

Health Spatial Data Infrastructure (SDI) Request for Information (RFI)

**RFI Issuance Date: 12/23/2020**

**Response Due Date: 2/5/2021**

The Open Geospatial Consortium (OGC)

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# Executive Summary

This Request For Information (RFI) seeks to gather information in support of a Concept Development Study (CDS) on capturing, mapping, analyzing, modeling, and sharing spatial data to deal with major health emergencies. The CDS will support the development of a Health Emergencies Data Model and the design of a Health Spatial Data Infrastructure.

A major impetus for this Concept Development Study has been the continuing difficulties with acquiring and operationalizing data associated with the COVID-19 pandemic. Data collected at different levels of government are often not standardized, integrated or interoperable. Monitoring of critical supply chains has been an enormous challenge and there have been severe shortages of vital equipment and supplies for protracted periods of time. Patient data is often not digitized and geocoded at first contact with the health system – at test sites for example – making precision mapping and analysis of disease spread almost impossible. Health infrastructure data has not been comprehensively assembled, hindering the development of situational awareness and a common operating picture. A Health Spatial Data Infrastructure designed to address these issues, then extended to support other kinds of diseases and health problems, will raise the efficiency and effectiveness of health services, saving lives, protecting the public and saving money.

This RFI starts from the premise that spatially enabled data is essential to support responses to major health emergencies, because of its ability to facilitate data integration, interoperability, analytics and modeling. The RFI addresses four major health data categories:

1. Data that comprise useful spatial framework layers and themes for health specific data.
2. Data describing the healthcare delivery infrastructure including hospitals, hospital resources and hospital staff;
3. Data relating to critical supply chains;
4. Data on populations tested, infected and treated;

RFI responders are being asked to look at these data categories through the lens of three health emergency use cases:

1. Pandemics similar to COVID-19,
2. Natural disasters cascading to or from the spread of an infectious disease; and
3. Epidemics of non-infectious (e.g. air quality related) respiratory illnesses.

Responders to this RFI are requested to examine these data categories and use cases, then make recommendations about the kinds of data that need to be shared in order to support all important aspects of a health emergency response. Responders may address the full spectrum of candidate data requirements, or only those data categories and use cases relevant to their work and interests. OGC also welcomes new and innovative ideas that challenge the assumptions of the RFI and go beyond RFI categories; as well as responses that expand our present understanding and leverage new types of spatially enabled data and tools.

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# 1.Introduction

## About the Open Geospatial Consortium

The Open Geospatial Consortium, Inc. (OGC) is an international organization representing over 500 industry, government, academia and research organizations engaged in improving our understanding and decision making through the power of location. We are:

* A global hub for thought leadership and innovation for all things related to location
* A neutral and trusted forum for tackling interoperability issues within and across communities
* A consensus-based open standards organization for location information and associated technologies.

We connect people, communities, and technology to solve global challenges and address everyday needs – representing businesses, government agencies, research organizations, and universities united with a desire to make location information FAIR – Findable, Accessible, Interoperable, and Reusable.

Our community creates free and publicly available geospatial standards that enable access, integration and application of new technologies and data sources to improve decision making. OGC also manages an Innovation Program of fast-paced Concept Development Initiatives, Testbeds, Pilot initiatives and Interoperability Experiments for advancing new interoperability solutions for implementation and use worldwide. These initiatives allow OGC members to rapidly conceptualize, develop, test, validate and demonstrate new interoperability solutions in the context of real-world business scenarios.

Furthermore, the OGC has a solid track record of partnering with the broader standards community such as ISO Technical Committee 211 (Geographic Information / Geomatics), the World Meteorological Organization and the International Hydrographic Organization, OASIS, OMG, IETF, ITU and the W3C to support cooperative standards and best practice development. One example of this cooperative support includes the successful collaboration between ISO/TC 211, IHO and OGC to develop a set of guides to articulate the value of open geospatial standards and to provide guidance on the implementation and adoption of geospatial standards and Spatial Data Infrastructures by the user community. These documents can be downloaded for review at: <http://ggim.un.org/ggim_committee.html>.

