Question #	Questions	Response from Port of Tacoma
1	Can we get layout understanding of a typical terminal showing – wait area of truck (indicating queuing before terminal entry), entry gate, exit gate, internal road distance)? The layout map is available in the Rfi. But we are looking for additional information like wait area, entry / exit gate and the distance between these gates/terminals.	Some of this is more detail that we are prepared to compile for an RFI. We are not looking for a firm proposal for making a purchase decision at this time. We are looking for information on potential solutions that could meet our high-level capabilities and some budgetary planning information. However, there are maps of the truck flow for each terminal as referenced in Attachment B of the RFI "Seattle and Tacoma Terminals Trucker Routes". Some terminals (such as Terminal 5) do not have a queueing area outside of the terminal. Some terminals (such as Husky) do have a queueing area outside the terminal. The in-terminal areas are shaded blue on the maps.
2	Are all areas of port where truck tracking is required open or combination of open and close areas?	The Port has access to install equipment in all areas where we need to monitor truck movement.
3	Can we get information on current infra set-up and its workflow	Please see Attachment A and Attachment B in the RFI.
4	Are there human operated gates for entry? Do they do other processes like document / id verifications during the entry for the trucks? RFIDs are given (fixed or temporary) to each truck driver at entry of terminal or at waiting area ?	The terminals are operated by private terminal operators that may have varying procedures for how they process trucks within the terminals. For the purposes of the RFI for this solution we are primarily interested in the movement of trucks prior to entering the terminals and at the point they exit the terminals. We are not looking to monitor movement within a terminal for this solution.
5	How is RFID and truck information linked ?	For experience monitoring, we are not concerned with linking an RFID tag to a specific truck since it is just aggregated experience information we are seeking. There are other uses for the RFID information, such as enforcing environmental clean engine requriements for trucks visiting our terminals. For those purposes the RFID tag is linked to a specific VIN for a truck engine using a 3rd party database. That use would be a secondary consideration for the solution options we are seeking information for in this RFI.
6	Where are the all RFID Scanners located – Wait area, entry gate, inside the terminal, exit gate, etc?	There are currently RFID exciters or measurement points at locaitons that are applicable for truck experience measurement based on the layout of each terminal. As referenced above, some terminals have queueing lots and some don't. But in general we measure at 1: Terminal Entry, 2: Terminal Exit. For some terminals we also measure at 3: Queue start and 4: Queue end.
7	Is there LAN or WiFi infrastructure for the current RFID scanner connect to server?	RFID Location Sensors are mounted to poles that receive signals from the RFID tags. These Location Sensors are typically connected by fiber-optic and/or point-to-point microwave network connection to the network that allows data to be sent to the RFID servers for each terminal.
8	What capabilities/features in the existing system are mandatory to have in the new solution?	See "Desired Solution Capabilities" in the RFI document. Optional capabilities are indicated with the word "Optionally".
9	Are there any restriction on putting cameras?	A camera-based solution is something we could consider.
10	Are there any restrictions on putting detachable GPS tracking devices on trucks? - We understand that the solution desires not to attach any device in the truck. This question is to check if portable device can be given to the truck only for the time it will be in terminal in stead of any permanent attachment.	There would be logistical issues to work through but we would be open to hearing ideas you have.
11	Are there any restrictions on using public network – 4G/NBIoT or existing available network in terminal?	If there is coverage then this is something that could be considered.
12	Does the terminal have a well covered network set-up (WiFi and/or LAN) or another reusable network infrastructure like LoRA?	An assessment would need to be made to determine coverage and suitability in the terminal areas in our gateway. WiFi coverage that is consistent in all areas does not currently exist.
13	Can we add more devices(fixed but migratable) additional to the current infrastructure to improve visibility and network strength like wifi extenders additional cameras?	Adding additional equipment is possible.
14	Can you share current general information on truck volume and turnaround time to calculate optimal tracking device requirements?	For the current system volumes, we process approximately 21,000 RFID transacions per day on a weekday and about 110,000 transactions per week.
15	Is real-time tracking of vehicle inside the premise required (if no, any plan to have this feature requirement for future)?	The current requriement for updating experience times is to update at least every 15 minutes. More real-time information could be of potential interest in the future.
16	Is real-time tracking required in wait areas?	See Question 15
17	Can the designed system interact with other systems to get Truck Characteristics from Number plate?	We would be open to hearing what ideas you have.
18	Can you provide any additional details on how much data will need to be ingested, stored, and analyzed (terabytes, pedabytes, etc.)?	For the current system volumes, we process approximately 21,000 RFID transacions per day on a weekday and about 110,000 transactions per week.
19	Average number of trucks moving through all terminals per day?	It varies. The transaction volumes in the previous question can give a good indication. A truck will have multiple transactions for each visit to the gateway as it passes different RFID sensors. A truck may make multiple trips to pick up or drop off a load in a single day. Generally 5,000 trips per day
20	What is the total data volume currently being captured per day (in GB; the xml files from the terminals)?	Each XML file is < 1k in size. We currently receive an XML file for each transaction. See Question 18 for transaction volumes.

