The Comprehensive Economic Development Impacts of Space Florida on the State

Submitted to:

May 17, 2022
(*Revised July 15, 2022)*

2655 LeJeune Road, Suite 541, Coral Gables, FL 33134

T: 305-461-3811 – F: 305-461-3822 | E: info@weg.com | W: www.weg.com

Table of Contents

List of Tables

List of Figures

I. Executive Summary

- The Washington Economics Group® (WEG®) was retained by Space Florida to conduct an independent economic impact study of the organization's activities. Space Florida is a critical component of the economic development strategy of the State and is a key enabler of both the retention and growth of Florida's high-wage, high-skill aerospace research and development cluster.

- Space Florida is an independent special district, a body politic and corporate, and a component unit of the state of Florida, created pursuant to the Space Florida Act (Florida Statutes Chapter 331, Part II). Space Florida's purpose is to foster the growth and development of a sustainable and world-leading aerospace industry in Florida. Space Florida leverages third party capital sources and constructs complex financial structures to promote, retain, attract, and expand space and aerospace businesses to Florida. Space Florida enables companies to meet their business objectives via complex financial structures that typically leverage initial cash investment up to 10-fold.

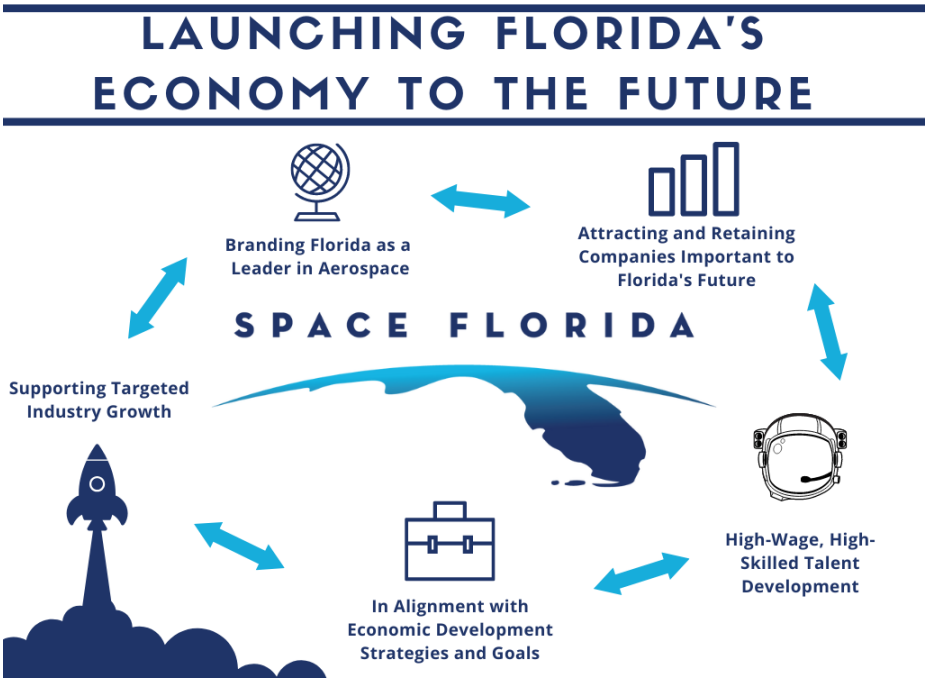
- Space Florida's multifaceted activities go beyond what can be accurately quantified. These **qualitative** benefits (also called "externality benefits") highlight the important benefits that accrue beyond what can be quantitatively measured. Space Florida is a catalyst for innovation and high-wage job growth in a targeted industry (Aviation & Aerospace). This positions Space Florida's operations to be aligned with the goals of Florida-elected official leaders and stakeholders, creating externality benefits that would not happen but for Space Florida's presence.

  - Florida now has 3 spaceports including the original one at Cape Canaveral. Florida is the launch capital of the nation, having conducted 62 of America's 67 space launches over two years from 2020 to 2021. These economic assets are creating a structural shift in Florida's brand and image, from a tourism-based economy into an economy of the present and future, and as such, Florida is well-positioned to benefit from the growth of the space economy.

  - A major breakthrough occurred in the Mid-2010s when SpaceX, a private space company owned by billionaire Elon Musk and a partner of Space Florida, successfully landed and reused a rocket. Reusable rockets present a paradigm shift for the industry, and Florida is poised to benefit. As reusable rockets need maintenance and support, and as satellite and space vehicle companies need manufacturing and servicing near the launch site, Florida has developed a strong value chain around the space industry cluster supported by Space Florida activities.

- With over 200,000 industry employees, Florida's Aerospace/Aviation industry is critical to the present and future development of the State[1]. It was, therefore, ideal for state leaders in Florida to create Space Florida in 2006. By bringing together civil, commercial and military coordination between all space efforts, Florida benefits through the alignment and clarity of vision and focus that Space Florida contributions to the aerospace sector. It is a visionary merger of all public and private space related efforts. Space Florida is essential and important to the State overall economic structure in making Florida competitive in the strong arena for space industry investment that has already begun.

- The Matrix below summarizes the top "externality benefits" of Space Florida.



- In addition to qualitative impacts, the *quantifiable* economic benefits of Space Florida include the following three broad categories:

  1) The Impact of Space Florida's Annual Operating Expenses,

  2) The Impact of Space Florida's Direct Financial Investment, and

  3) The Impact of Capital Expenditures by Space Florida's Clients.

- **The Total Economic Impact of Space Florida is $5.9 billion.** Of this total, just under $3.1 billion (or 52 percent) is due to *direct* economic effects, with $2.8 billion (or 48

[1]https://www.enterpriseflorida.com/industries/aviation-aerospace/

percent) attributable to *indirect* and *induced* economic effects. In addition, Space Florida supports:

29,151 Employment (Jobs). *Most of the jobs supported throughout the State are in the knowledge-intensive industries and occupations that pay significantly above the State's average wage.*

$1.7 Billion in Household Income*, contributing importantly to the economic well-being of Florida residents.*

$2.8 Billion in Gross Domestic Product*, a key measure of the contribution to the State economy generated by the projects of Space Florida.*

$548 Million in Federal, State & Local Fiscal Revenues *throughout Florida.*

Table ES-1 below details these impacts in terms of *direct*, *indirect* and *induced* effects. Table ES-2 shows these impacts in terms of 5-year increments.

Table ES-1. Summary of the Economic Impacts Generated by Space Florida Projects
(By Impact Type)

Impact on:	Direct	Indirect & Induced	Total Impact
Employment (Jobs)	13,026	16,124	**29,151**
Household Income ($ Million)	$831	$912	**$1,743**
GDP (Value Added $ Million)	$1,274	$1,499	**$2,773**
Total Economic Impact ($ Million)	$3,074	$2,816	**$5,890**
Federal, State & Local Fiscal Revenues ($ Million)	$208	$340	**$548**

Note: Total may not equal the sum of all due to rounding. See Detailed Impact Tables in Appendix III.
Source: The Washington Economics Group® (WEG®)

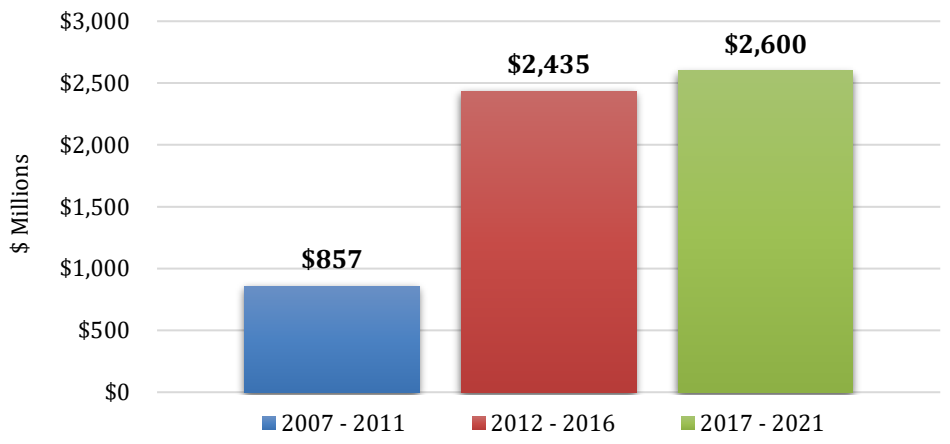
- As detailed in Table ES-2 on the following page, Space Florida's average annual impacts have been steadily increasing since 2007. The average *annual* Total Economic Impact was $172 million between 2007 and 2011, $487 million between 2012 and 2016, and $520 million between 2017 and 2021. Figure ES-1 on the next page summarizes the increasing Total Economic Impacts since 2007.

Table ES-2. Summary of the Economic Impacts Generated by Space Florida Projects
(By 5-Year Increments)

Impact on:	2007-2011	2012-2016	2017-2021	Total Impact
Employment (Jobs)	4,162	12,009	12,979	**29,151**
Household Income ($ Million)	$255	$722	$766	**$1,743**
GDP (Value Added $ Million)	$402	$1,143	$1,228	**$2,773**
Total Economic Impact ($ Million)	$857	$2,435	$2,598	**$5,890**
Federal, State & Local Fiscal Revenues ($ Million)	$88	$231	$229	**$548**

Note: Total may not equal the sum of all due to rounding.
Source: The Washington Economics Group® (WEG®)

Figure ES-1. Total Economic Impact Generated by Space Florida Projects (2007 - 2021)



Source: The Washington Economics Group® (WEG®).

- Table ES-3 on the next page shows the distribution of the Total Economic Impact throughout a variety of Florida's top industries. Over $2.5 billion (or 44 percent) of the impacts occur within Knowledge-Based Services, followed by Manufacturing with close to $1.3 billion (or 21 percent) and Construction with almost $1.2 billion (20 percent). More than $412 million (or 7 percent) of the total impact is generated in Wholesale Trade & Transportation Services. The remaining 8 percent is distributed within the Retail Trade, Visitor Industry, Government & other sectors.

Table ES-3. Total Economic Impact Generated by Space Florida Projects (2007 – 2021)
(By Industry Sectors - $ Thousands)

Industry	Total Impacts	% of Total
Knowledge-Based Services[2]	$2,564,731	**44%**
Manufacturing	$1,265,991	**21%**
Construction	$1,155,255	**20%**
Wholesale Trade & Transportation Services	$412,523	**7%**
Government & Other	$213,849	**4%**
Retail Trade	$195,714	**3%**
Visitor Industry	$81,914	**1%**
Total	**$5,889,978**	**100%**

Note: Total may not equal the sum of all due to rounding. See Detailed Impact Tables in Appendix III.
Source: The Washington Economics Group® (WEG®)

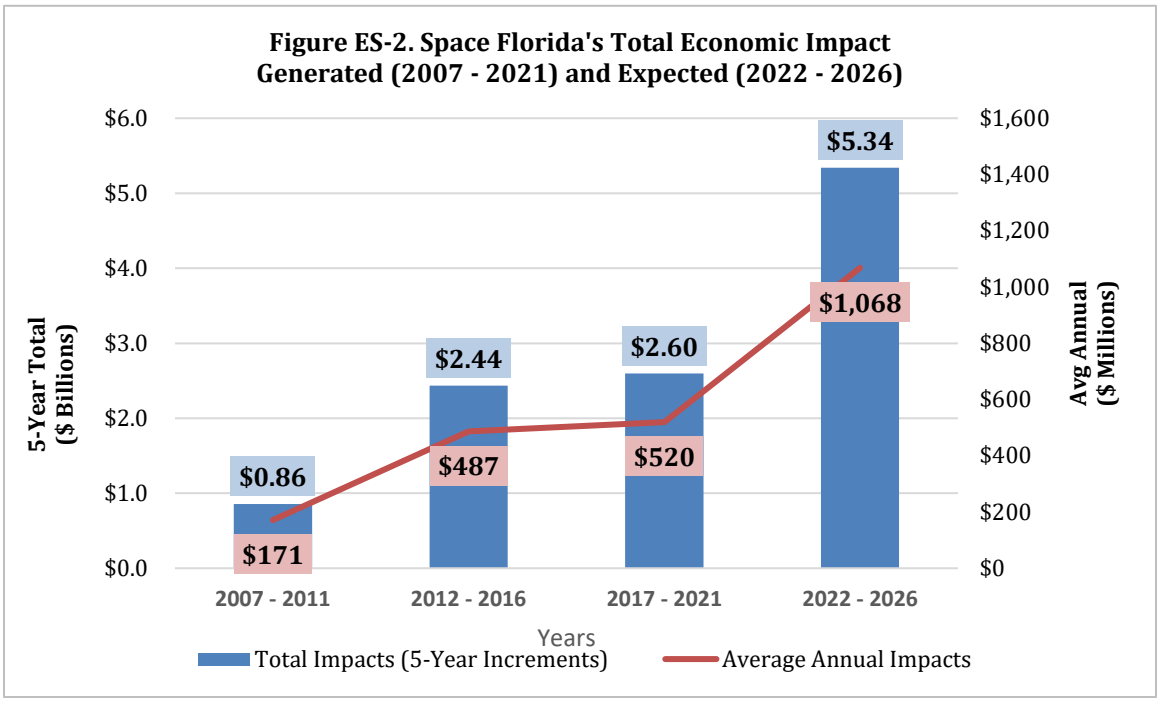
- Based on preliminary project schedules and financing documents for projects beginning in 2022 and 2023, WEG estimated Space Florida's Total Economic Impact over the next 5 years (2022–2026). This is detailed in Table ES-4 below and Figure ES-2 on the next page.

