



# InterPARES 2 Project

International Research on Permanent Authentic Records in Electronic Systems

## Diplomatic Analysis

### Case Study 24: City of Vancouver Geographic Information System (VanMap)

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#### INTRODUCTION

InterPARES 2 case study 24, *City of Vancouver Geographic Information System (VanMap)*, discusses a Web-based map system that is used by Vancouver City staff for a variety of purposes and to support various business activities. VanMap is maintained by the City of Vancouver's Information Technology Department and is regularly supplied with data by different City departments. Although a version of VanMap is available to the general public via the City's Web site, the focus of the InterPARES study is the internal version accessible only to City staff via the City's intranet. The following report presents the results of a diplomatic analysis of the internal version of VanMap.

The purpose of the diplomatic analysis is to assess the status of the identified digital entity as a record. Once the status of the digital entity has been determined, preservation strategies may be proposed by Domain 3.

#### IDENTIFICATION OF RECORD(S)

A record, as defined by the InterPARES glossary, is a document made or received and set aside in the course of a practical activity. A record must also possess all of the following five components, as established by InterPARES 1 research conclusions: fixed content and form, embedded action, archival bond, persons and contexts. The application of the definition of a record to the creator's VanMap digital entities is therefore analyzed according to the following parameters:

**1. To be identified as a record, the digital entity must possess fixed content and form,<sup>1</sup> and be affixed to a stable medium (or physical carrier).**

VanMap resides on the City of Vancouver's Oracle Spatial server and is thus affixed to a stable medium; however, VanMap does not possess fixed content and form, as data are continuously being updated and overwritten. Each time a user accesses VanMap, he or she creates an instantiation that may be considered complete at the time it is used, but which will become a new file every time data is added or deleted. Thus, VanMap cannot currently be considered a record, though it has the potential to become a record if created properly.

**2. A record must also participate in an action, defined as the conscious exercise of will by an officer of the creator or by an external person, aimed to create, maintain, modify or extinguish situations. A record results as an unintended by-product or product of the action.**

Conceptually, VanMap participates in multiple acts. Since VanMap is used by several City departments to support various business activities at specific times in each department's business routine (though not as part of a formalized procedure), there are as many 'VanMaps' as there are actions in which it participates. In addition, each time a particular instantiation of VanMap is consulted by an internal user, a different record results.

**3. A record must possess an archival bond, which is the relationship that links each record to the previous and subsequent record of the same action and, incrementally, to all the records which participate in the same activity. The archival bond is originary (i.e., it comes into existence when a record is made or received and set aside), necessary (i.e., it exists for every record), and determined (i.e., it is characterized by the purpose of the record).**

Although a conceptual bond exists between VanMap and the records of each of the business activities and procedures in which it participates, there is currently no way of knowing which particular instantiation of VanMap participated in which particular business activity. As such, the archival bond remains abstract and cannot be specifically identified.

**4. Record creation must involve at least three persons, whether or not they explicitly appear in the record itself. These persons are the author, addressee and writer; in the electronic environment, one must also take into account two additional necessary persons: the creator and the originator.**

- The record's **author** is the physical or juridical person having the authority and capacity to issue the record or in whose name or by whose command the record has been issued.

As a potential record, VanMap is authored by the City of Vancouver.

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<sup>1</sup> The InterPARES1 Authenticity Task Force has defined fixed form as the following: 1) binary content of the record, including indicators of documentary form, must be stored in a manner that ensures it remains complete and unaltered, and 2) technology must be maintained and procedures defined and enforced to ensure that the content is presented or rendered with the same documentary form it had when set aside. (See ATF Research Methodology Statement, available at: [http://www.interpares.org/documents/interpares\\_ResearchMethodologyStatement.pdf](http://www.interpares.org/documents/interpares_ResearchMethodologyStatement.pdf)).

- The **addressee** is the physical or juridical person(s) to whom the record is directed or for whom the record is intended.

The addressee in this case is the City of Vancouver staff.

- The **writer** is the physical or juridical person having the authority and capacity to articulate the content of the record.

The writers of VanMap are the VanMap team, as well as the City of Vancouver staff (in various departments) and the outside offices that contribute data to VanMap.

