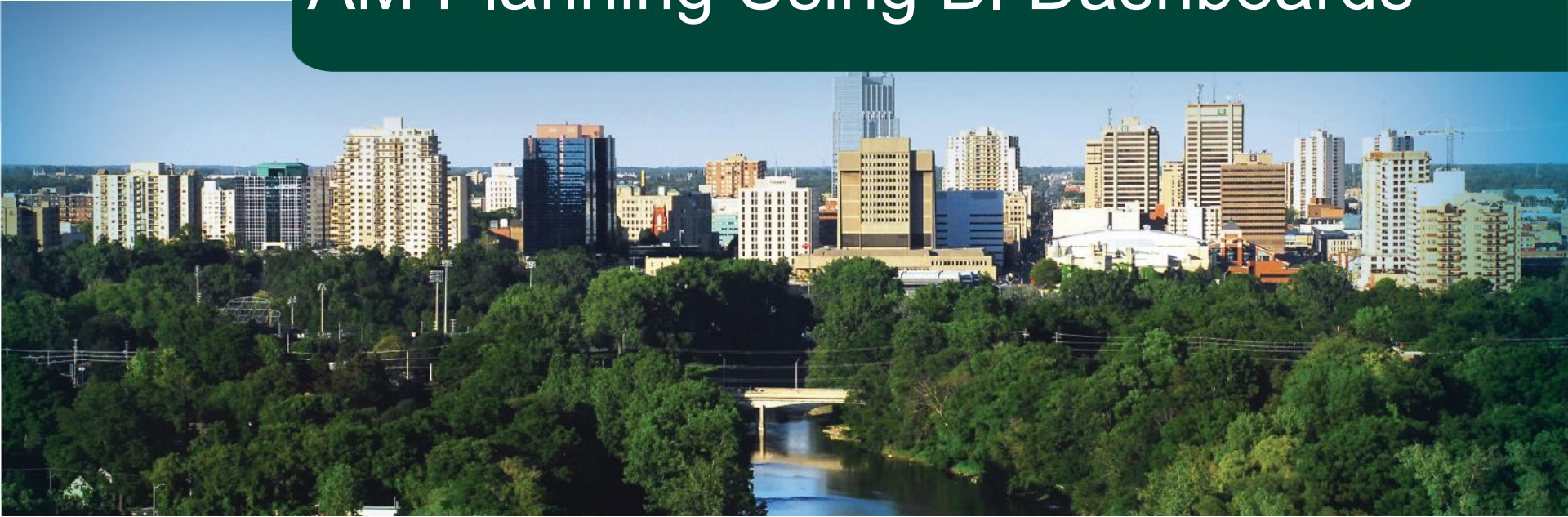




AM Planning Using BI Dashboards





AM Planning Using BI Dashboard

Kevin Nelson,

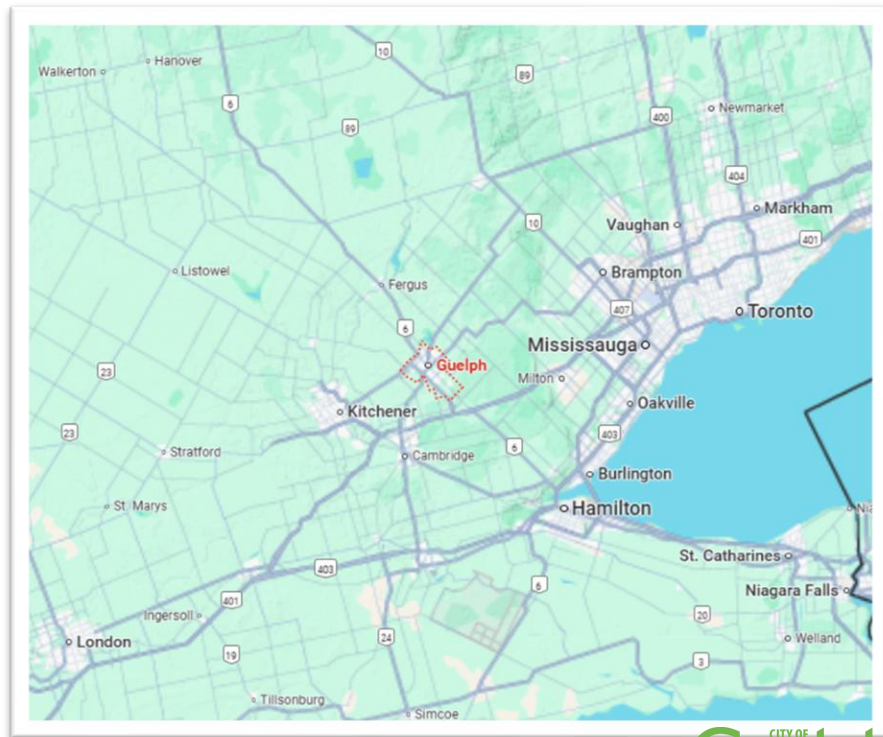
Corporate Asset Management Advisor at the City of Guelph