Table ES-4. Estimated Total Economic Impacts Generated by Space Florida Projects Between 2022 and 2026 ($ Thousands)

Industry	Total Impacts	% of Total
Manufacturing	$1,974,406	**37%**
Knowledge-Based Services[3]	$1,220,348	**23%**
Construction	$1,173,944	**22%**
Wholesale Trade & Transportation Services	$486,044	**9%**
Government & Other	$233,539	**4%**
Retail Trade	$184,751	**3%**
Visitor Industry	$67,054	**1%**
Total	**$5,340,086**	**100%**

Note: Total may not equal the sum of all due to rounding. See Detailed Impact Tables in Appendix III.
Source: The Washington Economics Group® (WEG®)

[2]Major industries under this category are: Education, Information, Finance and Insurance, Real Estate, Professional, Administrative Services and Arts, Entertainment & Recreation.
[3]Ibid.



Source: The Washington Economics Group® (WEG®).

- Altogether, **Space Florida's Total Economic Impact is expected to be more than $5.3 billion over the next 5 years, with an average annual impact of $1.1 billion each year beginning in 2022. This represents a significant increase in average impacts from the prior years that were studied (2007–2021),** due in large part to a number of planned capital-intensive projects, such as a $1.7 billion *direct* investment in a microelectronics facility expected to begin construction in 2023.

- In summary, the **qualitative** and **quantifiable** economic impacts of Space Florida are significant, and have been steadily increasing over the last 15 years due to Space Florida's operating and financing projects as well as capital investment by clients. Based on project schedules and estimates provided to WEG, this strong growth is expected to continue well into 2026 and beyond.

II. The Economic Development Importance of Space Florida on the State: A Qualitative Assessment

SpaceX successfully docking its Crew Dragon spacecraft to the International Space Station (ISS), the first commercial crew vehicle to ever reach the station and the start of an exciting new era of human spaceflight. (Photo Credit: NASA/SpaceX)

This Qualitative Section presents Space Florida as a critical component of the economic development strategy of the State and as a key enabler of both the retention and growth of Florida's high-wage, high-skill aerospace research and development cluster. The Washington Economics Group® (WEG®) was retained by Space Florida to conduct an independent economic impact study of the organization's activities. WEG® economists and team find it valuable and important to analyze the economic impacts that go beyond what can accurately be quantified. (The quantitative analysis can be found in Section III that follows.)

To understand the comprehensive economic impacts of Space Florida's multifaceted activities and investments, it is necessary to analyze its overall economic development impact on Florida. These qualitative benefits (also called "externality benefits") highlight the important benefits that accrue beyond what can be measured utilizing widely used Input/Output (I/O) methodology. Space Florida is a catalyst for innovation and high-wage job growth in a targeted industry (Aero). This aligns Space Florida's operations with the stated goals of Florida elected officials, leaders and stakeholders, and creates "externality benefits" that would therefore not happen but for Space Florida. Upon assessment, Space

Florida's comprehensive economic development benefits go far beyond the quantifiable economic impacts.

Background

The Aerospace/Aviation industry has been instrumental to the economic development of Florida since nearly its beginning. Long before Florida was a global economic powerhouse, citizens in the State began to a develop a nascent, but important value chain around aviation. The first Florida manned flight took place in 1910 with the first flight school being founded in 1912. During World War I, America looked to develop its capabilities in aviation and found in Florida an ideal climate to develop the industry. In the twenties, Florida was booming. Eddie Rickenbacker established Florida Airways in 1926. Florida Airways had a fleet of 4 Ford-Stout monoplanes that could carry 8 passengers and 2 crewmembers. Fares were based on railroad fares plus $5 for each hour saved. It cost $30 to ride the train from Jacksonville to Tampa and $70 by plane because the plane saved 8 hours. Passenger service was established among Miami, Ft. Myers, Tampa, Jacksonville, Atlanta and Macon. The flight of a Fokker tri-motor F-7 from Key West to Havana in 1927 marked the birth of Pan American World Airways[4]. In the late 1930s John Paul Riddle moved to Florida and founded what would become the pre-eminent Aerospace/Aviation focused comprehensive higher education and research university: Embry-Riddle Aeronautical University.

In the 1950s, America was waging a cold war against the Soviet Union. The Soviets shocked the world with the launch of Sputnik pushing President Eisenhower to create NASA in response in 1958. In 1961, America launched its first man in space, Alan B. Shepard, from Cape Canaveral in Florida aboard the Freedom 7. This historical act was momentous not only for the United States but, importantly, for Florida.

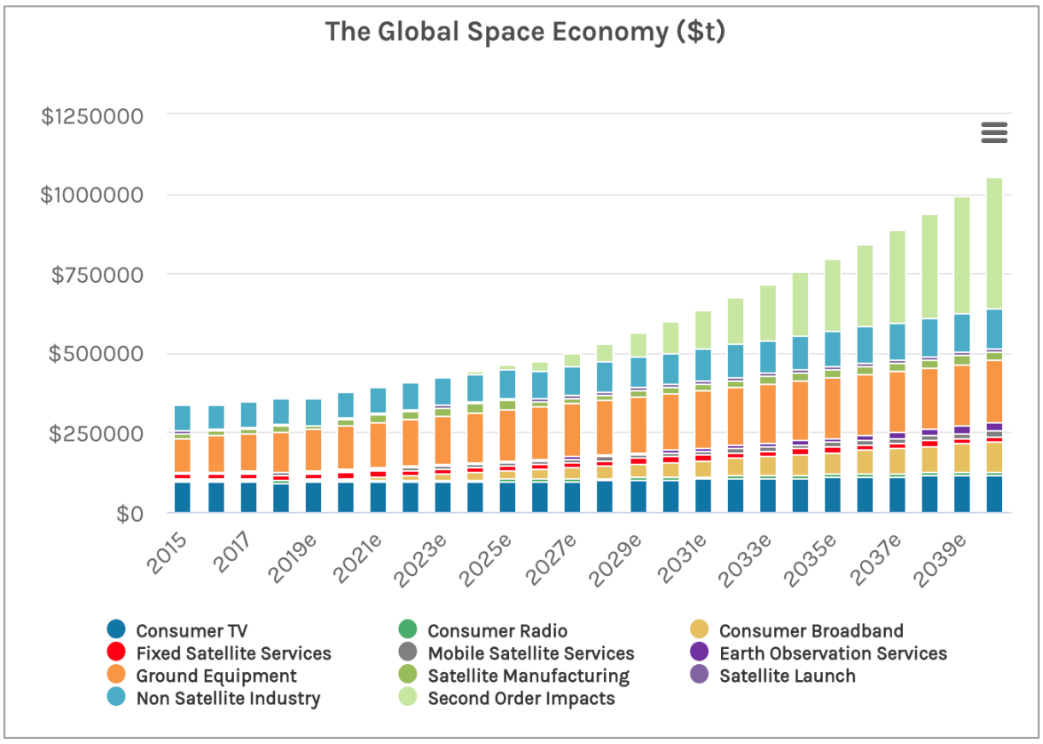
Since the 1960s, Florida has grown into one of the most dynamic economies in the world. With 22 million residents and $1.2 trillion in Gross State Product (GSP), Florida would be a top 15 global economy if it was its own country. From the small, but important beginnings, Florida's aviation and aerospace/defense industry now boasts 21 military bases positioned around the State. Further, Florida has 3 spaceports including the original one at Cape Canaveral, and is the launch capital of the world, having conducted 62 of America's 67 space launches over two years from 2020 to 2021. Florida also has globally connected top airports. All of these economic assets are creating **a structural shift in Florida's brand and image**, from a tourism-based economy into an economy of the present and the future.

[4] http://fcit.usf.edu/florida/lessons/aviation/aviation.htm

The Space Economy in Florida

Florida is well-positioned to benefit from the growth of the space economy. According to the Space Foundation[5], in 2020, the global space economy rose to $447 billion, an increase of 4.4 percent from a revised 2019 total of $428 billion. This $447 billion space economy is 55 percent higher than a decade ago and part of a five-year trend of uninterrupted growth. Commercial space activity grew 6.6 percent to nearly $357 billion in 2020, still representing close to 80 percent of the total space economy. Global government space spending fell 1.2 percent in 2020 to $90.2 billion from a revised 2019 peak of $91.4 billion. Nearly 58 percent of this total was allocated to space activities by the U.S. as presented in the graphic below.

> *"The revenue generated by the global space industry may increase to more than $1 trillion by 2040"* with most of this growth coming from broadband and communications opportunities.
>
> *Morgan Stanley*[6]



Source: Haver Analytics, Morgan Stanley Research Forecast.

The second order effects are benefits to internet companies due to growing availability of internet broadband from space.

[5] https://www.spacefoundation.org/2021/07/15/global-space-economy-rose-to-447b-in-2020-continuing-five-year-growth/
[6] https://www.morganstanley.com/ideas/investing-in-space.

A major breakthrough occurred in the Mid-2010s when SpaceX, a private space company owned by billionaire Elon Musk, successfully landed and reused a rocket. Reusable rockets present a paradigm shift for the industry, and Florida is poised to benefit. As reusable rockets need maintenance and support, and as satellite and space vehicle companies need servicing and manufacturing near the launch site, Florida has developed a strong value chain around the aerospace industry cluster led by Space Florida.