- The **creator** is the person in whose funds the record exists.

When VanMap is set aside or treated as a record, it will reside in the City of Vancouver's funds.

- The **originator** is the person to whom the Internet account issuing or the server holding the record belongs.

The originator of VanMap is Citywire and Jonathan Mark.

**5. Finally, a record must possess an identifiable context, defined as the framework in which the action in which the record participates takes place. The types of context include juridical-administrative, provenancial, procedural, documentary, and technological.**

- The **juridical-administrative context** is the legal and organizational system in which the creating body belongs.

VanMap's creation and management occur within a framework of rules and regulations determined by municipal bylaws, and federal and provincial legislation. The Vancouver Charter establishes the City as a corporate body and delegates most of its powers. Provincial legislation that the City's activities and agencies are subject to include: the Assessment Act (RSBC 1996), the Emergency Program Act (RSBC 1996), the Freedom of Information and Privacy Act (RSBC 1996), the Police Act (RSBC 1996), the Waste Management Act (RSBC 1996), the Water Act (RSBC 1996).<sup>2</sup>

- The **provenancial context** refers to the creating body, its mandate, structure and functions.

The City of Vancouver is the creating body of VanMap. The City of Vancouver is a municipal corporation governed by an elected mayor and council, and consisting of various departments, agencies, boards and commissions which are responsible for providing government services to people living within Vancouver's geographical limits. VanMap is the specific responsibility of the Manager of GIS in the Application Development Division of the Information Technology Department, part of the Corporate Services Group.<sup>3</sup>

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<sup>2</sup> For more detailed information about the juridical-administrative context, see Case Study 24 Final Report, pp. 3-4.

<sup>3</sup> For more detailed information about the provenancial context, see Ibid., pp. 2-3.

- The **procedural context** comprises the business procedure in the course of which the record is created.

As mentioned above, VanMap is not specifically linked to a business procedure, but performs multiple functions for internal users in various City departments. No formal procedure exists for consulting VanMap. However, there are specific procedures for creating and managing VanMap. Each of these procedures can be divided into six constitutive **procedural phases** as follows:<sup>4</sup>

- a. **Initiative:** the introductory phase of any procedure is “constituted by those acts, written and/or oral, which start the mechanism of the procedure.”<sup>5</sup>

Create VanMap

In “Create VanMap,” the initiative consists of the recognition of City staff needs and of the possible benefits of a City GIS system, and the creation of the VanMap team to investigate these needs and benefits.

Manage VanMap

In “Manage VanMap,” the initiative consists of the recognition by the VanMap team of a new need on the part of internal or external users, the IT team and / or the VanMap team. The new need may require data revisions, layer revisions, functionality revisions or technology revisions.

- b. **Inquiry:** this preliminary phase “is constituted by the collection of the elements necessary to evaluate the situation.”<sup>6</sup>

Create VanMap

In “Create VanMap,” the inquiry entails identifying specific user needs, and investigating and evaluating the technology, resources, models and sources of information that could be used to meet those needs.

Manage VanMap

In “Manage VanMap,” the inquiry involves an investigation into the need identified during the initiative, whether it is related to the VanMap framework, content or technology.

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<sup>4</sup> The phases of procedure as dictated by Diplomatic Analysis; see Luciana Duranti, *Diplomatics: New Uses for an Old Science* (Lanham, Maryland and London: The Scarecrow Press in association with the Society of American Archivists and the Association of Canadian Archivists, 1998), 115.

<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

- c. **Consultation:** this phase is “constituted by the collection of opinions and advice after all the relevant data has been assembled.”<sup>7</sup>

Create VanMap

In “Create VanMap,” the consultation consists of negotiations between the VanMap team, internal and external users, and IT over initial decisions regarding the proposed VanMap framework and content.

Manage VanMap

In this phase of “Manage VanMap,” the VanMap team consults with the person(s) who identified the need regarding proposed solutions. Depending on the need, this phase may occur within the team, or may involve City staff and/ or external contributors.