Since its inception, OGC has been a major enabler of Spatial Data Infrastructure (SDI) programs worldwide, advancing a common set of standards to enable the publishing, discovery, access, fusion and application of geospatial / location information for improved decision making. Ongoing and recent OGC interoperability initiatives are relevant to the definition of a Health SDI data model. OGC will leverage outcomes of prior testbeds and pilots to assist in shaping a Health SDI interoperability reference architecture and data model. Such projects include the recently completed Disasters Concept Development Study and Pilot, the Marine Spatial Data Infrastructure Pilot, the Arctic SDI Pilot, as well as other SDI and related Cross Community Information Sharing requirements addressed in OGC’s previous interoperability Testbeds.

## The Challenge of a Health Spatial Data Infrastructure (SDI)

Experts agree that access to, sharing and application of location enabled information is a key component in addressing health related emergencies. While the present COVID-19 pandemic has underscored a range of successes in dealing with the COVID virus, many gaps in supporting local to global preparedness, forecasting, monitoring and response have been identified when dealing with a health crisis at such an unprecedented level. A common, standardized health geospatial data model and schema would establish a blueprint to better align the community for early warning, response to, and recovery from future health emergencies. Such a data model would help to improve support for critical functions and use cases.

## RFI Purpose

This RFI presents one step in the Open Geospatial Consortium’s (OGC) Concept Development Study (CDS) which aims to engage the health and geospatial communities across industry, government, academia and research organizations in the evaluation of the current state, and the future design of geospatial data requirements for a Health Data Model and a Health Spatial Data Infrastructure (SDI). To achieve these purposes, this initiative will emphasize the examination of four health related data categories and three health emergency use cases. Ultimately a common health data model and data infrastructure can be used by the global community to improve detection, monitoring, and forecasting. It should also support improved planning, preparedness, response and recovery for future health emergencies including epidemics / pandemics of infectious as well as environmentally related diseases and other impacts on population health.

## Health SDI Concept Development Study (CDS) Methodology

* **Issue RFI and Compile / Analyze Responses**: Engage the health and geospatial communities to capture broad international insight into health emergency data requirements with a focus on three use cases:

1. Pandemic like COVID-19;
2. A natural disaster complicated by a contagious disease epidemic;
3. Health emergencies in general with an additional focus on the health effects of impaired air quality.

For each use case RFI responders will be asked to assess data requirements in the following categories:

* + Useful indicators, metrics and measures that support detection, monitoring, forecasting and response priorities
  + Data required to identify and trace contacts of infected individuals; data to support critical analyses that identify and monitor disease clusters, identify vulnerable populations, forecast and predict future disease spread and support effective public information.
  + Foundation and framework data that provide critical context for health related data.
  + Data related to determining the status and adequacy of health care facilities, services, resources and staffing.
  + Data associated with critical supply chains for PPE, testing, equipment and treatments.
* **Draft Health SDI CDS Report:** From the results of the Member Meeting Health SDI Workshop/Summit, responses to the Request For Information, and review of related initiatives; document Health SDI core data model requirements and use cases in a draft CDS Report, including an initial data model and recommendations for prototyping the data model in the OGC Disaster Pilot and other initiatives. The draft CDS report will be shared with sponsors, workshop attendees and RFI respondents for review and feedback.
* **Health CDS Validation Workshop**: Convene a follow-on workshop with sponsors and contributors to discuss and seek feedback on the draft CDS Report.
* **Health Summit Session**: Convene a Health SDI summit session at the March 2021 OGC Member Meeting to further engage experts from the health and geospatial communities, and to kick off the RFI process.
* **Final CDS Report**: Produce and post for OGC consideration a completed CDS Report incorporating feedback from reviewers and the validation workshop.
* **Final Presentation:** Convene a final presentation at the next OGC Members Meeting to present and discuss outcomes of the study.

