

To All Commissioners

Re: Smart Card Update

**Recommendation**

That the report be NOTED and FILED.

**Background**

Implementation of the smart card program has continued, noting on January 20, 2016 smart cards became available for monthly pass riders (February passes) at LTC locations (450 Highbury Ave and 150 Dundas St). As evidenced in the following table, total smart card pass sales as a percent of total pass sales has increased from the initial 50% in February to approximately 74% in September. Also highlighted is a steady increase of passes sold via the LTC online portal. The increase in percentage of smart card pass sales in July is reflective of the Student Summer Pass (two month pass) which was only available on smart cards this year.

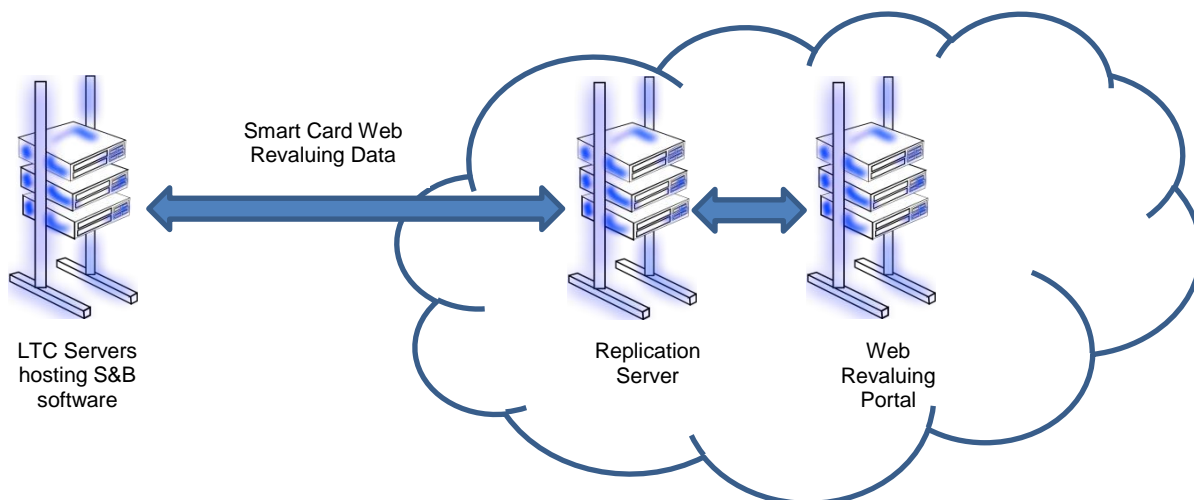
**Monthly Pass Sales Summary**

Pass Sales	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Smart Card - Retail	-	3,671	4,176	3,948	3,962	3,669	3,807	3,076	4,137
Smart Card - Online	-	-	110	664	746	785	853	792	842
Smart Card - Total	-	3,671	4,286	4,612	4,708	4,454	4,660	3,868	4,979
Paper	6,790	3,627	2,871	2,961	2,282	2,707	1,826	1,737	1,799
Total Passes	6,790	7,298	7,157	7,573	6,990	7,161	6,486	5,605	6,778
Smart Card %	0.0%	50.3%	59.9%	60.9%	67.4%	62.2%	71.8%	69.0%	73.5%
Web Based Sales %	0.0%	0.0%	2.6%	14.4%	15.8%	17.6%	18.3%	20.5%	16.9%

**System Issues**

The design document included in the request for proposal for the smart card implementation included the requirement for the bidder to host the LTC online revaluing portal utilized for revaluing smart cards. The primary rationale for this direction related to LTC’s desire to avoid the complications relating to the processing of credit card transactions, including the need for the implementation and maintenance of enhanced firewalls as well as the need to demonstrate Payment Card Industry (PCI) compliance. The requirement for the vendor to host the portal places these requirements on them, given that LTC servers are not storing/processing any financial transactions. Analysis completed during the preparation of the design document indicated this approach to be consistent with that of other transit systems that had already or were in the process of implementing smart card systems.

