

Texas A&M University-Corpus Christi
Division of Research, Commercialization and Outreach
Lone Star Unmanned Aircraft Systems Center of Excellence & Innovation
Presentation: Alpine City Council

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Matt Nelson, Camber Corporation

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Your honor the mayor, Avinash Rangra; and honorable city council members Angie Bermudez, Mike Davidson, Jim Fitzgerald, Julian Gonzales and Michael Castelli: We appreciate this opportunity to present the Lone Star Unmanned Aircraft Systems Center of Excellence & Innovation and our plans for creating a launch and recovery site at Alpine-Casparis Municipal Airport.

My name is Ron George. I am senior research development officer at Texas A&M University-Corpus Christi, lead institution for a statewide proposal, supported by Governor Perry, that Texas be designated as a UAS test site by the Federal Aviation Administration.

I am accompanied by Luis Cifuentes, Vice President for Research, Commercialization and Outreach at A&M-Corpus Christi, whose vision and continuous support has placed our university and the State of Texas in its current competitive position for one of six test sites that will be selected next month by the FAA.

I am also accompanied by Matt Nelson, a team member of our lead systems integrator, Camber Corporation, headquartered in Huntsville, Ala., a nationally recognized company without whose support and expertise neither the university nor Texas would be in the running for a test-site designation.

Our presentation this evening covers legitimate areas of concern for this council and residents of Alpine, Brewster County and other Big Bend political subdivisions touched by our proposed airspace. We look upon it as the beginning of a constructive conversation over time that will lead to the resolution of matters related to our center's use of Alpine's municipal airport. We are available to answer questions and address concerns raised by this council and the people you represent.

Our topics include the following:

- LSUASC plans for Alpine-Casparis Municipal Airport
- Our commitment to safety
- Our commitment to privacy
- Our commitment to accountability
- Our commitment to addressing the community's concerns
- Our commitment to earning the community's trust
- And our hope for understanding, resolution and progress.

We have provided the council with the presentation we made in June to the airport advisory board. We trust that it provides adequate background for what we present tonight. We also invite the council and the public to visit our remodeled Web site: lsuasc.tamucc.edu for an overview of our program.

LSUASC plans for Alpine-Casparis Municipal Airport

Our team first visited Alpine early this year as we began developing our proposal to the FAA. Our colleague Joe Owens surveyed the airport, met with airport and city personnel and assessed Alpine-Casparis very favorably. Our airspace subject-matter expert already had

recommended a large, high-altitude test range in the Big Bend region. Alpine-Casparis put icing on the cake with its well-maintained infrastructure and location.

Our plans include securing storage and hangar space at the airport in order to provide services for test-site clients, which will include university researchers and private-sector developers of UAS technologies. We also plan to use the airport for integrated launch and recovery of unmanned aircraft as well as chase-planes required by FAA for UAS operations beyond visual line of sight. My colleague Matt Nelson will answer technical questions you may have regarding our proposed operations and other aspects of our use of the airport.

Why Alpine? Because it's ideal for the airspace we've designed. The airport is well maintained and well run, and we believe the FAA will find it a superior facility for our test-site operations.

Our commitment to safety

Safety is of primary concern to the FAA and it is the fundamental issue of the UAS test-site program. Congress has mandated that FAA establish six test sites in order to develop technologies, policies, procedures, regulations and best practices for integrating unmanned aircraft into the national airspace. Why? Because the United States falls behind the rest of the world, especially Europe and Asia, technologically and economically the longer we delay UAS integration.

The FAA and the UAS industry recognize the magnitude and complexity of the task, but let's remember that the FAA is perhaps the most risk-averse agency of the federal government. It will not put the safety of people on the ground and in the air at risk until it is assured that the national airspace is safe for UAS and manned aircraft alike. Safety is the yardstick by which our contract performance will be measured. If we fail to operate safely, our test-site contract – for which we have invested more than \$2 million in time, effort and cash – will be cancelled.

The FAA's emphasis on safety can be seen in the agency's research agenda, which also will be our center's primary research effort.