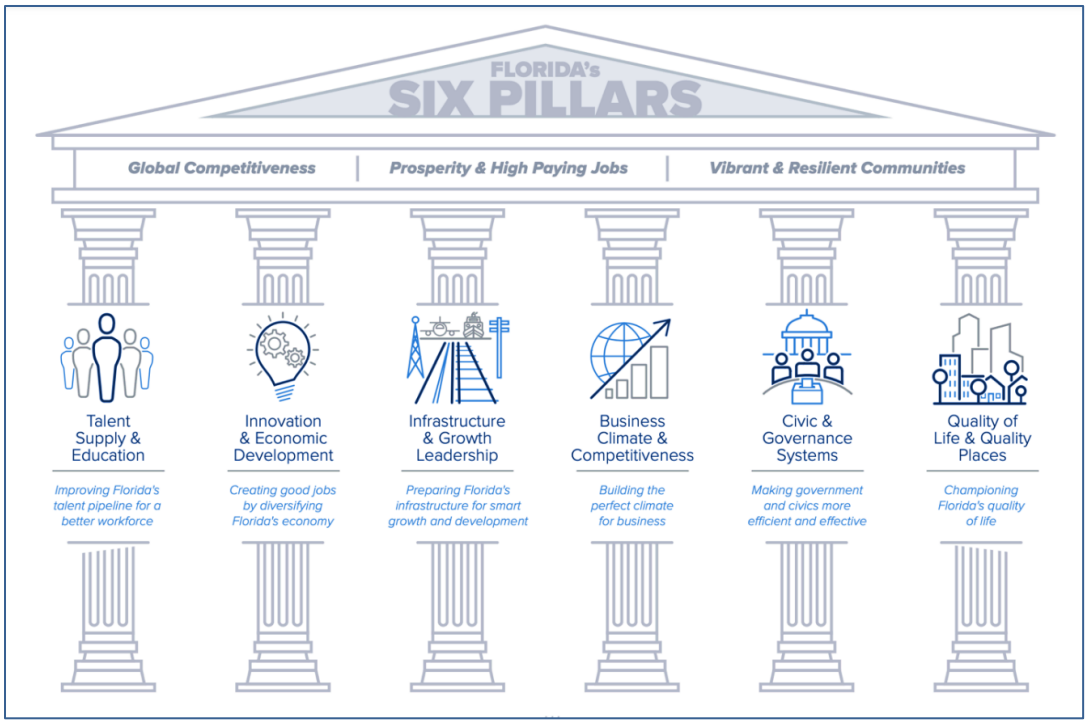
Aerospace/Aviation is one of the State's strongest and most established industries. With over 200,000 industry employees, Florida's Aerospace/Aviation industry is critical to the present and future development of the State[7]. It was, therefore, ideal for state leaders in Florida to create Space Florida in 2006. By bringing together civil, commercial and military coordination between all aerospace efforts, Florida benefits through the alignment and clarity of vision and focus that Space Florida brings to the aerospace sector. It is a visionary merger of all public and private aerospace sector efforts. Space Florida is essential to Florida's overall economic fabric and important in making Florida competitive in the fierce competition for aerospace industry dollars that has already begun.

Boeing's Chris Ferguson tests Boeing's new spacesuit designed to be worn by astronauts flying on the CST-100 Starliner. On May 19, 2022 Starliner launched to Space Station on Uncrewed Flight Test for NASA. This spacecraft was manufactured and built in a Space Florida enabled facility. Photo Credit: Boeing.

Florida's Economic Development Strategy: The Key Role of Space Florida

To best understand the qualitative benefits of an organization to the state, it is important to understand the economic development strategy for the region and the state. According to the Florida Chamber of Commerce's six pillars framework, **Space Florida supports all of them.**

[7]Aviation & Aerospace Industry in Florida (enterpriseflorida.com)



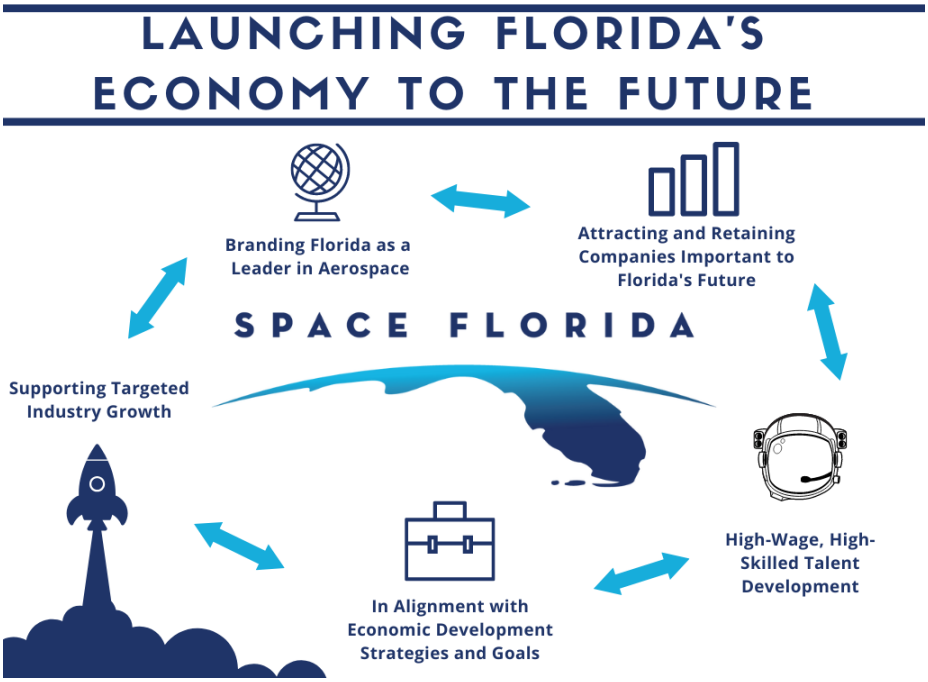
Florida's goal of being a top 10 global economy is bold. To achieve this, the Chamber has centered Florida's pillars around 6 areas that will support the future growth of the Sunshine State. Space Florida is mission critical to almost all the 6 pillars making the organization truly catalytic in its impact for the State. Of the 6 pillars the most important areas that Space Florida directly supports are:

- **Innovation & Economic Development.** Businesses in Florida recognize that public investment in economic development and innovation is important for Florida's goals and aims. Space Florida is a unique business development organization highly focused and targeted as the enabler of important growth industry of the present and the future.

- **Infrastructure & Growth Leadership.** As the world's economic activity moves up to space and away from the planet, it makes it imperative for Florida to invest around the space economy's infrastructure. Now that Florida has three spaceports, Space Florida's programs and investments into infrastructure surrounding space companies will generate positive outcomes for the industry, ultimately attracting and retaining more Aerospace/Aviation-oriented firms.

- **Business Climate & Competitiveness.** The key in economic development is to create a virtuous cycle and clustering effect. Space Florida makes Florida's business climate stronger and improves the State's competitiveness in attracting, growing and retaining Aerospace/Aviation-oriented companies.

To understand graphically the overall benefits to economic development, the Matrix below presents the multifaceted benefits of Space Florida. Space Florida is essential to Florida's economy because it is focused on a targeted, important and growing industry. This supports the development of high-wage jobs for Floridians and aligns well with public policymakers and stakeholders. During this alignment, a synergistic effect is created making the impact go far beyond what can be accurately measured.



In conclusion, Florida's space sector is only experiencing the beginning of its potential. As the value chain develops around reusable rockets and its aerospace supply chain deepens. Florida is well-positioned to benefit. However, it is important as a State to continue to support active investment into programs like Space Florida to nurture, develop, grow, retain and attract high-wage targeted employment from this key sector. The following section explores the quantitative economic impact of Space Florida on Florida's economy, including operations and active attraction of aerospace businesses.

III. The Quantifiable Comprehensive Economic Impacts of Space Florida on the State

The comprehensive economic impacts of Space Florida include both *qualitative* and *quantitative* categories of impacts. The *quantifiable* economic benefits of Space Florida include the following three broad categories of economic impacts:

1. Impact of Space Florida's Annual Operating Expenses

Space Florida's annual financial statements are publicly available, and the annual operating expenses are included as part of this economic analysis (minus depreciation).[8]

2. Impact of Space Florida's Direct Financial Investment

As part of Space Florida's enabling statute (Chapter 331 Part II Florida Statutes), Space Florida has the authority to conduct off balance sheet financing transactions, including financing transactions in situations where commercial land ownership is not reasonably possible such as improvements in Federal installations. These complex financial structures are typically at lower interest costs than incrementally possible by the company. Since 2010, Space Florida has leveraged $245 million initial cash investment up to $2.7 billion in financing transactions.[9]

3. Impact of Capital Expenditures by Space Florida's Clients

Even though capital investment by Space Florida's clients is not reflected on the balance sheet, Space Florida makes possible these investments. In addition, clients are able to take advantage of multiple tax exemptions when partnering with Space Florida, such as exemptions on property taxes. Due to this, the capital expenditures of Space Florida's clients are considered as part of the economic impact, as this spending would not have happened without the presence of Space Florida.

The quantifiable economic impacts of Space Florida extend beyond what is *directly* related to these three categories of spending. These "spillover" or multiplier impacts are primarily the result of the impact of local industries buying goods and services from other local industries (known as an *indirect* effect), as well as increased labor income and the propensity of households to spend income on goods produced within the State and local

[8] Financial Information – Space Florida
[9] Why Florida – Space Florida

areas (known as an *induced* effect). The following sections estimate the positive economic impacts of Space Florida in terms of:

- *Employment (Jobs)*
- *Household Income*
- *Gross Domestic Product (Value Added)*
- *Total Economic Impact (Gross Economic Output)*
- *Public Revenues (taxes) for State and Local Governments*

WEG quantified and estimated the comprehensive economic impacts of Space Florida utilizing the professionally accepted and widely used IMPLAN Input/Output Methodology. The IMPLAN Group, LLC. (IMPLAN) provides the software and basic data needed to formulate the economic multiplier model developed for this study. IMPLAN has been providing economic multiplier models for regional economic impact analysis since 1985.[10] IMPLAN models are widely used by both public and private-sectors decision makers throughout Florida.

The *direct, indirect* and *induced* economic effects provided by the IMPLAN model were combined in the Tables and Figures that follow. These impacts are presented in 2022 dollars, but include all spending by the entity and clients since 2007. The following text provides a technical description of the *direct, indirect* and *induced* multiplier effects. For more information on the IMPLAN model, see Methodology below.

Input/Output Methodology: Technical Description

Economic models that explicitly account for inter-industry linkages (supply relationships), the generation of labor and capital income and the spending of household income have been used since the 1960's to estimate the contribution that a particular business or industry makes to the general economy. These "input-output" models recognize that, as an industry experiences an increase in the demand for its products or services, it in turn needs more goods and services from its suppliers and must increase its purchases from other industries in the economy. The effect on regional production resulting from successive rounds of inter-industry linkages is referred to as the *indirect effect.* The resulting increases in regional production also lead to expansions in employment and labor income, and the increases in labor income lead to increases in consumer spending, further expanding sales and production throughout the regional economy. The latter economic impacts are referred to as the *induced effects*. The successive waves of production, spending and more production result in *economic multiplier effects*, where the final or total increase in regional production, income and employment, respectively, is larger than the initial (or "direct") increase in production, income and employment. The total

[10]Information on the IMPLAN Group, LLC models and the company history can be found at www.implan.com.

quantitative economic contribution of these activities, therefore, is comprised of a *direct effect*, an *indirect effect* and an *induced effect*.

A. Summary of the Economic Impacts of Space Florida Projects Since 2007

The Total Economic Impact of Space Florida over the last 15 years is $5.9 billion, which includes all projects completed between 2007–2021. Of this total, just under $3.1 billion (or 52 percent) is due to *direct* economic effects, with $2.8 billion (or 48 percent) attributable to *indirect* and *induced* economic effects. In addition, Space Florida has supported **over 29,100 jobs**, **$1.7 billion in Household Income**, **close to $2.8 billion in GDP** throughout Florida and contributed **$548 million in Federal, State & Local Fiscal Revenues**. This is detailed in Table 1 below, which total these impacts in terms of *direct*, *indirect* and *induced* effects, and in Table 2, which total these impacts in terms of 5-year increments.