The diagram below sets out the current structure of the smart card system elements currently in place.



As set out in the diagram, with LTC hosting the primary system software and Scheidt & Bachmann (S&B) hosting the web portal and all related financial transactions, there is a requirement for a replication process to occur that ensures the data relating to the value on each smart card is consistent on both systems. The ongoing problems being encountered by LTC customers utilizing the web portal to revalue their cards has been confirmed to be related to the failures occurring during the replication process. The further complication with respect to the failures is that the cause of the failures has not been consistent, making a permanent solution difficult to achieve.

Given the ongoing and varying nature of the replication failures, the current system design has raised significant concerns regarding system reliability, public confidence, and by extension, sustainability. In order to move forward, two options were assessed, namely; moving the hosting of the web portal to LTC, and moving the hosting of the smartcard software and LTC data to S&B. Either option would eliminate the requirement for replication.

#### *LTC Fully Hosted Environment*

As indicated earlier, the primary rationale for the requirement for the web portal to be hosted by the vendor was to avoid the need for enhanced firewalls and ensuring PCI compliance, both associated with the storage and processing of financial data. In considering this option, administration undertook to determine the approach (practice) in place at other transit systems, as well as the impacts of the additional responsibilities on the available LTC resources.

In terms of other transit systems, all surveyed indicated their reliance on a third party for the hosting/processing of financial transactions.

The current suite of file servers and operating systems for which the Information Services department at LTC are responsible for are considered, for the most part "in-house", in that the data being processed and shared in the various systems is shared, but only by other LTC systems. In the case of the real time information shared with the public by the Automatic Vehicle Location System, this data is pushed out to the web through a web-based application, but there is no opportunity for outside systems to access LTC data as it sits on on-site servers. Notwithstanding this structure, firewalls and security measures to protect LTC systems from the possibility of an outsider accessing the systems are in place. These firewalls and security measures, although appropriate for LTC's current needs, would not meet the requirements for processing financial transactions. Not only would the system software and hardware require significant upgrades, additional dedicated staff resources would be required to maintain and ensure these systems are functioning as expected.

Additionally, an LTC hosted environment would place the onus for PCI compliance on LTC. There are a number of aspects relating to PCI compliance that would be required, some of which are set out below:

- ensure that all LTC employees with access to credit card data meet established PCI guidelines (currently not required given LTC employees do not have any access to this data)
- ensure that appropriate security measures are in place to protect all transactions being processed through LTC servers (firewalls and related software)
- reconfirm PCI compliance each time an update/change is made to the web portal, including required testing with payment clearing house
- potential changes to office configuration to physically isolate servers from staff/visitors etc.

#### *Scheidt & Bachmann Fully Hosted Environment*

The move of LTC data and operating-specific software to a S&B hosted environment would be relatively simple given this arrangement is in place with a number of other transit systems utilizing the S&B system. This approach will continue to place the PCI and data security requirements on S&B. Connection to LTC data will be accomplished via the web, consistent with the manner that is currently in place for the data from the web portal.

Having the base system software hosted by the vendor will also provide for a smoother implementation of software updates/fixes going forward, given that everything is onsite with the vendor. In order to continue to ensure the ability to test updates prior to implementation, the vendor would maintain a test environment, complete with all LTC configurations and data, which would be utilized by LTC for testing prior to any upgrade.

Based on the above, administration has determined the best path forward is to move to a fully hosted S&B environment. Plans for this transition are underway, with the expectation that everything will be completed by the end of 2016. The administration of the additional hosting responsibilities will be reflected in the system maintenance, warranty and service agreement which will take effect subsequent to system acceptance.

Once the new structure is in place, and administration is confident with the web transaction processing, the roll-out of the stored value component of the system will take place.

Recommended by:

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