length: 9,500 ft. (commercial runway with full parallel taxiway); Width: 150 ft.; Runway expandable to meet demand • Designed for Boeing 737-800, Airbus 320 and can handle wide-body aircraft • Precision Approach: Category I instrument landing system (ILS), WAAS-RNAV (GPS)-LPV

[6] The map was created by Hanson Professional Service.
[7] The information of the Present-Future chart was found on: https://www.bultfield.com/

• ADG II: Cessna Citation Sovereign+, Bombardier Challenger CL-604, Dassault Falcon 50, Cessna CJ3+ *Airport Facilities* • Aircraft Hangars: T-Hangars – 132; Conventional – 7 • Aircraft Fueling: Jet A with Prist, full service; 100 LL Avgas – self-serve	AIR CARGO/PASSENGER FACILITY • Inaugural 5-grade PAX terminal • Dedicated air cargo facilities • Intermodal opportunities: Warehousing, distribution centers, logistics & freight forwarders • Extensive area for expansion of cargo facilities AIRPORT SUPPORT FACILITIES • Air traffic control tower (ATCT) Aircraft rescue & firefighting (ARFF) facility Snow removal/maintenance building (SRE) Commercial fuel farm • Site areas reserved for systemwide FAA equipment, air surveillance radar, NavAids and AWOS, etc.

SSA Primary Service Area (PSA)

The Primary Service Area (PSA) for passengers identified in the 2021 study is 45-min driving time area of SSA, excluding the overlapping part with 45min-radius of Midway Airport. The cargo PSA is an area of 60-min driving time of SSA. It was updated on the previous 2009 selected region, which was 45-min driving time area of SSA, excluding the overlapping part with 45min-radius of Midway Airport or O'Hare Airport. For the passenger related activities, this report continues to use the previous updated PSA defined in the 2009 forecasts. For the air cargo related activities, this report examined the 30-min driving time area of SSA, the 60-min driving time area of SSA, and 75-min driving time area of SSA. Please go to the Appendix for the map showing Zip Codes located within 30-, 60-, and 75-Minute Drive Time. Based on the distribution of the freight related businesses, the air cargo primary serving area is which was 60-min driving time area of SSA.

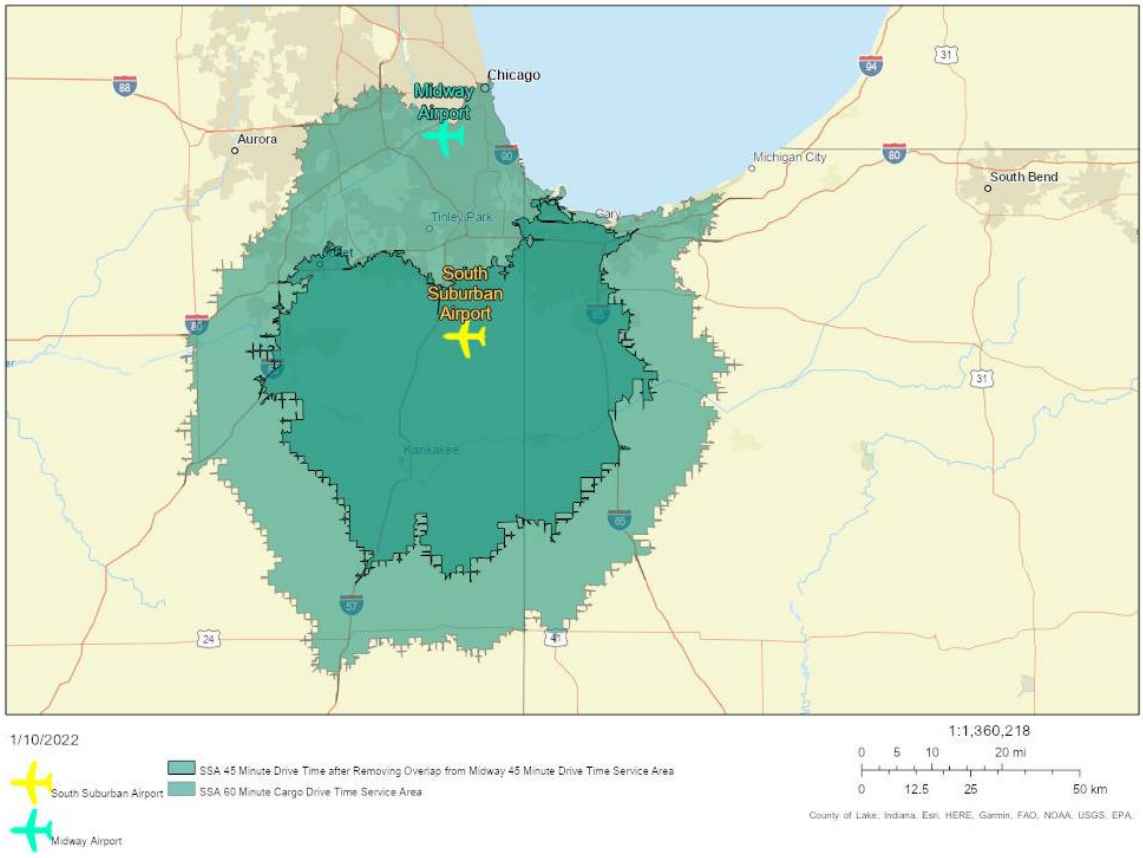

Figure 4. 2021 SSA Primary Service Area

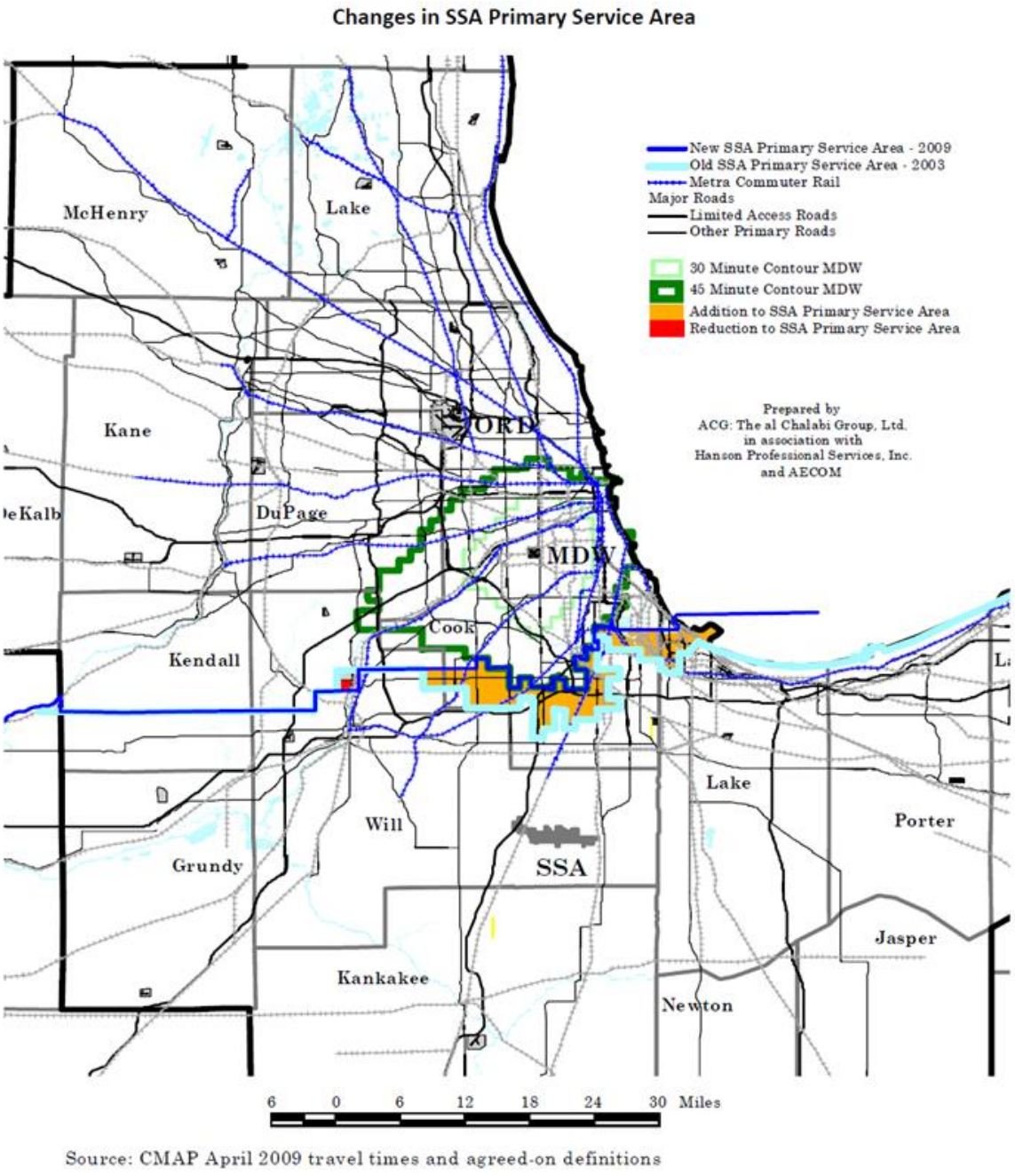

Figure 5. Previous Primary Serving Area in 2009 Forecasts

D. Document Structure

Section I provides basic information about SSA and the study. Section II provides the economic impacts from the planned SSA construction and the planned $162 million interchange improvement project, which covers all impacts before SSA starts operations. Section III provides the estimations of SSA operations in low, base, high cases and the corresponding impacts. Section IV provides a brief analysis of the freight related distribution in the region. And Section V provides the insights and next steps.

Section II: Economic Impacts Analysis of pre-operation investment

A. Methodology

The study used an approach consistent with Federal Aviation Administration (FAA) guidelines to estimate annual economic impacts for the study airports. Data was collected through reliable resources such as FAA Aerospace Forecast, American Community Survey (ACS), Esri, etc. to identify direct economic impacts. Direct impacts are the first stage of the economic impact cycle. An econometric input/output model (IMPLAN) was used to estimate indirect and induced impacts, sometimes known as multiplier impacts, which trigger additional economic impacts.

Indirect and induced impacts are experienced in the state's economy as a result of the initial direct impacts. When summed, direct, indirect, and induced impacts equal total economic impacts. Indirect impacts result from industries purchasing from other industries, whereas induced impacts result from the expenditure of new income associated with direct and indirect impacts. A list of term and IMPLAN introduction can be found in the Appendix 3.

B. Identify and Explain the Study Region

In this section, all the pre-operation activities, including those from $162 million invested in the interchange around South Suburban Airport as well as the $500 million projected construction work, are analyzed via IMPLAN analysis. The study region is different from the Primary Serving Area for the reason that the planning and construction work could benefit the nearby regions the most. It is more likely that the workers for those two projects are from local districts, instead of an area where is 60min driving away from SSA.

Multi-Regional Input-Output (MRIO) method, one of the most widely used approaches to analyze the economic interdependence between different region, is used for all analyses in this section. MRIO makes it possible to track how an impact on certain Industries in a direct study region affects the production of all industries and household spending in other surrounding regions. The IL Congressional District 2 is the region where direct impacts would occur, and the linked regions include IL Congressional District 1 and IL Congressional District 3. The data year is 2019, which means all the IMPLAN multipliers were built on 2019 dataset. For calculation and reading purposes, the dollar year is set up to be Year 2030. Dollar Year is the year represented by the values in all activities. Since the activities of SSA constructions and operations are multi-year events, we calculated all the monetary values in 2030 dollar. In other words, purchasing power of one U.S dollar in 2030 equals to one.

C. Impacts of $162M Interchange Improvement Work Only

Although the impacts of capital investments are temporary (the initial three to five years), they do spur economic development through the creation of infrastructure. Constructions may end in several years, but the roads, warehouses, and interchange improvements involved have useful lives of multiple years. For example, we captured the construction impact of a developer who built a warehouse near the proposed airport location. After the construction is completed, new freights and transportations will continually be attracted and bring businesses to the warehouse. Using the dollar value of Year 2030, the $162 million improvement project will bring 752 jobs and a total economic output of $212 million.

162M Impact in 2030 dollar (data year 2018)	Employment	Labor Income	Value Added	Output
1 - Direct	692.57	$57,883,153.61	$107,541,277.44	$190,440,533.38
2 - Indirect	51.4	$5,008,731.95	$10,295,737.48	$20,217,941.06
3 - Induced	8.93	$545,035.68	$1,006,441.39	$1,552,856.51
	752.89	$63,436,921.24	$118,843,456.31	$212,211,330.94

Figure 6. Impacts of $162M interchange improvement work

As shown below, the total tax revenue created by the $162 million project is $11 million in total, including around $8.9 million generated in federal taxes and $2.6 million state and local taxes.

Tax Revenue	Sub County General	Sub County Special Districts	County	State	Federal	Total
1 - Direct	$150,373.88	$302,267.38	$46,493.27	$1,065,976.35	$8,028,383.74	$9,593,494.62
2 - Indirect	$179,871.00	$360,215.94	$57,672.10	$366,213.74	$767,327.55	$1,731,300.34
3 - Induced	$20,414.07	$40,795.52	$6,490.29	$40,402.98	$83,323.53	$191,426.39
	$350,658.95	$703,278.84	$110,655.67	$1,472,593.07	$8,879,034.82	$11,516,221.34

Figure 7. Tax Impacts of $162M interchange improvement work

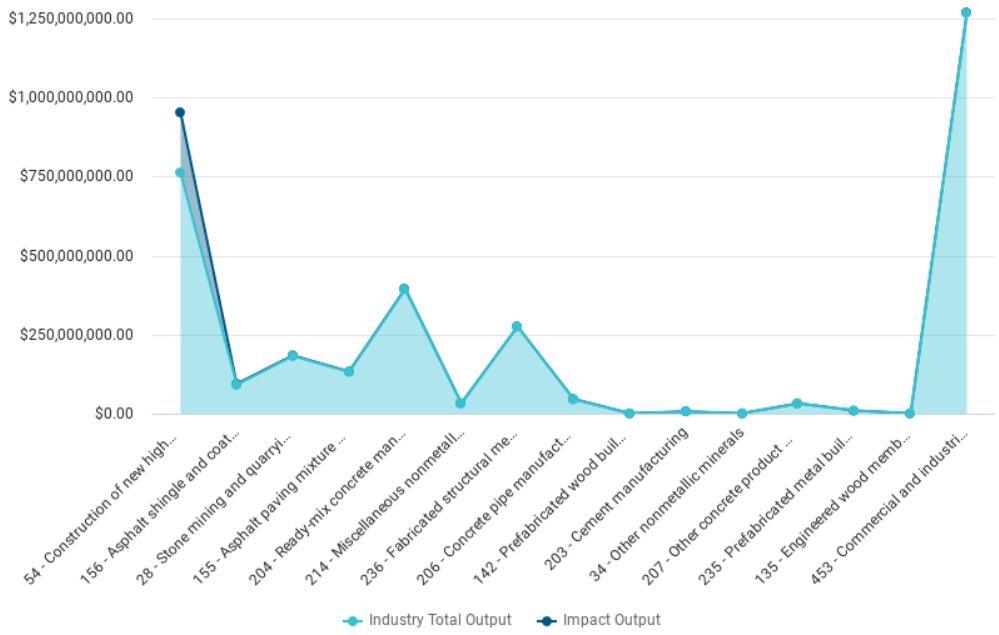

Figure 8. Top 15 Industries by Estimated Growth Percentage

The industry that will benefit the most from this project is the Construction of Highways and Streets. Mining and Asphalt industries would also have a substantial growth. Although the Commercial and Industrial Machinery and Equipment Rental and Leasing only ranks the 15th by estimated growth percentage, it has a large increase in dollar values.