Table 1. Summary of the Economic Impacts Generated by Space Florida Projects (By Impact Type)

Impact on:	Direct	Indirect & Induced	Total Impact
Employment (Jobs)	13,026	16,124	**29,151**
Household Income ($ Million)	$831	$912	**$1,743**
GDP (Value Added $ Million)	$1,274	$1,499	**$2,773**
Total Economic Impact ($ Million)	$3,074	$2,816	**$5,890**
Federal, State & Local Fiscal Revenues ($ Million)	$208	$340	**$548**

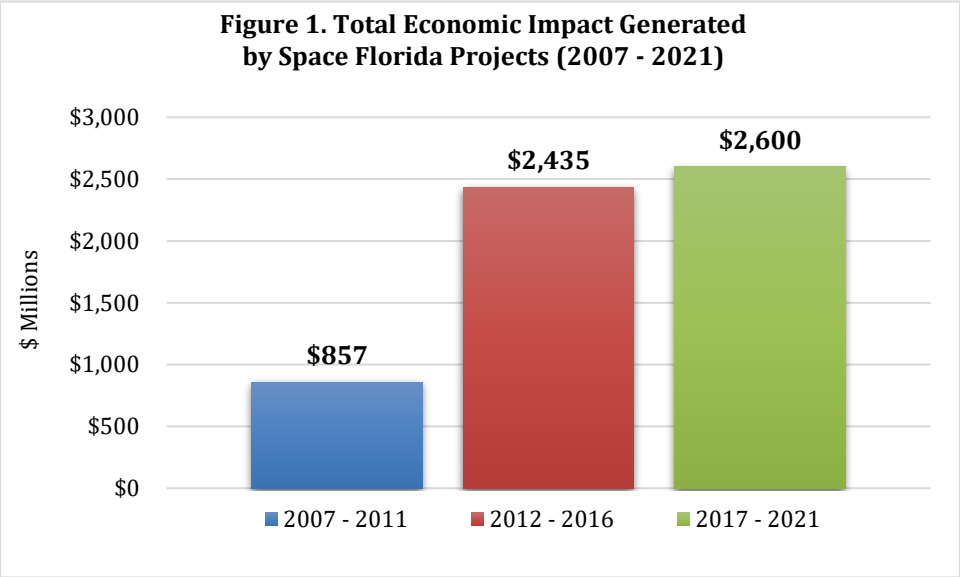
Note: Total may not equal the sum of all due to rounding. See Detailed Impact Tables in Appendix III.
Source: The Washington Economics Group® (WEG®)

Table 2. Summary of the Economic Impacts Generated by Space Florida Projects (By 5-Year Increments)

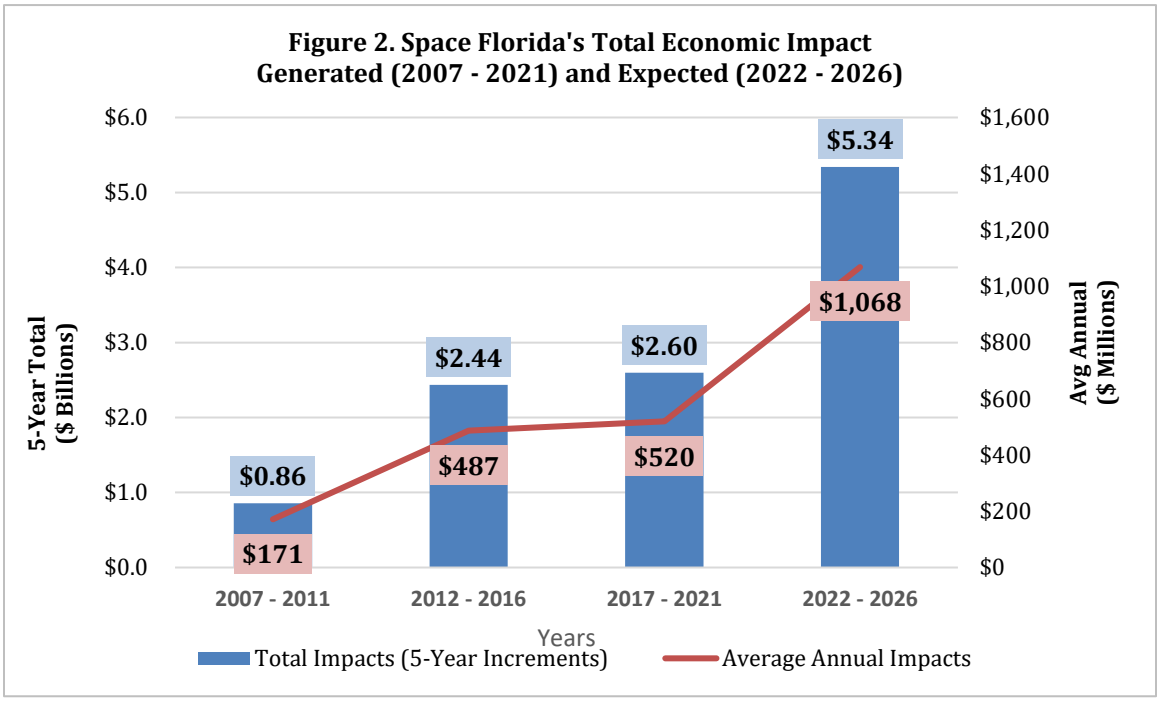
Impact on:	2007-2011	2012-2016	2017-2021	Total Impact
Employment (Jobs)	4,162	12,009	12,979	**29,151**
Household Income ($ Million)	$255	$722	$766	**$1,743**
GDP (Value Added $ Million)	$402	$1,143	$1,228	**$2,773**
Total Economic Impact ($ Million)	$857	$2,435	$2,598	**$5,890**
Federal, State & Local Fiscal Revenues ($ Million)	$88	$231	$229	**$548**

Note: Total may not equal the sum of all due to rounding.
Source: The Washington Economics Group® (WEG®)

As detailed on Table 2 on the previous page, **Space Florida's average annual impacts have been steadily increasing since 2007**. **The average *annual* Total Economic Impact was $171 million between 2007 and 2011, $487 million between 2012 and 2016, and $520 million between 2017 and 2021.** Figure 1 below summarizes the increasing Total Economic Impacts from 2007 to 2021, and Figure 2 below includes future expected impacts through 2026.



Source: The Washington Economics Group® (WEG®).



Source: The Washington Economics Group® (WEG®).

B. Over 29,100 Jobs Are Supported by Space Florida Projects Since 2007

Over 29,100 jobs for Florida residents result *directly* or *indirectly* from Space Florida, which is summarized in Table 3 on the next page. The Space Florida activities *directly* created 13,026 permanent jobs throughout the economy. An additional 16,124 are supported via *indirect* and *induced* impacts (See Table 1, page 15).

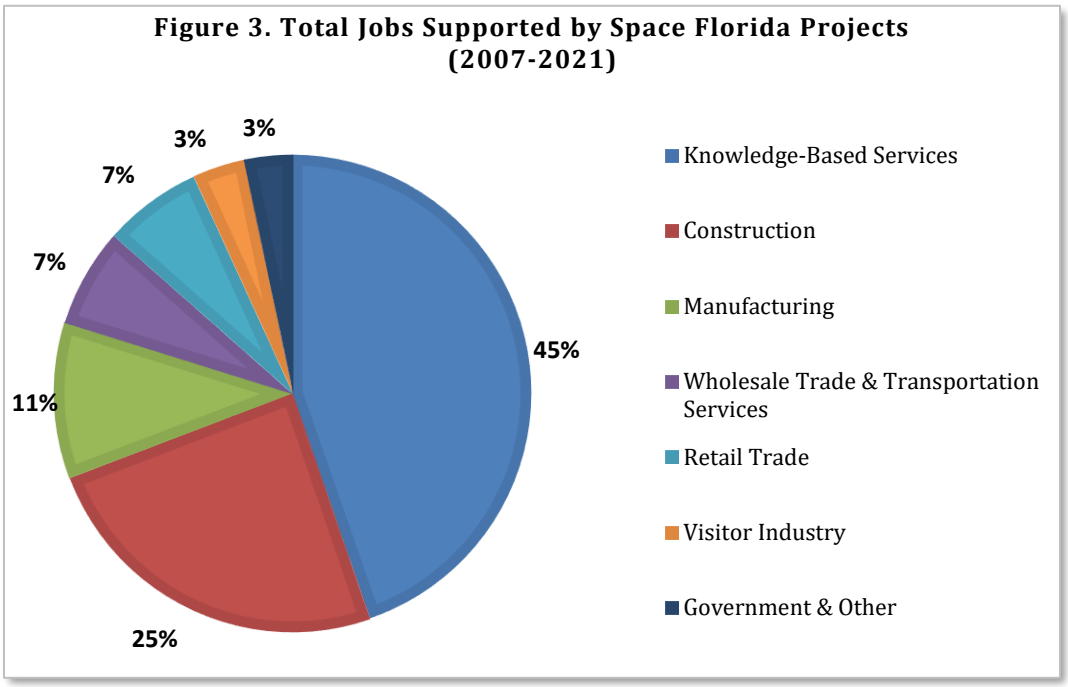
In total, 29,151 jobs were supported throughout the State by Space Florida. Of these jobs supported, 13,032 (or 45 percent) are in the Knowledge-Based Services industry sector. **Knowledge-Based Services include categories such as Professional Services, Real Estate and Finance, and jobs within this industry sector pay higher than the statewide average.** The next most important industry sector is Construction, with 25 percent of the impacts (7,144 jobs), and the third most important is Manufacturing with 11 percent of the impacts (3,091 jobs). The remaining 20 percent is spread throughout various industry sectors such as Wholesale Trade & Transportation Services, Retail Trade, Visitor Industry, Government & Other as detailed in Table 3 below and Figure 3 on the next page.

Table 3. Total Jobs Supported by Space Florida Projects (2007-2021)

Industry	Jobs Supported	% of Total
Knowledge-Based Services[11]	13,032	**45%**
Construction	7,144	**25%**
Manufacturing	3,091	**11%**
Wholesale Trade & Transportation Services	1,953	**7%**
Retail Trade	1,941	**7%**
Visitor Industry	1,038	**3%**
Government & Other	951	**3%**
Total	**29,150**	**100%**

Note: Total may not equal the sum of all due to rounding. See Detailed Impact Tables in Appendix III.
Source: The Washington Economics Group® (WEG®)

[11]Major industries under this category are: Education, Information, Finance and Insurance, Real Estate, Professional, Administrative Services and Arts, Entertainment & Recreation.



Source: The Washington Economics Group® (WEG®).

C. Space Florida Projects Have Created Over $1.7 Billion in Household Income Since 2007

Space Florida is an important generator of Household Income each year, creating *directly* $831 million. *Indirect* and *induced* impacts generate $912 million in Household Income in the State of Florida. (See Table 1, page 15.) The total amount of Household Income generated by Space Florida is over $1.7 billion as detailed in Table 4 on the following page

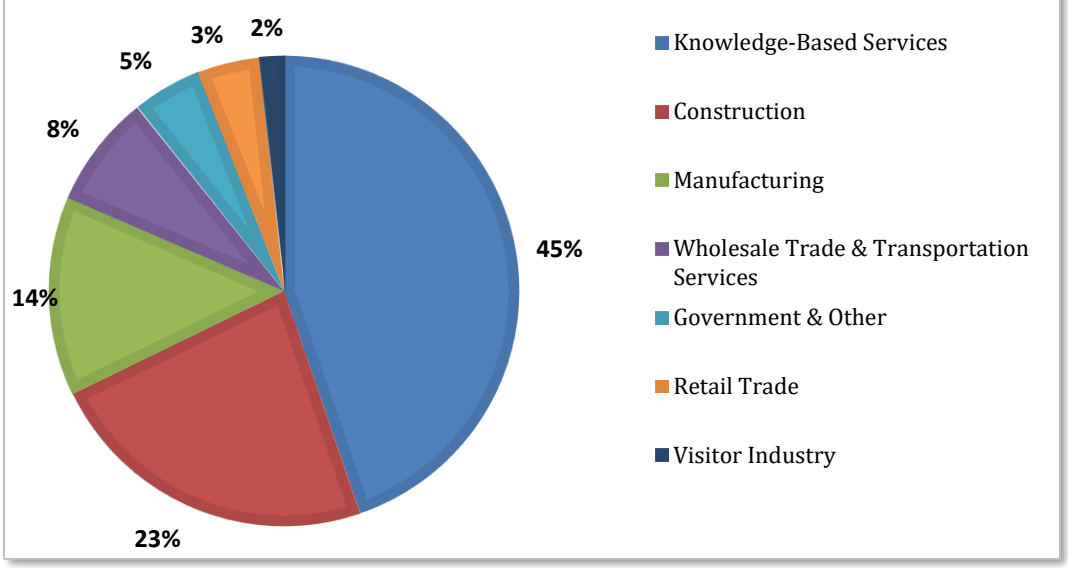
As with the jobs supported, the largest share of Household Income is within the high-wage Knowledge-Based Services sector, comprising almost $780 million (or 45 percent) of the impacts. Construction is the next most important sector with $402 million (or 23 percent) in total Household Income for Florida residents, and Manufacturing generated $239 million in Household Income. The remaining 18 percent is spread throughout other industry sectors, with Wholesale Trade & Transportation Services accounting for the largest portion of the remaining impact. This is presented in Figure 4 on the next page.

