

July 29, 2014

U. S. Department of Transportation
Docket Management System
1200 New Jersey Ave., SE
Washington, DC 20590

Re: Exemption Request Section 333 of the FAA Reform Act.

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the Reform Act), Slugwear, Inc, dba as Likeonatre Aerial (the operator), D. Douglas Branch (the applicant), planned operator of Small Unmanned Aircraft Systems (sUASs) equipped to conduct aerial photography and survey for various industries hereby applies for an exemption from Federal Aviation Regulations (FARs) to allow commercial operation of their sUASs, so long as such operations are conducted within and under the conditions outlined herein or as may be established by the FAA as required by Section 333.

As described more fully below, the requested exemption would permit the operation of sUAS by the applicant for commercial use that would provide the following benefits:

1. Operations would be performed in an area of operation limited in size suitable to the specific use, in advance of flight.
2. The flight would be planned in advance to minimize hazards to persons and property in the air and on the ground.
3. The operator would reasonably limit or control access to provide safety to those not involved in the operation.
4. Operation of a sUAS would provide significant safety, environmental and other enhancements not possible by larger sized aircraft.
5. An FAA licensed airman with a Commercial grade or higher pilot certificate would operate the sUAS or directly supervise the operation.
6. Provide a beneficial and currently unavailable service to government organizations and the general public that would serve the public interest.

Approval of this exemption would thereby enhance safety and fulfill the Secretary of Transportation's (the FAA Administrator's) responsibilities to "...establish requirements for the safe operation of such aircraft systems in the national airspace system." Section 333(c) of the Reform Act.

It is possible to operate sUASs so to not create a hazard to users of the National Airspace System (NAS), the public or pose a threat to national security if done so safely and responsibly. The applicant has demonstrated their willingness to act safely and responsibly by not engaging in commercial sUAS operations. The applicant has, in fact, worked with FAA employees at the local FSDO in an effort to find a safe and legal solution to permit commercial operation. Additionally, the fact that the applicant currently holds a FAA Airline Transport Pilot Certificate (ATP), and a current FAA Flight Instructor

Certificate (CFI) demonstrates that the applicant has a high regard to safe operations, as well as a necessary high-level understanding of the NAS and FARs. The experience these two FAA certificates represent serves to add significantly to the level of safety in any operation performed by the applicant or the applicant's employees.

AIRCRAFT AND EQUIVALENT LEVEL OF SAFETY

The applicant proposes that the exemption requested herein apply to civil aircraft that have the characteristics of sUAS and that operate with the limitations listed herein. These limitations provide for at least an equivalent or higher level of safety to operations under the current regulatory structure as the proposed operations represent a safety enhancement to the already safe aerial commercial photography and survey operations conducted with conventional aircraft.

The sUAS's planned to be operated are rotorcraft and fixed wing aircraft, each weighing 55 or fewer pounds including payload. They would operate, under normal conditions, at a speed of no more than 50 knots. The principal construction material of these sUAS craft would be foam and/or plastic. Operations will be performed by a qualified sUAS PIC, as outlined below, to insure that the sUAS will "not create a hazard to users of the national airspace system or the public." Given the small size of the sUASs involved and the pre-planned environment within which they will operate, the applicant believes that these operations fall squarely within that zone of safety (an equivalent level of safety) in which Congress envisioned that the FAA must, by exemption, allow commercial operations of sUASs to commence immediately. Also, operation in a researched (to include applicable NOTAMs), pre-defined area will prevent the possibility of a national security issue. The operation of sUASs by knowledgeable professionals with experience in the NAS will serve to enhance safety, add to the public benefit and reduce environmental impacts related to current methods of aerial photography and survey.

These limitations and conditions to which the operator, or it's employees, acting as sUAS PIC agrees to be bound when conducting commercial operations under an FAA issued exemption:

1. Safety will be the first and foremost consideration in any sUAS operation.
2. sUAS pilot will be an FAA licensed airman with at least a Commercial Pilot certificate or the sUAS pilot will be directly supervised by an FAA licensed airman with at least a Commercial Pilot certificate.
3. The sUAS FAA licensed airman will be considered Pilot in Command (PIC), whether flying or supervising, and will be responsible for safe operation of the flight.
4. Flights will be operated within line of sight of the PIC and/or an observer.
5. The sUAS will weigh less than 55 lbs total.
6. Flights will be operated in Class G airspace whenever possible. If operation in other airspace is required, the relevant controlling agency will be notified at least 24 hours prior to the operation and, if required, any necessary permission obtained.
7. Flights will be operated under visibility and cloud clearance requirements equivalent to Visual Flight Rules (VFR).
8. The sUAS will at all times give way to any aircraft carrying persons.
9. Minimum crew for each operation will consist of the sUAS PIC. An observer will be utilized if the sUAS will be flown beyond line of sight of the PIC. The observer, if required, and PIC will at all times be able to communicate by voice and/or text.

