THE PORT OF LOS ANGELES
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DATE: March 19, 2026

SUBJECT: **REQUEST FOR PROPOSALS FOR "DEVELOPMENT AND IMPLEMENTATION OF A PORT OF LOS ANGELES DIGITAL TWIN": QUESTIONS AND ANSWERS**

RAMP ID #227424

FROM: **Felicia Ansley, Contract Administrator**

Pursuant to the aforementioned Request for Proposals (RFP), all proposers were to submit any questions regarding this RFP by no later than 3:00 p.m. on Thursday, February 26, 2026. Questions were to be submitted in writing, and all questions and responses were to be posted on the Harbor Department's website and the Regional Alliance Marketplace for Procurement (RAMP, www.rampla.org) by March 19, 2026 (extended via Amendment 3).

Attached is a list of questions received from prospective proposers, and the Department's responses. This list includes questions asked during the optional virtual pre-proposal meeting held on February 23, 2026.

Proposers are responsible for reviewing this entire Q&A document to ensure their proposal is complete and responsive.

No.	Question	Response
Administrative Requirements, Proposal Submission, and Procurement Process (Total: 45)		
1	Will the Port release the company names and contact information of registered bidders? This would allow potential proponents to explore partnership opportunities.	The list of attendees for the February 23, 2026 virtual pre-proposal meeting, as well as the PowerPoint presentation, was uploaded to the RAMP and the Harbor Department's website on that same day.
2	Can a [proposer] submit as a prime, AND submit a different proposal also as a prime but with a partner as sub-contractor (for a specific sub-scope)?	Primes should submit only one proposal. Subconsultants may participate on multiple proposals. The Consultant Description Form allows the prime to indicate multiple subconsultants that may be used.
3	Can a [proposer] submit as a prime for Group A, and as a sub-contractor with a prime (a different [proposer]) for Group B?	Yes. In this scenario, you would submit a proposal as a prime for Group A and you would be a sub on the proposal for Group B.
4	Can a sub-contractor be non-US based if the prime is US based?	Please refer to RFP Amendment #2.
5	Can a sub to one contract also bid on another contract as a sub?	Yes.
6	Is this set aside to California companies or nationwide?	Our assumption is that you are referring to the Local Business Preference Program; the 8-point preference is granted to companies who meet the definition of a Local Business Enterprise (as detailed in Exhibit B of the RFP). The Local Business preference applies only to the Southern California region.
7	What [is] defined as local? Is San Diego part of that?	No, San Diego County is not one of the five Southern California counties that meet the definition of a Local Business Enterprise. Please refer to Exhibit B of the RFP.
8	Do subcontractors have to accept all terms and conditions as-is? Or can they have separate negotiations with their Prime (as long as Prime accepts all Ts and Cs)?	Only the prime consultant must accept the RFP's Standard Terms and Conditions exactly as set forth in Section 4 of the RFP. The Harbor Department will not have a contractual relationship with the prime's subconsultants.
9	For [proposal] submission, will you respond to/acknowledge a "Read Receipt" from the vendors when they send their submissions? If yes, will it be before 3:00 p.m. so that vendors know for sure that their submissions have been received?	Yes, to both questions. Proposers are again cautioned to ensure that their proposals are electronically delivered, not just sent, well before the 3:00 p.m. Pacific Time deadline.
10	Will we get a list of the attendance, as well as who will be potential primes and subcontractors?	Please refer to Question 1. The Harbor Department cannot determine who will be a potential prime or subconsultant.
11	For the e-mail to POLA with the attached proposal (pdf) with two attachments (.xlsx), are there e-mail size limits (i.e. 10~25Mb)? Would it be acceptable to utilize a secure sharing link and/or multiple emails labeled Part 1 of 2?	40MB is the file size limit for e-mails with attachments. If your file size exceeds 40MB, it is acceptable to send the Contract Administrator more than one e-mail, provided the subject line is clearly labeled ("Digital Twin proposal submission Part 1 of 2", "Digital Twin proposal submission Part 2 of 2", etc.). For security reasons, the Contract Administrator will not click on file sharing links.
12	[Does] the proposal submission have to be in hard copy or [is] soft copy also possible?	Please refer to Section 3.3 of the RFP, "Proposal Submission".
13	Does the Harbor Department have a preferred or maximum page count for the proposal PDF?	No.

No.	Question	Response
14	We are incorporated under the laws of Texas, based in Houston, with employees located in California, Pennsylvania, and Colorado. The ultimate owner of [our firm] is an Employee Beneficial Trust managed in the United Kingdom. Based on the ownership and company structure described above, are we eligible to bid on this RFP as a contractor (prime or sub) to POLA?	Please refer to RFP Amendment #2.
15	We respectfully request a 2-week extension to the March 25th response due date.	Please refer to RFP Amendment #3.
16	The RFP specifies significant integration with the Esri platform and ArcGIS-based services. Can the Port confirm whether Esri or any other organizations that may have participated in defining technical requirements are eligible to respond to this RFP?	Esri did not participate in the drafting of this RFP, nor did any other vendor.
17	Did the Port collaborate with Esri or any other technology providers or consulting firms during the development of the scope of work for this RFP? If so, will those organizations be eligible to submit proposals?	Esri did not participate in the drafting of this RFP, nor did any other vendor.
18	Will the Port be open to scheduling a demonstration of proof-of-concept (POC) solutions or prototypes as part of the evaluation process? If so, are there specific requirements, preferred formats, or timelines for such demos that proposers should be aware of?	Proposers who are shortlisted may be invited to participate in a interview with the project's Evaluation Committee, which will likely include a POC demonstration. The specific requirements, format, and timeline for those interviews will be provided at a later date to the shortlisted firms (after the responsive written proposals have been scored by the Evaluation Committee).
19	I recall on [the] bidders' call, Esri was brought up in discussion. It is understood that Esri is already a part of POLA and currently exists within your ecosystem sitting on one of the POLA platforms. If they were to submit a bid for this, would that not fall under a "conflict of interest"?	Esri did not participate in the drafting of this RFP, nor did any other vendor.
20	Will any request for deviations of the Standard Contract Provisions result in the automatic disqualification of any bidder?	Yes. As explicitly stated in Section 4 of the RFP, "In submitting a proposal, proposer agrees to accept these terms without change. If your firm cannot agree to the following requirements, exactly as set forth below, please do not submit a proposal". Proposals that contain requests for deviations to the Standard Contract Provisions will be deemed non-responsive to the requirement stated in Section 3.5.8E. Please refer to Question 21 regarding requests for *additional* terms outside of the Standard Contract Provisions.

No.	Question	Response
21	The Standard Contract Provisions appear to be only for professional services work, not software licensing and support. Please confirm if this is the case.	Proposers may include additional terms for the Harbor Department's consideration; however, such terms should be limited and must not conflict with the requirements of this RFP. All proposed additional terms must be clearly identified in the proposal, and only those identified terms will be considered. The Harbor Department makes no guarantee that any additional terms will be accepted, and any additional terms deemed fundamentally inconsistent with terms stated in the RFP may be rejected.
22	Can a bidder include additional terms, i.e. software agreements, etc. with their bid?	Yes. Please refer to Question 21.
23	Will the Port consider extending the proposal due date by three weeks?	Please refer to RFP Amendment #3.
24	Please clarify whether the Port allows any mechanism for requesting limited exceptions, proposing additions or negotiating specific contract clauses, and whether accepting all terms as written would still permit vendors to propose additional terms at a later stage.	Please refer to Question 21.
25	Will the Port accept a certificate of insurance as opposed to a policy?	Please refer to Section 3.5.8B of the RFP. Proposals submitted with an ACORD® certificate of insurance in lieu of an insurance verification letter will be deemed non-responsive. Do not submit insurance policy documents. They were not requested in the RFP, and those documents will not be reviewed.
26	We understand POLA has requested acceptance of terms as provided. In addition to Standard T&Cs, would POLA be amenable to additional terms especially around cap on liability which is industry practice for such engagements?	Please refer to Question 21.
27	What is POLA's approach to disseminating results of the procurement?	The agreement(s) resulting from this RFP will require approval from the Board of Harbor Commissioners. The Information Technology Division's Board report requesting approval to award to the selected contractor(s) will be publicly available on the Harbor Department's website. Please note that it will be several more months before agreements resulting from this RFP will be on the agenda for Board approval. After contract execution, the status of the Digital Twin opportunity on RAMP (ID #227424) will change from "Closed" to "Awarded".
28	Will the [proposer] see their score and the winning score? Or will POLA publish scores of all [proposers] and their relative results?	Requests to view the score summary sheet for this RFP can be submitted as a California Public Records Act request by using the Harbor Department's NextRequest Portal. Please note that the score summary will not be released until after the selected consultant(s) sign their agreement(s).

No.	Question	Response
29	We assume all submitted information is confidential and will not be shared after completion of the procurement. Please confirm.	No, that is incorrect. Please refer to Section 3.4 of the RFP, which clearly states, "Proposers are advised that all documentation submitted in response to this RFP will be considered property of the Harbor Department and may become available to the public as a public record and be released without further notification. Any information that the proposer considers confidential should not be submitted with the proposal."
30	Regarding the requirement for all resources to be US-based, would the Harbor Department consider a proposal from a highly specialized subject matter expert (SME) who is a Canadian citizen but will be legally based in the United States (specifically Washington State) for the duration of the contract? The consultant qualifies for TN status under the CUSMA/USMCA (Management Consultant) category. This status allows for immediate work authorization at the border for Canadian professionals without the need for traditional employer sponsorship or complex visa petitions.	Please refer to RFP Amendment #2.
31	If the proposer commits to having a US-based entity (LLC) and a US residence fully established and operational prior to the commencement of services, will they be deemed to satisfy the requirement for a "US-based resource"?	Yes. Please refer to RFP Amendment #2.
32	In Section 2.2.2.1, the RFP states Consultants should "Have their main office/headquarters based in the United States only; offshore resources will not be considered." [Our] question is, if we have our HQ/main office as a Prime or Sub in the USA/California, does this mean we can still utilize our own internal offshore resources to work on software efforts for the project for time/costs/talent availability savings? Did this requirement mean the company should be onshore primarily, or every single resource?	Please refer to RFP Amendment #2.
33	[Section 2.2.3.4] Please confirm if it is acceptable to place the RACI in the Project Management section [of our proposal].	Yes.
34	With respect to the requirement that only United States based firms may participate (either as prime or subconsultant), could the Port please confirm whether this requirement is satisfied by firms that are legally organized in the United States and performing all work from within the U.S.? We want to ensure our team structure aligns with both the letter and intent of the Port's guidance, particularly given the stated security considerations.	Yes. Please refer to RFP Amendment #2.

No.	Question	Response
35	[In Attachment 1, “Cost By Capability”], the [Instructions section] says “Pricing for capability development shall be Lump Sum”, but [the table] also states “Lump Sum or NTE if T&M”. Is the pricing to be lump sum, or is T&M also an option?	Lump sum. Please refer to RFP Amendment #4.
36	Will the Harbor Department accept multiple proposals from different prime entities if one or more subcontractors are shared across proposals?	Please refer to Question 2.
37	May a firm submit more than one proposal as a prime (e.g., one proposal for Group A only and another proposal for Groups A+B)?	Please refer to Question 2.
38	May a firm serve as a prime in one proposal and as a subcontractor in another proposal submitted by a different prime?	Yes. Please refer to Question 2.
39	Are there any restrictions on a firm’s participation across multiple proposals within the same capability group?	No. Please refer to Question 2.
40	Are foreign national subcontractors allowed, who work within our (American) security matrix and platforms?	Please refer to RFP Amendment #2.
41	Section 2.2.2.1 - “Have their main office/headquarters based in the United States only; offshore resources will not be considered” - Do software development staff need to be domiciled in the United States of America?	Please refer to RFP Amendment #2.
42	Can a firm headquartered in the US leverage offshore personnel (e.g., for 24/7 support referenced in 2.2.3.2)?	Please refer to RFP Amendment #2.
43	[Section 2.2.3.4] Is the RACI matrix required for the proposal or after the award?	A RACI matrix is not required for the proposal, but it will be needed from the selected consultant.
44	The RFP states that the Port strongly prefers comprehensive proposals addressing all ten capabilities as an integrated Digital Twin solution, while also allowing separate proposals for Group A and Group B and reserving the right to make multiple awards. Please clarify how that preference will be reflected in evaluation. For example, will a proposer offering Capabilities 1–10 receive any evaluation advantage relative to proposers offering only Group A or only Group B, assuming the requirements of those bid groups are fully satisfied?	Please refer to Exhibit E, "RFP Selection Evaluation Form", for the criteria that will be evaluated, and the weighing factor for each of those criteria.

No.	Question	Response
45	The RFP references local preference considerations. Because this contract is funded by the Port of Los Angeles and supports long-term infrastructure stewardship within California, requiring staffing by California residents would further align public expenditure with local economic benefit and professional accountability. Has the Port considered requiring that positions performing geodetic control, spatial framework establishment, utility mapping and all other technical work under this contract be staffed exclusively by California residents?	No. Those staffing requirements are not part of this project and are unrelated to the Local Business Preference Program.

No.	Question	Response
Technical Requirements and Scope of Work (Total: 391)		
1	Is the contractor expected to gather field information that includes firsthand mapping of the below grade infrastructure across the entire POLA footprint?	No. Section 2.2.1.3 of the RFP, "Mapping Substructures" is to consolidate available substructure datasets from Port and partner sources, identify gaps and inconsistencies, and establish methods and workflows for validation and updates over time, including the ability to document field observations when available. A Substructure Data Inventory and Acquisition Plan is required to recommend how missing information could be obtained.
2	For the [Port Community System] module, is this just Port Optimizer or other systems too? Additionally, does the current vendor already have existing API/connection methods for fetching this data, or will those be developed in coordination with the Digital Twin vendor?	The selected consultant will be responsible for developing data exchange in coordination with the Port Optimizer consultant.
3	For the PCS module – there is a large difference in system architecture and requirements between near-real-time and real-time. What is the Port's definitions of each of these and what requirements are they looking to meet (i.e. sub-second latency, sub-minute, etc.)	Section 2.2.1.6 of the RFP, "Port Community System Integration" requires ingestion of real time or near real time vessel, truck, and cargo movement data, but it does not define specific latency thresholds. Performance targets are intended to be agreed during implementation, including performance thresholds for rendering and API response times within ArcGIS Enterprise. Proposers should state their proposed refresh/update frequency targets and performance assumptions in their PCS integration approach and plan.
4	For the PCS module – There is possibly competitive data that might be brought into a space subject to PRA. Should possible architectural choices be made to safeguard this information?	Yes. Please refer to Section 2.2.1.6 of the RFP, “Port Community System Ingestion.” Proposers shall design the solution so that secure, private, confidential, proprietary, and commercially sensitive data are not exposed to unauthorized users or broader audiences. The solution should include appropriate data classification, role-based access controls, encryption, segregation of sensitive data where needed, and controls to ensure such data is not improperly disclosed, shared, or sold. Proposers should clearly describe in their proposal how they will protect and govern sensitive PCS data within the overall architecture.
5	What is the Finance ERP system used for the Profit & Loss module?	Oracle Fusion Cloud (SaaS).
6	For the asset and environmental inspection module, does the Port currently use a solution in other contexts that they would like extended, or a preferred solution like MS PowerForms?	The Port has not selected a single standard tool. Proposers should include their recommended approach and supporting application(s) for the Asset and Environmental Inspection capability, ensuring it integrates with the Digital Twin platform and supports long-term configuration and sustainment by Port staff.

No.	Question	Response
7	What aspects of the compute/hardware deployment/management will the vendor be responsible for? i.e does the Port already have an inventory of tablets to use, if so what platform are they currently using?	The RFP requires proposers to include a system architecture and requirements specification that identifies hosting options (cloud, on premises, or hybrid), plus data storage and compute requirements needed to deploy and operate the capabilities within the Port enterprise environment. For inspections, the solution must be compatible with common Port devices, but the RFP does not state that the consultant must provide tablets. If hardware is included in a proposal, it must be covered by warranty, maintenance, and support obligations. Proposers should clearly state assumptions and exclusions, including whether hardware is provided by the Port or included in the bid.
8	Is performing the actual LIDAR scans part of the visualization piece?	Please refer to Section 2.2.1.1 of the RFP, "Port-Wide 3D Basemap". 3D mesh is required. The Port does not have a comprehensive port-wide mesh; proposers must include producing it. The RFP does not mandate a specific data capture method (LiDAR or otherwise). Proposers are responsible for meeting the 3D mesh deliverable and should state assumptions about existing data availability and what work is included to produce the required mesh.
9	Follow-on to LiDAR question, should the respondent budget/scope actually flying/capturing the data to create the 3D mesh? Or are we only expected to oversee & coordinate requirements for the port to contract this data collection?	Please refer to Question 8 and to Section 2.2.1.1 of the RFP, "Port-Wide 3D Basemap". 3D mesh is required. The Port does not currently have a comprehensive port-wide mesh. Proposers should include creation and delivery of a port-wide 3D mesh within their scope and pricing.
10	Is it the intent that all 10 requirements and very specific use cases are rolled into a single Digital Twin solution? Is it expected that there will be "modules" for some of the unique requirements?	Yes. Section 2.2, of the RFP, "Scope of Work", defines the scope as ten integrated capabilities, which can be modules, that collectively form the Digital Twin platform. The Port strongly prefers a comprehensive proposal addressing all capabilities as an integrated solution.
11	Is part of this effort the development of BIM/GIS Standards?	No. The RFP does not request the development of new BIM standards (for example, ISO 19650 program creation).
12	Is there a complete list of installed systems that are relevant to this project, for each of the 10 Capabilities? (such as Esri ArGIS, etc.)	Please refer to Question 24, Question 210, Question 290.
13	The Port expresses a need to continue to add/update data sources into this platform. This is strong from a sustainability POV – however does the Port confidently have these existing skills or will the training need to take into account this type of skill-training?	Training and documentation are required across capabilities to enable Port staff to operate, maintain, and update the solution, including update workflows (bathymetry, substructures), configurable workflows (inspections), and the ability for Port staff to adjust sensors and alerts.
14	There are several requirements for dashboarding capabilities. The Port currently uses both Tableau and PowerBI – which will be the BI solution POLA wants the vendor to ultimately use?	Proposers should describe how their dashboards are delivered and how they integrate with ArcGIS Enterprise and Port workflows. Tableau, PowerBI, and others are acceptable approaches to be described by the proposer.

No.	Question	Response
15	Does the Port have a requirement or preference for hosting solutions on-prem vs in the cloud? If it's in the cloud, should it be done through the Port's existing cloud infrastructure, or the vendor's choice?	Please refer to Question 23 and RFP Section 2.2.2.4, "Application/Network Diagrams".
16	To what degree should we incorporate cloud adoption funding programs (IE AWS migration acceleration program) to support the implementation budget?	If a proposer wishes to reference external funding or adoption programs, it should be presented as optional context and must not change the proposer's obligation to meet the RFP scope, schedule, and pricing requirements.
17	Can you expand on reality capture requirements and/or expectations for the various use cases? (Portwide 3D scene, Bathymetry, Substructure Mapping) Or should we assume all required data is available and the scope include processing, transforming and publishing existing data? Or are there some gaps that will require Lidar, Drone, SSUI, etc. methods to acquire necessary data for visualization?	Please refer to Section 2.2.1.1, of the RFP, "Port-Wide 3D Basemap". Assume existing port wide 3D basemap inputs are limited and the foundational basemap must be created. The deliverable is a current, high resolution (photorealistic or similar) port wide 3D mesh covering Port land and water areas, plus the supporting geospatial layers that make it usable as an operational basemap. Capture method is not prescribed, so bidders should propose the end to end workflow, including data capture, processing, transformation, QA, publishing, and integration. The basemap must include segmentation and attribution of facilities and above ground assets, so features can be queried, filtered, and used as part of the Digital Twin object model. Section 2.2.1.2: Expect integration of bathymetric survey datasets and delivery of tools plus repeatable workflows for updates over time. Do not assume new hydrographic surveying is required. Section 2.2.1.3: Expect consolidation of available substructure datasets from authoritative sources, identification of gaps, and establishment of validation and update workflows. Do not assume subsurface content is survey verified.
18	Can you tell us a little about your existing technology software environment including GIS, CMMS (maintenance management), BIM, dashboard, and other tools? Just listing existing key software tools is fine.	Please refer to Question 24, Question 210, Question 290, and Question 364.
19	Can you also talk a little about your envisioned technology software environment? Esri, Bentley, custom, etc.	The Port has deployed an Esri-based enterprise GIS foundation (ArcGIS Enterprise) with integrated applications and data services. Proposers are encouraged to propose solutions best suited to address the requirements in the capabilities in the RFP.

