CITY OF
CLOVERDALE

# AGENDA
## Airport Subcommittee
## Meeting Date: May 3, 2016
## Meeting Time: 9:00 a.m.
## Meeting Location: Cloverdale Performing Arts Center
## 209 N. Cloverdale Blvd., Cloverdale CA 95425

**Subcommittee Members and City Staff**

Councilmember Bob Cox, Chair
Vice Mayor Gus Wolter
City Manager Paul Cayler
Airport Manager Michael Morrissey

1. **Call to Order:**
2. **Communications:** Committee may, at this time, discuss written communications sent to Committee Members since the last Subcommittee meeting.
3. **Public Comment:** Members of the public may, at this time, comment on any item not on this agenda. Please limit comments to three minutes. Members of the public may comment on items on the agenda when the subcommittee considers that item.
4. **Approval of Minutes**: (April 5, 2016)
5. **Current Items for Discussion:**
   a. Friends of the Airport
   b. Airport budget discussion
   c. NorCal Skydiving presentation
6. **Information Only Memos:**
7. **Future Agenda Items (subject to change)**
8. **Pending Items**
9. **Good of the Order**
10. **Adjournment:** Adjourned *to Tuesday, October 4, 2016, or alternate date if requested.*

**CERTIFICATION** – Pursuant to Government Code § 54954.2, the agenda for this meeting was properly posted on 04/28/2016

CITY OF
CLOVERDALE

# DRAFT MINUTES
## Airport Subcommittee
## Meeting Date: April 5, 2016
## Meeting Time: 8:00 a.m.
## Meeting Location: Cloverdale City Hall Conference Room
## 124 N. Cloverdale Blvd., Cloverdale CA 95425

**Subcommittee Members and City Staff**

Councilmember Bob Cox, Chair
Vice Mayor Gus Wolter
City Manager Paul Cayler
Airport Manager Michael Morrissey

1. **Call to Order:** Vice Mayor Wolter called the meeting to order at 8:00 a.m. Present: Chair Cox, Vice Mayor Wolter, Paul Cayler, and Michael Morrissey. Absent: None.

2. **Communications:** Mr. Cayler distributed an email received from Tom Watson, Cloverdale, who asked that his email be entered into the public record. Mr. Cayler also distributed a five-year profit and loss statement prepared by Finance Manager, Joanne Cavallari, based on Council-approved audited financial statements. Vice Mayor Wolter stated this statement will be placed on the next airport subcommittee meeting agenda.

3. **Public Comment:** Vice Mayor Wolter opened the public comment period.

   Jimmy Halliday, Cloverdale, stated the Cloverdale Pilots' Association met and were unclear if the 7% increase was being instituted for four years or for this year only. Vice Mayor Wolter stated this increase will be proposed for the budget for fiscal year 2016/2017, which has not yet been voted on by the City Council, and will be looked at each year. Mr. Cayler responded that fees are adjusted by the Council each year during the budget process and informed those in attendance the budget workshop will take place on May 17, 2016, at 9:00 a.m. at the Fire District office.

   Mindy Thal, Asti, asked how much money per month per hangar the 7% increase would be. Vice Mayor Wolter answered that he did not know.

   Vice Mayor Wolter closed the public comment period.

4. **Approval of Minutes**: The minutes of February 2, 2016, were approved.

5. **Current Items for Discussion:**

   **a.** Aviation fuel – Mr. Morrissey distributed two handouts, which included an explanation of aviation fuel from Wikipedia, which explains why there is still lead in aviation fuel, and an article regarding two unleaded fuels that will be tested by the FAA.

   Vice Mayor Wolter stated that he met with Mr. Morrissey recently and that Mr. Morrissey has implemented a bimonthly review of fuel prices compared to surrounding areas and adjusting them accordingly. Mr. Morrissey stated he was given a guideline of adding a certain amount to the wholesale fuel price for a retail price, which can then be reported to companies that will post those fuel prices online. Mr. Morrissey stated, in order to stay competitive, he has been monitoring the comparative fuel pricing in the area, showing him that the guideline amount to add to the wholesale price sometimes is too high.