10. Prior to a sUAS flight, an area of operation will be established. This area of operation will include a defined lateral and vertical area, where the sUAS will operate. Safety procedures will be established for persons, property and applicable airspace within the area of operation.
11. Flight planning will include flight completion with at least 20% battery power remaining as measured by the sUAS or appropriate timing.
12. If equipped, and appropriate for the operation, sUAS aircraft will utilize GPS navigation, failsafe, return-to-home (RTH) and/or flight abort safety features.
13. A briefing will be conducted in regard to the planned sUAS operations prior to operation at each new location. All personnel who will be performing duties within the boundaries of the area of operation will be present for this briefing.
14. All required permissions and permits will be obtained from appropriate state, county or city jurisdictions, including local law enforcement, fire, or other appropriate governmental agencies.
15. Written, to include electronic, and/or oral permission from the relevant property owners will be obtained prior to an operation.
16. The sUAS pilot will be trained in advance for the safe operation of the sUAS to be operated. This will include operation of the sUAS both in normal and emergency modes of operation, and will include familiarization with the operation manual (or similar) if published by the sUAS manufacturer. Training will also include types of maneuvers to be performed and the safe operation in relation to persons, property and applicable airspace.
17. The sUAS PIC will establish a working relationship with a representative at the local FSDO with which to annually review safety procedures and other operations to further enhance safety.

Attached please find a letter from the City of SeaTac, requesting a sUAS operation that will document a current highway project. This operation serves as an excellent example of the benefits of using a sUAS, it represents an enhancement in safety as well as benefiting the public interest. It is respectfully requested that the FAA grant an exemption as soon as possible to enable the City of SeaTac's project to be documented.

It is the applicant's belief that the size, speed, operating environment, limitations and level of applicant's experience in the NAS outlined provides an "equivalent level of safety" or better when operating a sUAS for the public interest as outlined in Section 333 in the FAA Modernization and Reform Act of 2012. It is requested that the FAA issue an exemption to permit safe, legal, commercial sUAS operation by the applicant as soon as possible.

Sincerely,



D Douglas Branch, President
Likeonatrete Aerial
P.O. Box 16492
Seattle, WA 98116
206-227-5406

Appendix A

EXEMPTION REQUESTS AND EQUIVALENT LEVEL OF SAFETY

Slugwear, Inc, dba Likeonmtree Aerial, requests an exemption from the following regulations as well as any additional regulations that may technically apply to the operation of sUAS's:

14 CFR Part 21, Subpart H: Airworthiness Certificates

This part establishes the procedures for the issuance of an airworthiness certificate. While the FAA continues to work to develop airworthiness standards for UAS, we request an experimental certificate be issued for the sUAS's operated by the applicant under either or both of the following provisions:

21.191 Experimental certificates.

Experimental certificates are issued for the following purposes:

(a) Research and development. Testing new aircraft design concepts, new aircraft equipment, new aircraft installations, new aircraft operating techniques, or new uses for aircraft.

(b) Showing compliance with regulations. Conducting flight tests and other operations to show compliance with the airworthiness regulations including flights to show compliance for issuance of type and supplemental type certificates, flights to substantiate major design changes, and flights to show compliance with the function and reliability requirements of the regulations.

Since the experimental certificate can be used for commercial purposes such as market surveys, sales demonstrations, and customer crew training, we would expect that an experimental certificate would permit our commercial purpose as well.

The aircraft will not carry persons or property and will only fly under strict operational requirements. Combined with the fact that any aircraft operated would be light weight and is constructed primarily out of foam or plastic, we propose that a sUAS will be at least as safe, if not safer, than a conventionally certificated aircraft performing the same function.

If an experimental airworthiness certificate is not appropriate for this application, then we request an exemption of 14 CFR Part 21, Subpart H, and the requirement for an airworthiness certificate in general, citing the equivalent level of safety outlined in the previous paragraph.

14 CFR 91.203(a) & (b) Civil aircraft: Certifications required.

The regulation provides that an airworthiness certificate, with the registration number assigned to the aircraft and a registration certificate must be aboard the aircraft.

