Land Management Database Platform Review

Final Report

November 2022

www.perrygroupconsulting.ca
647-669-9540

Table of Contents

Version History 5

1.0 Introduction, Context and Approach to the Project 6

1.1 Introduction 6

1.2 Context 6

1.3 Project Approach 8

1.4 Participants 10

2.0 Current State Assessment 13

2.1 People 13

2.2 Process 16

2.3 Technology 19

2.4 Data, Data Entry and Data Quality Issues 25

2.5 Comparison Against Peers 27

2.6 Process Reviews 28

2.7 Current State Summary 34

3.0 Target Future State 37

3.1 Key Capabilities 37

3.2 Key Components 41

3.3 Potential Value / Benefits 42

3.4 Illustrative Experience at Mississauga 44

3.5 BPO Outcomes – Estimated Process Improvement Potential 44

4.0 Options Evaluation 47
4.1 Solution Capabilities – Market Assessment 47
4.2 Municipal Comparison / Background Data Gathering 50
4.3 Options Analysis 52
5.0 Selected Option and Go Forward Plan – Renovating Amanda 54
5.1 Goals 54
5.2 Key Design Principles and Concepts 54
5.3 Key Renovation Activities 56
6.0 Implementation Plan 74
6.1 Approach to Sequencing the Implementation Plan 74
6.2 Key Work Packages 75
6.3 Agile – The Approach to Delivery 76
6.4 Implementation Plan 77
7.0 Resourcing and Budget 78
7.1 Resourcing 78
7.2 Budget Requirements 80
7.3 Potential Cost Benefits and Savings 84
8.0 Key Success Factors 87
8.1 Leadership 87
8.2 Commitment to Change 87
8.3 Commitment of Sufficient Resources 88

8.4 Process First, Designed With and For Customers 88
8.5 Iteration and Perseverance 90
8.6 Measure Progress 91
8.7 Seek Advice and Learn from Others' Experiences 92
9.0 Major Recommendations and Conclusion 93
9.1 Recommendations 93
9.2 Conclusion 95
Appendix 1 – Glossary of Terms 97
Appendix 2 – List of Participating Personnel 103

Version History

Version #	Date	Prepared By	Prepared For	Comments
1	Nov 26, 2022	Ben Perry, Prasanna Gunasekera, Lesley Pavan, John Grassby		
2				
3				
4				
5				

Note to the Reader

Although we have attempted to use accessible language as much as possible, some technical terms and acronyms are used throughout this document. A Glossary Of Terms is available in Appendix 1.

1.0 Introduction, Context and Approach to the Project

1.1 Introduction

In 2022, the City initiated a review of its Land Management Database Platform and associated systems. The project was funded through the award of a provincial Audit and Accountability Fund – Phase 3 grant.

Through an RFP process, Perry Group Consulting Ltd was selected to conduct the review.

This Report presents the results of the review and a recommended path forward for the implementation of service enhancements, including the introduction of online services for users of the City's Planning, Permitting, and Licensing (PPL) functions. This is expected to result in improved services, increased transparency and engagement opportunities with the community, back-office process and efficiency enhancements, alongside mobile technologies to enable increased efficiency of inspectors and enforcement officers.

1.2 Context

1.2.1 The Current Environment – the Land Management Database Platform (LMDP)

The City's current LMDP is Amanda. Originally implemented in 1999 to support Building, Amanda has evolved to now support over 140 City processes across various departments and teams.

Amanda has long been established as the City's core land/property and land/property-related process management system.

The City completed a major upgrade to the system in 2022 and runs the most current version of Amanda, v7.x.

Over a decade ago, the City added an early version of Amanda Public Portal, using Alphinat SmartForms. This web portal provides a connection between Amanda and the City's website and has been used to implement a limited set of online services for customers (e.g., business license renewals, property information requests).

Progress on expanding the range of online services has been slow, and to date no Planning or permitting processes are available online. This product is now deprecated and has been replaced by a new Granicus product offering the Citizen Portal.

In addition to the core Amanda system, a constellation of other software also supports Planning, Permitting, and Licensing processes.

The City implemented Bluebeam during COVID. Bluebeam is a digital plans markup solution that has helped with coordination of commenting and redlining of drawings and has been particularly valuable with staff working remotely. This tool and associated process currently operates independently of Amanda.

The City uses its internal GIS system, which is partially integrated with Amanda, to look up spatial data, e.g., confirming locations, checking aerial imagery, and reviewing zoning status.

The City's website is also a key way users of the respective services find out about how to use the service, get copies of forms, standards and guidelines, and how members of the community find out the details of development proposals.

A wide range of service areas use the LMDP to manage some or all their processes, including the following areas: Animal Services, Building, Bylaw Enforcement, Planning and Development, Engineering, Finance, Forestry, Parks, Fire.

1.2.2 The Drivers for this Review

Formerly built and sold by CSDC Inc. (a Canadian company based in Mississauga for over 20 years) the Amanda product is widely used by municipalities across southern Ontario, including at Markham, Oakville, Guelph, and Whitby, across Canada, and in the US and Australia.

However, the product has been sold twice in the last decade and is now with new owners – Granicus[1] – a large, government technology vendor based in the US. This has raised some concerns about the future focus of the firm and sustainability of the product.

Further, and perhaps more importantly, is the increasing pressure for the City to speed up Planning, Permitting, and Licensing service delivery, while internally dealing with resourcing pressures and the need to increase efficiency and productivity of staff.

[1] Granicus also owns Bang the Table, the platform that powers Get Involved Burlington, and recently purchased Rock Solid, the provider of the City's CRM solution.

These factors – coupled with perceived limitations and shortcomings of the current LMDP (seen as an anchor to progress) and the lack of digital service offerings – prompted this review which was initiated to look at:

- How is the City doing today?
- What are the City's current and future needs?
- How are the technologies and solutions that are currently in place suited to meet our future needs?
- Is Amanda (and the associated solutions) the right platform for the City to build on, or should the City be looking at an alternative solution to power the City's service delivery improvement and digital aspirations?
- How do we get to a more digital, efficient, and effective regulatory management systems model?

1.2.3 Streamlining Development Approvals Fund (SDAF) Alignment

Although initiated separately and funded from different sources, the project worked closely and in parallel with the SDAF projects.

There was significant crossover between team members that aided with cross pollination of ideas and concepts.

1.3 Project Approach

1.3.1 Project Approach

Based on the City's requirements, Perry Group proposed approach the project in three phases with the following activities.

Phase	Activities
Discovery	• Systems walkthroughs – Amanda, Bluebeam, GIS, Web, etc. • SCOR workshop session with key players • Interviews with program areas • Meet with external representatives – Building and development industry and service users • SMT and Council input – group and/or one-on-one meetings • Conduct business process reviews – 7 current and to-be state • Summarize all opportunities (people, process/policy, technology) • Discovery Report – current state – gaps opportunities
Analyze / Strategize	• Market and peer review scan – review existing / refresh and target specific peers • Requirements and fit-gap analysis • Identify potential solution options (e.g., enhance, add, replace) • Develop cost estimates for viable potential solutions • Cost benefit analysis • Socialize and review with City teams • Identify recommendations and review with key stakeholders • Confirm strategic directions
Plan	• Develop Implementation Plan • Draft Report – summarizing recommendations and identify key considerations • Socialize, seek feedback, and revise draft • Present to SMT • Publish Final Report

1.3.2 Adjustment to Project Scope and Approach

In practice, once the Discovery work was complete, the consulting and City teams agreed that sufficient work had been done to confirm that Amanda, the City's existing LMDP, could meet the City's needs going forward.

Using an agile approach, therefore, the scope and objectives of the project were adjusted to use the subsequent stages to map out a plan for implementing enhancements to Amanda to meet the City's needs, rather than assess alternative solutions.

A Comment About Bill 109 and Subsequent Provincial Government Announcements

It should also be acknowledged that, during this project, a series of provincial announcements were made that altered the landscape of municipal Planning significantly. Nonetheless, the core recommendations contained here remain relevant – increasing efficiency and the speed of processing, tracking of timelines and conditions pre and post approval are perennial benefits. Nonetheless, some recommendations and sequencing of the Work Plan has been adjusted to better support recent changes.

1.4 Participants

The project was sponsored by the City's CIO, Chad MacDonald, and led by Brent Stanbury, from ITS.

A core team, including the following members were actively involved throughout this work:

- Brent Stanbury, ITS
- Jackie Murphy, Building
- Jamie Tellier, Planning
- Ann Marie Coulson, Finance
- Anthony Campese, Engineering
- Tina McHugh, ITS
- Chris Koabel, ITS
- Jeanette Bax, Continuous Improvement

The City's Amanda Steering Committee, which includes the Director of Planning (Mark Simeoni), Chief Building Official (Nick Anastasopoulos), CFO (Joan Ford) and CIO (Chad MacDonald), oversaw the work and ensured alignment with other City initiatives.

A series of interviews were conducted with members of each City department that interacts with or supports the LMDP, including:

- Animal Services
- Building
- Bylaw Enforcement and Parking
- Capital Works
- COA
- Community Planning and Development
- Councillors' Office
- Engineering
- Finance
- Fire Services
- Forestry
- GIS/Geomatics
- IT
- Legal
- Licensing
- Parks Planning and Design

And more detailed Business Service Optimization (BSO) workshops were performed for eight selected services:

- COA (Committee of Adjustment)

- Site Plan Application Process
- OPA/ZBA (Official Plan Amendment or Zoning Bylaw Amendment) Application Process
- Building Permit Applications
- Tree Permit Applications
- Business Licensing
- Animal Licensing
- Death Registrations

In addition to internal input, the consulting team also sought input from users of the City's services, and from the development and building communities through the City's Housing and Development Liaison Committee (HDLC) as well as reviewing previous user and community consultations such as the Red Tape Red Carpet Task Force recommendations.

Over the following pages, the Report lays out the:

- Results of our current state assessment.
- Agreed target state which will meet staff, user, and community needs.
- Benefits and value of pursuing that target.
- Results of our fit-gap assessment of the existing Amanda LMDP, and
- Recommended strategy and implementation plan, along with the budget and resources needed to achieve the target state.

2.0 Current State Assessment

The current state of the LMDP is informed by our interviews with management and staff, our discussions with service users, and our detailed process Discovery work.

Broadly speaking, we found that teams are frustrated that the current system does not accurately reflect current business processes (the last major update was in 2007), that modern features (including online portal, integrated EPR, and mobile technologies) are not implemented, and that there is limited momentum around enhancements to the system.

The findings are described in more detail through four perspectives – people, processes, tools or technology and data – to assist in understanding the breadth, scale, and interconnectedness of the various issues.

2.1 People

2.1.1 Limited Commitment to Systems and Systematization

The consulting team observed a lack of commitment or a recognition of the strategic importance of the use of systems as evidenced by:

- A broad lack of awareness of what is possible with modern digital Planning, Permitting, and Licensing systems among staff, supervisors, and managers in business units.
- A lack of a clear, consistent vision for how the LMDP should or could evolve to address future opportunities and challenges.
- An uncoordinated approach to systemization or a recognition of the benefits of digital processing.
- No clear understanding of how the system could serve the various business units' needs, especially downstream processes that depend on digital information gathered and generated upstream in the process.
- Poor awareness of the true impact of not using the existing tools to capture information and to manage processes, especially back-office or downstream processes.
- Limited understanding of the negative impact of the complexity of the current system on its use or ability to make improvements.

On a more practical level, this lack of commitment is also evident in the absence of:

- Encouragement for/enforcement of staff to use the system (e.g., some people "prefer" not to use systems and record their information in an Excel spreadsheet without pushback from management).
- The implementation (or awareness) of the basic features of Amanda, e.g., automated emails.
- An understanding of how tools and processes could change to better serve the organization's needs.
- Resources, attention, or cultural norms committed to data quality or the need for capturing real-time, accurate and complete records.
- A lack of training for staff on how to use systems in the context of the business process and to understand what capabilities the systems provide (e.g., there is a lot of unstructured, word-of-mouth training).

We also noted there has been a significant recent loss of knowledge (due to retirements) that is resulting in long-established processes – long-managed in Amanda – breaking down.

2.1.2 Limited Resources

We noted that there are, in practice, somewhat limited IT resources available to tackle systems change requests which has contributed to a lengthy backlog of requested changes that further drive staff to lose faith in the system.

Enhancements identified by staff often take a couple of years to be addressed, notwithstanding that the method for selecting those to work on, is not transparent or well -aligned with business priorities.

From a product management perspective, the limited IT capacity (which, despite appearances of 1 coordinator, 3 Business Systems Analysts (BSA) and 1 contractor) is spread thinly, has staff assigned to various other solutions and projects, has a lack of in-house capacity to keep up with demands and makes limited use of external resources (contractors, consultants, vendors) to support/extend Amanda.

We also note that the City has no Quality Assurance (QA) capabilities or methods in place today to automate regression testing – this could reduce pressure on IT and business areas for testing, should improve the quality of deliverables and speed the ability to deploy enhancements.

Some support work could also be better done in departments versus in centralized IT (e.g., template or list maintenance, conditions management, training and support, procedure documentation) because of local subject matter expertise and a sensitivity for immediate attention needed, but there are limited resources within the operating departments (except for one example in Licensing) dedicated to performing such functions.

2.1.3 Misconceptions Act as a Barrier to Digitization

There are various tropes, misconceptions or opinions that act as barriers to greater digital adoption, or even thinking about the opportunities. For example:

- There is a belief that physical chain of evidence requirements mean that enforcement officers must use a physical notebook rather than electronic notes.
- Information access must be restricted or controlled to avoid staff from misusing it.
- Reference numbers cannot be assigned until we determine if it is a complete application because this impacts fee calculation and collection and may impact the initiation of regulatory timeframes.
- There is no point in adding information into the system until we've got all the supporting documentation.
- We can't accept online comments from community on Planning applications.
- We can't stray from the exact letter of the various governing Acts (Building, Planning), even though some of these perceived restrictions might be out-of-date, misinterpreted or worthy of challenge or effort to change.
- If we put these services online (report a problem/complain) we will get more requests and we will be overwhelmed with requests that will overburden our resources and distract us from more important duties.
- We need wet/physical signatures for this service.
- We cannot disclose this information about a Building permit (due to privacy rules).
- We cannot allow uploading of documents by applicants for security reasons.

These ideas need to be objectively reviewed and discounted where appropriate. Understanding must be established about how they could be accommodated as digital processes are adopted.

It is interesting to note that some of the process changes (e.g., discontinuance of receipt of paper drawings) forced on the City during the pandemic shows the types of changes that *can* be made, rapidly and with few consequences when the organization is forced to be decisive.

2.2 Process

2.2.1 Process Complexity

The LMDP attempts to support many complex, siloed, organization-centric versus customer-centric processes that originally led to many original Amanda different folder types being set up – over 140 folder types are in place today. These many folder types multiply the already-extensive support requirements when changes to processes – whether caused by pandemic, market conditions or regulatory changes – are needed.

Even though the specific folder types and processes were originally set up to facilitate processes in each department, there is now inconsistent adherence to these processes because the Amanda tool has not kept up-to-date with the changing circumstances.

Furthermore, we found that many of the processes designed and built in Amanda have been constrained by history/reflect old ways of doing things – in many situations, processes in Amanda somewhat follow original paper processes / concepts / constructs (e.g., first submission, second submission) and don't take advantage of digital capabilities.

2.2.2 Workarounds

Many examples of workarounds exist where many elements (e.g. sub-processes, tools, tasks, etc.) have been assembled to compensate for the lack of configured capabilities in the system.

For example:

- Many process steps happen outside of Amanda (often without formal recordkeeping). These wasteful parallel disconnected systems do not support a single source of truth as information is spread over several tools, e.g., Amanda, Outlook, shared drives, spreadsheets, etc.
- Emails are the main source of communication but there is time-consuming and unstructured capture of these emails into appropriate files, even though Amanda could be configured to manage this process.
- Information often doesn't go into Amanda until the application is deemed complete. This approach often leads to incomplete summarization or untimely capture of pertinent details.

2.2.3 Lack of Integrated Fee Handling and Processing Automation

A good example of a needed workaround because Amanda has not been set up to handle them, is fees.

Fees are largely calculated, communicated to users, payments collected and registered outside of Amanda and are hard to audit. For example:

- Fees are paid to Finance (through eTransfers, cheque, etc.) which registers the payment into shared Excel spreadsheets (sometimes without identifying reference numbers) that operating departments must monitor to see if payments have been received.
- Calculations for parkland or development charges are performed in external spreadsheets and are not visible to applicants.
- Credits of fees to be applied toward future applications fees (e.g., Site Plan fee) are often not done.

When there are two phases of fee collection (e.g., Forestry) these convoluted processes impose a double impact on the time to complete the overall process. Payment reconciliation is similarly cumbersome as it is time -consuming and error-prone due to the requirement to reference multiple sources of information.

In all these cases, the lack of integrated payment processing creates significant administration overhead, customer inconvenience and possibility for error.