It is anticipated that this initial Health SDI data model will expand incrementally as new use cases are introduced and associated data requirements are mapped back onto the data model.

## Organizations supporting this RFI

* Federal Geographic Data Committee (FGDC),
* United States Geological Survey (USGS),
* National Aeronautics and Space Administration (NASA),
* National Oceans and Atmospheric Administration (NOAA),
* Group on Earth Observations (GEO),
* AmeriGEO,
* United Nations Initiative on Global Geospatial Information Management (UN-GGIM) - Americas

# 2. Health Spatial Data Infrastructure

## 2.1 Concept and Motivation

Experts agree that access to, sharing and application of location information are key components in addressing all types of health emergencies. Many types of health crises including infectious and non-infectious diseases, exposure to environmental toxins, or natural disasters, require the collection of many different types of social, economic, environmental and other authoritative data, across numerous work processes, that then need to be brought together for diverse operational and analytic purposes. A common, standardized health geospatial data model and schema would establish a blueprint to better align the community for planning, preparedness, response and recovery activities.

The purpose of this RFI is to gather all the best ideas for identifying and effectively using spatially enabled health information through examination of three disease use cases: a pandemic like COVID-19; a contagious disease epidemic that accompanies a natural disaster, and respiratory illnesses caused by air pollution. Responders to this RFI are being asked to identify what data, products and services are needed, the relationship between different types of data, and critical applications for interoperable data. Responders are also asked to provide information about data sharing between health organizations and other emergency response agencies and organizations, and about data safeguards needed to ensure compliance with privacy and other security requirements.

This RFI is not intended to address activities that are related to early scientific discovery in a health emergency, such as initial pathogen or toxin identification, determination of exposure characteristics (i.e. origins or modes of transmission), pathogen gene sequencing or development of diagnostics, treatments or vaccines. However, any ideas related to the effectiveness of health emergency response operations covered by this RFI are welcome.

## 2.2 The Health Data Foundation

Health related data is the foundation for dealing with any major health emergency. Such health-related data can allow the health community to maintain oversight of critical supply chains (for testing, PPE, equipment and treatments, including antibiotics and vaccines); understand patterns of patient illness and spread; and provide us with intelligence to rapidly mobilize responses and suppress disease outbreaks. Four general data categories have been initially identified as a priority in dealing with health emergencies. They are described here as a starting point for responders to identify what they themselves consider the most important data types and sources needed to support critical health work processes and analytics.

## 2.3 Priority Framework, Foundation and Background Data

Many nations and jurisdictions have enterprise GIS systems, where dozens if not hundreds of data layers are registered to a common base map in a way that allows any combination of data layers to be used together to support an operation or solve a problem. The following is a listing of layers that are either essential or likely to be very useful for dealing with major health emergencies and are often found in existing enterprise GIS systems. Responders are asked to identify those of particular importance for a Health Spatial Data Infrastructure and to recommend additional layers that would add value.

* Foundation/Framework data that provide spatial identity to physical objects or boundaries.

a. Imagery (x,y, coordinates and national grid coordinates)

b. Street centerlines, address ranges and street names

c. Building footprints, Building IDs, building structure information

d. Address points

e. Roadways, transit routes, bus routes

f. Census block and tract boundaries with population and housing information

g. Health information by census tract and block

h. Parcels and parcel IDs

* State, County and Municipal data sets useful in a health emergency.

a. Commercial establishments (regulated) including gyms, sports venues, food services, bars, theatres, retail stores and malls, amusement parks, supermarkets, etc.

b. Sewer systems with points where samples can be taken to detect pathogen presence

c. Houses of worship and social and recreation centers

d. Transportation stations, hubs and transfer points; airports.

e. Prisons and detention centers

f. Community facilities: K-12 Schools, colleges and universities, libraries and other learning centers

g. Healthcare Delivery centers: hospitals, clinics, community health centers, clinicians’ offices including mental health clinicians.

h. Pharmacies, urgent care centers, testing laboratories

i. Nursing homes and senior care facilities

j. Health administrative centers and offices

k. Telecommunications infrastructure including broadcast hubs, smart phone and broadband networks and other essential tele-services necessary to support pandemic communications, citizen remote access to work, e-learning and other key services.