Additionally, subparagraph (b) provides that the airworthiness certificate be "displayed at the cabin or cockpit entrance so that it is legible to passengers or crew." A sUAS is too small to carry documentation, does not have an entrance, and is not capable of carrying passengers or crew. To obtain an equivalent level of safety and meet the intent of 91.203, we propose that documents deemed appropriate for this aircraft by the FAA will be co-located with the crew at the ground control station and available for inspection upon request. In order to identify the aircraft, we propose the use of the sUAS' unique manufacturers serial number, and a contact telephone number be mounted on the sUAS on a placard of reasonable size in relation to the sUAS. In the event that a unique manufacturers serial number is not available, the previously mentioned placard will be affixed to the sUAS consisting of the model name and number of the sUAS, as well as a

contact telephone number.

14 CFR 45.23 Display of marks; general and 45.29 Size of marks.

These regulations provide that each aircraft must display "N" and the aircraft's registration number in letters at least 3 inches high. Additionally, the aircraft must display the word "EXPERIMENTAL" in letters at least 2 inches high near the entrance to the cabin, cockpit, or pilot station. A sUAS does not have an entrance in which the word "EXPERIMENTAL" can be placed, and may not have a registration number assigned to it by the FAA. We propose to achieve an equivalent level of safety by including the word "EXPERIMENTAL" on the top or side of the aircraft, in the form of a placard. The label will be of a size that will not overwhelm the aircraft, but will be reasonably readable to someone near the sUAS. The placard outlined in the previous paragraph will provide sufficient identifiability should someone discover the aircraft on the ground.

14 CFR 91.9 Civil aircraft flight manual, marking, and placard requirements.

This regulation provides that no person may operate an aircraft unless a current, approved flight manual is in the aircraft. The intent of this requirement is to ensure that flight manual information is available to the aircrew while operating the aircraft. We request an exemption to this requirement since the sUAS cannot carry such a manual, and if the sUAS did carry such manual, it would be unavailable to the crew for review. To obtain an equivalent level of safety and meet the intent of 91.9, we propose that a current, sUAS operation manual or equivalent be available to the crew at the ground station anytime the aircraft is in, or preparing for, flight.

14 CFR 91.109 Flight instruction; Simulated instrument flight and certain flight tests

The regulation provides that "No person may operate a civil aircraft that is being used for flight instruction unless that aircraft has fully functioning dual controls." The controls for a sUAS do not currently have a set of fully functioning dual controls. If a sUAS pilot is being trained, the pilot performing the training would be directly supervising and could take over the controls from the pilot in training if the need arose. This would be similar to the technique of a "throw-over type" control wheel in some fixed wing aircraft. We feel that this technique meets the intent 91.109 and provides an equivalent level of safety.

14 CFR 91.119 Minimum safe altitudes: General.

The regulation provides that over sparsely populated areas the aircraft cannot be operated closer than 500 feet to any person, vessel, vehicle, or structure. Since the typical mission of this sUAS would be photography or survey of persons, vessels, vehicles or structures it would be necessary to operate closer than 500 feet to the items listed. Operations will only be flown over property or persons where permission has been obtained, and careful pre-planning has been performed. Further, sUAS aircraft operate at a very slow airspeed, and a low mass, and do not need as much space to operate safely, as outlined in 91.119. We believe the slower speed, smaller mass and careful pre-planning would provide an equivalent level of safety.

14 CFR 91.121 Altimeter settings.

The regulation provides that aircraft shall maintain cruising altitudes by reference to an altimeter setting available within 100 nautical miles of the aircraft. The sUAS will normally be flying close to the ground, and in line of sight of the PIC or an observer. This line of sight operation will provide separation from other aircraft, obstructions and

terrain, and would override the use of an altimeter for such a purpose. We feel that this will provide an equivalent level of safety.

14 CFR 91.151 Fuel requirements for flight in VFR conditions.

The regulation provides that no person may begin a flight in an airplane under day-VFR conditions unless there is enough fuel to fly to the first point of intended landing and to fly after that for at least 30 minutes. We feel the intention of this paragraph is to provide a reasonable reserve of energy to plan for a safe landing should there be a delay in landing. The close proximity to the ground station, the ability for both rotorcraft and small fixed wing aircraft to land in a very small space and the built in energy level monitoring of the sUAS we feel provide an equivalent level of safety if the flight is planned to be completed with 20% battery energy remaining. We request an exemption to the word "fuel" and ask for an equivalent interpretation with the word "energy".