- The development of sense-and-avoid technologies that will automatically keep unmanned aircraft separated from other aircraft, manned or unmanned. Commercial aircraft have such in-flight capability now.
- Communications technologies that will mitigate lost-link incidents and "spoofing," or the hijacking of unmanned aircraft by hostile operators.
- Best air-traffic control practices for managing integrated operations; or, How to do in the national airspace what they're already doing at Fort Hood, Texas, where manned and unmanned aircraft routinely take off and land simultaneously on parallel runways?
- Environmental impact of UAS operations: Do these aircraft pose dangers to the natural and built environments?
- Airworthiness: The question is not whether UAS are capable of flying but whether they are reliable. Determining airworthiness requires essential ground testing, which we will offer vendors through our center, and *flight* testing only after airframe reliability and safety procedures are assured.

The Lone Star UAS team has almost two decades of UAS operational safety experience. Our university alone has operated its aircraft for three years without incident. The manned-aircraft sector of our team – the aviation division of the Texas Department of Transportation – has operated without incident for more than a half century. Safety is a built-in value for our team. We cannot promise that UAS mishaps won't happen, but we do promise that operational safety is and will be utmost in our hearts and minds every time we send an aircraft aloft.

Our commitment to privacy

It is against the law in the Texas, a Class C misdemeanor, to invade someone's privacy with a UAS. The Texas Privacy Act, passed this year by the Legislature, also permits 19 legitimate uses of UAS, including FAA test sites and university research. We believe this balanced approach protects Texans' rights and privileges but also ensures that UAS technology development and commercialization can go forward without government intervention so Texas can reap economic-development benefits from the growth of the UAS aviation sector.

The FAA has just released its test-site policy with regard to privacy and has advised proponents to the test-site program that it will be a matter of contractual performance that test sites abide by state laws, rules and regulations regarding the individual privacy. The Texas Privacy Act aligns with FAA policy in this regard; moreover, it has been our commitment from the beginning, long before the privacy act was passed, that our aircraft would not be used for any purpose other than legitimate research, technological development and commercialization.

Our commitment to accountability

To set the record straight: No one at our institution or connected with our center has ever said we would not, in the words of a certain petition, "be held liable for any malfunction, failure or other unintended negative consequence of the proposed testing program." Some clarification is in order.

First, a caveat: We are not here to negotiate a land-use agreement, and it's unlikely that such an agreement need be in place before the end of 2015. Moreover, such negotiations are best conducted, as state law provides, in executive session by the responsible parties.

For better or worse, state courts since the 19th century and federal courts since the 18th century have upheld the doctrine of sovereign immunity, which is that states cannot be sued in their own courts without their permission. This is a complex area of law, and I'm no lawyer, but that doctrine governs the way state contracts are written with regard to indemnification.

The land-use agreement proposed by our center includes standard language for holding state agencies harmless from all claims – but then read on! "Such indemnification, however, does not apply to the extent such claims, liabilities and losses are caused solely and directly by the negligence or willful misconduct" of state agencies.

We cannot change state law in order to do business in Alpine. We are bound by the policies of our university system, which in turn is obliged by law as interpreted by the Supreme Court of Texas. Sovereign immunity is controversial and has been since our nation was founded. Maybe it should be overturned by decision or undone by statute, but the point here and now is that we state employees are bound to do business as the law requires. The indemnification language in the draft land-use agreement was not an effort by our center to duck responsibility for our operations. In fact, the land-use agreement, in so many words, holds us responsible, as it should, for negligence or willful misconduct in our launch-and-recovery operations at Alpine-Casparis Municipal Airport.

The bottom line is this: Our commitment to safety and accountability is an explicit promise that we will not, under any circumstances, be negligent in our conduct of UAS operations in this region, neither will we intentionally misbehave – and if we do, we ought to be held accountable to the full extent of our responsibility.