2.2.4 Quality of Application Submissions

The pandemic drove a rapid transition to remote submission of applications. Most of the new application processes were semi-digital versions of the older paper-based application processes without any new capabilities to improve application quality. Submission quality is measured in terms of completeness of information and content validity.

Submitting incomplete applications – or ones with erroneous information – has been a long-standing issue that leads to resource-wasting completeness checks, time-delaying resubmissions or multiple requests for additional information.

Applications are generally guided by submission checklists that appear to be ineffective, but the City has not collected any data to learn of the main sources of poor-quality applications nor does it have the tools to passively collect submission quality data that might assist in targeting solutions or measuring the effectiveness of any adopted process changes.

2.2.5 Circulations (Internal and External)

The current processes of sending application materials to subject matter experts for review and comment depends heavily upon email, the use of shared file drives or publicly accessible- files on accessible websites. Although this is an improvement on the distribution of paper files and drawings, it still suffers from the following drawbacks:

- No automatic capture of the distribution information (such as the time of the circulation, the list of recipients, the fact that a circulation has been started).
- Manual efforts involved in assembling the circulation, sending updates, or tracking the status of comments.
- Manual efforts on the part of the reviewers to seek out the relevant files.
- No document version control awareness.
- Makes use of non-standardized distribution rules and lists that are adjusted/built for each circulation.
- No automated notification deadlines for review requests.
- No automatic customer awareness of the progress of the technical review.

2.2.6 Automated Notifications

A significant gap in managing the system of various processes and people is the limited use of automated notifications functionality. Notifications or reminders could be more widely used, for example:

- The expiry of the 2-year approval window for Consents.
- Reminders to staff and agencies that comments are due.
- Reminders to Applicants that the City is awaiting some information.
- Informing Applicants about the progress of their applications in the system.

2.2.7 Public Sharing of Planning Information

The City has a strong commitment to making Planning information available online to the public, but the processes to do so (assembling information, requesting maps, sending instructions, information, images and files to website team, etc.) are completely manual, requires coordination between different departments and consumes significant time and resources.

2.3 Technology

2.3.1 Amanda Product

The main process and data management tool in the LMDP, Amanda was originally configured in the early 2000s to serve many separate processes in separate departments.

In our opinion, the many folder types were built with too much granularity to reflect and support the older silo and paper-based processes in existence at the time. In many cases, these folder types have not been updated and do not reflect current business practices, process steps, or templates, etc.

Examples of some of the impact associated with these varied folder types, includes:

- A single project that proceeds through multiple application stages will have to have a separate folder for each stage.
- Each stage folder requires separate and repetitive data entry by both the client and staff.
- The information in the previous stage folder may not be readily available and may require clients to supply the same information multiple times.
- A change in a single piece of information may have to be inserted into multiple folders.
- A change in folder type design would have to done for each folder type affected.

A major folder update was done only for Building folder types in 2007 to support Bill 124, but there have been many changes since then and ongoing support is generally limited to maintaining the existing tool.

There is a backlog of open support tickets (100+) but Amanda team members who are involved in various other systems and projects are not able to devote significant time to this backlog.

As a result of this backlog, numerous templates (letters, reports, etc.) and process steps are out-of-date causing staff to engage in repetitive editing activities. Additionally, the templates probably don't meet AODA compliance requirements.

Although Amanda received an upgrade to Amanda 7 in 2022, the City continues to operate an old version of the Amanda Public Portal which does not provide basic features (login, status checking), and has not been implemented for Building or Planning processes.

Furthermore, we discovered that, although Amanda is available on Toughbook computers to inspectors and enforcement officers, in practice they are not used.

Perception is reality – and users' experience of the current Amanda limits their awareness of what Amanda could be doing to support their processes. In reality, Amanda has far more capabilities than are being used at the City.

Based on our observations, the following chart represents in the smaller blue triangle the capabilities that are being used, against the capabilities that are available, represented in the larger orange triangle.

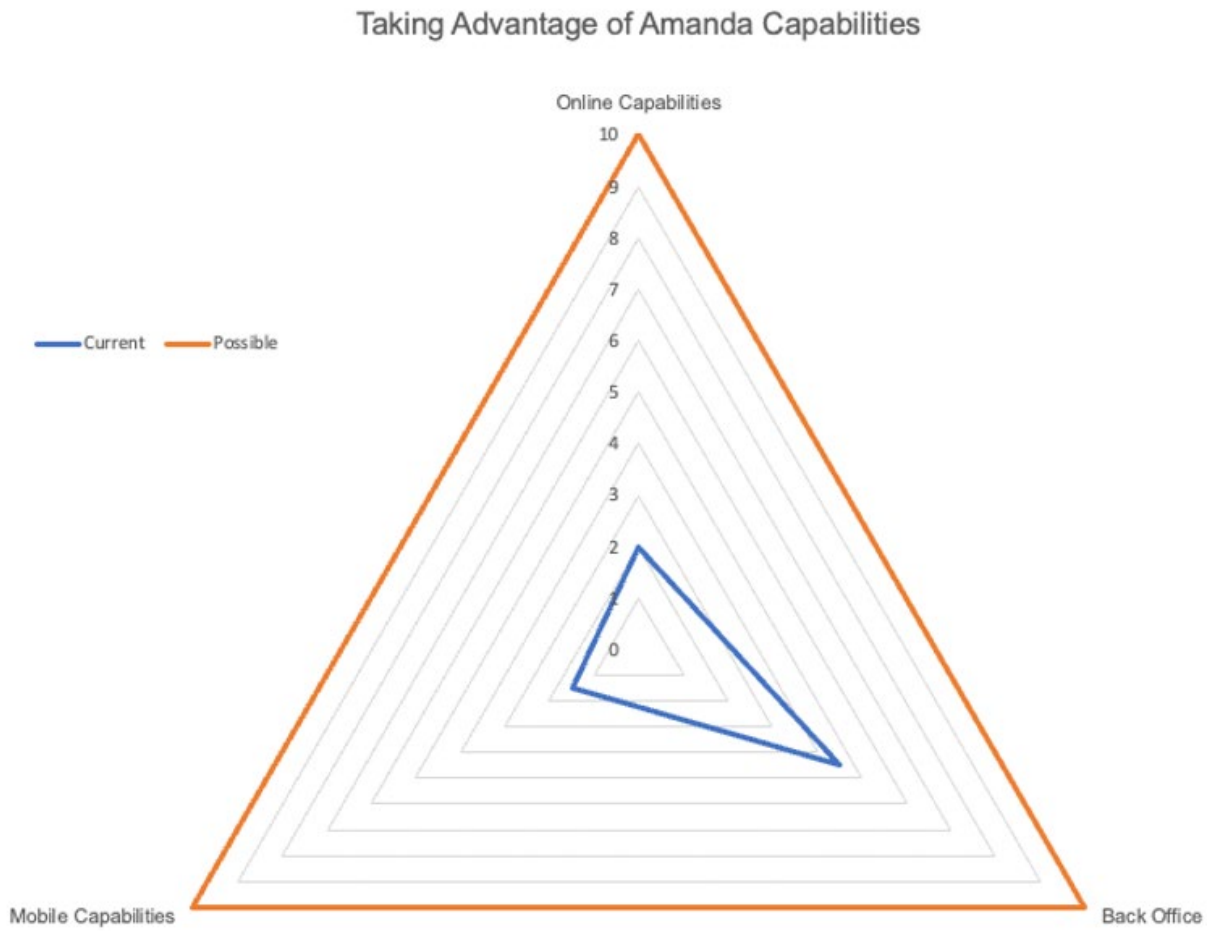


Figure 1: Amanda Usage vs. Amanda Capability

Simply put, a significant number of Amanda capabilities (in online, back-office and mobile spheres) are not being utilized or contemplated.

Examples of capabilities in Amanda that are not being fully utilized include:

- Portal – Up-to-date portal could provide ability to rapidly launch online Planning and Permitting capabilities.
- Agreements – Registered agreements are stored in Amanda, but non-registered ones are not.
- Conditions – This is a very important part of the Planning process, and although this module/capability is available in Amanda, many conditions are tracked outside of Amanda (in documents). The completion of required actions are haphazardly tracked.
- Deficiency module for inspections (standardized deficiencies) is not actively used.
- Email automation is not fully utilized as several processes are not managed in Amanda.
- Circulations capabilities are not utilized.
- Mobile Capabilities (smartphone or tablet) are underutilized, in part because outdated mobile technology is considered more cumbersome and is not used by staff. The Toughbook, car-mounted remote access to the full Amanda client is perhaps no longer suited to expectations of staff as they can't easily attach photos, voice notes, or use dictation software, etc.
- The Letters of Credit (LCs) module is used but reports are unavailable thus requiring the use of a spreadsheet to keep track of LCs.

2.3.2 Limited Reporting and Visualization Capabilities

In addition to these capability gaps, there is also very limited reporting available from Amanda in Amanda 7. This means that managers and staff simply do not have access to information, basic performance metrics and trends such as:

- Applications approaching deadlines.
- Average application queue time.
- Workloads and workload distribution.
- Average number of resubmissions, common reasons for resubmission.
- Types and volumes of development in the pipeline (e.g., how many new residential buildings are projected).
- Trends that are developing in the application flow.

- Evolving market demands.

Amanda reporting capabilities have been deferred while waiting on a business intelligence (BI) tool but apparently reporting appears to be absent from the BI tool – is this still the right approach?

Data gaps and dispersal of data across various electronic and paper-based systems also contribute to the limited capacity for meaningful reporting. There are no examples of dashboards or visualizations of data.

2.3.3 Lack of Integrations

Files, Documents and Drawings

Client supplied- files, drawings and documents are stored in several locations (Bluebeam, Amanda, local drives, shared drives, etc.) as there is no single integrated document management system or practice that is linked to the central Amanda repository.

Staff spend a lot of time shifting files between locations for various reasons (e.g., links to the website, zipping files for circulations, managing version control, moving final versions to Amanda, etc.) or clients are asked to re-submit files because their previously submitted files are stored in a place that is inaccessible to the file requester.

GIS

A fully-integrated Amanda and GIS could be exceptionally powerful (e.g., a fully-embedded bi-directional map view of all data in Amanda) but GIS has only partial or episodic integration with Amanda:

- The GIS viewer within Amanda is not fully implemented/integrated.
- Some data is pushed out from Amanda into GIS but this has been on a request basis and is far from comprehensive.
- Some data is loaded into the Amanda database on a nightly batch basis from GIS.

In some ways, GIS and Amanda are somewhat separate (competing) entities, but they should be viewed as part of a holistic whole with data flowing back and forth between the systems freely. The issue of different definitions of a “property” between GIS and Planning systems, and what systems should be the master source are issues that must be properly addressed to allow for greater interoperability and complementarity.

Payment Systems

There is a range of disconnected payment processing approaches (PerfectMind, eTransfer, Wire Transfer, Credit and Debit, Cheques, etc.) dependent on the specific process involved (initial fees, extra fees, deposits, development charges, payments in lieu, etc.) and the average transaction amount. There are onerous manual methods that use various tools to notify, capture, process, alert, reconcile, etc. payments.

A comprehensive review of the options, best practices and payments policies should be undertaken to ensure the customer and staff experiences are efficient and effective.

SAP (Workday)

Closely related to the issue of payment systems integration is the lack of automatic updates of transactions initiated in Amanda, processed in a payment system and then reflected in the City's financial reporting system.

2.3.4 Related Tools

Electronic Plans Review (EPR)

The City currently uses the Bluebeam EPR tool with limited functionality. It is used in Planning for Site Plan and Building for Permit reviews but only as a markup tool to redline drawings.

Deficiency letters are manually prepared to accompany the redline drawings as the tool does not currently generate an automatic report. The drawing files are stored in several places (local drives, shared B drive, some final versions in Amanda, etc.).

Website (Applications)

For application submission, there is a mix of static guidance and downloadable, fillable or online forms that use the current portal tool (SmartGuide) that often require separate or offline payment processing. These forms have been limited in their use because they are difficult to manage, develop or to rapidly add new services.

The information gathered by these forms often has to be re-entered by staff into Amanda to make the information available for sharing across the system or in a format that is suitable for reporting. There are no current online services set up for Planning or Building.

Website (Citizen Engagement)

The City uses its website to provide extensive information to the public regarding Development Applications. The presentation of this public information relies on a highly manual process involving multi-departmental coordination.

The City's Public Engagement Portal provides easy access to the Development Applications page (where applications can be searched using various criteria or can be selected from an interactive map) as well as the Public Engagement Calendar that lists public or other meetings related to the applications.

eScribe

eScribe is a tool for authoring and circulating reports to be presented to Council or Committees. Departments that prepare items for consideration at Council meetings must load (cutting, pasting or re-writing) their reports and materials into eScribe although that material already exists in Amanda.

Often, departments will perform their own review and approval prior to it being inserted into eScribe. There is no current method of automatically transferring materials or reports from Amanda to eScribe.

2.4 Data, Data Entry and Data Quality Issues

Data and application information are stored in multiple disconnected platforms (both paper-based and electronic, both structured and unstructured) which leads to duplication of files, difficulty in accessing specific files and challenges with version control. A comment we received from one staff member highlights this issue; "*It is sometimes easier to ask the client to re-submit the same drawing (possibly several times) than search for it internally*".

In activities that require a series of applications over several months or years (e.g., Development Planning Applications) there is no cross-referencing- of related project files or sharing of information. The work completed in previous stages of a project (information supplied by an applicant or comments provided by the City) may not be available to inform later stages and may cause errors, contradictions or incur redundant efforts on the part of the Applicant and the City.

Although the concept of having parent and child relationships between related files is recognized as valuable, current tools and practices do not fully support the concept. This disconnect between approvals, conditions and permissions perpetuates the silo separation of individual processes which leads to inferior outcomes or the need for rework.

It was observed that there is inconsistent practice regarding the single entry of data or information at the initial point and time of capture. For example, information is often entered into Amanda at the conclusion of a review (in Planning) or at the conclusion of a work day (Building inspections). These behaviours often lead to inaccuracies and inefficiencies, such as:

- Multiple data entry leading to increased keying errors.
- Duplicate efforts in capturing or entering information into a database.
- Multiple locations of information – no single source of truth.
- Extra effort correcting errors or seeking the most valid information.
- Summaries of information rather than details are captured.
- Timeliness of information suffers such that users may not have access to the most current version.

There is some inconsistency with what should be stored in Amanda, for example, while registered agreements are stored in Amanda, non-registered agreements are not.

There does not appear to be any formal data quality checking, or any commitment or resources assigned to actively monitoring and managing data quality. As a result, employees have learned that data integrity is suspect and they should not rely on it (e.g., a statement made in Planning – "*50% of applications are missing something, or the data is wrong*").

A large part of the data quality problem is that a lot of historical data is not in the system and the task to get the data into the system is perceived to be overwhelming and therefore not addressed.

Apart from the discrete information that makes up a significant portion of LMDP, file and drawing management is generally separate from Amanda and is often in locations that are not fully or easily accessible to the approved users of the information.

Linkages of customer data (customer numbers, contact info, roles, corporate affinity, identity verification, etc.) among the portal, Amanda, CRM, tax records (sourced in part from MPAC) or other related tools and processes (e.g., a customer index) have not been fully defined.

There is no indication that customer guidance information – whether on the website, in application instructions, on the portal or in the CRM knowledge base – is currently coordinated to ensure a consistent message and currency of information.

2.5 Comparison Against Peers

The pandemic's limits on conducting in-person business forced many municipalities into a rapid and partial digitization of their historic paper-based transactional processes.

The needed process changes highlighted that several cultural norms – or old ways of doing things – were found to not be as important as the pre-existing processes suggested, e.g., multiple copies of paper drawings were one of the first casualties of the adoption of electronic application processing. But there are degrees of digitization, e.g., replacing a paper form with an online fillable pdf represents an incremental step as it only allows for electronic submission but limits the usability of the data provided.

A qualitative review was conducted of the availability of true digital services offered by selected municipalities across the Greater Toronto Area to gauge their progress on the digitization journey.

A qualitative rating scale was applied to a sample of services (in Planning, Building and other areas) based on the degree of true digitization employed by those services: 4: full digital services, 3: partial digital (PDFs), 2: services requiring submission of paper and 1: services requiring a phone call or email request.

The municipalities in the following table are ranked according to their relative scores against an ideal score of 100%.

City	Digital Services Score
Markham	93%
Brampton	93%
Mississauga	84%
Oakville	83%
Toronto	82%
Richmond Hill	81%
Caledon	79%
Pickering	78%
Clarington	77%
Newmarket	73%
Burlington	**73%**

City	Digital Services Score
Ajax	72%
Vaughan	69%
Oshawa	67%
Aurora	66%
Halton Hills	63%
Whitby	63%
Hamilton	63%
Milton	54%

While Burlington is by no means the lowest performer in the list, Markham, Brampton, and Mississauga are far ahead and are places from which the City can learn.

