



Inventory of Surveillance Technologies Framework

Prepared by the Smart City PDX program for public revision and comments. February 2024.

Introduction

Portland City Council passed a Surveillance Technologies policy¹ directing the Bureau of Planning and Sustainability's Smart City PDX program to coordinate the design, development, and implementation of the citywide surveillance technologies inventory.

The surveillance technologies inventory is a tool for informing the public, city agencies, and decision makers about the type of surveillance technologies and their management and implementation in the City.

Surveillance technologies are defined as electronic or analog devices, equipment, software, information and/or associated metadata, automated decision systems, data processing systems, or software solutions that are designed or primarily intended to be used for the purpose of surveillance.

Surveillance technologies include automated license plate readers, body-worn cameras, security cameras, gunshot detectors, red light cameras, face recognition, and geolocation services. However, it is important that if the primary use of the technology is not tracking individuals, it is not considered surveillance. This includes data management systems, spreadsheets and other data processing services, surveys, and single data collection sensors like temperature or air quality sensors, traffic street counters, and alarms.

The emergence of advanced information technologies, like artificial intelligence, multiplies the impacts of the use of these technologies and, in most cases, City bureaus do not have enough information about how they or vendors use them.

Public engagement process

The selected fields were taken after a public inquiry process and internal city workshops to determine what models and frameworks of technology inventories may be useful in this first deployment of the inventory.

The public engagement process included three open public workshops and a survey open to the public. These activities were done from May to September 2023 and reports are available on the City of Portland Smart City PDX program site.

The Smart City program has processed public participation and community groups input and incorporate their concerns in this proposal. At the same time, we have balanced practical implementation and resources available to this project.

Contact information

Comments and contact information send an email to smartcitypdx@portlandoregon.gov or by filling up the survey: <https://arcg.is/OOSKH8>

¹ Surveillance Technologies policy. <https://www.portland.gov/bps/smart-city-pdx/surveillance-policy/news/2023/2/28/portland-city-council-unanimously-passes>



City infrastructure and strategies to build this inventory.

The City of Portland owns thousands of devices and services that can be considered surveillance technologies. These devices include security cameras, drones, automatic license plate readers, Bluetooth sensors and other traffic monitoring systems, etc.

Many of these devices are managed by City's IT services provided by the Bureau of Technology Services (BTS); however, City bureaus can own their own devices or information services without those devices necessarily becoming part of the City's IT management portfolio. City bureaus can contract with third parties and contractors for specific services.

All these scenarios and the large number of devices make the design, implementation, and maintenance of the Citywide inventory complex and expensive. Therefore, our team has proposed an inventory framework that separates technologies from use cases and individual devices. In this way, we can focus resources and time to maintain only those devices and uses of technology that have the most public interest.

Surveillance technologies inventory framework.

The inventory of technologies and their use policies will be described in three different layers to provide the ability to procure technology or vendors that have been already vetted and make the procurement of technology more effective.

Layered approach.

The citywide inventory of surveillance technologies is a way to describe all the spectrum of technologies used by the City of Portland, OR. This proposal divides the description of surveillance technologies owned by the City in three layers: by technology type, by technology application, and by individual devices.

Layer 1: By technology

Building a higher-level catalog of technologies will allow agencies to identify what are the specific aspects of compliance, use restrictions, data management, and resources dedicated to it. Each technology type needs to have a unique feature that defines it, either by the type of information it generates, the manufacturing processes of devices, or the general purpose of it.

Layer 2: By application

This level will describe technology by agency and use. It will include a bulk number of devices or users of a specific surveillance technology. A specific application is defined by the specific user or users of it and how specific surveillance technologies are being adapted to the specific purpose or utility use.

Layer 3: By devices

This level will identify specific devices. These devices will include a specific technology and define application. Devices could be physical or virtual. Cases of virtual devices may include apps or software products that surveil people. The program *currently lacks funding and resources to do an extensive inventory of individual devices.*



Surveillance technologies inventory specification

Package Metadata – Overall specifications description and terms.

This section describes the specification version, licensing, and general definitions applicable to it.

