

**MAXIMIZING THE BENEFITS  
OF JOHN WAYNE AIRPORT  
TO BETTER SERVE ORANGE COUNTY**



# MAXIMIZING THE BENEFITS OF JOHN WAYNE AIRPORT TO BETTER SERVE ORANGE COUNTY



**Photograph:** Statue of John Wayne at John Wayne Airport between Terminal A and Terminal B

*“My hope and prayer is that everyone know and love our county for what she really is and what she stands for.” John Wayne*

## Table of Contents

<b>SUMMARY .....</b>	<b>4</b>
<b>REASON FOR THE STUDY .....</b>	<b>5</b>
<b>BACKGROUND AND FACTS .....</b>	<b>5</b>
<b>History .....</b>	<b>6</b>
<b>John Wayne Airport Benefits .....</b>	<b>9</b>
<i>Economic Drivers.....</i>	<i>9</i>
<i>Local Economic Impact.....</i>	<i>10</i>
<b>Current Operations.....</b>	<b>11</b>
<i>Airport Infrastructure Modifications and Source of Financing.....</i>	<i>11</i>
<i>Constraints on Growth.....</i>	<i>16</i>
<i>Airport Noise and Capacity Act of 1990.....</i>	<i>19</i>
<i>Air Pollution Impacts and Mitigation.....</i>	<i>19</i>
<i>Ground Traffic Impacts.....</i>	<i>20</i>
<i>Cost and Convenience Competitiveness.....</i>	<i>21</i>
<i>Security and Safety Compliance.....</i>	<i>24</i>
<i>Flight Safety.....</i>	<i>25</i>
<i>Passenger Processing Capacity.....</i>	<i>26</i>
<b>Future Operations .....</b>	<b>26</b>
<i>Noise Constraints.....</i>	<i>26</i>
<i>Impact of Forecasted Increases in Demand.....</i>	<i>27</i>
<b>Potential Constraint Mitigation Measures.....</b>	<b>28</b>
<i>Low Emissions Engine and Fuel Technology.....</i>	<i>28</i>
<i>Quiet Engine Technology.....</i>	<i>28</i>
<i>Runway Modifications.....</i>	<i>30</i>
<i>2014 Incentives to Increase near Term Airport Utilization.....</i>	<i>32</i>
<b>General Aviation .....</b>	<b>32</b>
<i>Tie Down Fee Comparison.....</i>	<i>34</i>
<i>Fuel Price Comparison.....</i>	<i>35</i>
<b>METHOD OF STUDY .....</b>	<b>37</b>

<b>ANALYSIS .....</b>	<b>38</b>
<b>Current Demand .....</b>	<b>38</b>
<b>Demand and Constrained Capacity.....</b>	<b>38</b>
<b>Demand and Constraint Mitigation.....</b>	<b>40</b>
<b>Security and Safety.....</b>	<b>43</b>
<b>Policies and Procedures .....</b>	<b>43</b>
<b>General Aviation Business Model.....</b>	<b>43</b>
<b>FINDINGS.....</b>	<b>44</b>
<b>RECOMMENDATIONS.....</b>	<b>45</b>
<b>REQUIRED RESPONSES.....</b>	<b>46</b>
<b>COMMENDATIONS .....</b>	<b>48</b>
<b>APPENDICES.....</b>	<b>48</b>
<b>Appendix A: Acronyms .....</b>	<b>48</b>
<i>Airport Codes .....</i>	<i>49</i>
<i>Airline Codes.....</i>	<i>51</i>
<i>Commuter Airline Codes.....</i>	<i>52</i>
<i>Air Cargo Codes.....</i>	<i>52</i>
<b>Appendix B: Glossary .....</b>	<b>52</b>
<b>Appendix C: Settlement Agreement Terms Proposed by Various Stakeholders.....</b>	<b>56</b>
<b>Appendix D: John Wayne Airport Noise Limits (see Figure 3 for locations).....</b>	<b>57</b>
<b>Appendix E: 2013 Forecast – John Wayne Airport Enplanements .....</b>	<b>58</b>
<b>Appendix F: 2013 Forecast – John Wayne Airport Operations .....</b>	<b>59</b>
<b>Appendix G: 10 Most Popular John Wayne Airport Destinations.....</b>	<b>60</b>
<b>Appendix H: Market and Carrier One Way Fare Information .....</b>	<b>61</b>

## SUMMARY

John Wayne Airport's (SNA) ability to meet the growing demand for air transportation service is important to sustain the local and regional economy and the overall quality of resident life. John Wayne Airport is currently being under-utilized, having about 10% more permitted capacity than current passenger traffic. Projections for the next 10 to 15 years indicate that additional passenger traffic demand will be significantly underserved due to environmental constraints as specified in the pending Stipulated Settlement Agreement between John Wayne Airport and the various stakeholders.

Orange County's demand for commercial air travel will continue to increase. The Regional Aviation Plan for the 2012 Regional Transportation Plan published by Southern California Association of Governments forecasts the demand for the entire Southern California region to be nearly 170 million annual passengers by the year 2035.<sup>1</sup> Under present operating capacity constraints, the Federal Aviation Administration forecast commercial aviation demand will exceed John Wayne Airport's authorized passenger capacity of 12.5 Million Annual Passengers (MAPs) by 2027.<sup>2</sup>

Policies to lower parking and air fare prices could create a more immediate passenger demand in order to fill some of the current excess capacity. John Wayne Airport commercial airfares are significantly more expensive (3% to 24%) than other local airports such as Los Angeles International Airport, Bob Hope Airport (Burbank), Long Beach Airport (Daugherty Field) and Ontario International Airport.<sup>3</sup> Also, adding more national and international destinations can potentially increase passenger traffic. Policies and procedures for increasing passenger traffic by making John Wayne Airport a more user friendly and financially attractive would also benefit the local airport economy.

John Wayne Airport also supports a large general aviation fleet which generates 65 percent of John Wayne Airport's take-offs and landings. Coexistence of commercial airline, general aviation and air cargo operations having to share air space and taxiways imposes some additional requirements on airport safety. In the future, general aviation and air cargo may limit the frequency of commercial aircraft take-offs and landings during peak periods. Zoned security responsibilities between airport operations over general aviation, Transportation Security Administration (TSA) over terminal security, and Federal Aviation Administration (FAA) over aircraft ground control complicate safety and security.

---

<sup>1</sup> Regional Aviation Plan for 2012 Regional Transportation Plan Published by Southern California Association of Governments

<sup>2</sup> March 2013 Proposed Project and Alternatives of the Proposed Extension of the John Wayne Airport Settlement Agreement

<sup>3</sup> United States Department of Transportation's Office of Aviation Analysis Air Transport Association Domestic Airfare Report 2013 4th Quarter

Long term plans need to accommodate more commercial departures to accommodate a significant increase in passenger demand and improve ground and airspace safety. This might require runway modifications and improvements in vehicle parking and traffic flow. New aircraft technology, such as light weight airframes, cleaner burning fuels and more fuel efficient and quieter jet engines are evolving and will be commercially available by 2017. These technologies could mitigate or even reduce the environmental impacts of the forecasted future passenger demand.

Now is the time to perform cost benefit and environmental impact studies for making major infra-structure improvements to John Wayne Airport. These projects typically take 10 to 15 years to design, permit and construct.

## **REASON FOR THE STUDY**

The most recent Grand Jury's review of the John Wayne Airport was in 2003 and focused on John Wayne Airport Security. The purpose of this investigation is to identify and evaluate issues related to passenger demand, capacity, and methods of achieving a more user friendly environment while concurrently taking into consideration the needs of the surrounding community. This report will also identify and investigate approaches for achieving a safer, quieter and a more desirable world-class departure and destination airport. It will also examine and review customer and user services to ensure that John Wayne Airport is competitive with alternative local regional and international airports and benefit the future Orange County economy.

## **BACKGROUND AND FACTS**

John Wayne Airport has a rich history in its transition from a barn-storming, privately owned airport to a world class facility. Current operations and infrastructure projects are examined in light of this history and used to identify current and future projects and policies to safely and securely meet demand while maximizing John Wayne Airport's favorable impact on the Orange County economy. There are three operational airports in Orange County they are:

1. John Wayne Airport (SNA),
2. Fullerton Municipal Airport (FUL), and
3. Los Alamitos Army Airfield (SLI).

John Wayne Airport is the only one that serves general aviation, commercial aviation and air cargo operations.<sup>4</sup>

---

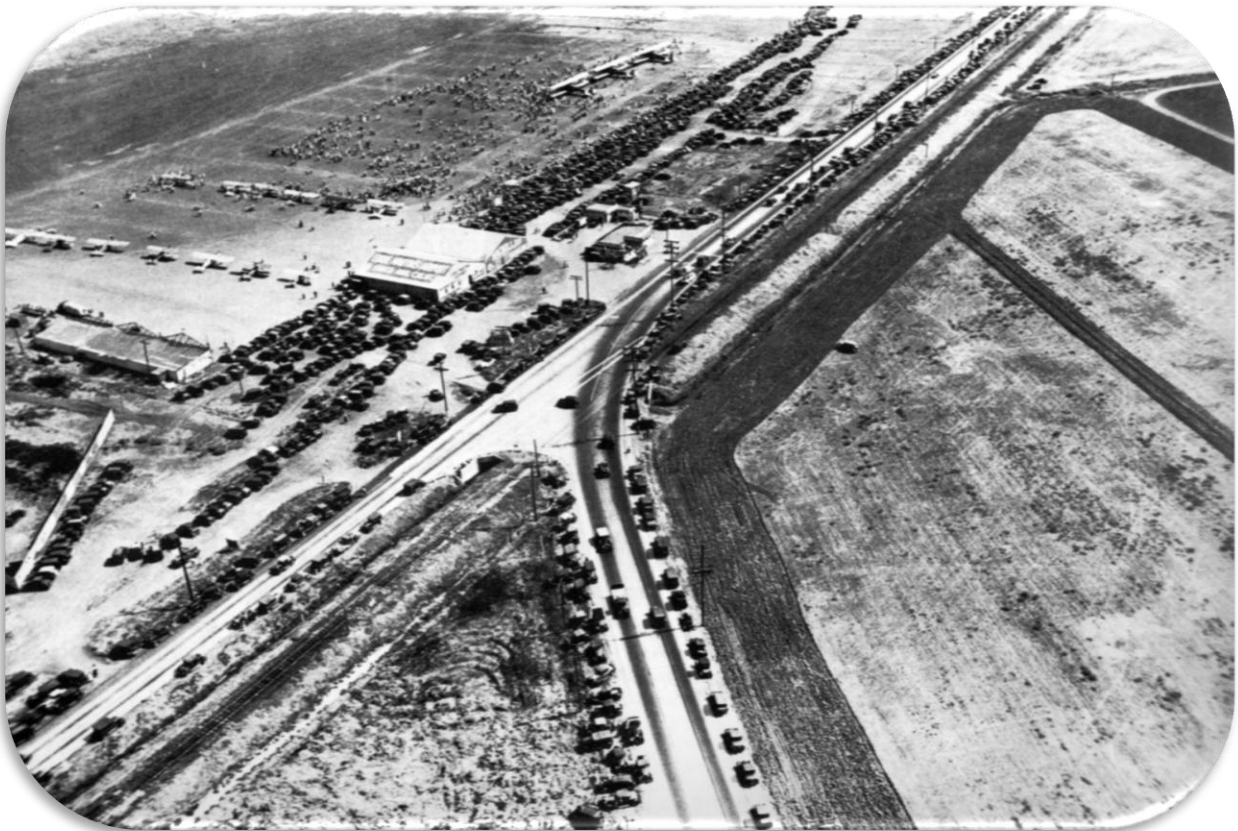
<sup>4</sup> History of Orange County Airport by Scott A. Thompson



## History

Eddie Martin opened Eddie Martin Airport in 1923 and started a flying school on Irvine Ranch property. In 1925 Orange County began buying up farm land south of Eddie Martin Airport from James Irvine as seen in **Figure 1**.<sup>5</sup> The County of Orange bought 40 acres a year from 1925 through 1928 until it had a full quarter section, or 160 acres. When the land purchase was completed, Orange County began work on building an airport then located just east of the present airport. The Orange County Airport's formal dedication was held on April 7, 1928. An Administration building, control tower, hangar and two runways were the first structures. These were the first paved runways in Orange County.

**Figure 1:** Eddie Martin Airport Surrounded by Agriculture in 1935



**Photograph:** Land the County of Orange bought that would become Orange County Airport

The new Orange County Airport was used regularly for a year, but with Eddie Martin's Airport so close, and so well known, there just wasn't much need for another airport and the project faltered. Eddie Martin Airport was located at the end of South Main Street. In 1936, the Board of Supervisors considered reactivating the original Orange County Airport. It soon became apparent that Eddie Martin's Airport would have to close since the plans to extend South Main Street continued to move forward.

<sup>5</sup> History of Orange County Airport by Scott A. Thompson

The Federal Aviation Administration gives this new airport called Orange County Airport the designator **SNA** for Santa Ana because it was the closest big city at the time. The new Orange County Airport opened for business on August 15, 1941. Subsequently, Eddie Martin moved into the new Orange County Airport as a tenant. Shortly after Pearl Harbor, the Army Air Corps took over the operation of the airport, which was renamed the Santa Ana Army Airbase. The Army extended the runways to 4,800 feet and built a number of barracks and buildings. The surrounding area was substantially agricultural during this period.

After World War II, the Santa Ana Army Airbase was returned to Orange County with the stipulation that it remain open to all aviation uses. In 1952 Arizona based Bonanza Airlines (later to become Hughes Airwest) and Republic Airlines began the first regular passenger service using DC-3's. Early destinations were Imperial County Airport (El Centro), Los Angeles, San Diego, Phoenix, and Yuma International Airport.<sup>6</sup>

In 1964, the airport was rebuilt with its present two parallel runway configuration. The first runway is 5,701 feet long by 150 feet wide and is oriented with a magnetic heading 190 degrees for Runway 19R and a magnetic heading of 10 degrees for Runway 01L. The second runway is 2,887 feet long by 75 feet wide and is oriented with a magnetic heading 190 degrees for Runway 19L and a magnetic heading of 10 degrees for Runway 01R.

On June 20, 1979 on a motion from Orange County Board of Supervisor Thomas F. Riley, the Orange County Airport was renamed the John Wayne Airport. John Wayne Airport has three terminals, Terminal A, Terminal B and Terminal C. These three terminals together are named Thomas F. Riley Terminal after General and former Orange County Board Supervisor Thomas F. Riley.

John Wayne Airport operated similarly as other commercial and general aviation airports with runway incursions as their number one concern. A runway incursion is an incident where an unauthorized aircraft, vehicle or person is on a runway. This adversely affects runway safety, as it creates the risk that an airplane taking off or landing will collide with the object.

Terrorist attacks against the United States on September 11, 2001, triggered the implementation of federal regulations that have dramatically altered the way airports conduct business. The airport is now regulated by the Federal Aviation Administration (FAA), the Transportation Security Administration (TSA), and by two county agencies:

1. The Orange County Airport Commission makes recommendations to the Orange County Board of Supervisors for development, maintenance and operation of John Wayne Airport and other airports which may be operated by the County of Orange. It advises the Orange County Board of Supervisors and makes recommendations on any matter pertaining to airports or air transportation. It also conducts investigations as it

---

<sup>6</sup> History of Orange County Airport by Scott A. Thompson



may deem necessary in the exercise of the powers enumerated above. The Airport Commission consists of five members who are appointed by one each of the Orange County Board of Supervisors.

2. John Wayne Airport land use is governed by the Airport Land Use Commission. The Airport Land Use Commission is governed by the Public Utilities Code Section which has the basic responsibilities of assisting the local agencies in ensuring that compatible land use in the vicinity of all airports within Orange County. The Airport Land Use Commission also ensures that land use does not affect the operational integrity of the navigable airspace and airports. The Airport Land Use Commission consists of seven members. They meet every 3<sup>rd</sup> Thursday of the month.<sup>7</sup>

The incursion of industrial, commercial, and residential uses surrounding John Wayne Airport as shown in **Figure 2** is now a source of conflict over environmental issues such as noise and air pollution.

**Figure 2:** John Wayne Airport with Commercial and Residential Incursions



**Photograph:** John Wayne Airport 2010 (View from the North Looking South)

---

<sup>7</sup> [www.ocair.com](http://www.ocair.com)

Due to a gradual shift of the Earth's magnetic poles, the runway designations are currently out of alignment with their magnetic bearings. The Federal Aviation Administration's (FAA) Aeronautical Information Manual (AIM) designates the runway number as the whole number nearest one-tenth the magnetic bearing of the centerline of the runway, measured clockwise from the magnetic north. A September 2010 survey was made of John Wayne Airport's runway and was determined that the runways held a 16°E magnetic bearing thus requiring the change of runway designations.