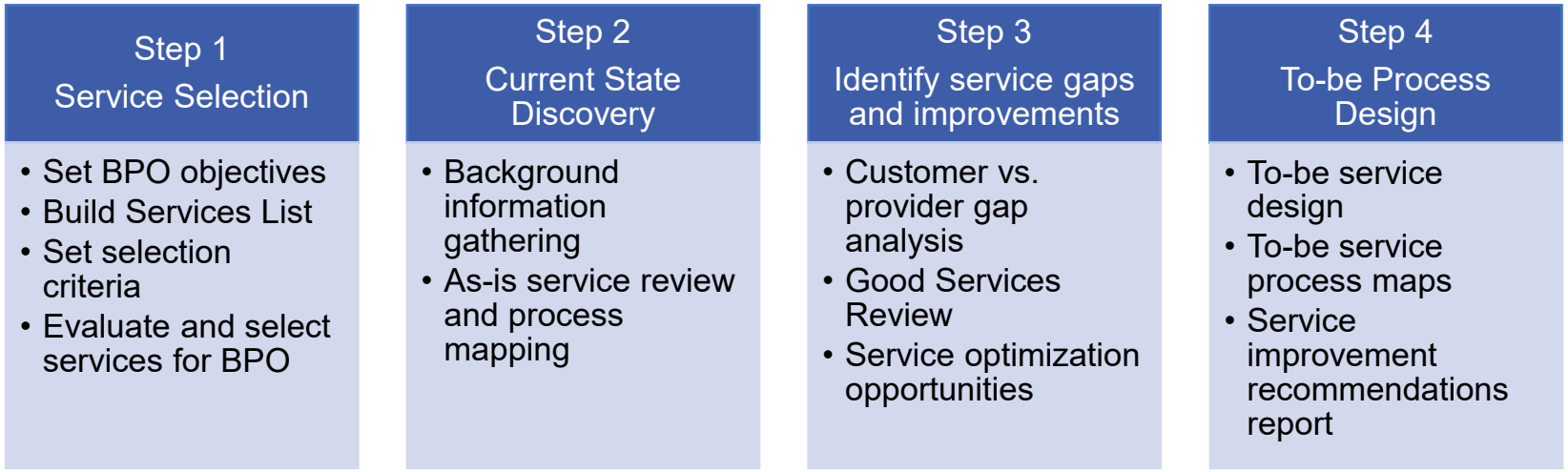
2.6 Process Reviews

To validate our findings, and to go deeper into specific areas, the consulting team also conducted a more comprehensive analysis of selected services. Eight processes, managed in the LMDP, were selected for detailed service process reviews to be conducted with representatives of the groups that actively deliver the services.

2.6.1 Process Review Methodology

The consultants used the Perry Group Business Process Optimization (BPO) framework to assess the eight selected services.

The following diagram explains the steps involved in BPO:



The process reviews include the following activities to learn about the selected processes, to gather input for improvement and to make recommendations for the services going forward:

- An As-Is process/service review workshop is held, the existing process is mapped, service/process pain points and improvement ideas are discussed and noted.
- As-Is process flow diagrams are prepared by the consulting team and then reviewed by the City's service team for accuracy and completeness.

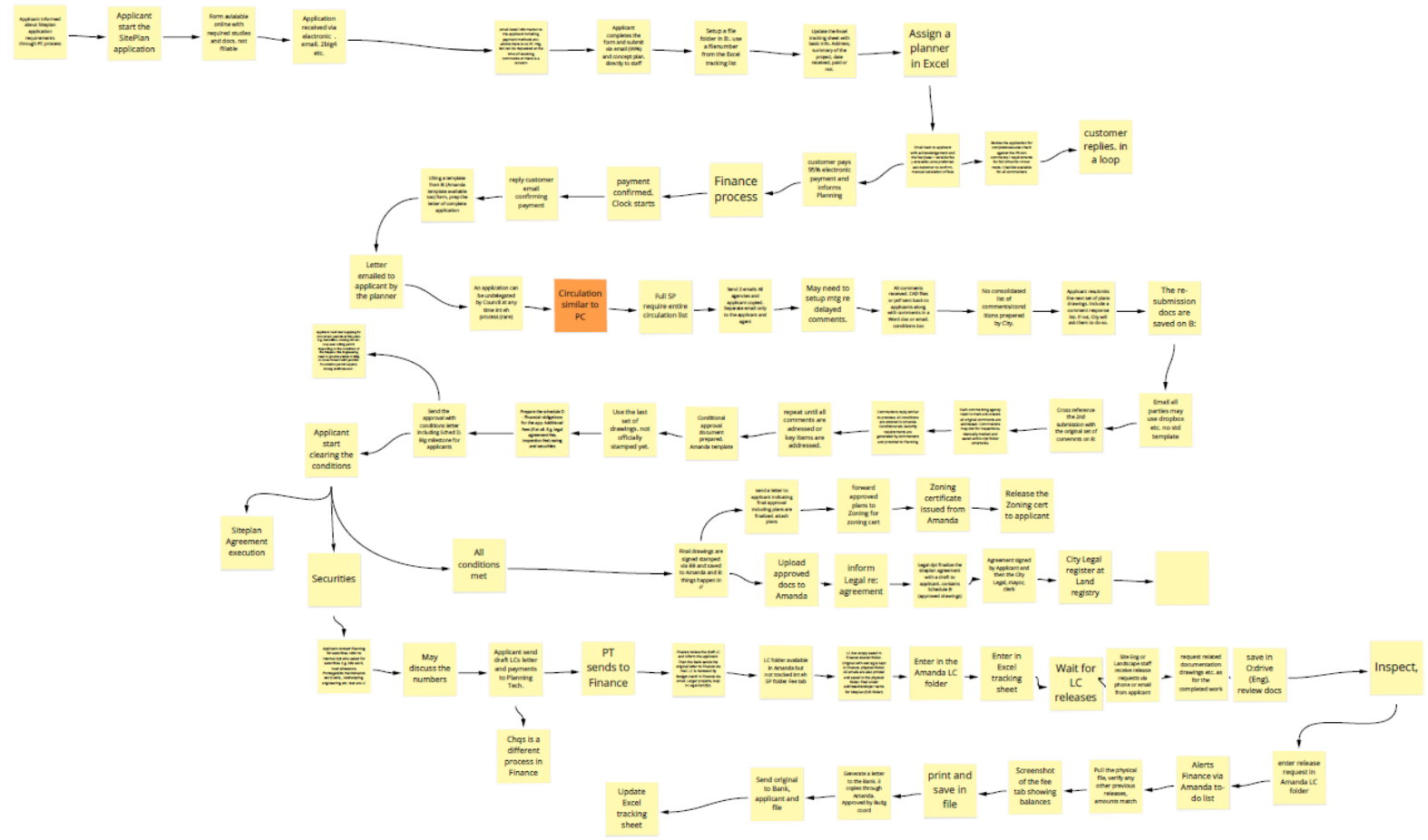


Figure 2: Sample As-Is Process Workshop Brainstorming Whiteboard

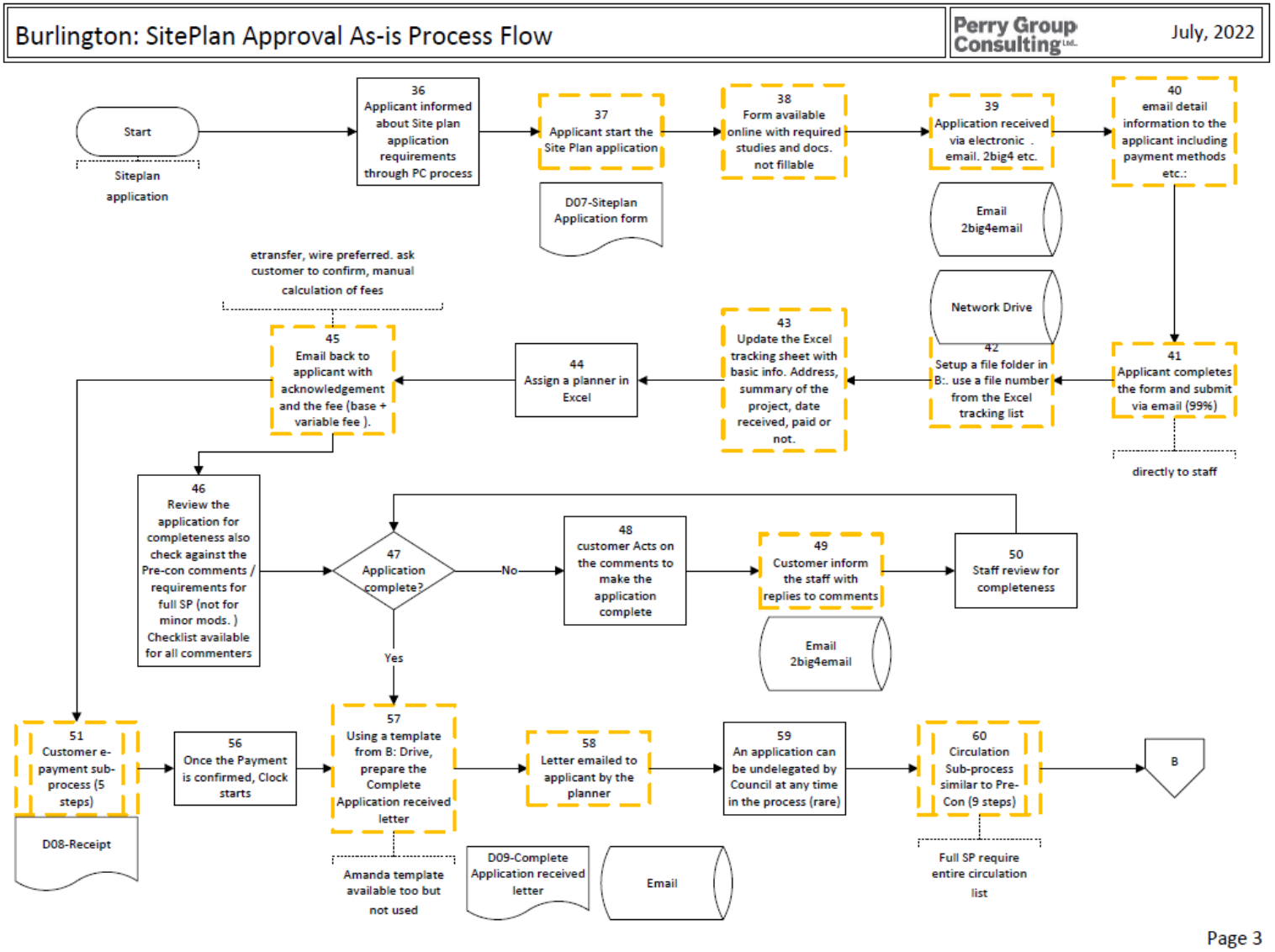


Figure 3: Sample As-is Process Map Resulting from Workshop

- A Good Service Assessment is performed based on the fifteen attributes of a good service using Lou Downe's Good Service[2] Methodology.
- A draft To-Be service/process – designed to be Digital First and take advantage of technology capabilities described in the next section (Target State) – is prepared by the consulting team in advance of a second workshop with the same team.
- A To-Be service design workshop is held where the draft process/service is presented, reviewed and adjusted.
- The As-Is process/service is compared to the To-Be process/service and potential improvements and/or the elimination of tasks are identified.
- People, policy, technology and service model changes are identified.
- Potential customer service and internal process efficiencies are identified.
- All findings are consolidated into To-Be Service Recommendations Reports.

2.6.2 Eight Processes/Services Reviewed in 2022

The consultants worked with the LMDP core team to identify eight suitable services for review.

The selection was based on consultation between the City and consulting team, with the consulting team looking for processes that met the following criteria:

- Cross departmental services.
- Volumes (higher vs. lower).
- Current Amanda + process sophistication (low and high).
- Process complexity (mix of simple and complex).
- Traverses front, back and field offices.
- Includes online, documents and drawings, identification, payments, GIS.

[2] Read more about this framework at http://good.services

The selection also aimed to avoid duplication with parallel work underway on the SDAF initiative and other City projects. Perry Group presented a draft list to the core team and the final selection included the following service areas:

- COA (Committee of Adjustment).
- Site Plan Application Process.
- OPA/ZBA (Official Plan Amendment or Zoning Bylaw Amendment) Application Process.
- Building Permit Applications.
- Tree Permit Applications.
- Business Licensing.
- Animal Licensing.
- Death Registrations.

2.6.3 Key Findings and Opportunities

We have compiled and summarized the findings and key learnings from these reviews.

While each area has its own discrete opportunities, there are some common themes around the current situation and potential improvements identified, including:

- For each of the processes reviewed, there are significant opportunities for greater digitization of processes or more effective use of digital tools.
- We identified numerous situations where staff resources could be better re-directed from administrative activities (data entry, data checking, managing requests to re-submit, etc.) to more value-added ones.
- The to-be processes identify streamlined steps that could significantly decrease product time and elapsed time to process applications and requests, while also improving customer satisfaction through:
    - Better (and possibly automated) upfront online guidance on the application processes and the client's role in those processes.
    - Improving the completeness and accuracy of information submitted by clients to the City, resulting in fewer delays caused by resubmissions.

    - Reduced effort in asking Clients to provide information multiple times or to provide information that the City already possesses.
- There are significant opportunities for a reduction in paper-centric steps (where regulations permit) that currently require:
    - Significant printing costs and wasteful paper consumption.
    - Manually handling, storage and archiving.
    - Significant time required for internal distribution.
    - Challenges to ensure the most current version of a document or drawing is being reviewed.
- The City should recognize the value of entering data as it occurs, rather than recording it outside of a tool and then entering it later to:
    - Avoid inadvertent reduction of information through summarization.
    - Avoid double data entry.
    - Avoid potential data entry errors due to multiple entries.
    - Avoid storage of multiple versions of similar data or information (promotes single source of truth).
    - Make the most current information available in real-time to other users of the information.

The as-is and to-be process maps, along with the service improvement recommendation reports produced for each of the reviews have been provided to the City separately.

The estimated value of implementing the to-be, digitized processes is shared in the next section. Suffice to say at this stage, there is the potential to free significant amounts of staff time through the complete digitization of these services.

2.7 Current State Summary

Looking to the future, Burlington's LMDP faces multiple challenges in the current environment:

- A need for City processes that are more responsive to housing market pressures.
- More frequent regulatory changes that require an ability to adjust business processes (and the tools to support those processes) quickly or suffer significant penalties.

- Development industry participants' demands for higher standards of transaction speed, efficiency, and ease of conducting business.
- Expectations of citizens for maximum transparency while minimizing costs.

Unquestionably, the City is far from where it wants to be – offering very limited online services, almost no use of mobile solutions, and back-office processes that are inconsistently used and no longer match the real business processes.

In our view, Amanda is not currently managed well from a product management standpoint:

- There is no clear roadmap, and enhancements prioritization is not transparent.
- Years of maintenance updates over feature releases has frustrated everyone
- Portal and mobile solutions are not modern/up-to-date.
- Non-integrated drawing management, etc.

Moreover, Amanda has been setup (from a folder design perspective) to represent and reflect the siloed model of business processes that exists at the City. While the City on the surface appears to have taken a corporate approach to the application/platform, it has not done so to the process model, thus the benefits of a shared platform have not been realized.

Interestingly, the needs that have been expressed by business units can almost all be met by Amanda with various Amanda enhancements and add-ons (portal, mobile, etc.). Indeed Markham, as leaders in the digital Planning and Permitting space, also use Amanda.

Burlington is limited by the technology that it operates, however, we follow the people, process ***then*** technology philosophy, and we note that, while there are gaps in the ways that Amanda is currently setup, this is far from just a technology issue.

There are major people and process issues that must be tackled as part of any modernization attempt.

Processes are convoluted, overlapping, repetitive, overly -siloed, and independently operated. A major step back and re-think is needed across the board to modernize processes to take advantage of new tech capabilities, to think about how a "project" should flow through the system, etc. if true benefits are to be realized.

Perhaps more importantly, the culture needs to change to focus more (at least in the short- to medium-term-) on establishing the digital production -line -centric model for process management. Leadership and management in business lines must lead this commitment and change.

3.0 Target Future State

Based on our understanding of the current state, scan of comparators and discussions with key stakeholders, there are three areas where Burlington needs to focus to deliver modern Planning, Permitting, and Licensing services:

1. The customer experience for users of the services and interested parties in the community (the digital customer experience).
2. The staff experience in the office.
3. The mobile experience for inspectors and enforcement officers.

In simple terms, customers should be able to apply online and manage their application, information about applications should be published automatically on the City's website for interested parties to review, City staff should use automated workflows and markup tools to capture key data, route and manage the application, and mobile workers should be able to conduct inspections in the field using mobile technology to keep them connected to office staff and service users.

3.1 Key Capabilities

3.1.1 Digital Customer Experience

The objective of any digital service is to improve the customer experience and to allow increased accessibility to your service. The service should be able to be accessed 24/7 and from anywhere. This puts the customer in control.

When thinking about the customer, there are those who are actively interacting with the service (i.e., applying for something, making payments, booking meetings) and those who are passive (i.e., they are simply looking for or viewing information). They may choose then to interact but as a start, they are just looking for information.

A Customer Portal is the vehicle to allow active and passive participation in City services. Through the portal, customers should be able apply for Building permits, Planning approvals, pay fees, obtain licenses, report Bylaw or Property Standards infractions, or report issues such as downed trees. They should be able to subscribe to receive information such as proposed development or capital projects in their neighbourhood.