Title	Description	Type	Format	Required
Version	Version control number	String	default	Required
Summary	Description of the specification	String	default	Required
Terms of use	Terms of use of the specification	String	default	Required
license	Type of license of the specification	String	default	Required
License.Name	License name	String	default	Required
License.url	License URL	String	default	Required
glossary	Glossary URL	String	default	Optional

Example:

```

{"Standard": {
  "Version": "0.1.0",
  "summary": "This is the surveillance technologies inventory specification describing equipment and
information solutions that track individual or collective behavior; otherwise known as surveillance technologies.",
  "terms of use": "url",
  "license": {
    "Name": "CC40 BY - SA",
    "url": "https://creativecommons.org/licenses/by-sa/4.0/"
  },
  "glossary": "url"
}
}

```

Surveillance technology meta (Technology level).

This section describes technologies regardless of use or applications. Assessments done at this level need to center on general principles and rights.

Title	Description	Type	Format	Required
Surveillance_ID	Unique technology inventory id number	String	default	Required
Surveillance_name	Surveillance technology name	String	default	Required
Description	General description of the technology for reference	String	default	Required
Information.Impact_assessment	Surveillance technology (whole independent of application) impact assessment URL	String	default	Required



Example:

```
{
  "technology description": {
    "Surveillance_ID": "SID",
    "Surveillance_name": "surveillance technology name",
    "Description": "General description of the technology for reference",
    "Information": {
      "Impact assessment": "URL to access the impact assessment."
    }
  }
}
```

Organization meta (Use and application layer)

This block describes vendor or other legally accountable organization description.

Title	Description	Type	Format	Required
organizationID	Unique vendor ID from SAP (PO Listing Report/Vendor Name)	String	default	Required
organizationName	Vendor's name from SAP. PO Listing Report/ Vendor Name. Contract Listing Report/Vendor Name	String	default	Required
information.organizationurl	Vendor technology URL	String	default	Required
information.organizationNotes	Comments about this vendor	String	default	Optional

Example:

```
{
  "organization": {
    "organizationID": "City vID from SAP",
    "organizationName": "Organization name from SAP",
    "information": {
      "organizationURL": "URL",
      "organizationNotes": "add any note about the organization"
    }
  }
}
```



Surveillance group description (Device layer)

This block describes the group of cluster of devices with common use and goals.

Title	Description	Type	Format	Required
Surveillance_groupID	surveillance groupID. if the technology is part of a larger group. Bulk devices.	String	default	Required
Surveillance_ID	Unique technology inventory id number	String	default	Required
groupName	Short name of the group	String	default	Required
groupDescription	Short description of the use and group	String	default	Required
groupSize	Selection of the range of the number of devices in this group ["1 to 10", "11 to 100", "101 to 1000", "1001 or more"]	String	default	Optional

Example:

```
{" Surveillance_groupID ": {  
  "Surveillance_ID": "SID",  
  " groupName": "Group or cluster name",  
  "groupDescription": "General description of the group",  
  "groupSize": "1 to 10"  
}  
}
```



Surveillance Technology Identifier meta.

See code below*

This information specification describes how the surveillance technologies will be inventoried by the City. The inventory will be publicly available.

Surveillance Technology description

Header of the surveillance technology identifies. Registers type, description, organizations, contacts, date of registry, and schema version.

Title	Description	Type	Format	Required
Surveillance_ID	Unique identifier for this surveillance technology type	String	default	Required
Surveillance_groupID	surveillance groupID. if the technology is part of a larger group. Bulk devices.	String	default	Optional
Surveillance_header.Surveillance_type	Type of the surveillance technology	String	default	Required
Surveillance_header.Short_description	description of this device or information system	String	default	Required
Surveillance_header.Owner_organization	Organization accountable with this device. BuySpeed (Req Header Custom Columns/Req Header Column 1 Value). tender/procuringEntity/name	String	default	Required
Surveillance_header.Owner_organizationType	Organization type: [Institution; Organization; Private company]			
Surveillance_header.Contact_information.Email	contact_email	String	default	Required
Surveillance_header.Contact_information.phone_number	phone_number	String	default	Optional
Surveillance_registrydate	Date of registry	date	default	Required
Inventory_schema_version	Inventory schema version number for compatibility.	String	default	Required

Surveillance Technologies Body Meta

Basic information of the specific surveillance technology. Registers name, purpose, website, status, vendor information, and other information as notes. Links to use, data, processing, and oversight information.