Starting in July 2014, John Wayne's Airport runways will be renumbered as follows: A magnetic heading is now closer to 200 degrees and will correspond to Runway 20R; and a magnetic heading is now closer to 20 degrees and will correspond to Runway 02L for the longer runway and Runway 20L and Runway 02R for the shorter runway.<sup>8</sup>

## **John Wayne Airport Benefits**

### *Economic Drivers*

John Wayne Airport is a significant engine for the Orange County economy and is a critical component to both commercial business activities and leisure traveler's access to local resort destinations. Since World War II, Orange County has been one of the most rapidly growing urban areas in the United States. This growth has been fueled by significant investments in technology, corporate facilities, residential, and commercial development. The rapid growth in the economy has generated requirements for additional commercial, cargo and general aviation facilities. Orange County strives to satisfy the demand for air transportation service as it improves the local economy and the overall quality of resident life.

The knowledge industry, a potent incubator of high wage employment, is becoming an essential element of the Orange County economy. In a global economy, just in time manufacturing and delivery is a significant business model which items are created to meet demand, not created in surplus or in advance of need. For the growth of associated business support services, airports are vital linchpins of regional competitiveness. Knowledge-based economies, such as Orange County's, rest on such pillars as a world class research university, superior quality of life, and proximity to an international airport.

---

<sup>8</sup> Federal Aviation Administration's Aeronautical Information Manual

### *Local Economic Impact*

John Wayne Airport is a county job builder that creates jobs in three ways:

1. **Direct**- All people who work directly from airport activities. Direct Employment by Industry type at John Wayne Airport are Airlines, Airline Support Services, Crew Accommodations, General Aviation, Retail Concessions, Ground transportation, Government Agencies and Contract Operations.
2. **Indirect**- Employment that is generated by suppliers to business directly related to airport activities. Indirect Employment Industry by type at John Wayne Airport would be a food service firm who supplies food or products to an airlines catering company.
3. **Induced**- Employment that is created by successive rounds of local spending: direct and indirect activity which creates more economic spending that includes household expenditures at local businesses. Multipliers effects combine the indirect and induced impacts.<sup>9</sup>

These job classifications have a *multiplier effect* that creates more than three off-site jobs for every job supported by John Wayne Airport.<sup>10</sup> This does not account for other economic activities that depend on air transportation as an infrastructure asset. There are few industry categories unaffected by the economic impact created by John Wayne Airport.

John Wayne Airport directly supports 3,626 high level jobs as shown in **Table 1**. Other regional competitive airports like Long Beach Airport (Daugherty Field) Bob Hope Airport (Burbank), and Ontario International Airport employ significantly fewer workers, but all are dwarfed by Los Angeles International Airport which employees 50,000 workers. John Wayne Airport also is a key determinant in locating corporate headquarters. Fortune 500 companies' headquarters near John Wayne airport include Ingram Micro, Western Digital, Broadcom, Spectrum Group International, Pacific Life and Allergan.

John Wayne Airport and its related activities are also significant generators of state and other local taxes. These include sale taxes, aviation fuel taxes and income taxes paid by airport related employees and business tenants. At the future forecasted demand levels, John Wayne Airport will generate additional millions in state and local taxes.<sup>11</sup>

The benefits of having a local international airport with shorter vehicle travel times, particularly for those living in South Orange County, should not be overlooked. This time translates into a significant, but difficult to quantify economic gain and less vehicle emissions that need to be balanced against local noise and air pollution issues.

---

<sup>9</sup> John Wayne Airport Economic Impact Study. Prepared by Inter Vistas Consulting LLC. March 4, 2014

<sup>10</sup> Applied Development Economics, Incorporated: Data from a California Airport Employment survey: March 1, 2013 report.

<sup>11</sup> Lease Holders

**Table1:** Direct Employment Comparison-California Airports

<b>Airport</b>		<b>Total Jobs</b>
Long Beach (Daugherty Field)	(LGB)	1,295
Santa Maria Public	(SMX)	1,310
McClellan – Palomar	(CLD)	1,477
Fresno Yosemite International	(FAT)	2,190
Burbank – Bob Hope	(BUR)	2,242
Ontario International*	(ONT)	2,479
San Jose International – Norman Y. Mineta	(SJC)	2,801
Sacramento International	(SMF)	3,598
<b>Orange County – John Wayne</b>	<b>(SNA)</b>	<b>3,626</b>
San Diego International	(SAN)	5,381
Oakland International	(OAK)	7,680
San Francisco International*	(SFO)	29,556
Los Angeles International*	(LAX)	50,000
<b>Total</b>		<b>113,635</b>

**Source:** Applied Development Economics, Incorporated: Data from a California Airport Employment survey: March 1, 2013 report.

**Notes:**

1. Ontario International Airport employment was based on the total badge employee count.
2. Los Angeles International Airport employment was based on the total badge employee count.
3. San Francisco International Airport employment comes from their 2009 economic impact analysis.

**Current Operations**

*Airport Infrastructure Modifications and Source of Financing*

The facilities at John Wayne Airport are in excellent condition with a reported very low backlog of deferred maintenance. Budgets are more than adequate to cover known annual expenditures for maintenance and repair.

In 2006, the Orange County Board of Supervisors awarded an initial six-year contract to Parsons Transportation Group, Incorporated to manage the John Wayne Airport Improvement Program. This \$543.1 million program’s objective is to meet the traveling publics and other stakeholder needs. Parsons provides overall program management which includes project design and construction management (including monitoring and reporting), and advising on program planning, costs, schedules, and budgets.<sup>12</sup> The work is being performed under a time and

<sup>12</sup> John Wayne Improvement Program by Parsons Transportation Group, Incorporated an engineering, construction, technical, and management service firm. 2006-2013



materials contract where the buyer agrees to pay for a defined scope of work plus the contractor’s mark up, regardless of whether the work is over budget. The contract allows the buyer to pay a lesser amount if the job is completed more quickly or at a lower cost. Parsons will complete their scope of work under a time and materials contract with a not to exceed limit.

**Table 2** shows the John Wayne Airport Capital Improvement Program (CIP). The sources of funds include revenue bonds, facility charges, airport income and grants. Projects are currently projected to come in under the total budget of \$543,100,000 of which \$266,600.00 will be generated by internal airport revenues.

**Table 2: John Wayne Capital Airport Improvement Program  
Financing Sources  
As of October 31, 2013<sup>13</sup>**

Sources of Funds	As of October 31, 2013	April 2009 Budget
Internal John Wayne Airport Revenue	\$266,600,000	\$187,700,000
General Airport Revenue Bonds	\$209,300,000	\$209,300,000
Federal Aviation Administration Grants	\$35,900,000	\$33,100,000
Passenger Facility Charge	\$15,700,000	\$49,800,000
Other	\$15,500,000	\$19,500,000
Subordinated Debt	0	\$43,700,000
<b>John Wayne Airport Capital Improvement Plan - Total</b>	<b>\$543,100,000</b>	<b>\$543,100,000</b>

- Internal John Wayne Airport Revenues** – John Wayne Airport revenues.
- General Airport Revenue Bonds (GARBs)** – Bonds are payable from, and are secured by a pledge of, the net Airport revenues and Passenger Facility Charge (PFC) revenues.
- Federal Aviation Administration (FAA) Grants** – John Wayne Airport can receive reimbursement of up to 80 percent of the cost of eligible capital projects in Airport Improvement Program (AIP) grants from the Federal Aviation Administration.
- Passenger Facility Charge (PFC) Revenues** – Created by Congress in 1990, is intended to assist airports in funding major infrastructure development. The fee generates \$4.50 per enplaned passenger for a defined collection period.
- Other** – These funds are from Caltrans for seismic retrofit projects and from John Wayne Airport Air Carriers for the hydrant fueling system.
- Subordinate Debt** – This short-term financing mechanism could supplement the County’s long term debt financing program, if needed.

<sup>13</sup> John Wayne Airport Executives



**Table 3** shows the John Wayne Airport Capital Improvement Program Budget. The two largest expenditures are 46% for terminal improvements (primarily terminal expansion and rehabilitation), and 16% for Phase 2 Projects (primarily safety and maintenance).

**Table 3: John Wayne Airport Capital Improvement Program Budget**  
As of December 17, 2013<sup>14</sup>

<b>April 2009 Budget</b>	<b>Anticipated Budget</b>	<b>Original Commits</b>	<b>Approved Change Orders</b>	<b>Total Commitments</b>	<b>Forecast</b>
<b>Terminal</b>					
\$189,749,147	\$237,244,733	\$190,127,743	\$43,099,508	\$233,227,251	\$237,113,119
<b>Central Plant and Southwest Parking Structure C1</b>					
\$76,166,228	\$78,270,226	\$71,761,029	\$7,237,605	\$78,988,634	\$78,270,226
<b>Professional Services</b>					
\$48,550,978	\$48,480,903	\$36,084,159	\$12,676,318	\$48,760,477	\$48,579,593
<b>Contingency</b>					
\$33,030,348	\$6,312,487	0	0	0	\$6,312,487
<b>Other Capital Improvement Program</b>					
\$26,271,000	\$28,566,808	\$27,917,249	(\$1,081,959)	\$26,835,290	\$28,466,808
<b>Completed Projects</b>					
\$60,976,374	\$58,259,797	\$55,388,630	\$3,059,678	\$58,448,309	\$58,259,797
<b>Capital Improvement Project Phase 2 Projects</b>					
\$108,360,382	\$85,969,413	\$36,713,326	\$2,262,518	\$38,975,844	\$85,969,413
<b>John Wayne Airport Capital Improvement Plan - Total</b>					
\$543,104,457	\$543,104,457	\$417,992,137	\$67,253,668	\$485,245,805	\$542,971,443

1. **Terminal** – Terminal Expansion, North Terminal Extension, Terminal A & B Baggage Belt Upgrade, Common Use Passenger System, Loading Bridges, 400Hz and Pre Conditioned Air Equipment, Baggage Handling Terminal C, Airline Offices Tenant Improvements, Concessionaire Tenant Improvements, Miscellaneous Site Restorations and Terminal B Chiller Room Modification.
2. **Central Plant and Southwest Parking Structure C1** – Central Plant and Southwest Parking Structure C1.

<sup>14</sup> John Wayne Airport Executives

3. **Professional Services** – Project Controls Master Schedule, Project Controls Estimating Services, Airport Improvement Program Management, Construction Management Services, Commissioning Agent Terminal C, Program Insurance, Safety and Geotechnical.
4. **Contingency** – Settlement Amendment Implementation Plan and funds set aside for unanticipated costs and also reflect savings from other projects.
5. **Other Capital Improvement Program** – Flight Information Display System, Boarding Information Display System, Gate Information Display System, Ramp Information Display System, Cogeneration Electric Generation Plant, Settlement Amendment Implementation Plan Preparation, Communications Infrastructure Additions, Parking Revenue and Control Systems Upgrade, Reconstruct Perimeter Road West Phase II, Taxi Lot Lavatory, Tie Down Shade Structures and Seismic Elevated Roadway.
6. **Completed Projects** - Settlement Amendment Implementation Plan and Financial Analysis, Reconstruct 19R-1L, Geo Tech Architectural and Engineering Services, Terminal Re-carpet – Upper Level, New Uninterrupted Power Supply, Airport Telephone Switch – Private Branch Exchange (PBX) and Voice Over Internet Protocol (Val), Rental Car, Employee, Valet, Taxi Relocation, Refurbished Terminal Restroom, Design Only New South Remain Over Night, New South Remain Over Night, Substation Relocation, Surface Parking Lot C, Deconstruct B1 Parking Garage, Airside Dock Access and Trash Compactor and JONAIR Removal by Southern California Edison.
7. **Capital Improvement Program Phase 2 Projects** – Seismic Retrofit Terminal, Capital Improvement Program Contingency, Terminal Generator Replacements, Terminal Marble Rehabilitation Interior, Electronic Signs for Gates and ticket Counters, Project Management Services – Oviedo, Butier, Testing and Inspection, Parking Structure C Phase 2, Terminal Improvement Project, Bristol Street Slope Stabilization, Maintenance Building, Wireless Communications Terminal Building, Refurbish Remaining Terminal Restrooms, Paularino Street Gate Relocation, Terminal Heating Ventilation and Air Conditioning (HVAC) Rehabilitation, Terminal Building Fire Code Upgrade, Waterproof Planters, Runway Guard Lights, Changeable Message Sign, Baker Street Realignment and Baggage Handling System Terminals A & B Transportation Security Administration (TSA).<sup>15</sup>

85% of the John Wayne Airport Capital Improvement Program has been completed as of December 17, 2013.

---

<sup>15</sup> John Wayne Airport Executives

John Wayne Airport was built to withstand and recover quickly from earthquakes and power failure while continuing to provide an acceptable level of service. John Wayne Airport has spent hundreds of millions of dollars on new construction. Terminals A and B were upgraded and renovated with seismic retrofits in 2011. The new Terminal C design along with more than 2,000 parking spaces meets California's structural seismic standards for essential operations and was also completed in 2011. Parking structure C also incorporates seismic upgrades. The upper departure roadway support pillars were retrofitted in 2012.<sup>16</sup>

John Wayne Airport has installed a state-of-the-art Parking Access and Revenue Control System in all parking structures. This system features two options: a traditional paper ticket system and a new ticketless feature. With the new ticketless option a patron will be able to swipe a credit card to gain access to the parking structure. The same credit card must be used upon exit, eliminating the need to retain a paper parking ticket.

The parking space and count system allows passengers to determine how many spaces are available on each level as they enter the parking facility. Sensors imbedded in airport roadways allow for the Parking Access and Revenue Control System to count vehicles entering and exiting facilities. Individual sensors located in The Americans with Disabilities Act and short-term (2-hour) spaces provide the exact count of the status of these spaces which are displayed on roadway signage. The space count system also informs passengers on the roadway if the lot is full. The Parking Access and Revenue Control System will be integrated with the airport website, allowing passengers to view parking availability online and via mobile devices

John Wayne Airport completed its own Central Utility Plant in 2011. The Central Utility Plant supplies the Thomas F. Riley Terminal complex with power and chilled water for the air conditioning system. The facility houses four natural gas-fired internal combustion engines producing seven megawatts of electricity and two 550-ton absorption chillers, one 125-ton air cooled centrifugal chiller, three 750-ton centrifugal chillers and all ancillary mechanical support equipment. John Wayne Airport will purchase approximately 5% of its power from Southern California Edison Company (SCE).<sup>17</sup>

John Wayne Airport can only support limited air cargo service by Federal Express (FEDEX) and United Parcel Service (UPS) due to three issues:

1. Noise restrictions
2. Lack of local warehousing
3. Larger aircraft that cannot be accommodated by the short runway

---

<sup>16</sup> John Wayne Improvement Program by Parsons Transportation Group, Incorporated an engineering, construction, technical, and management service firm. 2006-2013

<sup>17</sup> Five on site inspection and facility tours.

This can result in uneconomical departures of partially loaded aircraft. The current operating constraints limit air cargo flights to arrivals no earlier than 4:00 P.M. P.M. and no departures no later than 7:45 P.M.

All cargo aircraft are off loaded and loaded in a parking area that is also used for airline aircraft overnight parking. Cargo aircraft must leave before the overnight airline aircraft are ready to be parked. Overnight airline aircraft are serviced to be ready to be the first flights out of John Wayne Airport in the morning the next day.

*The infrastructure currently has additional built-in capacity, is nearly self-sufficient in power, and has been seismically upgraded to recover quickly from earthquake events and should provide adequate and reliable service well into the future.*

#### *Constraints on Growth*

Currently, the most significant limitation on airport growth as measured by Million Annual Passengers (MAPs) is noise from departing and arriving aircraft. In future year's infrastructure capacity such as runway length or passenger vehicle traffic during peak periods may be the limiting factors.

Noise Constraints on Operations- Local, state and federal noise and air quality regulations are increasingly important issues for airports. It is significant to note that in the years of 2012, 2013 and 2014 no quarterly average noise violations were recorded at any of the ten noise monitoring stations around John Wayne Airport for any commercial airlines (type Class A and Class E) or commuter aircraft.

The current 1985 John Wayne Airport Stipulated Settlement Agreement and the future new and unapproved January 1, 2016 John Wayne Airport Stipulated Settlement Agreement, highly restrict airport operations, particularly the amount of passenger traffic as measured by Million Annual Passengers (MAPs) and number of Average Daily Departures (ADDs). Different positions have been taken by the various stakeholders (airlines, airport and coalition groups) on these limitations as shown in **Appendix C**. During the term January 1, 2026 to December 31, 2030 they range from 12.2 to 15 Million Annual Passengers (MAPs) and 95 to 135 Average Daily Departures (ADDs) between these groups.<sup>18</sup>

Community activists would prefer that this new agreement be even more restrictive:

1. Limit Daily Flights
2. Limit Annual Passengers
3. Decrease hours of operation
4. Close John Wayne Airport

---

<sup>18</sup> Proposed Project and Alternatives of the Proposed Extension of the John Wayne Airport Settlement Agreement. March 2013

Airport capacity growth has been severely constrained by the terms of a Federal Court approved 1985 agreement between the County Board Supervisors, City of Newport Beach and two community groups:

1. Airport Working Group
2. Stop Polluting our Newport

The 1985 John Wayne Airport Stipulated Settlement Agreement settled numerous noise related lawsuits against Orange County and resulted in a revised Master Plan that was approved by the County Board of Supervisors. John Wayne Airport has adequately planned and expanded to meet present and future air travel demand within these constraints while taking local public opinion into account.<sup>19</sup>

The 1985 Stipulated Settlement Agreement was amended in 2003. It limited John Wayne Airport’s regularly scheduled commercial airlines to 10.3 Million Annual Passengers (MAPs) in any one year beginning on January 1, 2003 through December 31, 2010 and not more than 10.8 Million Annual Passengers (MAPs) beginning on January 1, 2011 through December 15, 2015.

