



*cutting through complexity*

# TCA in Transportation

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## Introduction

- Assets classes
- Unique Challenges

## Experience at the City of Calgary

- What works well
- Improvement area's

## Integrated approach

- Information
- Process
- People

## Q&A

The background features a series of overlapping, semi-transparent geometric shapes in various shades of blue (light, medium, and dark) and white. These shapes are primarily parallelograms and trapezoids, creating a dynamic, layered effect. The word "Introduction" is centered in a white, bold, sans-serif font on a dark blue rectangular area.

# Introduction



# Major Assets within TCA - Transportation

## Road Network- Engineered Structures

- Arterial Collector, Residential, Local Lanes & alleys
- Signals, Streetlights, Signs, Guide Signs, Fences, Guardrails, Retaining Walls, Landscaping, Street Furniture, Pathways & Walkways
- Bridges, Culverts, Pedestrian Bridges, Timber Stairs
- Snow disposal sites
- Concrete Curb & Gutter, Mono Walk

## Machinery & Equipment

## Buildings

## Land

## Transit Network – Engineered Structures

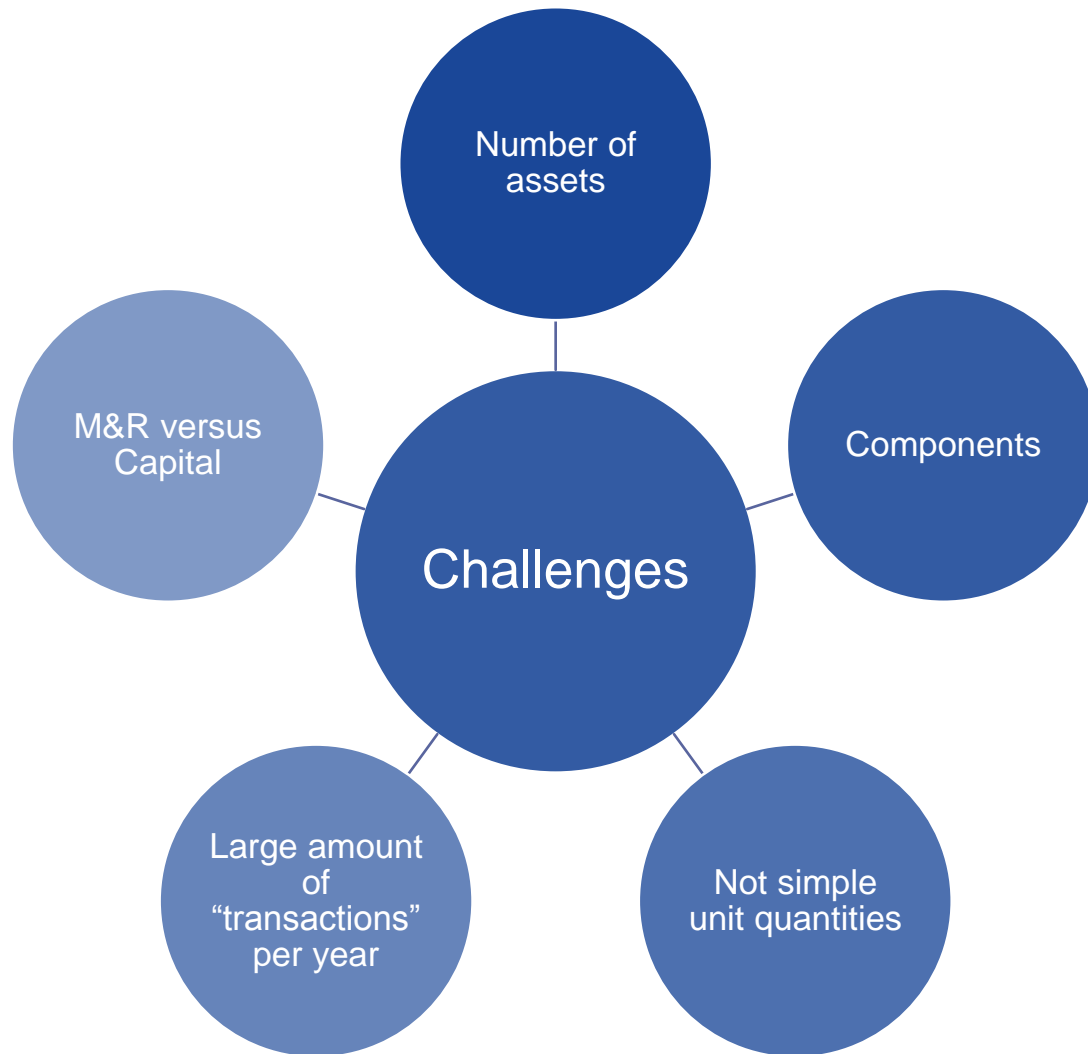
- Bridges, Fences, Traction Power System – Overhead Catenary & underground Catenary
- LRT Signals, LRT Signals – Crossing
- LRT Communications Tracking & Supervisory Control (TTSC)
- Communications (CCTV)
- Landscaping, Platform, Parking Lots, Access Roads, Stations
- Tunnels, Track Support Systems