   **b.** Private hangars – Vice Mayor Wolter introduced this item, stating he has been looking at how to increase the number of planes based at the airport in hope of increasing the revenue to justify having an airport. He has been making phone calls and gathering information regarding portable hangars, shade hangars, and T hangars, as well as finding out about putting solar on top of the hangars. Vice Mayor

Wolter further stated that all this is a long way off and needs the overlay of the airport. Jeff Kennedy, Cloverdale, asked if there were any drawings found and Mr. Morrissey answered that he has talked to the engineer that has the CAD drawings. Vice Mayor Wolter stated the objective is to gather information and document it so there is a historical record.

c. Fire sprinklers – Mr. Morrissey stated he has been talking with Chief Jenkins about a fire sprinkler exemption for additional T hangars and was asked to present blueprints or design diagrams showing how the T hangars are constructed, so Chief Jenkins can take those to his Board for a decision as to whether or not they are exempt. Mr. Kennedy stated if the T hangars are two-hour rated construction they may not need sprinklers. Mr. Kennedy further stated that a 6 or 8" water line or a 5,000 gallon tank with pumps will be needed for sprinklers.

6. **Information Only Memos:** None

Vice Mayor Wolter next moved to item #9, Good of the Order, ahead of item #s 7 and 8.

9. **Good of the Order:** Vice Mayor Wolter reiterated that he and Mr. Morrissey have been meeting on a regular basis covering a variety of topics and still need to meet with the City Manager regarding a company that may be able to come in and do some paving and asphalt repair work for the airport. He further stated that they have met with Finance Manager Cavallari, who came up with a more detailed budget and historical perspective on the financials of the airport, which will be discussed at the next meeting. Vice Mayor Wolter stated there is an open house scheduled. Mr. Morrissey stated there is an airport cleanup/beautification day, where people get together and do things they can to improve the airport, such as painting, weeding, and cleanup. Mr. Cayler stated Airport Day is scheduled for May 7 and Mr. Morrissey talked about groups that will be participating and the new information kiosk. Vice Mayor Wolter asked Mr. Morrissey to come up with a budget for what he might need for FY 16-17. Mr. Morrissey spoke of his plans to better use the airport and his intention to advertise with brochures, social media, and in flight magazines.

7. **Future Agenda Items (subject to change):**

   a. Friends of the Airport
   b. Airport budget discussion
   c. NorCal presentation

Discussion ensued about airport noise.

Jacqueline Kennedy. Cloverdale, suggested putting a vineyard at the airport and will give her contact information to Mr. Morrissey.

Ray Shipway, Cloverdale, expressed his appreciation for the work City staff has done in reporting the airport's finances, as well as maintenance work done at the airport. Mr. Shipway shared, for the good of the order, that local Cloverdale Pilots Association member, Ed Dalbec, did an Angel's Flight up to Spokane, Washington, to bring a cancer patient to Cloverdale before continuing to Mexico for treatment there.

Jeff Kennedy stated the City Hall conference room requires a sign noting the capacity of the room.

8. **Pending Items:** None

9. **Adjournment:** Adjourned *to Tuesday, May 3, 2016, at 9:00 a.m., or alternate date if requested.*

**Paul Cayler**

**From:** Bob Cox <alohabc@comcast.net>
**Sent:** Thursday, March 31, 2016 2:52 PM
**To:** Paul Cayler; Jose Sanchez; Michael Morrissey; Michael Morrissey
**Subject:** Fwd: Airport Noise

Sent from my iPad

Begin forwarded message:

**From:** Tom Watson <youfindtom@gmail.com>
**Date:** March 31, 2016 at 11:46:42 AM PDT
**To:** gusw45@me.com, maryannbrigham@comcast.net, incloverdale@comcast.net, jpalla119@comcast.net, alohabc@comcast.net
**Subject: Airport Noise**

Greetings City Council:

I am writing to ask the council when you will have a viable plan in place to control the excessive noise from the Norcal Skydiving operation at the Cloverdale Airport. Despite everyone's hopes to the contrary, the noise is now worse than ever.

On Easter Sunday, we had hoped to enjoy some quiet time with family and friends at our home. By 9 AM, we were greeted with the high pitched drone of Norcal's plane (the leaf blower in the sky) circling above us over and over. This went on until 7PM; on Easter Sunday!

When we had previously spoken with Norcal's owner (Mr. Halliday), his response was to "get used to it or move!" This is the mindset of the "businessman" you all are supporting.