No.	Question	Response
20	For a port-wide digital twin, maintaining consistent horizontal and vertical control will require an integrated control network to support LiDAR calibration, aerial mapping validation, and accurate representation of underground infrastructure. Establishment of control and precise infrastructure location fall within licensed land surveying practice in California. In addition, subsurface utility mapping performed to a defined standard typically requires qualified personnel consistent with national underground locating and mapping certification protocols. Can the Port clarify whether this precise control and underground mapping work will be performed by licensed Port staff under responsible charge, or whether it is expected to be included within each submitting team?	The Port maintains horizontal and vertical control information (e.g., benchmark and monument documentation and associated control drawings). These materials will be made available to the selected consultant to support geolocation of the Port-wide 3D basemap. The specific technology used to develop the basemap (e.g., LiDAR, aerial mapping, photogrammetry, or other methods) is at the discretion of the consultant, provided the resulting dataset is properly georeferenced to the Port's available control framework. For subsurface infrastructure, the scope is limited to consolidation and integration of existing records and datasets into the Digital Twin environment. The work does not require new subsurface utility locating, dimensional verification, or survey-grade spatial verification. Existing documentation will be incorporated and layered consistent with the substructure data integration scope defined in the RFP.
21	POLA and POLB already have a joined traffic model called PortTAM. What is the relationship between this new traffic model and the current model? Does it have to be compatible or integrate the current model?	Section 2.2.1.10 of the RFP, " Traffic Modeling" requires an analytical tool for what-if scenarios and encourages calibration using available Port or regional traffic information when it exists. Proposers should describe how they would incorporate available existing traffic datasets or models for calibration and validation, subject to the Port providing access.
22	Should respondents include pricing for Esri licensing (users, server roles, cores) and hosting in our overall budget? Or is some amount of licensing/hosting covered by POLA's current infrastructure/licensing?	Please refer to Question 24 and Question 364. The instructions in RFP Attachment 1 require proposers to identify Implementation Services Cost, Post Production Support cost, and Ongoing or Recurring Costs, and explicitly include annual subscription, licensing, hosting, or maintenance fees in Ongoing or Recurring Costs. Proposers must also document assumptions and exclusions, including any third party tools, hardware, or licenses to be procured directly by the Port.
23	Does the Port have an existing cloud environment preference (Azure, AWS, GCP) or an established cloud tenant that the Digital Twin should be deployed within?	The Port's GIS is currently on AWS cloud. Proposers must include a system architecture and system requirements specification describing hosting options, required storage and compute, integration points, and security considerations. If cloud hosting is proposed, the environment must remain within the Continental United States and be continuously monitored by a cloud audit service designated and managed by Port Cybersecurity.

No.	Question	Response
24	In addition, is ArcGIS Enterprise currently deployed on-premises, in the cloud, or hybrid? And could you clarify which ArcGIS Enterprise components are currently licensed and actively deployed, specifically ArcGIS Velocity, GeoEvent Server, and ArcGIS Notebooks?	Please refer to Question 364. The Port's deployment of ArcGIS is currently on the AWS Cloud. The Port currently has GeoEvent Server but is planning to go to Velocity for the Digital Twin. The Port does not have ArcGIS Notebooks. Proposers should identify any ArcGIS Enterprise components or extensions they require (or any additional non-Esri components proposed), and include the related architecture, licensing, hosting, and cost assumptions necessary to deliver the required capabilities.
25	Being that there is an existing system, are we allowed to tie into the existing communication infrastructure?	Yes. Please refer to the RFP Section 2.2.2 "Technical and Security Requirements". The selected consultant must coordinate with Port's project team to determine the approved method for connecting to Digital Twin environments.
26	Which Port data sources will be provided for this phase (for example PCS, AIS, counts/sensors, gate/terminal feeds), and when will proposers receive sample data + data dictionaries?	The Port has not finalized the specific data sources that will be incorporated into the initial phase of the Digital Twin. Proposers should assume that the Port has access to a range of maritime operational data streams, which may include but are not limited to: Port Community System (PCS) data, Vessel AIS data, Gate and terminal activity feeds, Cargo and container event data, Sensor and count-based operational metrics, Environmental and emissions-related datasets. Access to the required and appropriate data shall be provided to the selected Consultant.
27	Will you accept a non-US software product as long as it's installed on-prem or private cloud?	Please refer to RFP Amendment #2.
28	Can the Port clarify the funding source for this procurement? Specifically, is this project funded exclusively with Port revenues, or are there any federal funds or reimbursement components tied to it? If the funding is entirely local, has the Port evaluated whether it may act as a market participant and require that work be performed by personnel located within California? I ask because the RFP currently requires U.S.-based performance. If the Port is using exclusively local funds, there may be authority to structure the procurement to retain the economic benefit within California.	This procurement is funded through Port revenues and the funding is subject to appropriation by the Harbor Board of Commissioners each fiscal year of the contract.
29	What type of sensors need to be integrated?	The initial sensor integrations will focus on environmental monitoring feeds already in use across the Harbor area, including NOAA stations providing tide, current, wave, wind, and basic weather measurements, plus the Port's air monitoring stations (and, as applicable, partner agency air monitoring stations in the vicinity). The selected consultant should propose up to five priority feeds for this project, confirm data access and interfaces with Port IT, and implement a scalable pattern that allows additional sensor feeds to be added later without redesign.

No.	Question	Response
30	Curious to know more about the types of workflows, levels of complexity, etc. Can you elaborate more on the desired outcomes that will be derived from the various data insights? Types of work that will be triggered by such insights?	Automation proposed shall address and be limited to the defined capabilities, including digitized workflows for inspections, permitting, project mapping, repeatable data ingestion and update processes, and threshold-based alerting for real time environmental sensor exceedances. Proposers may include and propose advanced automation techniques as value-add enhancements, as long as they clearly map to the required capabilities and improve outcomes such as faster analysis, better prioritization, reduced manual effort, improved user experience, and more consistent decision-making.
31	From an ISO 19650 governance perspective, could you clarify the source and ownership of the Models like Revit/IFC /3D Geometry files(typically BIM)—whether they will be provided by the POLA, a third-party consultant, or expected to be developed by the selected vendor as part of the Digital Twin scope?	The required 3D content is a port-wide photorealistic 3D mesh and georeferenced 3D facility footprints, which includes other GIS layers. It does not explicitly require delivery or creation of Revit/IFC BIM models. Ownership and handover expectations are addressed via closeout/transition.
32	Is hydrographic surveying (acquisition of new bathymetric data) required for the Port-Wide 3D Basemap per [Section 2.2.1.1 of the RFP, “Minimum Requirements”] or any part of 2.2.1.2 Bathymetry Viewing and Analysis?	Please refer to Question 17 and Question 132. Section 2.2.1.1 requires a bathymetric surface layer as part of the foundational basemap and Section 2.2.1.2 requires repeatable import and update workflows. Proposers should not assume new hydrographic surveying (acquisition of new data) is required in the base scope unless it is part of the proposer’s approach or proposed as an additional service.
33	Are you expecting that each use case will require a use case consulting scope to ensure the success of each capability, or is that not in scope? i.e. is this delivery only without any use consulting to be quoted in the response?	Proposers should include the professional services needed to successfully implement each capability through live deployment, including planning, design, configuration, integration, testing, training, documentation, and transition, as defined in Attachment 1. The project is intended as a turnkey implementation, including the full lifecycle through initial support.
34	Is bathymetry data acquisition part of the base map or will bathymetry data be supplied?	Please refer to Question 32. Section 2.2.1.2 of the RFP, "Bathymetry Views and Analysis" requires integrating bathymetry and providing update workflows. It also specifies updates are demonstrated using a dataset supplied by the Port. Acquisition of new bathymetry is not explicitly required.
35	Will the Port provide their existing survey data, existing 3D data, Utilities and Parcel/Title information? Will we need to include easement rights, and lease information in the Digital Twin?	The Digital Twin will leverage both Port-provided data and consultant-developed content as needed to meet the required deliverables. The Port shall provide available datasets and authoritative sources for integration to the selected consultant.
36	I read POLA uses Maximo for asset management, but you mentioned [MaintStar]. [Are] there multiple CMMS tools used and required for integration?	The Port is not currently using Maximo.The Port's CMMS system is MaintStar.

No.	Question	Response
37	Can we assume POLA will cover cloud costs under existing licensing?	The instructions in Attachment 1 specify Ongoing/Recurring Costs include annual subscription, licensing, hosting, or maintenance fees, and must be identified in the pricing attachment. Security requirements also require project materials and credentials to be stored in Port-owned cloud storage and password manager. For software supply chain transparency on any custom software/components delivered, align SBOM delivery to CISA minimum elements (machine-processable formats such as SPDX or CycloneDX).
38	Will you be requiring training for the team on the use of the new tools and processes?	Yes.
39	Was this RFP developed following an internal assessment, roadmap study, or prior pilot effort that would be helpful for proposers to understand?	Section 2.2 of the RFP, "Project Scope or Work" reflects the Port's internal planning and due diligence activities, including stakeholder interviews, review of current operational needs and modernization priorities, and consideration of relevant approaches used by other ports and similar organizations. This work informed the identification of the ten capabilities included in the RFP. The RFP does not include or rely on a single published "roadmap" document or a prior pilot package for proposers, and the listed capabilities should not be interpreted as having been fully piloted by the Port.
40	Is the Traffic Model expected to include maritime traffic as well as vehicle traffic? Is railroad traffic expected to be included as well?	Section 2.2.10 of the RFP, "Traffic Modeling" describes a routable roadway network dataset and scenario analysis for roadway closures/detours, indicating a focus on surface road traffic (vehicle/truck). It also references use of PCS truck activity for calibration/validation, reinforcing the roadway/truck scope. Maritime and railroad modeling are not explicitly required.
41	Do you have Esri ArcGIS Velocity?	Please refer to Question 24 and Question 364.
42	Can we include URLs for animations or videos for supporting the RFP in the document itself?	Yes, URLs may be included as optional supporting material.
43	Can you share what is the Level of Detail of BIM? LOD300/LOD400/LOD600 etc.?	BIM Level of Development (LOD 300/400/600) is not specified in the RFP. The RFP's 3D content requirements are defined as: a current, high-resolution (photorealistic or similar) port-wide 3D mesh covering all Port land and water areas, georeferenced 3D facility footprints for major buildings and infrastructure with attributes such as height/elevation where available, and attributed GIS layers for above-ground asset types (with relevant metadata where available). Proposers should describe their proposed "level of detail" in terms of the mesh resolution/quality targets and the segmentation and attribution of facilities and above-ground assets needed to meet these requirements. Building interiors are not identified as a required deliverable for the Port-Wide 3D Basemap unless otherwise directed by the Port.

No.	Question	Response
44	How will you measure ROI for the Digital Twin?	The RFP calls for defining measurable outcomes and KPIs that quantify improvements such as processing efficiency, compliance rates, cost savings, and service quality, aligned to the required Digital Twin capabilities.
45	Has the Port engaged any outside engineering, GIS, or consulting firms to assess existing Port operations, data readiness, or Digital Twin requirements? If so, can the Port identify those firms? Will any related reports or assessments be made available to proposers?	No vendors participated in the drafting of this RFP.
46	Is MaintStar currently integrated with ArcGIS, and if so, what system serves as the primary system of record for asset geometry and asset attributes? What data elements are currently synchronized between MaintStar and ArcGIS? Are there any desired enhancements or changes to this integration as part of the Digital Twin program?	MaintStar and the GIS system are not currently integrated.
47	For high-volume real-time data sources such as the Port Community System (PCS) and environmental sensor networks, does the Port currently operate any streaming data infrastructure or message broker services (for example Azure Event Hub, Kafka, MQTT, or similar technologies)?	Proposers should include a streaming ingestion approach, and clearly state assumptions in their architecture.
48	Are environmental monitoring sensors currently standardized through a single vendor platform, or do they originate from multiple independent systems and interfaces? If so, can you list the different vendors and interface types?	Environmental monitoring data originates from multiple systems and consultants rather than a single standardized platform. Specific consultants and interface types vary by monitoring program. Relevant data sources and integration methods will be identified during requirements validation, and available datasets will be provided subject to Port data governance and system access controls.
49	If a phased implementation approach is required, which Digital Twin capabilities are considered the highest priority for initial deployment? Additionally, are there any near-term operational drivers influencing these priorities?	A phased approach is not a requirement in the RFP. Proposers should recommend the sequence, dependencies, and benefits.
50	Does the Port have regulatory, compliance, or operational reporting requirements that the Digital Twin platform will be expected to support? Examples may include environmental compliance reporting, facility condition or asset condition reporting, capital program reporting, and operational performance metrics.	There are not any regulatory or compliance requirements within the current project.
51	Can the Port identify the Port Community System (PCS) platform currently in use and describe the available integration interfaces (for example APIs, file transfers, or streaming feeds)?	The Port Optimizer is the current PCS platform. It does not currently expose open APIs for this effort. Approved integration interfaces, including APIs, file transfers, or other controlled exchange methods, will be defined during requirements and design. Please also refer to Question 57.

No.	Question	Response
52	The RFP describes ten core broad capabilities that collectively form a Digital Twin ecosystem of functionalities. Can the Port clarify whether it envisions a central mechanism for automating and coordinating interactions, dependencies, and actions across these capabilities, or whether such coordination is expected to be handled independently within each capability?	Proposers should treat the Digital Twin as an integrated platform foundation, not as isolated standalone capabilities.
53	Several capabilities reference consuming shared data sources (e.g., PCS data, environmental sensors, inspection results). Does the Port expect proposers to implement common data logic and/or caching patterns across capabilities, or is point-to-point integration between individual capabilities considered acceptable?	Proposers are encouraged to design solutions that promote efficient reuse of shared data sources where appropriate. Approaches that support common data logic, shared services, or caching mechanisms may be proposed to improve performance and maintain consistency across capabilities. However, the Port is open to proposer-recommended architectures.
54	Multiple capabilities generate alerts, insights, or analytical outputs (e.g., environmental exceedances, inspection findings, congestion forecasts). Is the Digital Twin expected to support tracking these events through follow-up actions as well? Such as task assignments, approvals, and resolution? What about auditability/traceability of actions taken?	Auditable records, alerts, and follow-up visibility are expected within the applicable capabilities, but it does not define a separate platform-wide task and approval engine. Proposers may recommend capability-level assignment, status, and traceability workflows where appropriate.
55	On the pre-proposer call, [Port staff] mentioned the importance of managing change. As policies, thresholds, and operational procedures evolve over time, does the Port expect changes to workflow logic or decision criteria to be configurable by Port staff without coding customizations or redevelopment of individual Digital Twin capabilities?	Yes. Proposers should design and deliver capabilities so that routine changes to workflows, business rules, thresholds, and decision criteria can be configured by authorized Port staff where practical, using administrative settings and governed configuration processes, without requiring redevelopment of the underlying capabilities.
56	To ensure alignment with the Port's intent to improve operations, can the Port clarify whether the Digital Twin is expected to function primarily as a visualization and analytics environment, or [as] an operational platform that also automates and coordinates decisions, workflows, and actions across the 10 core capabilities, its back-end data systems, and the impacted operational Teams?	The 10 capabilities in the RFP mark as the foundation Digital Twin for the Port. The long term goal of Digital Twin will be an operational platform with automate workflow and as well as coordinates decision.
57	The RFP identifies Port Optimizer as the PCS platform. During the meeting, it was noted that specific APIs for the Digital Twin will need to be developed and that some foundational API capabilities may already exist. Can the Port clarify whether Port Optimizer currently exposes any documented REST or web service endpoints, and whether the selected vendor will need to coordinate API development directly with the Port Optimizer vendor or through Port IT as an intermediary?	The Port Optimizer does not currently expose data endpoints. While the platform supports API-based data exchange capabilities, interfaces required for this effort will need to be defined and developed during the requirements and design phase with the selected consultant.

No.	Question	Response
58	For the Profit & Loss capability (Capability 8), the meeting confirmed Oracle Fusion as the ERP system. Can the Port clarify whether financial data integration would occur via Oracle Fusion's REST APIs, BI Publisher extracts, or a pre-existing data warehouse/reporting layer? Additionally, is there a standard chart of accounts structure that maps to Port parcels, facilities, or lease agreements?	Oracle Fusion Cloud (SaaS) is the ERP system for this capability. Integration should be assumed to occur through an approved method coordinated with Port IT, Oracle Fusion support resources, and Port cybersecurity requirements. REST API integration is preferred where appropriate, and file-based nightly extracts may also be considered. The final integration approach, and the mapping of financial data to parcels, facilities, or lease agreements, will be confirmed during requirements validation and design.
59	The pre-proposal meeting indicated that [MaintStar] is the asset management system for Capability 4 (Inspection). Does [MaintStar] currently maintain a georeferenced asset registry, or will asset location data need to be established as part of this implementation? Are there existing inspection workflows, checklists, or compliance templates that the Digital Twin solution should replicate or replace?	MaintStar has a georeferenced asset registry. The Port's Construction & Maintenance division has its own workflow. The MaintStar system and the GIS system are not currently integrated.
60	The meeting confirmed that the Port has an umbrella agreement with Esri and that proposers should include any net-new Esri module costs. Could the Port provide the current ArcGIS Enterprise deployment topology (on-premises, cloud, or hybrid) and confirm whether ArcGIS Velocity, GeoEvent Server, and ArcGIS Notebooks are currently licensed? This will allow us to separate net-new licensing from existing coverage in Attachment 1 accurately.	Please refer to Question 24 and Question 364.
61	The meeting confirmed flexibility on cloud versus on-premises hosting, and we understood that the Port has Azure, AWS, and Oracle OCI infrastructure. For proposers to accurately scope hosting costs and security architecture, can the Port confirm whether the selected vendor will deploy within a Port-managed cloud tenant, or whether the vendor is expected to provision and manage a separate environment that the Port connects to?	Please refer to Sections 2.2.2 and 2.2.2.4 of the RFP. The Port's current GIS system is on AWS Cloud. Proposers should include the proposed hosting model and clearly state whether deployment is in Port-managed or proposer-managed infrastructure within a cloud, on premises, or hybrid architecture.

No.	Question	Response
62	For the 3D Basemap (Capability 1), the meeting confirmed that new data collection will be required and that the Port is open to various capture methods beyond LiDAR. Can the Port clarify the approximate acreage or geographic extent that requires new 3D capture versus areas where existing reality capture data is available and sufficient? Is there a target resolution or accuracy tolerance for the 3D mesh that proposers should design to?	Geographic extent: Treat Capability 1 as a Port wide deliverable. Assume existing basemap reality capture is limited, and new capture will be required to produce the foundational 3D mesh and annotated basemap layers (facilities and above ground assets). New capture versus existing data: Do not assume existing reality capture is sufficient for any specific sub area unless the Port explicitly provides those datasets and identifies them as acceptable for the deliverable. Proposers should include a capture plan that achieves complete coverage, plus a validation approach to incorporate any Port provided supplemental data without relying on it for completeness. Resolution and accuracy: The requirement is stated qualitatively as high resolution (photorealistic or similar) mesh. Numeric spatial resolution, ground sampling distance, and positional accuracy tolerance are not specified here. Proposers should propose (1) a recommended minimum GSD and accuracy class suitable for a port wide photorealistic mesh, (2) how the mesh and feature layers will be tied to the Port horizontal and vertical control framework if provided, (3) QA and acceptance testing methodology, and (4) alternates with clear scope and cost deltas if the Port later specifies tighter tolerances.
63	For the Security Dashboard Design (Capability 9), the meeting referenced segmentation needs, secure portal options, and incident workflows. Given the sensitive nature of port security operations, will the selected vendor's team be required to hold or obtain any specific security clearances? And will the Port's security stakeholders be available for requirements workshops during the discovery phase, or will requirements be provided in documented form?	Proposers should plan for discovery workshops with Port security stakeholders. Access to sensitive information will be controlled through Port security protocols, badging, and role-based access as applicable.
64	For the Traffic Modeling capability (Capability 10, Group B), a question during the meeting referenced an existing POLA/POLB joint traffic model but was deferred to the written Q&A. Can the Port clarify whether proposers should plan to integrate with or ingest data from any existing traffic model, or whether Capability 10 is intended as a standalone GIS-based modeling tool built from raw data inputs (counts, cameras, PCS truck feeds)?	Capability 10 should be proposed as a flexible modeling capability. The Port maintains regional coordination with external partners, however, proposers should assume that the Digital Twin traffic model may need to ingest raw operational datasets and should not assume direct integration with any legacy traffic model unless defined during requirements validation.