Table 4. Household Income Generated by Space Florida Projects (2007-2021)
($ Thousands)

Industry	Total Impacts	% of Total
Knowledge-Based Services[12]	$779,761	**45%**
Construction	$402,198	**23%**
Manufacturing	$239,048	**14%**
Wholesale Trade & Transportation Services	$135,335	**8%**
Government & Other	$83,430	**5%**
Retail Trade	$73,712	**3%**
Visitor Industry	$29,726	**2%**
Total	**$1,743,210**	**100%**

Note: Total may not equal the sum of all due to rounding. See Detailed Impact Tables in Appendix III.
Source: The Washington Economics Group® (WEG®).

Figure 4. Total Household Income Generated by Space Florida Projects (2007-2021)



Source: The Washington Economics Group® (WEG®).

[12]Ibid.

D. Space Florida Projects Create Significant Additions to Gross Domestic Product (GDP) Since 2007

Gross Domestic Product (Value Added) is the portion of business revenue that is available to pay compensation to workers, capital income and indirect business taxes[13]. It is also the principal source of income to households and a key measure of the contribution to the economy made by the activities of Space Florida, resulting in a contribution to the State economy of just over $2.7 billion as shown in Table 5 on the next page. Of this, close to $1.3 billion is attributed to *direct* impacts, and $1.5 billion comes from *indirect* and *induced* impacts (See Table 1, page 15).

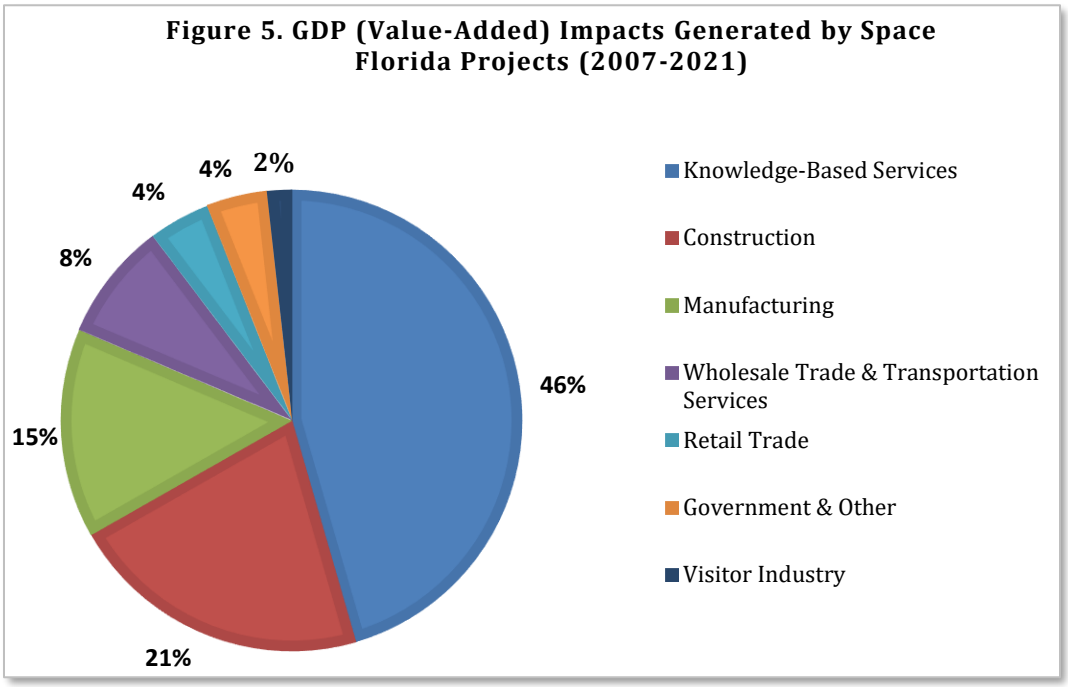
As with the previous economic impact measures, the largest value added to the economy due to Space Florida's projects since 2007 is in the Knowledge-Based Services, with close to $1.3 billion (46 percent) of the impact. The Construction sector comprises another $589 million (or 21 percent), and Manufacturing comprises $406 million (15 percent). Wholesale Trade & Transportation Services accounts for another $231 million (or 8 percent), and the remainder 10 percent is spread among various other industry sectors such as Retail Trade, Government & Other and Visitor Industry. This is detailed in Table 5 below and Figure 5 on the next page.

Table 5. GDP (Value-Added) Impacts Generated by Space Florida Projects (2007-2021) ($ Thousands)

Industry	Total Impacts	% of Total
Knowledge-Based Services[14]	$1,262,197	**46%**
Construction	$589,133	**21%**
Manufacturing	$406,214	**15%**
Wholesale Trade & Transportation Services	$231,018	**8%**
Retail Trade	$119,657	**4%**
Government & Other	$117,261	**4%**
Visitor Industry	$47,159	**2%**
Total	**$2,772,640**	**100**

Note: Total may not equal the sum of all due to rounding. See Detailed Impact Tables in Appendix III.
Source: The Washington Economics Group® (WEG®).

[13] Value added also includes compensation to government workers.
[14] Ibid.



Source: The Washington Economics Group® (WEG®).

E. The Total Economic Impact Generated by Space Florida Projects is a Significant Close to $6 Billion Since 2007

Total Economic Impact represents the sum of commercial transactions taking place in the economy**. The Total Economic Impact of Space Florida amounts close to $6 billion in the State of Florida as detailed in Table 6 below,** generating *directly* $3 billion. *Indirect* and *induced* generate $2.8 billion (See Table 1, page 15).

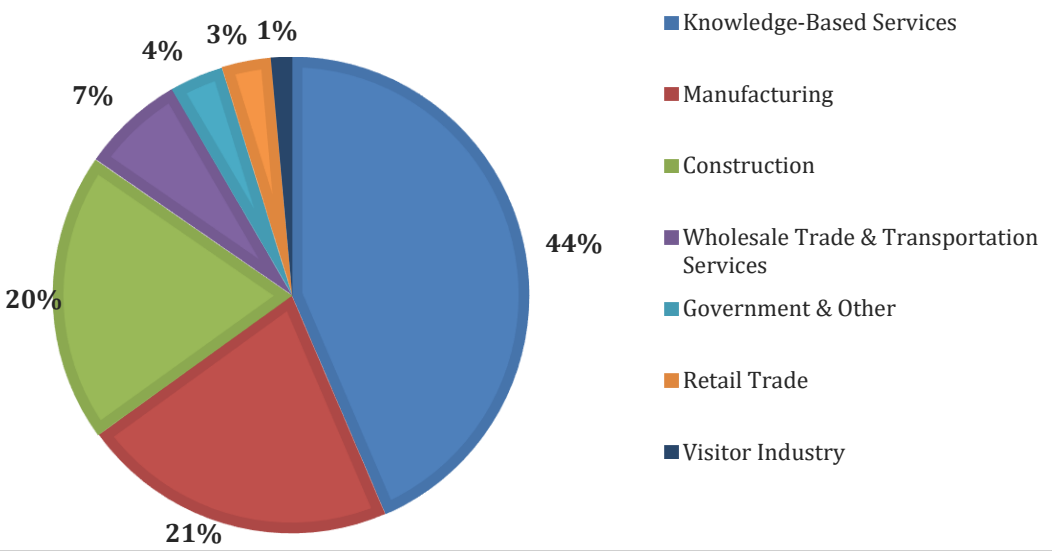
Table 6 and Figure 6 on the next page show the distribution of the Total Economic Impact throughout a variety of Florida's top industries. Over $2.5 billion (or 44 percent) of the impacts occur within Knowledge-Based Services, followed by Manufacturing with almost $1.3 billion (or 21 percent) and Construction with close to $1.2 billion (20 percent). More than $412 million (or 7 percent) of the total impact is generated in Wholesale Trade & Transportation Services. The remaining 8 percent is distributed within the Government & Other, Retail Trade and the Visitor Industry.

Table 6. Total Economic Impact Generated by Space Florida Projects (2007-2021) ($ Thousands)

Industry	Total Impacts	% of Total
Knowledge-Based Services[15]	$2,564,731	**44%**
Manufacturing	$1,265,991	**21%**
Construction	$1,155,255	**20%**
Wholesale Trade & Transportation Services	$412,523	**7%**
Government & Other	$213,849	**4%**
Retail Trade	$195,714	**3%**
Visitor Industry	$81,914	**1%**
Total	**$5,889,978**	**100%**

Note: Total may not equal the sum of all due to rounding. See Detailed Impact Tables in Appendix III.
Source: The Washington Economics Group® (WEG®).

Figure 6. Total Economic Impact Generated by Space Florida Projects (2007- 021)



Source: The Washington Economics Group® (WEG®).

[15]Ibid.

F. Federal, State, and Local Fiscal Revenues Generated by Space Florida Projects Total Almost $550 Million Since 2007

The economic impacts of Space Florida result in important annually recurring Fiscal Revenues for Federal, State & Local governments. These arise via *direct*, *indirect* and *induced* economic effects due to increased economic activity as a result of Space Florida's presence as detailed in Table 7 below. In total, over $548 million in tax revenue has been generated from Space Florida. Of this total, **$411 million flows to the Federal government, and over $137 million flows to the State as well as Local governments within Florida.**

Table 7. Fiscal Contributions Generated by Space Florida Projects (2007-2021)
($ Thousands)

Impact on:	Federal Taxes	State and Local Taxes	Total
Labor	$210,219	$537	**$210,756**
Capital	$3,955	$0	**$3,955**
Indirect Business Taxes	$12,846	$129,180	**$142,026**
Households	$163,391	$1,734	**$165,125**
Corporations	$20,672	$5,887	**$26,559**
Total Tax Revenues	**$411,083**	**$137,337**	**$548,420**

Note: Total may not equal the sum of all due to rounding.
Source: The Washington Economics Group® (WEG®).

G. Space Florida Projects Are Expected to Generate Over $5.3 Billion in Total Economic Impact Between 2022 and 2026

Space Florida's Total Economic Impact is expected to be $5.3 billion over the next 5 years, representing an average annual impact of $1.1 billion each year beginning in 2022. This represents a significant increase in average impacts from the prior years that were studied (2007-2021).