We've lived in our home here in Cloverdale for 22 years, long before Mr. Halliday and Norcal were ever around. Something is seriously wrong with our municipal political system when one self-serving business owner enjoys a free reign of (noise) terror over an entire community.

A pilot friend of mine recently told me that Mr. Halliday said he has the city council on a "short leash." I'm not sure what Mr. Halliday has on you all, but the city's inaction certainly demonstrates that he is right. Whatever the reason, the city council's impotence on this issue is a

disgrace and continues to negatively affect the quality of life for hundreds, if not thousands, of Cloverdale residents.

I read about the airport subcommittee's hearing many months ago, in which an "expert" lawyer was hired by your city manager to say that, due to FAA rules, the city is powerless to do anything. I can tell you that most folks in town saw this as a charade. This was nothing if not an attempt to shut down the legitimate concerns residents have about airport noise in general, and Norcal noise in particular. There are plenty of examples of cities, large and small, working with the FAA to curtail aircraft noise. Cloverdale simply chose to lie down on this, and that is shameful. Have any of you been in touch with our neighbor city to the south? I've heard that the hard-working folks in Headslburg's city hall came up with a very thorough noise abatement plan that works for all parties (pilots and homeowners). Is there no one in Cloverdale able and willing to do the work of political compromise?

Why are you all so afraid of Mr. Halliday? He and his skydiving buddies are certainly loud at city council meetings, but they are a loud minority. I ask you to listen to the legitimate concerns of the majority of Cloverdale citizens, and please work to find a solution to the Norcal noise problem. It is the right and responsible thing to do. We are not going away and we are not going to accept a one-sided conclusion to this problem.

Sincerely,

Thomas Watson

Cloverdale

P.S. I would like this (email) letter submitted into the city's official records.

AIRPORT ENTERPRISE FUND
5 YEAR PROFIT/LOSS STATEMENTS
March 31, 2016

| **REVENUES** | **FY 10/11** | **FY 11/12** | **FY 12/13** | **FY 13/14** | **FY 14/15** |
|---|---|---|---|---|---|
| Operating Revenues | | | | | |
| Fuel Sales | $ 85,651 | $ 125,229 | $ 58,927 | $ 105,053 | $ 92,272 |
| Rents | 32,785 | 42,118 | 38,251 | 34,029 | 50,803 |
| Miscellaneous | 1,287 | 2,199 | 2,198 | 1,969 | 114 |
| **Total Operating Revenues** | $ 119,723 | $ 169,546 | $ 99,376 | $ 141,051 | $ 143,189 |
| | | | | | |
| **EXPENSES** | | | | | |
| Operating Expenses | | | | | |
| Salaries & Benefits | $ 16,004 | $ 16,952 | $ 15,691 | $ 22,439 | 41,018 |
| *(Wages, Health Insurance, Retirement, Workers Comp)* | | | | | |
| Services & Supplies | 90,254 | 146,305 | 58,066 | 89,395 | 118,235 |
| *(Contracts, Permits, Facility Insurance, Supplies, Fuel)* | | | | | (legal costs $33k) |
| Utilities | 6,209 | 4,918 | 7,224 | 8,155 | 7,120 |
| *(Gas, Electric, Telephone, Water)* | | | | | |
| **Total Operating Expenses** | $ 112,467 | $ 168,175 | $ 80,981 | $ 119,989 | $ 166,373 |
| | | | | | |
| **Net Operating Income (Loss)** | **$ 7,256** | **$ 1,371** | **$ 18,395** | **$ 21,062** | **$ (23,184)** |
| | | | | | |
| **NON-OPERATING REVENUES (EXPENSES)** | | | | | |
| Grants | $ 10,000 | $ 10,000 | $ 15,000 | $ 10,000 | 63,743 |
| Transfers In | 11,253 | 3,394 | 4,046 | 3,574 | 5,931 |
| Debt Service | (2,434) | (2,112) | (1,774) | (1,419) | (1,048) |
| Transfers Out | - | (9,975) | (38,127) | (19,477) | (24,711) |
| Loss on Disposal of Assets | (12,289) | - | - | - | - |
| Capital Contributions | 900,490 | 188,844 | - | - | - |
| Depreciation | (20,319) | (43,802) | (39,509) | (42,515) | (42,512) |
| **Total Non-Operating Revenues (Expenses)** | $ 886,701 | $ 146,349 | $ (60,364) | $ (49,837) | $ 1,403 |
| | | | | | |
| **NET INCOME (LOSS)** | **$ 893,957** | **$ 147,720** | **$ (41,969)** | **$ (28,775)** | **$ (21,781)** |
| | | | | | |
| **FUND BALANCE** | | | | | |
| Beginning Fund Balance July 1 | $ 9,562,992 | $ 10,456,949 | $ 10,604,669 | $ 10,562,700 | $ 10,533,925 |
| Adjustment to Fund Balance (Pension) | | | | | (73,682) |
| Net Income (Loss) | 893,957 | 147,720 | (41,969) | (28,775) | (21,781) |
| **Ending Fund Balance June 30** | **$ 10,456,949** | **$ 10,604,669** | **$ 10,562,700** | **$ 10,533,925** | **$ 10,438,462** |