Title	Description	Type	Format	Required
surveillanceID	Unique identifier for this surveillance technology type (index)	String	default	Required
Surveillance_name	Surveillance short name	String	default	Required
purposeOfTechnology	Description of how the technology will be used (Max 1000 characters)	String	default	Required
Website	City project URL	String	default	Optional



Status	Status of the technology of project. From a list "[active, inactive, in maintenance, decommissioned, etc.]".	String	default	Required
Vendor.vendorID	Unique vendor ID from SAP (PO Listing Report/Vendor Name)	String	default	Required
Vendor.vendorName	Vendor's name from SAP. PO Listing Report/Vendor Name Contract Listing Report/Vendor Name	String	default	Required
Vendor.contractID	Unique contract ID number from SAP (PO Listing Report/Outline Agreement)	String	default	Optional
Vendor.vendorurl	Vendor technology URL	String	default	Optional
IsGeolocated	Boolean that flags whether the technology or devices are deployed physically	boolean	binary	Required
IsMobile	Boolean that flags whether the technology or devices are not fixed and moving in a vehicle or individuals	boolean	binary	Optional
Location.Longitude	If geolocated and fixed. Longitude number.	Number	bareNumber	Optional
Location.Latitude	If geolocated and fixed. Latitude number.	Number	bareNumber	Optional
Notes	Long text field, it may include remarks by owner agency.	String	default	Optional
UseID	Index to the use and application fields (see below*)	String	default	Required
DataID	Index to the data fields (see below*)	String	default	Required
ProcessingID	Index to the processing fields (see below*)	String	default	Required
OversightID	Index to the oversight fields (see below*)	String	default	Required

Technology use and applications meta.

Title	Description	Type	Format	Required
useID	Use type unique ID index	String	default	Required
Justification	Text describing why is this technology is used (1000 characters max).	String	default	Required
Documents	Array of URL links pointing to technical documentation of this technology	String	default	Optional
SurveillanceImpactAssessment.includeSIA	Boolean flag describing whether this technology has an impact assessment (Required only for new tech)	boolean	binary	Required
SurveillanceImpactAssessment.url	URL of the surveillance impact assessment	String	default	Optional
Terms_of_use	URL or text to the vendor's or City's terms of use of this technology	String	default	Optional
Privacy_policy	URL or text to the vendor's or City's privacy policy of this technology	String	default	Required
Dependencies	Description of who uses this technology	String	default	Optional



Data meta.

Title	Description	Type	Format	Required
DataID	Data analysis unique ID index number	String	default	Required
Data_collected	Schema or description of collected data. Use a data descriptor template.	String	default	Required
AccessToData	List of entities accessing data collected by this technology in array form as "[stakeholder1, purpose],..."	String	default	Required
sensitiveData	List of sensitive information, including private data, in the form: "[data description, protection description]". If some data type cannot be disclosed, use "undisclosed data, protection description"	String	default	Optional
dataStorage	Array of where data is stored: ["city vendor name third-party name"],	String	default	Optional
Disclosures.dataAvailableForResale	Boolean flag acknowledging data resale by vendor	boolean	binary	Optional
Disclosures.publiclyAccessible.access	Boolean flag for publicly accessible data	boolean	binary	Optional
Disclosures.publiclyAccessible.url	URL where data can be accessed if available	String	default	Optional
Disclosures.availableToOtherPurposes	Boolean flag acknowledging that data is available for other purposes	boolean	binary	Optional
retentionRegime.defaultRetentionTime	Retention time	String	default	Optional
retentionRegime.exemptions	Retention regime exemptions	String	default	Optional
dataProtection	General description on how data is protected	String	default	Optional

Processing meta.

Title	Description	Type	Format	Required
ProcessingID	Processing information unique ID index	String	default	Required
processingDescription	General description of how data is processed	String	default	Required
processinghosting	Options of how data is processed (array): "at the edge, cloud, on-premises server, local computer, remote device, etc."	String	default	Optional
Opensource. processingIsOpenSource	Boolean flag to identify open-source code	String	default	Optional
Opensource. url	open-source code URL	String	default	Optional



InformationProtection.privacyMeasures	Array with a list of privacy protections in the form: ["protection1", "protection2"...]	String	default	Optional
InformationProtection.data_deidentification	Description of how data is de-identified or anonymized.	String	default	Optional
InformationProtection.cybersecurity	Description of cybersecurity measures.	String	default	Optional
ArtificialIntelligence.useofAI	Boolean flag acknowledging use of artificial intelligence.	boolean	binary	Optional
ArtificialIntelligence.description	If AI is used, description of the type of applications of AI with this surveillance technology.	String	default	Optional
AlgorithmicImpactAssessment.IncludeAIS	Boolean flag for the algorithmic impact assessment.	String	default	Optional
AlgorithmicImpactAssessment.url	Algorithmic impact assessment url.	String	default	Optional

Oversight meta.