As detailed in the previous Sections, Space Florida's economic impacts have been increasing over the last 15 years. Based on preliminary project schedules and financing documents for projects beginning in 2022 and 2023, WEG estimated Space Florida's Total Economic Impact over the next 5 years (2022-2026). This increase is due in large part to a number of planned capital-intensive projects, such as a $1.7 billion *direct* investment in a microelectronics facility expected to begin construction in 2023. Space Florida's current pipeline of potential projects is double the value of the projects transacted to date. Table 8

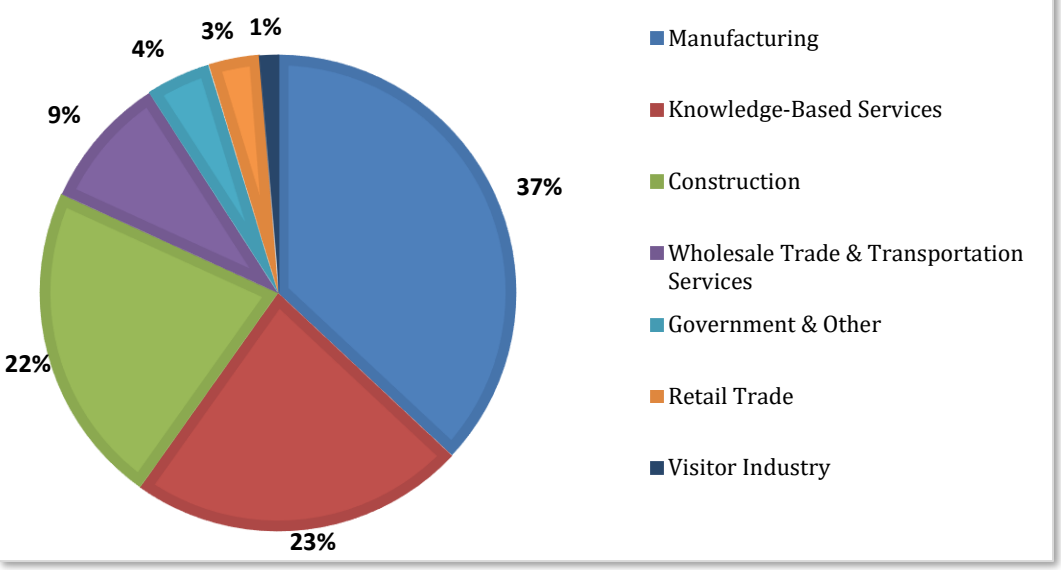
and Figure 7 below detail the expected impacts over the next 5 years, along with the industry sectors affected.

Table 8. Estimated Total Economic Impact Generated by Space Florida Projects Between 2022 and 2026 ($ Thousands)

Industry	Total Impacts	% of Total
Manufacturing	$1,974,406	**37%**
Knowledge-Based Services[16]	$1,220,348	**23%**
Construction	$1,173,944	**22%**
Wholesale Trade & Transportation Services	$486,044	**9%**
Government & Other	$233,539	**4%**
Retail Trade	$184,751	**3%**
Visitor Industry	$67,054	**1%**
Total	**$5,340,086**	**100%**

Note: Total may not equal the sum of all due to rounding. See Detailed Impact Tables in Appendix III.
Source: The Washington Economics Group® (WEG®).

Figure 7. Estimated Total Economic Impact Generated by Space Florida Projects (2022 - 2026)



Source: The Washington Economics Group® (WEG®).

[16]Major industries under this category are: Education, Information, Finance and Insurance, Real Estate, Professional, Administrative Services and Arts, Entertainment & Recreation.

In summary, the quantifiable economic impacts of Space Florida are significant, and have been steadily increasing over the last 15 years, due to Space Florida's operating and financing of projects as well as capital investment by clients facilitated by the entity.

SpaceX's unprecedented double booster landing following the successful first launch of SpaceX Falcon Heavy in 2018. Photo by SpaceX on Unsplash

Appendix I:
Methodology

IMPLAN Model

The multiplier impacts calculated by the IMPLAN model are based on input-output methodology, which explicitly considers the inter-industry linkages that exist within an economy. Each industry needs labor and inputs from other industries in order to produce economic output. Whenever an industry experiences an increase in the demand for its output, many other industries within that economy indirectly experience an increase in demand as well because of these inter-industry linkages. This increase in demand that results from the need for material inputs is called the *indirect effects*. In addition, an increase in production within a region also leads to an increase in household income through the hiring of workers, which in turn generates further demands for goods and services within the region. Firms also need to expand their base of physical capital to meet higher levels of demand, and this too stimulates regional economic growth. The latter effects are referred to as *induced effects*. The inter-industry linkages and the induced effects on consumer and capital spending lead to successive rounds of production, and this process results in an increase in output that exceeds the initial change in demand, or a *multiplier effect*. Similarly, the increase in household income will exceed the initial payroll increase encountered in the industry that experienced the original increase in demand. The total change in employment in the regional economy is a multiple of the direct change in employment.

The following represents the system of equations that comprise the regional economy in an extended input-output model like IMPLAN:

$$
\begin{aligned}
x_1 &= a_{11}x_1 + a_{12}x_2 + a_{13}x_3 + \cdots + a_{1k}x_k + a_{1h}x_h + a_{1i}x_i + f_1 \\
x_2 &= a_{21}x_1 + a_{22}x_2 + a_{23}x_3 + \cdots + a_{2k}x_k + a_{2h}x_h + a_{2I}x_I + f_2 \\
x_3 &= a_{31}x_1 + a_{32}x_2 + a_{33}x_3 + \cdots + a_{3k}x_k + a_{3h}x_h + a_{3i}x_i + f_3 \\
&\vdots \\
x_k &= a_{k1}x_1 + a_{k2}x_2 + a_{k3}x_3 + \cdots + a_{kk}x_k + a_{kh}x_h + a_{ki}x_i + f_k \\
x_h &= a_{h1}x_1 + a_{h2}x_2 + a_{h3}x_h + \cdots + a_{hk}x_k + a_{hh}x_h + a_{hi}x_i + f_h \\
x_i &= a_{i1}x_1 + a_{i2}x_2 + a_{i3}x_h + \cdots + a_{ik}x_k + a_{ih}x_h + a_{ii}x_i + f_i
\end{aligned}
$$

The variables x_1 to x_k represent total production of output in each industry. The coefficients a_{ij} represent the purchases from industry "i" that are needed to produce a dollar of output in industry "j". These are known as the *direct requirement* coefficients. The variable x_h refers to household income and the coefficients a_{ih} refer to the average amount of household

income spent on purchases from industry "i", or the *average propensities to consume*. The coefficients a_{hi} are similar to the inter-industry purchases (a_{ij}'s), but they represent the household income that is generated from each dollar of output produced in industry "i". Similarly, the variable x_I represents regional spending on capital goods, and the coefficients a_{Ij} represents the spending on capital goods for each dollar of output produced in industry "j". The coefficients a_{jI} represent the amount purchased from industry "j" for each dollar spent on capital goods within the region. The variables f_j represent the exogenous final demand faced by each industry, respectively.

This system of equation reduces, using matrix notation, to the following solution for industry output and household income:

$$X = (I - A)^{-1} F$$

X is the vector of industry outputs plus household income and F is a vector of exogenous final demands. The "output multipliers" (i.e., the change in industry output and household income that results from a change in final demand for the output of a particular industry) are given in the columns of the $(I-A)^{-1}$ matrix. The IMPLAN software calculates these multipliers for counties, states and other sub-state regions. These multipliers can be used to provide a sense of the economic importance of an industry or an economic activity in a given region. The multipliers' impacts for gross state product, labor and capital income and the government revenue impacts are derived from the basic output multipliers given by $(I-A)^{-1}$.

The IMPLAN model uses historical relationships between public-sector revenues and regional economic output in order to estimate the public-sector revenue impact resulting from the establishment of a new, or expansion of an existing economic activity.

Appendix II:
Economic Glossary

Definitions of Economic Terms Used in the Analysis

Employment	Total of full-time or part-time jobs.
Household (Labor) Income	All forms of employment income, including Employee Compensation (wages and benefits) and Proprietor Income.
Gross Domestic Product (GDP)	The increased value of a product as a result of the economic inputs (labor and capital) expended at a given stage. In the IMPLAN Model, GDP is the sum of: Employee Compensation, Proprietor Income, Other Property Type Income (Interest) and Indirect Business Taxes.
Economic Impact	Total value of all transactions attributed to an activity.
Direct Effects	The set of expenditures applied to the predictive model (i.e., I/O multipliers) for impact analysis. It is a series (or single) of production changes or expenditures made by producers/consumers as a result of an activity or policy. These initial changes are determined by an analyst to be a result of this activity or policy. Applying these initial changes to the multipliers in an IMPLAN model will then display how the region will respond, economically to these initial changes.
Indirect Effects	The impact of local industries buying goods and services from other local industries. The cycle of spending works its way backward through the supply chain until all money leaks from the local economy, either through imports or by payments to value added. The impacts are calculated by applying Direct Effects to the Type I Multipliers.
Induced Effects	The response by an economy to an initial change (direct effect) that occurs through re-spending of income received by a component of value added. IMPLAN's default multiplier recognizes that labor income (employee compensation and proprietor income components of value added) is not a leakage to the regional economy. This money is re-circulated through the household spending patterns causing further local economic activity.

Appendix III:
Detailed Impact Tables

Detailed Impact Tables

Within the main portion of the study the economic impacts are presented at a summary level. *Direct, Indirect* and *Induced* Impacts are aggregated into the Total Impact, and Industries are summarized by function. The following Tables present detailed impacts at the two-digit NAICS industry classification level.

The following industry sector summarizations are used in this study:

1. **Government & Other** is the sum of: Agriculture & Forestry, Mining, Utilities, Company Management and Government & Other.

2. **Knowledge-Based Services** is the sum of: Information, Finance & Insurance, Real Estate, Professional Services, Administrative, Educational Services, Health & Social Services, Arts, Entertainment & Recreation and Other Services.

3. **Wholesale Trade & Transportation Services** is the sum of: Wholesale Trade and Transportation & Warehousing.

4. The **Accommodation and Food Services** sector was renamed **Visitor Industry.**

The Economic Impacts of Space Florida Projects

Table A-1. Total Jobs Supported by Space Florida Projects Since 2007

Industry	Impacts			
	Direct	Indirect	Induced	Total
Agriculture & Forestry	0	247	58	305
Mining	0	19	1	20
Utilities	0	19	18	37
Construction	6,978	85	81	7,144
Manufacturing	2,755	265	71	3,091
Wholesale Trade	94	576	205	875
Retail Trade	0	778	1,164	1,941
Transportation & Warehousing	0	735	343	1,078
Information	0	136	125	261
Finance & Insurance	3,199	1,627	717	5,543
Real Estate	0	411	685	1,096
Professional Services	0	1,268	441	1,709
Company Management	0	339	92	431
Administrative	0	1,021	551	1,572
Educational Services	0	8	185	193
Health & Social Services	0	0	1,484	1,484
Arts, Entertainment & Recreation	0	53	196	249
Accommodation & Food Services	0	199	839	1,038
Other Services	0	349	577	926
Government & Other	0	83	74	157
Total:	**13,026**	**8,218**	**7,907**	**29,151**

Note: Total may not equal the sum of all due to rounding.
Source: The Washington Economics Group® (WEG®)

Table A-2. Household Income Generated by Space Florida Projects Since 2007
($ in Thousands)

Industry	Impacts			
	Direct	Indirect	Induced	Total
Agriculture & Forestry	$0	$10,135	$2,377	$12,513
Mining	$0	$495	$36	$531
Utilities	$0	$4,142	$3,875	$8,016
Construction	$392,838	$4,799	$4,561	$402,198
Manufacturing	$213,062	$20,520	$5,466	$239,048
Wholesale Trade	$9,166	$55,956	$19,863	$84,984
Retail Trade	$0	$29,524	$44,188	$73,712
Transportation & Warehousing	$0	$34,338	$16,013	$50,351
Information	$0	$14,361	$13,168	$27,529
Finance & Insurance	$216,194	$109,961	$48,480	$374,634
Real Estate	$0	$9,828	$16,375	$26,203
Professional Services	$0	$100,266	$34,865	$135,130
Company Management	$0	$37,094	$10,083	$47,177
Administrative	$0	$41,633	$22,450	$64,083
Educational Services	$0	$363	$8,285	$8,648
Health & Social Services	$0	$5	$96,746	$96,751
Arts, Entertainment & Recreation	$0	$1,648	$6,110	$7,758
Accommodation & Food Services	$0	$5,699	$24,027	$29,726
Other Services	$0	$14,715	$24,310	$39,025
Government & Other	$0	$8,021	$7,172	$15,193
Total	**$831,260**	**$503,503**	**$408,450**	**$1,743,210**