Commercial operating hours are also severely constrained as seen in **Table 4**.

**Table 4:** Curfew Restrictions at John Wayne Airport

Commercial Airlines		
Operations	Days	Hours
No Departures	Monday through Saturday	10:00 P.M. – 07:00 A.M
	Sunday	10:00 P.M. – 08:00 A.M
No Arrivals	Monday through Saturday	11:00 P.M. – 07:00 A.M
	Sunday	11:00 P.M. – 08:00 A.M
Cargo		
	Days	Hours
No Departures	Monday through Sunday	No Later than 07:45 P.M.
No Arrivals	Monday through Sunday	No Earlier than 04:00 P.M.

Source: [www.ocair.com](http://www.ocair.com)

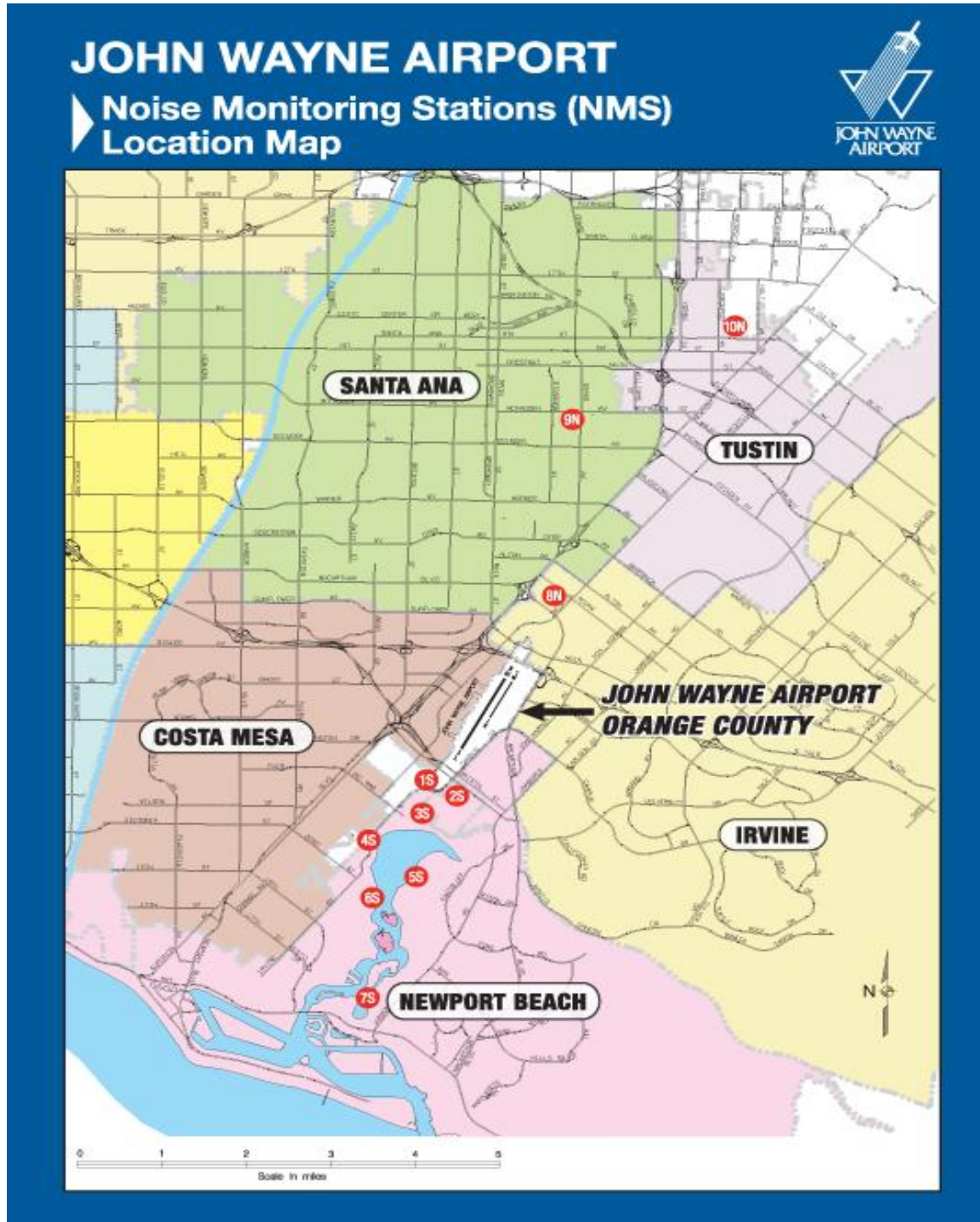
- Notes:**
1. Curfews restrictions were established in 1971 separate from current and propose extension of the John Wayne Airport Settlement Agreement. The curfew restriction however has been and will be referenced in any future settlement agreement and will remain in effect until December 31, 2035 under the proposed updated terms.
  2. There are no curfew hours on general aviation aircraft

<sup>19</sup> 1985 John Wayne Airport Stipulated Settlement Agreement



The current noise monitoring system, **Figure 3**, uses strategically located sensors to evaluate the impact of aircraft take-offs and landings for ground level violations. The current protocol requires maintaining levels below 86.0dB Single Event Noise Exposure Level to 101.8dB Single Event Noise Exposure Level depending on, time of day, aircraft class and sensor location. Actual noise limits at each monitoring station are summarized in **Appendix D**.

**Figure 3:** Ground Level Noise Monitoring Stations



### *Airport Noise and Capacity Act of 1990<sup>20</sup>*

The passage of the Airport Noise and Capacity Act of 1990 (ANCA), gives the power to regulate airport noise with very few exceptions, to the exclusive province of the Federal Government. Airport Noise and Capacity Act of 1990's principal aim was to advance quiet engine technology to relieve restrictions on airport operations.

To carry out that aim, Airport Noise and Capacity Act of 1990 mandated that the noisiest, Stage 2, aircraft in excess of 75,000 lbs. would be phased entirely out of the existing fleet by December 31, 1999 and no new Stage 2 aircraft above 75,000 lbs. could be added after November 5, 1990. In return for ensured technological advances, Airport Noise and Capacity Act of 1990 divest local proprietors of the power to unilaterally regulate airport noise.

### *Air Pollution Impacts and Mitigation*

Faced with demands on capacity and pressure from local communities, airport operators need to understand, plan, and mitigate the environmental impacts without compromising security, safety and airport capacity.

John Wayne Airport has implemented ground traffic fuel substitutions and operational measures to improve air quality. These include:

1. Installed electric charging stations for ground service equipment and airport vehicles.
2. Provided electric preconditioned air units for servicing commercial aircraft. These electric preconditioned air units require 10 times less fuel than jet-fueled on board Auxiliary Power Units (APUs).
3. Required that fleet vehicles, such as taxi cabs and parking shuttles, use clean burning compressed natural gas (CNG) or other cleaner burning fuel alternative. John Wayne Airport's 2013 current taxi provider, Orange County Yellow Cab, uses 100 percent compressed natural gas (CNG) vehicles.<sup>21</sup>

Jet A Turbine Fuel is currently used in jet and turboprop engine commercial aircraft. Jet A is a kerosene grade of fuel which produces air pollutants (Nitrogen Oxide, Carbon Dioxide, and Soot Emission) on take-off. The Federal Aviation Administration is targeting to replace one billion gallons per year of conventional fuel with a sustainable alternative jet fuel by 2018.<sup>22</sup> Though they are created from renewable sources, drop-in fuels mimic the chemistry of petroleum jet fuel and can be used in today's aircraft and engines without modification while providing the same level of performance and safety as today's petroleum-derived jet fuel.

---

<sup>20</sup> Department of Transportation Airport Noise and Capacity Act of 1990

<sup>21</sup> [www.ocair.com](http://www.ocair.com)

<sup>22</sup> Federal Aviation Administration: Environmental and Energy Research and Development. Sustainable Alternatives to Jet A Fuel. November 15, 2012

Leaded 100LL, also known as 100 Octane Low Lead aviation fuel is used for reciprocating, general aviation aircraft engines. These are relatively clean burning fuels but are responsible for low levels of soot, hydrocarbon, carbon dioxide, and lead emissions.<sup>23</sup>

Increased passenger demand will require more flights of more heavily loaded aircraft leading to increased emissions. *Significant advances in engine and fuel technology (discussed later) should mitigate the effect of increases in annual passengers.*

*Ground Traffic Impacts*

**Table 5** presents the John Wayne Airport latest Vehicle Traffic Survey conducted in 2001, 2003 and 2013. The Projected Vehicle Traffic Survey is based on the currently authorized 10.8 Million Annual Passengers (MAPs). Cars may stop at the curbside of the terminals only long enough to drop off or pick up passengers<sup>24</sup>. Peak traffic occurs in the early morning and late afternoon with afternoon traffic being significantly higher. Traffic flow is exacerbated by the fact that vehicles must loop through the airport departure area until their passenger(s) arrive curbside. *There is currently no car waiting, cell phone parking.*

**Table 5:** Peak John Wayne Airport Ground Traffic

John Wayne Airport Existing and Projected Vehicle Traffic Generation Summary							
		AM Peak: 7:30AM to 8:30AM			PM Peak: 5:00PM to 6:00PM		
Source	MAPs	In	Out	Total	In	Out	Total
2001(1)	7.3	1,240	1,138	2,278	1,875	1,879	3,754
2003(1)	8.5	1,240	1,090	2,330	1,720	1,830	3,550
		AM Peak: 7:00AM to 9:00AM			PM Peak: 4:00PM to 6:00PM		
2013 (2)	9.2	1,300	1,177	2,477	1,168	1,340	2,508
<b>Projected</b>	10.8	1,534	1,385	3,019	1,374	1,582	2,956

- Source:**
- (1) John Wayne Airport Traffic Technical Report Appendix C May 26, 2004 by Austin-Foust Associates, Incorporated
  - (2) John Wayne Airport Traffic Technical Report Appendix G April 30, 2014 by Fehr & Perris

**Notes:** 1. MAPs: Million Annual Passengers

Based on the previous **Table 5** vehicle traffic survey of John Wayne Airport, a small cell phone parking waiting area would help reduce repetitive traffic of motorist going through the airport loop waiting for their arriving passengers and would also reduce vehicle emissions.

<sup>23</sup> Federal Aviation Administration. Aviation Rulemaking Committee. Unleaded Aviation Gasoline Transition. February 17, 2012

<sup>24</sup> John Wayne Airport Supplement Environmental Impact Report. Traffic Report May 26, 2004 and April 30 2014.

### *Cost and Convenience Competitiveness*

Passenger demand, particularly for the leisure traveler, is partially driven by user trip costs. Business traveler demand is driven more by convenience (frequency and duration of flights, and number of destinations). User costs for parking and airfare, and operating hours and destinations are compared to other Southern California airports in this section. Comparisons may suggest pricing or policy changes which would make John Wayne Airport more attractive and result in near-term, increased user demand.

Air Fare Cost Comparisons-The Regional Air Passenger Demand Allocation Model surveyed residents of Orange County. It concluded that John Wayne Airport was their first departure choice, although other factors influenced their actual airport selection including:<sup>25</sup>

1. Flight Schedule
2. Destination Availability
3. Cost of air fare and parking

John Wayne Airport's higher fares are driven by its limited number of flights and fast approaching passenger ceiling Settlement Agreement limits. The rising airfares at John Wayne Airport have obviously driven some passengers, particularly discretionary leisure travelers, to more distant regional airports with lower airfares. This longer commute results in increased vehicle air pollution, lost traveler productive time, and loss of John Wayne Airport revenue.

United States Department of Transportation's Office of Aviation Analysis Air Transport Association Domestic Airfare Report 2013 4th Quarter identified John Wayne Airport as the most expensive major airport in California as measured by airfare per passenger mile. It is 28% above the national average by this standard.

Airfare comparisons were made from 15 national airports. The 15 airport destinations were chosen because they are destinations that a passenger could fly non-stop from John Wayne Airport, but can also fly from Bob Hope Airport (Burbank), Los Angeles International Airport, Long Beach Airport (Daugherty Field), and Ontario International Airport and could be made on a fair and consistent basis.<sup>26</sup> These five airports were chosen because airlines consider these airports as part of the Metropolitan Area Airports of Los Angeles.

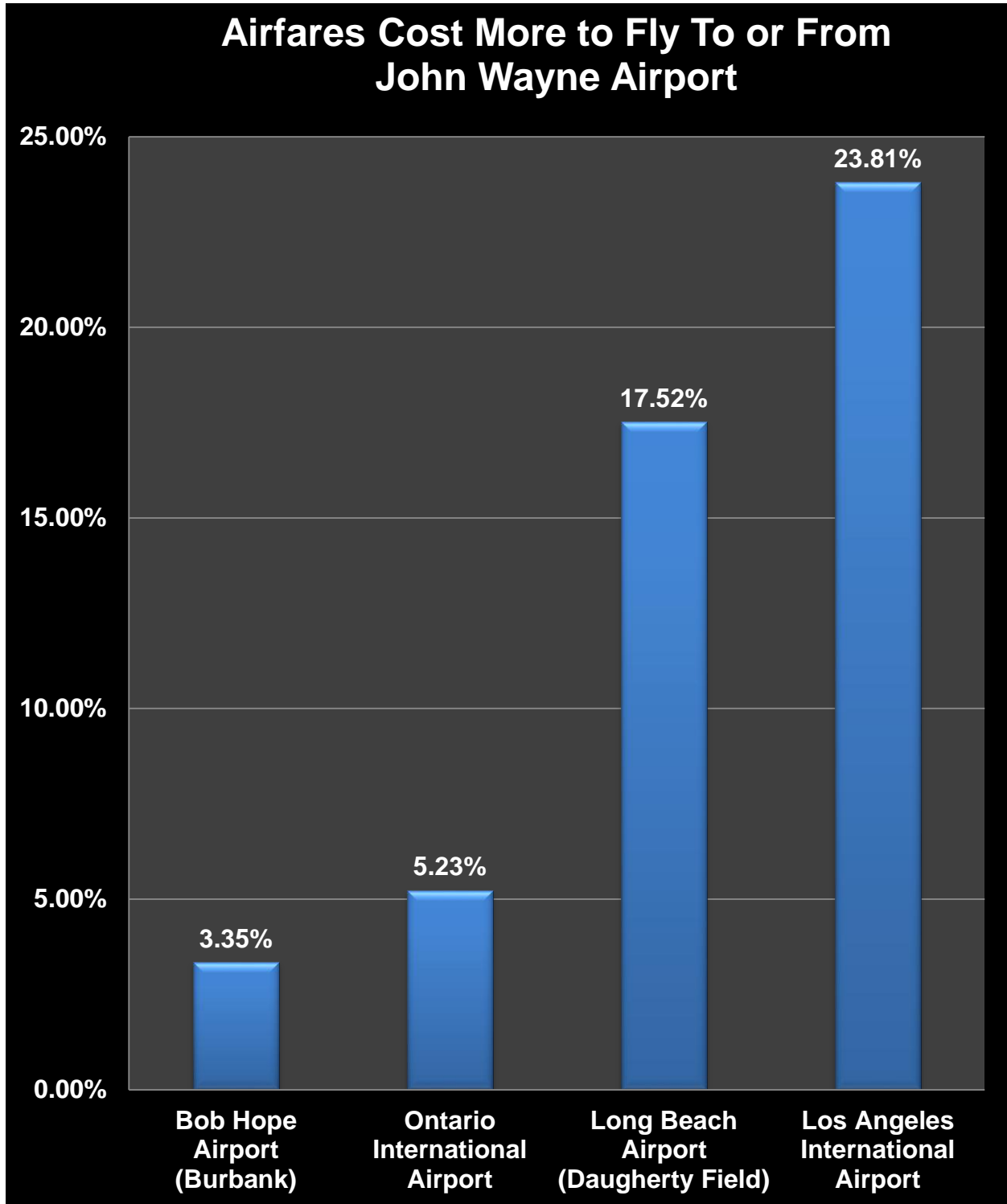
---

<sup>25</sup> Regional Air Passenger Demand Allocation Model (RADAM) 2008 modeling for the Southern California Association of Governments (SCAG)

<sup>26</sup> United States Department of Transportation's Office of Aviation Analysis Air Transport Association Domestic Airfare Report 2013 4th Quarter

The airfare comparisons are summarized below in **Figure 4** and detailed in **Appendix H**:

**Figure 4:** Airfares cost in percentages



**Source:** United States Department of Transportation’s Office of Aviation Analysis Air Transport Association Domestic Airfare Report 2013 4th Quarter.



