

**DEPARTMENT
OF PUBLIC
SERVICES**

BUILDING BRIDGES: CAPTURING ENGINEERING WORKFLOWS

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INTRODUCTION

The City of Lansing's Public Service Department is facing a critical need for a workflow management system to standardize work processes, capture project workflows, and manage tasks. With a high percentage of employees expected to retire within the next three years, a large amount of institutional knowledge could be lost without a proper system in place.

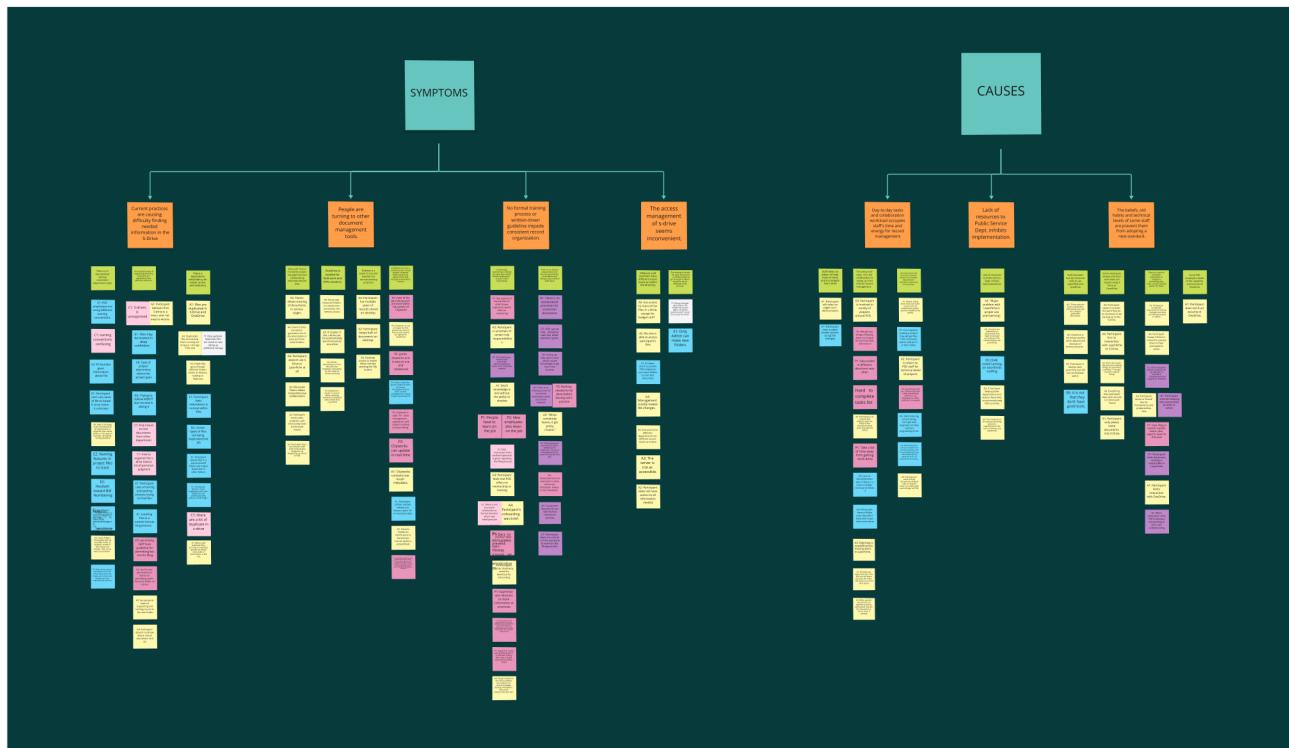
Our role was to evaluate the Public Service Department's current filing system and develop actionable recommendations to improve and increase their filing efficiency to ensure information is properly categorized and easily accessible. In searching for actionable recommendations, our UMSI team was aided by previous recommendations, delivered in early 2020 by business analyst Scott Konopinski from Dewpoint Consulting.

METHODS

We drew on Karen Holtzblatt's concept of contextual inquiry to formulate our interview protocols and conduct our interviews (Holtzblatt & Beyer, 1997). We conducted eighteen contextual inquiry interviews, amassing 13+ hours of data collection. The interviews helped us uncover the work models, behaviors, and culture of the Public Service Department.