The portal should allow someone to pick an address (if known) or a location on a map.

In the area of Building and Planning, most of the applicants and subcontractors – such as engineers, architects, planners – are doing electronic drawings in software such as AutoCAD. Allowing them to submit digitally is a natural progression of their work. Further, the portal should allow the main applicant to assign sub-contractor roles to others who can then upload their respective studies and drawings.

If applications are coming to the municipality digitally, they should also be able to make payments online. The system should be able to calculate the fees. Any portal will require a complementary fees payment system to allow electronic funds transfer or credit card payments. Any approvals, permits, licenses receipts of payment should be able to be downloaded by applicants.

The range of land -related requests can vary in complexity. A tree permit submitted by a qualified arborist for a dead tree can be straightforward compared to requesting a land use change under the *Planning Act*. Customers can also have varying levels of sophistication with portals based on their circumstances. To make the experience as frictionless as possible for the customer, there needs to be support in place.

Supports for customers using the service can take the form of wizards, online application guides and/or how-to video instruction guides or Frequently Asked Questions.

Wizards present dialogue boxes, often in the form of questions to be answered by the users, that guide the user through the system with the aim of assisting them with their application. Wizards can be simple or highly detailed with multiple steps. Either way, they are to assist the customer to get the service they are seeking.

With complex services, such as Building permits and Planning approvals, there is usually a requirement for several drawings and studies as well as fees. Online guides and videos show the customer how to upload information, the desired format and how to use the system. Staff still need to be available to answer questions during business hours but, by providing this information upfront, it allows the customer to work on their own schedule.

For services where an in-person meeting or telephone discussion is required, the customer should be able to select and book the time rather than have to navigate wait lines. This also helps with tracking of how many people are requesting what type of information which, in turn, guides where Burlington wants to focus its communications on self-serve.

Finally, for services online, there needs to be regular communication and transparency about the status of the service. Frequent questions to municipalities are: “what is that status of my application”; “who has commented on my plans”, etc. It is a source of frustration for the applicant (who may perceive the application has gone into a black hole) as well as for reviewers who are spending time answering the questions rather than doing the reviewing.

Depending on the service, the business units may want to provide comments live as they come, if the comments are not interdependent.

For services such as Planning, where a high degree of coordination between commentors is required, then the decision may be that comments are not released until the file manager has vetted the comments to ensure comments are not conflicting. However, it is helpful to the customer to know how many comments have been received and which agencies or departments are outstanding and when the comments are expected to be received by. Tracking turnaround times helps in discussions with those agencies or departments that are chronically late. The data is there for any process reviews.

Conversely, the municipality may be awaiting information or a resubmission from an applicant. Automated emails sent as reminders can to be set up to prompt an action from the customer, so they are aware of this.

Online collaboration – through markups of drawings, documents and agreements – assists in enhancing communications, bringing clarity to a comment and making one place to find information.

All communications on the file should be facilitated through the software to allow messaging between applicants, sub-consultants, commentors and the staff person assigned the file. This allows for one source of truth, through the shared records.

As mentioned earlier, there are passive customers who may not be applying for a service but who wish to receive information and monitor activity in their neighbourhoods. Digital services allow them to subscribe to receive notices or new applications or to easily do a look-up to determine whether there is an application on a particular site.

The *Planning Act* requires that information be made available to members of the public. It no longer makes sense to require those persons to come to a counter to receive this service if the information is available online. However, should someone wish to comment on a proposed application or City project, the ability to comment should be easy and seamless.

The portal should be configured so that comments that don't meet the standards (such as foul language, hate speech) are screened out. Data from the portal will also inform staff of the number of views to the project where there are no comments. This number provides a balance. If 1,000 people look at a project and leave with no comments and there are less than 10 comments against, there is a different prospective on the level of opposition. As pressure for reducing timelines for application processing continues, there needs to be an efficient, accurate way to get the information to interested persons early in the process and to receive feedback.

All complaints regarding City bylaws need to be tracked in one system with the ability for the customer to track if staff have visited the site and/or the file is closed.

3.1.2 Digital Staff Experience

There needs to be full end-to-end activity and workflows.

Starting with Pre-Consultation meetings through to condition clearances, the work needs to be undertaken and recorded within the system.

From a staff perspective, moving to portal and digital services should allow for automated data entry. Rather than having staff key in information that comes in PDF forms, the applicant should fill in online forms that populate the databases. With the requirement for complete data in one system, the City and agencies are better able to access good quality data for other work.

Having the applicant input tombstone data in a system that flows into databases saves staff time, allowing them to do more value-added work and reducing the potential errors from transcribing information.

With increased legislation pressures on timelines for Planning applications (and generally, the expectation to deliver value to customers) the ability to save time by reducing administrative tasks through automated workflows is critical. Plans and studies can move seamlessly without needing to save them in corporate drives and upload them to file transfer systems such as 2big4email. Reviewers are notified by the system that there is a file awaiting review. Managers can also monitor workload and pending deadlines.

As reviewers are making comments, they can see comments coming in from other reviews making it easier to identify those issues that may need coordination.

The system can also alert the customer to their requirements and as mentioned above, needless file status inquiries can be reduced freeing staff to work on the files rather than answering questions on status of comments.

By moving to one system for data collection and file management, there is one single source of truth for internal and external reviewers.

An integral part of the future state is the use of Electronic Plans Review. Although Bluebeam is currently being used, moving to full EPR allows for the receipt and markup of digital drawings. Benefits of reduced paper and file storage requirements have been realized, however with EPR, there are many more benefits.

EPR allows for current reviews, overlaying of drawings for version control, readily identifying changes on plans, commenting on plans and then ability for the comments and change request to be converted to an itemized list. In the event of needing to approve something under a deadline, staff can “take over the drawings” and make redline changes to bring plans into conformity. EPR also allows for batch stamping for approvals.

EPR should result in reduced cycle times for comments, and fewer resubmissions improving customer service and staff time.

In staff interviews, it was noted that information was stored in Amanda for some things but also in emails, corporate drives, Word documents, Excel spreadsheets, handwritten notes, pictures on smartphones, etc. With a portal for submissions, EPR and the requirement for all tracking in Amanda, file management is simplified. This ensures a complete record and assists with the handoff of files between staff due to retirements, departures, or illness.

3.1.3 Mobile Experience

A third, important component of the future state is an improved mobile experience for staff. When going into the field for building inspections, tree inspections or bylaw complaints, staff need to easily transfer information into the back-office system. There needs to be real-time field access to the data. The software needs to work on a variety of hardware, smartphones, tablets and/or laptops. It should be easy for staff to upload photos and videos. Handsfree, voice-to-text is also extremely helpful as jobs sites and staff vehicles are not conducive to keyboarding.

Staff should be able to work in real--time where there is cellular connectivity or Wi-Fi but also, they should be able to work offline until they connect.

The system should also help with optimizing routing of site visits. Using mapping capabilities, the system should lay out the optimized route to visit job sites. Also, it is useful to receive notifications of work assignments while in the field.

3.2 Key Components

While we have highlighted three key areas, typically, an LMDP is an ecosystem of connected and integrated products that includes the following elements or components:

1. An easy-to-use, customer-centred website that provides simple guidance to users of the service to help them understand what is required to use the services.

2. An online service/portal that enables users to self-serve, providing users the ability to request, apply, upload, pay, and manage their application or request through its lifecycle.
3. A website that enables community members to easily find out about, subscribe to be notified about applications and permits.
4. A back-office, digital workflow processing and data capture system, providing reporting and data analytics capabilities, with integrated GIS capabilities.
5. An integrated EPR system that enables integrated drawing and document management, storage and markup capabilities.
6. Mobile solutions for field staff that connects them to the back-office system, documents and drawings, and historical information.

3.3 Potential Value / Benefits

Introducing these capabilities manifests different benefits for different stakeholders, as identified in the table below.

Beneficiary	Benefits
User (applicant, agents, owner, subcontractors, business owner, etc.)	• Can apply and manage applications from anywhere at anytime • Can delegate access to all contributors/participants in the project • No physical trips needed to City Hall to make payments or provide paper drawings and documents • Significant reduction in paper use and printing costs • Can receive real-time status updates as application progresses • Doesn't need to call to find out information / status about application because they can access that information online – improved communication • Have access to agency and staff comments online • Do not have to duplicate tombstone data between applications (less data entry) • Always have access to the latest, updated information

Beneficiary	Benefits
Community member / public	• Can find information about all applications, permits at anytime • Can subscribe to be notified of new applications in their ward / neighbourhoods / City • Can provide feedback to all development in the neighbourhood
Mayor and Council	• Can look up information about applications, permits at anytime • Can subscribe to be notified of new applications in their ward / neighbourhoods / City • Can answer constituent questions based on information available online
City management	• Can access real-time performance data, allowing responses to changing workloads and pressures • Can access community development pipeline data and monitor trends • Can monitor policy impacts, and fine tune policy
Planning, Building, and Licensing staff	• Can reduce data entry time • Can automate task assignment, reminders leading to reduction in time spent chasing commentors • Have version control on documents (complete historical records) as well as ensuring all reviewers are reviewing the same “current” drawings and plans • Can automate reports, document generation, map-making • Data and information in a format useful for analysis and reporting • Facilitates broader public consultation (beyond the legislated requirements) • Better data for undertaking policy studies
Inspectors and enforcement staff	• Can speed up the inspection and documentation process

3.4 Illustrative Experience at Mississauga

As noted earlier, Mississauga, Markham, and Barrie are often cited as leaders in Ontario in this space (by the development industry and by peers). Each of these municipalities has achieved the target state by implementing the key components outlined in the previous section.

The project team met with each of these teams, and other leaders in this space to learn from their experience which was both impressive in their achievements and instructive for the City.

At the City of Mississauga, significant process efficiencies and turnaround time reductions have been achieved and the Commissioner of Planning and Building recently spoke publicly to the Planning and Development Committee about their experiences and successes in implementing digitally enabled change.[3]

Over the last 5 years, by applying process redesign, continuous improvement and leveraging technology capabilities across various separate initiatives, Development Services has freed over 11,000 hours of staff capacity, reduced by 24% the amount of staff time required to review Site Plan applications, reduced Development Application turnaround by 57%, seen a massive reduction in customer travel, visits to City Hall and paper consumption, and has been able to analyze the data it has collected to see new trends, insights and identify further opportunities for improvement.

The takeaway from this is that the value of investment in digitization, process improvement, and moving these services online is undeniable.

3.5 BPO Outcomes – Estimated Process Improvement Potential

While the experience in Mississauga highlights real experience, and the Key Capabilities section above highlights theoretical benefits, the work that the consulting and City teams did around process optimization identified specific benefits that the City of Burlington could achieve in just 8 of the processes currently running through the LMDP.

[3] https://pub-mississauga.escribemeetings.com/Players/ISIStandAlonePlayer.aspx?Id=82aa07f8-b7cd-4b06-be1b-20972aea43b2 – the segment starts at 14 minutes and 50 seconds into the linked video.

The following table highlights the potential benefits identified in each of the reviews:

Process/Service	Time Savings (minutes per application)	# of Steps Improved or Eliminated	Number of Annual Transactions	Estimated Cost Avoidance or Value[4] of Time Saved (annually)
Building Permits and Inspections	Permits 60 Inspections 75	Permits 42 of 67 Inspections 13 of 29	700 ICI permits 2100 inspections	$63,000
COA	140	52 of 75	110 new applications	$10,267
OPA/ZBA Applications	115	35 of 89	24 new applications	$2,300
Site Plan	320	77 of 122	20 regular applications 25 minor applications	$6,933
Business Licensing	New 70 Renewal 60 (Renewal Letters 120 hours annually)	New 33 of 46 Renewal 28 of 34	50 new licenses 400 online renewals 100 manual renewals	$11,133
Tree Permits	95	14 of 60	1,400 permits	$110,833
Animal Licensing	11	6 of 24	7,000 licenses	$64,150
Death Registrations	20	4 of 24	1,740 registrations	$29,000

[4] Cost avoidance is calculated based on the proposed digital service delivery assuming that 80% of the total transactions could be performed using the online channel. A standard $50 hourly rate was applied in the calculation. This hourly rate includes a blended rate including benefits.

Process/Service	Time Savings (minutes per application)	# of Steps Improved or Eliminated	Number of Annual Transactions	Estimated Cost Avoidance or Value[4] of Time Saved (annually)
Total for the 8 services				**$297,616**

Collectively, the work identifies the potential for nearly $300,000 in cost avoidance annually, should the digital to-be processes be implemented.

Note

The value savings is a discrete estimate of resource time that can be freed up for more value-added activities and does not include other benefits, e.g., fee forfeitures (requirements per Bill 109) avoided because of streamlined processes; savings in other functions because of ready access to up-to-date integrated data; efficiencies for follow-on processes that benefit from higher quality outcomes of predecessor processes, etc.

4.0 Options Evaluation

Based on the understanding of the current situation, and the desired target state presented across the previous two sections, the team next turned its attention to understanding the options available to the City.

4.1 Solution Capabilities – Market Assessment

Based on the needs identified by City staff and our discussions with the development community, the consulting team developed a set of requirements for a modern LMDP that could meet the expectations of the target state.

A summary of these requirements is listed in the table below.

Feature
Portal
GIS Integration
Case Management and Workflow Management
Fee Calculation, Receipting, Deposits, Securities
Document Management, Creation, Email Automation and Correspondence
Agency Commenting
Electronic Plans Review
Inspections Booking, Management, Self-Service
Modern Mobile (Cell, Tablet, Laptop)
Dashboard, Reporting
Modern UI, Open API, Cloud Available

Next, Perry Group conducted an analysis to match the business needs with the capabilities of major Planning and Permitting systems in the market.

4.1.1 Amanda Fit-Gap

A high-level summary of the feature comparison with the latest Amanda 7 version is provided below:

Feature	Amanda (Current Version, Fully Implemented)
Portal	✓
GIS Integration	✓
Case Management and Workflow Management	✓
Fee Calculation, Receipting, Deposits, Securities	✓
Document Management, Creation, Email Automation and Correspondence	✓
Agency Commenting	✓
Electronic Plans Review	✓ (with integrated solution)
Inspections Booking, Management, Self-Service	✓
Modern Mobile (Cell, Tablet, Laptop)	✓
Dashboard, Reporting	✓
Modern UI, Open API, Cloud Available	✓

The consulting team concluded that the current Amanda system – with some enhancements and updates – can support the requirements of the City.

We also noted that one of the leading municipalities frequently cited by the development industry as a leader in this space (City of Markham) uses Amanda to deliver their digital Planning and Permitting services.

4.1.2 Fit-Gap Assessment – Alternatives

The consultants also used their knowledge of the market to both identify and then compare the City's needs with features available in other industry -leading Planning and Permitting solutions. The results are summarized in the table below:

Features	Amanda	Accela	POSSE	Clariti	CityWorks	CityView	Energov
Portal	✓	✓	✓	✓	✓	✓	✓
GIS Integration	✓	✓	✓	✓	✓	✓	✓
Case and Workflow	✓	✓	✓	✓	✓	✓	✓
Fees and Payments	✓	✓	✓	✓	✓	✓	✓
Document Management	✓	✓	✓	✓	✓	✓	✓
Agency Commenting	✓	✓	✓	✓	✓	✓	✓
Electronic Plans Review	✓	✓	✓	✓	✓	✓	✓
Inspections	✓	✓	✓	✓	✓	✓	✓
Modern Mobile	✓	✓	✓	✓	✓	✓	✓

Dashboard, Reporting	✓	✓	✓	✓	✓	✓	✓
Modern, Open API, Cloud	✓	✓	✓	✓	✓	✓	✓
Used By:	Markham, Kitchener, Cambridge, Vaughan	Kingston, Barrie, Sudbury, Fort McMurray	Saskatoon, Halton and Durham, Edmonton	Peel and pilot project in Toronto	Nashville, New Tecumseh, Kincardine, L&A County	Oshawa, Regina, Haldimand County	Richmond Hill, County Grande Prairie

The conclusion from this scan was that:

a. There are a wide range of LMDP solutions available. It is a robust and mature marketplace with many solution options.

b. The functionality of the LMDP solutions in the marketplace is broadly uniform and undifferentiated, with all solutions likely capable of meeting the needs of the City's vision for a modern LMDP.

c. Almost all solutions are dependent on a separate solution for ePlans handling – with most (including Amanda) offering integration with market leading solutions such as e-PlanSoft, DigEplan and ProjectDox.

d. The success of any LMDP initiative is more dependent upon people and processes than the technology solution selected.

4.2 Municipal Comparison / Background Data Gathering

As part of this stage of the assessment, the consulting team and representatives from the core team, met and talked to leading municipalities around their use of software – these included conversations with Markham, Mississauga, Guelph, Clarington, and Barrie. We also met with various vendors, partners, and implementers of LMDP solutions.

