COMSTAC Innovation and Infrastructure Working Group Report

May 15, 2023

## Introduction

The FAA tasked COMSTAC in Spring 2023 to respond to the following questions pertaining to commercial space transportation infrastructure and innovation:

- How can the current approach to flight authorization and the decision process to adjudicate access to government-provided range services be modified to better facilitate launch operations & launch range operations. How does this impact the transition to spaceports?

- Please provide information and perspectives on ongoing materials and resource related issues that are negatively impacting launch operators/launch operations, launch range operations and the transition to spaceports.

- Are these issues also negatively impacting timely launch operations, reentry licensing, and economic development? If so, please discuss the impacts and implications.

- What specific recommendations can the working group provide the FAA to address concerns and mitigate risks associated with the current oversight approaches and the issues the team identified?

This document provides COMSTAC's observations as well as formal recommendations adopted unanimously by COMSTAC members.

## Background

Historically, the U.S. has relied upon either Cape Canaveral and the Kennedy Space Center, or the launch site at Vandenberg, for most of its space launches. This policy has played a significant role in defining the nature of the supply chain, the aerospace industrial base, the size and location of the workforce, the materials and resources needed, and the overall cost of operations. It has also resulted in a lack of resiliency. The policy was understandable when space was not a contested environment, and when most of the launches were being conducted by the government. Neither condition is true today. Because of the possibility that a natural disaster (such as a hurricane, flood, tornado, earthquake, or wildfire), a launch pad accident, or a terrorist attack could significantly damage one of those facilities, our nation's access to space is not guaranteed. As General B. Chance Saltzman, Chief of Space Operations, pointed out in his confirmation hearings, "One way to make sure the Pentagon can launch anytime, anywhere is by increasing the number of launch providers and pads available to the Defense Department."

The federal government has traditionally provided substantial funding to develop, repair, upgrade, and maintain all forms of transportation infrastructure, including roads, bridges, and the interstate highway system; railroads; seaports; and airports. There is currently no comparable federal program to provide funding for space-related infrastructure, such as for spaceports. Based on a recent survey, 44 specific infrastructure projects were identified at ten different FAA-licensed spaceports, with a total estimated cost of over $382 million. As a point of comparison, the FAA Reauthorization Act of 2018 provided funding for the Airport Improvement Program at a level of $3.35 billion per year. Given how important space has become for the nation and the impact it now has on our daily lives, plus the exponential increase in launch

activity over the last 8 years, and the projections for continued rapid growth in the global space economy, the COMSTAC offers the following observations and recommendations.

## Observations

The following comments reflect the observations from various COMSTAC members.

State and private spaceports should have more access to government provided range supplies and services as well as the opportunity to participate in regular coordination regarding national spaceport strategy, planning or operations. The Federal funding of government provided launch infrastructure inadvertently disadvantages state and private spaceports due to disadvantaged access to government provided range supplies and services. To alleviate this issue, the USG is doing a fair job of improving and adaption to meet commercial demands, but there is a limit to their efficacy and efficiency. The provision of commodities and services to state and private spaceports are not core to the mission of the USG ranges. USG regulatory approvals can delay the "first mission" of new vehicles coming to the launch ranges. These delays include coordinating launch licenses, meeting range safety, and other requirements which could take months.

*Materials and Resource-related Issues*

There are currently no federal programs to provide funding for space-related infrastructure, such as spaceports. Being beholden to limited government-provided launch infrastructure is becoming a bottleneck. The number of private launch service providers today are saturating the capabilities and capacity of government-provided launch infrastructure. As private space transportation capabilities mature and launch rates increase, there will be corresponding pressure on commodities supply, production throughput, and timely availability. There is also a need to address the threat of growing workforce demands of the 2$^{nd}$, 3$^{rd}$, and 4$^{th}$ tier suppliers.

*Materials and Resource-related Issues' Impacts*

The need for more licensed spaceports in the future will necessitate both streamlined licensing processes and additional resources for the government to provide timely regulatory action as new customers emerge. Private launch service providers may seek alternative launch bases as infrastructure and facility construction delays and commodity shortages adversely affect schedules and increase cycle times at federal launch ranges. Federal launch ranges have priority for materials and commodities because they are designated as national assets. The limited access to materials and commodities can slow the pace of launch for state and private spaceports and their customers. This is a potential constraint to spaceports, potential role as critical infrastructure for assured access to space and stronger resiliency for national security.

## Findings

The following comments reflect the findings from various COMSTAC members.

US ranges are showing up as a barrier to success for state and private launch providers due to delays, shortages, and cumbersome approval procedures. Designating state and private ranges as "critical launch infrastructure" may level the playing field and provide additional launch capability. Evidently state and private spaceports have limited opportunity to participate in the regular coordination regarding national

spaceport strategy, planning, or operations. Decreasing reliance of state and private launch providers on the USG may improve efficacy and efficiency of US launch capabilities.

## Recommendations

The following recommendations are provided to FAA AST by the members of the COMSTAC. They were unanimously approved by voice vote during the May 15, 2023, COMSTAC meeting.

1. FAA AST should provide updates on efforts to streamline licensing, range safety approvals, and other processes.

2. FAA AST should provide briefings on the results from the National Spaceport Interagency Working Group to solicit state and private spaceports' participation and feedback.

3. FAA AST should brief the National Space Council on launch infrastructure and facility construction delays and commodity shortages and proposed initiatives to address space-related infrastructure shortfalls.

4. FAA AST should request a briefing from the US Space Force on the results of the federal ranges supply chain study.