## Avgas From Wikipedia

Avgas (aviation gasoline), also known as aviation spirit in the UK, is an aviation fuel used in spark ignited internal combustion engines to propel aircraft. Avgas is distinguished from mogas (motor gasoline), which is the everyday gasoline used in motor vehicles and some light aircraft. Unlike mogas, which has been formulated since the 1970s to allow the use of platinum content catalytic converters for pollution reduction, the most commonly used grade of avgas still contains tetraethyllead (TEL), a toxic substance used to prevent engine knocking (detonation), with ongoing experiments aimed at eventually reducing or eliminating the use of TEL in aviation gasoline. Turbine and diesel engines are designed to use kerosene based jet fuel.

### Properties

The main petroleum component used in blending avgas is alkylate, which is essentially a mixture of various isooctanes. Some refineries also use reformate. All grades of avgas that meet CAN 23, 25M82 have a density of 6.01 lb/U.S. gal at 15 °C, or 0.721 kg/l. (6 lb/U.S. gal is commonly used for weight and balance computation.) [1] Density increases to 6.41 lb/US gallon, or 0.769 kg/l, at 40 °C, and decreases by about 0.1% per 1 °C (1.8 °F) increase in temperature. [2] [3] Avgas has an emission coefficient (or factor) of 18.355 pounds CO2 per U.S. gallon (2.1994 kg/l) [4][5] or about 3.05 units of weight CO2 produced per unit weight of fuel used. Avgas has a lower and more uniform vapor pressure than automotive gasoline so it remains in the liquid state despite the reduced atmospheric pressure at high altitude, thus preventing vapor lock.

The particular mixtures in use today are the same as when they were first developed in the 1940s, and were used in airline and military aero engines with high levels of supercharging; notably the Rolls Royce Merlin engine used in the Spitfire and Hurricane fighters, Mosquito fighter bomber and Lancaster heavy bomber (the Merlin II and later versions required 100octane fuel), as well as liquid cooled Allison V1710 engines, and numerous radial engines from Pratt & Whitney, Wright, and other manufacturers on both sides of the Atlantic. The high octane ratings are achieved by the addition of TEL, a highly toxic substance that was phased out of automotive use in most countries in the late 20th century. Avgas is currently available in several grades with differing maximum lead concentrations. Because TEL is an expensive and polluting ingredient, the minimum amount needed to bring the fuel to the required octane rating is used; actual concentrations are often lower than the permissible maximum. Historically, many post WWII developed, low powered 4 and 6cylinder piston aircraft engines were designed to use leaded fuels; a suitable unleaded replacement fuel has not yet been developed and certified for most of these engines. As of 2013, numerous certificated reciprocating engine aircraft require high octane (leaded) fuels. Teledyne Continental Motors states: "Current aircraft engines feature valve gear components which are designed for compatibility with the leaded ASTM D910 fuels. In such fuels, the lead acts as a lubricant, coating the contact areas between the valve, guide, and seat. The use of unleaded auto fuels with engines designed for leaded fuels can result in excessive exhaust valve seat wear due to the lack of lead. The result can be remarkable, with cylinder performance deteriorating to unacceptable levels in under 10 hours." [6] Lycoming has also provided a list of engines and fuels that are compatible with them. A number of their engines are not compatible with unleaded fuel according to their chart. [7] Jet fuel is similar to kerosene and is used in turbine engines; it is not avgas. Confusion

can be caused by the terms Avtur and AvJet being used for jet fuel. In Europe, environmental and cost considerations have led to increasing numbers of aircraft being fitted with fuel efficient diesel engines that run on jet fuel. Civilian aircraft use Jet A, JetA1, or in severely cold climates Jet B. There are other classification systems for military turbine and diesel fuel.

