

# Innovation Fund Proposal

## XML Data Sharing Pilot Program

### Project Description

#### Project Background

Like many of the City's service bureaus, the Portland Housing Bureau (PHB) uses large web-based databases to hold and report information on the characteristics and needs of the people it serves. These databases are populated with information by users working in many different organizations across the city. Case workers in non-profit agencies that provide assistance to homeless clients enter information on service use and measures of program effectiveness. Property managers at property management companies enter income and compliance information on households living in city regulated affordable housing. Broad participation in these databases helps provide a consistent and accurate snapshot of the populations that PHB serves, as well as information on service use and measurement of performance of programs.

The information these users provide has an important impact on policy at local and regional levels. At the same time, participation and reporting in PHB's databases is not as high as it could be. The database functions have not always been easy to understand and like any software, each system takes time to learn. Users must manually enter data into the systems through web-based interfaces, and in many cases data entry is duplicative of entry that has already been done into agencies own internal information management systems.

The goal of this project is to develop and pilot an XML data sharing program that permits Bureau partners to export data from their own internal information management systems and upload data into PHB databases. Implementation of an XML data sharing program will greatly reduce the data entry burden on PHB partnering agencies, improve the quality and amount of data received by PHB, and ultimately provide better performance information to inform housing policy at the local and regional levels.

#### XML Data Sharing Pilot

**Although not widely used in local government settings, XML is not a new technology.** The vendors of the web-based databases that PHB uses have defined and published global schema for use when importing data through an XML tool. The schema provide system logic to reconcile data and import into PHB's web-based database systems. Additionally, the vendors of PHB's web-based databases have made XML import tools available for use with each prescribed XML schema. The work that remains is to do the outreach and programming to "connect the dots" and begin data sharing using XML. The proposed data sharing pilot program will hire a programmer to assist PHB and work with selected agencies source systems to export and map their data to the appropriate XML schema. The mapping tools designed will be flexible, modular, and displayable so that data can be understood by PHB and partnering agency staff during the upload process.

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The pilot will focus on two groups of PHB partners. Property management companies that manage PHB regulated housing are required to regularly report extensive income and demographic information on the residents of affordable housing. These agencies are currently reporting information to PHB in one source format (a Microsoft Excel spreadsheet) as well as hand-entering tenant data into a PHB web-based database. The proposed pilot will create an XML tool to map the Excel spreadsheet data into a prescribed XML schema. PHB and agency users will then be able to automatically upload the mapped data into PHB's web-based database using the vendor's XML upload tool. **This will eliminate hundreds of hours of duplicate data entry** by the many property management companies that currently report to PHB.

Faith-based organizations that provide homeless services are the second group of partnering agencies targeted by the XML data sharing pilot program. Staffed primarily with volunteers, these agencies struggle to consistently report information into PHB's web-based databases. Staff at the agencies lack the time and background to easily and quickly learn the database functionality and reporting requirements. This limited staff capacity is coupled with some wariness of the constraints that government funding and reporting could potentially place on their agencies. PHB proposes partnering with several of the larger faith-based agencies in the city that provide homeless services to develop a process to map their source data to a prescribed XML schema and upload their data at agreed upon intervals using the vendor XML upload tool. This process will eliminate the need for long hours of staff training as well as relieve the data entry burden currently placed on these agencies.

While XML is a great boon to public and private agencies needing to share data across software environments, it is not without its challenges. The proposed data sharing pilot will require that someone (programmer, PHB staff, or other standard-setter) must reconcile the differences between data sources and the destination web-based databases in order for data to be shared. Data reconciliation will need to overcome possible technical challenges as well as differences in semantics. In the two pilot groups there are many opportunities for agencies to use different formats and terms to describe the same attributes. Staff will need to work as integrators and determine if it is possible to use a particular attribute for a particular purpose. These challenges, while serious, are not great enough to outweigh the potential benefits of implementing XML data sharing.

### **Project Timeline**

January 2014

- Work with Procurement Services to contract with an XML programmer through one of the City's existing flexible services contracts or through a RFP process.

January 2014 – February 2014

- Work with selected XML programmer to translate the Excel spreadsheet currently submitted to PHB by local property management companies to prescribed XML schema.

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- Document the process of converting the Excel spreadsheet to an XMLfile.
- Test the final XML dataset for successful upload into housing software.
- Verify the documentation created during the XML mapping process.

### March 2014

- Meet with faith-based pilot agency leadership to kick-off the XML Data Sharing Pilot Program and put necessary data sharing agreements in place.

### April – June 2014

- Work with XML programmer to translate agency source system data into prescribed XML schema.
- Document the process of converting the source data to XML.
- Test the final XML for successful upload into housing software.
- Verify the documentation created during the XML mapping process.
- Repeat above process for each faith-based agency (three total).

### June 2014

- Coordinate with PHB to train and test on maintenance of the XML conversion and upload process.

## **Project Outcomes**

Implementation of an XML data sharing program will greatly reduce the data entry burden on PHB partnering agencies, improve the quality and amount of data received by PHB, and ultimately provide better performance information to inform housing policy at the local and regional levels. Being able to provide complete data on homeless services and outcomes in the community to PHB's federal funders such as the Department of Housing and Urban Development (HUD) will improve the Bureau's competitiveness for future funding opportunities.

Implementation of XML tools for property management companies currently reporting to PHB will eliminate hundreds of hours of duplicate data entry. These same tools made available to faith-based organizations will eliminate the need for long hours of staff training as well as relieve the data entry burden currently placed on these agencies. By reducing the need for manual data entry, it is expected that data quality and completeness will increase by a minimum of 25% for each participating agency.

## **Budget**

We expect each agency data source to require a minimum of 50 hours of programming to convert to a prescribed XML schema. An additional 10 hours of time is allocated for documenting the conversion project for each data source. For this pilot project, potential agency data sources include the Excel spreadsheets submitted by property management

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companies (considered one data source) as well as XML converted data from each faith-based agency. The faith-based agencies are using a wide variety of software applications to maintain their client records, and each agency will be its own XML mapping project.

Contractors with the requisite programming skills range in price from \$50/ hour to \$125 hour, depending on their expertise and skills. For purposes of this project we estimated \$100/hour.

PHB must pay a one-time, \$6,000 XML upload fee per data source for use of the XML uploading tools provided by the vendors of its web-based systems. We anticipate the pilot will convert four data sources to XML files following prescribed XML schemas.

The table below represents the cost of converting and uploading four data sources via XML tools.

<b>Task</b>	<b>Number of Hours</b>	<b>Num</b>
XML Programming	200	\$20,000
XML Upload (One-Time Fee)		\$24,000
XML Documentation	40	\$4,000
<b>Total Project Cost</b>		<b>\$48,000</b>

**Project Contact Information**

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