## Machinery & Equipment

## Buildings

## Land

# Challenges

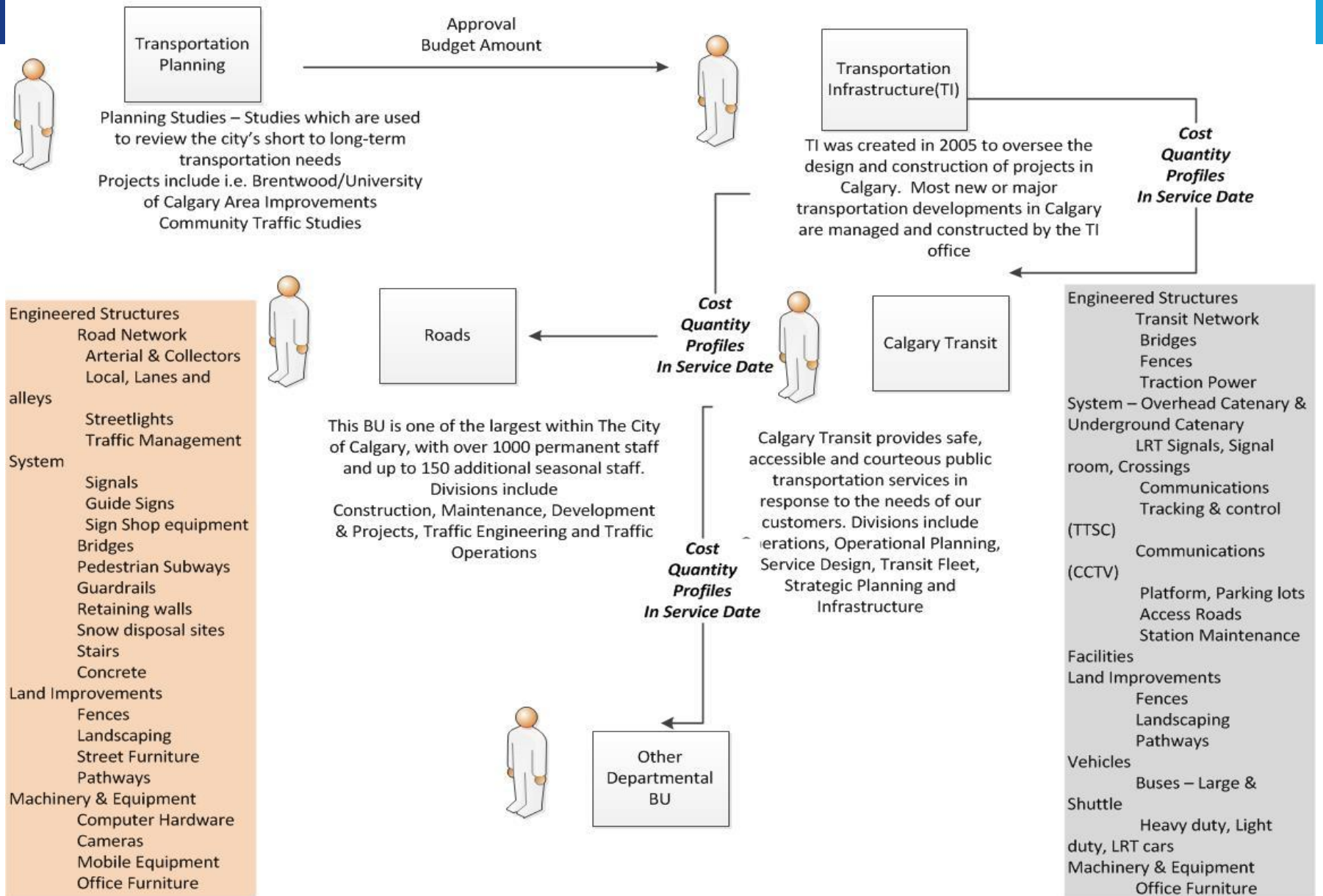




# Experience at the City of Calgary

2008 - June 2014

# Transportation Business Units



# What Went Well - COMMUNICATION - Information Sharing

- ❑ Created a TCA Transportation Collaboration share point site for Communications
  - ❑ Purpose – Share TCA project related information to “Receiving BU”
    - ❑ Version control methodology implemented
    - ❑ Timely access to information for Financial Reporting
- ❑ Donated – Assets being turned over to Transportation by Urban development
  - ❑ Agreed upon evaluation method – Master Development Agreement rates for Assets
  - ❑ Easily validated with external Auditors
- ❑ Constructed – Assets constructed inside the BU within Transportation
  - ❑ Aligned to Vendor invoices – easily reconciled