Important lessons learned from these conversations include:

- Developing a vision for the digital service delivery, communicating with all levels of staff, and continuously reminding and encouraging is vital to the success of digital transformation.
- The critical importance of top-level leadership and commitment to digital transformation is critical to success and realization of the vision. Regardless of solution, without this, digital transformation will not be successful.
- The importance of ongoing iteration and enhancement and recognizing that this is not a “one and done” project – digital Planning and Permitting takes time to realize – it requires a relentless focus on continuous improvement and full utilization of the solutions.
- Importance of fully-integrated, not disjointed solutions is critical – the features and capabilities include portal, back-office capabilities, mobile and integrated ePlans Review functionality.
- After less than a year, near full adoption (98% of all applications) of online Planning and Permitting services was achieved in Mississauga and Markham. While some customers needed some assistance to use the new services, the vast majority adopted the new services readily.
- The costs and timelines to replace Amanda are significant – the City of Barrie, for example, took 4 years to complete the migration and costs were in the $3-4 million range.
- A deliberate effort for change management through a formal process is critical for user adoption and the overall success of any technology implementation.
- There is need to develop handbooks, PDFs, videos to assist applicants in using the system as well as a person walking applicants through, if necessary.
- Frequently engaging customers to test the system; get them involved early.
- Keep folders and workflows as simple and flexible as possible.

4.3 Options Analysis

The analysis above shows that the solutions reviewed by the consultants have the capabilities that the City is looking for, including the current Amanda system.

Following some consideration of a range of options, the go forward options for LMDP were narrowed down to either:

a. Staying with Amanda and **renovating** the platform, or

b. **Replacing** Amanda with an alternative solution in the market.

At this stage, Perry Group conducted a high-level evaluation of the pros and cons of replacing and renovating Amanda. The following table shows a summary of that comparison:

	Renovate Amanda	Replace Amanda
Pros	• Can meet needs (functionality fit) • Lower risk • Improvements can be broken into smaller chunks • Less change management required due to product familiarity • Can deliver real improvements, faster alternative • Likely lower cost to achieve goals ($1 – 2M) • Existing community of Amanda users in Ontario and beyond	• Can meet needs (functionality fit) • Fresh start • Some improved capabilities / benefits but similar functionality
Cons	• Perception of Amanda at City is low • Ability to generate excitement for staff may be lower than an alternative strategy	• Substantially higher cost ($2.5 – 4.5M) • Higher risk

	• Some expressed concerns about vendor commitment to market and product evolution (but Perry Group believes these concerns to be overstated)	• No guarantee of achieving goals • Major effort required and longer time to market for improvements

The assessment suggested that a complete replacement of Amanda would require a larger investment and a likely longer timeframe to realize the intended benefits. Conversely, renovating Amanda could be done in an incremental manner which would result in delivering real improvements to customers quicker. The solution can achieve the long-term goals of the City, with less investment and would build on existing knowledge and skills at the City.

At this point, the City has far from exhausted the capabilities of the existing system. The consulting team concluded that the issues and barriers to improved service are less about technology, and more about adoption and use of the technologies available and redesigning processes to take advantage of available technology capabilities.

It is Perry Group's position that the City should focus on these areas before considering replacing the existing technology.

The consulting team presented the findings outlined in the material above to a combined meeting of the core team and Amanda Steering Committee.

On balance, the results of the evaluation suggested that proceeding to renovate Amanda would be the logical option. So, at that time, the consulting team posed the question – "Does the City have sufficient information to make a decision, or would they like to conduct a more detailed and thorough investigation of the alternative paths and costs of each path?"

Based on the analysis presented above, and the ensuing discussions, the City team agreed that, as the lower cost option capable of meeting the City's needs, sufficient information was available to conclude that the optimal option for the City would be to retain and renovate the current Amanda system.

5.0 Selected Option and Go Forward Plan – Renovating Amanda

The recommended go forward plan is to renovate and enhance Amanda as the City's LMDP.

5.1 Goals

The enhancements to the LMDP should be based on specific business goals. We believe that the following business goals could be achieved by enhancing the Land Management Database Platform:

- **Enhance the customer experience** – With online 24/7 anywhere anytime access to land management services.
- **Enhance staff experiences** – With staff self-service, integration with other tools such as EPR, GIS and mobile access to Amanda.
- **Increase process efficiency** – Through process review and re-engineering, reduced duplication of effort and automation of activities.
- **Reduce turnaround times** – Through implementing efficient processes and cutting down waiting time.
- **Reduce the cost of providing land-management-related services** – Through moving over-the-counter services to online, the cost of overall service delivery is reduced.
- **Increase internal capacity** – Through streamlined processes and automated tasks, the time spent by internal staff on administrative tasks is reduced, creating extra capacity.
- **Enhance ability for better and faster decision-making through easy access to data** – Through data analytics and visualization through dashboards and maps to provide easy access to data stored in Amanda.

The go forward plan has been developed in line with the set goals.

5.2 Key Design Principles and Concepts

As the City pursues renovation of Amanda and redesigns its Planning, Building, and Licensing services and processes, as envisaged by this plan, we recommend that the following design principles and concepts be employed.

5.2.1 Design Principles

The following design principles should be used to guide the design of new and redesign of existing services.

- **Customer First** – Design processes for the customer (where possible, involve them in the design and involve them in testing solutions before they are more widely launched).
- **Service Design** – Re-design services (to be customer-centred) before attempting to digitize them. Take the opportunity to challenge status quo and simplify/standardize processes: don't over-design or design for exceptions – keep it simple. Adopt an MVP (Minimum Viable Product of Minimum Viable Service) approach. Start with the basics, go-live with the basics, and then enhance and improve in subsequent iterations.
- **Design Digital First** – Design all services for digital self-service. Provide Assisted Digital[5] for those that need some extra help. Apply the 80:20 rule – 80% of users or more are likely to use the digital service.
- **Reuse Where Possible** – When building capabilities, build on common workflows, and build workflows and processes to be reusable / transferable.
- **Maintain the Digital Chain** – Everyone must use the system; if you do it – you record it, with no exceptions (based on seniority) – supported by monitoring and enforcement.
- **No Parallel Systems** – No duplication of work; one source of truth; ability for others to find info and pick up "the file".
- **Let the Computer do the Work** – Automate that which can be, so staff can dedicate themselves to value-added work.
- **Data Over Documents** – Prefer data instead of a document, e.g., deficiency letters vs. reports generated by the system and access to the drawings.
- **Work Open by Default** – Transparency for customers, proactive disclosure to avoid unnecessary contacts with customers; only lock down internally truly confidential information.

[5] Assisted digital refers to helping people use the online parts of a service either in person, on the telephone or via webchat. The person providing the support either helps them use the computer themselves, or uses it on their behalf. https://www.gov.uk/service-manual/helping-people-to-use-your-service/designing-assisted-digital

5.2.2 Important Concepts

In addition, several important concepts are important to keep in mind as the City implements new systems

- **One Project Approach** – While a customer is typically working on what they see as a single project (a renovation or new building project, a new business) the City's services are designed discretely and separately. This creates the requirement for customers to apply separately for items related to their project. As the City redesigns its processes and services, it should consider how a single project concept, with sub-processes and milestones, could better represent the project and streamline and simplify the customer experience, reducing the need for separate applications.
- **Standardize and Reuse** – Where possible, in building workflows and capabilities, the City should design these for reuse. In designing or redesigning processes and services, the City should focus on commonalities more than uniqueness, and where possible, use shared patterns.
- **Challenge the Status Quo** – As the City works to revise its practices, we strongly encourage empowering teams to aggressively challenge the status quo. Far too many municipal processes have evolved over time and have their roots in historic practices, biases, assumptions, perception of legal requirements, and individual preferences. Many of these are factually incorrect, no longer apply, and certainly should not form the basis of new digital processes. Leaders will need to play a large role in empowering teams to challenge the status quo, and then helping them push changes over the line.

5.3 Key Renovation Activities

5.3.1 Technology Enhancements

To achieve the above goals, the Amanda platform and other peripheral tools require enhancements. The key areas of improvement include:

Select and Implement a New Online Self-Service Tool

The City has tried to provide services to its citizens using the current web interface. So far, only a handful of services are available online.

None of the core Permitting or Planning application types are available through the web. The current web tool is an old version and requires a considerable amount of development and configuration by technical staff to move a service online.

The City needs an online tool that is an extension of the Amanda back-office system with minimum customizations required to enable online services.

The new tool should be easy-to-use for the public, easy to implement for the City and be flexible to modify in the future when the business requirements change.

The Amanda Citizen Portal from Granicus is recommended as a suitable tool. This tool is developed by the Original Equipment Manufacturer (OEM) and is a supported extension of the Amanda back-office system.

The new tool (or portal) should enable the following self-service functions:

- Customer account with user ID and password including self-service for password reset.
- Ability to apply, pay and upload documents online.
- Ability for the customer to check ongoing status of their applications via the portal.
- Continuous collaboration between the customer and City staff on applications and documents including re-submissions, reviews and feedback.
- Automated alerts to customer based on milestones, deadlines, next steps, etc.
- Ability to invite other parties to collaborate on the applications, e.g., consultants, agents, contractors, etc.
- Online scheduling of meetings and inspections.
- Ability for the public to access a limited amount of data for all application types without having to manually upload to the website.

In addition, the online tool should include an online self-service guide/wizard to:

- Help guide the customer with questions and to find answers to their questions.
- Help the customer understand what type of applications should be used and the supporting document requirements, fees, etc.

Major Redesign to Existing Amanda Folder Types

The City has expanded the use of Amanda across the organization with over 140 folder types, however, the City has not been able to keep up with the ongoing maintenance of these folders.

As a result, many folder types are out-of-date compared to the current processes. This has created many workarounds that are less efficient for staff. The current backlog of Amanda-related maintenance requests has over 100 items. Some folder types have not been updated since 2007, therefore, the following redesign and maintenance activities are recommended:

- Consolidate Amanda folder types for better user experience and efficient maintenance.
- Update the out-of-date document templates so that users are able to use the templates with minimum manual changes.
- Redesign the business processes with an end-to-end digital objective.
- Synchronize the Amanda flow with the redesigned digital business process flow.
- Develop automated fee calculation using existing Amanda features.
- Implement automated alerts, actions and automated reports using the Batch Scheduler.

Reporting

The reporting and visualization of data and processes managed in the system needs to be significantly expanded. Management and staff need the following capabilities:

- Track timelines, performance, SLAs, etc. through visual dashboards within the system.
- KPIs for management and staff via dashboards.
- Automatic alerts when timelines are approaching.
- Track the amount of time an application was with the City, with the agencies and with the customer.
- Ability to analyze historical data for decision-making, e.g., How many similar Minor variances are received in the same area to adjust the same Zoning condition?

Systems Integrations

An end-to-end digital service requires multiple integrations between the main Amanda system with other peripheral systems. These integrations make the staff and customer experience more seamless and reduce the need to duplicate information between systems. For example, payment received in the Amanda system should be automatically sent to the Finance system without having to manually duplicate the data entry.

Amanda 7 comes with a set of integration capabilities called APIs (Application Program Interfaces). These APIs allow the Amanda system to receive data from other systems and to send data out to other systems.

The following integrations should be considered:

- Amanda-GIS integration to allow the property data in Amanda to be overlayed with other City-owned GIS layers. This is an important integration to have since most of the services tracked in Amanda are location-based.
- Integration with the Finance system to allow payments received in Amanda to automatically update the Finance system.
- The City uses Bluebeam as the current EPR tool. The EPR should be integrated with the Amanda system for the seamless sharing of drawings between the two systems.
- Amanda should be integrated with the Online Payment Processing platform allowing online payments to seamlessly update the Amanda system.
- An optional integration would be with the eScribe Council Agenda Management system.
- Amanda should be able to electronically transfer Development Applications and permits to external agencies so that the agency systems could consume the application data without having to manually duplicate the data entry into their systems, e.g., the Region, conservation authorities, school boards, etc.

Fully Leverage 'New' Amanda Capabilities

Amanda 7 has built-in capabilities and new features that the City should be leveraging. The current folder designs and workflow are based on decades-old Amanda features. There are new ways and tools available within Amanda 7 that could streamline and enhance the user experience, e.g., Amanda 7 could automatically prepare a public circulation address list based on a specific radius from a property address. In the old Amanda versions, this feature was not available.

Similarly, the following new features should be reviewed and implemented through the folder redesign exercise:

- Implement the built-in Amanda Dashboards using the Yellowfin license. The Dashboards should be designed to help management users easily track their KPIs (Key Performance Indicators). The Dashboards allow users to identify exceptions and to drill down to folder level to find details.
- Implement the built-in Amanda-GIS integration. This allows users to use the map interface to search and run visual reports based on specific search criteria. Amanda folders could be shown on a GIS map overlayed with other location-based map layers.
- The Amanda Citizen Portal is a supported Amanda product that should be evaluated and implemented to replace the current portal.
- The Amanda public property search allows for the public to search an address and receive a predefined sub-set of information related to the property and all related applications such as Building permits, Development Applications, licenses and complaints.

External Agency Comments Portal

The City needs to streamline external agency commenting by expanding the circulation capabilities of Amanda to partners. This should offer:

- Ability to circulate applications to external agencies for commenting.
- Ability to receive electronic comments from agencies directly into Amanda.
- Agency staff secure access to the Amanda folder comments.

Electronic Plans Review (EPR) Tool

The development approval, permitting and engineering processes require review of drawings. Comments and markups of these drawings needs to be consolidated and sent to the applicant for review and correction in a process that can be repeated numerous times. The most efficient way to mark up a drawing is by using an EPR tool.

While some users have access to the Bluebeam EPR system, the use is not consistent and a better understanding of how the tool can be used across teams is required. So, in the short-term, the product team should identify how the solution can be better utilized.

In the next 12-18 months, it is recommended that the City replace the current Bluebeam solution with a more fully-featured and integrated solution (e.g., ProjectDox, ePlanSoft, DigEplan, etc.). With the implementation of a more complete solution, there is an opportunity to significantly reduce administrative overheads associated with plans markup, as well as ensuring clearer communication between the City and applicants, by sharing the marked-up drawing instead of manually listing defects and comments into deficiency letters.

Mobile App

A modern mobile tool should be implemented to allow the field staff to be more efficient. While Granicus offers a robust mobile solution for inspectors and enforcement officers that runs on Windows, Android and iOS tablet devices, there are alternatives in the market and some municipalities have opted to develop their own.

For costing purposes, the consulting team has used pricing for the Granicus solution and would lean toward Original Equipment Manufacturer solutions. It is recommended that the City conduct a review of business needs and a fit-gap analysis with the built-in tool prior to deciding on the appropriate path.

New Amanda Modules

The City has already made a significant investment in Amanda and specific modules – some of which it will leverage more fully in the implementation of these envisaged changes. In addition to the base product and existing modules, the consulting team recommends the addition of the following Amanda modules:

- Granicus/Amanda Citizen Portal.
- Granicus/Amanda Single-Sign-On Adaptor.
- Granicus/Amanda Batch Processor should be expanded to automate time-based tasks.
- Granicus/Amanda external agency review/commenting module.
- Granicus/Amanda Document Management connector.
- Granicus/Amanda Mobile.

5.3.2 Consider Linkages to Other City Technology Strategy

Nothing operates in a vacuum, and in this case, it is important to recognize that decisions related to LMDP must be made in alignment with other City strategy-setting work – both in flight and to be considered in future.

Web / Digital Platform

The strategy recommended here pushes the City toward implementing digital services for Planning, Building, etc.

There are various ways this can be achieved, either through building or buying a portal solution. The vendor today offers the Granicus Citizen Portal – a more recent product offering that extends Amanda with a portal that enables these online services.

The City's goal is for customers to have a consistent user experience when interacting with the City online – an Amazon-like experience. The preference is also for a single login that gives customers access to all City services.

How this experience is achieved – either via a single portal, or through a constellation of portals that are linked together and presentationally integrated – must be considered.

The consulting team, in this case, recommends the expediency of adopting an OEM portal to achieve these goals – but recognize there are other considerations beyond the scope of this piece of work.

Service Burlington / CRM

Throughout this document, we have described a Digital First service concept – where customers primarily apply and manage applications online. This model, with a 98% uptake rate, is in operation in Markham and Mississauga today and is working well.

Nonetheless, while community members will be able to self-serve, inquiries about Planning and Permitting will come to Service Burlington and there is an intent for customer service agents to be able to resolve a high percentage of inquiries at the first point of contact – without handing off to back-office teams.

It is important, therefore, to determine what questions and inquiries the City wishes to move to Service Burlington and to ensure that the requisite visibility into Planning, Permitting, Licensing and Enforcement activities is surfaced to customer service agents as deemed appropriate and necessary to answer inquiries.

Document and Records Management

The Planning, Permitting, and Licensing processes are heavily document-centric – documents and drawings are often (if not always) attached to applications and must be reviewed and retained as part of the complete application package.

How these digital files are handled and linked to the LMDP is an important consideration going forward as the City moves away from a paper representation of a file to a digital representation. Furthermore, as the City moves away from file shares to document management systems – perhaps even toward Microsoft 365 – figuring out where digital files should be stored (and how they are retained for the long-term) is also an important consideration.

