



The City of Calgary

201640 Fair Calgary Subsidy Assistance Management Program System BPM

Recommended Solution

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Executive Summary

Community and Neighborhood Services (CNS) collaborated with Recreation, Animal & Bylaw Services, Transit and Information Technology (IT) to document business processes and develop a cost estimate for a business system through which low-income people in Calgary can be assessed once for financial eligibility to all of The City of Calgary's low-income fee subsidy assistance programs.

Currently each of the four business units offering low-income programs independently manages their own subsidy assistance program information. Recreation uses Class; Transit uses its Low-Income Pass System (LIPS) while the other businesses and programs use excel spreadsheets and/or word documents.

This initiative was to design and develop a cost estimate for the implementation of a single entry system to promote effective, efficient, and dignified assessment of low-income eligibility to current and future City of Calgary programs and services for low-income Calgarians.

The following project objectives describe the intent of the project:

- Identify a future solution that provides effective, efficient and dignified assessment of low-income eligibility to City of Calgary programs and services for low-income people. The future solution shall also:
 - Streamline administration of assessing income eligibility where necessary.
 - Increase client awareness of other available low-income programs.
 - Preserve client centred assessment opportunities.
- Identify the agreement among representative Business Units of the future solution scope and objectives.
- Develop an estimate to implement the technology to support the future solution.

The project work was executed by the CNS Project Manager and the IT Team with strong participation of the representative program Subject Matter Experts (SMEs). The team conducted a series of group Business Process Management (BPM) meetings with the SMEs to capture current state business processes; future state business processes; system requirements; and potential options for a technical solution.

Issues explored during the BPM included: the scope for the processes to be reviewed; the differences in duration of eligibility used by the programs; differences in methods used to gain acceptance; Low-Income Cut Off (LICO) differences; document retention differences; who should do the low income check; where the low income check should be performed; 'front facing' processes (point of sale) versus processes performed in non-public facing offices; and governance of the approved processes.

In the BPM it was discovered that Transit's LIPS contains functionality that enables a low-income check by users and that this potentially could be used by the other programs. However, LIPS was written in an

old programming language six years ago which is no longer supported and LIPS is planned for replacement by IT in the near future.

It was decided that the remaining functionality contained within LIPS besides the low-income check, i.e. functionality specifically related to Transit for low-income pass sales and reporting, should also be included in the final technical solution to leverage resources between the two initiatives. This made sense from a functionality perspective, since the existing LIPS software is built this way, and from a cost perspective, since it would negate the need to develop costly data integration to and from LIPS to any new solution developed as part of this project. It was also decided that since LIPS was being considered for replacement, it was also effective to include processes specific to the other programs in the final solution as well. For example, the Property Tax Assistance Program (PTAP) was also considered as a viable candidate as it is currently administered using spreadsheets that were not developed by IT and thus unsupported.

Three main overall potential future state process options were developed in the BPM for consideration by the SMEs. The main process that was unanimously selected by all SMEs would necessitate a major change to who would perform low-income checks and where they would be processed. All agreed that one or more centralized processing centres where low-income checks could be performed would best suit the needs of low-income Calgarians and the City programs that support them. This ultimately would mean that the individual programs would no longer be responsible for performing the low-income check portion of their current business processes as these responsibilities would be moved to one business unit.

A considerable amount of time would be needed to implement this significant human resource and process change and it potentially could not be delivered until Q4, 2014. Given this, it was decided it would be beneficial to explore delivery of one or more 'quick wins' in the short term if appropriate.

On completion of BPM activities, evaluation commenced to determine which of the technical options would best address the processes and requirements to form the recommended technical solution. Also considered was which options could be delivered in the short term versus the long term and the consequences of doing either. . The following are the technical options that were considered. Analysis of these options is captured in the remainder of this document.

1. Status Quo
2. Build a common Low-income Photo ID card
3. Build a new 311 CSR system
4. Build a new InfoPath/Sharepoint system
5. Re-Use the Transit Low-income Pass System (LIPS) with minor changes
6. Build a new IBM BPMS system
7. Build a new City Application Architecture Framework (CAAF) system

Analysis revealed that none of the technical options was a viable alternative in the short term as an interim solution, however, additional BPM time to further consider option **5: Re-Use the Transit Low-**

income Pass System (LIPS) with minor changes may be beneficial. This option accommodates ‘front facing’ data entry by Transit however includes some ‘throw away’ data integration and necessitates double entry of data by the other business units.

The only option that can accommodate all of the complex requirements for a relatively inexpensive cost is option **7: Build a new City Application Architecture Framework (CAAF) system**. This option enables customized development in a robust environment and delivery of a true ‘prove income only once system’. It would be delivered in the long term, expected by late Q4, 2014, in time for the move to a centralized processing model. This is the only option that can be used to incorporate both the common low-income check processes as well as the necessary unique processes of the individual programs (Transit and PTAP) into one technical solution, therefore providing for the long term needs of an effective single-entry system.