D. Impacts of $500M SSA construction work

Using the dollar value of Year 2030, the $500 million construction and airport development [8]planned at SSA will bring 3742 jobs and a total economic output of $636.97 million.

500M Impact in 2030 dollar	Employment	Labor Income	Value Added	Output
1 - Direct	3564.16	$274,891,920.16	$338,130,275.48	$587,779,424.00
2 - Indirect	136.26	$12,853,170.54	$22,595,707.20	$41,820,903.25
3 - Induced	42.41	$2,597,648.89	$4,780,122.51	$7,372,607.04
	3742.83	$290,342,739.59	$365,506,105.19	$636,972,934.29

Figure 9. Impacts of $500M SSA Construction

As shown below, the total tax revenue created by the $500 million project is $46.5 million in total, including around $36.9 million generated in federal taxes and $9.7 million state and local taxes.

Tax Revenue	Sub County General	Sub County Special Districts	County	State	Federal	Total
1 - Direct	$1,034,546.57	$2,077,072.14	$319,945.93	$3,786,474.71	$34,591,674.63	$41,809,713.98
2 - Indirect	$355,158.40	$711,134.54	$113,640.87	$741,984.55	$1,913,598.27	$3,835,516.62
3 - Induced	$96,694.52	$193,262.54	$30,684.37	$191,177.98	$396,398.68	$908,218.09
	$1,486,399.48	$2,981,469.21	$464,271.17	$4,719,637.24	$36,901,671.58	$46,553,448.69

Figure 10. Tax Revenue Generated for the $500M project

As shown below, top 15 industries by estimated growth percentage are mainly in the construction and manufacturing sectors.

[8] The number, $500 million was provided by the Chicago Southland Economic Development Corp

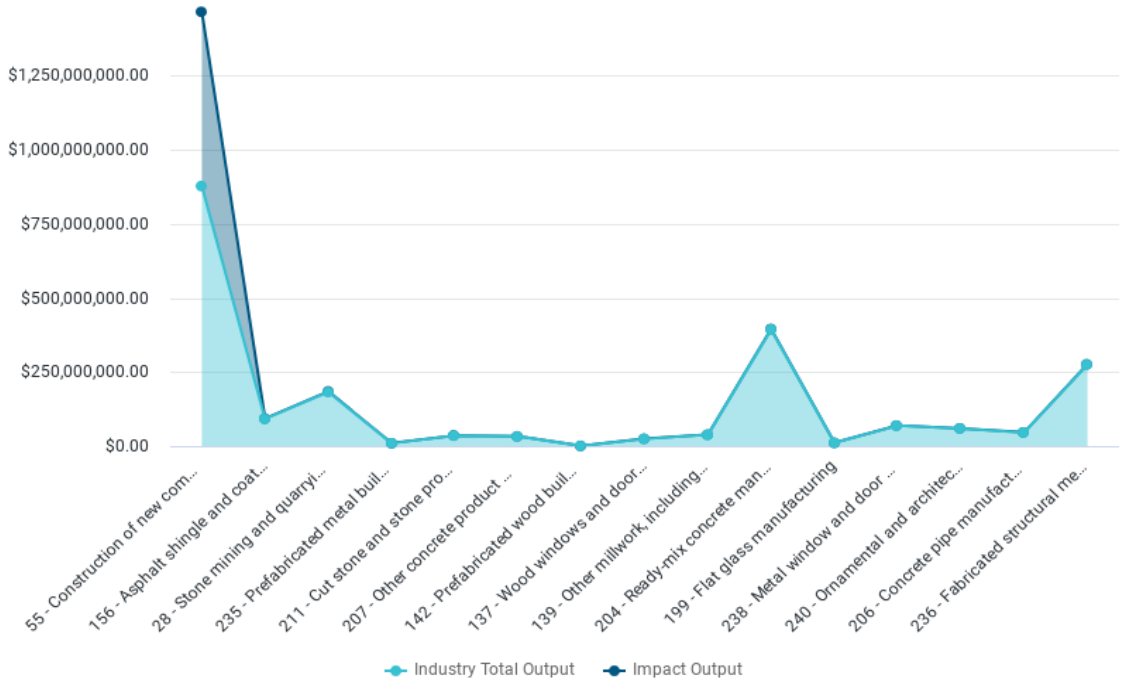

Figure 11. Top 15 Industries by Estimated Growth Percentage ($500M Project)

E. Impacts of $160M Surrounding Warehousing Increase

This is a direct investment of $160 million stemming from warehouse space at the proposed interchange, as a result of the construction of the interchange. Using the dollar value of Year 2030, the $5160 million warehouse space around the interchange will bring 3742 jobs and a total economic output of $636.97 million.

160M Impact in 2030 dollar	Employment	Labor Income	Value Added	Output
1 - Direct	1140.53	$87,965,414.45	$108,201,688.16	$188,089,415.68
2 - Indirect	43.44	$4,101,224.19	$7,212,960.04	$13,348,351.32
3 - Induced	13.54	$828,997.01	$1,526,291.37	$2,353,476.95
	1197.51	$92,895,635.65	$116,940,939.56	$203,791,243.95

Figure 12. Impacts of $160M Warehousing

As shown below, the total tax revenue created by the $160 million project is $14.9 million in total, including around $11.8 million generated in federal taxes and $3.1 million state and local taxes.

Tax Revenue	Sub County General	Sub County Special Districts	County	State	Federal	Total
1 - Direct	$331,054.90	$664,663.08	$102,382.70	$1,211,671.91	$11,069,335.88	$13,379,108.47
2 - Indirect	$113,417.73	$227,097.71	$36,290.39	$236,928.88	$610,665.87	$1,224,400.58
3 - Induced	$30,896.65	$61,752.97	$9,804.33	$61,079.18	$126,526.86	$290,060.00
	$475,369.29	$953,513.76	$148,477.42	$1,509,679.97	$11,806,528.61	$14,893,569.05

Figure 13. Tax Revenue Generated by $160M Warehousing

As shown below, top 15 industries by estimated growth percentage are mainly in the construction and manufacturing sectors.

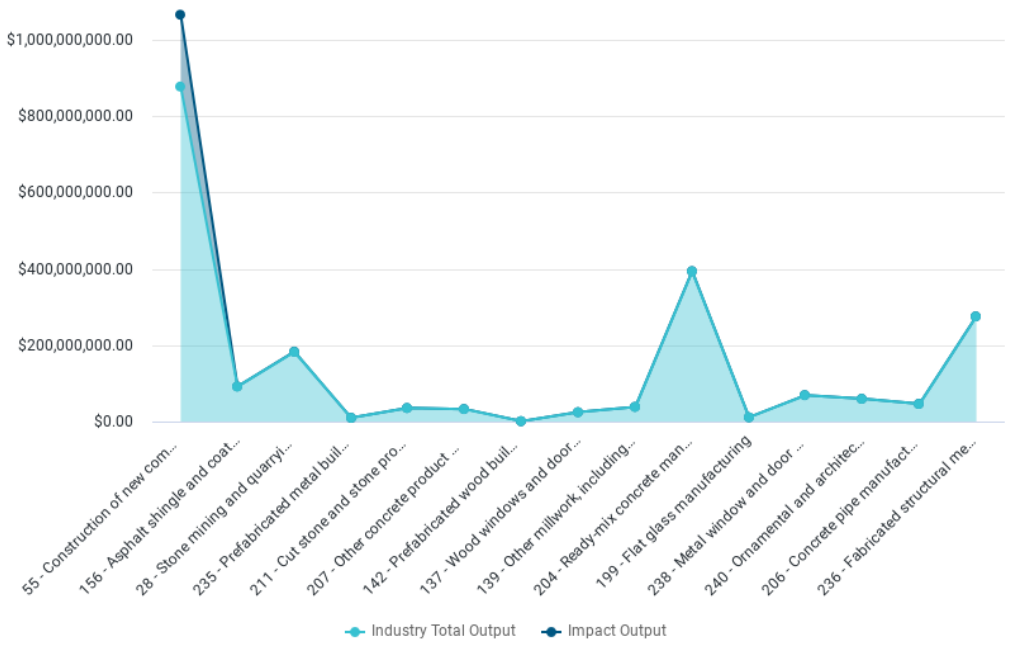

Figure 14. Top 15 Industries by Estimated Growth Percentage ($160M)

Pre-Operation Impacts Summary

Total impacts of Pre-Operation activties	Employment	Labor Income	Value Added	Output	Tax Revenues
1 - Direct	5397.26	$420,740,488.22	$553,873,241.08	$966,309,373.06	$64,782,317.07
2 - Indirect	231.1	$21,963,126.68	$40,104,404.72	$75,387,195.63	$6,791,217.54
3 - Induced	64.88	$3,971,681.58	$7,312,855.27	$11,278,940.50	$1,389,704.48
	5693.23	$446,675,296.48	$601,290,501.06	$1,052,975,509.18	$72,963,239.08

Figure 15. Total Impacts of Pre-Operation Activities

As shown, the overall impact of these capital investments will be almost 5,700 jobs and nearly $1,053 million in economic output, over a three-year to five-year period.

Section III: Economic Impacts Analysis of SSA operations

A. Methodology to estimate the SSA operations

The previous SSA aviation forecasts had been jointly developed by the state (IDOT), the City of Chicago (DOA), the Northeastern Illinois Planning Commission (NIPC), the Chicago Area Transportation Study, local governmental units, and multiple consultants. The IDOT/FAA agreed-upon forecasts for commercial aviation, air cargo and general/corporate aviation for the years 2010 (DBO+1), 2015 and 2030.

This report aims to estimate the economic impacts of using Yr2030 as DBO +1. The baseline was calculated and updated on the 2009 forecasts, based on the shared basic assumption: The South Suburban Airport currently is characterized as a Low-Cost Carrier (LCC) start-up commercial airport with point-to-point operations. International operations are added slowly. Cargo operations also grow slowly and are nearly equally divided between domestic and international.

Previous SSA 2004 forecasts initially set Yr2010 as the DBO+1.Then an improved version of 2009 forecasts with Yr2016 as the DBO+1 was published. This series of forecasts updated based on the improved version of 2009 forecasts:

- Differences in aeronautical forecasts for the U.S. for passenger, cargo, and general aviation (GA)
- Differences in the Propensity to Fly (at the national level)
- Differences in the forecasts of population and jobs for the Chicago MSA and the PSA
- Differences in the regional cargo development
- Differences in the proposed ground transportation improvements represent an integral part of defining the service area and impacts

The detailed descriptions of the adjustment could be found in Part C of this section. The baseline was also adjusted by comparisons among the three similar airports, Columbus-Rickenbacker Airport, OH, Fort Worth – Alliance Airport, TX, and Lakeland Linder International Airport, FL. These could be the prototypes of SSA. After obtaining the updated baseline, low-case and high-case scenarios were calculated based on the assumptions of three scenarios. The scenario inputs were entered into IMPLAN, using the PSA defined in the Section I. Dollar year was all set to be 2030 for calculation purpose. The data year was all set to be 2019, which is the latest IMPLAN dataset available. Results from IMPLAN include: Job impacts of commercial operations, air cargo operations and GA/corporate operations, total industrial outputs and visitor expenditures, and tax revenues generated at the federal level and state and local level.

B. Operations and impacts of 3 similar airports

Research was conducted to find the economic impacts of other large logistics airports. In all, three other airports were examined to find out their impacts on the economic fabric of their regions. For scope of this analysis, existing studies of economic impacts were used rather than the generation of new impact results. These airports included:

- Columbus-Rickenbacker Airport, OH
- Fort Worth – Alliance Airport, TX
- Lakeland Linder International Airport, FL

B1. Rickenbacker International Airport[9]

Rickenbacker Airport is an air carrier airport located 11 miles south of Columbus, Ohio. The airport supports a variety of aviation activities including air cargo, military operations, passenger service, and general aviation as well as rail and trucking activities. Major facilities at the airport include a 12,102-foot primary runway, an air traffic control tower, and two fixed base operators. The airport is currently home to over 25 on-airport businesses and government organizations. Air cargo airlines and freight forwarders have a significant presence at Rickenbacker International. The primary air cargo carriers include FedEx, UPS, Kalitta Air, Cargolux, and AirNet Systems. Rickenbacker International is situated in the center of the Rickenbacker Inland Port, a premier, high-speed, multi-modal logistics hub that also includes the Norfolk Southern Rickenbacker Intermodal Terminal, Foreign-Trade Zone No. 138, and the Rickenbacker Global Logistics Park. The airport generates $904 million in economic impacts, $267.3 million in incomes, and more than 4,800 jobs. Rickenbacker has many of the characteristics intended for the SSA.

B2. Fort Worth Alliance Airport

As the world's first industrial airport designed for cargo and corporate aviation, the airport features aircraft maintenance facilities and vast array of flight services, including air cargo, corporate and military aviation, and is the cornerstone for the nation's fastest-growing industrial complex, the Alliance Global Logistics Hub. Major facilities at the airport include two parallel 11,000-foot runways, an air traffic control tower, and U.S. Customs for international flights. FedEx's southwest region sort hub operations center is located at the airport and provides scheduled air cargo operations. In 2019, Amazon Air opened its first-of-kind air cargo hub here. As shown, the airport generates more than half-a-billion dollars and employs more than 3,400. In addition to the airport, there is Alliance Texas, a 26,000-acre master-planned, mixed-use community that generated $7.31 billion in regional economic impact in 2019. Hillwood, the original developer, envisioned a business-oriented logistics hub, built around the airport and its logistics capabilities. Alliance Texas' success can be attributed to the continued collaborative relationship between public and private sectors, with a shared vision and goal for community and growth.

[9] The information in Part B is from South Suburban Airport (SSA) Comparative Economic Impact Analysis, by R.A. Wiedemann & Associates, Inc, under a contract with Governors State University and the Chicago Southland Economic Development Corporation.

B3. Lakeland Linder International Airport

Located between Tampa and Orlando, Florida, the Lakeland Airport has two intersecting runways, with the longest runway measuring 8,500 feet. The airport supports over 80 on-site businesses and a wide range of activity. In 2019, Amazon Air began building its facilities on 47 acres of airport property, with options on 62 more acres. Spending $131 million, they developed a 285,000 square foot air cargo complex. Amazon Air chose the Lakeland airport as a hub for its central Florida air cargo operations. Prior to Amazon's arrival, the airport generated $574.8 million in economic impacts, supporting 4,400 jobs. The arrival of Amazon to the airport has created 800 direct jobs, with an estimated payroll of $40.2 million. Total impacts from Amazon, when adding indirect and induced impacts include 1,460 jobs, $71.8 million in incomes, and $202.7 million in total economic output.