Title	Description	Type	Format	Required
OversightID	Oversight unique ID index	String	default	Required
Supervision.Monitoring	Description of how technology is monitored.	String	default	Required
Supervision.performanceMeasures	Array of performanceMeasures	String	default	Optional
performanceMeasures.name	Name of the performance measure	String	default	Optional
performanceMeasures.measuredescription	Description of the performance measure	String	default	Optional
performanceMeasures.url	URL of the performance measure	String	default	Optional
Supervision.typeofSupervision	Description of actions for supervision of this technology from a list.	String	default	Optional
Approvals	Array of Approvals.	String	default	Optional
Approvals.typeofApproval	type of approval	String	default	Optional
Approvals.dateofApproval	Date of the approval	String	default	Optional
Approvals.descriptionApproval	Description of the approval	String	default	Optional
Public.humanInterventions	Description of human intervention in processing, management, or oversight.	String	default	Optional
Public.publicInput	Description of how the public can engage with this technology.	String	default	Optional
Public.objectprocedure	Description of how the public can object the technology. Include an option for not available.	String	default	Optional
Compliance	Array of types of compliance and certifications of this technology.	String	default	Optional
Compliance.typeOfCompliance	Type of compliance from a list: law, regulation, policy, certification	String	default	Optional
Compliance.description	description of the compliance.	String	default	Optional
Fiscal	Array of fiscal costs	String	default	Optional



Fiscal.typeofFiscalInformation	Fiscal costs attached to this technology. Pick from a list: operation cost, claims, installation, etc.	String	default	Optional
Fiscal.amount	amount in US dollars	String	default	Optional
Fiscal.periodicity	How periodic are these costs. Pick from a list: sole purchase, daily, monthly, annual, other	String	default	Optional
Fiscal.description	Description of the fiscal item	String	default	Optional
Operation.DateofInitialOperation	Date of start of operation	String	default	Optional
Operation.Task	Description of the task: maintenance, upgrades, repair	String	default	Optional
Operation.dateTask	Date of the task	String	default	Optional