Costs to implement option 7 include the following.

Build new Common Low-Income Check:	\$425K
Transit – Replace LIPS:	\$175K
Incorporate PTAP processes and spreadsheets:	\$150K
TOTAL COST:	\$750K

Assumptions

- Who performs the low-income check and where it is processed will remain status quo during the interim period, until the long term solution can be delivered.
- Any interim solution will be chosen based on the following:
 - time and cost to implement
 - technical requirements
 - functional (business) requirements
 - ability to allow for future expansion to accommodate a long term solution
- The interim solution may not include a technical component.
- Any interim solution will not include data integration, due to cost, only some type of notification or reporting.
- Any interim solution will not include the development of a new external web presence.
- Any interim solution will not include scanning and digital data storage of documents.
- The long term solution will include one or more centralized processing centres where the low-income check will be performed.
- With the move to centralized processing of the low-income check, the individual programs will no longer be the owners of this process.
- The long term solution will include the potential to accommodate processes unique to each program, for example, the replacement of the entire LIPS program that manages the issuing of Transit passes, not just the low-income check.
- Additional BPM activities will be required to determine how unique program processes will be accommodated into the future solution.
- A governance model will be developed involving necessary stakeholders to ensure sustainment of the long term solution.
- Impacted business units not involved directly in this project BPM, such as 311, will be willing to accept changes to their processes and technical programs as a result of the findings of this project.

Evaluation Rules

The project IT Team has worked with all business SMEs to develop the future state processes; gather requirements; conducted interviews; and perform internal and external research on software that might align with the City of Calgary standard. The IT Team gathered the following information during the requirements gathering process and uses it as key to determine the success of the acquired software.

The solution software shall:

- Provide the following functionalities as revealed during the BPM including search, email, digital document attachment, business rules, data entry, data protection, and security;
- Enable streamlined administration of assessing income eligibility;
- Enable increased client awareness of other available low-income programs;
- Accommodate data integration to and from existing City applications used to house low-income client information;
- Enable submission of applications via the web;
- Accommodate use of the software in various networked locations throughout The City;
- Accommodate the inclusion of the complex processes determined during the BPM;
- Accommodate the inclusion of the additional processes unique to each program;
- Enable digital document collection and storage.
- Fit within current City software standards, and if not, there shall be adequate justification for doing so; and
- Have a strong technical support model acceptable to all parties to ensure sustainment for the long term.

Evaluation of Alternatives

1. Status Quo Alternative

Benefits:

- No additional cost investments required.

Challenges:

- The objectives of this project would not be met.
- Low-income Calgarians would continue to suffer the indignity of proving low-income status multiple times for the multiple programs offered by The City.
- Existing inefficient processes would not be addressed.

Costs:

- There would be no additional cost to remain at status quo; however, currently there are redundant tasks, processes and systems used by the business unit programs. These costs could be reduced with a single entry system.

Recommendation:

This is not a viable option.

2. Build a Common Low-Income Photo ID Card

A photo ID card would be issued to approved customer and serve as proof of low-income status. This was considered for implementation in the short term. Where low-income checks are processed and who performs this task would remain status quo, i.e. this would remain with the individual programs.

Benefits:

- Customer would only need to prove low-income eligibility once.
- More information would be provided to the customer on other low income programs.

Challenges:

- Risk of card having stigma attached to it.
- To be effective would require a back end database and IT application complete with data entry functionality to manage user's names, family member's names, entry/expiry dates, etc. Otherwise, there is significant risk of fraudulent use of cards by non-qualified individuals with no IT system to support and card replacement would be impossible. This would add significantly to the start up costs and time to implement.
- Anticipated administrative inefficiencies to issue cards and anticipated need to replace cards if lost/stolen.
- Additional administrative task to take pictures is not consistent with desires of BUs to decrease administrative activities.
- Customer would have to provide basic intake information multiple times to low income programs.
- In absence of supporting database, there would be no ability to provide reporting on customers overall.

Costs:

- Backend IT database and application development.
- Data conversion from existing spreadsheets and applications for client information.
- Data integration to and from existing spreadsheets and applications.
- Reporting system.
- Additional hardware and software for photos and cards.
- Photo ID cards.
- BPM project to determine detailed processes.

Recommendation:

This option was explored as a 'Quick win', however, to implement fully and mitigate risks associated with potential fraudulent use of cards, the time and costs represent significant barriers to implementation.

Therefore, this option is not recommended.

3. Build a new 311 CSR System

This would be developed by both Customer Services and Communication (311) and IT. It would be implemented in the short term. Where low-income checks are processed and who performs this task would remain status quo, i.e. this would remain with the individual programs.