No.	Question	Response
65	The meeting emphasized that this is a turnkey implementation with training for both end users and technical administrators. Can the Port clarify the anticipated number of concurrent users across the platform, even if high-level projections, and whether there is a target staffing model for ongoing operations (i.e., how many Port FTEs are expected to maintain, update, and administer the Digital Twin after the post-production support period)?	The Port is not providing a platform-wide concurrent user projection at this time. For proposal purposes, assume approximately 2 to 3 administrators or power users per capability and up to 20 users per capability, with concurrent usage varying by capability and use case. For ongoing operations after post-production support, proposers should assume a hybrid sustainment model that includes Port staff supported by managed support services as needed, and should describe the recommended roles and responsibilities for administration, updates, and ongoing support.
66	The RFP references a six-month post-production support period. Is the Port interested in receiving a proposal for optional ongoing managed services beyond this period, or should proposers strictly scope to the six-month window? If optional pricing is welcome, should it be included in Attachment 1 or presented separately?	Please refer to Section 2.2.3 of the RFP and Attachment 1. Proposers shall include the required six-month post-production support period in their proposal. Ongoing warranty, maintenance, and support are required for delivered solution components for the duration of the agreement. Any additional ongoing managed services, recurring support, hosting, licensing, or maintenance beyond the required post-production period should be identified separately as recurring annual costs.
67	Given that detailed data source inventories, system documentation, and sample data will be provided only after contract award, should proposers include a formal discovery and requirements validation phase with a defined duration and deliverable set, or does the Port expect proposers to commit to a fixed total schedule and cost based on the RFP specifications alone?	Proposers should include a formal discovery and requirements validation phase with defined duration, deliverables, assumptions, and acceptance criteria, while still providing a complete schedule and price for the overall implementation.
68	What existing geospatial, asset, and bathymetric datasets will be provided by the Port, and in what formats?	Please refer to Section 2.2.1.2 of the RFP. The Port will provide available authoritative geospatial, asset, substructure, and bathymetric datasets relevant to the awarded scope. Formats may vary by source system and may include GIS, CAD, document, tabular, point-based, or surface-based data as applicable. The selected consultant should validate, normalize, and integrate the provided datasets as part of implementation. If the proposed solution depends on additional external or subscription-based datasets, those dependencies, assumptions, licensing, and costs should be clearly identified in the proposal. Please also refer to Question 17, Question 78, and Question 132.
69	Are there any known gaps or quality issues in the available data that the proposer should be aware of?	Proposers should assume the Digital Twin will consolidate and contextualize data from multiple sources, and that data completeness and quality may vary by dataset. As part of the required deliverables, the selected consultant is expected to validate inputs to the extent needed to integrate them into the Digital Twin and deliver the required outputs.

No.	Question	Response
70	Are there existing APIs or integration points for real-time sensor and PCS data, or will new interfaces need to be developed?	Some real-time and near-real-time data exchange mechanisms exist today. Additional interfaces may need to be developed to support Digital Twin requirements. Proposers should design with modular API integration in mind. Please also refer to Question 51 and Question 148.
71	Are there any legacy systems or databases that must be integrated with the digital twin platform? If so, can you provide technical documentation?	There are no legacy systems or databases that must be integrated with the Digital Twin platform.
72	Will the Port provide cloud infrastructure, or is the proposer responsible for hosting and maintaining the solution?	Please refer to Question 23.
73	Are there requirements for mobile device compatibility, offline operation, or specific supported platforms for any of the digital twin capabilities other than field inspections?	No.
74	Are there any anticipated future expansions (e.g., AI/ML analytics, automation) the solution should be designed to accommodate?	Yes. The solution should be designed for extensibility so it can evolve to support future technology expansions, including AI/ML analytics and increased automation.
75	Can the Port confirm whether its current financial data, documents, and media is encoded with spatial tags or location identifiers, such as through a location breakdown structure (LBS)? If so, could the Port provide details on the structure, format, and granularity of these spatial or location tags to facilitate integration with the Digital Twin platform?	The Port is not currently using a location breakdown structure.
76	Could the Port confirm the current ArcGIS Enterprise version, deployment pattern (on-prem vs cloud), and whether separate DEV/TEST/PROD environments are in place? Could the Port confirm their VertiGIS deployment license structure and general purpose, and can we assume that these licenses can be used for the digital twin development and deployment at no additional licensing cost?	Our current GIS environment is on AWS Cloud with separate production and development environments. The Port plans to be on ArcGIS Enterprise v.12.1 by the time the project starts. VertiGIS is not used.
77	Is the respondent responsible for providing crews to collect aerial & terrestrial data for 3D mesh creation?	Please refer to Question 17 and Question 62.
78	Can POLA confirm the respondent is not responsible for collecting bathymetric & subsurface information? Only integrating bathymetric & subsurface information made available by the Port and its contractors?	For bathymetry and substructures, the proposer’s scope should be focused on integrating and publishing datasets made available by the Port and its designated sources, including establishing repeatable update workflows.

No.	Question	Response
79	You noted that some 3D content already exists and that BIM and GIS standards are already in use. Could you provide a high-level description of the existing 3D datasets (e.g., building models, terrain, meshes), and any written BIM and GIS data standards or schemas we should design to? Are you following any IHO standards or data schemas (e.g. S-100 schemas for S-131)?	Please refer to Question 17 and Question 62. The RFP does not explicitly state that IHO S-100 schemas, including S-131, are required for the Capability 1. If the proposer intends to use any IHO S-100 based products as part of their approach, they should identify that approach in their proposal and clearly state assumptions, including the intended product specification, the data inputs required from the Port, and any impacts to workflow, governance, and sustainment.
80	For the 3D basemap and associated 2D layers, is there a target update frequency (e.g., annually, after major projects, marine event such as a storm) that we should assume when designing the refresh workflows and governance model?	Please refer to Question 17 and Question 62. Proposers should assume the basemap and 2D layers will require ongoing refresh and should propose an update and governance model that supports both scheduled refreshes and event driven updates. Proposers should define a recommended cadence by layer type (for example 3D mesh and imagery, facilities, above ground assets, substructures, environmental and regulatory zones, bathymetry), describe triggers for refresh, and identify what source datasets and approvals are needed from the Port to execute updates.
81	What is the level of horizontal/vertical accuracy desired, and is there an expected need for a PLS certification of vendor deliverables under this contract?	Proposers should state target horizontal and vertical accuracy, coordinate system and vertical datum, and an acceptance test plan. Proposers should also identify whether their proposed methodology includes or requires PLS responsible charge or certification.
82	Which systems are the source of truth for asset identifiers (e.g., [MaintStar], GIS, or another CMMS), and should we treat GIS or the CMMS as the primary system for asset IDs?	MaintStar is currently holding the Port's assets and records.
83	For the new traffic modeling capability, is the Port primarily seeking high-level travel time and route impact analysis within GIS, or detailed microsimulation (e.g., queue lengths at specific intersections)? And are you looking to include emissions levels simulations including different fuel types (diesel, gasoline, electric, hydrogen, CNG, LPG etc.)?	For Capability 10, introduce an analysis tool to provide decision markers with a what-if analysis capability that supports planning for different scenario whether planned or unplanned. If the proposer deems to propose more functionality that will be beneficial for traffic modeling as well as for environmental monitoring capabilities, please include it in the proposal.
84	For the Security Operations Dashboard design, could you name the primary systems used today for CCTV, access control, dispatch/CAD, and incident management, and whether any of these currently integrate with GIS?	None of the Port Police systems are currently integrated with the Enterprise GIS environment. Capability 9 is design-only so detailed source systems, interfaces, and integration requirements will be confirmed during the discovery and design phase of the project. Please also refer to Question 105 and Question 139.
85	With regards to training for all users, could you estimate the approximate counts for: GIS administrators/power users, Operational staff users (maps/dashboards), Executive/leadership users, and External non-port staff users?	For proposal purposes, assume approximately 2 to 3 administrators or power users per capability and up to 20 users per capability for training and onboarding. Executive or leadership access may be included where relevant to the capability. External non-Port staff user counts and access expectations are not defined at this time. Please also refer to Question 65.

No.	Question	Response
86	Will POLA supply Esri software and user licensing, or should bids include these costs?	Please refer to Question 24 and Question 364.
87	Will POLA host the digital twin systems POLA purchased cloud infrastructure, or should bids include hosting costs?	Proposers should include hosting and recurring cost assumptions in Attachment 1 and clearly state whether the solution is deployed in Port-managed infrastructure or vendor-managed infrastructure within required data residency and security constraints.
88	Should proposals include ability to conduct subsurface detection, or only incorporation of data from port and other sources?	Proposals should focus on incorporation, consolidation, and publication of substructure datasets provided by the Port and designated partner sources, including establishing workflows to validate, manage, and update those datasets within the Digital Twin. If a proposer offers subsurface detection or field verification, it should be clearly identified as optional and separated from the base Capability 3 deliverables.
89	With the Port Optimizer (by Wabtec) being the only module referenced, which is the appointment system, please advise what other datapoints POLA foresees will come from stakeholders on site regarding this and the Port Optimizer as a whole?	The Port Optimizer is not only an appointment system. For purposes of this RFP, proposers are encouraged to recommend the specific data points they believe are necessary to support their Digital Twin approach, based on maritime operational expertise. Final datasets and stakeholder data contributions will be defined during requirements validation and subject to governance and availability.
90	When POLA refers to “Port Optimizer”, is this what POLA calls the "PCS"? We want to ensure the meaning of the terms correctly from POLA’s standpoint.	Yes. For purposes of this RFP, when referring to the “Port Optimizer,” it is referring to the Port Community System (PCS) platform. The terms are used interchangeably in this context.
91	Can we get clarification regarding engagement with tenants? When/Where is tenant data participation required? Could you please provide us with what mechanisms POLA will use to ensure tenant cooperation (reporting requirements, lease obligations, policy mandates)?	No engagement with tenants is required.
92	On the bidder’s call it was stated that there is a “budget” for this project from Capital Funds. Could you advise what that estimated dollar amount is that you are anticipating spending? Will this be a fixed contract or more T&M?	The total capital budget will not be disclosed. Please refer to RFP Amendment #4. Pricing for capability development shall be provided as lump sum. Post-production support and recurring annual costs shall be priced separately as directed in Attachment 1 of the RFP.
93	[There] did not seem to be an actual timeline with dates and milestones for this project – what are you envisioning the length of time to be for this project from start to finish/sign off as completed? 1 year/12 months? [Or a] longer project, for example up to 3 years or so?	Please refer to Question 207 and Question 215.
94	Will the Port provide sample datasets, schemas, or access to current systems (e.g., Esri ArcGIS Enterprise version, sample bathymetric surveys) during the proposal period to inform technical approaches and pricing?	Access to current systems or data will not be provided during the proposal stage, but it will provided to the selected consultant.

No.	Question	Response
95	Base Map Resolution and Accuracy Requirements: For the “high-resolution (photorealistic or similar) 3D mesh model” base map (page 8), can the Port please specify the required minimum spatial resolution/ground sampling distance and the positional/survey accuracy standard (including whether survey-grade real-world control is mandatory), so we can right-size the capture approach and associated costs?	Please refer to Question 17 and Question 62. Proposers should propose a capture and production specification that meets a high resolution photorealistic mesh objective, including (1) a recommended minimum ground sampling distance, (2) a positional accuracy class suitable for a port wide operational basemap, (3) how the mesh and annotated feature layers will be tied to the Port horizontal and vertical control framework if provided, and (4) QA and acceptance testing methodology. Proposers should also include alternates with clear scope and cost deltas for tighter tolerances or survey grade control if the Port confirms those requirements.
96	Please clarify whether integration with Trelleborg navigation software is required or optional, and provide details on the formats and frequency of existing bathymetric survey datasets (e.g., XYZ point clouds, multibeam grids, TIN surfaces, raster DEMs), the required vertical datum (e.g., MLLW or NAVD88), and whether multiple datum transformations must be supported.	The Port’s intent is for the consultant to confirm the feasibility and capability of integrating bathymetric data into the Trelleborg navigation software (SafePilot v25.31) used on the Port Pilots. Integrating is not a requirement of the RFP but the Port would like to explore the feasibility and then decide steps forward. Bathymetric datasets will be provided as XYZ files representing a 3’x3’ grid at each sounding location. Vertical datum is MLLW based on NGVD29 datum. Frequency of bathymetric datasets varies depending on the type of terminal, which are surveyed on 1 year, 3 year and 5 year intervals. Other soundings may be added as needs arise.
97	Are sediment core or sub-bottom profiler datasets available for sediment-depth analysis, or will analysis rely solely on comparative bathymetric surfaces?	Please refer to Section 2.2.1.2 of the RFP, "Bathymetry Viewing and Analysis" minimum requirements, which states "Enable users to estimate sediment accumulation or required removal by comparing surveyed depths against design or target depths, and it must support comparative analysis between current and previous survey datasets.".
98	Please provide the complete list of up to 25 utility and infrastructure layers, including their sources and formats, and clarify whether the Digital Twin must support true 3D visualization of underground utilities or a 2D representation with depth attributes, along with the current state of existing utility records such as storm drains, sewer, water, electrical, fiber, and fuel lines	Section 2.2.1 3 "Mapping Substructures" should be treated as up to 25 substructure and utility layers provided by the Port and partner sources. Most of the available utility data is in 2D; however proposers should plan to support both 2D representations with attributes (including depth where available) and 3D visualization where the source data supports it, using a consistent data model, layer governance, and user access controls. Proposers should describe their approach for ingesting each layer type, normalizing schemas and attributes, and publishing the layers for use in the Digital Twin, including how they will handle missing attributes, inconsistent coverage, and variable data quality.

No.	Question	Response
99	Please specify the five asset and five environmental inspection categories, including required fields, existing forms or rating schemas, expected inspection volumes, and anticipated offline durations for field crews, so the mobile inspection tools can be designed to meet operational and device-compatibility requirements.	The inspection solution should support up to five asset types and up to five environmental asset types using mobile-enabled surveys that capture condition/issues, photos, notes, date, location, and inspector identity, with online/offline field use. Proposers should describe how categories, forms, and offline settings will be configured during discovery.
100	Please identify the specific real-time environmental sensors and data sources to be integrated, including their hardware types, communication protocols (e.g., REST, MQTT, Modbus, SDI-12, cellular), available APIs, existing IoT gateways or aggregation platforms, required alerting channels and real-time/near-real-time expectations, as well as expected data ingestion rates and long-term retention requirements.	The specific environmental sensors, hardware platforms, and communication protocols to be integrated have not yet been finalized. Environmental monitoring data currently originates from multiple systems and programs. Proposers should propose integration approaches based on common industry protocols and IoT architectures. Detailed sensor inventories, available interfaces, and operational requirements (including alerting, ingestion rates, and retention expectations) will be defined during the requirements and design phase.
101	Please clarify whether alignment with ISO 27001/27002 and NIST SP 800-63 requires full certification or evidence of equivalent controls, and confirm any additional regulatory or cybersecurity frameworks that apply (such as NIST 800-53, CJIS, MTSA, or CMMC), along with expectations for data-classification tools, security assessments, and penetration testing prior to production deployment.	Proposers should demonstrate compliance through certifications or equivalent control evidence acceptable to the Port, align cloud components to ISO 27001 and FedRAMP expectations, and support security assessments, periodic audits, and Port review prior to production deployment.
102	Please clarify the expected service-level requirements for applying critical patches—including the required turnaround time—and specify the format, content, and delivery method for the monthly automated patching reports the Port expects to receive.	Proposers should define severity-based patch SLAs, including accelerated turnaround for critical patches, maintenance windows, validation, rollback, and exception handling. Automated patching reports should summarize systems in scope, patch status, outstanding critical items, exceptions, and remediation actions.
103	What existing security systems and feeds must the dashboard integrate with (CCTV/VMS, access control, intrusion detection, TWIC, vessel tracking, Port Police CAD/RMS)?	Proposers should assume the design will consider approved Port Police/WSS datasets such as incidents, camera-related data, restricted zones, physical access monitoring, and other authorized public safety feeds identified during discovery.
104	Are there MTSA or MARSEC requirements that dictate what information must be displayed, and to whom?	Please refer to Section 2.2.1.9 of the RFP. Security information displayed in the dashboard shall be role-based and limited to authorized users consistent with Port, law enforcement, and homeland security restrictions.

No.	Question	Response
105	For a “design-only” capability, what is the expected deliverable—wireframes, prototype, or full design specification?	Please refer to Section 2.2.1.9 of the RFP, “Security Operations Dashboard.” This capability is design-only and does not include development of a working dashboard. The expected deliverable is a Security Operations Design Document that defines the proposed architecture, data sources, integration approach, governance considerations, and role-based dashboard concepts. Deliverables should include conceptual layouts or mock-ups, functional design criteria, and documentation sufficient to guide a future implementation phase, along with defined acceptance criteria and recommended next steps for development.
106	Will the Digital Twin need to consume OT/ICS data (SCADA, PLCs)?	The Digital Twin may consume selected OT/ICS-derived data where needed to support approved telemetry, metering, environmental, or operational use cases. Proposals should not assume direct control-system integration is required and should describe any secure read-only, brokered, or intermediary interface assumptions.
107	What is the Port’s disaster-recovery posture, and is there an existing DR site or cloud failover region?	Please refer to Section 2.2.2.3 of the RFP, "Security Controls, Compliance, and Data Protection". Proposers should define the disaster-recovery approach, including backup, failover, recovery testing, and proposed RPO/RTO targets, and should not assume a pre-provisioned DR site or failover region unless expressly identified in proposal assumptions.
108	Please define the expected duration and scope of post-production support for each capability, including required service levels such as hours of coverage, response and resolution times for critical incidents, whether 24/7 support is mandatory, and whether ongoing enhancements or change requests should be priced separately.	Please refer to Section 2.2.3.2 of the RFP, "Operations & Service Management" which defined post-production support and SLAs. Please also refer to Question 200, Question 201, and Question 208.
109	What are the Port’s expectations for onsite availability—specifically, is onsite presence required for the Project Manager or other key staff full time, hybrid, or only based on core meetings, presentations, or during site visit requirements? Will security badging be required?	Proposers should assume onsite presence at project start and for key meetings, site visits, testing, training, and presentations, with other tasks performed remotely as approved.
110	Please clarify the Port’s preferred pricing structure—whether fixed-price per capability, milestone-based, time-and-materials, or a hybrid—and indicate whether software or platform licensing should be treated as pass-through costs or incorporated into a single all-inclusive price, along with any applicable budget constraints or not-to-exceed expectations.	Please refer to Question 24, Question 364, and RFP Attachment 1. Pricing is to be provided by Capability Group and by capability. Implementation Services costs shall be lump sum per capability, inclusive of all software, platform, services, and other associated costs required to deliver that capability. The required six-month post-production support shall be priced separately as directed, and ongoing or recurring costs such as subscriptions, licensing, hosting, training, support, maintenance, and other recurring fees shall be identified separately as annual USD amounts.