## Consumption

The annual US usage of avgas was 186 million US gallons (700,000 m3 ) in 2008, and was approximately 0.14% of the motor gasoline consumption. From 1983 through 2008, US usage of avgas declined consistently by approximately 7.5 million US gallons (28,000 m3 ) each year. [8] As of 2008, the main consumers of avgas are in North America, Australia, Brazil, and Africa (mainly South Africa). Care must be taken by small airplane pilots to select airports with avgas on flight planning. For example, US and Japanese recreational pilots ship and depot avgas before flying into Siberia. Shrinking availability of avgas drives usage of small airplane engines that can use jet fuel. In Europe, avgas remains the most common fuel; prices are so high that there have been efforts to convert to diesel fuel which is common, inexpensive, and has advantages for aviation use.

## Grades

Many grades of avgas are identified by two numbers associated with its Motor Octane Number (MON). [9] The first number indicates the octane rating of the fuel tested to "aviation lean" standards, which is similar to the antiknock index or "pump rating" given to automotive gasoline in the US. The second number indicates the octane rating of the fuel tested to the "aviation rich" standard, which tries to simulate a supercharged condition with a rich mixture, elevated temperatures, and a high manifold pressure. For example, 100/130 avgas has an octane rating of 100 at the lean settings usually used for cruising and 130 at the rich settings used for takeoff and other full power conditions. Additives such as TEL help to control detonation and provide lubrication. One gram of TEL contains 640.6 milligrams of lead.

## 100LL (blue)

100LL (pronounced "one hundred low lead") may contain a maximum of one half the TEL allowed in 100/130 (green) avgas and pre1975 premium leaded automotive gasoline. [14][27] Many Continental and Lycoming light airplane engines designed for 80/87 remain in production. Engines designed for 80/87 and not for 100LL might have lead buildup and lead fouling of the spark plugs if 100LL is used. Some of the lower powered (100–150 horsepower or 75–112 kilowatts) aviation engines that were developed in the late 1990s are designed to run on unleaded fuel and on 100LL, an example being the Rotax 912.

## Automotive gasoline

Automotive gasoline — known as mogas or autogas among aviators — that does not contain ethanol may be used in certified aircraft that have a Supplemental Type Certificate for automotive gasoline as well as in experimental aircraft and ultralight aircraft. Some oxygenates other than ethanol are