	Total Impacts	Total Income Impacts	Total Employment Impacts (jobs)
Rickenbacker	$ 904,000,000	$ 267,300,000	4,806
Alliance	$ 519,000,000	$ 148,928,000	3,410
Lakeland	$ 574,814,000	$ 203,693,000	4,408

Figure 16. Impacts of Three Similar Airports

Assuming the SSA attracts an air cargo logistics company such as Amazon Air, a similar impact that Lakeland Linder International experienced could be expected – 1,400+ jobs and $200 million in economic impacts. Given that SSA already has more than 4,500 acres, it has the potential to grow beyond the size of Columbus Rickenbacker International Airport. Also, considering that Rickenbacker serves a much smaller metropolitan area than Chicago, it can be assumed that overall demand for logistical services would be greater for the SSA. All of this is to say that the proposed SSA could have a range of potential economic impact growing to 5,000 or more over the planning period. Its economic output could start between $150-$200 million and grow to a billion dollars or more.

C. Baseline for SSA operations

The baseline included air Carrier (passenger) operations, Air Cargo, and General Aviation. Please note that this study assumed that there would be no capital investment, military spending or any construction cost after the airport starts operating.

C1. Air Carrier (passenger) Operations

By adjusting the factors below, the domestic enplanement per person (national average ratio) could be derived from the FAA US domestics enplanements forecasts 2021- 2041, which will be extrapolated to 2050, and the BLS population & employment forecast 2021 -2030, which will also be extrapolated to 2050. By multiplying the domestic enplanement per person by PSA population, the PSA enplanement could be calculated. Combining with the updated changes in productivity and base year coefficients for direct employment/jobs per enplanement, we could get the direct jobs generated by air carrier related activities.

1) Primary serving area population base

The FAA's domestic baseline forecast[10] assumes that economic growth rebounds moderately in 2021 and then remains slightly above trend in the medium-term, supported primarily by consumer spending and in particular, some catch-up in services spending that were most impacted during 2020. The unemployment rate retreats gradually, reaching its pre-pandemic rate in 2024.

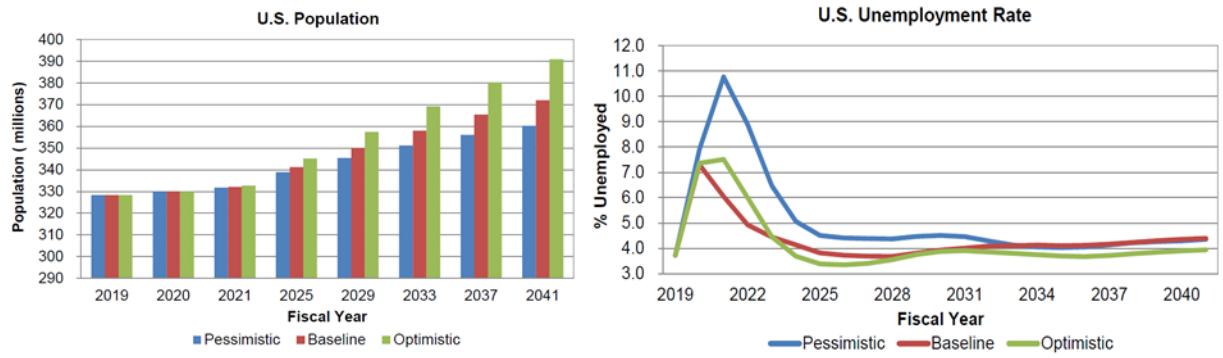

Figure 17. U.S Population and Unemployment Forecasts by FAA

The optimistic (high) scenario[11] is characterized by a quicker recovery in the near term than in the baseline but shows only slight improvement over the balance of the forecast. The unemployment rate also falls faster than in the baseline, reaching the pre-pandemic rate about a year sooner. In the pessimistic (low) scenario [12], an upturn in new COVID-19 cases,

[10] Source: FAA Aerospace Forecast Fiscal Years 2021–2041.

[11] Optimistic scenario assumed that accelerated COVID-19 vaccinations lead to a more rapid decline in case counts and an earlier return of consumers to their pre-COVID spending patterns. And the price of oil is lifted slightly above the baseline as stronger economic activity generates in-creased oil demand.

[12] The economy slows with negative GDP growth in both 2020 and 2021 and recovery rates below the baseline. GDP growth averages 0.8 percentage points lower than in the baseline over the forecast horizon. Productivity, the labor force and capital investments also grow more slowly than in the baseline. Oil prices rise faster than the

hospitalizations, and deaths, slows the pace of opening up and results in some retrenchment in consumer spending which falls be-low the baseline path, removing support from the economic recovery.

For the selected Primary Serving Area, current year (2021) population[13]: 2,016,723. Annual population growth rate of the selected area is 0.09%. The projected 2030 PSA population is 2,033,117. In previous 2009 forecasts, the DBO+1 (2016) population was 1,936,487 and the previous 2030 projected population was 2,284,774. Therefore, the DBO+1 population should increase by 4.99%. However, the population growth rate used in previous study is 1.19%, which will be adjusted for the new annual growth rate of 0.09%, leading to a 1.08% decrease for all projections after DBO+1.

2) Employment in the PSA

The Current 2021 employment in the PSA is 908,374. Projected 2030 employment is 1,104,899. In previous study, DBO+1 (2016) employment was 900,000 and the 2030 projected employment was 1,165,700. So, the new DBO+1 employment increased by 23%. The increased percentage is very high because the 2021 employment was affected by the COVID crisis.

3) Enplanements

US domestics CY2020 enplanements are 368,849,216. Employment rate is 56.8%. The enplanements will return to the 2019 level of 936,574,719 in 2025. FAA enplanement forecasts: Baseline growth rate 4.9%, optimistic (high) case 5%, pessimistic (low) case 3.6%.

2021- 2041 Passenger Boarding (Enplanement)		
Baseline	system enplanements annual growth rate	5.00%
	domestic passengers	4.90%
	international passengers	6.30%
	nominal system yield growth rate	1.80%
Optimistic	system enplanements annual growth rate	5.10%
	domestic passengers	5.00%
	international passengers	6.50%
	nominal system yield growth rate	1.20%
Pessimistic	system enplanements annual growth rate	3.90%
	domestic passengers	3.60%
	international passengers	5.80%
	nominal system yield growth rate	2.70%

Figure 18. FAA enplanement forecasts

baseline throughout the forecast and are $63 per barrel higher by 2041. Real PCE per capita in this scenario grows 0.7 percentage points slower per year than in the baseline; and un-employment, on average, is 1.0 points high.

[13] Source: 2015-2019 ACS, Data was pulled from Esri.

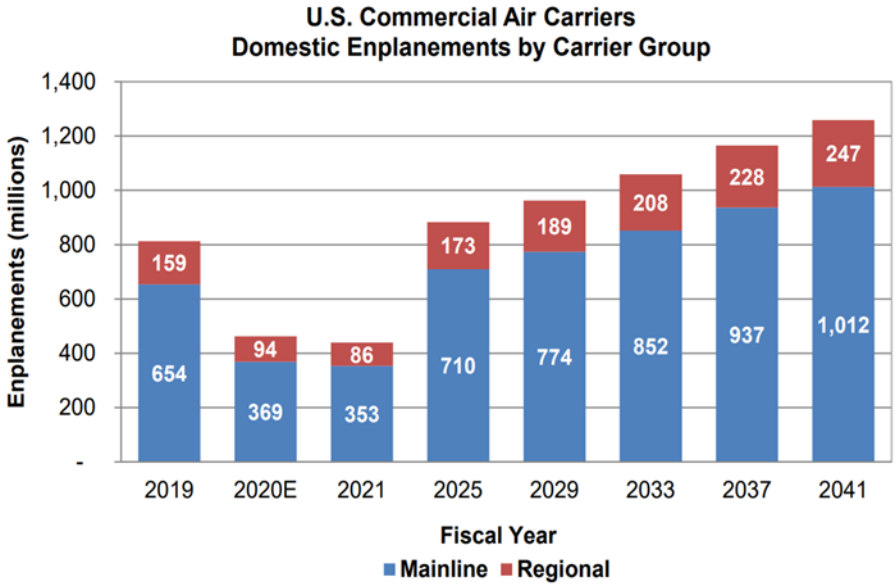

Figure 19. FAA Enplanements Forecasts[14]

The forecasted 2030 enplanement is 1,247,944,754. The population of CY2030 is 359.4 million. In previous study, forecasted 2016 enplanement was 890,700,000. The population of CY2016 was 323.1 million.

4) Propensity to fly

Using FAA assumption in 2030, the propensity to fly is 3.564, which equals total resident trips equals propensity to fly multiplied by population. The previous 2009 forecasts used 2.756. There is a 29% increase.

5) Load Factor

Per FAA, System load factor rises from 69.5 percent in 2020 to 84.9 (optimistic), 84.7 (pessimistic), and 84.8 (baseline) percent in 2031. Per USDOT, passenger flights[15] would have an average of 4 percent in-transit passengers for domestic activity, which will increase load factor but not actual enplanements.

The previous study estimated three cases to be:

- Low-Case 76.9% - need to be adjusted to 84.7%
- Base-Case 75.9% - need to be adjusted to 84.7%
- High-Case 75.9% - need to be adjusted to 84.7%

The average seat numbers and the quarterly operations (number of flights and types of aircrafts) in the previous study are adopted in this report, since there is no significant change in the assumptions. Please go to the Appendix item 4 to see the details from 2009 forecasts.

[14] Source: Passenger Boarding (Enplanement) and All-Cargo Data for U.S. Airports 2000-2020
Airports
[15] Source: Bureau of Transportation Statistics

	Base-Case			
Years	**DBO+1**	**DBO+5**	**DBO+10**	**DBO+20**
Air Carrier operations				
Domestics	3,096.00	19,993.55	51,711.71	117,986.62
Domestics Connections				
Total Domestics	3,096.00	19,993.55	51,711.71	117,986.62

Figure 20. Updated Air Carrier Operations

Use the adjusted load factors above and the average seat per departure from the previous 2009 study, we get:

Air Carrier operations	Base-Case			
Years	DBO+1	DBO+5	DBO+10	DBO+20
Domestic Enplanements	162,540	914,610	2,714,880	6,253,311

Figure 21. Updated Air Carrier Enplanements

Use Scheduled Passenger Airline Full-time Equivalent Employees from Bureau of Transportation Statistics, nationally there is 0.00532 FTE[16] per enplanement, and around 0.00149 FTE per domestic enplanements. The direct jobs could be estimated.

Air Carrier operations	Base-Case			
Years	DBO+1	DBO+5	DBO+10	DBO+20
Jobs total	242	1363	4045	9317

Figure 22. Updated Air Carrier Direct Jobs

Further break downing the total job number by sectors with the rates identified in the previous study adjusted by BLS occupation growth rates: Airline&airline services - 77%, Government-5%, Passenger services-11%, and Ground transportation-7%, we get the direct jobs related to the air carrier operations. Those job estimations are the inputs in the IMPLAN model.

Air Carrier operations	Base-Case			
Years	DBO+1	DBO+5	DBO+10	DBO+20
Jobs total	242	1363	4045	9317
Airline services	186.5	1049.3	3114.8	7174.4
Government	12.1	68.1	202.3	465.9
Passenger services	26.6	149.9	445.0	1024.9
Ground transportation	17.0	95.4	283.2	652.2

Figure 23. Air Carrier Related Direct Jobs

[16] Source: Bureau of Transportation Statistics

C2. Air Cargo Operations

At the national Level, forecasts of domestic cargo RTMs use real U.S. GDP as the primary driver of activity[17]. On national level, U.S. air carriers flew 43.9 billion revenue ton miles (RTMs) in 2020, with domestic cargo 17.8 billion, international 26.1 billion. Per FAA, from 2021- 2041, total revenue ton-miles (RTM) annual growth rate is 3.00%. The domestic cargo RTMs annual growth rate is 1.60%. And the international cargo RTMs annual growth rate is 3.80%. The same growth rates have been applied to the estimation till Yr2050.

Breakdowns	Average	Domestic-nearterm	Domestic-midterm	Domestic- longterm
All-cargo carriers	88%	93.40%	91.10%	92.40%
Passenger	12.00%	6.60%	8.90%	7.60%

Figure 24. FAA Estimated Growth Rates

For the regional level, per CMAP[18] reports, air freight accounts for $55 billion[19] in cargo value in 2012. The largest commodities by value shipped in and out of the Chicago region by air are electronics, machinery, precision instruments, pharmaceuticals, and basic chemicals.

Inbound	Projected Percent Growth by 2040	Outbound	Projected Percent Growth by 2040
Air	190%	Air	301%

Figure 25. CMAP Projected Growth

According to 2012 FAF[20] estimates, annual regional air volumes totaled 300,000 tons outbound and 400,000 tons inbound, or $21 billion outbound and $35 billion inbound. Using compound growth rate, annual inbound growth rate is 3.88%, outbound growth rate is 5.09%. In 2030, total air cargo is forecasted at 1,526,867 tons. 2040 will be 2,363,000 tons. In 2050 there will be 3,678,353 tons. The implications of the air cargo forecasts for SSA in the updated DBO+5, which would comprise about 3 percent of the Chicago Region's total air freight, is generally equivalent in 2007 to 4 percent of the landed weight handled by Indianapolis International Airport (IND), 5 percent of ORD or 15 percent of RFD.

Tons	Base-Case			
Years	DBO+1	DBO+5	DBO+10	DBO+20
Domestics	30,537	74,492	131,285	313,731

Figure 26. Updated Air Cargo Forecasts

[17] Source: FAA Aerospace Forecast Fiscal Years 2021–2041

[18] CMAP: The Chicago Metropolitan Agency for Planning is responsible for comprehensive regional transportation planning in Cook, DuPage, Kane, Kendall, Lake, McHenry and Will counties in northeastern Illinois.

[19] Source: Overview of Freight Flows into and out of the Chicago Region

[20] Source: Chicago Metropolitan Agency for Planning analysis of 2012 Freight Analysis Framework data, which is built on the Federal Highway Administration Freight Analysis Framework (FAF) data

Per Rockford Long-Range Transportation Plan[21] and the previous 2009 forecasts:

- Where cargo is merely loaded, unloaded, stored or disbursed, the jobs generated are in the range of 7-10 per 1,000 tons. (This trend was derived from general types of airports)
- Where air cargo is the means for generating airport industries – such as just-in-time repairs or just-in-time product deliveries, the jobs generated are nearly double the above, at 16/1,000 tons. (This trend was derived from industrial cargo airports, based on the Louisville, Alliance (Ft. Worth), Mather (Sacramento), and Rickenbacker (Ohio) model)

Cargo Direct Jobs	Base-Case			
Years	DBO+1	DBO+5	DBO+10	DBO+20
Total	488.6	1191.9	2100.6	5019.7
Air Transportation	146.6	357.6	630.2	1505.9
Rail Transportation	24.4	59.6	105.0	251.0
Truck Transportation	97.7	238.4	420.1	1003.9
Sorting, Warehousing& Storage	146.6	357.6	630.2	1505.9
Telecommunications	24.4	59.6	105.0	251.0
Management	24.4	59.6	105.0	251.0
Business support	24.4	59.6	105.0	251.0

Figure 27. Air Cargo Directs Jobs

C3. General Aviation Operations

The analysis assumes 380 operations per based aircraft in order to estimate annual operations, based upon obtaining a weighted average of the based aircraft and operations data for three nearby public-use airports: Lewis University Airport (LOT), Lansing Municipal Airport (IGQ) and Greater Kankakee Airport (IKK). The previous-created operation list in 2009 forecasts was adopted. [22]

The 2009 assumptions were also adopted: It is assumed over the 20-year period this level of activity will approximate the percentage of large general aviation aircraft operating at fields across the U.S. From the updated DBO+1, it will be assumed the number of large jet operations is equal to 3 percent of itinerant operations, increasing to 11 percent of itinerant operations over the first 20 years of operation.