* National Data: Includes infrastructure data encompassing the entire nation, developed by the national government, and national datasets developed by private sector and non-profit organizations.

1. Private sector basemaps with data layers depicting including retail establishments, cultural centers, landmarks, tourist destinations, etc.
2. Private sector routing applications that include all roadways, traffic direction and provide real time traffic congestion status
3. Manufacturing, food processing and warehousing plants with high density workforces
4. Hospitals and other health care facilities
5. Drug manufacturing facilities
6. Health equipment manufacturers
7. Health research laboratories including those at universities and colleges

## 2.4 Data Pertaining to Health Care Facilities, Services, Resources and Staffing:

In major health emergencies as in natural disasters, hospitals and other health related facilities deliver care to those in the most critical condition. It is essential that every hospital be monitored to track occupancy, adequacy of resources and staff levels. This will make it possible to anticipate shortages and to take mitigating steps such as balancing patient loads and supplies with other hospitals.

* Hospital and Health Care Facilities

1. Patient Occupancy Capacity
2. Resources: Critical supplies, medicines and equipment: Current levels vs recommended levels
3. Staffing Levels
4. Health care facility catchment areas or hospital referral regions

## 2.5 Data Required for Managing Key Supply Chains

The following are important supply chains for health emergency planning, preparedness, response and recovery.

* **Diagnostic Test Supply Chain**: Adequate testing kits and support materials and chemicals are essential to identify those who have been infected, especially if they pose a danger of spreading a disease. Examples of test components include cotton swabs, specimen containers and chemicals used by laboratories to determine disease positivity.
* **Personal Protective Equipment**: Providing protective equipment and supplies such as disposable masks, gloves, gowns, and sanitizer to health care workers and first responders. PPE is essential to protect health care workers and to other essential workers likely to be exposed.
* **Essential Medical Equipment:** This includes equipment such as ventilators, oxygen delivery systems, hospital beds, refrigeration units, field hospital tents and related infrastructure needed for proper treatment.
* **Medical Treatments:** Includes supplies of antibiotics, vaccines, and other essential medicines.Also includes the blood supply chain including blood donation centers, distribution networks and storage facilities.

Maintaining supply chain situational awareness can make it possible to maintain inventory of needed supplies, equipment and treatments at optimal levels and to quickly ramp production when necessary. The kinds of data that best identify issues in each supply chain such as inadequacies in raw materials, warehoused supplies, manufacturing and distribution capacity, over-dependence on non-domestic suppliers, may include:

* **Raw materials and component parts:** For each supply chain, this refers to the sources of the materials and parts that go into manufacturing necessary testing, PPE, equipment and treatments. Data may also include stockpile levels and the capacity to increase production and shipping during disease outbreaks.
* **Manufacturing**: This identifies places where materials and parts are fabricated to create finished products, the production capacity of these plants, and their ability to accelerate production during disease outbreaks.
* **Shipping and Storing**: This comprises data about major shipping methods and routes, and any special shipping needs such as a cold or cool chain refrigeration network. Also includes up-to-date information about inventory levels of key supplies kept at storage facilities, in relation to recommended levels.

**Additional Supply Chains**: Responders are encouraged to identify additional supply chains that are important to the development of a Health Spatial Data Infrastructure, and the information, applications and technologies that characterize them.