No.	Question	Response
111	Please clarify the expected project schedule and delivery metrics, including the evaluation and shortlisting timeline, anticipated dates for orals or BAFO, target contract-award and project-start windows, and the key performance indicators—such as on-time delivery or other measurable outcomes—that will be used to assess contract compliance.	Please refer to RFP Amendment #3 for the revised proposal due date and the Harbor Department's revised Q&A posting date. Proposers should provide their proposed implementation approach and project schedule. Upon contract award, the execution schedule for the project will be baselined and monitored with the selected consultant.
112	Please confirm whether the Port will accept a solution composed of multiple integrated components such as separate platforms for data/analytics and for 2D/3D visualization provided it functions as a unified, turnkey system.	Proposers may propose a solution architecture composed of multiple integrated components, provided the delivered outcome functions as a unified, turnkey Digital Twin system for Port users. The proposal should clearly describe the end user experience, the integration approach between components, and how operations, security, and support will be handled as one solution, including a single sign on experience where applicable and a clearly defined system of record for key datasets.
113	What financial/ERP system houses revenue and cost data (SAP, Oracle, custom), and is there an API or reporting layer? Please provide the version, and if hosted in cloud or on prem.	Please refer to Question 58.
114	Are there access-control requirements for financial data that differ from general GIS data?	Please refer to Section 2.2.2.3 of the RFP, "Security Controls, Compliance, and Data Protection". Financial data shall be governed by stricter role-based access, least-privilege, and auditing controls than general GIS context layers
115	What spatial granularity is required (parcel, terminal, berth, building, basemap mesh)?	Spatial granularity should be sufficient to support the required foundational basemap and subsequent Digital Twin capabilities. Proposers should assume the basemap includes a port wide 3D mesh plus segmented and attributed facilities and above ground assets, and should propose how they will represent location and hierarchy across common Port operational units, such as parcel, terminal, berth, and building, so users can search, filter, and analyze information at multiple levels. Proposers should describe their proposed spatial hierarchy model and any assumptions about authoritative boundary datasets the Port will provide.
116	Given the multiple user roles described in the RFP, can the Port confirm whether it expects a custom end-user application with role-based dashboards in addition to core analytics and GIS capabilities? Does the solution need to comply with specific UX/UI or accessibility standards such as WCAG or Port branding guidelines?	Proposals may include a custom landing page, portal, or role-based dashboards where needed to support the user roles and workflows in scope. The proposal should describe any accessibility, UX/UI, and branding assumptions that support adoption and role-based use.
117	What version of ArcGIS Enterprise is currently deployed, and which extensions are currently licensed?	Please refer to Question 24 and Question 364.

No.	Question	Response
118	Is the Port's Esri environment on-premises, cloud, or hybrid, and what is the target hosting model for the Digital Twin?	GIS is currently hosted on the cloud. The RFP does not prescribe a single hosting model. It requires proposers to provide a system architecture that describes hosting options and the data storage and compute needed to support the capabilities in the Port enterprise environment.
119	What database platform underlies the enterprise geodatabase (SQL Server, PostgreSQL, Azure, Oracle), and are migrations planned?	SQL Database.
120	Will the Port provision dev/stage/prod environments, or must the vendor stand them up?	The RFP does not prescribe a single hosting model. It requires proposers to provide a system architecture that describes hosting options and the data storage and compute needed to support the capabilities in the Port enterprise environment.
121	What existing GIS feature layers, scene layers, and basemaps are maintained, and in what formats?	Proposers should assume the Port maintains a mix of GIS feature layers and basemap related datasets used for Port operations and planning, and that these will be made available to the selected consultant for integration where applicable. Proposers should describe their expected input formats and ingestion approach, including how they will handle common GIS layer types, 2D and 3D layers, metadata, and coordinate reference system alignment, and they should list any assumptions about which layers will be available at award versus provided later.
122	What is the current state of 3D models (CityGML, BIM/Revit, multipatch), and what must be created from scratch? Can you provide a list of models and a list of buildings expected in scope?	Please refer to Questions 17 and Question 62. Proposers should treat the port wide 3D basemap as a deliverable that must be created, including the 3D mesh and the annotated basemap layers (segmented and attributed facilities and above ground assets). If proposers intend to leverage CityGML, BIM/Revit, or multipatch as inputs or derivatives, they should describe their approach in the proposal and state assumptions about what the Port will provide as source data.
123	What aerial imagery and LiDAR datasets exist, including vintages and resolutions?	Please refer to Question 17 and Question 62. Proposers should assume new capture will be required to deliver the basemap and should propose a capture plan and production workflow, while identifying any assumptions about Port provided imagery or LiDAR that could be incorporated as supplemental inputs. Proposers should list what input vintages and resolutions they would consider acceptable, and how they will validate suitability for the required deliverables.

No.	Question	Response
124	For the 3D basemap, what Level of Detail (LOD1–LOD3) is expected for structures?	Please refer to Questions 17, Question 62, and Question 95. Proposers should align the structure representation to a high resolution photorealistic basemap outcome, using the 3D mesh as the primary visual representation, and providing segmented and attributed facilities and above ground assets as the quarriable operational layer. If proposers intend to deliver explicit structure LOD models (LOD1, LOD2, LOD3) beyond the mesh and attributed feature layers, they should describe that approach and state assumptions, including impacts to schedule, cost, and update workflows.
125	What measurable outcomes or key performance indicators (KPIs) will be used to evaluate each project success?	Proposers should propose measurable, capability-specific KPIs and establish baselines with Port stakeholders, and report KPI performance during rollout and after go-live.
126	Does the Port have an existing traffic model (TransCAD, VISUM, Synchro, CORSIM), and can model files be provided?	No, there is not an existing traffic model.
127	What traffic count and sensor data sources exist, and what is the geographic extent? Please define core routes the model will cover including major freeway access points. (KMZ file desirable here).	Please refer to 2.2.1.10 of the RFP, " Traffic Modeling": Use available Port or regional traffic information for calibration when such information exists, or reasonable assumptions when such information is not available.
128	Should the model account for truck weight classes, chassis types, or hazmat routing?	Yes. Support operational planning by allowing staff to evaluate traffic impacts when scheduling construction or maintenance activities. Support long-term planning by establishing data structures and workflows that contribute to future smart mobility and traffic management systems. Support resiliency and emergency planning by allowing rapid evaluation of alternate routing options during major incidents.
129	Is real-time simulation expected, or only planning-level scenario analysis? Please define resolution required for the traffic model.	The capability is expected to offer a realistic representation of traffic behavior and to support future planning for more advanced transportation modeling capabilities..
130	(Capability 1) Does the Port have an existing Esri Enterprise license agreement, and if so, which ArcGIS products and versions are currently deployed (e.g., ArcGIS Enterprise, ArcGIS Online, CityEngine, Experience Builder)? Understanding the current licensing baseline will help proposers scope configuration work accurately.	Please refer Question 24 and Question 364.

No.	Question	Response
131	(Capability 1) Has the Port previously commissioned aerial or drone-based photogrammetric or LiDAR surveys of port facilities? If so, what is the vintage of the most recent coverage, and will that data be made available to the selected consultant?	Please refer to Question 17 and Question 62. Proposers should assume new capture will be required to meet the Capability 1 deliverable. If the Port has prior imagery, photogrammetry, or LiDAR that can be used as an input, the selected consultant should plan to incorporate it where suitable, subject to data quality, licensing, and security constraints. Proposers should state assumptions about whether existing capture will be provided, and describe how they will validate suitability and integrate it without relying on it for completeness.
132	(Capability 2) What is the vintage and format of the most recent bathymetric survey data available to the selected consultant? Will the Port provide this data directly, or is the consultant expected to commission new hydrographic surveys as part of this scope?	Section 2.2.1.2 of the RFP, "Bathymetry Viewing and Analysis" is based on integrating available bathymetric data and providing repeatable update workflows. The Port will provide available bathymetric datasets for update demonstrations, and new hydrographic surveying is not required unless proposed as an additional service or needed for the proposer's approach.
133	(Capability 2) Regarding the Trelleborg navigation software integration referenced in Section 2.2.1.2: is this intended as a firm deliverable, or an exploratory requirement ("explore integrating")? Does the Port currently have an active relationship with Trelleborg, and would the selected consultant be expected to manage that vendor engagement?	Please refer to Question 96.
134	(Capability 3) The RFP references up to twenty-five utility or infrastructure layers from Port and partner sources. Can the Port confirm whether these datasets are currently in GIS-compatible formats, or whether significant digitization of paper or CAD records is anticipated? This materially affects scope and timeline estimates.	Proposers should plan for a mixed condition starting point, including GIS ready layers where available and CAD or document based records where GIS conversion and georeferencing may be required. Proposers should describe a readiness and triage approach that classifies each layer by current state and defines the conversion, georeferencing, attribution, and validation steps needed to publish each layer into the Digital Twin. Proposers should state assumptions on the expected mix and include an approach to confirm actual conditions early in the project.
135	(Capability 5) Are the up to five environmental sensors referenced in this capability already installed and transmitting data, or does the scope include physical sensor procurement and installation? If sensors are already operational, can the Port provide documentation of their existing data formats and API/connectivity specifications?	The sensors referenced in this capability may include both existing sensors and potential new sensors depending on the final implementation approach. The scope of procurement and installation, if required, will be defined during the requirements and design phase. For sensors that are already operational, the Port's Information Technology Division will provide available documentation on data formats and connectivity where applicable, subject to governance and system access controls.

No.	Question	Response
136	(Capability 6) Who is the current PCS vendor, and does the Port have an existing API or data-sharing agreement in place that the selected consultant can leverage? Are there any known data access restrictions, licensing constraints, or security classifications that would affect the integration approach?	The current PCS vendor is Wabtec Corporation. The PCS does not currently expose open APIs. Integration mechanisms will be defined during the requirements and design phase and may include development of new APIs or other controlled data exchange methods as appropriate. Data access may be governed by existing contractual agreements, licensing terms, confidentiality provisions, and Port cybersecurity and data governance policies. Certain datasets may contain commercially sensitive or operationally sensitive information and may be subject to appropriate access controls and approvals.
137	(Capability 6) The RFP references AIS vessel tracking data. Does the Port currently subscribe to a commercial AIS feed, or would the consultant be expected to source and fund AIS data as part of this engagement?	The Port has AIS vessel tracking data.
138	(Capability 8) What financial system does the Port currently use (e.g., SAP, Oracle, PeopleSoft)? Understanding the source system will help proposers assess integration complexity and data refresh options.	Oracle Fusion.
139	(Capability 9) Will the selected consultant have access to Port Police and emergency management stakeholders for the requirements workshops described in this capability? Approximately how many workshop sessions does the Port envision, and are there any classification or access control requirements that would affect consultant participation?	The selected consultant should plan for access to Port Police, emergency management, GIS, and IT stakeholders as needed to complete the design-only scope. The proposer shall establish the recommended workshop approach, schedule, and session needs as part of its proposed methodology. Any access, classification, or participation constraints will be coordinated through the Port during the discovery and design phase.
140	The RFP requires a minimum availability of 99.99% (Section 2.2.2.3). Is the Port's preference for a cloud-hosted solution (e.g., Azure Government, AWS GovCloud), on-premises deployment within Port infrastructure, or a hybrid architecture? Does the Port have an existing cloud platform contract the selected consultant would be expected to utilize?	The RFP does not prescribe a single hosting model. It requires proposers to provide a system architecture that describes hosting options, the data storage, and compute needed to support the capabilities in the Port enterprise environment.
141	Will the Port make existing GIS administrators and IT staff available for knowledge transfer sessions and user acceptance testing throughout the project, or is consultant-led testing and documentation expected to be self-contained?	The Port expects Port GIS and IT staff participation for knowledge transfer and user acceptance testing, with the consultant leading the process and providing the required documentation and training materials for Port review and acceptance.
142	Could you please outline how will the Port measure ROI for the Digital Twin implementation?	Please refer to Question 44.
143	Do team members need to be physically located in the US, or employees of a US entity?	Please refer to RFP Amendment #2.

No.	Question	Response
144	Does the Port have a list of substructure data sets that they do have? Or is a requirement of the vendor to perform an audit/gap analysis of existing infrastructure with recommendations in addition to mapping current substructures into one combined GIS database?	The RFP requires consolidation of available substructure datasets and delivery of a Substructure Data Inventory and Acquisition Plan identifying data gaps and prioritized recommendations, along with an SOP for ongoing updates.
145	Does the Port have a document that outlines their environmental monitoring requirements or existing approach? Are there particular KPIs or expected outcomes from environmental monitoring that we should use to inform our scope?	Please refer to Section 2.2.1.5 of the RFP. "Environmental Sensor Integration and Monitoring" requires stakeholder workshops and delivery of an Environmental Monitoring Requirements Document as part of Capability 5, along with configuration of sensor dashboards and alerting.
146	What systems does the Port use and do they have APIs? Can the Port give any indication of the operators or their state of data maturity?	Please refer to Question 210 and Question 290.
147	Can the Port outline any use cases for measuring the impact to P&L? Is simulation or optimization of P&L outcomes a requirement of the scope?	Relevant use cases include parcel and facility level revenue, expense, and KPI visibility to support lease analysis, capital planning, operational review, and executive reporting. Simulation or optimization of P&L outcomes is not required.
148	Can the Port expand on the type of integration to/from the Port Community System are available- are there API's available? Is this an on-prem environment or hosted on a particular cloud provider?	The Port Optimizer does not currently expose open APIs. Integration mechanisms will be defined during the requirements and design phase and may include development of new APIs or other controlled data exchange methods as appropriate. The platform is cloud-hosted. Detailed integration architecture will be coordinated as needed through the Port's Information Technology Division during implementation.
149	[What are the] acceptance threshold or example time limits for "real-time" and "near real-time" updates and visibility?	Specific acceptance thresholds for “real-time” and “near real-time” updates have not been predefined. Proposers are encouraged to recommend appropriate update intervals and performance targets based on their proposed architecture and intended operational use cases. Final thresholds will be defined during the requirements and solution design phase in coordination with Port staff.
150	What ERP system platform is utilized and required to integrate with?	Oracle Fusion.
151	Could the Port please confirm the ArcGIS Enterprise/Online deployment details (version, hosting model, and available extensions such as Feature/Scene Layers, GeoEvent, GeoAnalytics, or Notebooks) that will serve as the authoritative platform for 2D/3D and time-enabled services required across all Digital Twin capabilities?	Please refer to Question 24, and Question 364. Our GIS platform is ArcGIS Enterprise, and will be at v12.1 for the Digital Twin Project. The Port does not use ArcGIS Online (AGOL). ArcGIS Enterprise should be treated as the authoritative geospatial platform for 2D/3D and time-enabled services.

No.	Question	Response
152	In Section 2.2.2.3, the RFP mandates alignment with NIST 800-63 IAL2/AAL2/FAL2, SSO/MFA, RBAC, monthly audits, and integration with the Port's security tools for continuous monitoring and log export; Section 2.2.2.2 also sets expectations for DMZ/Administrative/ICS segmentation and secure remote access (no backdoor/shared accounts). [Our] question is, which Identity Provider (e.g., Entra ID/Azure AD) and MFA factors should we integrate with, what log formats/transport does the SOC/SIEM require (e.g., syslog, CEF, JSON over HTTPS), and in which network zones should each Digital Twin component (web tiers, data services, integrations) reside?	Please refer to Sections 2.2.2.2 and 2.2.2.3 of the RFP. The Port uses Azure Active Directory with SAML and Microsoft two-factor authentication. Proposers are required to provide a network design implementing security best practices such as but not limited to network segmentation and security controls. The Port's SIEM accepts syslog, CEF, and JSON over HTTPS log formats but the preferred method to obtain these logs is through an API with the Port's SIEM pulling from the application. The proposer should propose the network zones where each Digital Twin component reside.
153	Can [the] Port share what is the expected Level of Development of the BIM Models? (E.g. LOD 100 - L500).	Please refer to Question 122 and Question 124. Proposers should treat the Capability 1 basemap deliverable as a geospatial 3D mesh plus annotated basemap layers, not as a BIM authoring deliverable. If proposers plan to leverage BIM models as inputs for facility footprints, asset geometry, or lifecycle context, they should describe how BIM will be used, state assumptions about what BIM content the Port will provide, and define the minimum BIM information they would need to support the use cases in scope.
154	Do the buildings/facilities inside the port have a Building Management System? If so, what is the OEM brand of BMS installed (E.g. Siemens, Honeywell, Johnson Control, Schneider Electric, Distech, Trane etc.)?	No.
155	Can the Port confirm which platform will serve as the authoritative Common Data Environment (CDE) for the Digital Twin - specifically, whether Esri GIS will be the primary source of truth for spatial and time-enabled data, or whether the BIM model will be treated as the primary authoritative source for asset geometry and related lifecycle information?	Proposers should propose a clear source of truth model aligned to the Digital Twin scope, identifying which system is authoritative for spatial location, geometry, asset identifiers, and time enabled operational data. Proposers should also define how authoritative data will be synchronized into the Digital Twin, how conflicts are handled, and how governance and change control will be implemented across systems. Where both GIS and BIM exist, proposers should explain their mapping strategy between BIM geometry and GIS feature layers, including how updates propagate and how the Port will manage lifecycle ownership.
156	Can the Port give an estimated number of assets by [the] following types, to be incorporated into Digital Twin: a. Critical Infrastructure/Connected Assets (examples are MEP Equipment like Chillers, Pumps, Air Handlers, other HVAC equipment, Electrical equipment like Generators, UPS, Transformers, Distribution panels etc.); b. Non-connected assets (examples are Furniture, fixtures, etc.); and c. Expected attributes and sensor data from the assets?	No. This information cannot be provided at this time.

No.	Question	Response
157	Can the Port give an estimated number of documents and document types (.pdf,.xls, video formats etc.) to be uploaded and managed in the central data repository?	No. This information cannot be provided at this time.
158	Can the Port share information about [its] Metering infrastructure - Port wide or at Facility level?	Proposers should assume metering may exist at both facility and broader portfolio levels depending on utility type and source system. Proposals should describe the metering hierarchy, aggregation approach, and any assumptions about source availability, cadence, and data quality.
159	Can the Port confirm whether the Digital Twin program is expected to align with ISO 19650 principles - specifically around naming conventions, metadata requirements, Common Data Environment (CDE) workflows, information deliverables (e.g., EIR, AIR, OIR), and approval/status codes - so that BIM, GIS, documents, and operational data are managed consistently across all contributing systems?	Proposers should ensure that the project aligns with industry best practices.
160	[What are the] quantity and types of meters deployed across the Port (electric, water, gas, thermal, fuel), including counts at the Port-wide, facility, and tenant levels?	We do not have a comprehensive list.
161	[What is the] availability of meter riser drawings, one-line electrical diagrams, and related as-builts (PDF/DWG/IFC/Revit) to support accurate asset and utility mapping within the Digital Twin?	Please refer to Section 2.2.1.3 of the RFP, "Mapping Substructures" . Proposers should assume the Port and partner sources will provide available authoritative records used to develop and maintain up to 25 utility and infrastructure layers. Proposers should describe how they will ingest and reference supporting documents and drawings (for example PDF and CAD), associate them to mapped utilities and assets where applicable, and manage metadata and traceability back to source documents.
162	[What are the] supported communication protocols for metering/BAS/SCADA systems, including BACnet/IP, Modbus TCP/RTU, OPC UA, DNP3, or any available REST/MQTT APIs for data integration?	Proposers should not assume direct integration to BAS/SCADA protocols. The proposal should identify the expected exposure pattern, such as historian, broker, API, or other IT-facing layer, and clearly state any protocol, gateway, or normalization assumptions needed to consume metering or telemetry data in a format supported by the Digital Twin.
163	[What is the] data frequency and structure for metering outputs (intervals, units, timestamps), plus any network/security constraints (DMZ/ICS/Administrative segmentation) that may affect integration into the Digital Twin?	Proposers should assume metering data will be time-stamped, unit-aware, and interval-based, and that integration must comply with Port segmentation and cybersecurity controls. Final source formats, refresh rates, and approved interface paths will be defined during requirements validation.