Example:

```
{
  "SurveillanceItem": {
    "Surveillance_ID": "uID",
    "Surveillance_groupID": "surveillance groupID",
    "Surveillance_header": {
      "Surveillance_type": "name of the surveillance technology",
      "Short_description": "description of this device or information system",
      "Owner_organization": "Bureau managing this device",
      "Owner_organizationType": "Organization accountable with this device",
      "Contact_information": {
        "Email": "contact_email",
        "phone_number": "phone_number"
      },
      "Surveillance_registrydate": "Date of registry",
      "Inventory_schema_version": "version"
    },
    "Body": {
      "Surveillance_info": {
        "surveillanceID": "ID",
        "surveillance name": "name",
        "purposeOfTechnology": "Text",
        "Status": "[active, inactive, in maintenance, decommissioned, etc.]",
        "Vendor": {
          "vendorID": "vID",
          "vendorName": "vendor name",
```



```
        "contractID": "unique contract ID number for this technology",
        "vendorurl": "url"
    },
    "IsGeolocated": "true/false",
    "IsMobile": "true/false",
    "Location": {
        "Longitude": "long",
        "Latitude": "Lat"
    },
    "Notes": "Text, including remarks by owner agency and any additional description to the public"
},
"Use_and_Application": {
    "useID": "use_ID",
    "Justification": "justification of the technology.",
    "Documents": "Technical documentation of this technology",
    "SurveillanceImpactAssessment": {
        "includeSIA": "true/false",
        "url": "SIA url"
    },
    "Terms_of_use": "url",
    "Privacy_policy": "url",
    "Dependencies": "Description of who uses this technology."
},
"Data": {
    "DataID": "data_ID",
    "Data_collected": "{schema| description}",
    "AccessToData": "[stakeholder1, purpose], ...",
    "sensitiveData": [
        "[data description, protection description]",
        "[data description2, protection description2]"
    ],
    "dataStorage": [
        "city | vendor name | third-party name"
    ],
    "disclosures": {
        "dataAvailableForResearch": "true/false",
        "publiclyAccessible": {
```



```
        "access": "true/false",
        "url": "url"
    },
    "availableToOtherPurposes": "true/false"
},
"retentionRegime": {
    "defaultRetentionTime": "time",
    "exemptions": "notes on other cases"
},
"dataProtection": "description on how data is protected."
},
"Processing": {
    "ProcessingID": "Processing_ID",
    "processingDescription": "General description of how data is processed",
    "processinghosting": "at the edge, cloud, on-premises server, local computer, remote device, etc.",
    "opensource": {
        "processingIsOpenSource": "true/false",
        "url": "open source url"
    },
    "InformationProtection": {
        "privacyMeasures": [
            "list of privacy protections",
            "protection2"
        ],
        "data_deidentification": "description of how data is de-identified or anonymized",
        "cybersecurity": "description of cybersecurity measures"
    },
    "ArtificialIntelligence": {
        "useofAI": "true/false",
        "description": " "
    },
    "AlgorithmicImpactAssessment": {
        "IncludeAIS": "true/false",
        "url": "url of the AIS"
    }
},
"Oversight": {
```



```
"OversightID": "Oversight_ID",
"Supervision": {
  "Monitoring": "description of how technology is monitored",
  "performanceMeasures": [
    {
      "measure": "measurename",
      "measuredescription": "description",
      "url": "measureurl"
    }
  ],
  "typeofSupervision": "description of actions for supervision of this technology."
},
"Approvals": {
  "typeofApproval": "type of approval",
  "dateofApproval": "date of approval",
  "descriptionApproval": "Description of the approval"
}
},
"Public": {
  "humanInterventions": "Description of human intervention in processing, management, or oversight.",
  "publicInput": "describe how the public provides input",
  "objectprocedure": " how the public can object the technology. Include option for not available."
},
"Compliance": {
  "typeofCompliance": "pick from a list: law, regulation, certification",
  "description": "description of the compliance"
},
"Audits": {
  "Auditname": "auditname",
  "url": "auditurl"
},
"Fiscal": {
  "typeofFiscalInformation": "Fiscal costs attached to this technology. Pick from a list: [operationCost,
claims, installation, etc.]",
  "amount": "amount in US dollars",
  "periodicity": "from a list: sole purchase, daily, monthly, annual, other",
  "description": "description of the fiscal item"
```



```
},  
  "Operation": {  
    "DateofInitialOperation": "Date of start of operation",  
    "Task": "description of the task: maintenance, upgrades, repair",  
    "dateTask": "date of the task"  
  }  
}  
}  
}
```

DRAFT



Appendix. Summary of minimum required fields

This list is the minimum and mandatory fields of the surveillance technologies inventory.

Title	Description	Type	Format	Required
surveillanceID	Unique identifier for this surveillance technology type (index)	String	default	Required
Surveillance_name	Surveillance short name	String	default	Required
purposeOfTechnology	Description of how the technology will be used (Max 1000 characters)	String	default	Required
Status	Status of the technology of project. From a list "[active, inactive, in maintenance, decommissioned, etc.]".	String	default	Required
Vendor.vendorID	Unique vendor ID from SAP (PO Listing Report/Vendor Name)	String	default	Required
Vendor.vendorName	Vendor's name from SAP. PO Listing Report/Vendor Name Contract Listing Report/Vendor Name	String	default	Required
IsGeolocated	Boolean that flags whether the technology or devices are deployed physically	boolean	binary	Required
Justification	Text describing why is this technology is used (1000 characters max).	String	default	Required
SurveillanceImpactAssessment.includeSIA	Boolean flag describing whether this technology has an impact assessment (Required only for new tech)	boolean	binary	Required
Privacy_policy	URL or text to the vendor's or City's privacy policy of this technology	String	default	Required
Data_collected	Schema or description of collected data. Use a data descriptor template.	String	default	Required
AccessToData	List of entities accessing data collected by this technology in array form as "[stakeholder1, purpose],... "	String	default	Required
processingDescription	General description of how data is processed	String	default	Required
Supervision.Monitoring	Description of how technology is monitored.	String	default	Required