Djordje Dobric,

Asset and Maintenance Management Analyst at the City of Guelph

City of Guelph

- 150,000 people; forecast to grow to about ~200,000 by 2050
- 64,000 households today, growing to 85,000
- Single tier; 17 different municipal services
- \$7.2B in assets (2025)
- Core assets (roads, water, wastewater, stormwater) comprise about 80% of the asset base
- Corporate Asset Management (CAM) embedded with the Engineering & Transportation services department; oversees and helps coordinates AM across all other departments



AM Planning is a Journey

Pre 2016:

- Informal;
uncoordinated

2016 – 2017:

- AM team established,
- First AMP
- Simple analysis

2021:

- Core Assets AMP
- Levels of Service

2020:

- 2nd AMP; O.Reg 588/17
- Detailed data & analysis
- Complex reporting

2025:

- 10-year LOS
targets

2024:

- 3rd AMP
- Enhanced data
- Simplified reporting

Better Data = Better Decisions

2017: single Excel sheet, simple graphs and charts

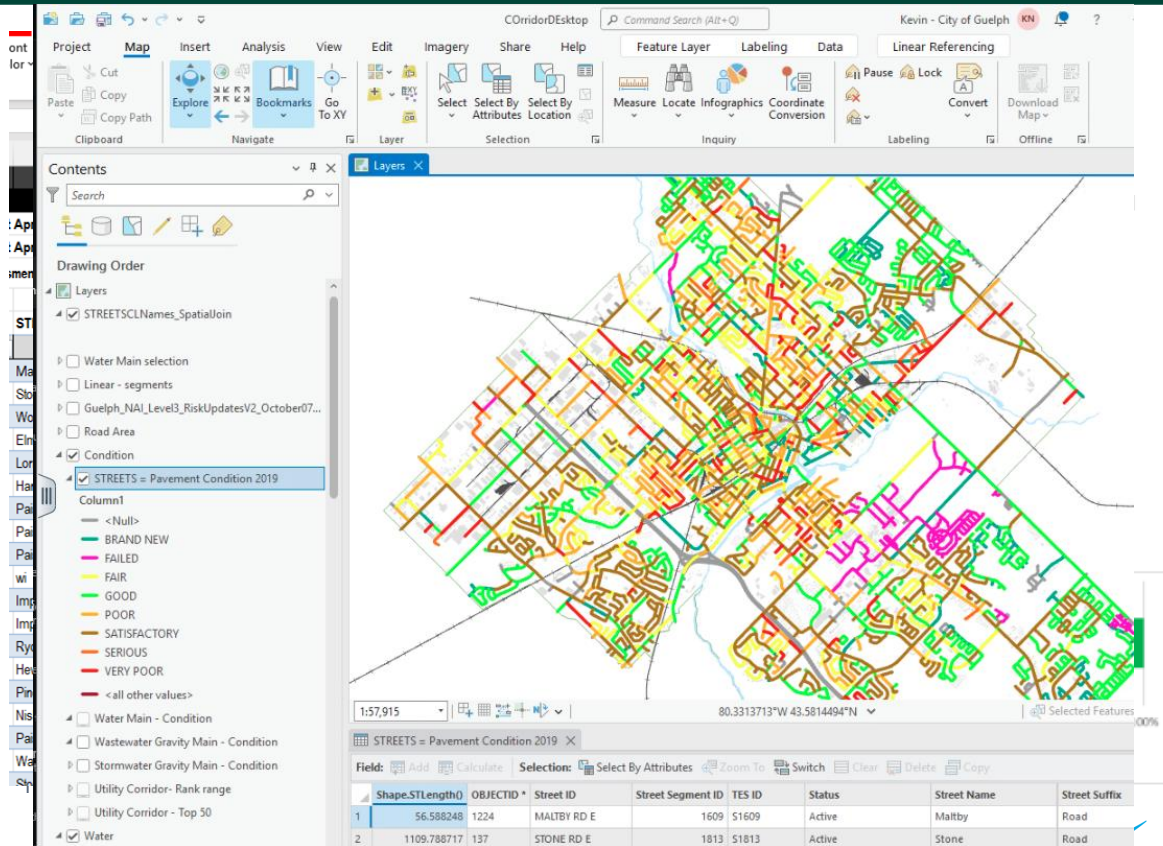
- Age based analysis

2020: 17 Excel files, more detailed analysis

- 3rd party condition info

2024: GIS now the primary inventory but Excel used for analysis and chart generation

- Advanced deterioration models and AI condition info



Presenting the Data

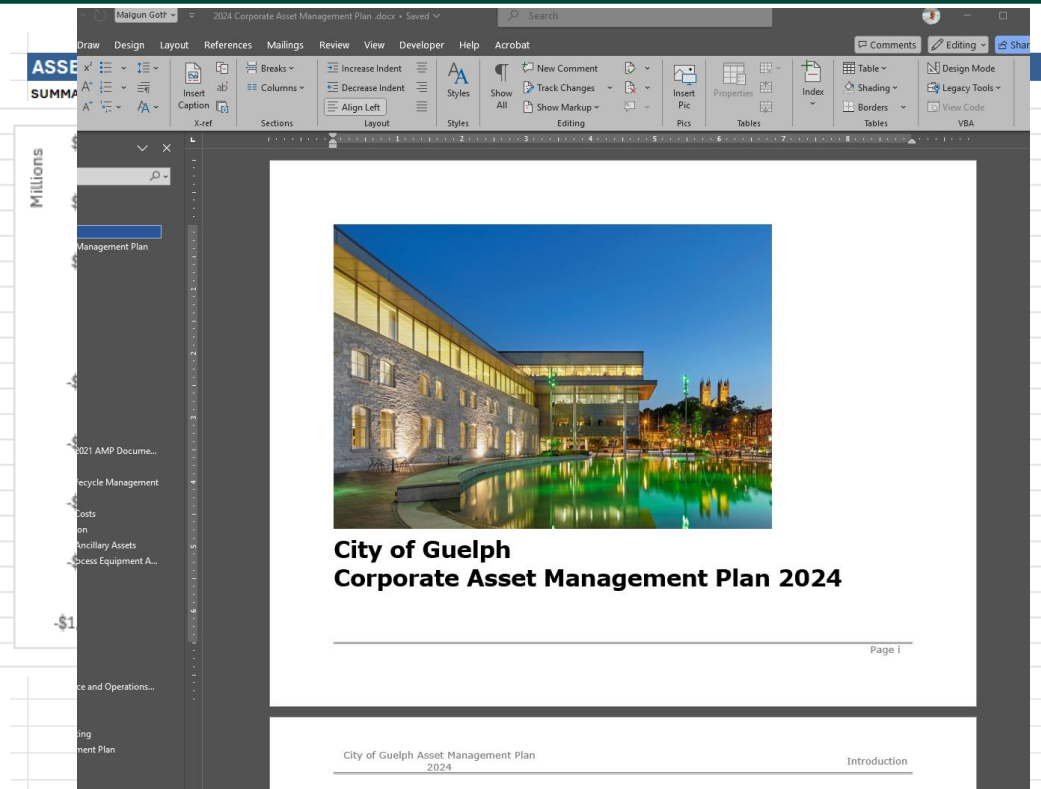
All that data from GIS and Excel has to be presented in a manner that is easy to understand