14 CFR Subpart E (91.401 - 91.417) - Maintenance, Preventive Maintenance, and Alterations

The regulation provides that the operator is primarily responsible for maintaining the aircraft in an airworthy condition, including compliance with part 39 and 43. Paragraphs 91.407 and 91.409 require that the aircraft be "approved for return to service by a person authorized under 43.7" after maintenance and inspection. It is our intention that the PIC perform maintenance and inspection of the aircraft and "be authorized to approve the aircraft for return to service."

Prior to every flight, the PIC will inspect the aircraft to ensure that it is in an airworthy condition. Any general maintenance procedures or replacement of consumable items outlined by the sUAS manufacturer, if applicable, will be complied with by the PIC. In no circumstance will a sUAS be operated in a condition that is deemed, or suspected to be, unsafe. If such a determination is reached, and the problem cannot be remedied to the satisfaction of the PIC, the sUAS will not be operated until consulting with the manufacturer or one of its authorized dealers to complete necessary repairs. We feel that due to the size, construction, and simplicity of the aircraft, the PIC can ensure an equivalent level of safety.

8900.227 Paragraph 16(c)(4) PIC Medical. and Paragraph 16(e)(1) Observer Medical.

This policy provides that both the PIC and observer must have a valid FAA second-class medical certificate issued under part 67 in order to perform as a pilot or observer.

Requiring the crew to meet the same medical requirements as a commercial pilot carrying passengers in a large aircraft is an unnecessary burden.

We propose that the minimum medical requirements be vision corrected to 20/20 and a valid, state-issued driver's license. The risk of both the PIC and observer becoming incapacitated at the same time and suddenly is very low. Further, since the sUAS is operating close to the ground, it could be brought in for landing in a very short time if incapacitation was suspected. Finally, most sUAS's are equipped with an automatic return to home feature which would provide a final level of safety. We feel this would provide an equivalent level of safety.



July 28, 2014

D. Douglas Branch
Slugwear, Inc.
dba Likeonatree Aerial
PO Box 16492
Seattle WA 98116

4800 South 188th Street
SeaTac, WA 98188-8605

Re: Video for Connecting 28th/24th Ave S Project

City Hall: 206.973.4800
Fax: 206.973.4809
TDD: 206.973.4808

Dear Doug,

As you and I discussed, SeaTac is the lead agency for a significant road construction project known as "Connecting 28th/24th Ave S". This project will connect an arterial road, as the name implies, located between S 200th St and S 208th St in SeaTac. This connection will complete the principal arterial route on 28th and 24th Ave S in the cities of Des Moines and SeaTac from S 216th St to S 188th St. The connected corridor will provide a north-south alternative to congested State Route 99, open access to undeveloped properties for economic development and improve circulation around the new light rail station at S 200th St and 28th Ave S. At a total cost of over \$25 million, it is the largest project the City of SeaTac has undertaken in its twenty four year history. Construction is expected to begin in about a year and the new road opened in early 2017.

There is a public interest to educate and inform the public of this \$25 million dollar public investment and to promote the need for transportation funding. In order to get our message out and be distinguishable, we need to explore alternatives to simple narratives. A short video will help achieve our objectives to educate, inform and promote which are all in the public interest.

The project currently is at a stage to generate some really captivating images. A recently completed milestone involved stockpiling high quality excavated soils generated from work at the airport. The stockpiles are quite impressive in that they contain enough material to fill about 67 Olympic sized swimming pools. Options of helicopter and fixed-wing aircraft to photograph from above the stockpiles were briefly considered but not pursued due to concerns of safety, proximity to the airport and expense.

We have a fantastic opportunity here to utilize Small Unmanned Aircraft Systems (uAUSs) to fly just above the stockpiles and along the new road alignment. The captured images would be used to create an informative video that will play an instrumental role in explaining the project and promoting further transportation funding and therefore be beneficial to the City of SeaTac and the public.

In order to be of the highest quality and be most beneficial, the video flight should occur soon during good weather. Also, the sooner the video is produced, the more the public benefit can be maximized.

Should anyone need additional information, I can be reached at 206-973-4741 or tgut@ci.seatac.wa.us.