Each of these topics are represented as work activities/packages in the proposed LMDP work plan presented later in this Report.

5.3.3 People Changes

While the renovation of Amanda sounds like a technology update, it is not only in the technology area where changes should be made. The City also requires improvements in the areas of people and process.

It is recommended that people and process challenges be resolved prior to investing in technology.

Adopt Product Management Practices

It is recommended that the City adjust its approach to managing LMDP from a 'project' to a 'product' approach.

In contrast to a traditional project approach, product management is concerned with the entire lifecycle of a product. A Product Manager should be assigned to lead work on the product roadmap, helping the City fully utilize the capabilities of the platform and coordinating delivery teams.

The Product Manager should work closely with defined Service Owners from each key business area who will help identify business needs and priorities, sequencing of work and encouraging and evangelizing reuse.

The product team (which is the Product Manager and Service Owners together) will work closely with the Amanda Steering Committee[6] to secure commitment to the roadmap, secure funding, and resources, and to help steer the execution against the product roadmap.

Empower Business Units

In addition to adopting product management practices, the City should continue to have a centralized IT team that supports and implements upgrades, enhancements and new capabilities to the LMDP.

[6] The City may wish to consider re-titling the Amanda Steering Committee to LMDP Steering Committee or some alternative that better represents the broader scope.

However, to increase business ownership and responsiveness of the platform to local business needs, dedicated Business Technologist roles are recommended within Planning, Building, Licensing and Enforcement business areas to enable improved training and support of LMDP, increase local knowledge of capabilities, and to enable simple changes to be made to the system by local specialists.

Together, these two threads result in the following model for managing the LMDP product.

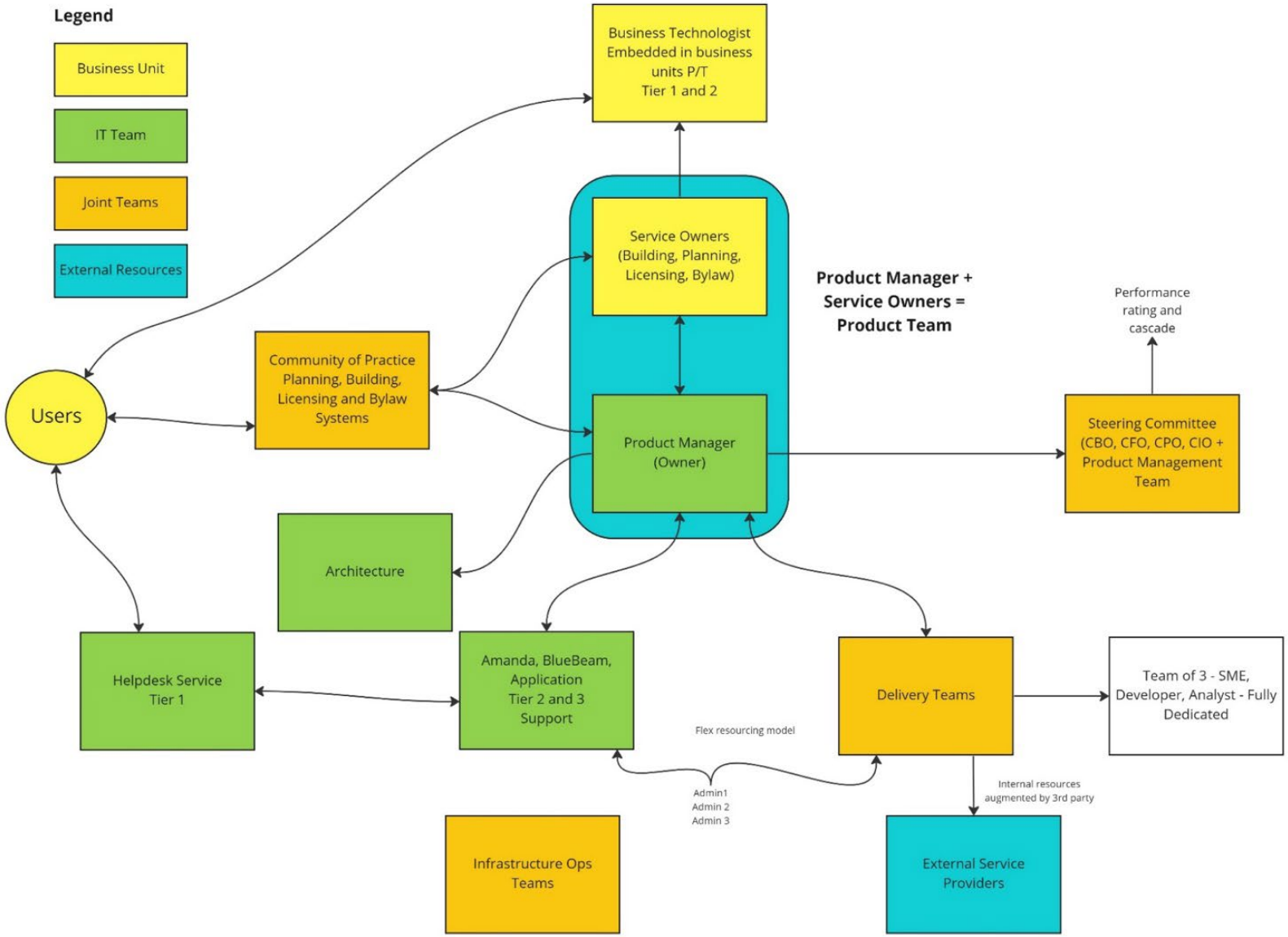


Figure 4: Product Management Approach Model

In this model, there are key players from both Information Technology Services (ITS) and business areas with specific roles, included in the product management environment. Some of the most important new roles and their responsibilities are identified below.

Product Manager

The Product Manager role will be an ITS staff member with a deep understanding of the Amanda platform as well as a good understanding about the services and business processes automated by Amanda.

The Product Manager will:

- Fully and deeply understand each of the lines of business that the product serves.
- Work with users (interviews, discussions) to understand how the product is used and to learn about current challenges, product gaps and opportunities.
- Develop mechanisms (product suggestion forums, surveys) for users to provide continual feedback on product capabilities.
- Work with external customers to understand how they use the product and to learn about current challenges, product gaps and opportunities.
- Analyze data produced by the product to understand use patterns / challenges / opportunities.
- Monitor service requests / change requests.
- Analyze use of software and identify root causes of problems / unintended outcomes.
- Develop hypotheses and ideas to test.
- Work with Service Owners to filter requests, align with product strategies and set product priorities, applying a simple prioritization scheme.
- Develop and maintain a product roadmap (detailed short-term and high-level long-term).
- Communicate product roadmap, delivery progress, resource utilization to governance.
- Conduct annual planning.
- Actively manage backlog items.
- Direct delivery teams.

- Plan and communicate product vision, roadmap, releases, and capabilities.
- Actively promote and market product capabilities (new / enhancements) internally and externally.
- Define and measure outcomes and value (benefits).
- Monitor use of new features.
- Monitor vendor roadmaps / enhancements, and incorporate into the roadmap (e.g., annual updates).
- Monitor the marketplace (competitor products, leading municipal practices).
- Manage systems support and delivery teams.

Service Owner

Leaders from each business area will play the Service Owner role.

This role requires a portion of these leaders' time be freed up to dedicate to this effort (around 20%). These players are responsible for their service areas and are the conduit to the product roadmap. They need to ensure that the systems and tools are in place to provide the best service to their customers.

Service Owners will:

- Have a clear vision of how the service can/should run optimally using/powered by technology.
- Watch and work with users to understand how the product is used today.
- Identify enhancements and approaches to implementation for their service areas.
- Direct local systems specialists on minor systems changes / updates.
- Work with other members of the product team to prioritize enhancements, manage backlog and set product roadmap.
- Act as central point to coordinate positions / standards / best practices.
- Provide direction to project teams.
- Evangelize and promote systems use.
- Closely monitor adoption / systems usage.

- Support and direct change management activities / management reinforcement.
- Monitor vendor roadmaps / enhancements, and incorporate into the roadmap (e.g., annual updates).
- Monitor the marketplace (competitor products, leading municipal practices).

Business Technologist (Embedded in Business Units)

Each key business area (Building, Planning, Licensing and Bylaw) should have a dedicated Business Technologist with the ability and access to the Amanda administration tasks.

This role would fulfill the following functions:

- Simple, local configuration changes (add/change drop-down lists, adjust fees, adjust process and workflow steps, update templates).
- User privilege management.
- First tier troubleshooting.
- Work with project teams as part of larger initiatives / projects.
- Documents and maintains operating procedures.
- Systems and process training in service areas.
- Business process review and optimization.
- Receive feedback from end users and pass to the product management team.
- Identify enhancement opportunities.
- Reporting / outputs.
- Training departmental staff.

The Role of the Amanda Steering Committee

The Amanda Steering Committee would continue, with existing membership CBO, CPO, CIO and CFO, plus the Product Manager and Service Owners.

The role of this group is to:

- Provide executive leadership of the ongoing LMDP product.
- Own the strategic vision and business outcomes.
- Regularly review and sign off on the roadmap (presented by the Product Manager and produced by the product team).
- Approve policy and standards.
- Monitor progress (receive updates from Product Manager).
- Secure resources and funding.
- Clear process, organization, and political barriers to advance the program.

Establish an LMDP Community of Practice

It is important that the community of users of the LMDP have a strong voice and can contribute to setting product direction. After all, these are the people that will be using the platform day in and day out.

We recommend that the City run:

- A Teams channel/forum for users of Amanda to ask questions, share tips and tricks, good things and bad things, to suggest enhancements, to share product roadmap, to make announcements and promote new features / capabilities.
- A regular (quarterly) open-house-style meeting for Product Manager and Service Owners to share updates on product roadmap and seek feedback from the community.

Build a Culture that is Committed to Digital and Change

All of these changes are designed to position the City to implement technology-enabled change but the most transformative outcomes associated with LMDP are achieved when there is a strong leadership and a team culture that understands and is aligned with the goal of digital service delivery.

While technology improvements are important, adoption of a digital mindset and team culture is critical for the success of the overall initiative.

Building a digital culture within business units requires the following key components:

- Business leaders are ready to use the system themselves on a daily basis. Reports, data analytics, approvals, etc. are performed directly within the system by the management, setting an example to the other users (leading by example).
- Business leaders are using data directly from the system for decision-making. If the system doesn't show an activity, the assumption is that the activity has not taken place.
- Data entry and system updates are performed consistently by all users. There are no exceptions for some users to use paper and others to use the system to process applications.
- The digital chain is not broken. End-to-end processes are digitized.
- A continuous improvement of processes is built into the culture of the organization. Users are praised for proposing improvement ideas and the ideas are converted to practical projects through the product management environment.
- A Customer First attitude is developed and maintained within the business.
- The organizational culture is aligned with creating efficiencies using digital technologies. Digital ideas are encouraged and achieved.
- Online first, mobile first approach to business processes used as service design principles.

5.3.4 Process Changes

The introduction of new digital and technology capabilities, contemplated in the target state, should prompt the City to review and re-think every one of the services that it offers – through a digital lens, a lens that designs each of those services for the modern age, to take advantage of digital capabilities such as online payments, signatures, markup, document uploads, etc.

Our process optimization work identified many opportunities, including:

- Implement self-service to the processes where the customer is able to self-serve their basic needs such as inquiries, status checks, obtaining updates, etc.
- Redesign the application forms to enable and simplify the information asked from the applicants. Eliminate the questions related to data maintained within the City, e.g., current zoning of a property.
- Treat applications as customer projects. Each project may require multiple instruments to achieve the end goal, e.g., a new in-fill residential building may require a Zoning Amendment, Building permit, water and sewer service and a driveway permit. Some of these services are provided by other agencies or departments but they are all related to the new building project. The business process should be designed to entertain all aspects of the project and not just individual instruments. The current Pre-Consultation application can be considered as the parent project for all subsequent application/instrument types:

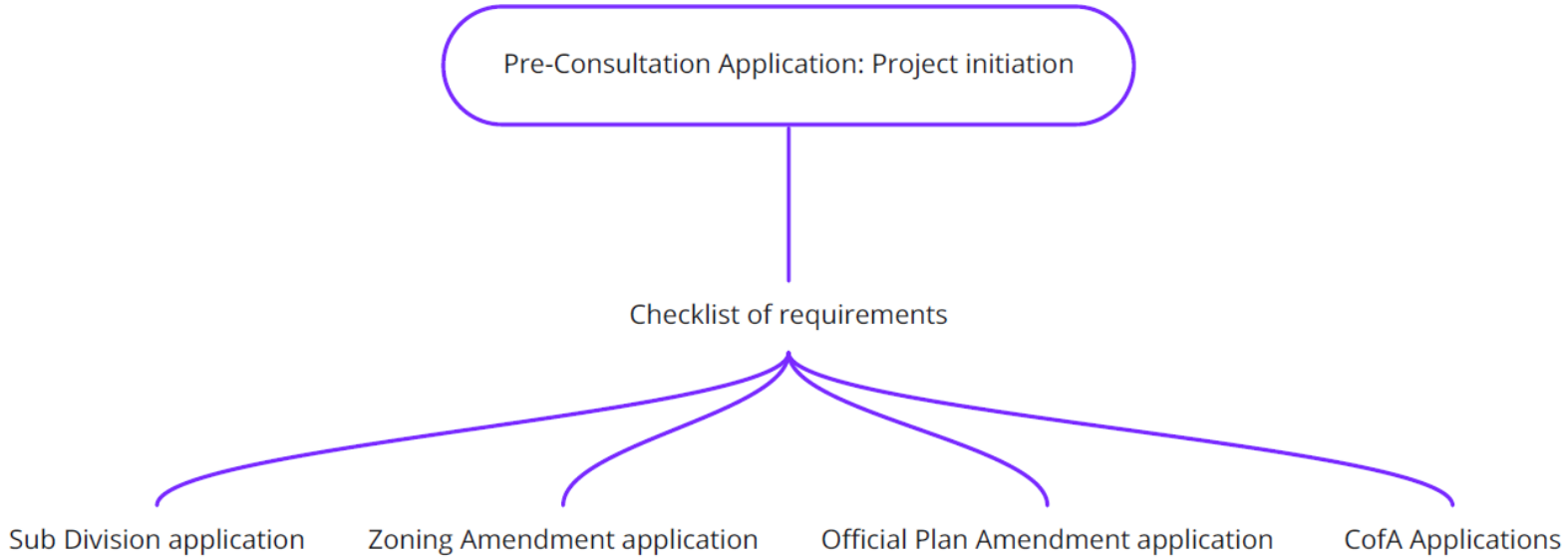


Figure 5: Application as a Project

- All application processes can be sub-divided into the following 3 stages:
  - Apply: Application input, initial review and deemed complete or accepted by the City.
  - Review: Application circulated and reviewed by necessary parties internal/external.
  - Approve: Approval parties have provided their conditions and comments and the approval authority and the approval process is executed with the final approval.
- Each of the three parts could be standardized and reused in multiple application types, e.g., the Apply process for a Zoning Amendment application could be reused for the Subdivision Application process.

Fundamentally, the City must perform process optimization exercises prior to automation as a standard practice.

An existing process must not be automated as-is, otherwise the full benefits of digitization – process efficiency and improved customer experiences – will not be achieved.

Establish Process and Service Design Specialists

The work described above – rethinking and redesigning services and processes – is a definitive skillset. Business Analysts, Business Process Improvement Specialists and Service Designer roles are typically responsible for this work – working side-by-side with subject matter experts.

It is recommended that the City establish this important skillset/capability and the capacity to support this work in the LMDP program within the organization.

6.0 Implementation Plan

6.1 Approach to Sequencing the Implementation Plan

The consulting team used and applied the following concepts in building the recommended Work Plan. The plan is designed to:

- Sequence implementation work to produce early wins, build momentum and secure positive internal publicity while also addressing Bill 109 and other needs created through recent legislative changes.
- Work the muscle – begin to get all Planning staff using Amanda actively, e.g., by mandating that all basic information for all Planning application types be entered into the system and that key milestone dates be tracked and by building reports to monitor compliance/accountability.
- Test/prove that big service delivery shifts concepts and ideas (digital customer experience – online submission, status tracking, payments, digital staff experience, workflow, agency collaboration, EPR, reporting and data, and mobile – mobile solutions for inspectors). Where possible, the plan is designed to prove these concepts with simpler/easier processes (fewer people, involving a single organization unit, lower public profile, fewer steps, shorter timelines), before scaling to larger, more complex processes.
- Adopt a Minimum Viable Product approach. The City should apply the KISS principle (Keep it Simple, Stupid) to this work, focusing on building the basics first (tracking core data and dates) before iterating to get more complex (with fancy automation), or deal with exceptions (perfection is the enemy of good enough).
- Embrace an agile approach and the sprint cadence. In doing so, the goal is to get real, working enhancements and solutions into users' hands quickly (every 2 weeks) so that we can shorten the feedback loop and ensure that the work that we are doing is adding real value.
- Build incrementally. Each initiative has been sequenced so that it can build on/leverage capabilities established by the previous initiative.
- Constantly deliver tangible and real-value / benefits / incentives that will drive wider participation.