## 2.6 Patient Data Collection for Analytics, Situational Awareness and Public Information

It is critical that individuals who have become infected and sickened are identified as soon as possible.From an infected individual’s first contact with the health system, all the way through sample collection, testing, notification, contact tracing and case resolution, location enabled information should be rapidly captured in digital form, geocoded to ensure accuracy, and then aggregated with other standardized information to enable analytics that support disease suppression operations. Additional data are required to define and document a workflow and data flow methodology that fulfills these requirements. Another challenge involves providing security for personal health information, while also allowing this data to be shared with other government agency users who are assisting health agencies to manage the health emergency. This may require interpreting, and perhaps modifying, current privacy requirements for private health information established by different nations (e.g. U.S. HIPAA requirements).

2.6.1 *Identifying individuals who test positive for infection*

* **Disease Diagnostic Tests:** At testing sites, collect specimens from individuals while also capturing names, home locations and other relevant information to be identified by RFI responders. Specimens are then sent to laboratories for analysis. Self-administered, rapid tests may not need to be sent to laboratories.
* **Digitize all information and geocode location data:** All testing stations should be equipped with the computer equipment and applications needed to ensure that all collected data is digitized and that location information is properly geocoded to an address point or building footprint.
* **Test Processing:** Identifying the laboratory locations where tests are processed to determine positivity. Each test processing location should have a rated daily processing capacity. Information about positive test results are sent to local and state departments of health, and may be shared with contact tracing teams.
* **Reporting test results in a standardized fashion:** Standardized test data enable results to be aggregated within and across jurisdictional boundaries, and used for a wide variety of analytical and operational purposes.

2.6.2 *Contact Tracing Information*:

Contract tracers get in touch with those who test positive for infection and from those who have been in close contact with them. Various forms of location information are normally collected by contact tracing programs, including home locations, job locations, places visited, events attended and transportation modes and routes taken. The location data collected by contact tracers should be derived from the use of an accurate base map and from accurate geocoding as needed. It must be possible to combine the data from all cases to identify geographical patterns of infection. This information is essential to identify disease hotspots, and to design containment strategies. One approach might be to retrofit current contact tracing applications with GIS tools that allow all data captured to be fully spatially enabled.

2.6.3 *Crowd Sourced Information*:

Many types of health-related information can be collected through remote sensing, in-situ sensor feeds, IoT devices, smartphones, and other data collection devices, and used to assess disease presence and spread characteristics. The use of anonymous Bluetooth-based proximity tracking options has shown promise, but has not yet been widely adopted nor proven its effectiveness in practice.

2.6.4 *Data required for mapping, analytics and public information*

* **Vulnerable population mapping**: Disease infection patterns, neighborhood characteristics, health information, census population and housing data, etc., are used to determine where rapid spread is likely to occur so that effective preventive measures can be deployed.The U.S. Centers for Disease Control (CDC) has also defined methodologies for determining vulnerable populations.(e.g. <https://www.cdc.gov/nceh/hsb/disaster/atriskguidance.pdf>
* **Precision case mapping and analysis**: The best location data can map infections to an individual address point or building footprint using a geocoding application. In time, information may even be mapped to specific building floors and apartments. This level of precision data can support analytics that detect disease clusters and micro clusters. The precise location of infected individuals if properly collected can then be aggregated into larger geographical regions that are either pre-defined such as zip codes, census tracts, counties, states, and countries; or custom defined on the basis of the analyzed spatial trends. These regional trends might guide special restrictions imposed, for example, on communities with high disease counts as well as policies around the openings or closings of schools, commercial establishments and other facilities. Such data could also help guide response to rising numbers of infections in specific areas with distinctive socio-economic characteristics, so that disease suppression strategies can be customized to be most effective for a particular neighborhood without being more severe or widespread than necessary. Advanced modeling tools including artificial intelligence can also be trained on this data to better predict disease spread and response effects.
* **Public Information**: While much of this individualized and hyperlocalized microdata is and should be privacy constrained, appropriately aggregated and anonymized health data incorporated into user-friendly dashboards can be valuable for wider official and public awareness. Risk communications with the public are clearly an art and craft. A standard dashboard design could save hundreds of jurisdictions from expending scarce resources inventing their own dashboard versions; opinions vary on this feasibility. Examples of data aggregates currently being published include daily, weekly, monthly totals, seven day averages and rate per 100,000; for individuals tested, testing positive, hospitalized, deaths and immune/vaccinated.