Best Regards,

Tom Gut, PE
Public Works Director

Attachment: Vicinity Map

Cc: Gwen Voelpel, Assistant City Manager
Florendo Cabudol, PE, Connecting 28th/24th Ave S Project Manager

Mayor
Mia Gregerson

Deputy Mayor
Tony Anderson

Councilmembers
Barry Ladenburg
Kathryn Campbell
Terry Anderson
Dave Bush
Pam Fernald

City Manager
Todd Cutts

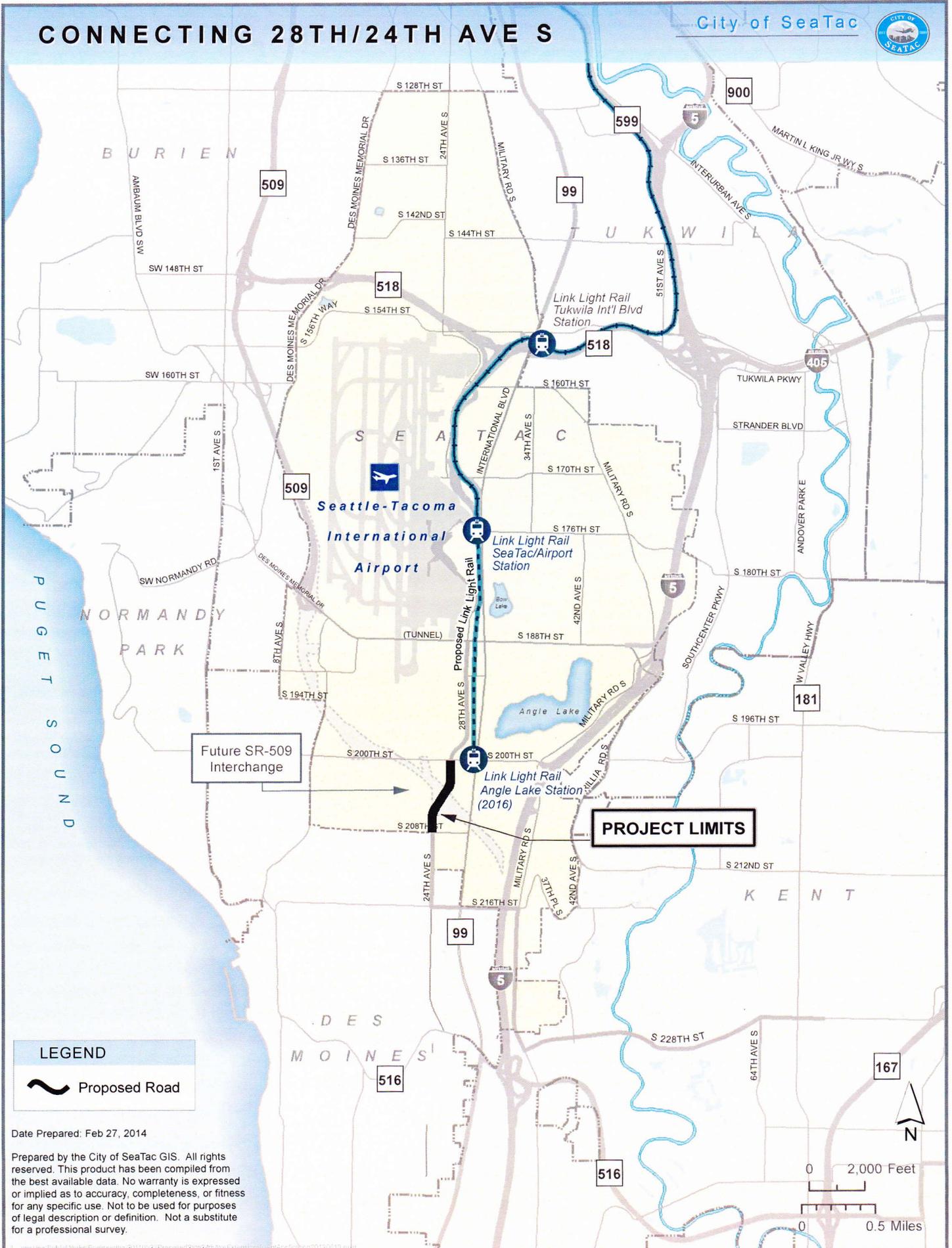
Assistant City Manager
Gwen Voelpel

City Attorney
Mary Mirante Bartolo

City Clerk
Kristina Gregg

CONNECTING 28TH/24TH AVE S

City of SeaTac



LEGEND

Proposed Road

Date Prepared: Feb 27, 2014

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0 2,000 Feet

0 0.5 Miles

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