6.2 Key Work Packages

The following table identifies the key work packages that it is recommended the City pursue.

Work Packages	Key Activities
Enabling Work	• Set up effective product management model for LMDP • Department empowerment through role creation or assignment • Finalize key architecture decisions (BI, Document Management, CRM data integration, portal strategy)
Training Program	Establish a formal training program for LMDP
Planning – Initial Folder Mods (Support Bill 109) and Culture Shift	• Modifications to pre-consultation and other Planning folders • Enforced use of Amanda for basic tracking for all app types
Initial Planning Online Applications	• Implement online services capability • Implement online service for Pre-Consult, COA and Site Plan
GIS Integration	• Revamp GIS integration • Review address data and data management practices
Agency Review	Automated, online agency distribution and commenting
EPR and Document Management	EPR procurement and implementation in Building, then Planning
Building Permit Enhancements, Online and EPR	Folder updates, online, EPR and mobile

Work Packages	Key Activities
Remaining Planning Applications (Including Online and EPR)	Folder updates, online and EPR for remaining app types
Licensing Online	Folder updates, online apply and renew
Forestry, Engineering, Bylaw, Fire and Vital Stats	Folder updates, online apply and renew

6.3 Agile – The Approach to Delivery

We have mentioned, several times, the concept of agile delivery. We understand that the City is already embracing a more agile approach to delivery of technology initiatives and enhancements, and we would argue that the implementation of this Work Plan is well-suited to using the approach.

Agile is, at its heart, a concept that encourages teams to work in new ways, collaboratively, and iteratively – to focus less on upfront planning and more on discovery together. It is designed and proven to better deal with the uncertainty and complexity of software development.

For those who are unfamiliar with agile, the approach is significantly different from traditional waterfall project management disciplines, and introduces a series of new terms that you may not be used to, such as:

- Scrum.
- Sprints.
- User stories / features.
- Epics.

Training the delivery teams on Scrum or Kanban and associated techniques and methods – along with considering engaging an agile coach to assist with the adoption of the practice – may be of value to the City in its pursuit of this strategy.

6.4 Implementation Plan

The figure below shows the proposed implementation plan in a timeline view.

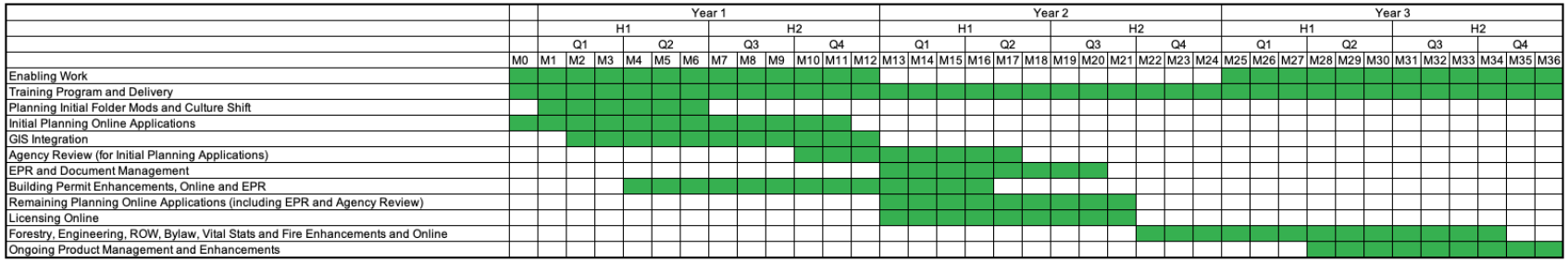


Figure 6: Implementation Plan in a Gannt-Chart Style Timeline View

The elapsed time for the program – with full resourcing, as described in the following section – is anticipated to take 3 years to implement. No dates or years are assigned at this time, as funding availability is unknown.

Year 1. Work on preparing for Bill 109 compliance, setting up the online Portal, getting initial Planning applications (pre-consult, COA, Site Plan) and Building permits up and running on the Portal would be the priority.

Year 2. Work would shift to implementing an integrated electronic plans solution, completing the Planning, and Building permit online services, implementing mobile technologies, and updating Licensing processes to take advantage of the new capabilities

Year 3. Focus on Forestry, Engineering, Right-Of-Way And Bylaw enhancements – again, to take advantage of the new capabilities of the renovated LMDP.

A detailed implementation Gantt chart has been provided separately to the City team.

7.0 Resourcing and Budget

7.1 Resourcing

7.1.1 Ideal Resourcing Model

For the City to advance the work program in an optimal manner, the consulting team recommends the creation of three delivery teams – one each for a) Planning, b) Permitting, v) Licensing and Enforcement.

In this ideal situation, each team would comprise a Product Owner (at 20%), a dedicated Business Technologist (local Subject Matter Expert (SME), a Business Analyst/Service Designer, and an Amanda Developer/BSA.

As described earlier, a Product Manager would oversee the LMDP environment and the broader roadmap, working closely with delivery teams and with the Amanda (or LMDP) Steering Committee.

Each of the teams would actively manage a backlog of work in their area of assignment and would iteratively, and consistently work on the digitization and continuous improvement cycle (like what Mississauga has pursued).

The teams would also work closely with and require support from content specialists in the City's web team, reporting specialists in the BI team, and a change management specialist or advisor to assist with successful adoption.

By building three teams, the City could advance on a number of fronts to realize the vision of digital service.

7.1.2 Implementing the Product Management Model + Empowering Business Units

While the optimal model is desirable, we recognize the reality of the City's situation. Based on our understanding of the current situation at the City, it is possible the following roles could be assigned to existing staff and management at the City:

- Product Owner – Planning
- Product Owner – Permitting
- Product Owner – Licensing and Bylaw
- Business Technologist – Licensing and Bylaw

- Amanda Developer / BSA
- Amanda Developer / BSA
- Reporting / BI Specialist
- Content Specialist – Web Team

However, the following three roles are not currently in place and would need to either be assigned to existing positions or be created to support the program. We recommend that these roles are the most critical positions to establish and fill to begin to move to the product approach described earlier.

- LMDP Product Manager
- Business Technologist – Planning
- Business Technologist – Permitting

The City should also determine how it will address the following needs, either through contracted resources, secondments, reallocations, consulting services, or asking existing staff to take on additional tasks and activities.

- Business Analyst / Service Designer
- Business Analyst / Service Designer
- Business Analyst / Service Designer
- Amanda Developer / BSA
- Change Management Specialist

The budget estimates presented below account for the costs for these roles for the duration of the three-year program.

The City will also need to consider the ongoing product management resource requirements beyond the three-year timeline. We anticipate that the Product Manager, Product Owner, Business Technologist roles and Amanda Developer resources will be needed permanently – Service Designer/Analyst roles may also be required in the long-term.

7.1.3 Using Partners and Third-Party Providers to Address Resource Needs

While internal resources will be important, we recommend that the City set up a model that allows them to utilize external parties to assist in the delivery of the LMDP renovation program.

Amanda Specialists

There is a strong 3rd party ecosystem of implementation service providers around Amanda.

Firms such as Vision33, Meraki and Random Access are Granicus partners that provide implementation services that the City can use to augment internal resource capacity. The City of Guelph, for example, recently established a roster/vendor of record model for Amanda implementation and configuration services. Through this model they can rapidly prepare a statement of work and quickly contract support and resources to assist with Amanda implementation work.

Digital Transformation Specialists

Similarly, it is important to recognize that specialist capabilities – Change Management, User Research, Service Design, Business Process Optimization, Content Specialists, Testing – and many others are available on-demand to Burlington through freelancers, consulting firms, and on contract.

The City should not be constrained by its internal capacity and should establish repeatable and streamlined methods to draw in these skills on-demand.

7.2 Budget Requirements

A high-level budget estimate has been developed to include all tasks of the Work Plan spanning over a three-year period. The cost estimates are divided into two sections: Technology and Related Services Costs and Internal Staffing Costs.

7.2.1 Technology and Related Services Costs

The following table lays out estimated technology and services-related costs. The estimate totals $860,000 in software and services capital costs, coupled with an ongoing commitment to an increase of $52,000 in operating costs.

Purchases / Subscriptions and Services	Quantity	Unit Cost	Total Cost	Services Cost for Implementation	Ongoing Costs
Foundational Technology Implementation – Amanda [1]					
User Licenses	TBC				
Enterprise Auth Adaptor (SAML)	1	$20,000	$20,000		$4,000
Granicus Citizen Portal	1	$0	$0	$55,000	$18,500
Inspection booking (included in Citizen Portal)	1	$0	$0		
Document Management connector	1	$20,000	$20,000	$10,000	$5,000
Agency Commenting portal	1		$0	$10,000	$1,500
Inspector App Server	1	$21,000	$21,000		$5,000
Mobile Inspector	20	$2,200	$44,000	$10,000	$8,000
Reporting / BI (Yellowfin)					$10,000
GIS Integration				$25,000	
Foundational Technology Implementation – EPR [2]					
EPR solution	1	$150,000	$150,000	$50,000	$30,000
EPR integration	1	$20,000	$20,000		
Service and Process Renovation [3]					
Planning process redesign				$25,000	
Permit process redesign				$25,000	
Licensing process redesign				$25,000	
Amanda Folder Renovation [4]					
Planning Folders Reconfiguration				$125,000	
Permit Folders Reconfiguration				$75,000	
Licensing Folders Reconfiguration				$75,000	
Services contingency				$55,000	

Purchases / Subscriptions and Services	Quantity	Unit Cost	Total Cost	Services Cost for Implementation	Ongoing Costs
Amanda Training ($1600 for admin, $800 per end user)			$20,000		
Total One-Off Costs			**$295,000**		
Total Services Costs				**$565,000**	
Total Capital Costs					**$860,000**
Total Ongoing Commitment (Operating Budget Impact)					**$82,000**

[1] This includes all software and associated services to set up and configure the software by Granicus or a Granicus partner.

[2] This is the estimated cost for implementation of an integrated EPR solution integrated with Amanda, including services costs.

[3] This represents a small budget for external services for process review / optimization work (similar to that which was undertaken as part of this project) for services prior to digitization.

[4] This represents a substantial budget for external implementation and configuration services from Granicus or a Granicus partner to support folder redesign work and includes a 20% contingency.

7.2.2 Staffing Costs

In addition to external software and services costs, the City needs to ramp up to operationalize the product management approach and to commit resources to the improvement initiatives.

The following table provides the details of the staff cost estimate:

Internal Staffing / Secondments	Est. Annual Cost	Time Req.	Cost Allocation	Actual Req.
Amanda Product Manager [1]	$125,000	80%	$125,000	Existing staff
Product Owner – Planning [1]	$150,000	20%	$25,000	Existing staff
Product Owner – Building [1]	$150,000	20%	$25,000	Existing staff
Product Owner – Licensing and Bylaw [1]	$150,000	20%	$25,000	Existing staff
SME – COA [1]	$100,000	-	-	Existing staff
Business Technologist – Planning [1 2]	$100,000	100%	$100,000	$100,000
Business Technologist – Permitting [1 2]	$100,000	100%	$100,000	$100,000
Business Technologist – Licensing and Bylaw [1]	$100,000	100%	-	Existing staff
Amanda Developer/BSA [1]	$100,000	100%	-	Existing staff
Amanda Developer/BSA [1]	$100,000	100%	-	Existing staff
Amanda Developer/BSA [1 2]	$100,000	100%	$100,000	$100,000
Business Analyst/Service Designer	$100,000	100%	$100,000	$100,000
Business Analyst/Service Designer	$100,000	100%	$100,000	$100,000
Business Analyst/Service Designer	$100,000	100%	$100,000	$100,000
Content Specialist / Designer [1]	$100,000	25%	$25,000	Existing staff

Internal Staffing / Secondments	Est. Annual Cost	Time Req.	Cost Allocation	Actual Req.
Change Management Support	$100,000	50%	$50,000	$50,000
Program Staffing Costs for Year 1				**$650,000**
Program Staffing Costs for Year 2				**$650,000**
Program Staffing Costs for Year 3				**$650,000**

[1] These roles will be ongoing requirements.

[2] These are new permanent positions required beyond the conclusion of the 3-year program – resulting in an annual $300,000 increase in operating budget requirements. We understand the Building Department is requesting one of these positions (Business Technologist – Permitting) as part of this package.

7.3 Potential Cost Benefits and Savings

As noted earlier, the consultants reviewed 8 sample services for potential improvements through the Service Optimization exercise. For these services, approximately $300,000 of cost avoidances were identified – freed staff time that can be applied to improving service quality, timeliness, and accuracy.

Today, there are over 100 similar services currently managed in Amanda that we were unable to review within the scope of this project.

However, using the 2021-2022 statistics from Amanda, the consulting team used the total number of transactions for each service area and extrapolated the time savings previously identified by service types to estimate the total potential annual cost avoidance that could be achieved by redesigning services to take advantage of digital capabilities.

Process/Service	Projected Time Savings (minutes per application) [1]	Number of Annual Transactions	Estimated Cost Avoidance or Value of Time Saved (annually)
Animal Services	11	4653	$42,652
Building Permits	60	1297	$64,850
Bylaw Enforcement	75	3684	$230,250
Engineering	115	970	$92,958
Fire Services	75	1325	$82,812
Licensing	60	741	$37,050
Planning Services	115	1511	$144,804
Vital Statistics	20	6074	$101,233
Total for 100 Additional Services			**$796,610**
80% of the Total [2]			**$637,288**
Total from 8 services reviewed			$297,616
Grand Total			**$934,905**

[1] Note to set the projected time savings by service area we used the most conservative (lowest) saving values from our work on the 8 services as identified in section 3.5.

[2] Anticipated uptake of online services is expected to be at an 80% rate.

Accordingly, based on the learnings from the Service Optimization work, if all existing Amanda folder types were redesigned in the Digital First approach, the consulting team estimates that a potential annual cost avoidance of over $930,000 is possible.

As we have noted earlier, these are not hard cash savings but freeing of staff time. Through these efficiencies, time is freed, and capacity is generated where staff can be better equipped to meet service standards and legislated

standards, deal with increased demand and complexity associated with growth, as well as spend more time using, sharing and applying their expert knowledge instead of doing administrative tasks.

8.0 Key Success Factors

The platform choice, target state, selected solution, Work Plan and other recommendations outlined in this Report present a clear path forward – this is the recipe. But, for any LMDP solution to be successful, there are a few other key factors and characteristics that must be in place. If these elements are not there, then no technology will ever deliver on the expectations of transformed service.

8.1 Leadership

First, there must be strong leadership and full commitment to the service digitization program at the Director level for each service – especially in Planning and Building – for LMDP to be successful.

Although the collaboration and teamwork that we've described in the sections above is critical to deliver digital services, a loose federation of users is not going to drive the necessary culture change nor will this group be able to optimize the benefits of the system.

There needs to be someone who takes ownership and responsibility for the change and this person must be the most senior leader on the team.

We know they will not have all the technical answers, but they can and must lead the change, own the vision for the future, communicate the direction to teams, and ensure both financial resources and staffing are dedicated to initiatives to move the work forward.

8.2 Commitment to Change

One of the barriers to success today has been the inconsistent use of Amanda. This inconsistent use leads to a vicious cycle. Staff don't use the system to input information. Other staff don't use the system because they don't trust the data. Parallel workarounds become the working norm and on it goes.

The City must break this cycle and achieve consistent use across the board of the LMDP.

Leaders will need to work with management to ensure there is staff buy-in to the system. Everyone on the team needs to understand that using the system is not optional – it is a core part of the work.

We also need to ensure that staff are adequately trained. Indeed, staff training must be continuous – staff noted that when new staff were onboarded, they were trained by their teammates. Over the years, this becomes an

example of “broken telephone” and worse, training on bad practices. New staff need comprehensive training, and all staff need refreshers to ensure the system is being used to its potential.

Managers need to root out and understand any sources of resistance – real or perceived – and develop tactics to address and overcome the resistance. Furthermore, leaders and managers need to lead by example – actively using the system and moving to a place where the system is the master record, and that if work happens outside the system, then it doesn’t count or get recognized.

There needs to be continuous monitoring and if necessary, enforcement to ensure ongoing use of the system.

There needs to be ongoing monitoring to ensure data fields are being correctly filled, that workarounds are not starting to happen. This will flag if there is a need for training or enforcement or a change to the system itself because it is not meeting the needs of staff.

If there is still resistance, then other tools such as performance reviews may be options to secure commitment to technology/new systems.

8.3 Commitment of Sufficient Resources

The City will be unable to take advantage of the opportunities presented through digitization if it cannot allocate sufficient resources to design and implement the future. This work always requires more staff resources than expected – from business and technology teams.

While we fully understand the challenge of pulling people from processing applications and permits or answering customer inquiries to work on designing the future, it is critical, unavoidable, and there really are no alternatives – so it is the responsibility of the members of the Amanda Steering Committee to ensure that the right resources are made available.

8.4 Process First, Designed With and For Customers

Process First refers to the criticality of rethinking processes, before building any technological solution.