ANALYSIS

The UMSI team compiled quotes from our eighteen contextual inquiry interviews with PSD staff to create an Affinity Wall. Our interview quotes were placed into digital notes using a Miro Board, an online collaboration tool, where they were color-coded by division (denoted by the yellow, purple, pink, blue, and white notes). From this, related quotes were sorted and grouped together, then placed under immediate themes (denoted by green notes), then from immediate themes to more general themes (denoted by orange notes). Finally, these general themes were categorized as either being causes or symptoms of workflow or filing interruptions (denoted by large teal notes).



ANALYSIS

From our Affinity Wall diagramming, we gathered the following as general themes concerning symptoms.

Current practices are causing difficulty finding information in the S-Drive.

- There is no standardized naming convention department-wide.
- Inconsistent ways of organizing directory structures are adopted across different divisions.
- There is duplication/ redundancy for better access and reference.

The access management of S-Drive seems inconvenient.

- Different staff members have different access levels within the directory.
- The setting of access for each document or folder needs to go through IT which seems to be an inflexible extra process.

No formal training process or written-down guideline impede consistent record organization.

- Shadowing/ mentoring is limited by the supervisor which causes employees to learn roles themselves.
- There are no formal requirements for the documentation of workflow and filing process before staff leave.

People are turning to other document management tools.

- Microsoft Teams for better project management and collaborating internally division-wise.
- OneDrive is needed for field work and VPN concerns.
- Desktop is easier to use and maintain for remote working purposes.
- CityWorks runs as an individual and effective system, however what needs to be exported from and get preserved is unclear.

ANALYSIS

Lastly, the following were gathered as general themes concerning causes.

Day-to-day tasks and collaboration workload occupies staff's time and energy for record management.

- Staff relies on paper to keep track of tasks and to navigate the S-Drive.
- The amount of tasks and the collaboration is taking up their time for record management.
- Communication and interaction between divisions and outside departments/ contractors interrupts the workflow.

Lack of resources to Lansing's Public Service Dept. inhibits implementation.

- The lack of both monetary resources and overall capacity are factors to consider in implementing new processes.

The beliefs, old habits and varying technical levels of staff prevent them from adopting a new standard.

- Staff members lack the technical skills to use Laserfiche and OneDrive.
- Some employees believe that their work does not require using S-Drive or Laserfiche.
- There is a lack of incentive/ motivation to change to something else since the current system works for them.
- Some PSD employees doubt the capability and security of OneDrive.

FINDINGS

Right now the filing system of files and documents are done based on personal intuition and due to habit, time constraints and lack of resources which results in the current folder structure that hinders efficiency.

The issues surrounding succession planning hinder the passing of institutional knowledge. Streamlining the filing process ensures that the passing of techniques and work processes can exist as a coherent file structure that successors can follow.

RECOMMENDATIONS

Classification Overview

This section concerns recommendations and best practices for naming conventions and folder restructuring. For naming conventions, we randomly picked folders and files to provide examples that you can alter to your needs and build upon. The section is structured in the following manner:

- General conventions
- Naming conventions
- Folder restructuring

For naming conventions, at least one example is provided for each of the following team folders:

- Accounting
- Administration
- Engineering
- Permit
- Traffic

For folder restructuring, at least one example is provided for the following team folders:

- Account Receivable Invoices from Accounting
- Engineering

For Engineering, we have also provided generalized feedback and recommendations on the filing structure as a whole.

We have also provided sample illustrations of the folder structuring along with naming conventions, and a sample code book in order to aid the Public Service Department in standardizing and recording naming conventions.

RECOMMENDATIONS

General Conventions

Consistent naming conventions help with identifying files for batch deletion or migration according to the retention plan. Regardless of whether you use the standard naming conventions laid out here or decide on your own, file names should always:

- **Include the path necessary to navigate to the file**
- **Clearly indicate the file's content**
- **Clearly indicate a file's "lifetime" (for example, including the start and end date of a project)**
- **Follow a standardized order (as exemplified below)**

For folder structures:

- **Each folder should be strictly classified with one purpose or theme.**
 - **For example: Official or reference information should ideally not be in the projects folder. These should be in a separate folder.**
- **There should be an Official Documentation folder where form templates and other reference information are stored for easy access.**
- **The classification should be broad instead of long, meaning - files should be arranged in such a way that the path to get to a file should be reasonable (within 4-5 folders, 6-7 maximum).**
- **There should be regular meetings or procedures to ensure that these standards are implemented and understood by each team member.**