[21] Source: 2040 LRTP - Rockford Metropolitan Agency For Planning

[22] Please see the South Suburban Airport Master Plan – 2009 Forecast Verification of 2004 Forecast Report for previous assumed operations in details.

GA	Base-Case			
Years	DBO+1	DBO+5	DBO+10	DBO+20
SEL/MEL/Helicopter	38325	40320	42813.75	107498.357
Turbine	840	1155	1548.75	2356.12836
Large Turbojet	525	840	1233.75	1472.58023
Total GA Operations	39690	42315	45596.25	111327.065

Figure 28. Updated GA Operations

Per Wilbur Smith Associates (WSA) report for the Federal Aviation Administration, 889 operations produce 1 direct job[23].

GA	Base-Case			
Years	DBO+1	DBO+5	DBO+10	DBO+20
Total GA Jobs	44.6	47.6	51.3	125.2
Airline services	34.4	36.7	39.5	96.4
Government	2.2	2.4	2.6	6.3
Passenger services	4.9	5.2	5.6	13.8
Ground transportation	3.1	3.3	3.6	8.8

Figure 29. Updated GA Jobs

[23] The rate was adopted from the 2009 forecasts.

D. Low impact scenario

Assumptions:

- Passenger: Equivalent to the FAA national's Pessimistic rate adjusted by PSA variations.
- Cargo: No cargo activity until the original DBO+5, then accounting for 2 percent of the total regional market; gradually increasing to 4 percent by the updated DBO+20.
- GA: Equivalent to the FAA national's rate of growth for GA aircraft.

Low-case Inputs:

Air Carrier operations	Low-Case			
Years	DBO+1	DBO+5	DBO+10	DBO+20
Domestic Enplanements	25,284.0	607,590.0	1,856,139.0	3,455,045.0
Jobs total	37.7	905.3	2,765.6	5,148.0
Airline services	29.0	697.1	2,129.5	3,964.0
Government	1.9	45.3	138.3	257.4
Passenger services	4.1	99.6	304.2	566.3
Ground transportation	2.6	63.4	193.6	360.4
Air Cargo in Tons	Low-Case			
Years	DBO+1	DBO+5	DBO+10	DBO+20
Domestics	0	37246	71610	156866
Jobs Total	0.0	595.9	1145.8	2509.9
Air Transportation	0.0	178.8	343.7	753.0
Rail Transportation	0.0	29.8	57.3	125.5
Truck Transportation	0.0	119.2	229.2	502.0
Sorting, Warehousing& Storage	0.0	178.8	343.7	753.0
Telecommunications	0.0	29.8	57.3	125.5
Management	0.0	29.8	57.3	125.5
Business support	0.0	29.8	57.3	125.5
GA	Low-Case			
Years	DBO+1	DBO+5	DBO+10	DBO+20
SEL/MEL/Helicopter	36,750.0	37,065.0	37,458.8	103,080.6
Turbine	420.0	840.0	1,365.0	1,178.1
Large Turbojet	525.0	840.0	1,233.8	1,472.6
Total GA Operations	37,695.0	38,745.0	40,057.5	105,731.3
Total GA Jobs	42.4	43.6	45.1	118.9
Airline services	32.6	33.6	34.7	91.6
Government	2.1	2.2	2.3	5.9
Passenger services	4.7	4.8	5.0	13.1
Ground transportation	3.0	3.1	3.2	8.3

Figure 30. Direct Jobs in Low-Case

Low-case economic impacts generated:

Dollar YR 2030, Data YR 2019	**Low-Case**		
Years	**DBO+1 (2030)**	**DBO+10 (2040)**	**DBO+20(2050)**
Total IMPACTS			
Employment	**110.65**	**2,953.58**	**10000.87**
Labor Income	$12,866,736.88	379,228,625.87	$1,252,591,020.08
Value Added	$22,568,695.51	676,032,990.77	$2,225,459,326.76
Output total	**$40,506,459.60**	**1,216,244,138.60**	**$4,086,001,501.31**
Tax	$5,315,538.78	165,102,767.00	$522,854,051.45
Air Carriers			
Employment	66.73	2,905.78	5,408.26
Labor Income	$7,204,494.65	$373,094,186.68	$694,434,417.62
Value Added	$12,448,266.34	$665,105,633.35	$1,237,788,132.25
Output total	**$22,313,599.00**	**$1,196,578,324.36**	**$2,227,010,835.43**
Tax	$2,836,733.24	$162,433,396.55	$302,302,757.81
Air Cargo			
Employment	0	1189.66	4,467.70
Labor Income	$0.00	$123,016,190.13	$542,113,600.93
Value Added	$0.00	$197,587,237.69	$959,063,947.67
Output total	**$0.00**	**$405,694,718.64**	**$1,807,530,238.21**
Tax	$0.00	$38,326,916.44	$213,565,850.58
General Aviation			
Employment	43.92	47.8	124.91
Labor Income	$5,662,242.23	$6,134,439.19	$16,043,001.53
Value Added	$10,120,429.17	$10,927,357.42	$28,607,246.84
Output total	**$18,192,860.60**	**$19,665,814.24**	**$51,460,427.67**
Tax	$2,478,805.54	$2,669,370.44	$6,985,443.06

Figure 31. Low-case Economic Impacts

E. Baseline impact scenario

Assumptions:

- Passenger: Equivalent to the FAA national's baseline rate adjusted by PSA variations.
- Cargo: Starting with 2 percent at the original DBO+1, then going to 4 percent at the original DBO+ 5; and gradually increasing to 8 percent by the updated DBO+20.
- GA: Equivalent to twice the FAA national's rate of growth for GA aircraft.

Air Carrier operations	Base-Case			
Years	DBO+1	DBO+5	DBO+10	DBO+20
Domestic Enplanements	162,540.0	914,610.0	2,714,880.0	6,253,311.0
Jobs total	242.2	1,362.8	4,045.2	9,317.4
Airline services	186.5	1,049.3	3,114.8	7,174.4
Government	12.1	68.1	202.3	465.9
Passenger services	26.6	149.9	445.0	1,024.9
Ground transportation	17.0	95.4	283.2	652.2
Air Cargo in Tons	Base-Case			
Years	DBO+1	DBO+5	DBO+10	DBO+20
Domestics	30,537.0	74,492.0	131,285.0	313,731.0
Jobs Total	488.6	1,191.9	2,100.6	5,019.7
Air Transportation	146.6	357.6	630.2	1,505.9
Rail Transportation	24.4	59.6	105.0	251.0
Truck Transportation	97.7	238.4	420.1	1,003.9
Sorting, Warehousing& Storage	146.6	357.6	630.2	1,505.9
Telecommunications	24.4	59.6	105.0	251.0
Management	24.4	59.6	105.0	251.0
Business support	24.4	59.6	105.0	251.0
GA	Base-Case			
Years	DBO+1	DBO+5	DBO+10	DBO+20
SEL/MEL/Helicopter	38,325.0	40,320.0	42,813.8	107,498.4
Turbine	840.0	1,155.0	1,548.8	2,356.1
Large Turbojet	525.0	840.0	1,233.8	1,472.6
Total GA Operations	39,690.0	42,315.0	45,596.3	111,327.1
Total GA Jobs	44.6	47.6	51.3	125.2
Airline services	34.4	36.7	39.5	96.4
Government	2.2	2.4	2.6	6.3
Passenger services	4.9	5.2	5.6	13.8
Ground transportation	3.1	3.3	3.6	8.8

Figure 32. Baseline Direct Jobs

Baseline economic impacts generated:

Dollar YR 2030, Data YR 2019	Base-Case		
Years	**DBO+1**	**DBO+10**	**DBO+20**
Total IMPACTS			
Employment	**997.38**	**6483.83**	**15131.3**
Labor Income	$105,892,666.97	$778,075,291.50	$1,812,722,164.15
Value Added	$176,701,485.66	$1,347,108,976.01	$3,136,042,866.14
Output total	**$338,601,166.82**	**$2,515,801,587.43**	**$5,862,453,078.68**
Tax	$37,497,585.41	$310,777,544.71	$722,344,810.84
Air Carriers			
Employment	443.36	4249.73	9,788.26
Labor Income	$47,421,639.73	$545,672,860.34	$1,256,847,903.25
Value Added	$81,710,191.52	$972,618,156.48	$2,240,250,495.47
Output total	**$146,284,602.17**	**$1,749,929,697.51**	**$4,030,633,274.16**
Tax	$18,537,502.61	$237,541,515.66	$547,133,894.53
Air Cargo			
Employment	507.16	2180.2	5,211.41
Labor Income	$52,449,637.29	$225,482,698.05	$538,979,465.48
Value Added	$84,249,310.80	$362,163,761.61	$865,689,899.33
Output total	**$172,996,800.60**	**$743,687,082.16**	**$1,777,651,197.01**
Tax	$16,337,119.53	$70,224,021.93	$167,858,564.66
General Aviation			
Employment	46.86	53.9	131.63
Labor Income	$6,021,389.95	$6,919,733.11	$16,894,795.42
Value Added	$10,741,983.34	$12,327,057.92	$30,102,471.34
Output total	**$19,319,764.05**	**$22,184,807.76**	**$54,168,607.51**
Tax	$2,622,963.27	$3,012,007.12	$7,352,351.65

Figure 33. Baseline Economic Impacts

F. High impact scenario

Assumptions:

- Passenger: Equivalent to the FAA national's baseline rate adjusted by PSA variations.
- Cargo: Starting with 3 percent at the original DBO+1, then going to 6 percent at the original DBO+5. gradually increasing to 10 percent by the updated DBO+20.
- GA: Equivalent to three times the FAA national's rate of growth for GA aircraft.

Air Carrier operations	High-Case			
Years	DBO+1	DBO+5	DBO+10	DBO+20
Domestic Enplanements	218,526.0	1,248,720.0	3,455,760.0	8,675,015.0
Jobs total	325.6	1,860.6	5,149.1	12,925.8
Airline services	250.7	1,432.7	3,964.8	9,952.8
Government	16.3	93.0	257.5	646.3
Passenger services	35.8	204.7	566.4	1,421.8
Ground transportation	22.8	130.2	360.4	904.8
Air Cargo in Tons	High-Case			
Years	DBO+1	DBO+5	DBO+10	DBO+20
Domestics	45,806.0	111,737.0	190,961.0	392,164.0
Jobs Total	732.9	1,787.8	3,055.4	6,274.6
Air Transportation	219.9	536.3	916.6	1,882.4
Rail Transportation	36.6	89.4	152.8	313.7
Truck Transportation	146.6	357.6	611.1	1,254.9
Sorting, Warehousing& Storage	219.9	536.3	916.6	1,882.4
Telecommunications	36.6	89.4	152.8	313.7
Management	36.6	89.4	152.8	313.7
Business support	36.6	89.4	152.8	313.7

GA	High-Case			
Years	DBO+1	DBO+5	DBO+10	DBO+20
SEL/MEL/Helicopter	40,320.0	43,050.0	46,462.5	113,094.2
Turbine	1,155.0	1,575.0	2,100.0	3,239.7
Large Turbojet	525.0	945.0	1,470.0	1,472.6
Total GA Operations	42,000.0	45,570.0	50,032.5	117,806.4
Total GA Jobs	47.2	51.3	56.3	132.5
Airline services	36.4	39.5	43.3	102.0
Government	2.4	2.6	2.8	6.6
Passenger services	5.2	5.6	6.2	14.6
Ground transportation	3.3	3.6	3.9	9.3

Figure 34. High-case Direct Jobs

High-case economic impacts generated:

Dollar YR 2030, Data YR 2019	**High-Case**		
Years	**DBO+1**	**DBO+10**	**DBO+20**
Total IMPACTS			
Employment	**1409.56**	**8640.76**	**20232.25**
Labor Income	$149,063,055.74	$985,587,456.84	$2,435,156,686.11
Value Added	$247,960,293.78	$1,705,706,814.19	$4,221,776,793.30
Output total	**$477,295,296.12**	**$3,185,814,539.32**	**$7,870,898,531.72**
Tax	$52,261,541.19	$396,889,829.82	$976,620,004.99
Air Carriers			
Employment	599.08	5409.52	13,578.91
Labor Income	$64,002,743.65	$694,608,001.86	$1,743,579,113.93
Value Added	$110,213,752.95	$1,238,091,284.50	$3,107,824,508.62
Output total	**$197,321,991.20**	**$2,227,562,711.23**	**$5,591,556,828.72**
Tax	$24,978,650.75	$302,378,427.72	$759,019,951.88
Air Cargo			
Employment	760.79	3172.2	6,514.14
Labor Income	$78,680,134.92	$283,394,436.26	$673,708,156.77
Value Added	$126,383,240.59	$454,093,126.83	$1,082,096,703.52
Output total	**$259,521,222.87**	**$933,924,451.00**	**$2,222,031,780.30**
Tax	$24,506,769.84	$91,209,228.25	$209,821,019.96
General Aviation			
Employment	49.69	59.04	139.2
Labor Income	$6,380,177.17	$7,585,018.72	$17,869,415.41
Value Added	$11,363,300.24	$13,522,402.86	$31,855,581.16
Output total	**$20,452,082.05**	**$24,327,377.09**	**$57,309,922.70**
Tax	$2,776,120.60	$3,302,173.85	$7,779,033.15

Figure 35. High-Case Economic Impacts

Section IV: E-Commerce and Regional Cargo Analysis

A. Regional Overview

Per CMAP report[24], trucking is the most versatile of all freight modes in the FAF Zone[25]. Trucks can transport goods regionally or long distances and play a critical role in local delivery as the mode of choice for first- and last-mile distribution. According to the 2012 FAF estimates, over 76 percent of all the tonnage and 71 percent of the total value of commodities shipped to and from the Chicago FAF region are shipped via truck. The relative parity between inbound and outbound traffic suggests that Chicago is equally a place of both consumption and production, which is a great asset for e-commerce development. By value, the largest commodities shipped into and out of the region by truck include machinery, electronics, mixed freight (e.g., food, office supplies, hardware), pharmaceuticals, and petroleum. These commodities reflect many goods produced by the region's manufacturing cluster. Machinery, electronics, and pharmaceutical manufacturing are three of the region's greatest manufacturing strengths

Inbound	Projected Percent Growth by 2040	Outbound	Projected Percent Growth by 2040
Truck	58%	Truck	38%
Rail	55%	Rail	147%
Air	190%	Air	301%

Figure 36. Chicago Regions Inbound and Outbound Growth in Tonnage by Mode[26]

Nationwide, rail traffic is highly concentrated on Class I railroads, making Chicago the nation's premier rail hub. According to 2012 FAF estimates[27], annual regional rail volumes totaled 24 million tons outbound and 42 million tons inbound. These numbers may underrepresent the totality of the region's rail activity, because the FAF does not account for the significant number of through movements in the region. However, rail has a competitive advantage over other modes for bulky, low-value goods shipped over longer distances. Most freights that are normally shipped by rail will not be a potential customer of SSA, unless there is a huge cost benefit.

