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United States Air Force
ACC - Holloman AFB

This request is made pursuant to the Freedom of Information Act.

1. According to the Holloman AFB Web site (<http://www.holloman.af.mil/library/factsheets/index.asp>), among the aircraft flown at Holloman are the MQ-1 Predator Unmanned Aircraft System and the MQ-9 Reaper Unmanned Aircraft System.

2. I would like all documents relating to the use of Synthetic Vision in operating the MQ-1 and MQ-9 Unmanned Aircraft Systems as well as any other Unmanned Aircraft Systems (UAVs) or Unmanned Combat Aerial Vehicles (UCAVs) flown at or by Holloman AFB.

A. Synthetic Vision is defined by the FAA in FAA Title 14 Part 1 as follows:

Synthetic vision means a computer-generated image of the external scene topography from the perspective of the flight deck that is derived from aircraft attitude, high-precision navigation solution, and database of terrain, obstacles and relevant cultural features.

FAA Title 14 Part 1 is available at: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title14/14tab_02.tpl

A mirrored copy is available at: www.jmargolin.com/svr/refs/ref05_faa.pdf

Synthetic Vision includes *Enhanced Synthetic Vision*.

B. According to the following report (quoting OSD's *UAV Reliability Study* issued in 2003) the use of enhanced synthetic vision was recommended to help UAV operators maintain flight and sensor perspective.

HSW-PE-BR-TR-2005-0001

UNITED STATES AIR FORCE
311th Human Systems Wing

U.S. Military Unmanned Aerial Vehicle Mishaps: Assessment of the Role of Human Factors Using Human Factors Analysis and Classification System (HFACS)

Thompson, Tvaryanas, and Constable

March 2005

From pages 1-2:

The Office of the Secretary of Defense's *UAV Reliability Study* (19) issued in 2003 is the most comprehensive review of UAV mishaps to date, the results of which were extracted in large part into DoD's *UAV Roadmap 2002-2007* (21) and served as the basis for the Defense Science Board's analysis of UAV mishaps (20). This study found the aggregate sources of failures in the Air Force's RQ-1 Predator, Navy/Marine's RQ-2 Pioneer, and Army's RQ-5 Hunter were power/propulsion (37%), flight controls (26%), communications (11%), human factors (17%), and miscellaneous (9%). It noted "the proportions of human error-induced mishaps are nearly reversed between UAVs and the aggregate of manned aircraft, i.e., human error is the primary cause of roughly 85% of manned mishaps, but only 17% of unmanned ones." Two theories were offered to explain this observation. First, human influence in UAVs is significantly reduced (e.g., "70% less") and is countered by increased automation. Second, human error rates remain constant between UAVs and manned aircraft and are simply overshadowed by the higher unreliability of other subsystems in UAVs. Although no breakdown of human factors was provided, the study reported "three of the areas (power/propulsion, flight control, and operator training) have historically accounted for 80 percent of UAV reliability failures" and "overall mishap rates for UAVs could be significantly reduced by focusing reliability improvement efforts in these areas," implying human error-induced mishaps were related to training deficiencies. Additionally, the study suggested UAV operator situational awareness may be degraded by the challenges of "human-machine synergy" when the human is on the ground. **Recommendations included enhance operator training, particularly through simulation in the ground control station (GCS) environment, automate launch and recovery operations, and employ enhanced synthetic vision technology to help UAV operators maintain flight and sensor perspective.** The only additional human factors identified in the Defense Science Board's UAV study (20) were the limited experience level of UAV operators and maintainers, inadequate overall professional development of UAV personnel, and the need to better address takeoff and landing errors.

{Emphasis added.}

Thus, there is good reason to believe that USAF's MQ-1, MQ-9, and other UAVs have and use synthetic vision.

Costs

I claim the journalist exemption.

I have Web sites where I write about issues of general interest as well as issues of more specific interest.

Here are some examples.