- d. **Deliberation:** this phase is “constituted by the final decision-making.”<sup>8</sup>

Create VanMap

In “Create VanMap,” the deliberation phase consists of several activities (each with their own procedural phases) that together create VanMap as a whole. These activities are: the final determination of VanMap layers; the final determination of VanMap functionality; the final selection of VanMap technology; the development of procedures for the use of VanMap; the creation of layer metadata; and the gathering of data for each layer.

Manage VanMap

In this phase of “Manage VanMap,” the VanMap team makes the necessary revisions.

- e. **Deliberation control:** this phase is “constituted by the control exercised by a physical or juridical person different from the author of the document embodying the transaction, on the substance of the deliberations and/or on its forms.”<sup>9</sup>

Create VanMap

In “Create VanMap,” deliberation control involves seeking the approval of City Council.

Manage VanMap

In theory, City Council has final authority over VanMap content and framework, though in practice their approval may not be sought at this stage if no more resources are required to implement the change.

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<sup>7</sup> Ibid.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

- f. **Execution:** “the documents created in this phase are the originals of those embodying the transactions.”<sup>10</sup> In other words, the execution phase results in the issuing of the first record capable of producing the consequences intended by its author.

#### Create VanMap

In “Create VanMap,” the execution phase is achieved when VanMap is made available to City staff users.

#### Manage VanMap

In “Manage VanMap,” this phase consists of the issuing of the revised VanMap. As in “Produce VanMap,” ongoing monitoring and regular backups continue.

- The **documentary context** is defined as the archival fonds to which a record belongs and its internal structure.

When VanMap is set aside as a record, it will reside in the City of Vancouver fonds.

- **The technological context** is defined as the characteristics of the technological components of an electronic computing system in which records are created.

VanMap has eight main technical components:

- Oracle Spatial database
- SQL Server and CSG Web application server
- Community Web Pages SQL database and Web application server
- Other databases
- Autodesk MapGuide
- ColdFusion MX
- MapGuide ActiveX Viewer
- Microsoft Windows 2000 server (Web server)

## CONCLUSIONS

According to the above analysis, VanMap cannot, at this time, be considered a record. Instead, VanMap is a potential record that exists in a perpetually “live” state. To be considered a record, VanMap will have to be artificially closed at determined times, and set aside as a record. In addition, written procedures for each activity that involves consulting VanMap will have to be developed and implemented.

The authoritative record to be preserved is comprised of both digital and intellectual components. Since the Research Assistants working on this diplomatic analysis have not been permitted access to the internal version of VanMap, it has been difficult to determine which VanMap elements must be considered essential components of the potential authoritative record. Based on available views of VanMap, the following extrinsic and intrinsic elements have been identified.

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<sup>10</sup> Ibid., 116.

- **Extrinsic Elements**
  - Medium: Oracle Spatial Server
  - Overall Presentation Features
    - Text
    - Graphics
    - Image
  - Specific Presentation Features
    - Large and bold fonts: used in body for meaning (emphasis, titles)
    - Colour in maps: specific colour schemes are used for different layers. Codes for different colours are listed in the legend. According to Jonathan Mark, colours change over time and are not backward compatible.
    - Resolution of image files:
    - Scales of maps: Indication of scale is on bottom right of map, but the user can zoom in to alter the scale.
    - Hyperlinks
      - Invisible hyperlinks in maps
      - Icon hyperlinks in maps
      - Underlined hyperlinks in body
    - Special layout
      - Legend on left-hand side of page has three separate functions: it acts as table of contents; it links elements; it explains colour coding on maps.
      - Toolbox: Toolbar for achieving VanMap functions.
  - Special Signs: VanMap logo top left. Carried through all layers and to reports.
- **Annotations**
  - Handling: Announcements and information for users in welcome page.
  - Execution:
    - Metadata information about VanMap as a whole
    - Metadata information about each layer
- **Intrinsic Elements**
  - Protocol: from “VanMap Staff” to “Contact Us”
    - Title: VanMap Staff Edition
  - Body
    - Preamble: Welcome page
    - Disposition: Maps with reports and orthophotos
    - Clauses: Warning and Prohibition in disclaimer pop up window (disclaiming responsibility for accuracy of content).
  - Eschatocol: Empty