Competitive Parking Costs-Terminal parking at John Wayne Airport is reasonably competitive with other local commercial airports, **Table 6**. There is little advantage to choosing an alternative airport, although John Wayne Airport is the only one that does not have car waiting or cell phone parking for passenger pick-up. However, for extended stays typically used by leisure travelers parking costs have a more substantial impact.

**Table 6:** Comparative Airport Parking Fees

Airport	Outside		Terminal		Car Wait	Shuttle
	\$/Day	\$/Hour	\$/Day	\$/Hour		
<b>SNA</b>	<b>14</b>	<b>2</b>	<b>20</b>	<b>2</b>	<b>No</b>	<b>Free</b>
<b>ONT</b>	9	3	18	3	Yes	Free
<b>BUR</b>	10	3	31	5	Yes	Yes
<b>LAX</b>	12	4	30	3	Yes	Free
<b>LGB</b>	17	2	19	2	Yes	N/A

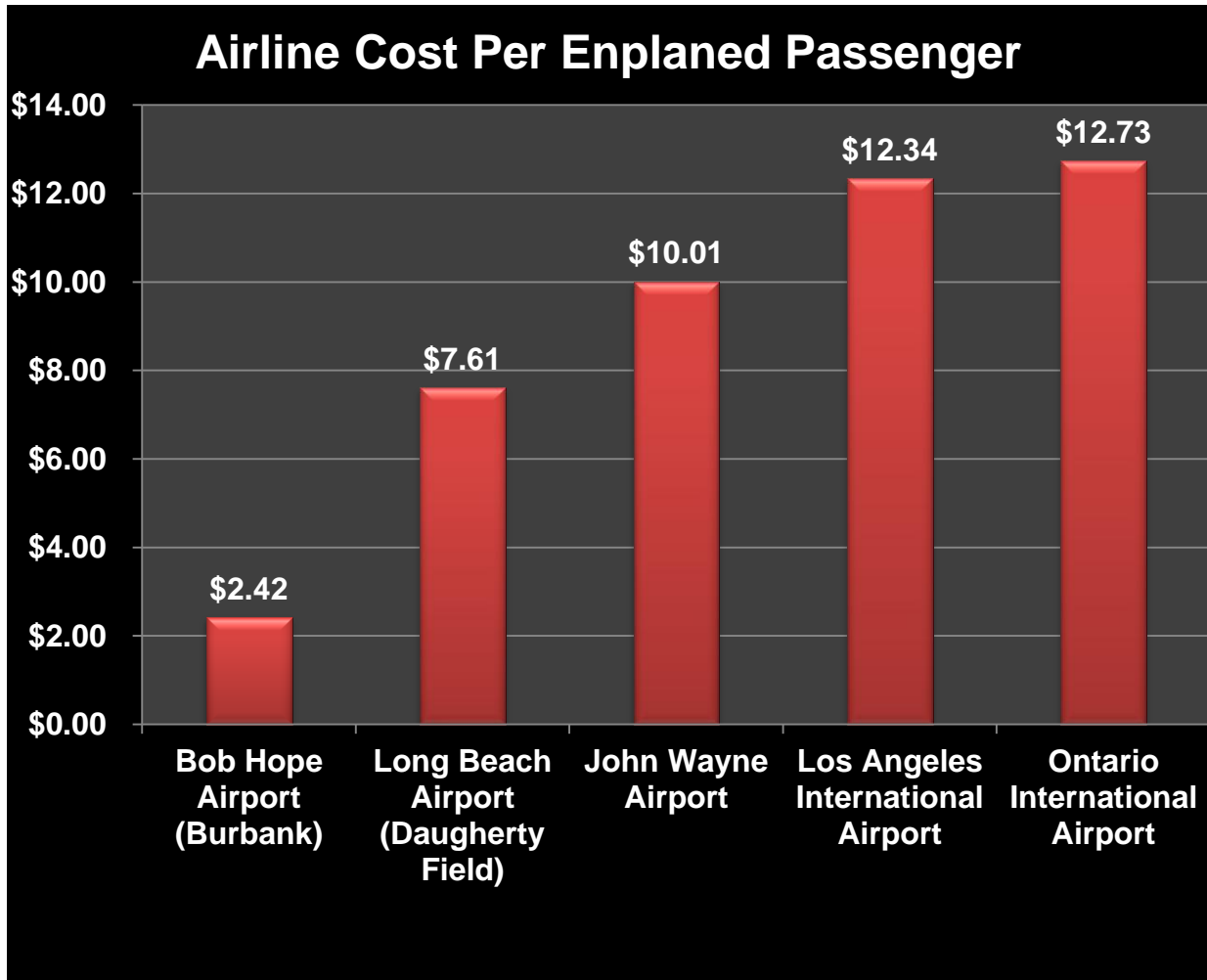
**Source:** [www.ocair.com](http://www.ocair.com)  
[www.lawa.org/welcome\\_ont](http://www.lawa.org/welcome_ont)  
[www.burbankairport.com/parkingmap.html](http://www.burbankairport.com/parkingmap.html)  
[www.lawa.org/welcome\\_lax](http://www.lawa.org/welcome_lax)  
[www.lgb.org](http://www.lgb.org)

Airline Cost per Enplaned (Boarding) Passenger-Air fares are somewhat impacted by the airline airport facilities cost per enplaned passenger. The components of this cost are: Terminal rents, Federal Inspection Station Fees, Baggage System Fees, Landing Fees, Gate Fees, Apron Fees, Remain Overnight Parking Fees, Aircraft Taxi Time Cost, En-route Delays, Gate Delays, Baggage Systems, Mishandled Baggage, Passenger Ticketing, Bag Check, Terminal Special Facility debt, Terminal Operations and Maintenance, Loading Bridges, Baggage Consortium Fees.<sup>27</sup>

Airlines are constantly struggling to reduce operating costs, including airport operating costs that are passed through to them. If the cost to the airline for operating at a particular airport becomes too great, an airline will increase ticket prices, reduce or discontinue air service at the airport or move flights to another less expensive airport. **Figure 5** shows the airline cost at John Wayne Airport as per Enplaned Passenger basis is the third highest among the following five regional airports.

<sup>27</sup> Federal Aviation Administration Report 127. December 2013.

**Figure 5:** Competitive Airport Operating Charges to Southern California Airlines



**Source:** Federal Aviation Administration Report 127. December 2013

*Security and Safety Compliance*

John Wayne Airport has an excellent safety and operational history. This record is the result of the commitment of the operating organizations and their ability to allocate resources appropriately to the tasks at hand (safety records, full compliance with Federal Aviation Administration regulations, and compliance with other appropriate directives that establish environmental requirements or community compatibility issues such as noise levels). Of particular note is John Wayne Airport’s recent record of performance on successfully passing the 2013 Federal Aviation Regulation Part 139 Annual Inspection – Certification of Airports.<sup>28</sup>

<sup>28</sup> 2013 Federal Aviation Regulation Part 139 Annual Inspection – Certification of Airports

Before September 11, 2001, one of the Federal Aviation Administration safety concerns was preventing runway incursions. John Wayne Airport continues to provide an aggressive program to achieve these objectives. This is extremely important because of the unusual 2:1 ratio of general aviation to commercial operations as seen in **Table 7** and **Appendix F**

There are two security zones within the John Wayne Airport boundaries:

1. Secured General Aviation zone controlled by John Wayne Airport
2. Highly secured Transportation Security Administration (TSA) zone for commercial airlines

General Aviation security requires a John Wayne Airport identification badge and a Personal Identification Number code to open a vehicle gate to access aircraft parking and loading areas. No pedestrians or bicycles may enter or exit vehicle gates. People and vehicles are only cleared for one zone and are not permitted to move between them. The Security Identification Display Area is also called a sterile area. Color coded badges and color coded vehicle stickers are used to distinguish which area is permitted.<sup>29</sup> Security within the General aviation zone is enforced by airport security; security within the commercial zone is managed by the Transportation Security Administration (TSA).

### *Flight Safety*

Reduced visibility, congested runways, bad weather, and sharp turns during take-off or landing are typical pilot concerns. While all major hubs in the United States are considered safe, some have geographic or operational restrictions which make take-offs difficult. Strict noise

**Figure 6**



suppression procedures for flights coming in and out of John Wayne Airport have been implemented to appease local residents.<sup>30</sup> These procedures require that departing planes perform a steep angle of climb of 25 degrees instead of the standard 15 degrees until they reach 800 feet of altitude, as shown in **Figure 6** which feels like a rocket ship ascent followed by a sudden thrust reduction along a zigzagging trajectory.

**Photograph:** Steep Angle of Climb during Takeoff

<sup>29</sup> General Aviation Pilots

<sup>30</sup> Commercial Airline Pilot

Pilots must thread a tight needle that only a computer can fly. An engine failure during the initial climb would make it extremely difficult to manage. John Wayne Airport also has a very short runway so landings are also critical.<sup>31</sup>

*Runway and taxiway improvements should be evaluated to determine if improvements in safety, passenger traffic and noise level can be cost effectively accommodated.*

### *Passenger Processing Capacity*

Passenger processing capacity may be limited by the physical airport infrastructure. Adequate vehicle access to drop-off zones and parking, sufficient number of gates, and limits on departure frequency at peak passenger demand are among the potential bottlenecks to be mitigated. The current infrastructure's passenger capacity is in excess of current demand by some 8 Million Annual Passengers (MAPs).

### **Future Operations**

John Wayne Airport will remain under-utilized for about the next 10 years relative to authorized passenger levels according to current projections. Policies that encourage increased passenger use through offering more frequent flights and destinations, competitive fare pricing and user friendliness could potentially improve user demand. However, by about the year 2027 demand is projected in to exceed the Million Annual Passengers (MAPs) and the physical infrastructure will be the limiting factor after 2040 as seen in **Figure 13** and **Appendix C**.

### *Noise Constraints*

A number of Settlement Agreement modifications have been proposed; several of the most likely are summarized below and detailed in **Appendix C**.

Proposed New Settlement Agreement -The current 1985 John Wayne Airport Stipulated Settlement Agreement will end December 15, 2015. The next John Wayne Airport Stipulated Settlement Agreement has not been finalized but will start January 1, 2016. The key elements of the new proposed settlement agreement (**Appendix C**) are:

1. A proposed extension to an agreement that sets limits on operations at John Wayne Airport would allow some increases in passengers and flights at the airport after 2020.
2. The proposed extension would continue the limit of 10.8 Million Annual Passengers (MAPs) through 2020. The annual passenger cap would then expand to 11.8 Million Annual Passengers (MAPS) between 2021 and 2025.<sup>32</sup>
3. The settlement represents the consensus of representatives of government and community groups, including the County of Orange, the City of Newport Beach, the Airport Working Group and an organization called Stop Polluting Our Newport.

---

<sup>31</sup> Commercial Airline Pilot

<sup>32</sup> Proposed Project and Alternatives of the Proposed Extension of the John Wayne Airport Settlement Agreement. March 2013

4. If the airport sees at least 11.21 Million Annual Passengers (MAPs) during any one year over that five-year period (January 1, 2021 through December 31, 2025), it could add another 700,000 passengers to the annual cap between 2026 and 2030. Otherwise, the cap would only increase by 400,000 passengers beginning in 2026.

Alternate Proposed Extensions- Three alternatives to the New Settlement Agreements have also been proposed and their positions in the out-years are summarized below:

1. By the end of the year 2030 the proposed extension of the settlement agreement limits annual passengers to 12.2 or 12.5 Million Annual Passengers (MAPs) and 95 Average Daily Departures (ADDs).
2. By the end of the year 2030 the Federal Aviation Administration forecast demand is 12.8 Million Annual Passengers (MAPs) and 135 Average Daily Departures (ADDs).
3. By the end of the year 2030, John Wayne Airport’s terminal area physical capacity with current hours of operations will be 16.9 Million Annual Passengers (MAPs) and 288 Average Daily Departures (ADDs), far in excess of the forecasted or noise limited constraints until 2044.<sup>33</sup>

**Table 7**

<b>John Wayne Airport Statistics</b>			
	<b>2013</b>	<b>2012</b>	<b>2011</b>
<b>Total passengers</b>	<b>9,232,789</b>	<b>8,857,944</b>	<b>8,609,008</b>
<b>Enplaned</b>	<b>4,600,192</b>	<b>4,417,599</b>	<b>4,287,955</b>
<b>Deplaned</b>	<b>4,632,597</b>	<b>4,440,345</b>	<b>4,321,053</b>
<b>Air Cargo Tons</b>	<b>17,568</b>	<b>17,366</b>	<b>15,569</b>
<b>Total Aircraft Operations</b>	<b>248,225</b>	<b>255,688</b>	<b>252,943</b>
<b>General Aviation</b>	<b>163,565</b>	<b>171,873</b>	<b>169,870</b>
<b>Commercial</b>	<b>81,841</b>	<b>80,691</b>	<b>79,658</b>
<b>Commuter</b>	<b>2,130</b>	<b>2,631</b>	<b>3,188</b>
<b>Military</b>	<b>689</b>	<b>493</b>	<b>227</b>

Source: [www.ocair.com](http://www.ocair.com)

*Impact of Forecasted Increases in Demand*

Future John Wayne Airport passenger demand will be driven by a wealthier and larger population of retired leisure travelers and a new generation Orange County high technology businesses. As high-tech firms mature, they rely more, not less, on airports. These firms have among the highest air travel rates, airport travel time sensitivities and air cargo utilization rates of any industry. The Federal Aviation Administration time line for passenger demand is based upon the actual 2013 9,232,789 passengers (see **Table 7** above) and their annual enplanement estimate to 2040 (converted to Million Annual Passengers (MAPs) by approximately doubling the

<sup>33</sup> Proposed Project and Alternatives of the Proposed Extension of the John Wayne Airport Settlement Agreement. March 2013



enplanement estimate). This data may be found in the Federal Aviation Administration Office of Aviation Policy and Plans Terminal Area Forecast Detail Report 2013. **Appendix E**<sup>34</sup>

This and other studies of John Wayne Airport commercial operations estimate that demand has been, is presently and continues to be below the projected physical infrastructure capacity of 16.9 Million Annual Passengers (MAPs). It should be noted that the current Settlement Agreement currently limits airport capacity to 10.8 Million Annual Passengers (MAPs) regardless of actual demand.

### **Potential Constraint Mitigation Measures**

Developing aircraft technologies (clean fuels, engine and airframe technology) will substantially mitigate noise and aircraft emissions issues and could pave the way for more lenient airport capacity constraints including the use of larger aircraft. Such policy and infrastructure changes could result in lower user costs and more user friendly services for commercial and general aviation flyers. These measures are presented below and their impacts are interpreted in the Analysis Section of this report.

#### *Low Emissions Engine and Fuel Technology*

Commercial aviation faces fuel cost and environmental challenges arising from the use of petroleum based jet fuel. Sustainable alternative jet fuels can reduce exhaust emissions that impact ground level air quality. The objectives are a local carbon foot print reduction while expanding domestic energy sources and contributing to price and supply stability.

Federal and supplier fuel and engine technologies currently under development include the replacement of:

- a) Jet A turbine fuel with renewable generated fuel, and<sup>35</sup>
- b) 100LL aviation fuel with an unleaded, high octane and least impact on the general aviation fleet.<sup>36</sup>
- c) Older polluting and noisy turbojet engines with quiet, clean burning engines

#### *Quiet Engine Technology*

Prior to 1968, the United States Federal government did not regulate aircraft noise. In 1969, the Federal Aviation Administration adopted its first standards for new designs of civil subsonic turbojet aircraft engines. In 1977, Federal Aviation Administration adopted more stringent noise

---

<sup>34</sup> Federal Aviation Administration Office of Aviation Policy and Plans Terminal Area Forecast Detail Report 2013.

<sup>35</sup> Federal Aviation Administration. Environmental and Energy Research and Development. Sustainable Alternative to Jet A Fuel. November 15, 2012

<sup>36</sup> Federal Aviation Administration: Aviation Rulemaking Committee. Unleaded Aviation Gasoline Transition. February 17, 2012

standards and applied them to all newly manufactured aircraft. The noise level restrictions have evolved through a number of stages; the more recent and future noise standards in **Table 8** are:<sup>37</sup>

**Table 8:** Current and Future Commercial Aircraft Noise Standards

Stage	Noise Standard	Effective Date	Comments
4	10 db less that Stage 3	2005	Stage 3 standard varies from 89-106 db
5	3 to 11 EPNdb less than Stage 4	2020	EPN, Effective Perceived Noise

**Source:** Federal Aviation Administration

**Notes:** Noise Measurement Locations

1. Takeoff Point: 6,500 meters (19,685 feet) from takeoff roll at ground level.
2. Approach Point: 2,000 meters (6,562 feet) and 120 meters (394 feet) above ground level from touchdown.
3. Previous stage are not relevant as they proceed 2005 and not shown

Aircraft noise originates from three main sources:

1. Engine noise (largely the result of exhaust turbulence and the most dominate)
2. Aerodynamic noise (resulting from surface friction turbulence), and
3. Noise from aircraft rotating systems such as auxiliary power units.