No.	Question	Response
164	[Section 2.2.4 says,] “All Port Digital Twin data shall be delivered to The Port at closeout and stored in The Port’s designated enterprise cloud storage solution where The Port is the owner and super administrator. Except for any copies that must be retained solely to comply with applicable laws or audit requirements (and which shall remain subject to the confidentiality and security obligations of this agreement), the Consultant shall not retain any copies of Port data after closeout.” Does that [mean the] solution should be hosted using on-prem resources?	Please refer to Section 2.2.1.4 of the RFP, "Asset & Environmental Inspection". The closeout requirement does not require on-prem hosting. It requires delivery of all Digital Twin data to the Port at closeout and storage in the Port’s designated enterprise cloud storage solution under Port ownership.
165	[Section] 2.2.1.2 Bathymetry Viewing and Analysis [says], “Provide a repeatable method for importing and updating bathymetric data, including support for point-based or surface-based survey inputs, and it must retain or reference previous versions of bathymetric surfaces for historical comparison and change analysis.” Does [that mean] we need to store the historical data of bathymetric surfaces and show changes in model for before & after scenario? Also, how much historical data needs to be stored?	Yes. Bathymetry updates are required to retain or reference prior versions for historical comparison and change analysis, and acceptance includes demonstrating an update using a Port-supplied dataset with retention of the prior version for comparison.
166	Can or will this project expect to include the scope of verifying and improving validation of where assets are exactly located, e.g. underground utilities. What is the expectation in utilizing existing data for these locations, doing any verification, or creating new improved location data?	Please refer to Question 88. Proposers should focus on consolidating and publishing existing substructure datasets and establishing validation and update workflows. If proposers recommend field verification or improved location capture, it should be presented as an optional enhancement with clear scope boundaries and dependencies.
167	For telemetry data ingestion, can the Port provide what existing telemetry devices are already installed and utilized, how data is typically pushed/pulled from the device, and even an existing network or data store exist for this information? Will additional telemetry devices and ingestion be required for improvement in real-time environmental data?	Please refer to Section 2.2.1.5 of the RFP, "Environmental Sensor Integration and Monitoring". Proposers should assume the capability will integrate a limited set of existing environmental monitoring feeds already in use and should include discovery of device, protocol, gateway, and data-store details in their implementation approach. If additional telemetry, gateways, or supplemental sensors would materially improve real-time environmental visibility, proposers should recommend them as clearly scoped options with assumptions, cost, and dependencies.
168	Can the Port provide information on who its network provider is and the technologies used; e.g. WAN over LTE/5G, and other wired & wireless technologies already in place.	The Port cannot provide information on who its network providers are. Proposers should assume a heterogeneous enterprise network environment and design a provider-agnostic solution that supports secure wired and wireless connectivity, including cellular or edge-connected collection where needed. Proposals should identify any minimum bandwidth, latency, gateway, resiliency, or field-connectivity assumptions required to support telemetry and traffic-related data ingestion.

No.	Question	Response
169	Regarding pages 24-26, RFP Section 2.2.1.10 Traffic Modeling, is there a defined radius around the port for the traffic model?	Section 2.2.1.10 of the RFP, "Traffic Modeling" is intended to introduce an analytical tool within the Digital Twin that simulates how changes to roadway conditions may influence traffic flow in and around the Port. The intent is to provide decision-makers with a what-if analysis capability that supports planning for road closures, construction, operational changes, or emergency conditions. The capability is expected to offer a realistic representation of traffic behavior and to support future planning for more advanced transportation modeling. No radius is defined in the RFP. Radius should be included part of the analytical tool for Port staff to simulate different scenario. Proposers should recommend radius extent that impact the Port.
170	Regarding pages 24-26, RFP Section 2.2.1.10 Traffic Modeling, is there a specific level of detail as to what street classifications are to be included vs. not (i.e., all roads of all neighborhoods or is there a cut-off)? Does this change the further away from the Port the map goes?	For Capability 10, the proposer should recommend a radius that impacts the Port.
171	Regarding page 25, RFP Section 2.2.1.10 Traffic Modeling, “Intended Use and Business Context, Support operational planning by allowing staff to evaluate traffic impacts when scheduling construction or maintenance activities,” what data sources are available to assist with forecasting impacts of events that stretch into high-traffic times such as rush-hour?	The proposer should identify the data sources it intends to use and describe how those sources will support calibration, validation, and forecasting of traffic impacts.
172	Could the Port of Los Angeles provide clarity on the expected percentages of digital data (DWG, shapefile, obj, GeoJSON, etc.) for inclusion into the proposed digital twin versus data requiring conversion to digital formats for ingestion?	Proposers should assume mixed data conditions and include a data readiness assessment and conversion/georeferencing workflow for records delivered in CAD or document formats.
173	Given that the 3D Basemap must be developed using the Esri platform and all capabilities must be fully compatible with the Port’s Esri-based enterprise GIS environment, please confirm whether Esri (or any Esri affiliate) is permitted to submit a proposal as a prime or participate on a proposing team in any capacity. If platform vendor participation is permitted, please describe the safeguards that will be applied to ensure procurement integrity and equal access to non-public information.	Esri did not participate in the drafting of this RFP, nor did any other vendor.

No.	Question	Response
174	Should proposers include Esri software licensing/subscription and support costs in Attachment 1 pricing, or does the Port intend to procure/hold Esri licenses separately? If licensing is to be included in proposer pricing, will the Port provide baseline licensing assumptions (e.g., required SKUs/quantities/terms) or otherwise normalize licensing costs for evaluation so proposals are compared on a consistent basis?	Please refer Question 24 and Question 364. Proposers should include any required non-standard, net-new, or extension-based Esri licensing, subscription, and support costs in their proposal and clearly document all licensing assumptions.
175	For the 3D basemap, bathymetry, and substructures capabilities, should proposers assume the Port will provide existing authoritative source data (e.g., GIS/CAD/BIM/as-builts, bathymetric surveys, existing imagery/reality capture) for ingestion, and that the base scope is focused on integration/modeling/configuration?	Please refer to Question 17 and Question 62. Proposers should plan for a hybrid approach where the Port provides authoritative source datasets for ingestion where available, and proposers perform the required processing, transformation, integration, modeling, configuration, and publishing to meet the deliverables. For the 3D basemap in particular, proposers should assume new capture is required to produce the port wide 3D mesh and annotated basemap layers, while still integrating any Port provided datasets that meet quality and licensing constraints.
176	Please clarify whether any new data collection (e.g., above-water LiDAR/UAV capture and/or new hydrographic/bathymetric surveys) is expected within the base scope or may be proposed as an optional/additional service.	Please refer to Section 2.2.1.1, "Port-Wide 3D Basemap" and Section 2.2.1.2, "Bathymetry Viewing and Analysis" of the RFP, Question 62 and Question 78. Proposers should include the required approach to produce the port-wide basemap and describe the data collection methodology necessary to meet the deliverable requirements. Bathymetry and substructure datasets are expected to be integrated from Port-provided sources.
177	Does the Port have an existing condition rating scale/defect taxonomy that must be used for the inspection forms, or should the consultant propose a standard scheme for Port review/approval? Is the Port expecting inspection findings to include recommended actions, priority, and/or cost estimates at the finding level, or is scope limited to condition/observations and follow-up status tracking?	Proposers should include a recommended standard scheme for Port review and approval. The base scope supports condition and observation capture with follow-up status visibility.
178	Does the Port have a preferred traffic modeling software platform, or should proposers recommend the most appropriate tool based on the functional requirements outlined in the RFP? Does the Port currently maintain any existing traffic models that would be made available to the selected consultant for use as a baseline?	The Port doesn't have an existing traffic model. Proposers should recommend the most appropriate tool based on the functional required in Section 2.2.1.10, "Traffic Modeling".
179	Please confirm whether the Digital Twin capabilities are to be deployed within the Port's existing Esri-based enterprise GIS environment and Port-managed infrastructure/environments, with the selected consultant responsible for configuration, integration, and documentation (rather than providing third-party hosting).	The Port does not prescribe a single hosting model. Proposers are required to provide a system architecture that describes hosting options, the data storage, and compute needed to support the capabilities in the Port enterprise environment.

No.	Question	Response
180	For Capabilities 1–2, please confirm the Port-defined AOI boundary to be used for pricing and evaluation, including total acres (land + water). The RFP describes the Port as 7,500 acres of land and water along 43 miles of waterfront—please confirm whether this represents the intended coverage area for the port-wide basemap deliverables in this RFP or whether a different AOI applies. Please also confirm the total length (miles) of navigable waterways (channels/berths/basins) to be included in the bathymetry deliverables for this phase (and any exclusions).	Please refer Question 62 and Question 190. Proposers should use port-wide coverage of Port land and water areas for pricing and evaluation unless the Port issues a smaller defined area of interest for initial delivery. For Capability 2, proposers should include the Port's navigable waterways within the Port footprint, including channels, berths, and basins, as part of the bathymetry deliverables.
181	Please specify the minimum acceptance requirements for the above-water 3D basemap/reality capture outputs (e.g., required horizontal/vertical accuracy, coordinate system + vertical datum, any minimum resolution/LOD, and the method used to validate/accept accuracy).	Please refer to Question 62 and Question 95. Proposers should define measurable acceptance criteria in their proposal, including target horizontal and vertical accuracy, coordinate reference system and vertical datum, minimum ground sampling distance or equivalent resolution, minimum structure representation level appropriate to a photorealistic basemap, and an acceptance test plan. The acceptance test plan should include checkpoints for control alignment, independent QA checks, coverage and completeness verification, and documentation of residual errors and exceptions.
182	Please specify the Port's tolerance/precision and validation requirements for bathymetry products (e.g., required vertical tolerance, vertical datum, surface/grid resolution, and how compliance will be verified). If these requirements are not yet finalized, will the Port publish minimum acceptance thresholds, so proposals are priced to a consistent baseline?	Proposers shall include their recommended approach for bathymetry product tolerances, datum handling, surface/grid resolution, and validation methods, consistent with the Port-provided bathymetry datasets and the required bathymetry deliverables. The Port will confirm the acceptance criteria and verification approach with the selected consultant.
183	The RFP identifies that there are up to 25 utility or infrastructure layers. We would like to request some information about what those utility layers our for our consideration in putting the proposal together.	Please refer to Question 98. Proposers should assume up to 25 layers, but the final number of layers will be defined with the selected consultant.
184	The term being used is "mapping substructures". Does that term specifically refer to underground utilities? Is there underwater utilities and utility systems in vaults and structures underground to be utilized by the team as well?	Please refer to Question 98 and Question 134. "Substructures" should be treated broadly as subsurface and buried infrastructure represented through the up to 25 utility and infrastructure layers sourced from the Port and partners. Proposers should assume the scope includes whatever underground and related substructure datasets are provided within those layers, and should describe how they will incorporate each layer type, including depth attributes or 3D representations where the source data supports it.

No.	Question	Response
185	[Section 2.2.2.10] Is there a minimum area of impact that should be considered as part of the Traffic Model?	The model should cover the roadway area necessary to support meaningful what-if analysis for traffic changes in and around the Port, including Port roads and nearby external connectors and arterials where those routes materially affect Port access, detours, emergency routing, or community spillover. Proposers should describe the practical study area required for their approach.
186	Is [the] traffic model expected to be able to analyze traffic within the Port facility?	Yes. This model requires an impedance-based roadway network that incorporates Port roads (and potentially connecting arterials) to support closure/capacity scenario analysis within and around the Port.
187	Do local residential functional road classes need to be included, or just freeways and major roads?	Please refer to Question 170.
188	Is it the preference of POLA to leverage existing software tools (Esri, MaintStar, etc) for this effort?	Yes. Where practical, the Port prefers to leverage existing enterprise platforms and systems already in use, including Esri ArcGIS and other relevant Port systems, provided the proposed solution satisfies the required capabilities, integration needs, and long-term support objectives defined in the RFP. Proposers should describe how their approach leverages existing Port tools and clearly identify any additional software or components required.
189	For the 3D basemap task, should the consultant assume that a new 3D basemap will be developed from existing imagery and/or LiDAR scans, or will it be developed from existing information (i.e. does the proposer need to include costs for survey services)?	Please refer to Question 17, Question 62, and Question 131. Proposers should assume the basemap must be created and should include the work and costs required to produce the port wide 3D mesh and annotated basemap layers, including aerial and terrestrial capture and processing as needed. If the Port provides existing imagery or LiDAR that is suitable for reuse, proposers should describe how it will be incorporated and what validation will be performed.
190	Is it assumed that the 3D basemap will cover all 7,500 acres of the site?	Please refer to Question 62. Proposers should assume the Capability 1 basemap is port wide coverage, and should price and design for full coverage.
191	Is it expected that a new bathymetric survey will be conducted to support this task, or will existing information be used to develop the bathymetric layer?	Please refer to Section 2.2.1.2 Bathymetry Viewing and Analysis of the RFP and Question 32, Question 34 and Question 132.
192	If a new bathymetric survey is to be conducted, can POLA provide a general site map showing the area of interest with estimated acreage?	Please refer to Section 2.2.1.2 Bathymetry Viewing and Analysis of the RFP and Question 32, Question 34 and Question 132.
193	Can POLA confirm that no ground survey or in-field subsurface utility mapping will be completed as part of this effort and that mapping of substructures will be developed based on existing records provided by POLA?	Please refer to Question 88. Proposers should plan to develop the substructure mapping capability using existing records and datasets provided by the Port and partner sources, with validation and update workflows. Any in-field subsurface mapping or verification should be presented as optional.

No.	Question	Response
194	Can POLA provide general information regarding the number of utility systems to be mapped and the total approximate length of those systems?	Please refer to Question 98. Proposers should assume up to 25 utility and infrastructure layers and propose an ingestion and publishing approach that scales to port wide coverage. Proposers should state assumptions about coverage density and completeness until the Port provides the layer inventory and associated metadata.
195	Does POLA leverage, and have licenses for, Esri's ArcGIS Online or Portal for ArcGIS environments?	Please refer to Question 24 and Question 364.
196	Is it the preference of POLA to implement inspection tools within the Esri environment?	Please refer to Question 6.
197	Do the five sensors currently exist and are operational, or shall the consultant include sensor implementation, and software/comms/data logger in the proposal?	The five sensors referenced may include existing sensors and/or new sensors depending on the final implementation approach. Proposers may include sensor implementation, including associated hardware, communications, and data logging components, if needed to support their proposed solution. Final requirements will be confirmed during the requirements and design phase.
198	If sensors exist, is there software that POLA currently utilizes for sensor data management?	Environmental sensor data is currently managed through multiple systems and monitoring programs depending on the specific sensor type and program owner. There is not a single standardized platform used across all sensors. Relevant systems and data access methods will be identified during the requirements and design phase.
199	Please clarify whether "security incident" refers to cybersecurity incidents, physical incidents on Port property, or both.	"Security incident" should be understood primarily as physical and public safety incidents on port property, with related operational incident data included where relevant to situational awareness.
200	Is the selected Consultant expected to provide 24/7 monitoring, or only 24/7 support upon notification of a critical incident?	Please refer to Section 2.2.3.2 of the RFP, "Operations & Service Management," and also to Question 108.
201	Are defined severity levels, response times, and resolution targets expected for incident response beyond what is proposed in the Consultant's SLAs?	Yes. Please refer to Section 2.2.3.3 of the RFP, "Measurable Service Levels and Reporting," and Question 200. The consultant shall propose SLAs that define severity levels, response targets, resolution targets, escalation paths, and measurement methodology. These service levels are expected as part of the required support framework for the delivered solution.
202	Is the Digital Twin expected to integrate with or display real-time data from the Port's Computer-Aided Dispatch (CAD) system or other incident management systems as part of supporting security incidents?	Yes. Please refer to Section 2.2.1.9 of the RFP. The Security Dashboard design should account for potential integration of approved CAD or other incident-management data if made available by the Port.
203	Does incident response support include visualization or integration of security asset locations and status (e.g., vehicles, officers, equipment) in real time within the Digital Twin?	Please refer to Question 202 and Section 2.2.1.9 of the RFP. The design should support visualization of authorized security asset locations and operational status in real time where approved feeds are available.

No.	Question	Response
204	Does the 99.99% availability requirement apply to all delivered capabilities, including development and staging environments, or production only?	The 99.99% availability requirement applies only to the production environment. Proposers must design their solution to meet this requirement and should also provide proposed SLAs for all non-production environments.
205	Are specific Recovery Point Objective (RPO) and Recovery Time Objective (RTO) targets defined by the Port?	Please refer to Section 2.2.2.3 of the RFP, "Measurable Service Level and Reporting". Proposers should state their proposed RPO and RTO targets, backup strategy, failover approach, and recovery testing plan consistent with the required availability, redundancy, and resilience requirements.
206	Is high availability required at the infrastructure layer, application layer, or both?	High availability is for both.
207	Is ongoing managed services support expected for the full three-year term, or only during the post-production period?	Ongoing managed services support will begin at the completion of the project implementation and will continue until the end of the contract term.
208	Does the Port expect proactive system monitoring by the Consultant, or reactive support based on ticket submission?	Section 2.2.2 of the RFP, "Technical and Security Requirements" requires proactive operation and monitoring of the platform, including automated alerts and monthly health reports.
209	Are recurring costs (e.g., hosting, monitoring, licensing) expected to be priced for the full three-year duration in Attachment 1?	Recurring costs should be priced for the full period of performance defined in the RFP and identified as annual recurring amounts in Attachment 1.
210	Is there a complete list of installed systems relevant to this project for each of the 10 capabilities, including vendor, software versions, and API availability?	The current systems we are using as it relates to the Digital Twin Project are as follows: MaintStar (CMMS), Oracle Fusion (ERP), Esri ArcGIS (GIS), AutoCAD/Civil3D (Engineering), Port Optimizer (PCS).
211	Please clarify how the Harbor Department distinguishes between pre-existing background intellectual property incorporated into the solution and project-specific deliverables, configurations, and customizations developed under this contract.	The future contract will govern all intellectual property (IP) rights. Please refer to Section 4.9. of the RFP.
212	Does the Port expect assignment of background platform IP, or only project-specific work products developed under this agreement?	Please refer to Question 211.
213	If multiple awards are issued, how will cross-capability integration responsibilities be allocated?	Please refer to Attachment 1, which organizes pricing by Capability Group and by Capability. If multiple awards are made by group, each awarded consultant will be responsible for integration within its awarded scope and for required cross-group interfaces, testing, and handoffs coordinated by the Port. Primes should submit only one proposal. Subconsultants may participate on multiple proposals.

No.	Question	Response
214	Will one consultant be designated as overall systems integrator, or will integration responsibilities be shared?	Proposers should not assume a separate overall systems integrator unless designated by the Port. If multiple awards are issued, integration responsibilities may be shared across awarded consultants, with coordination, governance, and acceptance managed through the Port's project structure. Proposers may describe any recommended lead-integrator or shared-responsibility model in their proposal. Primes should submit only one proposal. Subconsultants may participate on multiple proposals.
215	Should proposers assume full three-year funding for pricing purposes?	Pursuant to Section 4's Standard Contract Provisions in the RFP (4.13, "Termination Due to Non-Appropriation of Funds"), funding is subject to appropriation by the Harbor Board of Commissioners each fiscal year of the contract.
216	Does the Port anticipate phasing capabilities based on budget availability?	The Port does not anticipate phasing capabilities based on budget availability. The Port anticipates phasing based on practical implementation sequencing and dependencies, so foundational components and early value capabilities are delivered first and later capabilities build on them.
217	Will PCS API documentation, schemas, and data dictionaries be made available during implementation?	Yes. The Port's Information Technology Division will provide available and relevant API documentation, schemas, and data dictionaries applicable to approved integrations during implementation, subject to governance and security requirements.
218	What update frequency should be assumed for PCS-derived movement layers (real-time, near-real-time, scheduled batch)?	Proposers should assume a mix of near-real-time and scheduled updates depending on dataset type and operational use case. Certain PCS-derived movement data may support near-real-time refresh, while other datasets may be provided on a scheduled or batch basis. The Port welcomes proposers to recommend appropriate update frequencies based on their proposed architecture, performance considerations, and intended use cases. Final frequencies will be defined during requirements and integration planning.
219	Are there performance thresholds for time-enabled GIS layers consuming PCS data?	Specific performance thresholds have not been predefined in the RFP. Proposers should architect solutions capable of supporting scalable, low-latency performance suitable for operational decision support. Final performance targets (e.g., refresh rates, response times, concurrency expectations) will be defined during requirements validation and solution design.