Note: Total may not equal the sum of all due to rounding.
Source: The Washington Economics Group® (WEG®)

Table A-3. GDP (Value-Added) Impacts Generated by Space Florida Projects Since 2007
($ in Thousands)

Industry	Impacts			
	Direct	Indirect	Induced	Total
Agriculture & Forestry	$0	$12,152	$2,850	$15,003
Mining	$0	$1,652	$121	$1,773
Utilities	$0	$15,070	$14,098	$29,168
Construction	$575,424	$7,029	$6,681	$589,133
Manufacturing	$362,057	$34,870	$9,288	$406,214
Wholesale Trade	$19,106	$116,641	$41,404	$177,151
Retail Trade	$0	$47,926	$71,731	$119,657
Transportation & Warehousing	$0	$36,735	$17,131	$53,866
Information	$0	$31,820	$29,176	$60,995
Finance & Insurance	$317,258	$161,364	$71,143	$549,764
Real Estate	$0	$93,523	$155,826	$249,349
Professional Services	$0	$118,886	$41,340	$160,226
Company Management	$0	$41,296	$11,225	$52,521
Administrative	$0	$47,878	$25,817	$73,695
Educational Services	$0	$377	$8,595	$8,972
Health & Social Services	$0	$5	$104,801	$104,806
Arts, Entertainment & Recreation	$0	$2,548	$9,444	$11,992
Accommodation & Food Services	$0	$9,042	$38,118	$47,159
Other Services	$0	$15,987	$26,412	$42,399
Government & Other	$0	$9,924	$8,874	$18,797
Total	**$1,273,845**	**$804,725**	**$694,075**	**$2,772,640**

Note: Total may not equal the sum of all due to rounding.
Source: The Washington Economics Group® (WEG®)

Table A-4. Total Economic Impact Generated by Space Florida Projects Since 2007
($ in Thousands)

Industry	Impacts			
	Direct	Indirect	Induced	Total
Agriculture & Forestry	$0	$19,477	$4,569	$24,046
Mining	$0	$7,213	$528	$7,741
Utilities	$0	$27,002	$25,261	$52,263
Construction	$1,128,371	$13,784	$13,100	$1,155,255
Manufacturing	$1,128,371	$108,673	$28,947	$1,265,991
Wholesale Trade	$32,081	$195,853	$69,522	$297,457
Retail Trade	$0	$78,389	$117,325	$195,714
Transportation & Warehousing	$0	$78,472	$36,595	$115,066
Information	$0	$70,812	$64,929	$135,741
Finance & Insurance	$785,410	$399,477	$176,122	$1,361,010
Real Estate	$0	$149,413	$248,949	$398,363
Professional Services	$0	$189,317	$65,830	$255,147
Company Management	$0	$71,371	$19,400	$90,772
Administrative	$0	$91,405	$49,288	$140,693
Educational Services	$0	$565	$12,873	$13,437
Health & Social Services	$0	$8	$175,306	$175,315
Arts, Entertainment & Recreation	$0	$3,593	$13,319	$16,912
Accommodation & Food Services	$0	$15,706	$66,209	$81,914
Other Services	$0	$25,683	$42,431	$68,114
Government & Other	$0	$20,604	$18,424	$39,027
Total	**$3,074,233**	**$1,566,817**	**$1,248,927**	**$5,889,978**

Note: Total may not equal the sum of all due to rounding.
Source: The Washington Economics Group® (WEG®)

Table A-5. Fiscal Contributions Generated by Space Florida Projects Since 2007
($ in Thousands)

Taxes Paid By	Federal Type Taxes	State / Local Type Taxes	Total Taxes
Labor	$210,219	$537	$210,756
Capital	$3,955	$0	$3,955
Indirect Business Taxes	$12,846	$129,180	$142,026
Households	$163,391	$1,734	$165,125
Corporations	$20,672	$5,887	$26,559
Total:	**$411,083**	**$137,338**	**$548,421**

Note: Total may not equal the sum of all due to rounding.
Source: The Washington Economics Group® (WEG®)

Table A-5. Estimated Total Economic Impact Generated by Space Florida Projects Between 2022 and 2026 ($ in Thousands)

Industry	Impacts			
	Direct	Indirect	Induced	Total
Agriculture & Forestry	$0	$30,217	$3,987	$34,204
Mining	$0	$9,259	$461	$9,719
Utilities	$0	$31,459	$22,046	$53,505
Construction	$1,151,988	$10,521	$11,435	$1,173,944
Manufacturing	$1,803,592	$145,549	$25,265	$1,974,406
Wholesale Trade	$44,256	$257,086	$60,679	$362,021
Retail Trade	$0	$82,346	$102,405	$184,751
Transportation & Warehousing	$0	$92,078	$31,944	$124,023
Information	$0	$51,208	$56,671	$107,879
Finance & Insurance	$0	$79,604	$153,757	$233,362
Real Estate	$0	$106,305	$217,306	$323,611
Professional Services	$0	$140,290	$57,462	$197,752
Company Management	$0	$85,589	$16,934	$102,523
Administrative	$0	$77,788	$43,023	$120,811
Educational Services	$0	$594	$11,245	$11,839
Health & Social Services	$0	$7	$153,007	$153,014
Arts, Entertainment & Recreation	$0	$2,506	$11,626	$14,131
Accommodation & Food Services	$0	$9,256	$57,798	$67,054
Other Services	$0	$20,913	$37,037	$57,949
Government & Other	$0	$17,507	$16,080	$33,587
Total	**$2,999,836**	**$1,250,082**	**$1,090,168**	**$5,340,085**

Note: Total may not equal the sum of all due to rounding.
Source: The Washington Economics Group® (WEG®)

Appendix: IV

About Space Florida

About Space Florida

Space Florida is an independent special district, a body politic and corporate, and a component unit of the state of Florida, created pursuant to the Space Florida Act (Florida Statutes Chapter 331, Part II). Space Florida's purpose is to foster the growth and development of a sustainable and world-leading aerospace industry in Florida. Space Florida leverages third party capital sources and constructs complex financial structures to promote, retain, attract, and expand space and aerospace businesses to Florida. Space Florida enables companies to meet their business objectives via complex financial structures that typically leverage initial cash investment up to 10-fold. Space Florida's legislatively provided powers for business development include business financing and spaceport authority operations in Florida. Space Florida has the power, the authority, the skills, and the experience to access capital and provide "right to use" agreements that benefit space and aerospace entities with needed capital assets without the entity using its capital to purchase the assets. This allows those entities to raise and use equity capital to directly penetrate their markets. Space Florida provides quantifiable lower than commercial lease payments and possible tax benefits with positive impacts to cash flow. A key competitive advantage for Florida is the multiple year relationships Space Florida creates with the entities that choose Florida for their base of growth. Space Florida has been in business since 2006 and has developed a large portfolio of these complex structures. Space Florida has a long-established business governance process with skilled and experienced staff.

Space Florida is the legal and equitable owner of the capital assets under "right-to-use" agreements and serves as the conduit borrower or issuer. The full faith and credit of the State of Florida does NOT secure any debt instrument issued by Space Florida.

Appendix V:

The Washington Economics Group®
Project Team and Qualifications

J. Antonio Villamil
Founder and Senior Advisor

Tony Villamil is a nationally recognized economist, with over thirty-five years of successful career as a business economist, university educator and high-level policymaker for both federal and state governments. Tony was selected in 2008 as the founding Dean of the School of Business of St. Thomas University, serving successfully until December 31, 2013 at which time he resigned to return as senior advisor to the growing economic consulting practice that he founded, The Washington Economics Group, Inc. (WEG), a Florida-based firm established in 1993 upon returning to the State from his public service in Washington, D.C.

Tony is the immediate past Chairman of the Governor's Council of Economic Advisors of Florida, and during 1999-2000, he was selected by Governor Bush as his first Director for Tourism, Trade and Economic Development. Previously, he was appointed by President George H. W. Bush as U.S. Undersecretary of Commerce for Economic Affairs, receiving unanimous U.S. Senate confirmation. Presently he is active on Corporate Board of Directors, including Pan American Life Insurance Group (PALIG) and Spanish Broadcasting System (SBS). At PALIG he serves as Chair of the Governance and Nominating Committee of the Board. Tony is currently Chair of the Board Compensation Committee at SBS. He recently completed a successful 18-year tenure at Amerant Bank, N.A. and Amerant Holding Corp., serving as Chair of the Risk Committee and most recently as Chair of the AML/BSA Committee. Amerant Bank, N.A. is the former Mercantil Bank, N.A. and became a public company in 2020 during his active service on the Board.

Among civic and professional leadership positions, he is currently a member of the Board of Directors of the Miami-Dade Beacon Council, the official economic development organization of the county. He is also on the Board of Directors of the Greater Miami Chamber of Commerce. He serves as Senior Fellow of the James Madison Institute (JMI) of Tallahassee, Florida.

He earned Bachelor and Master Degrees in Economics from Louisiana State University (LSU), where he also completed coursework for the Ph.D. Degree. In 1991, Florida International University (FIU) awarded him a Doctoral Degree in Economics (hc), for "distinguished contributions to the Nation in the field of economics." He frequently speaks to business, government and university audiences on the Florida economy, U.S. trade policy and economic development issues.

Marielena A. Villamil
President and CEO

Marielena Villamil has an outstanding record of accomplishments in business consulting, higher education and civic leadership. Ms. Villamil is cofounder and serves as Chief Executive Officer of an established economic and governmental advisor firm, The Washington Economics Group, Inc. (WEG). She founded the firm in 1993 with nationally recognized economist, Dr. Tony Villamil, former U.S. Undersecretary of Commerce for Economic Affairs. Ms. Villamil has extensive and high-level contacts in the corporate, public-sector and educational communities of Florida, Washington, D.C. and Latin America, in addition to significant experience in governmental relations, the management of economic consulting services and in the education and training of multicultural and multilingual workforces.

Since September 2013, Ms. Villamil has served on the South Florida Board of Advisors of BBVA Compass, a subsidiary of BBVA Compass Bank, a Sunbelt-based bank headquartered in Birmingham. Alabama, which operates 673 branches in the US and ranks among the top 25 largest US commercial banks based on deposit market share.

Ms. Villamil has a significant record of accomplishments in community relations, serving in leadership positions. In August 2015, Ms. Villamil was appointed and confirmed by the City Commissioners to serve on the Emergency Management Committee of the City of Coral Gables. Ms. Villamil has served on the Board of Directors and Executive Committee of the United Way of Miami Dade County and as past Chair of their Public Policy Committee. Ms. Villamil is the recent past Chairman of the Board of Directors of the American Red Cross of Greater Miami and the Keys, and where she has been on the Board of Directors since June of 2003. She also serves as Chair of the South Florida Humanitarian Network for Cuba, a network to coordinate humanitarian assistance.