RECOMMENDATIONS

Naming Conventions

Example 1: Accounting – Accounting Project Files

Abbott Construction Correspondence file from November 2009, never signed

Abbott_CORR_PR008827_11-18-09_3_NeverSigned

Field 1 Condensed contractor name	Field 2 Content code Ex. CO for Check Order CORR for Correlation	Field 3 (Optional) identifying number	Field 4 Date start date/end date	Field 5 (Optional) sequential number	Field 6 description or status
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Example 2: Accounting – Account Receivable Invoices

Consumer Energy Utility Permits - 2018 - Invoice number 13683

CEUP_FY18_INV13683

Field 1 Parent folder or category name	Field 2 Year	Field 3 File/content type
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Example 3: Admin – Account Receivable Invoices

Rhonda Karr's 2021 denied claim for Property Damage

C#2998_PD_Karr,Rhonda_2021_Denied

Field 1 C: Claim #2998: the claim number	Field 2 Property Damage	Field 3 Name of the person associated with the claim	Field 4 Claim year	Field 5 (Optional) status of claim
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RECOMMENDATIONS

Naming Conventions

Example 4: Engineering

BN30746_GravelStreetsDrainage_GasMap_ChilsonAve_ZipCode_PS#36_01-24-19_06-21-2021

Field 1 C: Claim #2998: the claim number	Field 2.1 Project type	Field 2.2 File purpose	Field 2.3 Location Street_Zip_PS, at least one is needed	Field 3 Start date yyyy-mm-dd	Field 4 End date yyyy-mm-dd
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We recognize that Engineering projects are complex. To address staff needs in being able to identify the contents of a file and the current life cycle of the given file, we are recommending that all file names in the Engineering folder contain the following elements:

Sample file path: Engineering → Projects → ACTIVE → 2022 Consumer Energy Grid Projects

Example 5: Permits

Permits_CPLJ_CS0-034_AdditionalConditions

Field 1 Folder name	Field 2 Contractor or project name	Field 3 Content type and associated number	Field 4 File description
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Example 6: Traffic