No.	Question	Response
220	Please clarify, to the extent permissible under Port security policies, the specific source systems and interfaces expected to be integrated under each capability, including system names, data owners, interface methods (e.g., API, database, file exchange), and any known security or access constraints that may materially affect scope, sequencing, or cost assumptions.	Please refer to Question 70 and Question 217. Core systems include MaintStar, Oracle Fusion, ArcGIS, AutoCAD/Civil3D, the Port Optimizer, and approved security/public safety data sources. Proposers should assume API, database, file-based, and secure exchange methods, with final interfaces and access constraints confirmed during requirements validation.
221	What versions of ArcGIS Enterprise and related components are currently deployed?	Please refer to Question 24, Question 210, and Question 364.
222	Is the Port's Esri environment hosted on-premises, cloud, or hybrid?	Cloud.
223	Will the Port provide required Esri licensing for all users and services?	Please refer to Question 22, Question 24, and Question 364.
224	Will the Port provide an authoritative inventory of datasets (basemap, bathymetry, substructures, environmental layers)?	Proposers should plan for Port-provided authoritative datasets where available and include an early data inventory and readiness assessment to confirm coverage, quality, and gaps.
225	What is the expected refresh cadence for aerial imagery, bathymetric surveys, environmental sensors, and substructure datasets?	Please refer to Question 80, Question 237, and Question 165. Proposers should propose refresh cadence assumptions by dataset family and deliver repeatable update workflows and governance to support ongoing refresh.
226	What is the expected solution for data conflicts between static data (example: aerial / satellite imagery that includes vessels, vehicles, etc.) and live data? Is consultant expected to hide / remove / scrub this conflicting data from the static source?	Proposers should propose a data governance and visualization approach that distinguishes static basemap context from time enabled operational layers. The solution should support layer prioritization and filtering so live feeds, such as vessel or vehicle positions, are presented as the authoritative current state without requiring modification of the underlying static imagery. Where static imagery artifacts materially impact operational use, proposers may propose optional mitigation approaches, such as selecting capture windows that minimize transient objects, periodic imagery refresh, or masking strategies, and should clearly state assumptions and impacts.
227	Does the Port prefer cloud-first, on-premises, or hybrid hosting?	The RFP does not prescribe a single hosting model. It requires proposers to provide a system architecture that describes hosting options and the data storage and compute needed to support the capabilities in the Port enterprise environment.
228	Must all hosting remain within the Continental United States?	Please refer to RFP Amendment #2 and RFP Section 2.2.2.3.
229	Will the Port provide cloud tenancy, or should proposers assume hosted environments?	The RFP does not prescribe a single hosting model. It requires proposers to provide a system architecture that describes hosting options and the data storage and compute needed to support the capabilities in the Port enterprise environment.

No.	Question	Response
230	Please clarify expected deliverables for knowledge transfer (e.g., number of training sessions, documentation depth, administrative enablement).	RFP knowledge transfer deliverables include Port-approved training and documentation enabling Port staff to independently operate and maintain each delivered capability, plus knowledge transfer during support and transition/closeout (including final editable documentation and a closeout report documenting configuration, security protocols, process flows, data maps, dashboards, and end-user guidance).
231	Are specific KPIs defined for each capability group, or should proposers propose measurable metrics?	Please refer to Question 336 and Question 337. Proposers should propose measurable KPIs for each capability group, aligned to business outcomes, adoption, data quality, timeliness, and operational performance.
232	What existing reality capture data does the Port currently hold (e.g., aerial imagery, LiDAR point clouds, photogrammetric mesh models), and in what file formats, coordinate reference systems, and collection dates?	Please refer to Question 123 and Question 131.
233	Are any existing 3D facility models or BIM/CAD files available that could serve as inputs to the basemap?	Please refer to Question 122 and Question 153.
234	What are the required horizontal and vertical accuracy tolerances for the 3D mesh (e.g., RMSEz at ground level)?	Please refer to Question 62, Question 95, and Question 181. Proposers should include a stated horizontal and vertical accuracy target and validation method in their proposal, including how errors will be reported and what thresholds will be used for acceptance.
235	What is the Port's authoritative coordinate reference system and vertical datum (e.g., NAD83, NAVD88, MLLW)?	NAD83.
236	Are there any restricted or classified areas of the Port where photogrammetric or airspace-based data collection is prohibited or requires special authorization?	The Port is a non-flying zone. Proposers will be required to obtain a Port Permit and coordinate with Port Police.
237	What is the anticipated refresh cadence for the 3D basemap (e.g., annual re-flight, event-triggered updates)?	Please refer to Question 80. Proposers should propose a refresh approach that supports both scheduled and event triggered updates, and state their recommended cadence assumptions, including cost and operational implications.
238	What formats are existing substructure datasets currently in (e.g., AutoCAD DWG/DXF, PDF as-builts, existing GIS layers, paper drawings)?	Please refer to Question 134. Proposers should plan to ingest and normalize substructure datasets that may arrive in mixed formats, including GIS layers, CAD drawings, and document based as-builts, and propose an approach for conversion, georeferencing, attribution, and publishing into the Digital Twin as governed utility layers.

No.	Question	Response
239	Who are the "partner sources" anticipated to contribute utility layer data, and will the Port facilitate data-sharing agreements with those partners?	Proposers should assume utility and infrastructure layers may be sourced from both Port managed systems and designated partner entities. Proposers should describe how they will ingest partner provided datasets, manage source attribution, and respect data sharing constraints. Proposers should also assume the Port will coordinate access to partner data needed for the scope, and they should identify any data sharing agreements or permissions that are prerequisites to meet deliverables.
240	Are any of the ~25 utility layers already in GIS format with spatial accuracy sufficient for direct ingestion, or should proposers assume data conversion and georeferencing work for most layers?	Please refer to Question 134 and Question 238. Proposers should assume a mixed condition, some layers may be directly ingestible while others will require conversion, georeferencing, and validation. Proposers should propose an initial data readiness assessment and triage process that classifies each layer into direct ingest, light transformation, or heavy conversion, and define the workflow and acceptance checks for each class.
241	Are there access classification requirements for sensitive infrastructure layers (e.g., high-security utilities) that would restrict which users or environments can view them?	The RFP requires data be identified, classified, and labeled by sensitivity (e.g., public, internal, confidential, restricted) and that access be monitored, controlled, and audited with least-privilege and RBAC/SSO/MFA controls.
242	What mobile device platforms are in use at the Port (e.g., iOS, Android, Windows tablets), and are there existing MDM or device management policies the solution must comply with?	The Port's primary mobile platform is iOS based and its devices are managed by a MDM.
243	Please identify, to the extent known, the five asset inspection categories and five environmental inspection categories envisioned for the initial deployment.	The five asset inspection categories and five environmental inspection categories will be confirmed and provided to the selected consultant during onboarding and discovery. Proposers should describe their approach for configuring inspection categories, forms, and workflows during discovery, and should state assumptions for how categories will be finalized and approved with Port stakeholders prior to field deployment.
244	Is there an existing inspection system (paper-based or digital) from which historical inspection records should be migrated into the new platform?	No.
245	What offline data retention expectations exist? For example, how long must field data be held on-device before sync is required?	We will define this with the selected consultant.

No.	Question	Response
246	Please identify the up to five sensor sources intended for initial integration, including sensor type, data owner, communication protocol (e.g., REST API, MQTT, SFTP file drop), and approximate data latency.	The specific sensor sources for initial integration have not yet been finalized. Environmental monitoring data currently originates from multiple systems and programs. Proposers are encouraged to recommend appropriate sensor types and integration approaches based on their proposed solution. Final sensor sources, protocols, and latency expectations will be defined during the requirements and design phase.
247	Are there data licensing, access-control, or regulatory restrictions on any of the sensor feeds that could affect integration design or data sharing within the Digital Twin?	Yes. Access to certain sensor data may be subject to licensing terms, confidentiality provisions, and Port cybersecurity and data governance policies. Some datasets may also involve operational or regulatory considerations. The selected consultant will be required to comply with all applicable access controls, security standards, and data-sharing requirements established by the Port's Information Technology Division.
248	What historical sensor data (if any) exists and should be loaded at go-live for baseline trend analysis?	Historical environmental monitoring data is available through various Port programs. A significant portion of this data is publicly accessible through the Port's environmental reporting resources, including the Port's website https://portoflosangeles.org/environment. Additional historical datasets, where available and relevant, may be provided during implementation to support baseline analysis and calibration.
249	Who is responsible for sensor calibration and metadata updates (the Port, a third-party operator, or both) and how should the Consultant's integration pipeline handle calibration change events?	Please refer to Section 2.2.1.5 of the RFP, "Environmental Sensor and Integration Modeling". Sensor calibration and metadata maintenance should remain with the sensor owner or operator, whether the Port or an approved third party. The proposal should describe how calibration metadata, source attribution, timestamps, and status changes will be preserved and how recalibration or metadata changes will be reflected in downstream ingestion and dashboards.
250	What is the Port's financial system of record (e.g., SAP, Oracle, Tyler Munis), and does an existing API or data export mechanism exist for extracting revenue and expense data?	Oracle Fusion.
251	What is the intended refresh cadence for financial data in the dashboard (e.g., nightly batch, monthly close)?	This will be decided during the project, depending on all the factors and what makes sense for that capability.
252	What is the data classification level for financial information, and are there restrictions on storing financial data in cloud environments or multi-tenant systems?	Please refer to Section 2.2.2.3 of the RFP. Financial information shall be classified and controlled under the Port's data sensitivity and security requirements, including role based access, encryption, and U.S. based hosting. Any cloud or multi tenant deployment must comply with those requirements.
253	Which Port roles and departments (beyond Finance and Real Estate) are expected to have any level of access to financial dashboards, and what data-masking or row-level security requirements apply?	This information will be provided to the selected consultant.

No.	Question	Response
254	What security and public safety systems currently exist at the Port that would be candidates for future integration (e.g., CCTV platform vendor, access control system, CAD/dispatch platform, AIS/vessel tracking feed)?	Future integrations are not within the scope of this project.
255	Which Port Police and Emergency Management personnel will be the primary workshop participants, and how many workshop sessions does the Port anticipate?	This information will be provided during the project with the selected consultant.
256	Are there federal, state, or Port-specific classification requirements that would govern the sensitivity of the design document itself or constrain what can be documented in writing?	The Port is subject to and complies with the California Public Records Act. System, network and architecture designs that are sensitive shall be labeled with specific sensitivity labels (e.g., public, internal, confidential, restricted).
257	Does the Port currently have a routable road network GIS dataset, and if so, what attributes (speed limits, lane counts, turn restrictions) are available?	No.
258	Is there existing traffic count, volume, or origin-destination data for Port roads that could be used for model calibration?	Please refer to Question 171. Proposers should assume the use of available historical traffic data, roadway network data, and other relevant datasets needed to support calibration and validation of the traffic model. Proposers should identify the data sources they intend to use, including any Port-provided, partner-provided, or publicly available sources that support their proposed approach.
259	Should proposers assume integration with an existing regional travel demand model (e.g., SCAG model), or should the network be self-contained within the Digital Twin?	Please refer to Section 2.2.1.10 of the RFP, "Traffic Modeling". Proposers should provide a self-contained traffic modeling capability within the Digital Twin that can use available Port and regional data for calibration and scenario testing. Proposers may recommend optional use of regional models or regional datasets where they improve fidelity, but the base solution should not depend on direct integration with an external travel demand platform.
260	What is the anticipated maximum extent of the roadway network, Port roads only, or including adjacent city arterials?	Please refer to Question 170.
261	What system is currently used to track capital projects (e.g., project management software, spreadsheets, a PMIS), and will integration or data export from that system be in scope?	MS Access front end with a SQL back end.
262	Approximately how many active capital projects are in the Port's current portfolio, and how many projects per year are expected to be added over the contract term?	Currently the Port has approximately 220 current capital projects. The Port cannot predict how many projects will be added during the Digital Twin project timeline.
263	What project lifecycle stages and spatial data types (e.g., project boundary polygon, phasing areas, construction limits, as-built extents) should the capability support?	Please refer to Section 2.2.1.7 of the RFP, "Capital Project Mapping". The capability should support at minimum planned, active, and completed or as-built stages, with spatial support for project boundaries or footprints, phasing or staging areas, construction limits, and final extents where available.

No.	Question	Response
264	What is the estimated total number of named users and peak concurrent users expected across all Digital Twin capabilities at go-live?	Please refer to Question 65 and Question 85. The Port is not providing a total named-user estimate or a platform-wide peak concurrency estimate at this time. For proposal purposes, use the per-capability assumptions provided in those responses. Final named-user estimates will be confirmed with the selected consultant during implementation.
265	What identity provider does the Port use for enterprise SSO (e.g., Azure Active Directory, Okta), and is SAML or OIDC federation already established with the Esri environment?	Active Directory/SAML.
266	Which external stakeholder groups (e.g., tenants, regulatory agencies, harbor pilots) may require read-only or limited access to any capabilities, and are there network access constraints for those users?	No external stakeholder will be require access to any capability.
267	The RFP references Box Enterprise as the Port's designated cloud storage solution. Is an active Box Enterprise tenant already provisioned and available for use, and will the Consultant be added to the existing tenancy?	The Port's designated enterprise cloud storage solution for project document collaboration is Box Enterprise. The Port does not currently have the tenant provisioned for this project. The selected consultant should provide and provision the project storage approach required for contract performance, including Port administrative access to editable copies throughout the contract term, and should include any associated licensing, access, support, and setup costs in its proposal.
268	What is the Port's designated enterprise cloud password manager solution (e.g., CyberArk, 1Password Business, Keeper), and is it already deployed?	The Port uses Keeper as an enterprise cloud password manager, which has already been deployed.
269	How many environments (e.g., dev, staging/UAT, production) are required, and does the Port expect each to be fully isolated or is a shared-infrastructure tiered model acceptable?	Proposers should design the production deployment to meet the availability requirement and describe how development and staging environments will be provisioned and supported.
270	Will the Port provide separate Esri licensing seats and ArcGIS Enterprise instances for non-production environments, or should proposers account for this in their cost models?	Please refer to Question 24 and Question 364. The Port has a Software Agreement with Esri that covers the ArcGIS Enterprise software for all environments, but does not cover extensions.
271	What is the Port's IT change management process (e.g., ITIL-based, change advisory board cadence), and what lead time is typically required for production changes?	Proposers should assume production changes will be governed through Port enterprise IT change control and scheduled environment promotion. The proposal should describe the proposer's change management approach, including release planning, testing, rollback, approvals, blackout windows, and assumed lead times for standard, expedited, and emergency production changes.
272	Does the Port have a preferred project delivery methodology (e.g., Agile, waterfall, hybrid), and are there required project management tools (e.g., Smartsheet, Jira, Microsoft Project)?	Proposers should describe the project delivery methodology they recommend for this effort, including how they will manage discovery, design, configuration, testing, deployment, status reporting, and issue and risk management throughout delivery.

No.	Question	Response
273	What is the Port's standard data retention and records management policy, and are any Digital Twin datasets subject to public records obligations that could affect storage design?	Proposers should design for Port-owned retention, export, auditability, and records-management compliance, including any public-records obligations applicable to Digital Twin datasets and reports. Retention requirements may vary by capability and dataset type. The applicable written retention and records-management policies will be provided to the selected consultant during implementation.
274	The RFP notes the possibility of integrating bathymetric data into Trelleborg navigation software used on Port Pilot portable piloting units (PPUs). Is this integration expected as a required deliverable or an optional enhancement, and what version of Trelleborg software is in use?	Please refer to Question 96.
275	Will the Port facilitate direct engagement with harbor pilots and the Trelleborg vendor during the project to define interface requirements?	Yes.
276	A lot of the scope of work is centered around integration with Port of LA's existing ERI-based GIS environment. Is the Port of LA intending for ESRI to be the primary Digital Twin UI/UX, or are you open to other platforms taking on that role while still meeting ESRI integration requirements?	The Port's primary Digital Twin UI/UX will be Esri based and the Port is open to other proposed systems that can integrate into the Esri platform.
277	What is the expected completion date of the entire project? Shall we incorporate milestone meetings into the project management plan and will we have access to the critical team members for each of these milestone meetings?	Proposers should include milestone meetings and stakeholder touchpoints in the project management plan. The proposer should provide its recommended implementation schedule, milestones, and delivery approach. Upon contract award, the execution schedule for the project will be baselined and monitored with the selected consultant. Relevant Port GIS, IT, and business stakeholders should be expected to participate in key meetings as needed to support delivery, review, and decision-making
278	What is the overall budget?	The total budget and breakdown distribution will not be disclosed.
279	Could you please provide a detailed breakdown of the budget segments and explain how the overall distribution is structured, including any upfront allocations or disbursements?	Please refer to Question 278.
280	Are Blue UAS UAVs preferred?	The capture method and tools are at the consultant’s discretion to achieve the required data outcomes, subject to applicable Port policies and all required regulatory, safety, and site access constraints (including FAA compliance where applicable).

No.	Question	Response
281	Regarding the Port-Wide 3D Basemap, what level of detail (LoD) will be achieved for different asset types (e.g., buildings, cranes, vessels, terrain)? How will this balance visual fidelity with performance requirements for a large-scale port environment?	Please refer to Question 17 and Question 124. Proposers should define the LoD approach by asset type in their proposal, using the port wide photorealistic mesh as the primary visual context layer and the segmented and attributed facilities and above ground assets as the operational, quarriable layer. Proposers should describe how LoD will be managed for performance at port scale, including tiling, streaming, and scale dependent rendering, and should state assumptions for any specific asset classes to be modeled beyond what is represented in the mesh and attributed feature layers.
282	The RFP mentions critical information spread across disconnected systems. What is your proposed data harmonization strategy to consolidate diverse data formats (e.g., CAD, BIM, spreadsheets, legacy databases) into a unified, spatially-enabled data model within the GIS, while preserving data integrity and attribution?	Please refer to Section 2.2 of the RFP, "Scope of Work". Proposers should propose to implement a governed data harmonization approach that standardizes CAD, BIM, spreadsheet, database, and document-linked data into a unified spatial model with preserved source attribution, metadata, and update lineage.
283	Regarding AI-driven insights, How will AI-driven insights (e.g., predictive maintenance, anomaly detection, traffic optimization) be integrated and visualized within the GIS? Can you provide examples of how spatial patterns identified by AI will be presented to users for actionable decision-making?	Please refer to Sections 2.2, 2.2.1.5, 2.2.1.6, and 2.2.1.10 of the RFP. AI-driven insights are not required as a base deliverable. Proposers may recommend AI-driven insights with their specified approach and should define the proposed use cases, data sources, infrastructure, security, validation approach, and user workflows. Where proposed, outputs should be visualized in the GIS through hotspot layers, anomaly flags, risk scores, threshold alerts, trend views, and scenario comparison maps, with clear drill-down to source data, assumptions, and model outputs for executive and operational users. Creative and effective solutions are encouraged, provided the proposal clearly addresses the requirements in the RFP and explains what is being delivered and how it will be achieved.
284	Is there a preferred tech stack for the integrated dashboard?	No. There is no preferred tech stack.
285	Is it possible to do an in-person port tour?	The Port will schedule an in-person tour for the awarded consultant.
286	Can the Port provide detailed documentation of existing operational technology (OT) and IT systems intended for Digital Twin integration (e.g., TOS, SCADA, IoT sensor networks, GIS platforms), including data ownership, API availability, update frequencies, and whether real-time streaming access is currently supported or anticipated?	Please refer to Question 67, Question 69, and Question 162. System documentation and integration details (including data ownership, interfaces/APIs, update frequencies, and real-time versus near real-time access) will be confirmed during kickoff and discovery with the selected consultant. Proposers should include an initial discovery and requirements validation effort to inventory systems and define the integration approach for the required capabilities.