Several new engines for aircraft currently authorized for use at John Wayne Airport are in development. The Pratt & Whitney 1124G/1127G/1133G Pure Power engines will feature a high-bypass, geared turbofan power train which is projected to reduce noise levels on departure by as much as 50%. A 10 dB reduction is equivalent to a 50% reduction noise perception.<sup>38</sup> The fan drive gear system achieves lower exhaust speeds than the older low-pressure compressor and turbine engines. These engines will be used on the new Airbus A-320neo with an entry into service in 2017.

The Leading Edge Aviation Propulsion (LEAP-1A) and LEAP-1B turbofan engines are being developed by CFM International, the builder of the CFM-56 engine which currently powers most Boeing 737’s and the Airbus A-320’s. The LEAP-1A and LEAP-1B engine will use new composite materials in fan blades and engine casings. This will decrease weight and decrease fuel consumption by 15%. CFM International says that the LEAP-1A and LEAP-1B engines will reduce the perceive noise levels by 50%. The LEAP-1A engine will be used for the Airbus A320neo with an entry date of 2016. The LEAP-1B engine will be used for the Boeing 737 MAX with an entry date of 2017.

A recent noise-reducing technology now commercially available for large engines uses nacelle chevron technology to break up the exhaust shear layer, **Figure 7**.

<sup>37</sup> Federal Aviation Administration

<sup>38</sup> Bureau of Transportation Statistic of the Research and Innovative Technology Administration for the year 2013 representing data from January 2013 – December 2013.

**Figure 7:** Engine Noise Abatement with Nacelle Chevrons



**Photograph:** Nacelle Chevrons



**Photograph:** Nacelle Chevron

Chevrons are the saw tooth pattern seen on nacelle trailing edges which control the rate of engine exhaust and by-pass air mixing to reduce turbulence. These modifications are currently flying on the Boeing B787 and the Boeing B747-8 which are too heavy and require longer runways than can be accommodated at John Wayne Airport.

#### *Runway Modifications*

The Federal Aviation Administration's (FAA) Aviation Capacity Enhancement (ACE) plan in **Figure 8** has an option to increase the departure length of John Wayne Airport's runway, while holding the arrival length of the runway the same 5,701 feet. The pavement for both runway 19R and 01L does not stop at the end of the 5,701 runway.

Runway 01L on the south end of the airport currently extends an additional continues 1,000 feet beyond the end of the runway but is not paved as thick as the runway. This area is used in case of an emergency, such as an aircraft landing short, or overshooting the main runway on landing, or aborting a takeoff run. This area is called the clear zone, or crash zone, or the ditch zone. An additional 225 feet can also be added for takeoff if the localizer equipment for instrument landings in bad weather is moved. The final determination as to the location of the localizer antenna critical area, which is between 1,000 to 2,000 feet from the end of the runway, is determined by an actual flight check by the Federal Aviation Administration.

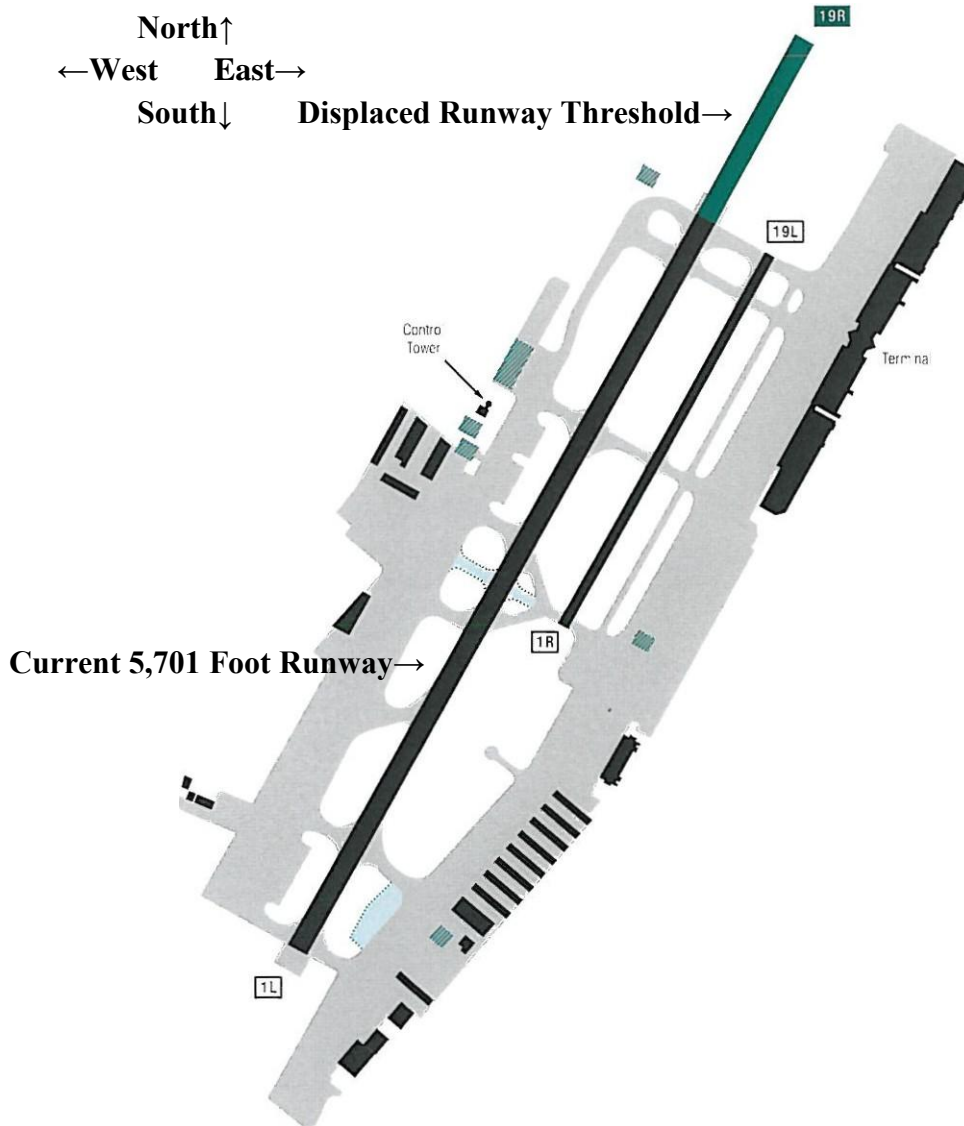
Having a displaced runway threshold at 19R on the north end of the airport would reduce the noise footprint over Newport Beach and Costa Mesa. This can be done by extending the runway 19R at John Wayne Airport for takeoffs further north and closer to the San Diego 405 Freeway, within John Wayne Airport's current boundary.<sup>39</sup>

The farther north that airline and commuter airline aircraft start their south bound departure take offs, the higher they will be when they do fly over Newport Beach and Costa Mesa, and the lower their noise footprint. Extending runway 19R to the north will increase safety distance if the

<sup>39</sup> Federal Aviation Administration's (FAA) – Office of System Capacity. Aviation Capacity Enhancement (ACE) 2002 plan.

pilot must abort a take-off or the pilot lands too far. It will also reduce ground collision risk with aircraft using the shorter runway (19L) when airline and commuter aircraft cross the shorter general aviation runway (19L) to get to the longer commercial runway (19R) with aircraft currently. With a Displaced Runway Threshold (DRT) at 19R the airline and commuter aircraft would use a dedicated extended taxi way to cross directly to the longer runway.

**Figure 8:** Potential Commercial Runway Modifications



**Source:** Federal Aviation Administration’s (FAA) – Office of System Capacity. Aviation Capacity Enhancement (ACE) 2002 plan for John Wayne Airport runway 19R only.

Runway 19R has a 1,353 foot long grassy area toward the 405 Freeway. This area is used in case of an emergency, such as an aircraft landing short, or overshooting the main runway on landing, or aborting a takeoff run. This area is called the clear zone, or crash zone, or ditch zone. Of the 1,353 feet, 1,103 feet can be extended for takeoffs only and 250 feet to be used for the width of a taxi way and for a jet blast barrier area.

Requiring airline and commuter aircraft to land at the beginning of the existing runway would maintain the present runway for landing at 5,701 feet. A displaced runway threshold (DRT), while maintaining current noise and curfew restrictions would ensure that John Wayne Airport can be more safe, effective and efficient in its operations.<sup>40</sup>

*2014 Incentives to Increase near Term Airport Utilization*

John Wayne Airport and the Orange County Board of Supervisors are offering more than \$1,250,000 in terminal rent incentives as shown in **Table 9** to attract airlines willing to make more direct flights to Hawaii, Mexico, and Washington District of Columbia area.

**Table 9:** Airline Added Destinations Incentives

Airline	Destination	Frequency Flights per Week	Term Months	Rental Incentive
All	Hawaii	2	9	\$50,000
South West, Air Tran	Mexico	N/A	N/A	\$900,000
All	Washington DC	5	12	\$300,000
				<b>Total: \$1,250,000</b>

**Source:** John Wayne Airport Executives

**Notes:** Mexican Airline Interjet will discontinue service of it’s once a day flights to Mexico City and Guadalajara on July 20, 2014. John Wayne Airport executives are looking for a replacement.

**General Aviation**

General Aviation refers to private aircraft that are not used for scheduled air services (passengers or cargo) or military operations. They are typically smaller aircraft that may be prop, jet airplanes, or helicopters. They may be owned by individuals or by corporations.

The significance of General Aviation becomes greater when it is realized that every airline and military pilot must begin their journey to professional competence in the cockpit of a general aviation aircraft.

<sup>40</sup> Federal Aviation Administration – Office of System Capacity 2002 Aviation Capacity Enhancement Plan

In the past 40 years, two general aviation airports closed in Orange County:

1. Capistrano Airport (L38) located in San Juan Capistrano closed in 1978
2. Meadowlark Airport (L16) located in Huntington Beach closed in 1989

Fullerton Airport (FUL) and John Wayne Airport (SNA) are the only airports within Orange County currently used by general aviation pilots for tie-down and fueling.

Fixed Base Operators are commercial businesses granted the right by an airport to operate at the airport and provide general aviation services such as fueling, hangar, tie-down and parking, aircraft rental, aircraft maintenance, charter flights and flight instruction.<sup>41</sup>

Fixed Base Operators (FBO) for John Wayne Airport are:<sup>42</sup>

1. Atlantic Aviation
2. Signature Flight Support

Fullerton Municipal Airport is home base for 255 tie-down spaces (231 base tie-down spaces and 24 transient tie-down spaces) and 125 hangar spaces.<sup>43</sup> **Figure 9**

John Wayne Airport is home base for approximately 550 general aviation aircraft parking. This includes **Figure 10**:

- 1) Enclosed hanger spaces
- 2) Spaces available from Fix Based Operators
- 3) Direct tie-down lease to the County of Orange

---

<sup>41</sup> Fixed Base Operators

<sup>42</sup> [www.ocair.com](http://www.ocair.com)

<sup>43</sup> [www.cityoffullerton.com](http://www.cityoffullerton.com)



*Tie Down Fee Comparison*

Fullerton Municipal Airport and John Wayne Airport offers tie down spaces to our general aviation community.

Base and Transient aircraft parking spaces at Fullerton Airport and John Wayne Airport (SNA) are managed by full-service Fixed Based Operators (FBOs).

Fullerton Municipal Airport Tie down fees start at: \$110.00 per Month<sup>44</sup>

John Wayne Airport Tie down fees start at: \$140.00 per month<sup>45</sup>

**Figure 9**



**Photograph:** Fullerton Municipal Airport

**Figure 10**



**Photograph:** John Wayne Airport

<sup>44</sup> [www.cityoffullerton.com](http://www.cityoffullerton.com)

<sup>45</sup> [www.ocair.com](http://www.ocair.com)

*Fuel Price Comparison*

**Table 10** compares the fuel prices of 100LL and Jet A of John Wayne Airport to other area airports

**Table 10**

Airport		100 LL	Jet A
<b>John Wayne Airport (SNA)</b>	<b>Full Service</b>	<b>\$7.50</b>	<b>\$7.32</b>
Chino Airport (CNO)	Self Service	\$4.95	N/A
	Full Service	\$4.95	\$4.50
Fullerton Municipal Airport (FUL)	Self Service	\$6.29	\$5.39
	Full Service	\$6.99	\$6.04
Cable Airport (Upland) (CCB)	Self Service	\$5.49	\$4.90
	Full Service	\$5.69	N/A
Riverside Municipal Airport (RAL)	Self Service	\$5.49	N/A
	Full Service	\$5.69	\$4.69
Long Beach Airport (Daugherty Field) (LGB)	Self Service	\$6.26	N/A
	Full Service	\$6.30	\$5.25
El Monte Airport (EMT)	Self Service	\$5.99	N/A
	Full Service	\$6.19	\$5.20
Hawthorne Municipal Airport (Jack Northrop Field) (HHR)	Self Service	\$6.46	N/A
	Full Service	\$7.46	\$6.60
Brackett Field Airport (La Verne) (POC)	Self Service	\$5.99	N/A
	Full Service	\$6.19	\$5.20
Compton Woodley Airport (CPM)	Self Service	\$6.15	N/A
	Full Service	\$6.35	N/A
Zamperini Field (Torrance) (TOA)	Self Service	\$6.25	N/A
	Full Service	\$6.51	N/A
Corona Municipal Airport (AJO)	Self Service	\$5.49	N/A
Rialto Municipal Airport (Miro Field) (Rialto) (L67)	Self Service	\$5.49	N/A
Flabob Airport (Riverside) (RIR)	Self Service	\$5.59	N/A

**Source:** [www.airnav.com](http://www.airnav.com) June 2014

**Self Service:** Self-service fueling requires the pilot in **Figure 11** and **Figure 12** to:

1. Position the aircraft near the fueling station.
2. Provide a method of payment (typically a credit card) to the automated fueling station.
3. Follow the instructions and procedures for the automated fueling station to dispense fuel to the aircraft.
4. Obtain a receipt from the automated fueling station.

**Figure 11**



**Photograph:** 100LL Self-Serve

**Figure 12**



**Photograph:** Jet A Self-Serve

**Full Service:** Full service fueling is provided by the Fix Base Operator (FBO) employees who will:

- 1) Drive a fuel truck to aircraft,
- 2) Dispense fuel from truck to aircraft and
- 3) Collect payment from pilot or aircraft operator<sup>46</sup>

The pilot or aircraft operator does not have to be involved in the fueling operation. Additionally, the aircraft generally does not have to be repositioned for fueling, since the truck delivers the fuel to the aircraft's location. Since full-service fueling requires manual operation by Fix Base Operator (FBO) employees, the pilot or aircraft operator should ensure that those services are available for their aircraft at the time desired.<sup>47</sup>

Atlantic Aviation Fueling Hours:

Sunday – Saturday: Open 05:30 A.M. to 11:00 P.M

Signature Flight Support Fueling Hours:

Sunday: Open 06:00 A.M. to 10:00 P.M.

Monday – Saturday: Open 06:00 A.M. to 11:00 P.M.

<sup>46</sup> [www.airnav.com](http://www.airnav.com)

<sup>47</sup> Fix Base Operators

## **METHOD OF STUDY**

The Grand Jury conducted this investigation through interviews with the stakeholders, review of relevant documents and reports, and inspection tours as described below.

The Grand Jury interviewed:

1. Lease Holders
2. Community Groups
3. Fixed Base Operators
4. General Aviation Pilots
5. Commercial Airline Pilots
6. John Wayne Airport Executives
7. Federal Aviation Administration

The Grand Jury studied the following documents and reports:

1. Survey of Smarter Travel readers and pilots on July 31, 2010.
2. John Wayne Airport May 26, 2004 and April 30, 2014 Supplemental Environmental Impact Report Traffic Reports.
3. Federal Aviation Administration Aviation Policy and Plans Terminal Area Forecast 2013.
4. Proposed March 2013 Project and Alternatives of the Proposed Extension of the John Wayne Airport Settlement Agreement.
5. Regional Aviation Plan for 2012 Regional Transportation Plan published by Southern California Association of Governments.
6. United States Department of Transportation's Office of Aviation Analysis Air Transport Association Domestic Airfare Report 2013 4th Quarter.
7. Economic Impact Study of California Airports prepared on March 1, 2013 by Applied Development Economics for California Airports Council.
8. Regional Air Passenger Demand Allocation Model (RADAM) 2008 modeling for the Southern California Association of Governments (SCAG).
9. United States Department of Transportation Bureau of Transportation Statistic of the Research and Innovative Technology Administration for the year 2013 representing data from January 2013 – December 2013.
10. John Wayne Airport Improvement Program Contracts by Parsons Transportation Group, Incorporated, an engineering, construction, technical, and management services firm from 2006-2013

The Grand Jury conducted interviews, on-site inspection and facility tours on five different occasions. The on-site inspection and facility tours were used to supplement the interviews and to provide a visual verification of infrastructure condition, security, sustainability, operation, cost and capacity demand.