Benefits:

- In-house, inexpensive application
- Customer would only need to prove low income eligibility once.
- Customer provides basic intake information only once.
- More information provided to customer on other low income programs
- Provides for option of on-line application submission.
- Improved global reporting.
- 311 CSR system already has an external web presence.
- Option to leverage existing City database.

Challenges:

- IT's assessment is that this system cannot provide for the complex functionality needs of the long term solution. For example, the 311 CSR system could not be used for the required queries, data entry, management of search results, complex processes, business rules or validation rules required to accommodate the pass sales and reporting functionality currently found within LIPS. This would require a more customizable development platform. Therefore, the 311 system could only be utilized as a short term model and any investment in system development would be lost with move to long term solution.
- Inefficient as business units would have to enter information on customers in two systems; the programs existing system and CSR.
- To mitigate inefficient double entry this system would require both real time and batch (over night) data integration across multiple systems adding substantially to cost. Any development investments would be 'throw away' in the long term. Data integration costs could equal as much as half the costs of new integrated system build.
- Without data integration, this process would result in longer application processing times for face to face applicants as administrators enter information into 2 systems. This would especially be a problem for the 'front facing' low-income transit pass programs.
- Assuming data integration is used, customers would face delays as multiple systems update from non-integrated single entry system. Integration times too and from 311 CSR system are 15-20 minutes.
- Ongoing support costs are greater with multiple data integrations as changes to any one system results in changes to the data integration.
- Does not address fundamentals of accessible locations and would require a face-to-face presence.

Costs:

- Data conversion from existing spreadsheets and applications for client information.
- Cost for time to enter information twice.
- Cost for longer application processing time.
- Data integration to and from existing spreadsheets and applications.
- Additional hardware.
- BPM project to determine detailed processes.

Recommendation:

This option cannot be used for the long term solution and would require inefficient double data entry or costly data integration if used for the status quo.

Therefore, this option is not recommended.

4. Build a new InfoPath/Sharepoint System

This would be developed in partnership with Recreation and IT and would be implemented in the short term. Where low-income checks are processed and who performs this task would remain status quo, i.e. this would remain with the individual programs.

Benefits:

- In-house, inexpensive application.
- Customer would only need to prove low income eligibility once.
- Customer would provide basic intake information only once.
- More information provided to customer on other low income programs.
- Customer required proving income only once.

Challenges:

- Could not provide for the complex functionality needs of the long term solution. Specifically, it would be difficult to develop in Sharepoint accessing multiple database tables with one-to-many relationships; Sharepoint cannot handle management of complex search results; security requirements would be too complex for the system to handle; and reporting requirements could not be met. This would require a more customizable development platform. Therefore, InfoPath/Sharepoint could only be utilized as a short term model and any investment in system development would be lost with move to long term solution.
- Relatively poor records management and privacy protection. Records might be deleted by mistake without a chance of recovery and data protection is limited when compared to other potential solutions.
- There is currently a development freeze on SharePoint usage at the City.
- InfoPath is not licensed for external web use at The City. This is unlikely to change,
- Longer application processing times with entering information into 2 systems. Especially a problem for the 'front facing' Transit programs.
- To address double entry inefficiencies the system would require both real time and batch (over night) data integration across multiple systems adding substantially to cost. Investments would be 'throw away' in long term.
- Does not address fundamentals of accessible locations.

Costs:

- Cost for staff time to enter information twice or data integration to and from existing spreadsheets and applications
- Data conversion from existing spreadsheets and applications for client information
- Cost for longer application processing times for customer.
- Additional hardware.
- Costs of an additional reporting system.
- BPM project to determine detailed processes.

Recommendation:

This option cannot be used for the long term solution and would require unacceptable double data entry or would require costly 'throw away' data integration. Therefore, this option is not recommended.

5. Re-Use the Transit Low-income Pass System (LIPS) with minor changes

This would involve the re-development of existing Transit's LIPS by IT to meet requirements of a single entry system for all programs. It would be implemented in the short term only as system is nearing end of its lifecycle. Within this option low-income checks would be processed by individual programs and customer information stored within LIPS.

Benefits:

- Leveraging option used by one of largest low-income serving business units (no impact to Transit assessment processes).
- Increase in global reporting across programs.
- Customer provides basic intake information only once.
- Customer required to prove income only once.

Challenges:

- Would still require double entry for business units other than Transit as they would be required to enter information into their own systems.
- To address double entry inefficiencies the system would require batch (over night) data integration across multiple systems adding substantially to cost albeit slightly less as not required for Transit. Investments would be 'throw away' in long term.
- LIPS was developed by IT six years ago using an older programming language. LIPS is slated to be rewritten into the current CAAF standard.
- Any new customer must be searched in LIPS for existence of record adding additional administrative inefficiencies.
- Does not address fundamentals of accessible locations.