No.	Question	Response
287	What are the Port's expected latency thresholds for synchronization between physical infrastructure state and its digital representation, and are there defined performance targets for simulation-based scenario modeling (e.g., vessel traffic flow, cargo throughput, emergency response routing)?	Please refer to Section 2.2.1.10 of the RFP, "Traffic Modeling". Proposers should recommend latency and performance assumptions aligned to the intended use as a planning and decision-support tool. Interactive scenario analysis should run quickly enough to support live planning sessions and executive decision-making, while source data synchronization may vary by feed and may be near-real-time, scheduled, or event-driven as appropriate.
288	Are there existing cybersecurity accreditation requirements (e.g., alignment with NIST 800-53, CMMC-adjacent frameworks, or City of LA OT segmentation policies) governing how Digital Twin platforms interface with operational infrastructure or safety-critical systems?	Please refer to Question 101 and Question 152. Please also refer to Section 2.2.2 of the RFP, "Technical and Security Requirements". Proposers should align to the Port's cybersecurity requirements, including NIST 800-63 access controls, ISO 27001/FedRAMP expectations, segmentation, continuous monitoring, and Port cybersecurity review for any operational or safety-critical integrations.
289	Can the Port please outline the relationship or describe how Port Optimizer would integrate or interface with the Digital Twin?	The Port Optimizer (the Port's PCS) is expected to serve as a provider of operational data for the Digital Twin. It aims to provide validated maritime, truck, gate, and cargo event data to support situational awareness, analytics, and modeling capabilities. Any integration(s) will occur through approved APIs or controlled data exchange mechanisms, coordinated by the Port's Information Technology Divsion. The specific data flows, frequency, and architecture will be defined during requirements and solution design.
290	Are there other operational, analytics or data systems which have not been directly referenced in the RFP, but which would influence architecture or future roadmap? If so, how are you defining their functional overlap or demarcation?	The current systems we are using as it relates to the Digital Twin Project are as follows: MaintStar (CMMS), Oracle Fusion (ERP), Esri ArcGIS (GIS), AutoCAD/Civil3D (Engineering), and the Port Optimizer (PCS).
291	May we have a list of User Personas that will make usage of the Digital Twin?	A detailed list of user personas will be provided during project onboarding and discovery with the selected consultant. Proposers shall use the user roles and training guidance provided and define their own working set of personas aligned to the ten capabilities, including at minimum executive and leadership viewers, operational users by capability area (GIS and planning, environment, inspections, finance, security, traffic), technical administrators, and power users. Proposers shall state assumptions about persona counts, access levels, and primary workflows in their proposal.
292	In respect to the traffic modeling, are there specific known points of interest within the port area where POLA would want to perform data collection for the traffic modeling?	Points of interest will be determined during the requirements validation phase with the selected consultant.

No.	Question	Response
293	If infrastructure improvements are needed to obtain real time data collection for the traffic modeling, will POLA make those infrastructure improvements to obtain the data collection?	Please refer to Section 2.2.1.10 of the RFP, "Traffic Modeling". Proposers should identify the minimum supplemental data-collection improvements needed to support their recommended traffic modeling approach and distinguish between base assumptions and optional enhancements. Recommendations may include temporary counts, probe data, portable sensors, limited camera-based analytics, or other targeted measures where they materially improve model calibration and decision support.
294	[With] respect to the Port Community System Integration capabilities, will any existing CCTV streams on the POLA network be accessible for data collection efforts for the traffic modeling?	Please refer to Section 2.2.1.10 of the RFP, "Traffic Modeling". Proposers should not assume broad access to live CCTV streams as a base dependency for traffic modeling. Where camera-derived information would improve calibration or situational awareness, proposers should describe an approach that can use approved video, snapshots, metadata, counts, or camera-location context, and clearly state related assumptions.
295	Does POLA have any maps related to existing CCTV locations that can be utilized for data collection purposes?	This information will be shared with the selected consultant.
296	For each of the above-ground asset types (Section 2.2.1.1), does the Port have existing GIS feature layers today?	Proposers should not assume all above-ground asset types already exist as GIS layers and should propose an approach to integrate available layers and extract or create missing layers as needed to meet the basemap deliverables.
297	Does the Port expect the consultant to extract features from reality capture from scratch, augment existing layers, or both? (Section 2.2.1.1)	Please refer to Question 17, Question 62, and Question 175. Proposers should assume a combined approach, extract and create required basemap features from new reality capture where needed, and integrate and augment any Port provided authoritative layers that are suitable for use, while maintaining a clear source-of-truth and update workflow for each layer.
298	Regarding the functionality to link map features to documents or media, where are the documents/media stored today? (Section 2.2.1.1)	Documents reside on the Port's shared local drive and there is some online document management.
299	Do documents/media already have a unique ID that match GIS records? If not, does the Port expect the consultant to create a unique ID and crosswalk? (Section 2.2.1.1)	Yes, some document and media identifiers do already exist and should be used where available to support GIS linkage. Where identifiers do not exist or do not align, the consultant should work with the Port to create the needed crosswalks and assign identifiers consistent with Port standards.
300	Should linked documents inherit source system permissions, or will access be managed inside the digital twin platform? Are there user roles requiring different visibility for assets and documents? (Section 2.2.1.1)	Please refer to Section 2.2.1.1 of the RFP, " Port-3D Basemap". The solution should support role-based visibility for assets and linked documents. Where source repositories remain authoritative, proposals may inherit source-system permissions; where content is replicated or managed within the Digital Twin, proposals should describe equivalent access controls and governance.

No.	Question	Response
301	Regarding the available substructure datasets, can the Port provide information on what the “partner sources” are? (Section 2.2.1.3)	Please refer to Question 239.
302	In what format will existing substructure information be provided? (Section 2.2.1.3)	Please refer to Question 238 and Question 240.
303	Can the Port expand upon what it envisions as the “validation scenario”? (Section 2.2.1.3)	Please refer to Section 2.2.1.3 of the RFP, "Mapping Substructures". The validation scenario should demonstrate how representative substructure datasets are ingested, spatially aligned, visualized, checked against known records or reference conditions, and maintained through a repeatable QA and update workflow.
304	Does the Port have existing inspection forms/schema the consultant must digitally replicate? (Section 2.2.1.4)	The Port has not identified a required digital inspection form or schema to replicate. The selected consultant should configure forms and schema during discovery with Port stakeholders.
305	Do assets already have unique IDs that will support linkages? (Section 2.2.1.4)	Yes, some authoritative asset identifiers already exist and should be used where available to support Asset and Environmental Inspection linkages. Where identifiers do not exist or do not align, the consultant should work with the Port to establish the needed crosswalks and assign identifiers consistent with Port standards.
306	What devices will inspectors use (iOS, Android, tablet/phones, etc.)? (Section 2.2.1.4)	Assume iPhones will be used, and possibly Windows or iOS Tablets.
307	Are the environmental sensor systems owned and operated by the Port? If not, who owns each sensor (e.g., regulatory agency, utility, vendor, research institution)? (Section 2.2.1.5)	Environmental monitoring systems may be owned and operated by the Port as well as by external entities such as regulatory agencies, research partners, or other authorized organizations. Ownership varies depending on the monitoring program. Specific ownership, data access permissions, and integration considerations will be identified during the requirements and design phase with the selected consultant.
308	Do the PCS and other Port-authorized systems provide native geolocation (coordinates or location identifiers) and timestamps for each data feed? If not, which feeds lack this information, and what standards or reference data should be used to derive or infer georeferencing and timestamping for those feeds? (Section 2.2.1.6)	Proposers should account for geolocation and timestamping requirements as part of the integration design and data dictionary definition during requirements validation. Where native coordinates or location identifiers are available, they should be used. Where they are not, the derivation approach and reference data will be defined during requirements and integration planning.
309	Is the Unifier software referenced Oracle’s Primavera Unifier? (Section 2.2.1.7)	Yes.
310	With what system(s) will the Digital Twin need to integrate for this capability? (Section 2.2.1.8)	For this capability, proposers should assume integration with Oracle Fusion, the applicable lease/property management system, and supporting document repository systems used to relate revenue, expense, and lease data to parcels and facilities.

No.	Question	Response
311	What validation data is available? (Section 2.2.1.10)	Please refer to Question 328. Proposers should assume validation inputs may include available traffic counts, travel times, gate and truck activity, PCS-derived movement data, incident history, and closure observations, subject to availability and approval. Proposals should state the minimum validation dataset required for their approach.
312	Does the Port have a preexisting cloud tenant where they intend to host the Digital Twin, or is up to the vendor to provide? (Section 2.2.2)	Proposers should provide the hosting architecture and should not assume a Port-provided tenant unless stated in proposal assumptions. Any project credentials, data, and documentation must be stored in Port-owned cloud storage and password management systems.
313	Per the Port (Section 2.2.2.1): “Document and provide the procedure for provisioning on-boarding, movement, and off-boarding of user accounts for each environment”. Is this at the application tier, infrastructure tier, or both?	The onboarding, movement, and off-boarding procedure should address both the application and infrastructure tiers for each required environment, including user accounts, privileged access, service accounts, approvals, and auditability.
314	Is the Digital Twin meant to be internet facing and/or publicly available, or only accessible to Port staff and Contractors behind an existing corporate firewall?	Please refer to Sections 2.2.2.1 through 2.2.2.4 of the RFP. The base solution should assume controlled access for Port staff and authorized contractors.
315	Does the existing GIS at the Port meet the requirements in section 2.2.2.3?	Yes.
316	Is it expected that whatever infrastructure built for the Digital Twin will be the same or separate from the existing GIS?	The Digital Twin should be treated as an extension of the Port’s GIS environment. Proposers may recommend separate application, integration, or analytics components where needed for security, performance, or lifecycle management, provided the solution remains aligned with the existing GIS.
317	What specific cryptographic standards is the Port referencing [in Section 2.2.2.3]?	Proposers should use current enterprise-grade cryptography for encryption in transit and at rest, secure key and certificate management, and hardened protocols and ciphers.
318	Is 99.99% availability a requirement of the entire Digital Twin, or is the Port willing to consider which aspects should have this availability to allow for cost savings? (Section 2.2.2.3)	99.99% availability is a requirement of the Port's Digital Twin production environment.
319	Is planned maintenance allowed in addition to the 99.99% requirement?	Yes. Planned maintenance may be included, provided the proposal defines maintenance windows, notice, failover, and service-impact controls and still satisfies the required production availability approach.
320	What are the Recovery Point Objective (RPO) & Recover Time Objective (RTO) requirements for failover testing? (Section 2.2.2.3)	Proposers should state proposed RPO, RTO, and failover-testing assumptions consistent with the required availability and redundancy requirements.
321	Does the Port have specific OS Requirements or is it up to the vendor to choose a preferred supported infrastructure? (Section 2.2.2.4)	Proposers should identify the supported operating systems and infrastructure required for their proposed architecture. Consultant-selected platforms are acceptable if they are fully supported and meet Port security, monitoring, and support requirements.
322	Is “Lump Sum” to be interpreted the same as “Firm Fixed Price”?	Yes.

No.	Question	Response
323	Attachment 1 states “Pricing for capability development shall be Lump Sum.” In the chart below that text, a column heading states “Implementation Services Cost (USD, Lump Sum or NTE if T&M)”. Can the Port clarify whether the cost should be provided as Lump Sum or T&M?	Lump sum. Please refer to RFP Amendment #4.
324	Is the Digital Twin a replacement or an extension of the existing GIS?	An extension to the existing GIS system.
325	Could the Port clarify whether Capability 10 is intended primarily as a planning-level what-if tool for closures and detours, or whether it is expected to support a higher-fidelity operational model that captures time-varying queues, gate interactions, and congestion propagation?	Capability 10 is intended to support both planning-level scenario analysis (e.g., closures, detours) and higher-fidelity operational modeling, including time-varying traffic conditions, gate interactions, and congestion dynamics. The expected level of fidelity and operational use cases will be refined during the requirements and design phase.
326	Please confirm the intended roadway network extent for Capability 10, including whether the model should cover only Port/internal roadways or also external connectors and surrounding arterials that materially affect Port access and diversion.	The roadway network for Capability 10 should include Port/internal roads plus the external connectors and nearby arterials that materially affect Port access, detours, gate operations, emergency routing, and community spillover during disruptions. Proposers should recommend the practical network boundary needed to support closure and diversion scenarios and state any phased expansion assumptions. Proposer should recommend radius extent that impacts the Port.
327	Please clarify the Port’s expectations for scenario run times for Capability 10. Is near-real-time interactive analysis expected, or would longer batch-style runs be acceptable?	Capability 10 should support near-real-time interactive analysis for common closure, detour, and routing scenarios used in planning and executive review. Longer batch-style runs may be acceptable for larger or more complex scenarios if the proposal clearly explains the use case, runtime assumptions, and outputs.
328	What traffic data will the Port make available for calibration and validation of Capability 10, such as counts, turning movements, travel times, truck gate data, PCS-derived truck activity, incident history, prior closure observations, or regional model outputs?	Proposers should assume a mix of available Port and regional data may be used for calibration and validation, including traffic counts, travel times, gate and truck activity, PCS-derived movement data, incident history, closure information, and other approved operational datasets. Proposers should define the minimum dataset required for their approach, identify fallback assumptions where data is incomplete, and recommend supplemental collection methods where needed.
329	Beyond updated routing and congestion graphics, please clarify the Port’s preferred outputs for Capability 10, such as travel times, queue lengths, delay estimates, volume-to-capacity indicators, truck turn times, or community spillover impacts.	Preferred outputs should include scenario maps, travel-time deltas, diversion hotspots, corridor and gate impact summaries, delay and queue indicators, route comparison views, and community spillover indicators that support detour planning, staging, stakeholder coordination, and public or community communications. Proposers should recommend both executive-level summary outputs and operational outputs for day-to-day planning.

No.	Question	Response
330	Since the RFP states that PCS-derived truck arrivals, gate moves, and queue times may be used to calibrate and validate Capability 10, please confirm whether those data services will be made available to the Group B consultant, including if Group A and Group B are awarded to different firms.	Yes. PCS-derived datasets required to support calibration and validation of Capability 10 (e.g., truck arrivals, gate transactions, queue/turn times) will be made available to the selected Group B consultant, consistent with scope and governance controls. If Group A and Group B are awarded to different firms, the Port will coordinate appropriate data access to ensure alignment across workstreams, subject to contractual, security, and data-sharing requirements.
331	Please clarify what level of historical access will be available for operational and sensor datasets used in the Digital Twin for analysis, calibration, trend development, and baseline comparison.	Historical access to operational and sensor datasets varies by system and monitoring program. Where historical data is available and appropriate for the capability, it may be provided to support analysis, calibration, and baseline comparisons.
332	Please clarify the expected or available update frequency / temporal granularity for vessel, truck, cargo, and sensor datasets intended for Digital Twin integration (for example, streaming, 1-minute, 5-minute, hourly, or daily).	Proposers should assume a mix of near-real-time, event-driven, and scheduled updates depending on dataset type and use case. Vessel, truck, and cargo data may support near-real-time or periodic refresh, while sensor data may be streaming or interval-based depending on the source. Proposals should identify the refresh assumptions required for each dataset class and explain how those assumptions support performance, storage, and decision-making needs.
333	Does the Port envision the Digital Twin as a platform that may later support more advanced predictive, adaptive, or learning-based capabilities as additional operational data becomes available? If so, should proposers account for that future extensibility in their recommended architecture and data design?	Yes. The Digital Twin shall serve as a foundation for future smart port innovations and requires the solution to be flexible and scalable to meet future needs. The PCS Integration and Traffic Modeling capabilities are explicitly described as establishing a foundation for future automation/advanced analytics/optimization and future smart mobility/traffic management enhancements.
334	In our experience delivering complex data platforms, long-term impact depends on defining measurable success criteria early, beyond technical completion. From the Port's perspective, what would define a successful Digital Twin implementation 12 months after go-live?	Proposers are expected to provide the project schedule. A successful implementation would show sustained cross-department use, trusted and current data, measurable use of the platform in planning and operational decisions, reduced reliance on disconnected reports and spreadsheets, and a scalable foundation for additional capabilities. Proposers should define the benefits and success measures they intend to deliver.
335	We've seen Digital Twin initiatives deliver the strongest ROI when designed as part of a multi-year modernization strategy rather than a standalone visualization tool. How does this initiative align with the Port's broader 3–5 year digital transformation roadmap?	This initiative aligns as a multi-capability modernization program, not a standalone visualization effort. The ten capabilities span multiple Harbor Department divisions and are intended to create a unified geospatial foundation that improves operational efficiency, safety, compliance, financial transparency, executive decision support, and future scalability.

No.	Question	Response
336	In infrastructure environments, clarity around 3–5 priority KPIs often determines whether a Digital Twin becomes mission-critical or simply informational. Are there specific operational KPIs the Port expects this platform to measurably improve (e.g., vessel dwell time, berth utilization, emissions, incident response time)?	Priority KPIs should include inspection completion and compliance, environmental alert response time, capital project reporting timeliness, traffic disruption and detour impact metrics, parcel or facility performance visibility, and data freshness/completeness. The final KPI baselines and targets will be established and mutually agreed with stakeholders during kickoff.
337	Across the market, we've seen Digital Twins evolve from operational dashboards into executive decision-support systems. Is part of the objective to provide leadership with faster decision cycles or improved situational awareness?	Yes. A core objective is to improve situational awareness and support faster, better-informed decision-making for leadership as well as operational users through unified spatial views, dashboards, and cross-domain context.
338	In prior IoT integrations, initial sensor counts often expand rapidly once value is demonstrated. Should we architect for scalability well beyond the initial five real-time sensor feeds outlined in Phase 1?	Yes. Proposers should design with scalability in mind. While this phase references up to five real-time sensor feeds, the Port anticipates that additional sensors and data sources may be incorporated over time as use cases mature and value is demonstrated. Solutions should therefore be architected to support future expansion without requiring significant redesign.
339	From our work with enterprise GIS ecosystems, existing asset maturity significantly influences implementation timelines and cost. What percentage of current Esri mapping and 3D assets meet the needs of this RFP today?	Proposers should include an assessment step early in the project to inventory existing GIS and 3D assets, evaluate suitability against the required deliverables, and identify gaps that require new capture, feature extraction, or rework. Proposers should state assumptions about likely asset maturity and describe how the project plan and pricing account for uncertainty until a formal data inventory and quality review is completed.
340	We've found that anchoring Digital Twin design around a handful of high-impact workflows dramatically increases adoption. Are there specific operational workflows (e.g., inspections, incident response, congestion management, environmental reporting) the system should directly streamline?	Yes. Priority workflows include field inspections, internal APP permitting, capital project mapping and coordination, environmental monitoring and reporting, and traffic scenario analysis for closures and detours.
341	In large public-sector organizations, adoption challenges often determine program success more than technical capability. Has the Port identified adoption barriers from prior technology initiatives that we should proactively address in UX and rollout planning?	Proposers should anticipate common adoption barriers across multiple Port divisions, including fragmented data ownership, inconsistent workflows, role-specific usability needs, training constraints, and resistance to replacing established manual processes. The proposal should explain how UX, rollout, governance, and change management will address these barriers.
342	In similar large-scale implementations, phased rollouts have meaningfully reduced operational risk and accelerated stakeholder confidence. Does the Port envision a pilot-first deployment strategy, or a broader enterprise launch at go-live?	The Port completed internal planning and due diligence for the defined capabilities, which defined the scope as outlined in the RFP. The project should be treated as implementation of the scoped Digital Twin capabilities, delivered in a practical sequence based on dependencies, governance, and early operational value, rather than as a standalone pilot-only effort.