1. I wrote about my experiences at O'Connor Hospital in San Jose, California because, as is fairly standard hospital practice, they proposed to charge me more than twice the amount they charge insurance companies for the same services. I also investigated their activities and discovered they were violating the terms of their 501(c)(3) tax-exempt status.

As a result of my article, the California Statewide Communities Development Authority (CSCDA) stopped issuing them tax-free bonds until they re-qualified for them.

Not long afterwards, the Daughters of Charity (owners of O'Connor Hospital) came out with a new policy where they promised to charge people without medical insurance the rates equal to what Managed Care would pay.

See: <http://www.jmargolin.com/med/charges1.htm> and <http://www.jmargolin.com/med/charges2.htm>

2. My mailing address has a zip code in Washoe County even though I live in Storey County. I wanted to know if the Census Bureau was going to count me for the county where I actually live because if they counted me for the wrong county then my county would lose money and representation.

I investigated and found the answer. It wasn't easy because many people at the Census Bureau didn't know the answer.

See: <http://www.jmargolin.com/vch/census.htm>

There are other people in a similar situation. Now they can know the answer, too.

3. When a Developer came into Storey County (population ~4,600) and wanted to build a Master Planned Community for 50,000 people many of us were concerned because, among other things, the Developer refused to say where he was planning to get the water for his community. (Water is always an issue in the West.)

When I learned that the Storey County Web site was not set up to archive and index the large number of documents involved in the issue I set up a Web site on my own: <http://www.cordevistahoa.org>

I also did some independent investigation.

The Storey County Planning Commission denied the Developer's Application for a change to the County's Master Plan and for a change in zoning, and the Storey County Commissioners accepted the recommendation of the Planning Commission in denying the Developer's applications.

I was publicly thanked by the Planning Commission for setting up the Web site.

This is more than a purely local issue.

The Developer sued the County. The case was heard by Retired Nevada Supreme Court Chief Justice Miriam Shearing. In her decision in favor of the County she said:

This court must give deference to the legislative determination of the Storey County Commission that it did not wish to amend its Master Plan. Although the Nevada Supreme Court has not dealt directly with the standard of review of a county decision not to amend a master plan, it is clear that the court must be highly deferential to the enacting body. As the Nevada Supreme Court said in *Coronet Homes, Inc. v. McKenzie*, 84 Nev. 250, 255-56, 439 P.2d 219, 223 (1968), in the context of a land use request:

The days are fast disappearing when the judiciary can look at a zoning ordinance and, with nearly as much confidence as a professional zoning expert, decide upon the merits of a zoning plan and its contribution to the health, safety, morals or general welfare of the community. Courts are becoming

increasingly aware that they are neither super boards of adjustment nor planning commissions of last resort.

Nevada law, thus, is consistent with the law of Minnesota as articulated in *Concept Properties, LLP v. City of Minnetrista*, 694 N.W. 2d 804, 814 (Minn. App. 2005). A municipal body acts in a legislative capacity when it adopts or amends a comprehensive land-use plan. *Id.* Municipal bodies have broad discretion in making zoning and land-use decisions. *Id.* Courts will reverse zoning decisions only where there are no grounds for reasonable debate and where the action of the municipal body is arbitrary, capricious, discriminatory, or illegal. *Id.* The evidence presented by Virginia Highlands was not sufficient to support the view that any of these defects apply to the Storey County refusal to amend its Master Plan.

Thus, she clearly articulated the apparently novel ideas that:

1. Courts are not a Super-Planning Commission.
2. Counties have the right to determine their own destiny.

It should be noted that the Developer chose a name for his company (Virginia Highlands LLC) that is remarkably similar to my community's name (Virginia City Highlands), which did not endear him to us.

4. A huge Japanese conglomerate using a Reno company as its local face proposed to put up 70 huge wind turbines on land managed by the Bureau of Land Management (BLM). Some of the wind turbines would have been less than a mile from historic Virginia City. Some of them would have been less than a mile from my community (which they left off their map.)