Despite its low volumes, air freight accounts for $55 billion[28] in cargo value -- higher than that of rail. Air freight tends to move lightweight, high-value goods; the region's air freight value per ton is nearly 62 times that of truck and 150 times that of rail. Despite being the smallest mode by weight, air freight in the region is predicted to experience significant growth in the next 30 years. By 2040, the volume of domestic air freight moving in and out of the region is projected to increase by 255 percent, far outpacing the growth in truck or rail shipments. The largest commodities by value shipped in and out of the Chicago region by air are electronics, machinery, precision instruments, pharmaceuticals, and basic chemicals.

[24] Source: Chicago Metropolitan Agency for Planning analysis of 2012 Freight Analysis Framework data.
[25] The FAF zone for Chicago includes the CMAP seven-county region, along with neighboring Grundy, Kankakee, and DeKalb counties.
[26] Source: Chicago Metropolitan Agency for Planning analysis of 2012 Freight Analysis Framework data.
[27] Source: CMAP Freight-Manufacturing Nexus Report
[28] Source: Chicago Metropolitan Agency for Planning analysis of 2012 Freight Analysis Framework data.

B. E-Commerce Growth

Revenue from e-commerce in the United States amounted to $431.6 billion in 2020. The Statista Digital Market Outlook estimates that by 2025, revenue will increase to $563.4 billion[29]. By 2024 retail-focused e-commerce will amount to $7 trillion in annual sales activity, or 25% of retail sales at that time. If growth continues at a low double-digit pace in subsequent years, then, by 2027, e-commerce sales would amount to $10 trillion globally[30].

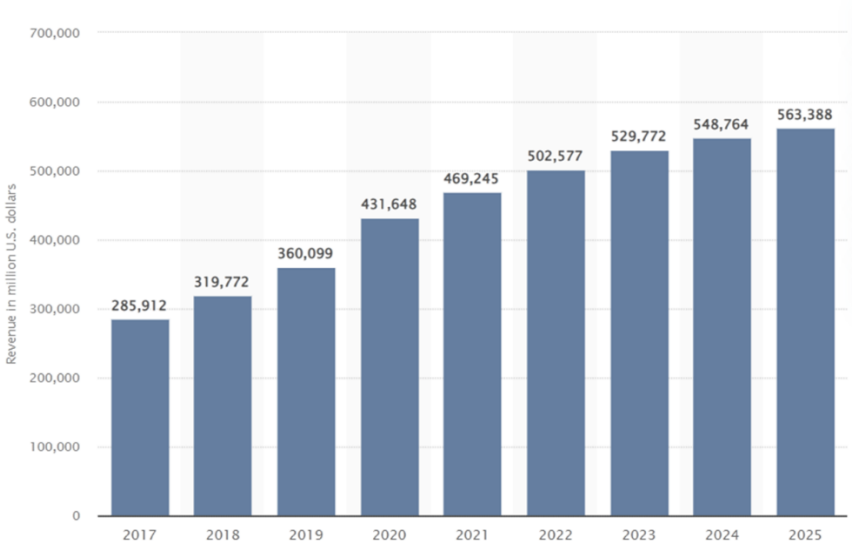

Figure 37. Retail e-commerce revenue in the United States from 2017 to 2025(in million U.S. dollars)

Rising e-commerce sales continue to increase the demand for air freight since today's consumer demands "free" shipping. Since the prices for home delivery are rising each year pressure is placed on the merchants (and their fulfillment vendors) to offer the right mix of cost and delivery services while remaining competitive. Customer expectations for shorter delivery times will continue to necessitate increased air cargo use. E-commerce companies are chartering planes at smaller airports to cut costs.

Per Chaddick Policy Brief Winter 2021[31], Amazon Air's flight activity grew by 15% between August 2020 and February 2021, despite the slowdown in retail shipments that typically occurs after the start of the new year. The airline now regularly makes an average of 140 flights daily. Set into motion plans to fly numerous airplanes it owns rather than leases, primarily 767s Invested heavily in Cincinnati & Wilmington, OH, giving it new options to handle third-party Shipping. Per previous 2020 study published by Prof. Schwieterman at DePaul University, Amazon Air Tends to serve several airports in metropolitan areas (like Chicago) having extensive warehouse space. It relies heavily on cargo-oriented airports near its warehouse clusters, which would make the South

[29] Source: UNITED STATES: RETAIL E-COMMERCE REVENUE 2017-2025,

[30] Source: Amazon AWS. (2020, December). E-COMMERCE FORECAST.

[31] Chaddick Institute for Metropolitan Development at Depaul University. (2021, February). Primed & Positioned Strategic Moves By Amazon Air. Joseph P. Schwieterman, Jacob Walls, Borja González & Crystal Bell.

Suburban Airport attractive to it and consistent with its strategic direction. It has substantial operations from two airports in metropolitan Los Angeles and is expected to add a third next year with the opening of a San Bernardino Int'l Airport facility and serves metropolitan New York from three different airports.

Amazon is investing heavily in Chicagoland, with 20 centers in the Southland today, including 5 that opened in 2021: Chicago (Pullman), Bolingbrook, Markham, Matteson and University Park. O'Hare world ranking for air cargo dropped from #12 to #18 since 2000. Amazon's hub at Rockford Airport is growing but remains small compared to the parallel UPS operation. The diversion of flights to Gary Chicago Airport began in 2019 when UPS expanded its Rockford operations from Rockford to Gary, the only regional airport with room to expand. UPS, FedEx, and other parcel carriers and last mile logistics providers along with Amazon are in close proximity to the SSA site.

SSA is located along the I-57 logistics and e-commerce corridor, an excellent location for local, regional and national distribution, approximately 13 miles south of I-80, one of the busiest trucking/commerce corridors in the United States, and approximately 45 miles east of the largest inland port in the United States, and just west of the I-57/Monee-Manhattan Road interchange. Situated for e-fulfillment center development and e-commerce delivery, SSA will be able to access over 50 million people for same-day shipping range and over 110 million people within a one-day drive.

B. International Market

Air freight is also the region's only direct gateway for international goods. While air freight comprises a small proportion of the Chicago FAF region's total freight tonnage and value, this mode still plays a large role in moving freight on a national scale. The Chicago FAF region's exports and imports to international ports are also projected to increase by 127 percent by 2040[32]. Growth in international trade volumes is projected to far outstrip the growth in domestic trade volumes across all three modes, demonstrating the potential for an increasing importance of international trade to the Chicago region's economy.

There is a large disparity between the value of inbound and outbound goods shipped by air, suggesting that the Chicago region is importing more high-value goods, such as electronics, by air from Asia. With the tremendous growth in global sourcing of finished goods, US merchants are challenged to minimize delivery times and the cost of these delivery programs. A de minimis shipment commonly referred to as Section 321[33], allows for goods valued at $800 USD or less, to enter duty-free into the U.S. Under this legislation they are also permitted to enter without formal entry. Therefore, this regulation is a great option for importers to save money and time for many types of goods. Per Chaddick Policy Brief Winter 2021[34], Amazon Air has taken decisive steps to implement an international strategy and is positioned for sustained growth in the next six months.

However, in order to process international shipment, there must be a port of entry. The ports of entry are the level at which the U.S. Customs and Border Protection (CBP) enforces import/export laws and regulations. Therefore, they are the face of the border for all cargo carriers and the most relevant level of interaction for importers. All competitor airports have a port of entry for importing. SSA will be able to serve international cargo once it sets up a port of entry.

[32] Source: Chicago Metropolitan Agency for Planning analysis of 2012 Freight Analysis Framework data

[33] Section 321, 19 USC 1321 is the statute that describes de minimis. De minimis provides admission of articles free of duty and of any tax imposed on or by reason of importation, but the aggregate fair retail value in the country of shipment of articles imported by one person on one day and exempted from the payment of duty shall not exceed $800. The de minimis threshold was previously $200, but increased with the passage of the Trade Facilitation and Trade Enforcement Act (TFTEA).

[34] Chaddick Institute for Metropolitan Development at Depaul University. (2021, February). Primed & Positioned Strategic Moves By Amazon Air. Joseph P. Schwieterman, Jacob Walls, Borja González & Crystal Bell.

C. Regional Market & Distribution Center Development

Ample developable land for industrial use exists with easy access to state highway (Illinois 50), interstate (I-57), Class 1 railroads, warehouses and facilities for distribution. The new industrial development projects in the area also provide support and validate the demand for SSA to process the increasing freight. Please review a comprehensive summary map of SSA Multimodal sites in the Appendix item 5.

New Buildings with Tenants include: XPO in Chicago Heights -500,000 sqft, Amazon in Markham – 4million, Amazon in Matteson – 4 million, Amazon in Monee – 3 million, Amazon in UP – 1.1 million, and Carvana in UP on 100 acres of land. Spec Buildings Available or Under Construction include: LPC 1.2 million in Country Club Hills, CRG 1.1 million in Country Club Hills, Hillwood 1.1. million in Monee, Scannell 1.2 million in Tinley Park, and DSP 250,000 in Hazel Crest. Industrial Lands Under Contract include: 140 acres in Country Club Hills, 200 acres in Crete, 75 acres in Glenwood, 50 + 20 acres in Harvey, and 120 acres in Homewood.

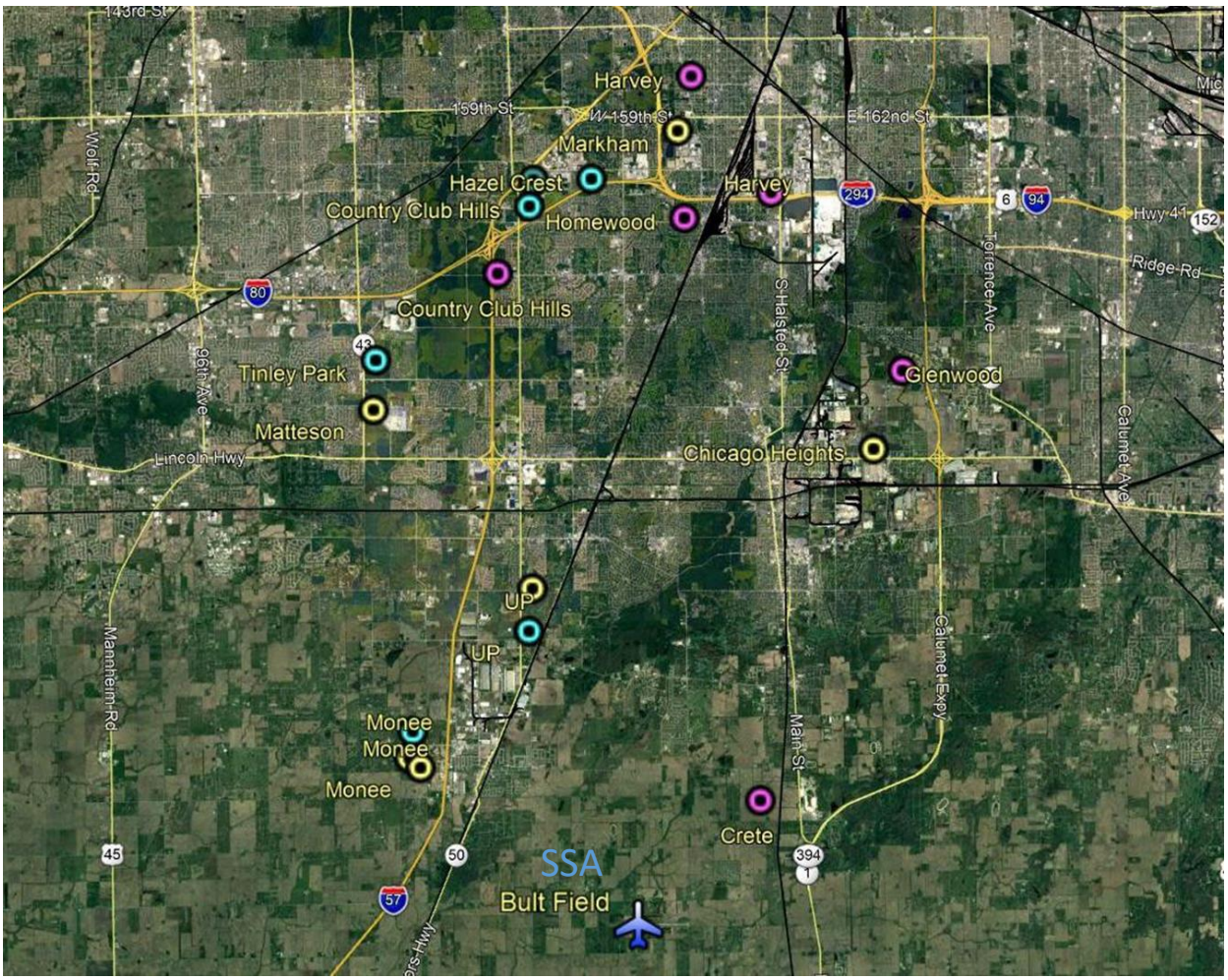

Figure 38. New Industrial Developments in Chicago Southland

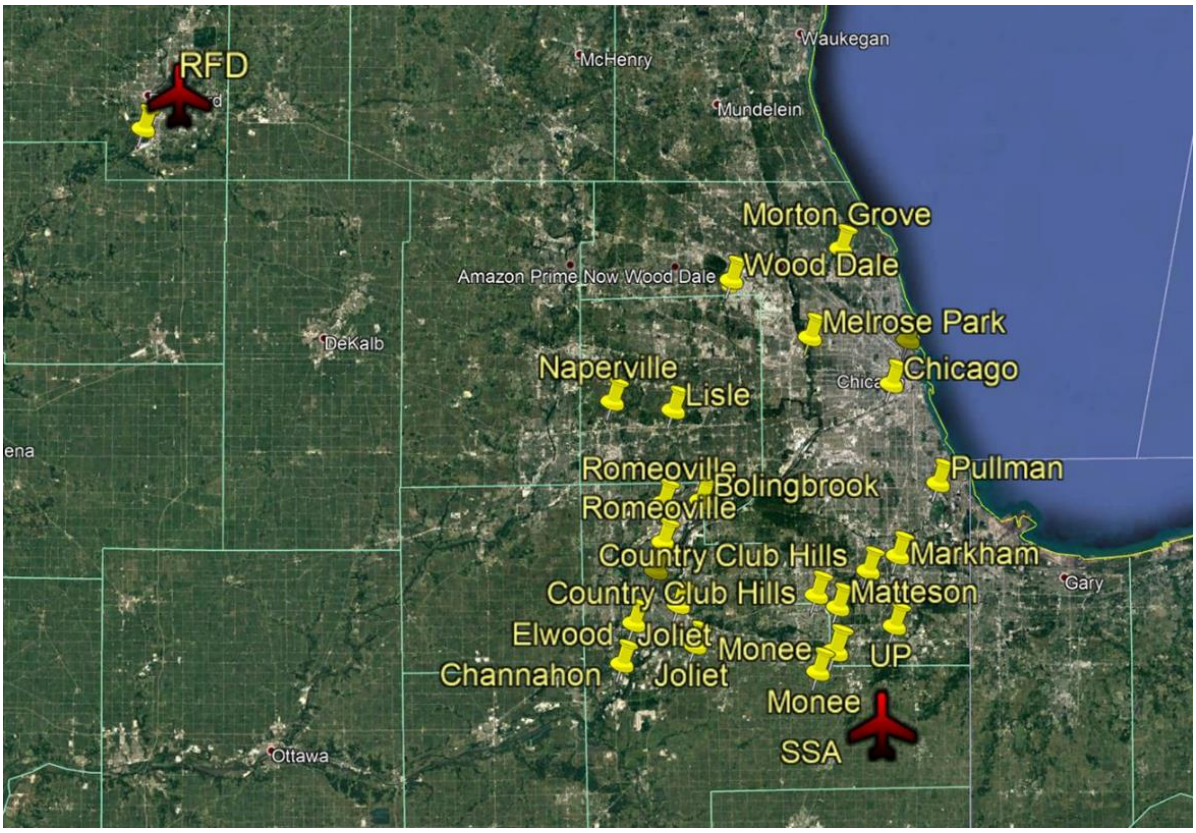

Figure 39. Amazon Sites in Northern Illinois 2020

Chicago currently has the largest inventory of industrial warehouse space in the nation. Los Angeles is second with 988.5 million square feet, and Dallas/Fort Worth is third with almost 800 million square feet. Given the immensity of the market in Chicago, the availability of warehousing space is an advantage to the attraction of logistics operators at the proposed SSA.