approved. Most of these applicable aircraft have low compression engines which were originally certified to run on 80/87 avgas and require only "regular" 87 antiknock index automotive gasoline. Examples include the popular Cessna 172 Skyhawk or Piper Cherokee with the 150 hp (110 kW) variant of the Lycoming O320. Some aircraft engines were originally certified using a 91/96 avgas and have STCs available to run "premium" 91 antiknock index (AKI) automotive gasoline. Examples include some Cherokees with the 160 hp (120 kW) Lycoming O320 or 180 hp (130 kW) O360, or the Cessna 152 with the O235. The AKI rating of typical automotive fuel might not directly correspond to the 91/96 avgas used to certify engines, as motor vehicle pumps in the US use the so called "(R + M)/2" averaged motor vehicle octane rating system as posted on gas station pumps. Sensitivity is roughly 810 points meaning that a 91 AKI fuel might have a MON of as low as 86. The extensive testing process required to obtain an STC for the engine/airframe combination helps ensure that for those eligible aircraft, 91 AKI fuel provides sufficient detonation margin under normal conditions. Automotive gasoline is not a fully viable replacement for avgas in many aircraft, because many high performance and/or turbocharged airplane engines require 100 octane fuel and modifications are necessary in order to use lower octane fuel. [28] [29] Many general aviation aircraft engines were designed to run on 80/87 octane, roughly the standard (as unleaded fuel only, with the "{R+M}/2" 87 octane rating) is for North American automobiles today. Direct conversions to run on automotive fuel are fairly common and applied via the supplemental type certificate (STC) process. However, the alloys used in aviation engine construction are chosen for their durability and synergistic relationship with the protective features of lead, and engine wear in the valves is a potential problem on automotive gasoline conversions. Fortunately, significant history of engines converted to mogas has shown that very few engine problems are caused by automotive gasoline. A larger problem stems from the higher and wider range of allowable vapor pressures found in automotive gasoline; this can pose some risk to aviation users if fuel system design considerations are not taken into account. Automotive gasoline can vaporize in fuel lines causing a vapor lock (a bubble in the line) or fuel pump cavitation, starving the engine of fuel. This does not constitute an insurmountable obstacle, but merely requires examination of the fuel system, ensuring adequate shielding from high temperatures and maintaining sufficient pressure in the fuel lines. This is the main reason why both the specific engine model as well as the aircraft in which it is installed must be supplementally certified for the conversion. A good example of this is the Piper Cherokee with high compression 160 or 180 hp (120 or 130 kW) engines. Only later versions of the airframe with different engine cowling and exhaust arrangements are applicable for the automotive fuel STC, and even then require fuel system modifications. Vapor lock typically occurs in fuel systems where a mechanically driven fuel pump mounted on the engine draws fuel from a tank mounted lower than the pump. The reduced pressure in the line can cause the more volatile components in automotive gasoline to flash into vapor, forming bubbles in the fuel line and interrupting fuel flow. If an electric boost pump is mounted in the fuel tank to push fuel toward the engine, as is common practice in fuel injected automobiles, the fuel pressure in the lines is maintained above ambient pressure, preventing bubble formation. Likewise, if the fuel tank is mounted above the engine and fuel flows primarily due to gravity, as in a high wing airplane, vapor lock cannot occur, using either aviation or automotive fuels. Fuel injected engines in automobiles also usually have a "fuel return" line to send unused fuel back to the tank, which has the benefit of equalizing the fuel's temperature throughout the system, further reducing the chance for vapor lock from developing. In addition to vapor locking potential, automotive gasoline does not have the same quality tracking as aviation gasoline. To help solve this problem, the specification for an aviation fuel known as 82UL was developed as essentially automotive gasoline with additional quality tracking and restrictions

on permissible additives. This fuel is not currently in production and no refiners have committed to producing it.

Environmental regulation

TEL found in leaded avgas and its combustion products are potent neurotoxins that have been shown in scientific research to interfere with brain development in children. The United States Environmental Protection Agency (EPA) has noted that exposure to even very low levels of lead contamination has been conclusively linked to loss of IQ in children's brain function tests, thus providing a high degree of motivation to eliminate lead and its compounds from the environment. [80] [81] " While lead concentrations in the air have declined, scientific studies have demonstrated that children's neurological development is harmed by much lower levels of lead exposure than previously understood. Low level lead exposure has been clearly linked to loss of IQ in performance testing. Even an average IQ loss of 12 points in children has a meaningful impact for the nation as a whole, as it would result in an increase in children classified as mentally challenged, as well as a proportional decrease in the number of children considered "gifted". [81] " On 16 November 2007, the environmental group Friends of the Earth formally petitioned the EPA, asking them to regulate leaded avgas. The EPA responded with a notice of petition for rulemaking. [12] The notice of petition stated: " Friends of the Earth has filed a petition with EPA, requesting that EPA find pursuant to section 231 of the Clean Air Act that lead emissions from general aviation aircraft cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare and that EPA propose emissions standards for lead from general aviation aircraft. Alternatively, Friends of the Earth requests that EPA commence a study and investigation of the health and environmental impacts of lead emissions from general aviation aircraft, if EPA believes that insufficient information exists to make such a finding. The petition submitted by Friends of the Earth explains their view that lead emissions from general aviation aircraft endanger the public health and welfare, creating a duty for the EPA to propose emission standards. [82] " The public comment period on this petition closed on 17 March 2008. [82] Under a federal court order to set a new standard by 15 October 2008, the EPA cut the acceptable limits for atmospheric lead from the previous standard of 1.5 μg/m3 to 0.15 micrograms per cubic meter. This was the first change to the standard since 1978 and represents an order of magnitude reduction over previous levels. The new standard requires the 16,000 remaining USA sources of lead, which include lead smelting, airplane fuels, military installations, mining and metal smelting, iron and steel manufacturing, industrial boilers and process heaters, hazardous waste incineration, and production of batteries, to reduce their emissions by October 2011. [80][81][83] The EPA's own studies have shown that to prevent a measurable decrease in IQ for children deemed most vulnerable, the standard needs to be set much lower, to 0.02 μg/m3 . The EPA identified avgas as one of the most "significant sources of lead". At an EPA public consultation held in June 2008 on the new standards, Andy Cebula, the Aircraft Owners and Pilots Association's executive vice president of government affairs stated that general aviation plays a valuable role in the USA economy and any changes in lead standards that would change the current composition of avgas would have a "direct impact on the safety of flight and the very future of light aircraft in this country". [84] In December 2008, AOPA filed formal comments to the new EPA regulations. AOPA has asked the EPA to account for the cost and the safety issues involved with removing lead from avgas. They cited that the aviation sector employs more than 1.3 million people in the USA and has an economic direct and indirect effect that "exceeds $150 billion annually". AOPA interprets the new regulations as not affecting