Our commitment to addressing the community's concerns

We are embarking upon a new era in aviation history: Integration of unmanned aircraft systems into the national airspace. It's happened before, here as well as elsewhere. Aviation progress – any kind of transportation progress, for that matter – always generates legitimate concerns that

must be addressed. How safe can it be to ride a horse or hitch one to a chariot? How safe can it be to drive a ship with steam power or a passenger coach? How safe can it be to fly – or go to the Moon in an encapsulated environment propelled by enormous explosive power?

How safe can it be to fly unmanned aircraft in the national airspace? There are indeed legitimate concerns associated with this “Kitty Hawk Moment” in aviation history: Safety, security, privacy, environmental impact. The answers are in the unknown future – and that’s what drives our fear, mine as well as yours.

So, how do we handle fear of the unknown?

- First, we turn on the light, because we can’t find our way in the dark.
- Next, we gather intelligence, which is a process of discrimination among the risks and benefits of proceeding into the unknown.
- Next, we weigh risks against benefits.
- Next, we plan for success by reducing risks in order to obtain the benefits.
- Then we engage the unknown future with foresight, having gathered sufficient intelligence, and courage, having overcome our fear with knowledge.

Conquering our fear of the unknown generates energy for embracing progress. Unconquered fear generates inertia and stagnation. Regardless of whether our center is allowed make Alpine-Casparis Municipal Airport its home in the Big Bend region, unmanned aircraft systems will be integrated into the national airspace. Over the next 12 to 18 months, folks in Alpine will decide whether to be part of the solution of this complex national purpose.

Our commitment to earning the community’s trust

We believe that trust is the solution to community concerns about UAS operating in the Big Bend region. Aircraft have been flying over the Big Bend region for more than a century. Aviation pioneers such as John Casparis overcame his neighbors’ fears by earning their trust:

- That he would do no harm to people and things on the ground; and
- That aviation would bring economic and social benefits to the Big Bend.

Pioneer aviators were right on both counts; but in the beginning, there were concerns, as there ought to have been. These concerns, rooted in fear of the unknown, gave way to experience. Trust takes experience. Trust is not a “tell me” value. It’s a “show me” value. Today, people of the Big Bend region are proud, as they ought to be, of their aviation history and the spirit it imbibes, a spirit of adventure and innovation but also a spirit of community well-being.

Now is the time for a renewed sense of adventure and innovation – but not without a spirit of community well-being.

The Lone Star UAS Center of Excellence & Innovation wants to earn the trust of the people of Alpine, of Brewster County and of the Big Bend region where we intend to fly our aircraft. We bring a team with a long track record of safe manned and unmanned operations, but we understand that trust is a show-me value. This is what we want to show you:

- That we will do no harm to people in the air or on the ground;
- That we will bring social and economic benefits of unmanned aviation to the region, the state, the national and the world;
- That Alpine and the Big Bend region will be part of a solution for a pressing national need: safe integration of UAS into the airspace of the United States of America.

We ask that, over the next 12-18 months, we be allowed to engage the community in a process of resolution wherein we

- turn on the lights
- gather intelligence
- weigh risks and benefits
- plan for success by reducing risks, and
- engage the unknown future with foresight and courage.

Our hope for understanding, resolution and progress

Time is on the side of understanding, resolution and progress. Our plans do not call for operations in this region until late 2015 or early 2016. We have time for working together to resolve concerns. We have time for working with airport authorities and city officials to negotiate acceptable terms of engagement. We have time for our center to reach out and earn public trust.

We propose the following:

- Civil public discourse for airing concerns and prospects for progress.
- Transparency in LSUASC conversations with governmental entities.

Our goal, which we hope will be shared by all concerned: Successful negotiation of a land-use agreement with the City of Alpine for use of Alpine-Casparis Municipal Airport as a launch and recovery site for unmanned aircraft systems operated by the Lone Star UAS Center of Excellence & Innovation.

Many thanks for your time and attention. We look forward to continuing conversation and collaboration with this council in resolving concerns raised by our proposal.

Respectfully submitted,

Ron George
Luis Cifuentes
Matt Nelson