Goals:

- Lots of graphs and charts;
- Minimal but clear text

Challenges:

- Many iterations required
- Excel and Word not always friendly



Success, but room to improve

Data:

- Steady improvement; from a single Excel file with only basic details and age-based condition / needs analysis.
- Manually intensive work

To:

- Specific data and analysis files per each service; Inventory based on GIS data or 3rd party provided condition info; asset valuations based on actual costs; needs analysis done using Weibull deterioration modelling and prioritization modelling
- Still manually intensive

ALL DONE IN EXCEL!!



AMP Delivery

To date:

- “Traditional” publishing: prepare a document in Word, convert to PDF for sharing with internal City Staff & Council and public website

Pros:

- Proven method, easily understood

Cons:

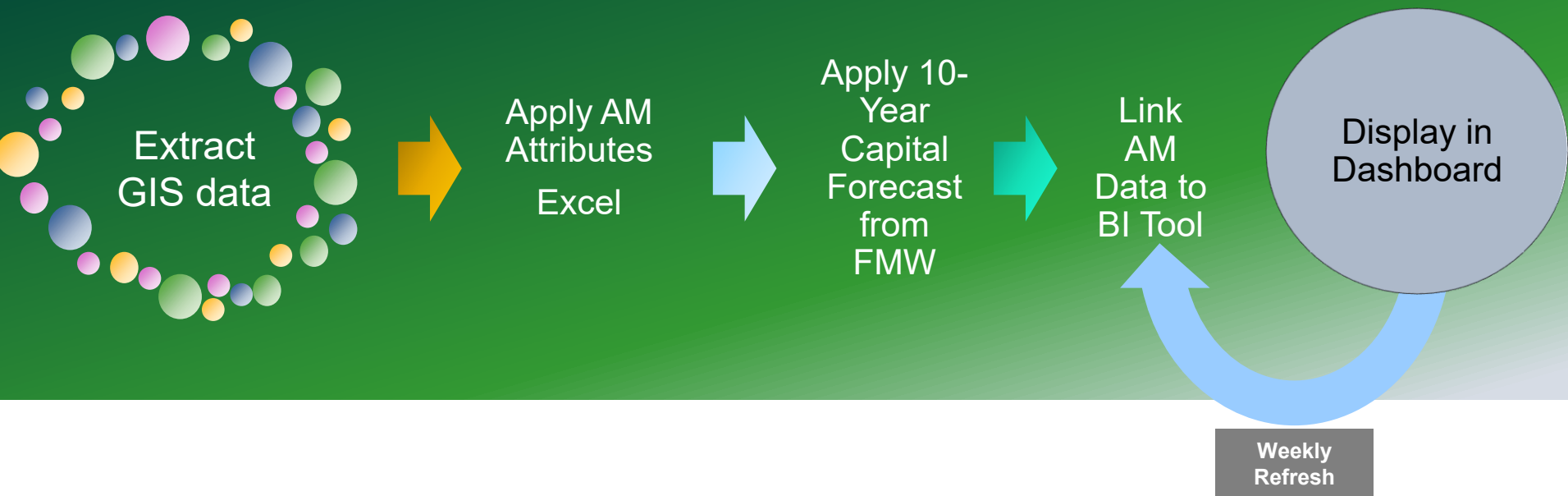
- Time consuming
- Static
- Who reads 350+ pages of AM stuff?