## ANALYSIS

The background discussion suggests that this report's findings and recommendations should focus on the following issues:

1. Policies to attract more leisure and business travelers
2. Potential infrastructure upgrades to improve security and safety
3. Ways to better match the physical capacity of the airport to current and future demand
4. The impact of new aircraft technology on noise abatement strategies and operating constraints.
5. Making the facility more attractive and safe for general aviation users.

### Current Demand

The Federal Aviation Administration forecast for John Wayne Airport passenger demand in **Figure 13** indicates a continued and sustained use of the airport. Superimposed on this graph are two constraints on use:

1. The current Settlement Agreement of 10.8 Million Annual Passengers (MAPs)
2. The physical capacity of the John Wayne Airport infrastructure, 16.9 Million Annual Passengers (MAPs)<sup>48</sup>

Annual actual passenger volume for John Wayne Airport in 2013 was 9,232,789 (**Table 7**), well below the existing cap of 10.8 Million Annual Passengers (MAPs). **Figure 13** shows that in the future the airport could accommodate about 17% more passengers before reaching the current settlement agreement limitation of 10.8 Million Annual Passengers (MAPs).

### Demand and Constrained Capacity

**Figure 13, Appendix C and Appendix E** also shows the Federal Aviation Administration forecast (**Appendix E**) for John Wayne Airport passenger demand while considering two additional constraints on future operations:

1. 95 Average Daily Departures (ADDs) shown in **Appendix C** and
2. 12.2 or 12.5 Million Annual Passengers (MAPs) shown in **Figure 13**

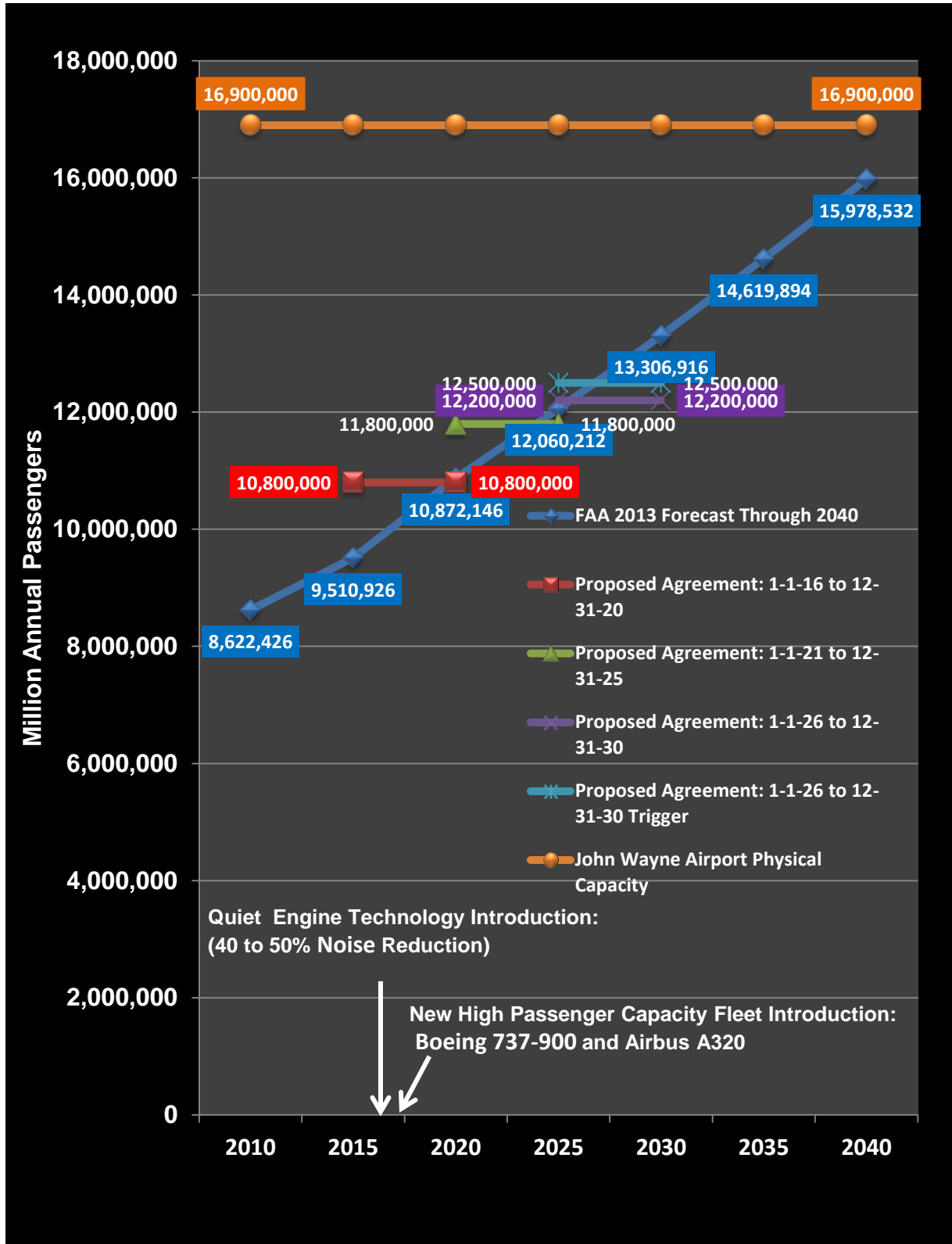
The airport demand would reach these operating constraints in 2027.

There are other potential bottlenecks at very high capacities which should be evaluated such as peak travel period vehicle traffic flow, access to short term parking, and passenger processing through security.

---

<sup>48</sup> March 2013 Proposed Project and Alternatives of the Proposed Extension of the John Wayne Airport Settlement Agreement

**Figure 13:** Federal Aviation Administration Forecast and New Technology Introduction



Source: Appendix C, Appendix E and Federal Aviation Administration



## Demand and Constraint Mitigation

Currently, John Wayne Airport is underutilized relative to the Settlement Agreement constraints. Additional patronage might be incentivized through attracting more leisure travelers. They are more sensitive to air fare and parking fee costs. Airfares will probably be more difficult to control since John Wayne Airport has a very limited ability to directly affect airline policy. Perhaps the best hope for lower airfares is to increase passenger traffic. The airline, would achieve improve economies of larger scale allowing them to pass along some of the savings. Increased capacity could also generate more flights and airline service, thus generating more competition and lower fares.

*Orange County passengers can expect little or no airfare relief in the future if the Settlement Agreement continues to limit the number of flights and passengers in the face of growing demand for air travel.<sup>49</sup>*

Satisfying future demand will be even more challenging. After about 2026 the Settlement Agreement imposed limits constrain operations to either the 12.5 Million Annual Passengers (MAPs) or the 95 average daily departures (ADDs) constraints. The Average Daily Departures (ADDs) will control if departing flights leave with the same, fixed number of passengers per departure over the 2026 to 2045 period. The number of passengers per enplanement is constrained by both the cabin and airframe configuration and the load capacity factor. In the future the next generation aircraft operating out of John Wayne Airport will be larger and quieter. **Table 11** lists airframe models and relevant performance parameters affecting capacity (number of passengers) and destinations (range), lower model numbers are typical of current operation; larger capacity, higher numbered models will be more typical of the fleet in the 2026 time frame. These aircraft can take-off with the current 5,701 foot runway, but not with full fuel, full cargo and full passenger occupancy.

**Table 11: Selected Current Fleet Operating Out of John Wayne Airport**

Manufacture	Model	Number of Passengers	Range: Nautical miles	Capacity Increase
Boeing	737-400	144	2,370	Reference
Boeing	737-800	162	3,115	12%
Boeing	737-900	180	3,100	25%
Airbus	A319	124	3,740	Reference
Airbus	A320	150	3,300	20%
Airbus	A321	185	3,200	49%

**Source:** [www.boeing.com](http://www.boeing.com)  
[www.airbus.com](http://www.airbus.com)

<sup>49</sup> United States of Transportation’s Office of Aviation Analysis Air Transport Association Domestic Airfare Report 2013 4th Quarter

Absent the Settlement Agreement constraint, passenger traffic could increase by about 50% from 2014 to 2043. Failure to reach this demand level translates into a loss in potential local economic activity and an inconvenience to the leisure travelers who will have to travel further to find cheaper flights.

Clearly, new generation aircraft have the ability to increase passenger traffic by 20% to 49% for Average Daily Departures (ADDs) limited flights. The next generation model capacities and the Average Daily Departures (ADDs) limits were used to estimate the equivalent Million Annual Passengers (MAPs) to determine if Average Daily Departures (ADDs) are the limiting criteria. The results are sufficiently close to the Million Annual Passengers (MAPs) constraints that either constraint will result in the following conclusions:

1. Over the next seven years about 1.6 Million Annual Passengers (MAPs) could be added without exceeding the Settlement Agreement limits
2. Forecasted demand cannot be met after 2027.
3. From 2027 until 2040, on average, 2.2 Million Annual Passengers (MAPs) cannot be served because of Settlement Agreement limits.<sup>50</sup>

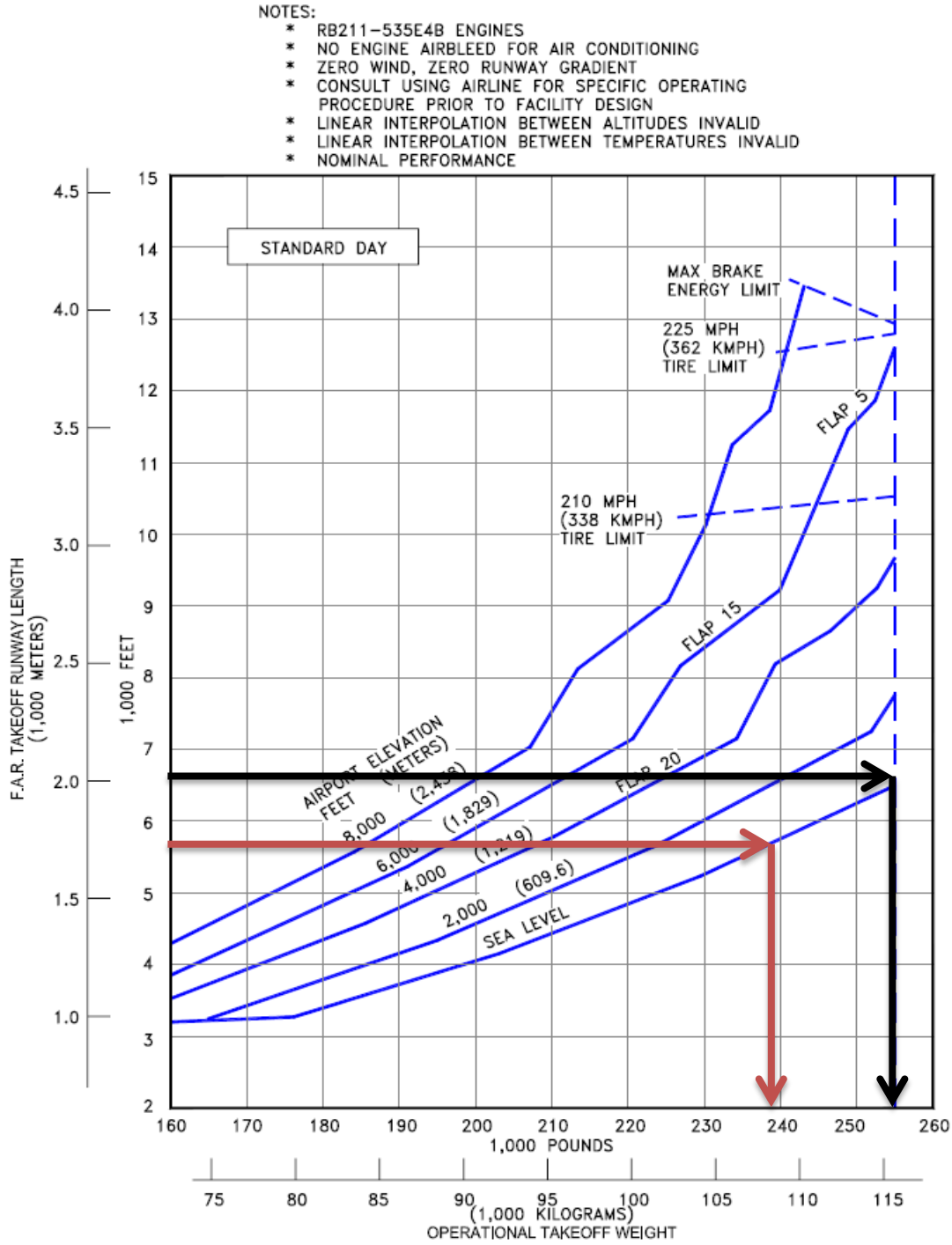
Passenger and cargo capacity might also be expanded in future years with larger aircraft. This would likely require an increase in runway length. For illustrative purposes, **Figure 14** estimates an increase in Boeing 757 take-off weight (about 17,500 lbs.) achievable by extending the existing 5,701 ft. runway by 1000 ft. This take-off weight increase could be used to load more fuel to extend the destination range or fly more passengers or cargo.<sup>51</sup>

---

<sup>50</sup> March 2013 Proposed Project and Alternatives of the Proposed Extension of the John Wayne Airport Settlement Agreement

<sup>51</sup> [www.boeing.com](http://www.boeing.com)

**Figure 14:** Federal Aviation Regulation Takeoff Runway Length Requirements – Standard Day Model: Boeing 757-300 with RB211-535E4 Engines



Source: [www.boeing.com](http://www.boeing.com)

An extended commercial runway could significantly mitigate the potential risks of implementing noise control procedures during aircraft landing and takeoff and potentially allow for heavier aircraft departures

*John Wayne airport will be an underutilized asset after about 2027 with the proposed Settlement Agreement operating constraints.*

### **Security and Safety**

John Wayne Airport is a multi-use facility handling general and commercial aviation, and air cargo. This requires that users share common infrastructure such as air space, taxiways and parking areas. Although there have not been any serious incursions, a second look at the utility and feasibility of an extended runway should be considered with a specific focus on configurations which:

1. The potential to improve airport security.
2. Further separate the three operations to avoid incursions.
3. Allow the operation of larger or more loaded aircraft, particularly air cargo and longer range commercial, e.g.: increase commercial destinations or passenger capacity.

*Security at the interface of the general, cargo and commercial aviation zones should be reviewed to confirm incursions are adequately controlled.*

### **Policies and Procedures**

John Wayne Airport is active in promoting near term facility use, primarily focused on incentivizing airlines to provide additional and more convenient long range flight destinations. The incentives primarily take the form of rebates on airport services. These incentives should be expanded with the objective of encouraging airlines to promote:<sup>52</sup>

- a) The leisure traveler with lower cost flights and more resort destinations, and
- b) The business traveler with more frequent non-stop flights to business destinations

### **General Aviation Business Model**

Orange County is losing business income to other metropolitan area airports around John Wayne Airport from transient General Aviation community because of three reasons:

1. Highest fuel prices
2. No fuel available during off hours
3. Highest temporary tie-down fees

John Wayne Airport should be more competitive with other airports in these areas.

---

<sup>52</sup> John Wayne Airport Executives

## **FINDINGS**

In accordance with California Penal Code Sections 933 and 933.05, the 2013-2014 Grand Jury requires (or, as notes, request) responses from each agency affected by the findings presented in this section. The responses are to be submitted to the Presiding Judge of the Superior Court.

Based on its investigation of John Wayne Airport in Orange County, the 2013-2014 Orange County Grand Jury has arrived at 13 principal findings, as follows:

- F.1.** John Wayne Airport has an imbalance of high demand and constrained capacity which, if optimized, could lead to future higher patronage and a more competitive user cost, all leading to a more robust Orange County economy.
- F.2.** John Wayne Airport has completed significant infrastructure upgrades which include improved seismic safety and increased airport capacity. This increase in airport capacity is significantly more than any future authorized Million Annual Passengers (MAPs) increases per the Settlement Agreement.
- F.3.** John Wayne Airport has one of the most challenging take-off flight paths in the world for commercial airliners.
- F.4.** New fuel and engine technology will substantially mitigate noise and pollution issues and allow for higher passenger limits and flights without increases in noise or pollution.
- F.5.** John Wayne Airport runways have the space to utilize a Displaced Runway Threshold (DRT) to allow for heavier commercial and cargo aircraft use.
- F.6.** The Settlement Agreement operating constraints significantly impair John Wayne Airport's ability to serve future demand.
- F.7.** John Wayne Airport has the highest commercial air-fares of the five regional airports. John Wayne Airport airfares and long term parking fees are not competitive relative to local regional and international airports.
- F.8.** John Wayne Airport travelers can now travel to Canada and Mexico, making it a truly international airport.
- F.9.** John Wayne Airport tie down fees are higher than Fullerton Municipal Airport, the only other general aviation airport in Orange County.
- F.10.** John Wayne Airport has the highest price for 100LL aviation fuel and Jet A fuel of any of the regional airports for general aviation. John Wayne Airport does not allow self-service fueling for general aviation pilots.