# 3. RFI Questions

Responders to this RFI are asked to provide basic information found in section 3.1 below. They should also use the three use cases in sections 3.2, 3.3 and 3.4, relating them to the four categories of data found in sections 2.3, 2.4, 2.5 and 2.6. and provide their ideas about the data necessary to support a variety of important applications, functions that would be provided by a health spatial data infrastructure, and challenges that these are likely to present. Please respond to as many elements of this RFI as you are able to, and indicate in the table below the areas for which you are able to provide input. You are also welcome to provide any other information that you feel is relevant to the development of a Health SDI data model.

 Check all of the categories you are responding to:

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Use Cases |  |
| Data Categories | Pandemic | Natural Disaster and Epidemic | Air Pollution and General Health Emergency Data |
| Supply Chain Data |  |  |  |
| Personal Health/Infection Data: Identify and Track |  |  |  |
| Foundation and Framework Data Layers |  |  |  |
| Healthcare Facilities Data |  |  |  |

## 3.1 RFI Responders and Stakeholders

Please provide the following information about your RFI response team:

3.1.1 Personal Information

For each member of your responding team, please provide name, title, contact information (for follow-up questions). Resumes for each of no more than two pages may also be provided.

3.1.2 Organization

Please briefly describe your organization’s role in the health domain.

3.1.3 Work

How would you characterize your work with health data (e.g. data provider/owner, data user, data creator, application developer)?

3.1.4 Stakeholders

Who are the key stakeholders in the health field with whom you interact?

3.1.5 Applications

What health-related applications do you currently work with?

3.1.6 Current SDI

Please describe how the current health spatial data infrastructure available to you does or does not meet your needs.

## 3.2 Use Case: Pandemic/COVID-19

Please provide the following information on health data for pandemic response:

3.2.1 Medical Supply Chains:

Referring to Section 2.3, what operations, applications and technologies and the data they rely upon, are needed to maintain awareness of PPE, test kits and materials, medical equipment and medical treatments across their supply chains?

3.2.2 Patient Information and Analytics:

Referring to Section 2.4, what operations, applications, technologies and the data they rely upon, are needed to identify and track those infected, and to support contact tracing, analytics, identification of vulnerable populations, and public information? Also how can personal health information be protected and shared securely within the health community and their supporting public safety agencies?

3.2.3 Foundation and Framework data:

Referring to Section 2.5, what kinds of data, not directly related to health care, are needed to provide context and value to a health spatial data infrastructure?

3.2.4 Health Care Facilities, Resources and Staffing data:

Referring to Section 2.6, what kinds of data about the healthcare system should be collected, monitored, analyzed and tracked?

## 3.3 Use Case: Data Requirements for a Natural Disaster Complicated by Infectious Disease Outbreak

Please use as a reference point the situation of a severe earthquake accompanied by landslides that also causes an outbreak of cholera. This would be similar to what happened in Haiti in 2010 when there was a cholera epidemic following a 7.0 magnitude earthquake.

3.3.1 Health Data Integration With Emergency Management Data:

What ways would you suggest to integrate government emergency plans with health plans including the integration of data to support a combined response to a natural disaster and an epidemic?

3.3.2 Protect First Responders and Disaster Victims:

How would you treat, hospitalize, and/or evacuate infected individuals while safeguarding first responders and other evacuees? How would you make active infection case data available to the first responder community in ways that also preserve patient privacy and safety? What is the data required to support these operations?

3.3.3 Shelter Design and Procedures:

What information would you need to obtain or share to prepare disaster shelters so people with infectious diseases are isolated and properly attended to?