general aviation as they are currently written. Publication in the USA Federal Register of an Advance Notice of Proposed Rulemaking by the USA EPA occurred in April 2010. The EPA indicated: "This action will describe the lead inventory related to use of leaded avgas, air quality and exposure information, additional information the Agency is collecting related to the impact of lead emissions from piston-engine aircraft on air quality and will request comments on this information." [86][87] Despite assertions in the media that leaded avgas will be eliminated in the USA by 2017 at the latest date, the EPA confirmed in July 2010 that there is no phase out date and that setting one would be an FAA responsibility as the EPA has no authority over avgas. The FAA administrator stated that regulating lead in avgas is an EPA responsibility, resulting in widespread criticism of both organizations for causing confusion and delaying solutions. In April 2011 at Sun 'n Fun, Pete Bunce, head of the General Aviation Manufacturers Association (GAMA) and Craig Fuller, president and CEO of the Aircraft Owners and Pilots Association indicated that they both are confident that leaded avgas will not be eliminated until a suitable replacement is in place. "There is no reason to believe 100 low lead will become unavailable in the foreseeable future," Fuller stated. [93] Final results from EPA's lead modeling study at the Santa Monica Airport shows off airport levels below current 150 ng/m3 and possible future 20 ng/m3 levels. [94] 15 of 17 airports monitored during a yearlong study in the USA by the EPA have lead emissions well below the current National Ambient Air Quality Standard (NAAQS) for lead.

FLYING

# FAA Selects Two Unleaded Fuels for Testing

## The agency has named two finalist fuels for further testing as plans for the phaseout of 100LL avgas in 167,000 GA airplanes move forward.

By STEPHEN POPE Posted MARCH 31, 2016

Preparing for the day when 100LL avgas will be outlawed in America, the FAA has selected two unleaded fuels — one from Swift Fuels and one from Shell — for further testing.

Flight trials and rig testing of the new fuel blends, selected as part of the Piston Aviation Fuel Initiative (PAFI) to find an alternative to leaded avgas as the Environmental Protection Agency prepares to file a formal endangerment finding against 100LL, will begin this summer and run through 2018.

Data from the tests will allow the FAA to develop an ASTM standard for the fuels, permitting them to be used as a drop-in replacement for most any piston aircraft engine running 100LL today.

The fuel formulations from Shell and Swift Fuels were selected for Phase 2 engine and aircraft testing after initial trials of four candidate fuels recently concluded.

Congress has set aside $7 million for the fiscal year 2016 budget to support the PAFI test program at the FAA William J. Hughes Technical Center in Atlantic City, New Jersey.

The GA industry applauded the selection of the finalist fuels, noting that approximately 167,000 GA aircraft in the United States currently rely on 100 octane low-lead aviation gasoline.

"It's important for general aviation to be ready to move away from leaded fuel, and today's announcement that two fuels have been selected for further testing is another key step down that path," said David Oord, AOPA vice president of regulatory affairs. "The program is on track and the candidate fuels are promising, which is good news for GA."