No.	Question	Response
343	We're seeing a strong industry shift from passive visualization toward predictive and scenario-based decision support. Is Phase 1 expected to include predictive modeling or "what-if" simulation capabilities, or primarily descriptive visualization?	Please refer to Section 2.2.1.10 of the RFP, "Traffic Mapping". The project includes what-if simulation where explicitly in scope, particularly for Capability 10 traffic modeling. Outside of those defined scenario tools, proposers should treat broader predictive modeling as optional and clearly scope the data, methods, infrastructure, and validation approach.
344	In regulated maritime and infrastructure environments, early clarity around data governance prevents downstream architectural constraints. Are there regulatory, maritime security, or federal data constraints that should shape hosting or integration strategy from the outset?	Yes. Proposals should account from the outset for the Port and City of Los Angeles data handling policies, ISO 27001/FedRAMP aligned cloud controls, role based access, and any law enforcement, homeland security, or other sensitive operational data restrictions that affect hosting and integration.
345	Should we assume deployment within the Port's existing cloud environment (e.g., Azure/AWS), or include a managed cloud architecture in our proposal?	Please refer to Question 23 and RFP Section 2.2.2.4, "Application/Network Diagrams".
346	Are there defined uptime, response time, or concurrent user expectations we should design against?	Production should be designed to meet the required availability. Proposers should state the response-time and concurrent-user assumptions used for sizing maps, dashboards, analytics, integrations, and scenario-analysis workloads.
347	Does the Port already maintain authoritative GIS/3D assets (ArcGIS Scene Layers, LiDAR, CAD), or should 3D model generation be included in scope?	Proposers should include a 3D basemap creation, including new capture and mesh production, plus integration of any existing authoritative GIS and 3D assets that the Port provides and designates as accepted inputs.
348	Is there an existing ingestion architecture for IoT sensor feeds, and should we design for scalability beyond the initial five sensors?	There is not currently a single standardized ingestion architecture for all IoT sensor feeds. Proposers should therefore recommend an appropriate ingestion approach as part of their solution. Yes, the solution should be designed for scalability beyond the initial five sensors, as additional sensor feeds may be incorporated in future phases.
349	What are the five primary sensor types expected in Phase 1?	The specific sensor types for this phase have not yet been finalized. The reference to up to five sensors is intended to define an initial integration scope rather than prescribe specific technologies. Proposers are encouraged to recommend appropriate sensor types based on their proposed use cases and solution approach. Final sensor selections will be determined during the requirements and design phase with the selected consultant.
350	How much historical data should be incorporated for time-series analysis?	Proposers should recommend the historical depth required by dataset and use case to support trend analysis, baseline comparison, validation, and before-and-after scenario review. The proposal should clearly state retention, archiving, and performance assumptions for high-frequency and lower-frequency data.

No.	Question	Response
351	Are there existing IoT devices used by terminal operators or port partners that should be considered for integration?	Integration of terminal-operator IoT devices is not part of the base scope. Proposers should focus on Port-managed and Port-authorized data sources.
352	Has the Port defined primary user personas for the system (e.g., operations, planning, environmental, executive), or should this be established during discovery?	Please refer to Question 291.
353	Will access to key operational user groups be available during discovery to validate workflows?	Yes.
354	Should the interface emphasize real-time alerts and proactive notifications, or exploratory analytics?	The interface emphasis depends on the capability and user role. Real-time alerts and notifications should be used where timely operational response matters, while other capabilities may emphasize analytics, trends, and drill-down views. Proposers should describe how their interface approach aligns to the capabilities they propose.
355	Will different roles require tailored dashboards and views?	Yes.
356	Is there an expectation that inspection tools be mobile/tablet accessible?	Yes.
357	Do inspection tools require offline data capture with synchronization once reconnected?	Yes.
358	How will adoption and engagement be measured across departments post-launch?	Adoption and engagement should be measured through active users by division and role, usage frequency, workflow completion, training participation, reduction in manual reporting, data contribution and update behavior, and evidence of use in operational and executive decision-making. Proposers should describe how these measures will be instrumented and reported.
359	Should the Digital Twin reduce reliance on static reports and manual spreadsheets currently used across departments?	Yes.
360	Is improving cross-department visibility and collaboration around shared operational data a key objective?	Yes.
361	Is there an anticipated ROI model associated with this initiative (cost avoidance, efficiency gains, environmental compliance improvements)?	Yes. Please refer to Section 2.2 of the RFP, "Scope of Work" and the applicable capability Sections 2.2.1.4, 2.2.1.5, 2.2.1.7, 2.2.1.8, and 2.2.1.10. ROI should be measured through tangible business outcomes such as reduced manual rework and faster workflow cycle times, improved safety and environmental compliance, better capital project coordination, stronger parcel and facility financial visibility, and reduced traffic disruption risk through scenario planning. Proposers should define baselines and measurable KPIs against those outcomes.
362	Should any portion of the Digital Twin support public-facing transparency or stakeholder reporting?	Yes.

No.	Question	Response
363	If environmental monitoring is included, are there emissions or sustainability targets the Digital Twin should directly support?	For the environmental monitoring, the Digital Twin should directly support environmental compliance, threshold alerting, historical analysis, and reporting for emissions and related sustainability conditions relevant to Port operations and broader sustainability reporting. Proposers should state any target, baseline, and reporting assumptions.
364	What are the current ArcGIS Enterprise versions and deployed components at POLA (Portal, Server, Data Store, GeoEvent/Velocity, Indoors, ArcGIS Image Server, ArcGIS Knowledge, etc.), and are there any licensing constraints we must assume for this project?	The Port has the following Esri software deployed: ArcGIS Enterprise (Will be at v12.1 by Project Start), Portal, Server, DataStore, GeoEvent, and Image. The Port plans to move from geoEvent to Velocity for this Digital Twin Project. Proposers need to consider any other licenses & system architecture that are required for the 10 capabilities.
365	Does the Port have a preferred deployment model for the Digital Twin (on-prem, cloud, or hybrid), and are there mandated hosting platforms (e.g., specific cloud provider/tenant) or restrictions beyond “remain within the Continental U.S.”?	Please refer to Question 23, RFP Amendment #2, and RFP Section 2.2.2.4, "Application/Network Diagrams".
366	For the required 3-tier architecture and DMZ/ICS segmentation, which Digital Twin components are expected to reside in DMZ vs internal networks, and will any integrations involve ICS networks (or should we assume “ICS not applicable” for this engagement)?	Please refer to Sections 2.2.2.2 and 2.2.2.3 of the RFP. Proposers should assume external access points, gateways, proxies, or brokered integration services that cross trust boundaries would reside in the DMZ, while core application services, data stores, analytics, and administrative functions would reside on internal networks. ICS connectivity should not be assumed unless needed for the proposer’s approved approach to telemetry, metering, or operational data integration, and any such connectivity should be read-only and tightly controlled.
367	What is the Port’s Identity Provider (e.g., Azure AD/Entra ID, ADFS, etc.), and what SSO pattern is required for ArcGIS/other apps (SAML/OIDC)? Also, are there specific MFA methods/policies that must be enforced for privileged users to meet AAL2 expectations?	Azure Active Directory SAML. Microsoft Two-Factor Authentication. All privileged users must meet AAL2 expectations.
368	What security tooling must the solution integrate with (SIEM, cloud audit service, vulnerability scanning, log forwarders), and what log retention/export requirements should we assume for “continuous monitoring” by Port Cybersecurity?	Please refer to Section 2.2.2.3 of the RFP. The solution must support continuous monitoring, log export, and integration with the Port’s designated cybersecurity tooling, including SIEM and cloud audit services where applicable. Proposers should include required forwarding, connector, and retention assumptions in their architecture.
369	What PCS product/vendor is in use, what specific datasets are available for this phase (vessel, truck, cargo, forecasts, gate queues/turn times, draft, berth status), and what are the supported integration mechanisms (real-time API, SFTP/file drops, message bus), including any rate limits and test/sandbox access?	The Port Community System (PCS) in use is the Port Optimizer, operated by Wabtec Corporation. Available datasets may include vessel events (ETA/ATA, berth status), truck appointments and gate activity, cargo milestones, and select forecast/performance indicators. Final datasets will be confirmed during requirements validation. Supported integrations, rate limits, and potential sandbox access may be provided to the selected consultant during implementation.

No.	Question	Response
370	For real-time vessel locations/berth occupancy, will the Port provide an AIS feed/subscription (and data rights), or should proposers assume procurement and ongoing AIS costs as part of the solution?	The Port has an AIS vessel subscription.
371	Which “up to five” environmental sensors are intended for initial integration (sensor types, vendors, parameters, sampling frequency), and what alert/notification channels are acceptable (email, SMS, Teams, existing Port systems)?	The specific environmental sensors for initial integration have not yet been finalized. The reference to up to five sensors is intended to define an initial integration scope rather than prescribe specific technologies. Proposers are encouraged to recommend appropriate sensor types, parameters, sampling frequencies, and alerting approaches based on their proposed solution. Acceptable notification channels may include common enterprise communication methods such as email or integration with existing Port systems. Final selections will be defined during the requirements and design phase.
372	What are the authoritative financial source system(s) and the expected granularity for revenue/expense allocation (parcel, facility, lease, tenant, cost center)? Also, what identifiers should be used to join financial records to GIS parcels/facilities, and will the Port provide a reference mapping table if identifiers do not align cleanly?	The information will be provided to the selected consultant, including a reference mapping table.
373	For capabilities that require Port validation (e.g., PCS accuracy checks, bathymetry tolerance, traffic model plausibility), who are the approving stakeholders by capability, what test datasets will the Port provide (and when), and can the Port define objective performance targets for time-enabled layers/dashboards/APIs (the RFP references “agreed performance thresholds” but does not specify them)?	Validation stakeholders will include Port IT, Operations, Planning, and other subject matter expert divisions depending on capability. Test datasets and objective performance targets will be defined during the requirements and solution design phases.
374	Does the Port currently possess or plan to implement a private 5G network to support the low-latency telemetry requirements of Capability 5 (Environmental Sensors), and should the Digital Twin architecture be optimized for edge compute integration at the terminal level?	No. The Digital Twin is intended to consume data from existing sensor collection or aggregation sources, not connect directly to individual sensors or require a private 5G or edge compute deployment as part of the base scope.
375	For Capability 7 (Capital Projects), does the Port have a preferred standard for Building Information Modeling (BIM/Revit) data exchange, and is it the Port’s intent to maintain the vertical infrastructure assets throughout their entire lifecycle within the Digital Twin environment?	Proposers should include the Capital Projects capability in their scope and should propose their recommended BIM/Revit data exchange approach and lifecycle management approach for Port review and approval.
376	With the Port’s push toward zero-emission electric reach stackers and top handlers, should the Digital Twin architecture accommodate real-time battery health and telemetry feeds from these autonomous/semi-autonomous assets as part of Capabilities 6 and 10?	No.

No.	Question	Response
377	What is the Port's internal roadmap for organizational change management regarding the Digital Twin, and will the selected Consultant have access to a dedicated "Stakeholder Steering Committee" to ensure alignment across the diverse Harbor Department divisions?	Details regarding the Port's internal roadmap for organizational change management in relation to the Digital Twin, as well as access to a dedicated Stakeholder Steering Committee, will be discussed with the selected consultant.
378	Beyond real-time visualization, to what extent does the Port expect the Digital Twin to perform predictive "what-if" modeling for complex mechanical failure modes (e.g., quay crane fatigue) versus simple threshold-based reporting?	The primary objective is to address the capabilities and business requirements defined in the RFP. The Digital Twin should support informative and operational decision-support capabilities as a foundation. Proposers may include predictive, "what-if," analysis where it meaningfully supports the defined use cases; however, such capabilities should complement, not replace, the required functionality described in the RFP. Any predictive or advanced analytics proposed beyond the stated requirements should be clearly identified as value-added capabilities, including the proposed approach, assumptions, and expected operational benefits.
379	The Digital Twin requires integration of bathymetry, substructures, above-ground infrastructure, and operational datasets into a unified 2D and 3D spatial framework. Establishment of horizontal and vertical control, selection of datum and epoch, reconciliation of coordinate systems, and representation of fixed works in geodetic coordinates constitute land surveying activities under California Business and Professions Code §§ 8725–8726. These functions are distinct from engineering analysis and require licensure as a Professional Land Surveyor. Will the Port require that establishment, reconciliation, and certification of the Digital Twin's horizontal and vertical geodetic reference framework be performed under the responsible charge of a California-licensed Professional Land Surveyor?	Please refer to Question 20 and Question 382. The Port will make available its existing horizontal and vertical control information (benchmarks/monuments and associated documentation) for use in georeferencing the Digital Twin datasets. The selected consultant is responsible for delivering datasets that are properly georeferenced and consistent with the Port's available control framework. Any professional licensure required to perform surveying activities, if proposed or performed by the consultant as part of their approach, shall be the responsibility of the consultant.
380	California's geodetic control framework includes multiple realizations and epochs due to measurable tectonic movement. Reconciliation of spatial datasets from differing epochs requires application of transformation models and professional judgment in order to prevent distortion or cumulative positional error. That reconciliation directly affects representation of fixed infrastructure within the Digital Twin. Will the Port require that epoch reconciliation, coordinate transformation, and vertical datum integration for the Digital Twin be performed and certified by a California-licensed Professional Land Surveyor?	Please refer to Question 20 and Question 382. The selected consultant shall deliver Digital Twin datasets that are properly georeferenced and consistent with the Port's available horizontal and vertical control framework. Any professional licensure required to perform surveying activities, if proposed or performed by the consultant as part of their approach, shall be the responsibility of the consultant.

No.	Question	Response
381	The Digital Twin scope includes mapping of fixed works, spatial control, and representation of infrastructure in relation to State Plane coordinates. Under California law, the measurement and positional depiction of fixed works constitute land surveying and are not subsumed under civil engineering practice. Engineering analysis may rely upon survey data, but engineers are not authorized to perform land surveying unless separately licensed. Does the Port agree that geodetic control establishment and positional representation of fixed works within the Digital Twin require a Professional Land Surveyor in responsible charge and may not be performed solely under civil engineering licensure?	Please refer to Question 379 and Question 380. The selected consultant shall deliver Digital Twin datasets that are properly georeferenced and consistent with the Port's available horizontal and vertical control framework. Any professional licensure required to perform surveying activities, if proposed or performed by the consultant as part of their approach, shall be the responsibility of the consultant.
382	The RFP requires consolidation and spatial validation of underground utility data. Utility investigation, risk evaluation, and engineering interpretation may involve professional engineering judgment. However, when utility locations are positioned within a geodetic framework or tied to project control, the underlying spatial control remains a land surveying function. Will the Port require that while utility investigation tasks may involve engineers where appropriate, all geodetic positioning, control establishment, and coordinate certification associated with those utilities be performed under the responsible charge of a Professional Land Surveyor?	Please refer to Question 88, Question 166, Question 193, Question 134, and Question 240. For Capability 3, the work is focused on consolidating and publishing the provided substructure datasets and implementing workflows for spatial validation and ongoing maintenance. This does not imply a requirement to perform new geodetic control establishment, coordinate certification, or survey grade positioning for underground utilities as part of the base scope. Proposers should treat existing source records as the basis for mapping, maintain traceability to source, and implement data quality indicators and exception reporting. Proposers should identify areas where source data appears inconsistent with the intended coordinate reference framework or shows material gaps, and recommend a future survey or as built verification plan as an optional follow on activity.
383	ASCE 38-22 establishes nationally recognized standards for investigating and documenting existing utilities, including assignment of Utility Quality Levels, documentation of depth and metadata, and depiction of uncertainty. Uniform application of this standard ensures consistent representation of uncertainty within integrated 3D environments. Will the Port adopt ASCE 38-22 as a mandatory standard for all firms performing subsurface utility investigation or mapping under this contract?	Please refer to Question 88, Question 193, and Question 382. Capability 3 is limited to consolidation, normalization, and publication of existing substructure and utility records provided by the Port and partner sources, plus metadata, traceability to source, and data quality indicators. Proposers should not assume subsurface utility investigation activities, such as field locating, test holes, or quality level assignment based on new investigation, are required under the base scope.
384	ASCE 75-22 establishes nationally recognized guidance for recording and exchanging utility infrastructure data, including requirements that positional accuracy be explicitly stated or identified as indeterminate. In a Digital Twin environment integrating multiple datasets, uniform accuracy disclosure reduces implied precision and risk. Will the Port require compliance with ASCE 75-22 positional accuracy disclosure and metadata requirements for all utility infrastructure data incorporated into the Digital Twin?	Please refer to Question 134, Question 240 and Question 382. Capability 3 should include consistent metadata and accuracy or uncertainty disclosure for each utility layer and feature where the source records provide it, and clear flagging where accuracy is unknown or indeterminate. Proposers should describe how this information will be stored, displayed, and used in workflows to avoid implied precision.

No.	Question	Response
385	The RFP permits multiple awards. In a multi-consultant environment, consistent technical standards are necessary to ensure interoperability and defensible data governance. Will the Port require uniform compliance with ASCE 38-22 and ASCE 75-22 by all firms performing subsurface investigation, mapping, or utility data integration under this contract?	Please refer to Question 383 and Question 384. Proposers should assume the Port expects consistent data governance across all contributing firms, including standardized metadata, lineage, and confidence or uncertainty disclosure for utility layers incorporated into the Digital Twin. If a proposer proposes use of any specific external standard, it should be clearly stated and mapped to how it will be implemented within the consolidated dataset workflows.
386	The Digital Twin scope includes field-based data collection [and] subsurface utility integration. Such activities may constitute public work under California Labor Code § 1720 et seq. Has the Port determined whether work performed under this contract constitutes public work subject to prevailing wage requirements, and if so, what determination has been made?	Please refer to Question 387.
387	The scope of work includes underground utility locating, CAD/GIS mapping, spatial validation, hydrographic data integration, and establishment of horizontal and vertical control. Because prevailing wage classifications must align with actual duties performed, clarification is necessary. Which prevailing wage classification or classifications does the Port intend to apply to underground utility locating, spatial mapping and documentation, hydrographic surface integration, and geodetic control activities performed under this contract?	Prevailing wage requirements, including the applicable classifications, shall be determined and applied in accordance with the contract documents and the actual work performed. Proposers are responsible for identifying and using the appropriate prevailing wage classifications for the labor categories they propose.
388	Certain prevailing wage classifications address excavation and exposure of utilities, while others address surveying and coordinate control functions. Where subsurface utilities are positioned within a geodetic framework or tied to State Plane coordinates, that work involves positional measurement and depiction of fixed works. How does the Port distinguish between labor-based utility exposure activities and licensed surveying-based geodetic control work for purposes of prevailing wage classification under this contract?	Proposers should structure their approach so the base work in Capability 3 remains data consolidation and governance, using existing records, and clearly separate any added optional work into distinct optional scope elements. Please also refer to Question 387.
389	The Port and the City of Los Angeles have entered into Project Labor Agreements (PLAs) for certain public works and infrastructure projects. Where applicable, such agreements may affect workforce composition and jurisdictional scope of work. Is work performed under this Digital Twin contract subject to any existing Project Labor Agreement, Community Workforce Agreement, or similar labor agreement applicable to Port or City of Los Angeles projects, and if so, which agreement governs?	Any applicable Project Labor Agreement (PLA), Community Workforce Agreement, or similar labor agreement governing work under this contract will be identified and referenced by the contract documents. Proposers shall comply with any such labor agreement requirements as incorporated into the contract.

No.	Question	Response
390	The Digital Twin integrates critical infrastructure, operational movement data, environmental layers, and subsurface systems for the Port of Los Angeles. Establishment of geodetic control and positional reconciliation affects long-term operational integrity. In-state performance strengthens professional accountability and ensures public funds support California's licensed workforce. Does the Port require that geodetic control, spatial reconciliation, and infrastructure mapping activities under this contract be performed by personnel physically located within the State of California?	No, those requirements are not a part of this project.
391	The Digital Twin will incorporate bathymetric data, underground utility layers, capital project information, and operational movement data. Transmission of infrastructure datasets to out-of-state or offshore personnel for processing or QA/QC may affect supervision, data governance, and professional responsibility. Does the Port permit offshore or out-of-state personnel to perform spatial data processing, modeling, or quality control functions for this contract, particularly where those functions involve geodetic control or positional reconciliation?	Please refer to RFP Amendment #2.