

**Before the
OFFICE OF SPACE COMMERCE
Washington, DC 20230**

In the Matter of)
)
Request for Information on Scope of) RTID 0648–XV190
Civil Space Situational Awareness)
Services)
)

COMMENTS OF PLANET LABS PBC

Planet Labs PBC (Planet)¹ submits these comments to provide input on the Request for Information (RFI) published by the Office of Space Commerce (OSC) regarding the planned scope of basic safety services that OSC will provide via the Traffic Management System for Space (TraCSS) program.² Planet supports OSC’s work toward ensuring safe and responsible operations in space and takes seriously its own responsibility as a satellite operator. Planet safely operates over 200 satellites with its current designs and has safely disposed of more than 200 satellites over the past decade. Making additional space tracking information publicly available while promoting transparency and standardization in approaches will be a boon to space operators like Planet. In general, Planet agrees with OSC’s planned scope of basic space situational awareness (SSA) services to be included in TraCSS. Below, Planet provides feedback and suggestions on the proposed scope to maximize the benefit of TraCSS’s mission to promote safer, more sustainable use of space.

¹ Planet is an integrated aerospace and data analytics company that operates a constellation of satellites that image the entire Earth daily to make global change visible, accessible, and actionable. Founded in 2010, Planet designs, builds, and operates small satellites, as well as online platforms that serve data to users, helping decision-makers solve the world’s toughest challenges and entrepreneurs build new businesses. Planet is headquartered in San Francisco, California. For more information, visit <https://www.planet.com/>.

² See Department of Commerce, National Oceanic and Atmospheric Administration, RTID 0648–XV190, 88 Fed. Reg. 4970 (Jan. 26, 2023) (RFI).

I. The Basic Safety Services Included In OSC’s Proposed TraCSS Are All Appropriate for Inclusion and Would Improve Space Operators’ SSA Capabilities

Planet supports OSC’s plans to offer its proposed suite of basic SSA data and spaceflight safety services. As Planet noted in its comments on OSC’s initial RFI on the SSA capability,³ a basic SSA service should, at a minimum, include capabilities for tracking, awareness, and action. Regarding *tracking*, a satellite operator should be able to see operational information about all of their on-orbit assets as well as any assets that they may need to take steps to avoid. Operational information should include position and velocity information (produced from an orbit determination system), uncertainty information (typically in the form of state covariance), who owns or operates the space object, the maneuverability of that object, and conflict resolution information to contact the owner of said object such as an email address or phone number. An **awareness** capability should calculate and provide information regarding close approaches, as well as alert operators to objects of interest, and provide contact information for the operational personnel who deal with close approaches and conjunction data messages. Finally, to enable operators to take **action**, the SSA service should provide a maneuver screening capability to enable operators to verify that their proposed mitigation to a close approach in fact would improve the situation and would not introduce new close approaches. Ideally, these would be packaged in a way that facilitates machine-to-machine (M2M) communications, such as an application programming interface (API) that would allow users of the system to build their own tooling and automation around the basic service. These screenings need to be timely (on the order of minutes, not hours) and responsive to requests from operators making decisions to

³ Comment of Planet Labs PBC, RIN 0648-XV188, at 3 (filed Aug. 8, 2022) (Planet August 2022 Comments).

support planned maneuvers to avoid conjunctions, which is why an M2M-based automated system would be ideal.

In order to maximize the benefit of TraCSS on global SSA, Planet suggests that OSC make some of the fourteen proposed “included” features available publicly and to all spacecraft owners and operators (O/Os), domestic or foreign, who wish to access those features. At the same time, reserving some TraCSS features only for those who commit to participate in good faith and to provide commercially reasonable ephemeris data that meets OSC’s standards could help incent such good faith participation. Planet suggests that the following services be available to all operators, domestic or foreign, as appropriate regardless of what commitments they undertake or do not undertake in order to participate. These include:

- Satellite attributes, capabilities, status, and point of contact;
- Receipt and sharing of predictions O/Os ephemerides;
- Routine collision assessment (CA) screening and conjunction data message (CDM) production;
- Special CA screening and CDM production; and
- Space weather sensitivity warnings.

Providing these five services globally to all O/Os would help to ensure maximum utility of TraCSS. The more O/Os that access and rely on the same standardized, basic information such as point of contact, satellite attributes, and ephemerides from a centralized location, the more impactful TraCSS will be. Moreover, because these five services, plus data quality evaluation, are the most integral to TraCSS’ success, OSC should prioritize these services first for development and implementation.

In order to incent more robust industry participation, however, some features of TraCSS should be available only to those full participants who agree to provide ephemeris data that meets OSC’s defined standards and to act in good faith (as discussed in section II). Those features that should be reserved for full participants in TraCSS include:

- Data quality evaluation;⁴
- Launch collision avoidance screenings;
- O/O ephemeris generations and curation with covariance;
- Re-entry management and assessment;
- Precision probability of collision calculation;
- Collision consequence and debris production potentials;
- Conjunction object solution improvements with additional tracking;
- Expected tracking determination; and
- Risk assessment time history plots.

This two-tiered approach to the proposed included services best balances the need for robust domestic and international dissemination of and reliance on TraCSS data with the need to incent operators to fully participate in TraCSS in good faith by providing their commercially reasonable ephemeris data.

Planet also agrees that the services listed by OSC as “not included”⁵ need not be included in TraCSS at this time. It is appropriate to leave these services to the commercial marketplace today in order to focus OSC’s efforts on implementing the six most critical SSA functions described above and to allow the commercial marketplace to develop and provide more advanced SSA services. However, OSC should evaluate periodically whether to add services and expand TraCSS capabilities as the platform develops.