21	How many existing RFID readers / antennas currently exist?	Each terminal will have at least 2 location sensors (antennas) and each queue lot will have 2 location sensors. The number of RFID readers, or exciters, are numerous. The NWSA does not receive transactions for each exciter, only the ones at locations that we are interested in for truck experience measurement.
22	To clarify, are you interested in sticking with RFID for the solution?	We are open to and interested in hearing about potential soluitons, both RFID and non-RFID.
23	For "The ideal solution would not require attachment of any devices to the trucks or installation of any software on mobile phones used by truck drivers." - Define "device" in the above quote. Are RFID / QR codes considered devices?	In general, the preference would be to have a solution that does not require attaching anything to the trucks. Solutions that could be used to track movement or location of trucks outside of our gateway would not be desired. If the soltuion requires attachment of inexpensive and non-intrusive item to the trucks then it could be considered.
24	What are the requirements around a disconnected scenario (e.g. terminal loses internet)?	The current solution requires network connectivity from the terminal areas. If another soluiton has the ability to work in a disconnected scenario then that would be interesting, but not required.
25	Can we assume we can wire up devices in the terminals with PoE?	We have a fiber infrastructure. If there is power at the location you need to install equipment then you could use PoE.
26	What logic resides in current non-owned edge equipment?	When triggered by an "exciter", the tags transmit their unique ID as well as the ID of the "exciter" that triggered them to transmit. This is picked up by Location Sensors that send the information to RFID servers that are owned by terminal operators. The RFID servers send messages to the NWSA for relevant locations.
27	Will we be able to work directly in the Port of Tacoma Azure tenant and development testing UAT environments? Or is the Port of Tacoma subscription managed by other companies/venders?	The Port manages our own Azure tenant/subscription. The solution vendor could have access to this environment for development and testing. We would also be interested in hearing about solutions that are vendor hosted and managed (for example, using a SaaS approach).
28	What is the Port of Tacoma's current in-house capabilities for Azure skillsets, specifically for cloud AI, cloud engineering and reporting, or is most work outsourced?	We have a small number of technical resources, infrastructure engineers, developers and DBAs, supporting a large number of services. So, we work with vendors for most solutions.
29	Would Port of Tacoma characterize the organization as a Microsoft/Azure shop or multi-cloud, agnostic organization?	Some of our SaaS solutions use non-Azure cloud hosting. But, all of our IaaS/PaaS type cloud solutions use Azure.
30	What other technologies, beyond the depicted architecture included in this RFI, does Port of Tacoma have or consider a part of this solution?	Having the ability to utilize PowerBI for reports and web visualizations would be desired. We are open hear about technologies that we don't currently have as well.
31	Are there any "3rd-party" or non-cloud-based applications that would need to be integrated into an "all Azure solution".	Possible, but nothing that we can think of at this time.
32	What cloud spaces or technologies does Port of Tacoma currently have a footprint in besides Microsoft and/or Azure?	See answer to question # 29
33	Can Port of Tacoma prioritize the current set of pain-points, or areas where you would like to see improvements in the new system? An example could be the number of tickets or incidents related to hardware failures, software failures, and upstream processes.	The largest pain-point for the current solution is that it is complex and involves multiple vendors and terminal operators to provide the end-to-end result. When there is an issue, troubleshooting is difficult and getting resolution is time-consuming. Making business logic changes to the existing solution is difficult, but is requreid when the terminals make changes to their traffic flow or when new terminals are added.
34	How open is the Port of Tacoma to us managing the entire project as a single unit point, unit contact, but possibly contracting certain areas of the project implementation?	The Port would be open to hearing about solutions that are managed by a single vendor in a SaaS aproach.
35	Is there a support tier process in place that triages support requests across all different points of failure? What are the current SLA's?	The Port has a ticketing system where issues are logged and triaged. However, since there are many parties involved in the current end-to-end solution, there are no consistent SLAs across the various parties involved.
36	What are the high-level project milestones, start date, duration, particular business drivers or constraints that are important for project completion?	There are no pre-set milestones at this point. We are in the discovery phase to learn about potential future solutions with capabilities that could meet our needs. If some feasible options are identified via this RFI then we may begin planning for a procurement and project that could begin in the next 1 or 2 years .
37	Are there any foreseeable constraints in the near or long-term future we need to consider, e.g., migrations, acquisitions, other dependencies on existing vendors?	Not that we can think of, unless components of the existing solution are used for a new solution.
38	Can the future truck experience measurement solution assume that the RFID tags currently resident in motor carrier cabs be used for data collection?	Unknown at this time. The current solution RFID tags may be using proprietary technology. Further investigation would be required to determine this.