D. Local Market Analysis

To better understand the local freight-related businesses and their distributions, this report also tried to figure out the spatial correlations between the freight-related businesses and socio-economic factors. The businesses are from the 10, 20, and 30min driving time area of SSA in the selected NACIS[35] codes:

- NAICS 48-49 = Transportation & Warehousing
  - NAICS 481 - Air Transportation
    - NAICS 481112 - Scheduled Freight Air Transportation
  - NAICS 482 - Rail Transportation
  - NAICS 483 - Water Transportation
  - NAICS 484 - Truck Transportation
    - NAICS 48423 = Specialized Freight Trucking, Long-Distance
  - NAICS 485 - Transit & Ground Transportation
  - NAICS 486 - Pipeline Transportation
  - NAICS 487 - Scenic and Sightseeing Transportation
  - NAICS 488 - Support Activities for Transportation
    - NAICS 488119 = Other Airport, includes aircraft services
    - NAICS 48851 = Freight Transportation Arrangement, including freight forwarders and customs brokers
- NAICS 541614 = Process, Physical Distribution, and Logistics Consulting Services

D1. Global Moran's I Summary

Moran's I[36] is a correlation coefficient that measures the overall spatial autocorrelation of your data set. According to Grekousis (2020)[37], Moran's I is a test of global or local autocorrelation should be performed prior to advanced statistical analysis when dealing with spatial data. Spatial correlation is the degree of spatial dependency between the value of observation of a spatial entity (warehousing) and the value of neighboring observations (facilities), as measured by some global spatial autocorrelation measures (p. 210)[38]. The measure used in this analysis is Moran's I index. In other words, it measures how one object is similar to others surrounding it. Below you could see the results of Moran's I for businesses[39] in 30min driving time area, with respect to Median House Income, Population, and Unemployment Rate.

[35] The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

[37] Grekousis, George. (2020). Spatial Analysis Methods and Practice: Describe – Explore – Explain through GIS. 10.1017/9781108614528.

[38] Spatial Analysis Methods and Practice is often used as an introductory textbook on spatial analysis and spatial statistics through GIS.

[39] The analysis was done in Esri.

SSA 30min Buffer	Median Income	Population	Unemployment Rate
Moran's Index:	0.379975	0.23987	0.580106
Expected Index:	-0.001332	-0.001332	-0.001332
Variance:	0.00003	0.00003	0.00003
z-score:	69.116773	43.706142	105.459899
p-value:	0	0	0

Figure 40. SSA 30min Buffer Moran's I

If the values in the dataset tend to cluster spatially (high values cluster near other high values; low values cluster near other low values), the Moran's Index will be positive. When high values repel other high values, and tend to be near low values, the Index will be negative. We can see that all Moran's Indexes for three factors are positive. From the result that p-values and z-scores, there is a less than 1% likelihood that this clustered pattern could be the result of random chance for all three variables. Similarly, we did the same analysis for Gary Airport and Midway Airport.

Midway 30min Buffer	Median Income	Population	Unemployment Rate
Moran's Index:	0.533594	0.285805	0.690346
Expected Index:	-0.000564	-0.000564	-0.000564
Variance:	0.000019	0.000019	0.000019
z-score:	123.540909	66.221911	159.936548
p-value:	0	0	0

Figure 41. Midway Airport 30min Buffer Moran's I

Gary 30min Buffer	Median Income	Population	Unemployment Rate
Moran's Index:	0.462579	0.16177	0.482146
Expected Index:	-0.000819	-0.000819	-0.000819
Variance:	0.000013	0.000013	0.000013
z-score:	129.965924	45.579641	135.49149
p-value:	0	0	0

Figure 42. Gary Airport 30min Buffer Moran's I

The freight-related businesses are also clustered in the Midway Airport 30min driving area as well as the Gary 20min area. We also looked at the Moran's I indexes for 10min, 15min, and 25min driving time areas of SSA. The conclusion is the same.

Next, the report explains the results from the linear regression model and the spatial lag model.

D2. Multiple Linear Regression (MLR) for SSA Summary

Multiple regression analysis is a statistical method used to predict the value a dependent variable based on the values of two or more independent variables. Using the previous selected dataset of freight related businesses, we created a new dataset called 'nCompanies', which is the number of freight related businesses in one census tract, which is also the value being predicted. New variable 'nCompanies' is the dependent variable and we wanted to see whether its outcome or value depends on the behavior of other three variables. The independent variables are Median Household Income, Total Population, and Unemployment Rate, derived from the census tracts.

331 observations were used in the MLR model. Here is a summary of each variable.

Variable name	nCompanies	HouseholdIncome	Population	Unemployment
Min.	1.00	0.00	0.00	0.00%
1st Qu	1.00	46600.00	3087.00	7.00%
Median	2.00	59800.00	4040.00	11.00%
Mean	3.26	65712.00	4223.00	12.70%
3rd Qu	3.50	81782.00	5410.00	17.00%
Max.	44.00	150107.00	8577.00	45.00%

Figure 43. SSA Regression Dataset Summary

The multiple regression model is:

nCompanies = a_0 + a_1*Median Household Income + a_2*Total Population + a_3*Unemployment Rate

If the p-value is less than a certain significance level (e.g. $\alpha = .05$) then the predictor variable is said to have a statistically significant relationship with the response variable in the model.

Independent Variable	Regression Coefficient	Std. Error	t value	Pr(>|t|)
Intercept	3.603000	0.957500	3.763000	0.000192
Median Income	0.000006	0.000009	0.589000	0.556029
Population	0.000075	0.000134	0.557000	0.577639
Unemployment Rate	-8.125000	3.162000	-2.570000	0.000192 ***

Figure 44. SSA 30min Buffer Regression Results

Based on the results of the regression, only the unemployment is statistically significant related to the number of freight related businesses. Since the coefficient of unemployment rate is negative, we can tell that the higher the employment rate, the more likely we will see more freight related businesses in the area. For the other two variables, the correlation is not statistically significant.

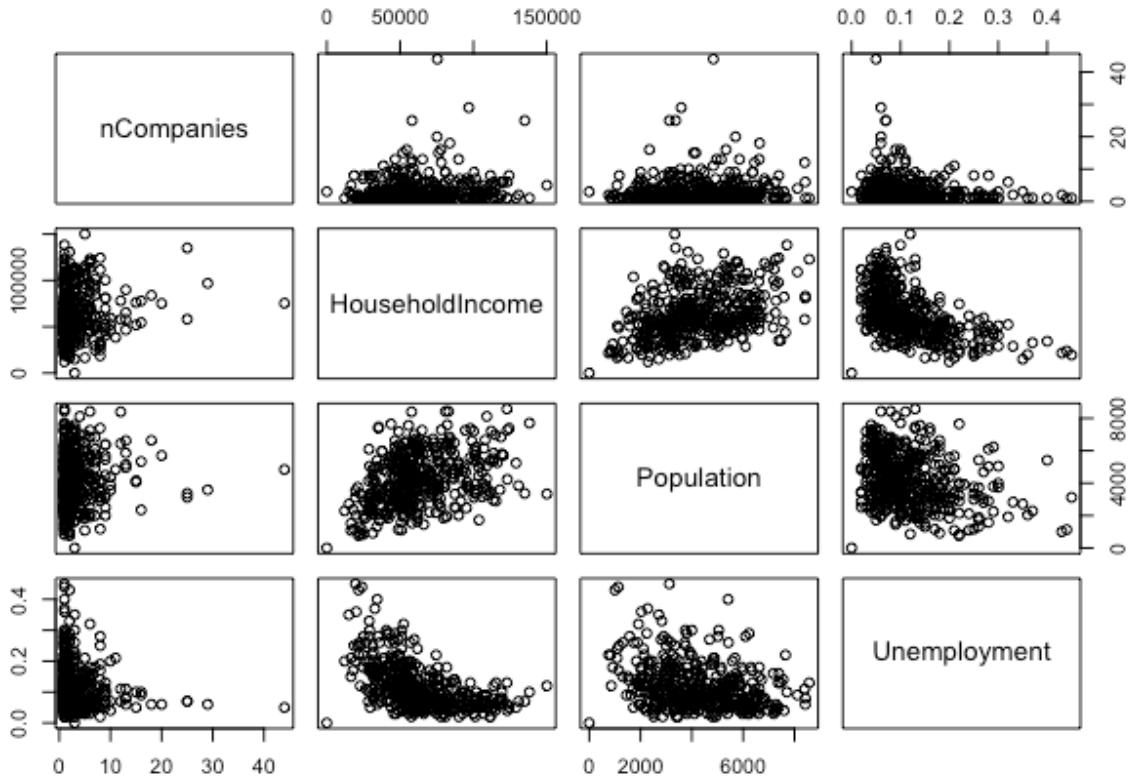

Figure 45. Scatter Plotting for 4 Variables

However, we cannot draw the conclusion that the availability of workforce could attract freight related businesses to come and locate at the region. The reverse correlation between unemployment rate and number of businesses might be that once there are more employers in the area, residents can find a job easily, thus lowering the unemployment rate.

Also, the three socio-economic factors are related to each other. Spatial data often do not fit traditional, non-spatial regression requirements because they are spatially autocorrelated (features near each other are more similar than those further away) and nonstationary (features behave differently based on their location/regional variation)[40]. The D3 section provides an additional analysis using spatial lag model.

[40] Fischer, M.M., & Wang, J. (2011). Spatial Data Analysis: Models, Methods and Techniques (SpringerBriefs in Regional Science).

D3. Spatial Lag (SL) Model for SSA Summary

Spatial regression methods[41] allow us to account for dependence between observations, which often arises when observations are collected from points or regions located in space. The observations could represent income, employment or population levels, tax rates, and so on[42]. A spatial lag is a variable that averages the neighboring values of a location. We used the weights to express the neighbor structure between the observations as a matrix, by constructing queen contiguity-based spatial weights. In queen contiguity, any region that touches the boundary of region i, whether on a side or a single point, is considered neighbor. Under this criterion, the neighbors of 5 will be regions: 1, 2, 3, 4, 6, 7, 8 and 9.

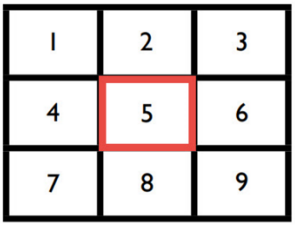

Figure 46. Queen Contiguity

Using the exact same dataset, we add the spatially lagged dependent variable to the regression model: nCompanies = b_0 + $W_{nCompanies}$ +b_1*Median Household Income + b_2*Total Population + b_3*Unemployment Rate

> $W_{nCompanies}$ is spatially lagged dependent variable for weights matrix. nCompanies is dependent on its neighbors (through the weights matrix)

Similarly, we get the results table below.

Independent Variable	Regression Coefficient	Std. Error	z value	Pr(>|t|)
Intercept	2.506600	1.179300	2.125500	0.033550
Median Income	0.000005	0.000011	0.447200	0.654730
Population	0.000064	0.000151	0.424700	0.671030
Unemployment Rate	-5.967200	3.624900	-1.646200	0.099730

Figure 47. SSA Spatial Lag Regression Results[43]

[41] Spatial Lag Model is one of the spatial analysis methods. Per Spatial Data Analysis, we assume that dependencies exist directly among the levels of the dependent variable. That is, the income at one location is affected by the income at the nearby locations. A "lag" term, which is a specification of income at nearby locations, is included in the regression, and its coefficient and p-value are interpreted as for the independent variables.

[42] Antoniuk, Anna. Merk, Miryam S.. Otto, Philipp. (2021) Handbook of Big Geospatial Data. DOI: 10.1007/978-3-030-55462-0_15

[43] More detailed results:
Rho: 0.24854, LR test value: 16.74, p-value: 4.2858e-05
Asymptotic standard error: 0.063972

Residuals are the difference between the observed and predicted values:

Min	1Q	Median	3Q	Max
-5.99777	-1.81402	-0.94926	0.13676	40.04663

We ran the spatial autocorrelation tool on the residuals. If there is significant clustering, there could be misspecification (a variable is missing from the model).

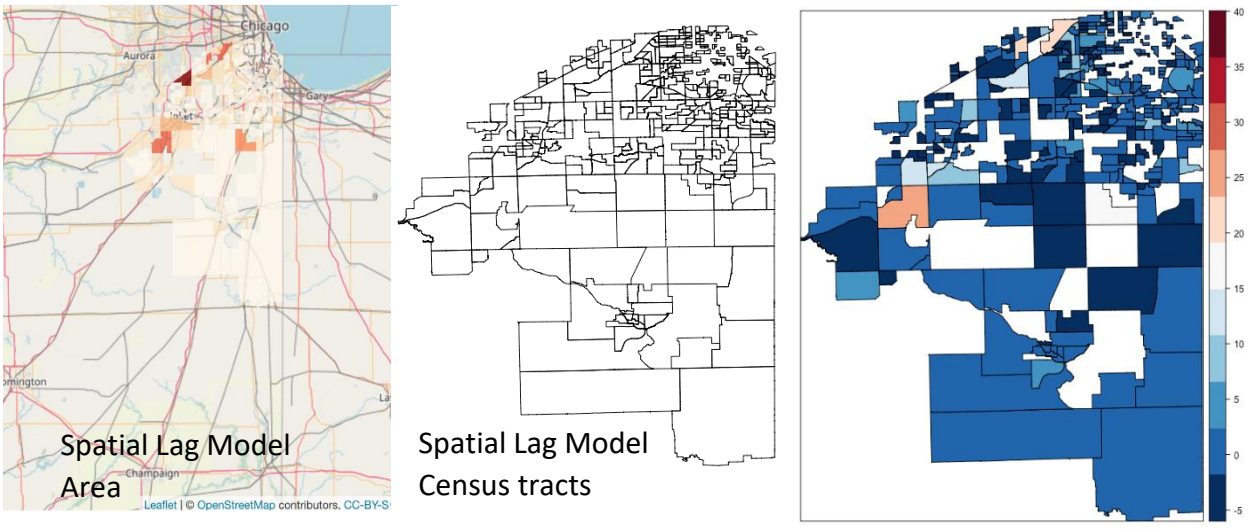

Figure 48. Spatial Lag Residuals Map

As in the previous linear regression, we can include independent variables in the model. Whereas we will see spatial autocorrelation in previous residuals, the SL model should account for spatial dependencies and the SL residuals would not be autocorrelated. Hence the SL residuals should not be distinguishable from random noise (i.e., have no consistent patterns or dependencies in them). Notice that the spatial patterning of areas of over-prediction (negative residuals, or blue tones) and under-prediction (positive residuals, or brown tones). It shows that the spatial pattern of warehousing in the region is not quite spatial homogeneous, but rather the intensity varies across space. It indicates there are other variables that impact the distribution of warehouses.