⁴ As Planet noted in its prior comments, OSC should carefully evaluate the data submitted by satellite owners and operators before such data is provided in the system, including for conjunction assessments. The utility of TraCSS will be significantly affected by the quality of the data provided, so OSC will play an important role in vetting the data submitted by operators. *See Planet August 2022 Comments at 3-4.*

⁵ These services include: fusion of CA products; PC variability; additional concierge services; anomaly resolution; design time assistance for improved CA; maneuver trade space; optimized maneuver recommendations; breakup detection, tracking, and cataloging; and maneuver detection and processing. RFI at 4971-72.

II. Good Faith Participation and Provision of Ephemeris Data that Meets OSC's Standards Should Be Required to Receive Access to All the Features of TraCSS

Planet publicly shares its ephemeris data today and reiterates its support for OSC also making ephemeris data publicly available on TraCSS. As Planet has previously noted, it is critical that all O/Os share orbit ephemerides in a commercially reasonable way in order to identify the location and trajectory of known space objects and predict possible collisions.⁶ Making all operator ephemeris data publicly available on OSC's platform would help to ensure that this important information is broadly available and to create a culture of transparency around ephemeris data sharing.

Planet also supports O/Os providing the details of planned maneuvers to OSC, but believes this data should only be communicated to other spacecraft operators with assets on orbit that participate in OSC's platform with a need to know and, as appropriate, entities that offer SSA services. Planned maneuver data can reveal commercially sensitive information about a spacecraft operator's activities. To allow O/Os to safeguard this data to the greatest extent possible while also achieving the mission of coordinating collision avoidance activities, Planet recommends that OSC not make planned maneuver data publicly available.

As noted in Section I, above, Planet suggests that OSC consider a bifurcated approach to the provision of included services, where some services, such as access to ephemeris data, are available to the public and all interested O/Os but others are reserved for O/Os and other parties that agree to provide their own datasets to TraCSS and engage in good faith. This approach provides appropriate incentives for O/Os not only to access data but to participate at a higher level of engagement that will maximize the utility of TraCSS for all. O/Os who (1) agree to

⁶ Planet August 2022 Comments at 5.

participate in good faith; and (2) provide OSC with datasets that meet OSC’s requirements should receive access to all services planned for inclusion. Operators that decline to sign a good faith statement or to provide their own data into the system, or who initially participate fully but cease providing data, would have access to the publicly available features (such as access to ephemeris data) but not to the full suite of TraCSS services, as noted in Section I.

III. The U.S. Government Should Work With Industry and the International Community to Support the Development of a Holistic, Global Approach to SSA

In the RFI, OSC requests input on “how the U.S. Government can work with industry and international partners in the development of open, transparent, and credible international standards, policies, and practices that will aid in the provision of these basic SSA safety services.”⁷ Planet agrees that close collaboration both with industry and with international allies and organizations is critical to establishing the type of global approach to SSA that will have a meaningful impact on minimizing orbital debris. There are many international initiatives underway to move toward a more sustainable low Earth orbit (LEO) environment. Planet participates in the World Economic Forum’s working group on Space Traffic Management and Orbital Debris, the Paris Peace Forum’s Net Zero Space initiative,⁸ and also helped to beta test the Space Sustainability Rating (SSR). The SSR is an effort by World Economic Forum’s Global Future Council, European Space Agency, MIT, BryceTech, University of Texas at Austin, and EPFL Space Center to develop a tool that allows operators to understand the impact of their missions on the space environment and other operators.⁹ These efforts bring attention to

⁷ RFI at 4972.

⁸ Paris Peace Forum, *Net Zero Space*, <https://parispeaceforum.org/en/initiatives/net-zero-space>.

⁹ Space Sustainability Rating: Leading the Path Towards a More Sustainable Use of Space (2022), <https://spacesustainabilityrating.org>.

the issue of space sustainability and can help shape international commercially reasonable best practices for space actors. OSC engagement with these groups to explain the purpose and function of TraCSS and describe opportunities for participation could help drive broader global utilization of TraCSS and help establish international norms around standardized ephemeris data sharing, which would benefit both U.S. and foreign space operators and improve O/O ephemeris data inputs into TraCSS.

OSC can also be an advocate in the United States and in international fora to eliminate anti-satellite missile tests (ASAT). Planet appreciates the U.S. Government's work as a whole toward ensuring safe and responsible operations in space. In particular, Planet greatly appreciates and supports the U.S. Government's leadership in committing not to conduct destructive, direct-ascent ASAT. For the last ten years, Planet has raised concerns about the impact destructive ASATs have on a healthy space ecosystem. ASATs threaten operations in LEO, jeopardize astronauts' safety, and risk destroying satellites that provide critical services to humanity. There is no such thing as a responsible kinetic ASAT. The narrow commitment by the United States to limit ASAT tests is an important first step, and Planet was pleased to see widespread support at the UN General Assembly for a resolution calling for a ban on direct-ascent ASAT weapons. Planet hopes that OSC can play a role in urging other nations to follow the lead of the United States and also commit to the direct-ascent ASAT ban, thereby creating over time an international behavioral norm.

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Planet appreciates OSC's efforts to provide SSA services, improve safety for on-orbit spacecraft, and ensure sustainable use of a congested orbital environment. Planet stands ready to partner with OSC as it develops and implements these SSA capabilities.

Respectfully submitted,

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February 27, 2023