In May 2012, Ms. Villamil was appointed Chair of the South Florida Board of the Hispanic Scholarship Fund (HSF), a nationally recognized organization whose mission centers on awarding scholarships based on merit to Hispanic students. From 2007 to 2016 she served on the Board of Directors of the Coral Gables Community Foundation whose mission is to promote programs and initiatives that enhance the quality of life for people living and working in the Coral Gables Community. On July 8, 2009, she was elected to the National Board of Directors of the Cuban American National Council (CNC), a non-profit organization providing human services to persons in need from all racial and ethnic groups where she served until November 2018. From 2006 to 2017 she served as Chair of the South Florida Board of the *Sistema Universitario Ana G.*

Mendez (SUAGM), South Florida Campus and served its Florida Advisory Board as well. SUAGM is an accredited institution of higher learning specializing in programs and degrees through dual-language learning. Ms. Villamil served from 2006 to 2014 on the District Board of Trustees of Miami-Dade College, appointed by two former Governors of Florida, and confirmed each time by the Senate of the State of Florida.

Ms. Villamil has received numerous community recognitions. In August 2015 she received the Latina Pioneer Award as the Latina Woman of Distinction representing Miami-Dade, Broward and Palm Beach Counties. In June 2016, Ms. Villamil was recognized as the Volunteer of the Year by the United Way of Miami-Dade County. She received the first *Dr. Mario Villarroel International Leadership Award* in 2005 for her work with the Latin American communities, the *Southeast Service Area International Humanitarian Service Award* from the American Red Cross in 2007 "for exceptional humanitarian actions" and the *2008 Cynthia Wedel Award* for "superior and outstanding leadership services to the community" also from the American Red Cross. Most recently, Ms. Villamil received the Good Scout Award by the Boy Scouts of America, as well as the American Red Cross Spectrum Award for her service to the organization. Marielena was inducted into The Inner Circle of 12 of the American Cancer Society in the fall of 2014 and was recognized by The Big Boys Big Girls Club as a Miracle Makers Honoree for 2015 because of her community and charitable commitments.

Ms. Villamil earned a Bachelor's Degree from St. Mary's Dominican College in New Orleans, LA, a Master's Degree from Middlebury College in Vermont, and completed PhD coursework at the University of Miami in Coral Gables, FL. She currently resides in Coral Gables, Florida with her husband, Tony Villamil.

Ivan Noltenius
Economic Analyst

Ivan Noltenius is an Economic Analyst at The Washington Economics Group®. Ivan conducts data acquisition and economic analysis for the multifaceted projects of the firm. Ivan has over three years of experience in financial data analysis as well as accounting.

Prior to working at WEG, Ivan was a hedge fund accountant at Kaufman Rossin (now ALPS), and also worked in operations and managed company financial records at tech startup company 71 Pounds.

Ivan received his Bachelors of Arts degree in Economics with a minor in Mathematics from the University of Memphis. Ivan is a resident of Kendall, Florida.

Haydee M. Carrion
Executive and Senior Research Assistant

Haydee M. Carrion has been Executive Assistant to Dr. Villamil since the firm's founding in 1993. She has senior level expertise in multi-media presentations and in the preparation and design of complex reports and documents for clients, utilizing the latest technologies.

In 2012, WEG promoted her to Senior and Project Research Assistant to the firm, given outstanding performance in web-based research and in assistance to the firm's Principal in the preparation of audio-visual presentations for clients and in desktop publishing. Ms. Carrion is fluent in Spanish, with experience in the preparation of economics and business documents in the language.

Ms. Carrion has been with WEG for 28 years. Ms. Carrion holds degrees in Business Administration and Office System Technologies from Miami-Dade College.

The Washington Economics Group® has been successfully meeting client objectives since 1993 through economic consulting services for corporations, institutions and governments of the Americas. We have the expertise, high-level contacts, and business alliances to strengthen your competitive positioning in the growing marketplaces of Florida, Latin America and the Caribbean.

Our roster of satisfied clients, over the past 28 years, includes corporations, financial institutions, public entities, and non-profit associations expanding their operations in the Americas.

Exclusive Consulting Approach:

Each client is unique to us. We spend considerable time and effort in understanding the operations, goals, and objectives of clients as they seek our consulting and strategic advice. We are not a mass-production consulting entity nor do we accept every project that comes to us. We engage a limited number of clients each year that require customized consulting services in our premier areas of specialization. These premier and exclusive services are headed by Founder and Senior Advisor J. Antonio (Tony) Villamil. Tony is a former U.S. Under Secretary of Commerce with over thirty-five years of experience as a business executive and as a senior public official of the U.S. and most recently of Florida.

Premier Consulting Services:

Economic Impact Studies highlight the importance of a client's activities in the generation of income, output and employment in the market area serviced by the entity. These studies are also utilized to analyze the impact of public policies on key factors that may affect a client's activities such as tax changes, zoning, environmental permits and others.

Strategic Business Development Services are customized to meet client objectives. Recent consulting assignments include customized marketing strategies, country risk assessments for investment decisions and corporate spokesperson activities and speeches on behalf of the client at public or private meetings.

Economic Development Strategies. The firm supports cities, counties and states in developing targeted economic development plans and strategies to attract, retain and expand high-wage industries. Each plan is based on the factor endowments of the area, and in close coordination with public officials in charge of economic development.

For a full description of WEG capabilities and services,
please visit our website at:
www.weg.com

The Washington Economics Group, Inc.
Representative Client List 1993-2021

Multinational Corporations	
ALSTOM	Lockheed Martin
Ameritech International	Lucent Technologies
Bureau Veritas (BIVAC)	MasterCard International
Carrier	MediaOne/AT&T
Carnival Corp.	Medtronic
Esso Inter-America	Merck Latin America
FedEx Latin America	Microsoft Latin America
Genting Group	Motorola
Hyatt	Phelps Dodge
IBM	SBC Communications
Joseph E. Seagram & Sons, Inc. (Vivendi)	Telefonica Data Systems
KPMG	Visa International
Construction and Real Estate Development Firms	
Areas USA, Inc.	Inland Port Systems, LLC
Barron Collier Companies	Landstar Development
Berkowitz Development Group	LXR Luxury Resorts
Boca Developers	Miami Asset Management Company, Inc.
CDS International	Miapolis, LLC
Century Homebuilders	Odebrecht Construction, Inc.
Codina Realty	Palazzo Las Olas Group, LLC
Chateau Group	Tate Capital
Empire World Towers, LLC	The Allen Morris Company
ESJ Capital Partners	The Related Group, Inc.
Ferro Investment Group, LLC	The Rouse Company
Flagler Development	The St. Joe Company
Florida East Coast Realty Inc.	Trammel Crow Company
Florida Realtors	WCI Development Companies
Engineering, Planning and Design Firms	
AECOM (DMJM Harris)	HNTB
Atkins (PBSJ)	Kimley-Horn and Associates
CDM Smith (Wilbur Smith Associates)	Parsons Brincherhoff
Golder Associates	Redevelopment Management Associates (RMA)
Colleges and Universities	
Alabama State University	Rocky Mountain College of Art and Design
Barry University	San Ignacio College
Eckerd College	Sistema Universitario Ana G. Méndez
Embry-Riddle Aeronautical University	St. Thomas University
Florida Agricultural & Mechanical University	University of Central Florida
Florida International University	*Universidad Politécnica de Puerto Rico*
Full Sail University	University of Florida
Keiser University	University of Miami
Los Angeles Film School	UM's Rosenstiel School of Marine and Atmospheric Science
Miami-Dade College	University of South Florida/*ENLACE*
Palm Beach Medical Education Corporation	University of South Florida
Law Firms	
Becker & Poliakoff	Gloria Roa Bodin, Esq.
Bilzin Sumberg	Greenberg Traurig, LLP
Carlton Fields	Holland & Knight, LLP
Colson Hicks Eidson	Steel Hector & Davis
DLA Piper	Tew Cardenas, LLP
Dunbar & Dunbar	
Financial Institutions	
ABN-AMRO Bank	Fiduciary Trust International
Advantage Capital	First Union National Bank (Wells Fargo)
AMERANT (former Mercantil Bank N.A.	Hemisphere National Bank
Allen & Company	HSBC/Marine Midland
BNP Paribas	International Bank of Miami (First United Bank)
BAC Florida	Lazard Freres & Co.
Bank Atlantic Corp.	Pan American Life Insurance Group (PALIG)
BankUnited, FSB	PointeBank, N.A.
Barclays Bank	Seitlin Insurance
Century Bank	Sun Trust Corporation
ESJ Capital Partners	The Equitable/AXA Advisors
Espirito Santo Bank	TD Bank, N.A.
FBA	Union Planters Bank of Florida (Regions)
FIBA	

Florida-Based Companies	
All Aboard Florida	Iberia Tiles
AmericanAirlines Arena	International Speedway Corporation (ISC)
Atlantic Sapphire	Jungle Island
BMI Companies	Lake Nona
Communikatz	Mercy Hospital
CoreMessages	Miami Dolphins
Daytona International Speedway	Nopetro LLC
Dosal Tobacco	Palm Beach Premier
Drivers Club Miami	Resorts World Miami (RWM)
Farm Stores	Ron Sachs Communications
Fishkind & Associates	Rolling Loud
Florida Hospital	Sprint of Florida
Florida Marlins	eMerge Americas
Florida Power & Light	The Biltmore Hotel
Flo-Sun Sugar Corp.	The Heat Group
Greater Miami Convention & Visitors Bureau	Ultimate Software
Greater Ft. Lauderdale Alliance	Ultra-Music Festival
Homestead-Miami Speedway	VICTUS

Non-Florida-Based Institutions	
Darlington Raceway	Richmond International Raceway
Georgia Retail Federation	Talladega Superspeedway
Illinois Retail Merchant Association	The Seed Foundation
Indiana Retail Council	United States Tennis Association (USTA)
Kansas Speedway	Virginia International Raceway
Martinsville Speedway	Washington Retail Association
New Jersey Motorsports Park (NJMP)	Watkins Glen International
Progress Energy	

Public Institutions and Non-Profit Organizations	
Baptist Health South Florida	Independent Colleges and Universities of Florida (ICUF)
BayCare Health System	Indian River County Chamber of Commerce
Broward County Public Schools	Inter-American Development Bank
Career Source North Central Florida	Jackson Health Systems
Chapman Partnership	Jacksonville Chamber of Commerce
Citizens of Clean Energy	Jewish Community Services
City of Boca Raton	Lakeland Regional
City of Coral Gables	Louisiana Committee for Economic Development
City of Doral	Miami Marine Stadium
City of Plantation	Miami Museum of Science
City of West Palm Beach	Miami-Dade County Public Schools
Conservatives of Clean Energy	Miami-Dade Expressway Authority
Economic Development Commission of Collier County	Miami Downtown Development Authority
Economic Development Commission of Lee County	Palm Beach International Agricultural Summit
Economic Development Commission of Mid-Florida	Port of Miami
Enterprise Florida, Inc.	SEIU Florida
Farm Share, Inc.	South Florida Progress Foundation
Florida Bankers Association	Space Florida
Florida Citrus Mutual	St. Mary's Medical Center
Florida Chamber of Commerce	State of Florida
Florida International Bankers Association	SW Florida Regional Chamber of Commerce
Florida Institute for Commercialization of Public Research	Sylvester Comprehensive Cancer Center
Florida League of Cities	Tampa-Hillsborough Expressway Authority
Florida Nursing Homes Alliance	Tampa General
Florida Outdoor Advertising Association	The Beacon Council
Florida Ports Council	The Florida Bar
Florida Retail Association	The Florida Chamber Foundation
Florida Sports Foundation	The Florida Coalition for Capital
Florida Venture Forum	United Nations Economic Development Program
Friends of Miami Marine Stadium	United Teachers of Dade
Tampa Bay Chamber (former Greater Tampa Chamber of Commerce)	Visit Florida
	Zoological Society of Florida
Greater Tallahassee Chamber of Commerce	

Latin America-Based Institutions	
Allied-Domecq, Mexico	*Mercantil Servicios Financieros*, Venezuela
Association of Peruvian Banks	Peruvian Management Institute (IPAE)
Federation of Inter-American Financial Institutions (FIBAFIN)	The Brunetta Group of Argentina
Fonalledas Enterprises, Puerto Rico	