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z-value: 3.8852, p-value: 0.00010225
Wald statistic: 15.095, p-value: 0.00010225
Log likelihood: -941.8374 for lag model
ML residual variance (sigma squared): 17.035, (sigma: 4.1274)
Number of observations: 331
Number of parameters estimated: 6
AIC: 1895.7, (AIC for lm: 1910.4)
LM test for residual autocorrelation
test value: 0.029221, p-value: 0.86427

Section V: SSA Next Steps & Recommendations

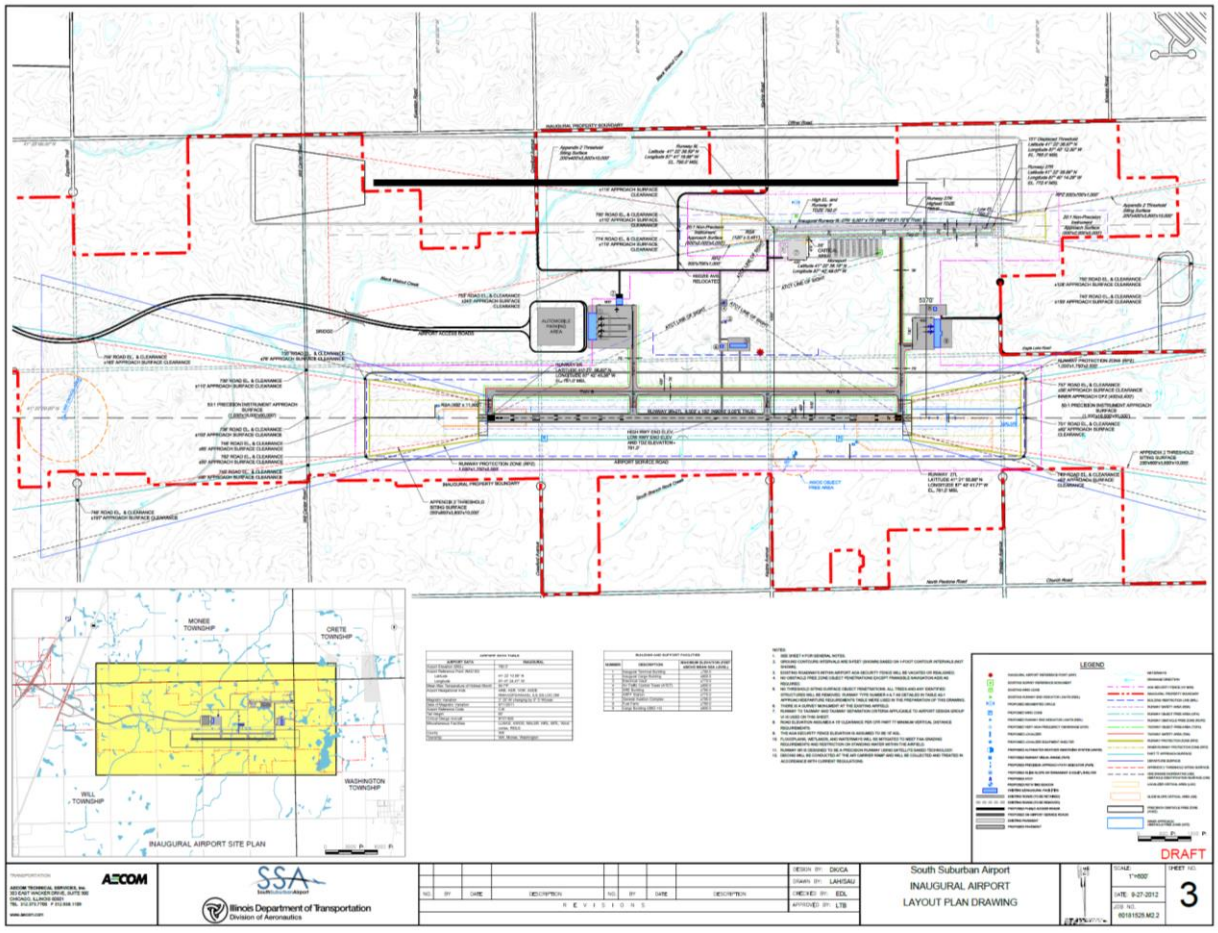
To summarize the impacts estimated in this report, the range of total impacts of the first year that SSA is operating is $40.5 million in low-case scenario, $338.6 million in baseline scenario, and $477.3 million in high-case scenario, with 110 jobs, 997 jobs, and 1419 jobs generated. Even in the Year 2030 low-case scenario, SSA will contribute $4 billion in annual economic benefit to the serving region, and support 10,000 jobs with the total annual taxes estimated at $522 million, in addition to $1,053 million in economic output and 5,700 jobs generated by the pre-operation capital investment.

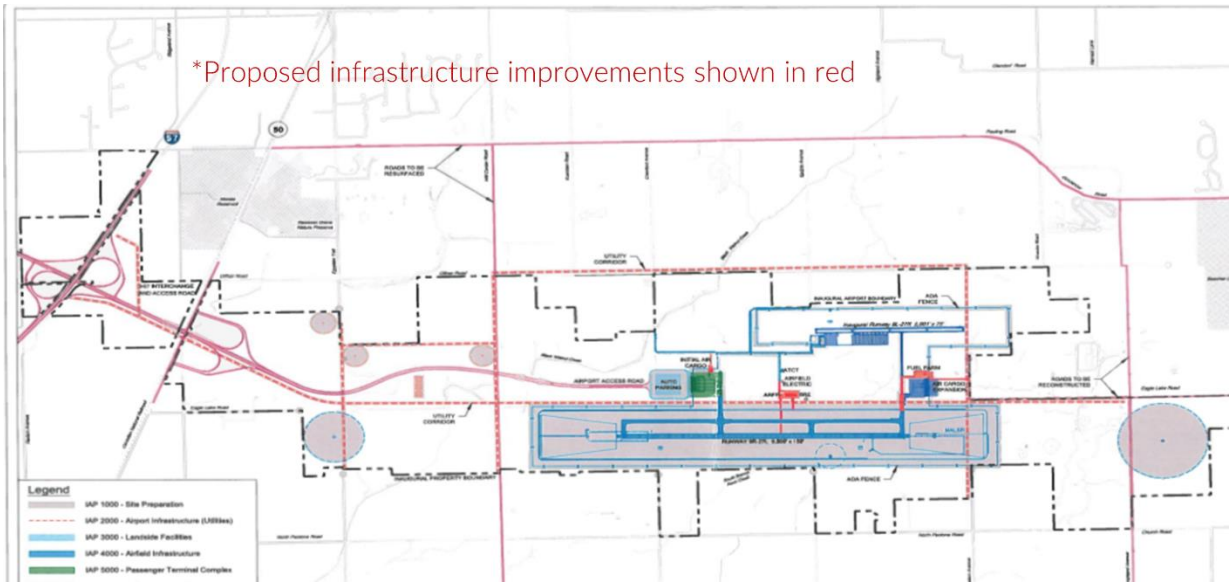
U.S. hasn't built a new, major airport since 1995. Need for 3rd airport in Chicago recognized by FAA 35 years ago. Since 2000, Chicago's airports have lost cargo & passenger market-share. Among international US cities, only Chicago is losing flights. The Federal Aviation Administration (FAA) and U.S. Department of Transportation (USDOT) have responded to the heavy air freight congestion at the nation's largest airports by aggressively funding dozens of regional airports throughout the country so they can serve as reliever options for larger international airports. With growing demand for e-commerce, US needs new cargo hubs. SSA will complement, not compete with, ORD and MDW. Bult Field/SSA is a critical link for Illinois to capture new cargo development to keep our inland port at the forefront of the logistics industry.

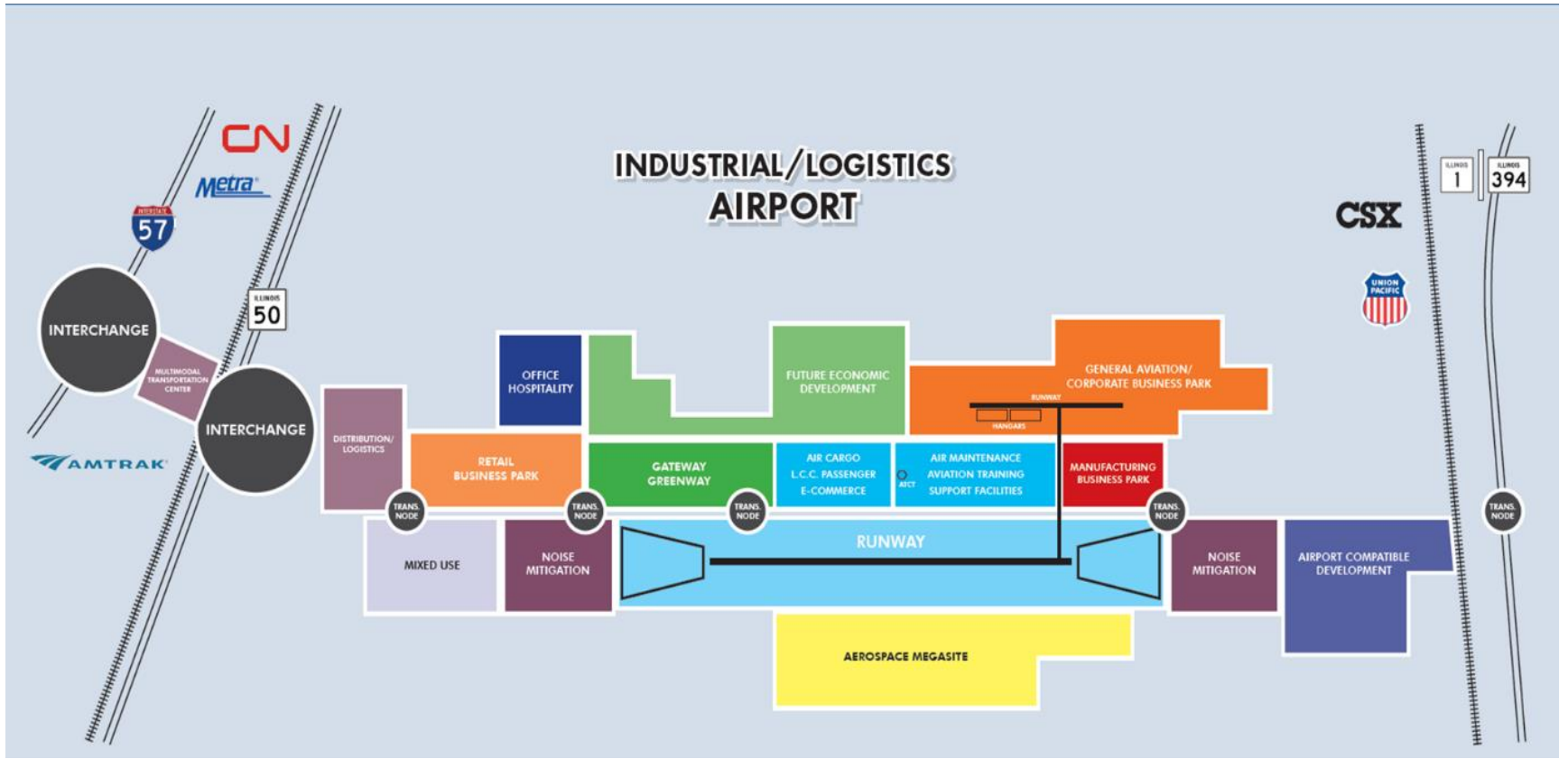
In terms of next-step planning, a financing plan of potential Public Private Partnership has been discussed. The public parties will be in charge of land acquisition, permits/entitlements, relocations, FAA Tower and NAVaids, services and utilities, and enhanced connectivity. The private parties will be in charge of program and design of the facilities, structure financing, airside construction, terminal and landside construction, service distribution, partnering and management. Please see the graph illustration in the Appendix item 6. When $162 million in new investments are done, SSA will be shovel ready.