I set up a Web site (<http://www.storeycountywindfarms.org>), obtained documents from BLM including the Application and public comments (most of which were opposed to the project), and the project is now moribund.

5. I blogged my experiences with the U.S. Patent and Trademark Office, and then the Court of Appeals For the Federal Circuit, so people could see how their Government works.

See: **Patent Office Story - How the U.S. Patent Office Jumped the Shark**
<http://www.jmargolin.com/dcs/dcsfile.htm>

and **The Story Continues** (http://www.jmargolin.com/cafc/dcs_cafc.htm)

6. I am currently blogging my experiences with the National Aeronautics and Space Administration (NASA). I filed suit against NASA in U.S. District Court for the District of Nevada for NASA's refusal to comply with the Freedom of Information Act.

See: **How NASA Treats Independent Inventors** (<http://www.jmargolin.com/nasa/nasa.htm>)

Again, this is to show people how their Government works.

7. In *Federal Cure v. Harley G. Lappin*, heard in the District Of Columbia District Court (Case Number 1:2007cv00843), the Court ruled that a fee waiver cannot be denied simply because the Requestor distributes material solely through a website.

8. In the interests of full disclosure, I am the named inventor on U.S. Patent 5,566,073 ('073) **Pilot aid using a synthetic environment** and U.S. Patent 5,904,724 ('724) **Method and apparatus for remotely piloting an aircraft**. The '073 patent teaches the use of what is now called *synthetic vision* in manned aircraft. The '724 patent teaches the use of synthetic vision for controlling unmanned aerial vehicles (UAVs).

In June 2003 I filed an administrative claim for patent infringement with the NASA Headquarters Office of General Counsel for NASA's use of synthetic vision in their X-38 project. (It was NASA's idea for me to file the claim.) NASA's criminal misconduct in handling my claim was revealed as a result of the 4,000 or so pages of documents NASA has produced as a result of my FOIA lawsuit against them.

I no longer own the Patents. When I assigned the Patents to Optima Technology Group the claim went with them.

Although I have a financial interest in the Patents in the form of royalties I do not control them. The odds that I will make money from the Patents as a result of my FOIA requests are small.

My FOIA requests are not about money.

They are about fairness and honesty and how Government works.

For example, an article was published in the December 2008 issue AUVSI's *Unmanned Systems Magazine* titled **Synthetic Vision Technology for Unmanned Systems: Looking Back and Looking Forward**. The authors are Jeff Fox, Michael Abernathy, Mark Draper and Gloria Calhoun.

Jeff Fox is with NASA, Michael Abernathy is with Rapid Imaging Software, Mark Draper and Gloria Calhoun are with AFRL The article presents a spurious history of synthetic vision. It asserts (wrongly) that NASA invented it. The article is malicious.

I responded with the article **Synthetic Vision – The Real Story**.

(See www.jmargolin.com/svr/auvsi_response_index.htm)

Although the editor of AUVSI Magazine had promised me the opportunity to respond in the magazine, he later refused to even mention the controversy about the Abernathy article.

I say the "Abernathy article" because Jeff Fox's inclusion as an author was a late addition; his name was not included on the preview copy Abernathy gave NASA. There is no evidence that Fox contributed in a material way to the article. His name was added to give the article credibility.

Mark Draper and Gloria Calhoun are both USAF employees at AFRL and are listed as such in the article. By allowing their affiliation to be used, USAF gave its approval to the article.

The information I am requesting in my FOIA request is likely to significantly contribute to public understanding of the operations of USAF because the American People deserve to know if USAF is run by a bunch of crooks.

9. I am currently blogging my experiences with my first two Freedom of Information Act Requests with USAF so people can see how USAF works.

See: **How the United States Air Force Plays the Shell Game with the Freedom of Information Act and How They Treat Independent Inventors** (http://www.jmargolin.com/usaf/usaf_web.htm)

Both of these will probably end up in U.S. District Court for the District of Nevada, one of them because of USAF's refusal to grant me the Journalist's Exemption.

Sincerely yours,

/Jed Margolin/

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