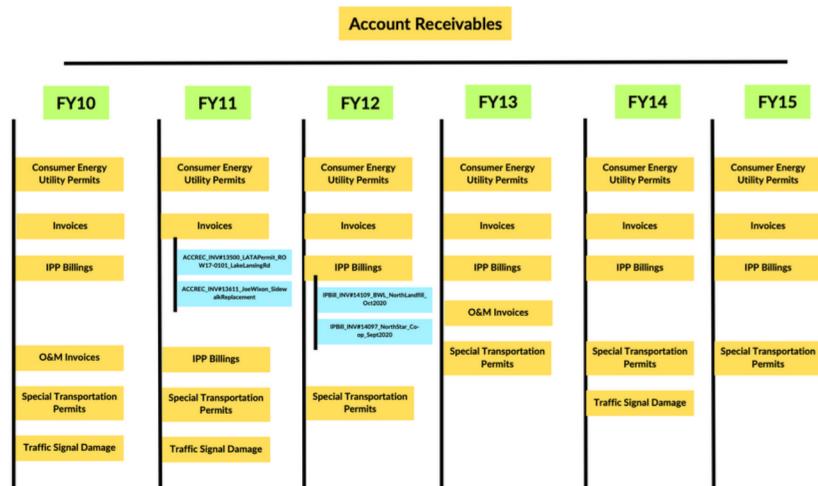
Traffic_CORR_PSD_HuntClubSignRequest

Field 1 Folder name	Field 2 Contractor or project name	Field 3 Content type and associated number	Field 4 File description
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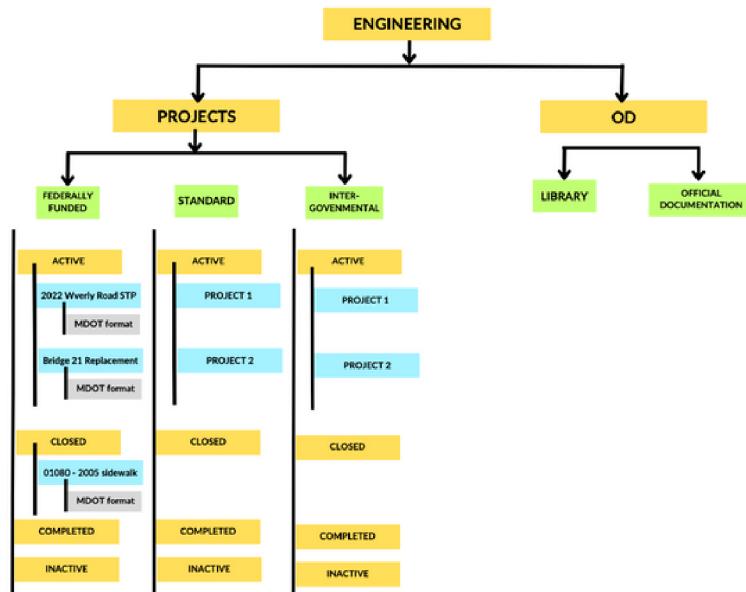
RECOMMENDATIONS

General Conventions | Folder Restructuring

Example 1: Accounting – Account Receivable Invoices



Example 2: Engineering



RECOMMENDATIONS

Weeding Schedule

The aforementioned classification systems should be implemented for new files. It should be used in conjunction with a weeding process to clean up inactive or archival files. We recommend staggering the clean-up process to ease all PSD staff members into a collective habit of folder upkeep. The weeding schedule should be a floating Excel sheet in the “Staff Folder” of the S-Drive with metadata to hold sheets for all the divisions of the department.

A process of “easing” staff members is recommended for building new habits. Each staff member would only have to clean up one folder a week. This would lessen the pressure of taking on the entire S-Drive itself. By the end of the month, each staff member would be assigned new folders to take on.

This process should be conducted through a system of accountability. We recommend either Michelle or Erin, with the backing of the Director, reinforce the schedule and ensure that every staff member continues to build on this habit. We recommend a brief weekly or monthly check-in with staff members to ensure that staff members’ folders are cleaned in a timely manner.

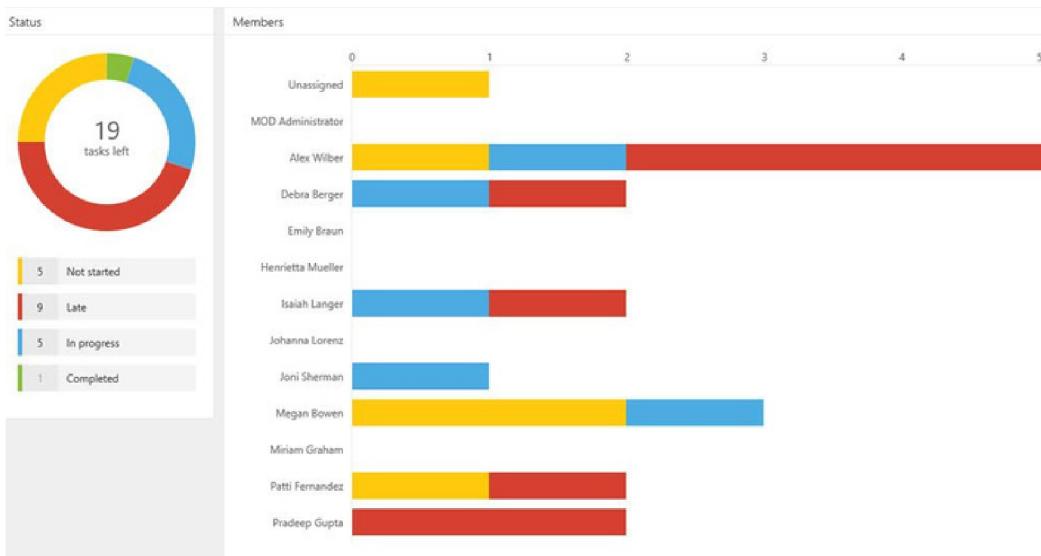
RECOMMENDATIONS

Microsoft Planner for Task Management

Current systems and tools are not being utilized in the ways they could be.

For instance, several employees in the Public Service Department use various tools such as Microsoft Excel, Teams, and OneDrive in order to streamline their individual workflows and access which does not lend to Department-wide accountability or transparency.