- F.11.** The Airport Noise and Capacity Act of 1990 (ANCA) gives the Federal Government the exclusive right to regulate airport noise.
- F.12.** There have been no noise violations of any commercial or commuter airline using any of its aircraft type or class that has exceeded any quarterly average noise limits in the years of 2012, 2013, and 2014.
- F.13.** Vehicle traffic thru the airport is increasing. Repetitive traffic has increased through the airport loop waiting for arriving passengers. This is creating congestion during peak hours and safety issues.

## **RECOMMENDATIONS**

In accordance with California Penal Code Sections 933 and 933.05, the 2013-2014 Grand Jury requires (or, as notes, request) responses from each agency affected by the recommendations presented in this section. The responses are to be submitted to the Presiding Judge of the Superior Court.

Based on its investigation of John Wayne Airport in Orange County, the 2013-2014 Orange County Grand Jury makes the following seven recommendations:

- R.1.** The John Wayne Airport Director should evaluate and recommend to the Board of Supervisors implementation of revenue neutral policies for lowering long term airport parking fees to incentivize leisure travelers to use John Wayne Airport in lieu of other commercial regional airports. **(F.1. and F.7.)**
- R.2.** The John Wayne Airport Director should evaluate and recommend to the Board of Supervisors adoption of the 2013 Federal Aviation Administration Office of Aviation Policy and Plans Terminal Area Forecast Detail Report predictions of passengers demand and Class A Average Daily Departure (ADDs) limits. **(F.2. and F.6.)**
- R.3.** The John Wayne Airport Director should evaluate and recommend to the Board of Supervisors to determine the cost/benefit of increasing runway length to improve safety and allow for larger aircraft or heavier take-offs in accordance with the Federal Aviation Administration Displacement Runway Threshold (DRT) study. **(F.3., and F. 5.)**
- R.4.** The John Wayne Airport Director should evaluate and recommend to the Board of Supervisors implementation of a separate cell phone waiting area to reduce repetitive traffic looping through the terminal to pick up arriving passengers. **(F.13.)**



- R.5.** The John Wayne Airport Director should recommend to the Board of Supervisors to evaluate and consider promoting increasing operating hours when newer airline aircraft can fly 86.8 dB or less SENEL (Single Event Noise Level) at Noise Monitoring Station 1S; 86.9 dB or less SENEL (Single Event Noise Level) at Noise Monitoring Station 2S; and 86.0 dB or less SENEL (Single Event Noise Level) at Noise Monitoring Station 3S; 4S; 5S; 6S; 7S; 8N; 9N; 10N., during those extended hours after 2035. No Averaging. **(F.4., F.11 and F.12)**
- R.6.** The John Wayne Airport Director should recommend to the Board of Supervisors consider renaming John Wayne Airport to John Wayne International Airport to reflect the new Customs Service and the increase in international flights. **(F.8.)**
- R.7.** The John Wayne Airport Director should recommend to the Board of Supervisors implementation of a self-serve 100LL aviation fuel and Jet A fueling station for general aviation pilots. **(F.10.)**

## **REQUIRED RESPONSES**

The California Penal Code §933 requires any public agency which the Grand Jury has reviewed, and about which it has issued a final report, to comment to the Presiding Judge of the Superior Court on the findings and recommendations pertaining to matters under the control of the agency. Such comment shall be made no later than 90 days after the Grand Jury publishes its report (filed with the Clerk of the Court); except that in the case of a report containing findings and recommendations pertaining to a department or agency headed by an elected County official (e.g. District Attorney, Sheriff, etc.), such comment shall be made within 60 days to the Presiding Judge with an information copy sent to the Board of Supervisors.

Furthermore, California Penal Code Section §933.05 (a), (b), (c), details, as follows, the manner in which such comment(s) are to be made:

- (a) As to each Grand Jury finding, the responding person or entity shall indicate one of the following:
  - (1) The respondent agrees with the finding
  - (2) The respondent disagrees wholly or partially with the finding, in which case the response shall specify the portion of the finding that is disputed and shall include as explanation of the reasons therefore.
- (b) As to each Grand Jury recommendation, the responding person or entity shall report one of the following actions:
  - (1) The recommendation has been implemented, with a summary regarding the implemented action.

- (2) The recommendation has not yet been implemented, but will be implemented in the future with a time frame for implementation.
- (3) The recommendation requires further analysis, with an explanation and the scope and parameters of an analysis or study, and a time frame for the matter to be prepared for discussion by the officer or head of the agency or department being investigated or reviewed, including the governing body of the public agency when applicable, This time frame shall not exceed six months from the date of publication of the Grand Jury report.
- (4) The recommendation will not be implemented because it is not warranted or is not reasonable, with an explanation therefore.

(c) If a finding or recommendation of the Grand Jury addresses budgetary or personnel matters of a county agency or department headed by an elected officer, both the agency or department head and the Board of Supervisors shall respond if requested by the Grand Jury, but the response of the Board of Supervisors shall address only those budgetary /or personnel matters over which it has some decision making aspects of the findings or recommendations affecting his or her agency or department.

Comments to the Presiding Judge of the Superior Court in compliance with Penal Code section §933.05 are required from:

**Response Requested to Findings:**

John Wayne Airport Director:

F.1, F.2, F.3, F.4, F.5, F.6, F.7, F.8, F.9, F.10, F.11, F.12, and F.13

**Response Required to Findings:**

Orange County Board of Supervisors:

F.1, F.2, F.3, F.4, F.5, F.6, F.7, F.8, F.9, F.10, F.11, F.12, and F.13

**Response Requested to Recommendations:**

John Wayne Airport Director:

R.1, R.2, R.3, R.4, R.5, R.6, and R.7

**Response Required to Recommendations:**

Orange County Board of Supervisors:

R.1, R.2, R.3, R.4, R.5, R.6, and R.7

## COMMENDATIONS

The 2013-2014 Orange County Grand Jury is pleased to commend the John Wayne Airport's Airport Director and Deputy Airport Director of Facilities and their staff for their exemplary performance in achieving a world class, international airport. The successful and on-budget completion of the infrastructure improvement projects was also exemplary.

## APPENDICES

### Appendix A: Acronyms

ADD:	Average Daily Departures
ADT:	Average Daily Traffic
AIM:	Aeronautical Information Manual
AIP:	Airport Improvement Program
APU:	Auxiliary Power Unit
ASTM:	American Society for Testing and Materials
CIP:	Capital Improvement Plan
CNG:	Compressed Natural Gas
CO <sub>2</sub> :	Carbon Dioxide
Db:	Decibel
DRT:	Displacement Runway Threshold
EPNdb:	Effective Perceived Noise Level decibels
FAA:	Federal Aviation Administration
FAR:	Federal Aviation Regulations
FedEx:	Federal Express
FBO:	Fixed Base Operators
ICAO:	International Civil Aviation Organization
MAP:	Million Annual Passengers

NMS: Noise Monitoring Station  
NO<sub>x</sub>: Nitrogen Oxide  
RADAM: Regional Air Passenger Demand Allocation Model  
SCAG: Southern California Association of Governments  
SENEL: Single Event Noise Exposure Level  
TSA: Transportation Security Administration  
UPS: United Parcel Service

*Airport Codes*

ACK: Nantucket Memorial Airport (Nantucket, Massachusetts)  
AJO: Corona Municipal Airport  
ATL: Hartsfield-Jackson Atlanta International Airport  
BRR: Barra Airport (Barra, Scotland)  
BUR: Bob Hope Airport (Burbank)  
BWI: Baltimore Washington International Airport  
CCB: Cable Airport (Upland)  
CNO: Chino Airport  
CPM: Compton Woodley Airport  
CRW: Yeager Airport (Charleston, West Virginia)  
DCA: Ronald Reagan Washington Airport (Arlington, Virginia)  
DEN: Denver International Airport  
DFW: Dallas/Fort Worth International Airport  
EMT: El Monte Airport  
EWR: Newark Liberty International Airport  
FUL: Fullerton Municipal Airport  
GIB: Gibraltar International Airport

GUA: La Aurora International Airport (Guatemala City, Guatemala)

HHR: Hawthorne Municipal Airport (Jack Northrop Field)

HOU: William P. Hobby Airport (Houston)

IAD: Washington Dulles International Airport (Sterling, Virginia)

IAH: George Bush Intercontinental Airport (Houston)

L67: Rialto Municipal Airport (Miro Field)

LAS: McCarran International Airport (Las Vegas)

LAX: Los Angeles International Airport

LGA: LaGuardia Airport (Flushing, New York)

LGB: Long Beach Airport (Daugherty Field)

MDW: Chicago Midway International Airport

MSP: Minneapolis-Saint Paul International Airport

OAK: Oakland International Airport

ORD: O' Hare International Airport (Chicago)

ONT: Ontario International Airport

PBH: Paro International Airport (Paro, Bhutan)

PDX: Portland International Airport

PHX: Phoenix International Airport

POC: Brackett Field Airport (La Verne)

RAL: Riverside Municipal Airport

RIR: Flabob Airport (Riverside)

SEA: Seattle-Tacoma International Airport

SFO: San Francisco International Airport

SLC: Salt Lake City International Airport

SLI: Los Alamitos Army Airfield

SMF: Sacramento International Airport

SNA: John Wayne Airport (Orange County)

TGU: Toncontin International Airport (Tegucigalpa, Honduras)

TOA: Zamperini Field (Torrance)

YUM: Yuma International Airport

WLG: Wellington International Airport (Wellington, New Zealand)

*Airline Codes*

AA: American Airlines

AS: Alaska Airlines

B6: Jet Blue Airways

DL: Delta Airways

F9: Frontier Airlines

FL: Air Tran

G4: Allegiant Air

NK: Spirit Airlines

SY: Sun Country Airlines

UA: United Airlines

US: US Airways

VX: Virgin American

WN: Southwest Airlines

WS: West Jet

YV: Mesa Airlines

Y4: Volaris Airlines

40: Interjet



*Commuter Airline Codes*

CP: Compass Airlines

OO: Sky West Airlines

*Air Cargo Codes*

FM: FedEx Express

5X: UPS (United Parcel Service)

**Appendix B: Glossary**

Aeronautical Information Manual:	The federal regulatory body's official guide to basic flight information and air traffic control procedures.
Airport Improvement Program:	United States federal grant program that provides funds to airports to help improve safety and efficiency.
American Society for Testing and Materials:	International standards organization that develops and publishes voluntary consensus technical standards for a wide range of materials, products, systems, and services. The organization's headquarters is in West Conshohocken, Pennsylvania.
Average Daily Departures:	Average number of scheduled departures per day of air carrier aircraft computed on the basis from April 1 of each year to March 31 of the following year.
Average Daily Traffic:	Total vehicles entering and leaving the airport over a 24 hour period.
Auxiliary Power Unit:	Provides energy for functions other than propulsion.

Capital Improvement Plan:	A short-range plan, usually four to ten years, which identifies capital projects and equipment purchases, provides a planning schedule and identifies options for financing the plan.
Carbon Dioxide:	Chemical compound composed of two oxygen atoms each covalently double bonded to a single carbon atom. Plants, algae, and cyanobacteria use light energy to photosynthesize carbohydrate from carbon dioxide and water, with oxygen produced as a waste product.
Compressed Natural Gas:	Methane stored at high pressure. It is made by compressing the gas to less than 1 percent of its volume.
Decibel:	Unit of measure of sound proportional to the logarithm of the measured sound pressure.
Displacement Runway Threshold:	Located at a point other than the physical beginning or end of the runway. The portion of the runway so displaced may be used for takeoff but not for landing. Landing aircraft may use the displaced area on the opposite end for roll out.
Enplaned Passenger:	Revenue passenger boarding an aircraft
Effective Perceived Noise Level decibels:	Perceived Noise Level in decibels plus a tone correction and a duration correction.
Federal Aviation Administration:	National aviation authority of the United States of America. An agency of the United States Department of Transportation, it has authority to regulate and oversee all aspects of American civil aviation.
Federal Aviation Regulations	Rules prescribed by the Federal Aviation Administration (FAA) governing all aviation activities in the United States.

Federal Express:	Federal Express Corporation is an American global courier delivery service company headquartered in Memphis, Tennessee.
Fixed Base Operators:	Commercial business granted the right by an airport to operate on the airport and provide aeronautical services such as fueling, hangar, tie-down and parking, aircraft rental, aircraft maintenance, and flight instruction.
International Civil Aviation Organization:	A specialized agency of the United Nations. It codifies the principles and techniques of international air navigation and fosters the planning and development of international air transport to ensure safe and orderly growth. Its headquarters are located in Montreal, Quebec, Canada.
Million Annual Passengers:	Counting Arriving and Enplanement passengers in a year.
Nitrogen Oxide:	Produced during combustion, especially at high temperature.
Noise Monitoring Station:	Permanent stations with a microphone and the sound level measurement device.
Regional Air Passenger Demand Allocation Model:	Forecasting the demand for the region aviation needs. Publish by the Southern California Association of Governments.

- Southern California Association of Governments:** Metropolitan planning organization of six of the ten counties in Southern California, serving Imperial County, Los Angeles County, Orange County, Riverside County, San Bernardino County, and Ventura County. It is the largest metropolitan planning organization in the United States, containing 18 million people within 38,000 square miles and is mandated by the federal government to research and draw up plans for transportation, growth management, hazardous waste management, and air quality.
- Single Event Noise Exposure Level:** Noise exposure level of a single aircraft event measured over the time between the initial and final points when the noise level exceeds a predetermined threshold.
- Transportation Security Administration:** Agency of the United States Department of Homeland Security that exercises authority over the security of the traveling public in the United States.
- United Parcel Service:** United Parcel Service of America, Incorporated is an American global package delivery company headquartered in Sandy Springs, Georgia.

**Appendix C: Settlement Agreement Terms Proposed by Various Stakeholders**

<b>Principal Restrictions</b>	<b>Proposed Project Extension of the Settlement Agreement</b>	<b>Federal Aviation Administration Office of Aviation Policy and Plans Terminal Area Forecast Detail Report</b>	<b>John Wayne Airport Commercial Air Service Providers Input</b>	<b>John Wayne Airport's Physical Capacity: Current Hours of Operations</b>
Term	1-1-16 through 12-31-2030	1-1-16 through 12-31-2030	1-1-16 through 12-31-2030	1-1-16 through 12-31-2030
Curfew	1-1-16 through 12-31-2035	1-1-16 through 12-31-2035	1-1-16 through 12-31-2035	1-1-16 through 12-31-2035
<b>Annual Passenger Limit: Million Annual Passengers (MAPs)</b>				
1-1-16 to 12-31-20	10.8 MAPs	10.8 MAPs	10.8 MAPs	16.9 MAPs
1-1-21 to 12-31-25	11.8 MAPs	11.4 MAPs	13.0 MAPs	16.9 MAPs
1-1-26 to 12-31-30	12.2 or 12.5 MAPs*	12.8 MAPs	15.0 MAPs	16.9 MAPs
<b>Passenger Flights (Class A Average Daily Departures [ADDs] for Passenger Service)</b>				
1-1-16 to 12-31-20	85 Class A ADDs	107 Class A ADDs	100 Class A ADDs	288 Class A ADDs
1-1-21 to 12-31-25	95 Class A ADDs	120 Class A ADDs	100 Class A ADDs	288 Class A ADDs
1-1-26 to 12-31-30	95 Class A ADDs	135 Class A ADDs	115 Class A ADDs	288 Class A ADDs
<b>Cargo Flights (Class A Average Daily Departures [ADDs] for all-cargo service)</b>				
1-1-16 to 12-21-30	4 Class A ADDs	4 Class A ADDs	4 Class A ADDs	4 Class A ADDs
<b>Passenger Loading Bridges</b>				
1-1-16 to 12-21-20	20	20	20	No Limit
1-1-16 to 12-21-30	No Limit	No Limit	No Limit	No Limit

Source: [www.ocair.com](http://www.ocair.com)

**Class A:** Aircraft that serve long and medium haul market more than 1,000 miles.

\* Trigger for capacity increase to 12.5 MAPs: Air carriers must be within 5 percent of 11.8 MAPs in any one year during the January 1, 2021 through December 31, 2025 time frame.

**Appendix D: John Wayne Airport Noise Limits (see Figure 3 for locations)**

Noise Monitoring Station	Commercial Aircraft		General Aviation	
	Class A	Class E	Daytime	Nighttime
NMS 01S	101.8 dB SENEL	93.5 dB SENEL	101.8 dB SENEL	86.8 dB SENEL
NMS 02S	101.1 dB SENEL	93.0 dB SENEL	101.1 dB SENEL	86.9 dB SENEL
NMS 03S	100.7 dB SENEL	89.7 dB SENEL	100.7 dB SENEL	86.0 dB SENEL
NMS 04S	094.1 dB SENEL	86.0 dB SENEL		86.0 dB SENEL
NMS 05S	094.6 dB SENEL	86.6 dB SENEL		86.0 dB SENEL
NMS 06S	096.1 dB SENEL	86.6 dB SENEL		86.0 dB SENEL
NMS 07S	093.0 dB SENEL	86.0 dB SENEL		86.0 dB SENEL
NMS 08N				86.0 dB SENEL
NMS 09N				86.0 dB SENEL
NMS 10N				86.0 dB SENEL

**Source:** John Wayne Airport – [www.ocair.com](http://www.ocair.com)

dB: Decibel.