3.3.4 Supplies:

What information would you need to work with in order to ensure the supply of tests, PPE, medical equipment and treatments during a disaster event.

## 3.4 Use Case: Health Effects of Air Pollution and the Health SDI

The eventual goal of this Health SDI effort is to build a comprehensive health spatial data infrastructure that encompasses many different kinds of health emergencies, including infectious diseases (TB, AIDS, Malaria, etc.) as well as non-infectious diseases such as heart disease or diabetes, and diseases related to environmental factors such as asthma. Please share your thoughts on what additionally would be needed to build such a comprehensive Health SDI. As a reference point, consider a use case in which air pollution, perhaps caused by wildfires or disaster-related industrial release of toxic materials, causes or exacerbates disease spread.

3.4.1 Additional Data Needs:

What data sets not previously mentioned do you feel are important to include in a health spatial data infrastructure? Are there additional data needs that should be considered at local, state, regional, national and international levels; and by various health related organizations including government, commercial, NGO, and academia/research? Data should relate to the needs of other health emergencies and can address additional supply chains, different characteristics of disease symptoms and spread, and other relevant framework and foundation data.

# 4. How to Respond to this RFI

## 4.1 General terms and conditions

Responses to this RFI are due by January 22, 2021 as listed in the Master Schedule (see Section 8). Please respond to as many of the RFI questions as you can, but keep your total response to no more than 12 pages in length. Responses will be examined by OGC Staff and designated members of the organizations listed in Section 1. Submissions will remain in the control of this group and will be used for the purposes identified in this RFI. A summary of the RFI Responses may be made public. We may also contact responders for permission to make specific responses public in the CDS report. If you wish to submit proprietary information, contact (techdesk@opengeospatial.org) in advance of sending the response.

## 4.2 How to transmit a response

Send your response in electronic version to the OGC Technology Desk ([Techdesk@ogc.org](mailto:Techdesk@ogc.org)) by the submission deadline. Microsoft® Word format is preferred, however, Excel, Rich Text Format, or Adobe Portable Document Format® (PDF) are also acceptable.

## 4.3 RFI response outline

A response to this RFI shall respond to as many applicable aspects defined in section 3 as possible. No particular format is required, but any response should be keyed to the numbered questions in a structured way that allows understanding of the respondents’ position on key aspects as described in Section 2. Respondents are free to add additional topics they feel are appropriate to the goals of the study.

## 4.4 Questions and clarifications

Questions and requests for clarification should be sent to [techdesk@opengeospatial.org](mailto:techdesk@opengeospatial.org).  
  
Questions received as well as clarifications from the RFI developers will be posted publicly at the Health SDI CDS web site:

<https://www.ogc.org/projects/initiatives/healthsdicds>

## 4.5 Reimbursements

The organizations issuing this RFI will not reimburse submitters for any costs incurred in connection with preparing responses to this RFI.

# 5. Master Schedule

The following is the present CDS schedule:

|  |  |  |
| --- | --- | --- |
| **Task** | **Start** | **Complete** |
| Introduce Health SDI CDS at Member Meeting | 12/8/2020 | 12/8/2020 |
| Issue RFI globally with communications campaign | 12/23/2020 | 1/5/2021 |
| Response period for RFI | 12/23/2020 | 2/5/2021 |
| Review and consolidate responses from RFI, Summit, literature review | 1/29/2021 | 2/28/2021 |
| Issue Draft report to Sponsors and contributors | 3/5/2021 | 3/5/2021 |
| Health SDI Concepts Validation workshop (virtual) | 3/22/2021 | 3/24/2021 |
| Finalize and Issue final Health SDI Report | 3/24/2021 | 3/31/2021 |
| Plan and conduct final review/consolidation workshop in conjunction with the OGC Health SDI Summit at the OGC June Meeting (virtual) | 6/15/2021 | 6/15/2021 |