The entirety of the Microsoft Suite is untouched. Thus tools within it that are geared to large group task management, such as Microsoft Planner or similar tools that also allow collaboration fall in a gap. We recommend the entire department familiarizes themselves with their options regarding Microsoft, mainly beginning with Microsoft Planner. An example of the Microsoft Planner's dashboard is attached below.



ADDITIONAL POINTERS

Laserfiche

Laserfiche has filing synchronization capabilities that can improve workflow efficiency and alleviate the burden of a select few individuals having the sole responsibility of identifying files that need to be moved into Laserfiche according to the Public Service Department's retention policy. Below, you will find an overview of what we have learned from IT about Laserfiche and its processes.

Laserfiche has four levels of access: public, internal (domain users only), forms participants (read-only), and fully licensed. A full license costs around \$1,200 per user, which explains the limited capacity available to grant multiple full licenses.

Currently, the process for moving files into Laserfiche involves using a web or desktop client that only an individual with full licensing can access. This individual would have to drag and drop files or upload files using the web client.

However, IT has the ability to create a customized workflow that allows files to be synced from the S-Drive into Laserfiche. This process would require setting up a separate directory, in which staff with permissions can add files. Depending on the sub-directory these files are added to, they will be conformed to a "template" that allows Laserfiche to determine where the files should go once they are synced to the system.

We recommend setting up an individual meeting with IT so that they can provide a comprehensive explanation of these processes. This customized workflow would alleviate both the pressing issue of costs and the burden placed on one or a few individuals to sort through and move files to Laserfiche.

ADDITIONAL POINTERS

Desktop Usage and Associate Liability

We have noticed that a select few individuals are storing all records on the desktop. This poses unnecessary liability for the department. In the event of a lost laptop or technical malfunction of the Public Service Department's computer network, these records may be lost or leaked, potentially exposing the City of Lansing to legal action. This risk is especially pertinent when considering records that hold historical value, as dictated by the state's retention policy.

Therefore, it is recommended that the department immediately cease reliance on desktop storage for record management. Instead, the utilization of the secure S-drive is recommended to ensure the proper safeguarding of critical records. This proactive approach will help mitigate potential risks and safeguard the department's operations.

Dewpoint's Consultant Report

Scott Konopinski (2019) worked with the Public Service Department to document workflows within different divisions. He documented the processes and procedures within the department extensively. All of these files are stored in his staff folder, which is embedded within the "zFormerStaff" folder. We recommend referencing these documents as a pathway to begin succession planning and onboarding new staff members.

ADDITIONAL POINTERS

Access and Permissions

We noticed that not having permissions to edit or manipulate files causes duplication. We recommend finding a balance between open permissions and closed access. Having strictly enforced practices in place can ensure accountability and compliance.

CONCLUSION

Overall, the Public Service Department faces critical challenges with the imminent retirement of a high percentage of employees within the Engineering Division, which could lead to the loss of institutional knowledge without a proper retention information system. The department urgently needs a centralized project and workflow management system to standardize work processes, capture project engineer workflows, and manage tasks.

Our evaluation of the current filing system has uncovered issues with efficiency, which Public Service Department staff members can resolve by implementing a standardized naming convention, a classification system for folder directories, and a schedule for weeding and archiving inactive folders. By streamlining the filing process, the department can ensure the passing of techniques and work processes to successors and reduce the risk of workflow interruption caused by the current folder structure.

We would like to emphasize that our recommendations will have to be firstly standardized amongst the department and then issued and enforced by the Director of the Public Services Department.

REFERENCES

Beyer, H., & Holtzblatt, K. (1997). Contextual Design: Defining Customer-Centered Systems. Elsevier.

Konopinski, S. (2019). "Process Document S: Drive Guidelines." Dewpoint Consulting.

APPENDIX

A. Example weeding schedule

1	A EMPLOYEE NAME	B STATUS	MONTH				G DUE DATE	H STATUS KEY
			C WEEK 1	D WEEK 2	E WEEK 3	F WEEK 4		
3	Staff #1	completed	Annual Reports	Future Developments	Inter Government	Mayor Briefing Reports	03/31/2023	completed
4	Staff #2	not begun	Bridge	Drains	Railroads	SESC	03/31/2023	not begun
5	Staff #3	In progress	Sewer	Stat Tables	Flood Issues	Grants	03/31/2023	
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