Enhancing AMP Delivery with BI

- Future:
- Replace the PDF document with a BI Dashboard (but all the analysis still in Excel)
- Pros:
- Live data with no delay in reporting: as the data worksheets change the BI display will change
- Easy to understand: graphics emphasis; minimal text
- Refined infographics proven by past experience
- Easy to filter to area of interest

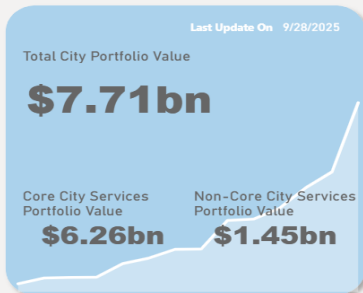
The intent is to use the BI dashboard to mostly replace the traditional AMP document for both City staff and on our public facing portals

BI Dashboard Workflow



Live Demonstration

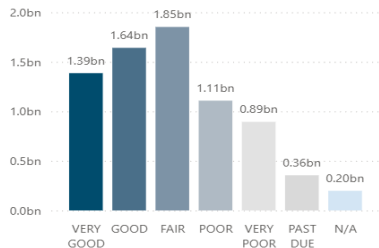
City of Guelph - Asset Management Dashboard



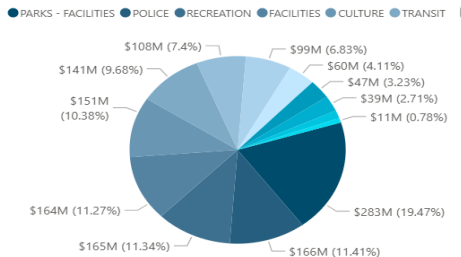
All City Services CRV by Condition

CATEGORY	Total Portfolio Value	VERY GOOD	GOOD	FAIR	POOR	VERY POOR	PAST DUE	N/A
TRANSPORTATION	\$2,137,975,538	\$540,285,020	\$578,595,736	\$407,205,153	\$382,405,013	\$149,192,466	\$81,729,859	\$11,435,274
WATER	\$1,658,687,280	\$395,329,174	\$195,395,344	\$500,810,114	\$191,546,825	\$275,510,456	\$76,051,958	\$12,016,060
STORMWATER	\$1,439,156,699	\$234,800,801	\$360,655,047	\$339,824,138	\$257,367,380	\$185,606,258	\$24,494,999	\$36,408,075
WASTEWATER	\$1,019,754,769	\$81,893,859	\$222,919,753	\$297,012,726	\$144,005,343	\$211,352,306	\$74,913,174	\$0
PARKS - FACILITIES	\$283,196,687	\$621,694	\$12,031,104	\$4,500,261	\$613,468	\$238,616		\$2,526,012
Total	\$7,709,969,068	\$1,386,349,278	\$1,641,957,591	\$1,852,819,840	\$1,108,546,084	\$894,257,029	\$355,079,454	\$198,116,470

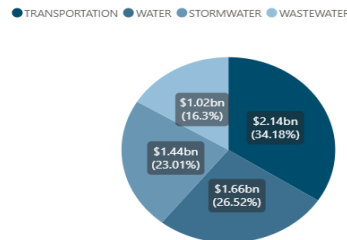
All City Services CRV by Condition



Non-Core City Services CRV



Core City Services CRV



<https://app.powerbi.com/view?r=eyJrIjoiaGRjM2I3MTItN2lyYS00OGNhLTg5ZTU0MjZlYTY0NGEwMmlzIiwidCI6ImY3MzEzMmNiLTk2OTQtNDc1Ni1iNzAxLTlyYWVjM2IzODhiNyJ9>

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Benefits to Internal Staff

Embedded Asset Management

Easier Communication on Asset Decision

Support Capital and Operating Planning

Strengthens Data Driven Decisions

Supports the EAM Program

Data Accessibility

A-HA!



Since 2016 it has been a challenge to improve the data being used in AM planning: staff didn't always see the connection between daily work and the data about assets that is needed

When they see the BI Dashboard a lot of service area staff now get it; the link between assets, actions and information is more clear

Their role as the owners of the data about the assets, is becoming clearer, improving the quality of the data, and the way it can be used.

Lessons Learned



Resource
Capacity



Defined
Program &
Vision



Change
Management
Principles
(ADKAR)



Data
Empowerment



Collaboration



Less is more



Future Vision and Final Thoughts

- Successful Internal roll-out
- Increased awareness among staff about the role of data in long term AM planning
- Future External site will simplify delivery of information to the public
- EAM tool should further simplify and streamline process; but using Excel will never stop

In the meantime