The admonishment “don’t digitize a broken process” is apt and rightly encourages us not to digitize based on assumptions of the past that are built into current processes.

As the City considers process and systems enhancements, everything needs to be looked at through the lens of "Customer First":

- How does your customer expect this process or service to work?
- Are you building unnecessary complexities into the online system that make it hard for customers?
- Can this complexity be sorted in the back-office?
- If it is necessary for customers to go from one system to another for payments, does this feel seamless?
- Are forms available that auto populate data that the City already has, e.g., Zoning, Official Plan designation, servicing?
- Is the applicant able to select their name and sub-consultants from a drop-down list rather than keying in information each time?
- Is information easy to find, e.g., does someone have to know an address to find information or can they select from a map?
- Is there the ability to subscribe to receive notices on an application or all applications within an area?
- Can they comment directly where they are finding information, or do they need to go out of the system and send an email?
- Can citizens monitor aggregate comments coming in from their neighbours?
- Are they able to pay online?
- Do system designers need to work with Finance, Freedom of Information Officers to remove barriers based on outdated City policies?

Often, those who have been involved in delivering the service for decades arrive with assumptions and knowledge that customers simply don't have. This stresses the importance of the multi-disciplinary team – bringing different perspectives, skills and capabilities to teams brings new ideas, new approaches and better solutions.

Furthermore, to be successful in moving to one digital system with a new portal, communication with *all* stakeholders is key.

Although many of the large players in the construction industry use software for designing buildings, many smaller, one-time applicants may be less familiar with these capabilities. Also, many professionals are familiar with

submitting applications personally and enjoy the one-on-one relationship from meeting with staff. Many external customers are familiar with electronic plans submission from other municipalities; others will not be.

Although it is tempting to run two processes – a paper one and digital – it is recommended to move to just one digital system. For this reason, it is advisable to work with several applicants (of varying levels of sophistication) to test and give feedback as you are implementing any new system.

In addition to informing Council, agencies, applicants, and the public, it may be necessary to develop a training program for applicants. These can be group sessions, one-on-one training and/or online manuals.

Also, it is advisable to have – in the short-term – staff dedicated to answering questions and possibly assisting applicants at the counter with submitting applications. As the transition rolls out, the level of staff dedicated to communication and education can be reduced but there still should be persons identified as leads in this area.

8.5 Iteration and Perseverance

In the process of updating, expanding, and improving any digital system, it pays to remember that everything takes longer than you think – all change is harder than you first imagine – there are nuances and complexities that are hard to plan for and the investment in time and attention will be more than you anticipate.

Our advice is, do not think you will do it all in one go and don't think you will get it right the first time either.

Plan to iterate on the digital solutions and processes that you design, be sure to listen to customers and staff and incorporate their feedback into the next version and the version that follows.

Plan to approach implementation in small steps (e.g., one application type at a time) rather than one big bang, and then follow the iterative approach that we have laid out – taking learning from step one into step two, etc.

Don't treat the work as a one-off project to become a digital Planning service – treat the service as a product that must be iterated, because there are always improvements that can be made. *Always*.

8.6 Measure Progress

It is critical that the City measures progress. It is recommended that Service Owners and the Amanda / LMDP Steering Committee develop capabilities to monitor the following important measures on a regular and near real-time basis.

Goals	Potential Measures
Enhance the customer experience	• # of applications received online as a % of the total applications received • # applications received during non-core work hours • # of counter visits • Baseline and ongoing surveys
Enhance staff experience	• Baseline and ongoing surveys
Increase process efficiency	• Performance metrics for overall and discrete portions of process, e.g., circulation times adherence, volumes waiting in specific department
Reduce turnaround times	• Average time of application processing before and after the key review deliverables, including times waiting on applicants or the City • Measure and report on quality of incoming applications, e.g., most frequent items needing resubmission or correction
Reduce the cost of providing land management services	• # of issues/items escalated to Councillors / Mayor's office
Increase internal capacity	• # of staff hours "freed" • Reduction of staff time spent answering avoidable inquiries • # of inspections per inspector per day • # of cases per plans examiner per day

Goals	Potential Measures
Increase community engagement	• Community engagement / number of web impressions for application information / number of online comments
Enhance access to data	• Managers and supervisors using the system directly in their day-to-day decision-making process • Conduct and report on quarterly data quality audits

8.7 Seek Advice and Learn from Others' Experiences

While the points of advice presented in this section are gleaned from our experience and discussions with peers, we continue to encourage Burlington's leaders to speak to colleagues and peers in other leading municipalities.

These conversations should not be focused on learning about the technologies that they bought and implemented, but instead should focus on how they inspired people to change, how they are organized their work, how they resourced the changes, and what lessons they learned along the way.

9.0 Major Recommendations and Conclusion

9.1 Recommendations

In summary, the consulting team makes the following recommendations.

The City should:

1. Commit to a vision for the realization of end-to-end digital service delivery for Planning, Permitting, Bylaw Enforcement and Licensing, supported by assisted digital through Service Burlington and front counters for those who prefer not to use digital channels.
2. Commit to continuing to use Amanda as the corporate LMDP.
3. Commit to renovating Amanda to meet the needs of the corporation, service users and the community.
4. Implement immediate modifications to Amanda Pre-Consultation and Planning processes to comply with Bill 109 and to ensure use of Amanda to track all Panning applications.
5. Establish a framework, reporting and management practices to allow for monitoring of systems use by management and staff, with leadership enforcing the use of the system and holding staff accountable if they don't.
6. Set direction on important technical decisions, including:
    - Confirm how document attachments (submitted online) will be handled.
    - Confirm that the corporate BI solution will be used for Amanda reporting over the in-built solution.
    - Confirm whether to use Granicus Citizen Portal or whether to build a "made-in-Burlington" portal solution.
    - Confirm the requirements for data to feed from Amanda to the CRM (customer, transactions) to support Service Burlington's ability to answer customer inquiries.
7. Implement an online portal (we recommend Granicus Citizen Portal) for the implementation of online services.

8. Pursue a phased enhancement of back-office process review and digitization in Planning, Building, Bylaw, Engineering, allied with the launch of online services. Initially, we recommend beginning with the following areas:
    - Pre-Consultation.
    - Site Plan.
    - COA.
9. Before a phased broader implementation of Amanda enhancements, streamline processes and take advantage of online service capabilities in the following areas:
    - Building.
    - The remaining Planning processes.
    - Licensing.
    - Forestry.
    - Engineering, etc.
10. Implement Granicus Mobile solution for inspectors and enforcement officers – support this launch with change management, reinforcement, and eventually enforcement if necessary to ensure 100% adoption.
11. Implement an Amanda-integrated ePlans solution (to replace Bluebeam) in specific support of Building process enhancements.
12. Adopt a product management approach to the management of LMDP solutions and systems, including:
    - Appoint a senior manager (Director level or above) as the overall champion of the LMDP system of tools and processes.
    - Appoint a Product Manager.
    - Appoint Service Owners.
    - Create a product team.
    - Actively manage a backlog and product roadmap for the LMDP.

- Create new Business Technologist roles in Planning, Building and Business Licensing areas to advance the use and support of Amanda in those areas.

13. Develop and operationalize an Amanda training program to help support staff and improve the literacy of all Amanda users.

9.2 Conclusion

The value – demonstrated in practice in municipalities such as Markham, Mississauga, and Barrie – makes clear that investments in digitization and digital service delivery in the regulatory management space are worthwhile. Return on investment is significant and impactful and has unexpected benefits that may be hard to quantify at first glance.

Reductions in processing time, freed staff time, and environmental benefits associated with reduced travel and paper consumption are significant. In addition, the data gathered as a byproduct of process digitization and automation gives Council, leaders, managers, and policy experts real-time information at their fingertips to make better, more informed, more strategic decisions that benefit the community.

Each of these municipalities have achieved these benefits through:

- A leadership commitment to rethinking service delivery in the context of digital and technology capabilities.
- A continuous commitment to ongoing and iterative process and service improvement initiatives – a recognition of the long term-ism needed for success.
- Committing significant human resources from business areas and technology teams to work on these initiatives.
- Embracing change in the work people do and how they do that work.
- Shifting toward a data driven approach to service management and service improvement.

Burlington does not have to reinvent the wheel. The City can learn from and steal from these successful and proven approaches.

The assessment also makes clear that the needs and expectations of City staff, service users and the community at large can be met with the existing LMDP – Amanda. Nonetheless, significant effort, cultural change, and ongoing investment will be needed, in and around the Amanda platform, to ensure that the City realizes the potential.

The implementation plan, budget and resource needs identified here, lay out how the City can deliver streamlined, simplified, faster and less-administratively-burdensome services – but full commitment and leadership will be critical to success.

Appendix 1 – Glossary of Terms

Term	Explanation
2big4email	Large file transfer system
Agile	An iterative approach to project management and solution development
AI	Artificial Intelligence – A systems capability to learn and react to data inputs based on algorithms and machine learning
Alphinat SmartForms	Web portal solution for building online forms, also used as the basis for current Amanda Public Portal
Amanda	Permits, Planning and Licensing solution
AMS	Asset Management System – A corporate system that is used to manage a Municipality's assets
AODA	Accessibility for Ontarians with Disabilities Act – A law that sets out a process for developing and enforcing accessibility standards.
API	Application Programming Interface – A software intermediary that allows two applications to talk to each other
ArcGIS	A family of client software, server software and online geographic information system (GIS) services developed and maintained by Esri, used to make maps, analyze data, and share and collaborate
As-Is	Current state
BA	Business Analyst – A person who analyzes and documents the market environment or business processes or systems
Back-office	An office or department where work is carried out to support the business of an organization, rather than being customer-facing

Term	Explanation
BI	Business Intelligence – Refers to technologies, applications and practices for the collection, integration, analysis and reporting of business information, and is designed to support better business decision-making
Bill 109	Bill 109, the More Homes for Everyone Act, permits the establishment of a regulation-making authority to determine what cannot be required as a condition of draft plan approval.
Bluebeam	Allows teams to collaborate in real time and manage projects from design to completion on any device - anywhere
BPO/BSO	Business Process/Service Optimization methodology – A process review methodology developed and used by Perry Group
BRM	Business Relationship Manager – Serve as translators for IT work and gather valuable intelligence that can improve how decisions are made regarding investments, resource allocation and strategic alignment
BSA	Business Systems Analyst
CAO	Chief Administrative Officer
CAPEX	Capital Expenditure
CFO	Chief Financial Officer
CIO	Chief Information Officer
COA	Committee of Adjustment
COTS	Commercial Off-the-Shelf – A product that is used “as-is”; designed to be easily installed and to interoperate with existing system components

Term	Explanation
CRM	Customer Relationship Management – A generic system for case management that can be used for handling customer enquiries. *Note that the C in CRM is used differently in many municipalities – Citizen, Client, Customer, and Constituent*
CSDC	Software company in Mississauga, Ontario, Canada
Customer	Refers to users of the municipality's technology and digital services, including residents, businesses, visitors, Mayor and Council, the workforce and our partners
Digital	Refers to a mindset, mode of operating, and delivery of services that takes advantage of modern technologies (web, app, social, mobile, data). These deliver improved experiences, business efficiencies and insights
Digitized	The automation of manual and paper-based processes, enabled by the digitization of information and workflows, moving from an analog (often paper-based) process to a computerized process
Epics	An epic is a large body of work that can be broken down into a number of smaller stories
EPR	Electronic Plans Review
ERP	Enterprise Resource Planning – A system that is designed to address business requirements across the whole organization; to provide an integrated solution across many municipal departments and functions
eScribe	A tool for authoring and circulating reports to be presented to Council or Committees
Esri or ESRI	International supplier of geographic information system software, web GIS and geodatabase management applications
GIS	Geographical Information Systems – Systems designed to capture and report on all types of geographical data, including spatial data

Term	Explanation
Granicus Citizen Portal	The Granicus Citizen Portal enables customers to access Amanda services online
HDLC	Burlington's Housing and Development Liaison Committee provides a forum for dialogue between City of Burlington staff and representatives of the local housing and development industry
IT	Information Technology
ITS	IT Services department
KISS Principle	Keep It Simple, Stupid
KPI	Key Performance Indicator
LCs	Letters of Credit
LIS	Land Information System (e.g., Marmak)
LMDP	Land Management Database Platform
LPMS	Land and Property Management System – A land, planning, permitting, and licensing system (e.g., CityView)
M365 (formerly Office 365 or O365)	Microsoft cloud-based office productivity suite which includes email and calendar, messaging, collaboration, and office suite
MPAC	Municipal Property Assessment Corporation
MVP	Minimum Viable Product – The simplest, smallest solution that can be delivered to start to address the business requirement
OEM	Original Equipment Manufacturer

Term	Explanation
OPA	Official Plan Amendment
PPL	Planning, Permitting and Licensing
Product Management	An organizational function that guides every step of a product's lifecycle — from development to positioning and pricing.
QA	Quality Assurance
RFP	Request for Proposal – A business document that announces a project, describes it and solicits bids from qualified contractors to complete it
SAML	Security Assertion Markup Language – An XML-based markup language used to exchange authentication and authorization data between parties, in particular, between an identity provider and a service provider
SAP	A commonly-used ERP application
Scrum	A framework for project management that emphasizes teamwork, accountability and iterative progress toward a well-defined goal
SDAF	Streamline Development Approvals Fund – provincial grant program
SmartGuide	Civic Portal tool in Amanda
SME	Subject matter expert
Sprint	Sprints are time-boxed periods of one week to one month, during which a product owner, scrum master, and scrum team work to complete a specific product addition. During a sprint, work is done to create new features based on the user stories and backlog. A new sprint starts immediately after the current sprint ends
To-Be	Future state

Term	Explanation
UI	User Interface
ZBA	Zoning Bylaw Amendment

Appendix 2 – List of Participating Personnel

The following people participated in the preparation of this Report. We thank them for their contribution.

Department/Area	Name
Animal Services	Palmieri, Adam
Animal Services	Weaver, Ana
Building	Nick Anastasopoulos
Building	Hooper, Andrew
Building	Kennedy, Trudy
Building	Kewell, John
Building	Murphy, Jackie
Building	Ortiz, Dio
Building	Pavlou, Kathy
Building	Tsapoitis, Thomas
Building	Veenstra, Terry
Building	Mahrous, Ebtessam
Building	Higman, William
Building	Smithson, Joel
Business Licensing	Fletcher, Roberta
Business Licensing	Diamond, Michelle
Bylaw Enforcement	Davren, Kerry
Bylaw Enforcement	Parkinson, Hayley
Capital Works	Giangregorio, Teresa
City Clerk	Arjoon, Kevin
City Clerk	Klingenberg, Kevin

Department/Area	Name
City Clerk	Yew, Samantha
Committee of Adjustment	D'Angelo, Amanda
Engineering	Hyett, Steven
Engineering	McIsaac, Jeff
Finance	Ford, Joan
Finance	Tavares, Maria
Finance/Development Charges	Chen, Ellen
Finance/AR	McDonough, Jason
Finance/Asset Management	Zygalko, Luke
Finance/Taxation	Coulson, Anne-Marie
Finance/Taxation	Lacelle, Paul
Finance/Taxation	Schneider, Christopher
Fire Services	Lahey, Colin
Fire Services	Langfrey, Matt
Forestry	Robinson, Steve
Forestry	Torchia, Melissa
IT	Breganza, Cheryl
IT	Hamilton, Ashley
IT	Koabel, Chris
IT	MacDonald, Chad
IT	Marion, Cathy
IT	McHugh, Tina
IT	Stanbury, Brent
IT	Triana, Paul

Department/Area	Name
IT/Amanda	Clarke, Dana
IT/CRM	Karimullah, Fabi
IT/Geomatics	Campese, Anthony
IT/Geomatics	Gjerga, Elvana
IT/Geomatics	Staboon, Josua
IT/Geomatics	Zoltak, John
IT/Security	Hough, Wendy
IT/Security	Parker, Ryan
Parks Planning and Design	Rabeau, Marion
Planning	Dart, Nathan
Planning	Dickson, Gordon
Planning	Douglas, Thomas
Planning	Enns, Allison
Planning	Henderson, Brandon
Planning	Parker, Jennifer
Planning	Plas, Kyle
Planning	Simeoni, Mark
Planning	Tellier, Jamie
Planning	Vassalli, Tina
Procurement	Kulkarni, Rahul
Recreation	Beijes, Em
Recreation/ Special Events	Croonen, Lindsey
Recreation/ Special Events	Maxwell, Sandra
Recreation/ Special Events	Zelko, Jennifer
Service Burlington	Cameron, Clare
Service Burlington	Devito, Daytona

Department/Area	Name
Service Burlington	Howe, Larissa
Service Burlington	Pearce, Elizabeth
Transportation Services	Baldelli, Catherine
Transportation Services	Clark, Trevor
Transportation Services	Kummer, Chris
Transportation Services	Zhuang, Tony

Produced by

Perry Group Consulting Ltd.

www.perrygroupconsulting.ca

Our reports have been designed to meet AODA guidelines, and we strive for accessibility compliance.

- - Trademarks acknowledged - -