SENEL: Single Event Noise Exposure Level.

Class A: Aircraft which operate at gross takeoff weight not greater than 140,000 pounds for dual main landing gear configurations and 300,000 pounds for aircraft for dual tandem landing gear configurations. These aircraft serve long and medium haul market more than 1,000 miles. These aircraft requires more fuel to reach its destination and as a result, requires greater thrust on departure. The combination of heavy fuel loads and a greater thrust correlate to the higher noise levels.

Class E: Aircraft which operate at gross takeoff weight not greater than 140,000 pounds for dual main landing gear configurations and 300,000 pounds for aircraft for dual tandem landing gear configurations. These aircraft serve short haul markets less than 1,000 miles and carry less fuel and are, as a result, lighter and quieter.

In the years of 2012, 2013 and 2014 there has been no noise violations of any commercial airline using any of its aircraft type under Class A that has exceeded any quarterly average noise limits.

In the years of 2012, 2013 and 2014 there has been no noise violations of any commercial airline using any of its aircraft type under Class E that has exceeded any quarterly average noise limits.

In the years of 2012, 2013 and 2014 there has been no noise violations of any commuter airline using any of its aircraft type that has exceeded any quarterly average noise limits.<sup>53</sup>

<sup>53</sup> [www.ocair.com](http://www.ocair.com)



**Appendix E: 2013 Forecast – John Wayne Airport Enplanements**

**Federal Aviation Administration  
Office of Aviation Policy and Plans  
Terminal Area 2013 Forecast - John Wayne Airport Enplanements**

<b>Year</b>	<b>Forecast</b>	<b>Air Carrier</b>	<b>Commuter</b>	<b>Total International Enplanement</b>	<b>Total Enplanements</b>
2008		4,366,016	233,034	402	4,599,452
2009		3,984,673	264,441	1,179	4,250,293
2010		4,108,624	194,575	8,014	4,311,213
2011		4,102,052	122,165	28,526	4,252,743
2012		4,083,745	143,574	77,445	4,304,764
2013	*	4,181,682	146,270	202,317	4,530,269
2014	*	4,245,856	140,337	233,248	4,619,441
2015	*	4,347,893	143,392	264,178	4,755,463
2016	*	4,448,453	146,583	295,108	4,890,144
2017	*	4,552,750	149,823	326,037	5,028,610
2018	*	4,657,972	153,257	356,964	5,168,193
2019	*	4,759,495	156,493	387,894	5,303,882
2020	*	4,857,640	159,610	418,823	5,436,073
2021	*	4,940,873	162,209	449,753	5,552,835
2022	*	5,022,345	164,813	480,683	5,667,841
2023	*	5,105,957	167,484	511,613	5,785,054
2024	*	5,195,409	170,349	542,543	5,908,301
2025	*	5,283,601	173,032	573,473	6,030,106
2026	*	5,371,306	175,811	604,400	6,151,517
2027	*	5,457,444	178,533	635,329	6,271,306
2028	*	5,547,576	181,384	666,258	6,395,218
2029	*	5,639,659	184,236	697,188	6,521,083
2030	*	5,737,877	187,463	728,118	6,653,458
2031	*	5,833,762	190,512	759,048	6,783,322
2032	*	5,929,730	193,704	789,978	6,913,412
2033	*	6,025,192	196,723	820,908	7,042,823
2034	*	6,121,001	199,775	851,838	7,172,614
2035	*	6,224,170	203,012	882,765	7,309,947
2036	*	6,330,037	206,289	913,694	7,450,020
2037	*	6,433,627	209,623	944,623	7,587,873
2038	*	6,535,990	212,724	975,553	7,724,267
2039	*	6,634,030	215,687	1,006,483	7,856,200
2040	*	6,733,070	218,783	1,037,413	7,989,266

**Appendix F: 2013 Forecast – John Wayne Airport Operations**

**Federal Aviation Administration  
Office of Aviation Policy and Plans  
Terminal Area 2013 Forecast - John Wayne Airport Operations**

		<b>AIRPORT OPERATIONS</b>						
		<b>Itinerant Operations</b>				<b>Local Operations</b>		
<b>Year</b>	<b>Forecast</b>	<b>Air Carrier</b>	<b>Air Taxi</b>	<b>General Aviation</b>	<b>Military</b>	<b>Civil</b>	<b>Military</b>	<b>Total Airport Operations</b>
2008		88,985	27,739	120,219	65	91,946	0	328,954
2009		87,439	14,749	101,963	83	84,000	0	288,234
2010		88,133	10,423	104,680	65	83,387	0	286,688
2011		83,172	9,346	97,975	172	74,394	0	265,059
2012		82,675	9,083	96,949	464	71,342	0	260,513
2013	*	85,001	10,251	96,170	592	69,328	76	261,418
2014	*	84,180	10,631	95,805	592	68,315	76	259,599
2015	*	86,480	10,737	96,997	592	68,658	76	263,540
2016	*	88,758	10,844	98,203	592	69,002	76	267,475
2017	*	91,100	10,952	99,425	592	69,348	76	271,493
2018	*	93,471	11,061	100,662	592	69,696	76	275,558
2019	*	95,767	11,171	101,914	592	70,046	76	279,566
2020	*	97,996	11,281	103,181	592	70,398	76	283,524
2021	*	99,940	11,392	104,464	592	70,752	76	287,216
2022	*	101,854	11,506	105,763	592	71,108	76	290,899
2023	*	103,807	11,618	107,079	592	71,466	76	294,638
2024	*	105,872	11,731	108,411	592	71,825	76	298,507
2025	*	107,910	11,844	109,760	592	72,186	76	302,368
2026	*	109,943	11,958	111,126	592	72,549	76	306,244
2027	*	111,943	12,072	112,507	592	72,914	76	310,104
2028	*	114,025	12,187	113,906	592	73,281	76	314,067
2029	*	116,143	12,305	115,323	592	73,650	76	318,089
2030	*	118,380	12,424	116,758	592	74,021	76	322,251
2031	*	120,565	12,547	118,210	592	74,394	76	326,384
2032	*	122,755	12,673	119,681	592	74,769	76	330,546
2033	*	124,937	12,798	121,170	592	75,145	76	334,718
2034	*	127,125	12,924	122,676	592	75,522	76	338,915
2035	*	129,455	13,053	124,201	592	75,901	76	343,278
2036	*	131,824	13,183	125,746	592	76,282	76	347,703
2037	*	134,171	13,314	127,311	592	76,665	76	352,129
2038	*	136,480	13,446	128,894	592	77,050	76	356,538
2039	*	138,707	13,580	130,498	592	77,437	76	360,890
2040	*	140,961	13,715	132,122	592	77,826	76	365,292

**Appendix G: 10 Most Popular John Wayne Airport Destinations**



**Source:** United States Department of Transportation  
Research and Innovative Technology Administration  
Bureau of Transportation Statistics  
2013 Represents data from January 2013 – December 2013

## Appendix H: Market and Carrier One Way Fare Information

The Department of Transportation’s Office of Aviation Analysis releases a quarterly fare report. It lists the number of one-way passenger’s trips per day, the nonstop distance, the average market fare, and identifies the airlines with the largest market share and the lowest average fare; market share and average fares are provided for both airlines. Average fares are average prices paid by all fare paying passengers. They therefore cover first class fares paid to carriers offering such service, but they do not cover free tickets such as those awarded by carriers offering frequent flyer programs.

The lowest fare carrier is the carrier with the lowest average fare that has at least 10 percent share of the traffic in the market, except for markets where only a single carrier has a 10 percent of greater share in such markets the carrier with the lowest average fare is identified even if its market share is less than 10 percent. In some markets the market average fare will be lower than the fare for its lowest fare carrier because several carriers that do not individually account for a 10 percent share can collectively account for a significant share. Often they charge lower average fares than individual carriers with greater market participation.<sup>54</sup>

Market and Carrier One Way Fare Information Per Day										
Airport Code		Distance Miles	Passengers	Overall Average Fare	Largest Carrier	Market Share Largest Carrier	Average Fare Largest Carrier	Carrier With Lowest Fare	Market Share Lowest Carrier	Average Fare Lowest Carrier
<b>ATL</b>	SNA	1,919	396	\$319	DL	67.5%	\$345	WN	10.1%	\$242
	BUR	1,941	36	\$270	WN	54.2%	\$261	WN	54.2%	\$261
	LAX	1,947	2,092	\$296	DL	64.6%	\$320	FL	10.3%	\$230
	LGB	1,933	21	\$274	DL	48.4%	\$287	US	47.9%	\$257
	ONT	1,900	159	\$270	WN	31.0%	\$258	AA	18.0%	\$241
<b>DEN</b>	SNA	846	1,327	\$162	WN	40.9%	\$154	F9	28.0%	\$150
	BUR	850	370	\$175	WN	72.0%	\$161	WN	72.0%	\$161
	LAX	862	2,607	\$159	WN	36.9%	\$147	F9	18.7%	\$144
	LGB	854	15	\$183	DL	53.0%	\$194	US	44.0%	\$174
	ONT	819	352	\$189	WN	76.6%	\$177	WN	76.6%	\$177
<b>DFW</b>	SNA	1,205	866	\$259	AA	79.3%	\$265	AS	11.4%	\$220
	BUR	1,231	40	\$245	US	80.3%	\$229	US	80.3%	\$229
	LAX	1,235	2,669	\$217	AA	55.7%	\$237	NK	11.3%	\$108
	LGB	1,221	20	\$220	US	86.5%	\$219	DL	10.3%	\$217
	ONT	1,188	331	\$243	AA	75.8%	\$243	US	19.8%	\$235

<sup>54</sup> United States Department of Transportation’s Office of Aviation Analysis Air Transport Association Domestic Airfare Report 4th Quarter.

Market and Carrier One Way Fare Information Per Day										
Airport Code	Distance Miles	Passengers	Overall Average Fare	Largest Carrier	Market Share Largest Carrier	Average Fare Largest Carrier	Carrier With Lowest Fare	Market Share Lowest Carrier	Average Fare Lowest Carrier	
<b>EWR</b>	SNA	2,434	449	\$412	UA	84.4%	\$424	UA	84.4%	\$424
	BUR	2,444	34	\$272	UA	44.7%	\$271	WN	30.4%	\$256
	LAX	2,454	2,874	\$336	UA	62.7%	\$346	UA	62.7%	\$346
	LGB	2,444	11	\$261	US	75.0%	\$282	B6	19.2%	\$184
	ONT	2,409	90	\$258	UA	37.7%	\$250	WN	21.2%	\$230
<b>IAH</b>	SNA	1,346	356	\$307	UA	85.3%	\$310	UA	85.3%	\$310
	BUR	1,378	20	\$271	UA	55.7%	\$255	UA	55.7%	\$255
	LAX	1,379	1,371	\$270	UA	61.1%	\$312	NK	17.5%	\$127
	LGB	1,364	42	\$209	US	92.3%	\$208	US	92.3%	\$208
	ONT	1,334	122	\$306	UA	67.7%	\$310	US	23.5%	\$286
<b>LAS</b>	SNA	226	819	\$139	WN	80.7%	\$150	FL	19.2%	\$94
	BUR	223	1,150	\$128	WN	100.0%	\$128	WN	100.0%	\$128
	LAX	236	2,738	\$117	WN	46.4%	\$115	WN	46.4%	\$115
	LGB	231	654	\$96	B6	100.0%	\$96	B6	100.0%	\$96
	ONT	197	404	\$122	WN	100.0%	\$122	WN	100.0%	\$122
<b>MSP</b>	SNA	1,522	291	\$310	DL	61.7%	\$350	US	12.9%	\$267
	BUR	1,523	39	\$276	WN	53.2%	\$256	WN	53.2%	\$256
	LAX	1,535	1,334	\$247	DL	49.6%	\$297	NK	11.7%	\$117
	LGB	1,529	12	\$297	US	72.2%	\$286	US	72.2%	\$286
	ONT	1,494	87	\$271	WN	43.5%	\$249	WN	43.5%	\$249
<b>OAK</b>	SNA	371	1,405	\$144	WN	99.0%	\$144	WN	99.0%	\$144
	BUR	325	2,007	\$137	WN	99.7%	\$137	WN	99.7%	\$137
	LAX	337	1,869	\$127	WN	83.5%	\$129	DL	15.3%	\$117
	LGB	353	597	\$107	B6	100.0%	\$107	B6	100.0%	\$107
	ONT	362	1,108	\$129	WN	99.5%	\$129	WN	99.5%	\$129
<b>ORD</b>	SNA	1,726	842	\$275	AA	51.1%	\$260	AA	51.1%	\$260
	BUR	1,734	27	\$276	UA	47.4%	\$249	UA	47.4%	\$249
	LAX	1,745	3,494	\$246	AA	37.3%	\$248	NK	10.3%	\$143
	LGB	1,735	22	\$253	US	70.4%	\$251	DL	20.7%	\$240
	ONT	1,700	106	\$253	US	40.0%	\$241	UA	40.0%	\$241
<b>PDX</b>	SNA	859	628	\$165	AS	68.9%	\$169	WN	20.9%	\$155
	BUR	817	428	\$162	AS	56.7%	\$169	WN	38.1%	\$152
	LAX	834	1,233	\$164	AS	52.6%	\$164	WN	15.6%	\$146
	LGB	846	662	\$127	B6	88.6%	\$127	B6	88.6%	\$127
	ONT	838	420	\$163	AS	49.8%	\$165	WN	44.4%	\$159
<b>PHX</b>	SNA	338	1,233	\$148	WN	68.2%	\$154	US	31.4%	\$136
	BUR	369	909	\$138	WN	79.3%	\$138	WN	79.3%	\$138
	LAX	370	1,682	\$138	WN	56.3%	\$137	WN	56.3%	\$137
	LGB	355	226	\$119	US	98.8%	\$119	US	99.8%	\$119
	ONT	325	651	\$139	WN	73.5%	\$142	US	26.3%	\$132

<b>Market and Carrier One Way Fare Information Per Day</b>										
<b>Airport Code</b>	<b>Distance Miles</b>	<b>Passengers</b>	<b>Overall Average Fare</b>	<b>Largest Carrier</b>	<b>Market Share Largest Carrier</b>	<b>Average Fare Largest Carrier</b>	<b>Carrier With Lowest Fare</b>	<b>Market Share Lowest Carrier</b>	<b>Average Fare Lowest Carrier</b>	
<b>SEA</b>	SNA	978	1,185	\$183	AS	84.7%	\$184	AS	84.7%	\$184
	BUR	937	623	\$177	AS	80.6%	\$177	WN	14.7%	\$174
	LAX	954	2,981	\$161	AS	47.7%	\$161	VX	25.0%	\$157
	LGB	965	732	\$140	B6	67.9%	\$137	B6	67.9%	\$137
	ONT	956	657	\$164	AS	69.4%	\$164	WN	22.8%	\$160
<b>SFO</b>	SNA	372	1,900	\$126	WN	49.6%	\$124	WN	49.6%	\$124
	BUR	326	209	\$200	UA	92.7%	\$201	UA	92.7%	\$201
	LAX	337	5,401	\$125	VX	26.8%	\$129	WN	24.6%	\$122
	LGB	354	622	\$106	B6	97.6%	\$106	B6	97.7%	\$106
	ONT	363	171	\$174	UA	90.2%	\$175	OO	90.2%	\$175
<b>SLC</b>	SNA	588	424	\$191	DL	80.1%	\$193	WN	15.6%	\$175
	BUR	574	151	\$195	DL	65.4%	\$199	WN	29.6%	\$184
	LAX	590	1,172	\$174	DL	46.4%	\$183	WN	32.0%	\$164
	LGB	588	752	\$137	B6	61.8%	\$134	B6	61.8%	\$134
	ONT	558	179	\$206	DL	53.0%	\$217	WN	38.0%	\$192
<b>SMF</b>	SNA	404	1,142	\$152	WN	98.2%	\$151	WN	98.2%	\$151
	BUR	358	1,042	\$153	WN	99.4%	\$153	WN	99.4%	\$153
	LAX	373	1,221	\$150	WN	71.0%	\$149	DL	12.9%	\$140
	LGB	387	407	\$112	B6	99.4%	\$112	B6	99.4%	\$112
	ONT	390	1,018	\$149	WN	99.0%	\$149	WN	99.0%	\$149

**Source:** United States Department of Transportation’s Office of Aviation Analysis Air Transport Association Domestic Airfare Report 2013 4<sup>th</sup> Quarter