Appendix

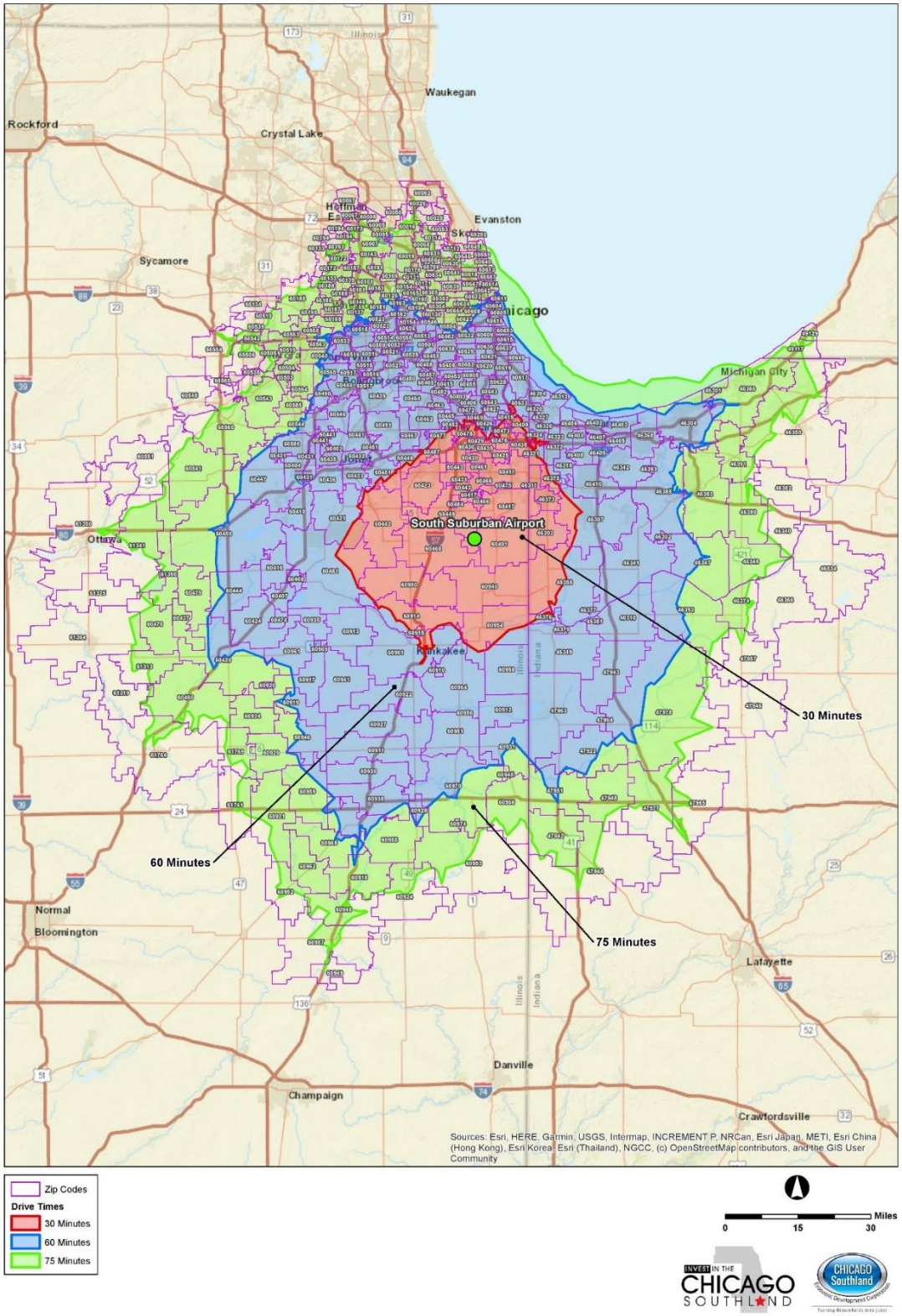
1. SSA Layout Plan Drawing






INDUSTRIAL/LOGISTICS
AIRPORT
CN
Metra
CSX
INTERSTATE 57
ILLINOIS 50
ILLINOIS 1
ILLINOIS 394
UNION PACIFIC
INTERCHANGE
MULTIMODAL TRANSPORTATION CENTER
INTERCHANGE
AMTRAK
DISTRIBUTION/ LOGISTICS
OFFICE HOSPITALITY
FUTURE ECONOMIC DEVELOPMENT
GENERAL AVIATION/ CORPORATE BUSINESS PARK
RUNWAY
HANGARS
RETAIL BUSINESS PARK
GATEWAY GREENWAY
AIR CARGO L.C.C. PASSENGER E-COMMERCE
AIR MAINTENANCE AVIATION TRAINING SUPPORT FACILITIES
ARCT
MANUFACTURING BUSINESS PARK
TRANS. NODE
TRANS. NODE
TRANS. NODE
TRANS. NODE
TRANS. NODE
MIXED USE
NOISE MITIGATION
RUNWAY
NOISE MITIGATION
AIRPORT COMPATIBLE DEVELOPMENT
AEROSPACE MEGASITE

2. Zip Codes located within 30-, 60-, and 75-Minute Drive Time



3. Concept Terms Explanation

Economic impact analysis is the process of quantifying the economic contributions of any specific activity under study. End products of these analyses are described in terms of jobs, income, and total economic output in dollars. The economic impact analysis will also provide stakeholders with evidence that their expenditures on airport projects are having an impact in creating and sustaining jobs in the local area.

Impact analysis estimates the impact of dollars from outside the region ("new dollars") on the region's economy. Impact analysis typically includes only the spending of visitors from outside the region.

Input-output (I-O) model. An input-output model is a representation of the flows of economic activity between sectors within a region. The model captures what each business or sector must purchase from every other sector in order to produce a dollar's worth of goods or services. Using such a model, flows of economic activity associated with any change in spending may be traced either forwards (e.g., spending generates employee wages, which induces further spending) or backwards (e.g., visitor purchases of meals lead restaurants to purchase additional inputs -- groceries, utilities, etc.). Multipliers for a region may be derived from an input-output model of the region's economy.

IMPLAN is a micro-computer-based, input-output modeling system. With IMPLAN, one can estimate I-O models of up to 528 sectors for any region consisting of one or more counties. IMPLAN includes procedures for generating multipliers and estimating impacts by applying final demand changes to the model. The current version of IMPLAN is IMPLAN Pro 2.0.

Direct effects are the changes in economic activity during the first round of spending. For tourism, this involves the impacts on the tourism industries (businesses selling directly to tourists) themselves.

Secondary effects are the changes in economic activity from subsequent rounds of respending of tourism dollars. There are two types of secondary effects:

- **Indirect effects** are the changes in sales, income, or employment within the region in backward-linked industries supplying goods and services to tourism businesses. For example, the increased sales in linen supply firms resulting from more motel sales is an indirect effect of visitor spending.
- **Induced effects** are the increased sales within the region from household spending of the income earned in tourism and supporting industries. Employees in tourism and supporting industries spend the income they earn from tourism on housing, utilities, groceries, and other consumer goods and services. This generates sales, income, and employment throughout the region's economy.

Total effects are the sum of direct, indirect, and induced effects.

Multipliers capture the size of the secondary effects in a given region, generally as a ratio of the total change in economic activity in the region relative to the direct change. Multipliers may be expressed as ratios of sales, income or employment, or as ratios of total income or employment changes relative to direct sales. Multipliers express the degree of interdependency between sectors in a region's economy and therefore vary considerably across regions and sectors.

Data Year: The economic make up of a study region's economy for a specific calendar year

Industry-Specific Data: The number of industries for which data is available is based on the current sectoring scheme. This is largely determined by the BEA Benchmark I-O tables. Most IMPLAN sectors can be mapped to NAICS codes, with the exception of construction, which is based on Census Bureau structure types.

Output: The value of Industry production in producer prices. For sectors for which there is inventory, this value includes net inventory change.

Employment: Annual average full-time/part-time/seasonal jobs. This includes both wage and salary workers and proprietors.

Value-Added: Value-added consists of Employee Compensation (EC), Proprietor Income (PI), Other Property Income (OPI), and Taxes on Production and Imports net of subsidy (TOPI).

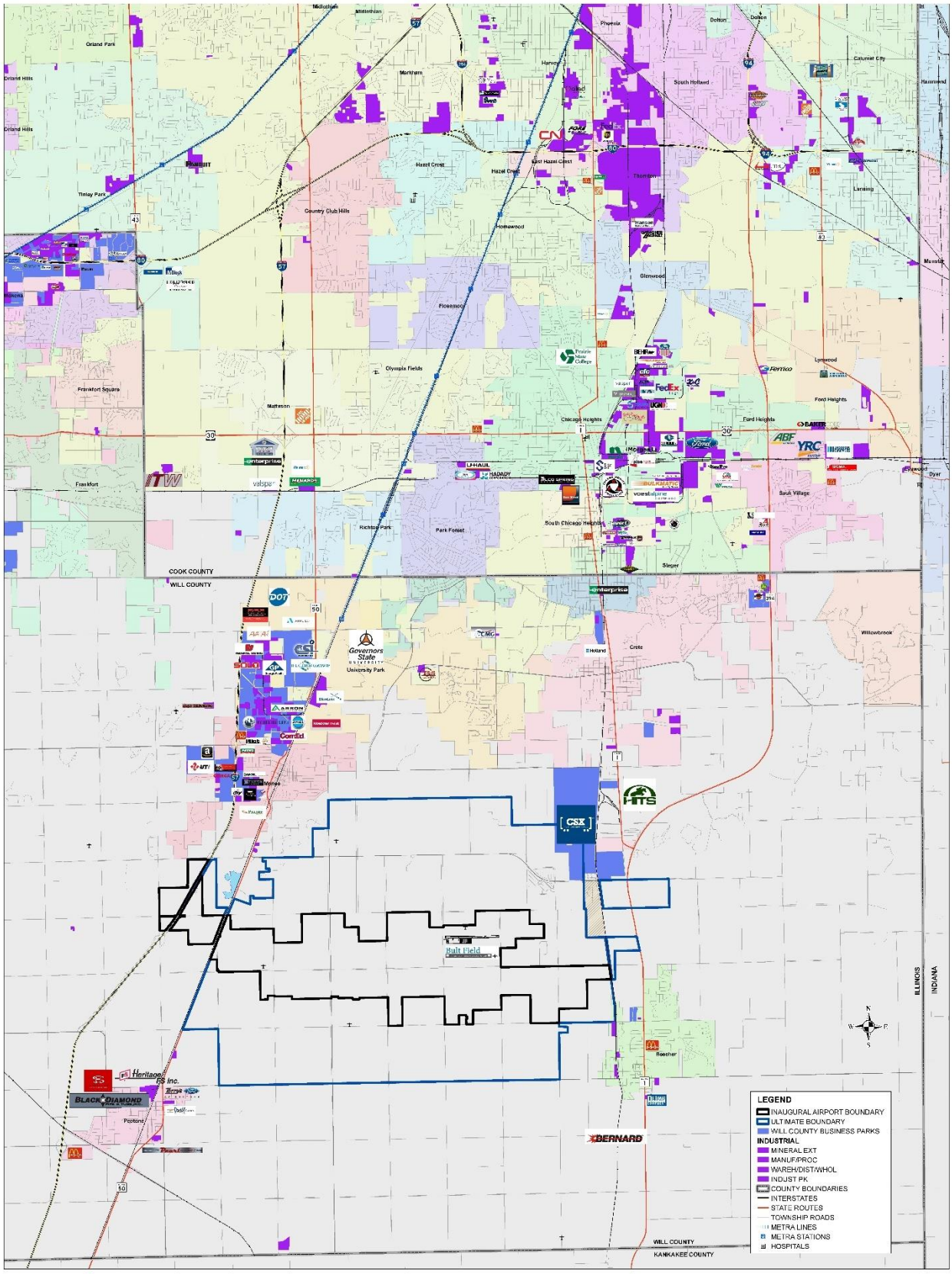
- **Employee Compensation**: EC includes wage and salary income plus benefits and employer paid taxes.
- **Proprietor Income**: PI represents self-employment income including capital consumption allowance. Proprietors include sole-proprietors and partnerships.
- **Other Property Income**: OPI consists of corporate profits, rent, interest, and capital consumption allowance.
- **Taxes on Production and Imports net of subsidy**: TOPI includes all payments to government except for payroll taxes and end of year corporate income taxes. This includes sales tax, excise tax, fees, fines, licenses, and property tax. These payments are net of subsidy payments by government.

Table 2-4 Comparison of FY 2008 and FY 2000 Surveys: Summary of Domestic O-D (10-Percent Sample) Survey for Combined Chicago O'Hare International & Chicago Midway International Airports, Destination Airports with Total Annual O-D Enplanements in Excess of 200,000

Rank	Origin	Destination	Destination State	2008 Airport O&D Passengers (10% Sample)	2008 Regional Sum of O-D Passengers (10% Sample)	Average Non-Stop Miles	2000 Regional Sum of O-D Passengers (10% Sample)	Sequence in Service Introduction (2003 Study)	Percent Change in O-D Passenger 2000-2008	Market Rank for SSA Primary Service Area (PSA) per 1995 Home Interview Survey / Comment
1	ORD + MDW	LGA	NY	91,323	181,677	732	154,615	5th	17.5%	1st-Part of NY CSA
2	ORD + MDW	LAX	CA	72,288	113,823	1,746	102,155	4th	11.4%	2nd-Part of Los Angeles CSA
3	ORD + MDW	LAS	NV	72,109	72,109	1,517	62,008	1st	16.3%	5th
4	ORD + MDW	MCO	FL	66,140	66,140	997	58,653	2nd	12.8%	6th
5	ORD + MDW	PHX	AZ	62,833	62,833	1,441	57,255	3rd	9.7%	9th
6	ORD + MDW	DEN	CO	61,398	61,398	891	50,497	-	21.6%	13th
7	ORD + MDW	ATL	GA	57,276	57,276	600	68,519	8th	-16.4%	10th
8	ORD + MDW	MSP	MN	57,104	57,104	339	61,340	-	-6.9%	11th-Too close for viability
9	ORD + MDW	DFW	TX	54,968	61,827	802	57,569	-	7.4%	12th-Part of Dallas/Fort Worth CSA
10	ORD + MDW	EWR	NJ	52,156	Incl. in above	719	Incl. in above	5th	-	1st-Part of NY CSA
11	ORD + MDW	PHL	PA	51,545	51,550	676	41,234	-	25.0%	16th
12	ORD + MDW	BOS	MA	48,239	73,050	867	67,672	9th	7.9%	17th-Part of Boston CSA
13	ORD + MDW	SFO	CA	47,562	77,660	1,847	74,320	10th	4.5%	4th-Part of San Francisco CSA
14	ORD + MDW	DCA	DC	43,719	102,329	611	100,966	6th	1.3%	3rd-Part of Baltimore/Washington CSA
15	ORD + MDW	DTW	MI	40,053	41,554	233	67,177	-	-38.1%	14th - Too close for viability
16	ORD + MDW	TPA	FL	39,680	43,352	1,005	40,170	-	7.9%	18th - Part of Tampa MSA
17	ORD + MDW	FLL	FL	37,199	66,897	1,176	55,810	7th	19.9%	8th-Part of Miami MSA
18	ORD + MDW	MCI	MO	36,536	36,536	404	44,068	-	-17.1%	15th
19	ORD + MDW	BWI	MD	35,674	Incl. in above	616	Incl. in above	6th	-	3rd-Part of Baltimore/Washington CSA
20	ORD + MDW	STL	MO	33,034	33,034	255	48,696	-	-32.2%	Too close for viability
21	ORD + MDW	RSW	FL	32,281	32,281	1,115	19,198	-	68.1%	Potential New Market
22	ORD + MDW	SAN	CA	32,026	32,026	1,725	23,303	-	37.4%	Potential New Market
23	ORD + MDW	SEA	WA	31,574	31,574	1,724	25,132	-	25.6%	Potential New Market
24	ORD + MDW	MIA	FL	29,698	Incl. in above	1,196	Incl. in above	7th	-	8th-Part of Miami MSA
25	ORD + MDW	IAH	TX	27,801	40,641	925	35,062	-	15.9%	19th-Part of Houston CSA
26	ORD + MDW	CMH	OH	26,711	26,711	290	31,591	-	-15.4%	Too close for viability
27	ORD + MDW	BNA	TN	26,238	26,238	400	22,687	-	15.7%	-
28	ORD + MDW	PIT	PA	24,812	24,812	407	19,260	-	28.8%	-
29	ORD + MDW	CLE	OH	23,248	24,444	311	47,045	-	-48.0%	17th-Too close for viability
30	ORD + MDW	IAD	DC	22,936	Incl. in above	583	Incl. in above	6th	-	3rd-Part of Baltimore/Washington CSA
31	ORD + MDW	SNA	CA	22,558	Incl. in above	1,726	Incl. in above	4th	-	2nd-Part of Los Angeles CSA
32	ORD + MDW	RDU	NC	22,547	22,547	642	21,169	-	6.5%	-
33	ORD + MDW	CLT	NC	21,898	21,898	598	12,654	-	73.1%	-

Source: Prepared by The al Chalabi Group, Ltd. (ACG) in association with Hanson Professional Services Inc., April 2009.
Note: Black = Actual; Blue = Forecasts

5. SSA Multimodal Map Summary



6. SSA Financing: Structure of the Public-Private Partnership