Costs:

- Re-development of LIPS
- Besides Transit, cost for time to enter information twice.
- Cost for longer application processing time.
- Data conversion from existing spreadsheets and applications for client information.
- Data integration to and from existing spreadsheets and applications.
- Additional hardware.
- BPM project to determine detailed processes.

Recommendation:

This option cannot be used for the long term solution as current system at end of lifecycle. Would introduce longer application processing times or would require 'throw away' data integration if used to accommodate the status quo. Therefore, this option is not recommended.

6. Build a new IBM Business Process Management System (BPMS)

This would be developed by IT and would be implemented in the long term in concert with a single entry business model. In the near term, low-income checks would continue to be processed by the individual programs.

Benefits:

- Customer would only need to prove low income eligibility once.
- Customer would provide basic intake information only once.
- More information provided to customer on other low income programs.
- Robust, stable development platform which would result in high levels of service to the customer.

Challenges:

- Could not provide for the complex functionality needs of the long term solution. Therefore, would only be utilized as short term model and any investments in development lost with move to long term.
- Would take the longest time to implement.
- Most expensive option to build.
- Requires multiple costly integrations between the internal components of the BPMS system.
- Would also require multiple real time and batch (over night) data integrations across the multiple program's systems adding substantially to cost. Investments would be 'throw away' in long term.

Costs:

- BPMS Blueworks licensing.
- Develop on-line application submission.
- Data conversion from existing spreadsheets and applications for client information.
- Data integration to and from existing spreadsheets and applications.
- Multiple internal BPMS integrations.
- Additional hardware.
- BPM project to determine detailed processes.

Recommendation:

This option cannot be used for the long term solution, and, would take the longest time of all options to implement. This is the most costly option and would require 'throw away' data integration if used to accommodate the status quo. It also introduces longer application process time. Therefore, this option is not recommended.

7. Build a new City Application Architecture Framework (CAAF) system

This would be developed by IT and would be implemented in the long term. Where low-income checks are processed and who performs this task would change to the long term solution, i.e. centralized processing centre(s).

Benefits:

- CAAF is the City of Calgary Application Architecture Framework. This would create an up to date technical solution to support an effective single-entry system.
- Customizable to meet the complex needs of a single entry system.
- Ability to leverage opportunity to replace several existing software systems including Transit's LIPS software that is nearing the end of lifecycle.
- True 'show income only once' system.
- Highly efficient, robust and stable development platform which would result in high levels of service to the customer.
- Cost to build this option is similar to undertake several custom data integrations in other recommended solutions plus have a more robust system as a result.
- Ease of implementation across multiple locations and multiple modes of application (i.e. web).

Challenges:

- Increased cost especially with respect to leveraging opportunity to replace LIPS.
- Increased timeframe to build in comparison to other systems.

Costs:

- CAAF Development costs.
- Develop on-line application submission.
- Data conversion from existing spreadsheets and applications for client information.
- Data integration to and from existing spreadsheets and applications.
- Additional hardware.
- BPM project to determine detailed processes.

Recommendation:

This is the only option that can accommodate all of the complex requirements of the long-term solution for a relatively inexpensive cost. This is the only option that can be used to incorporate the common low-income check processes as well as the unique processes of the individual programs into one technical solution, therefore providing for the long-term needs of low-income program customers.

Therefore, this option is the *Recommended Solution*.

Recommended Solution Cost Estimate

Option 7 - Build a new City Application Architecture Framework (CAAF) system

Build new Common Low Income Check:	\$380,000	IT Development Pool Eligible
	\$45,000	Client funded
	\$425,000	Sub-Total

Transit - Replace LIPS:	\$165,000	IT Development Pool Eligible
	\$10,000	Client funded
	\$175,000	Sub-Total

Property Tax Assessment Program - Replace PTAP spreadsheets and processes:	\$142,000	IT Development Pool Eligible
	\$8,000	Client funded
	\$150,000	Sub-Total

TOTAL PROJECT COSTS	\$687,000	Total IT Development Pool Eligible
	\$63,000	Total Client funded
	\$750,000	TOTAL PROJECT COSTS

Yearly Support Costs	\$15,000	Non-client funded
	\$15,000	Client funded - excludes client costs for computers, laptops, scanners, phones, fax machines, etc
	\$30,000	Total yearly support costs

Appendices

Appendix A – Acronyms

Acronym	Meaning
ABS	Animal and Bylaw Services
BPMS	Business Process Management System
CAAF	City Application Architecture Framework
CNS	Community and Neighborhood Service
IBM	International Business Machines
IT	Information Technology
LIPS	Low-Income Pass System
MS	Microsoft
SME	Subject Matter Expert
BPM	Business Process Management