## What Went Well - “THINK TCA”

- TCA requirements established early on in the Construction Season – TI to Receiving BU
  - Engage “Subject Matter Experts” from receiving BU with respect to the following:
    - Ownership Identification
    - TCA profiles used
    - Unit of Measure issues
    - In service dates
- Engage in dispute resolution (if required)
- Timely “Work in Progress” reconciliation - TCA or Non TCA analysis

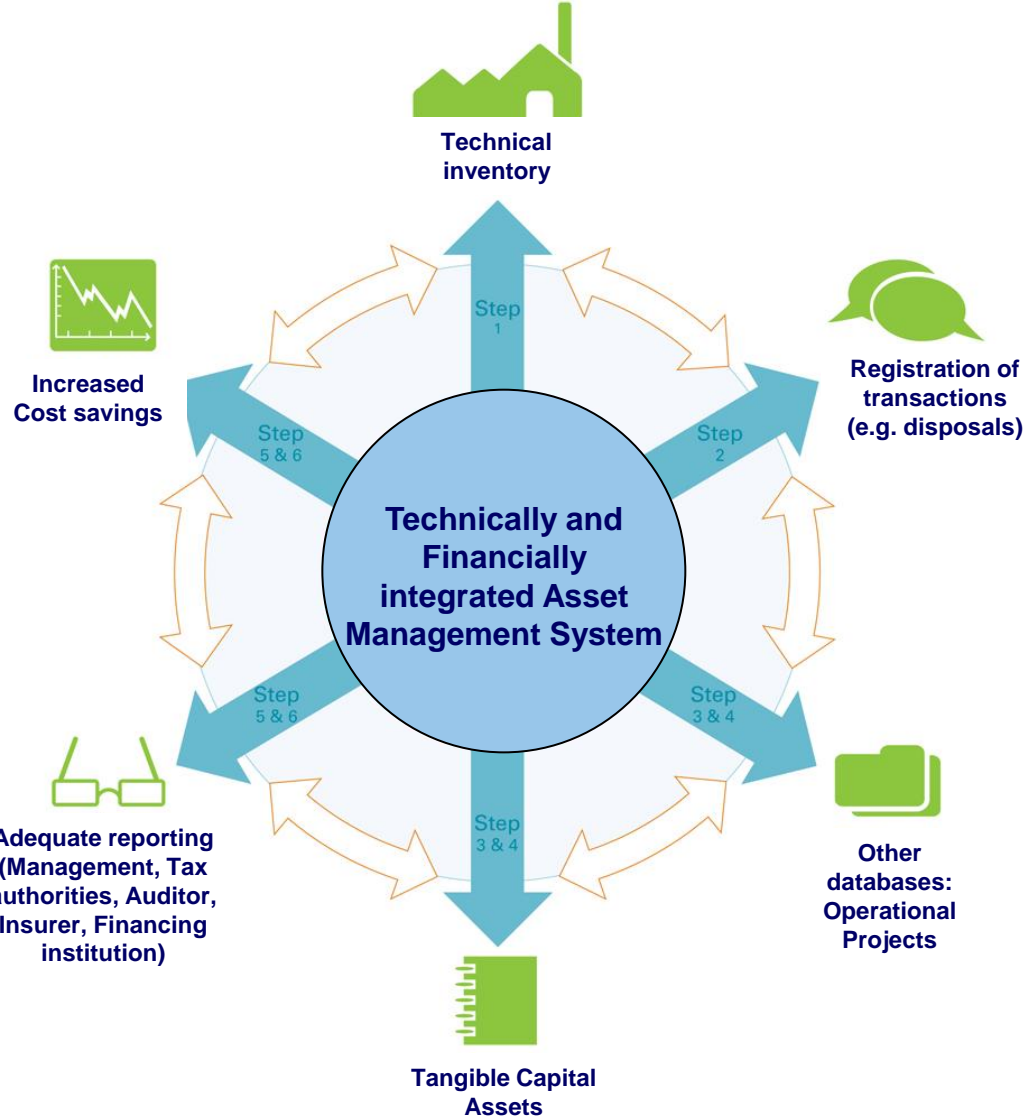
## External Auditor's Recommendations

- Recommendation that a thorough review of the processes and controls in place relating to TCA accounting and reporting be undertaken in finality
  - Improved process to account for project costs, accruals and “work in progress” in a timely manner
  - Formalize and schedule ongoing Training
  - Improve supporting documentation as a priority
    - Document decisions made “today” that affect “future” actions.
  - Define “mid level integration” of Asset Management and TCA reporting. What does this mean?

The background consists of several overlapping, semi-transparent geometric shapes in various shades of blue (light, medium, and dark) and white. The shapes are primarily parallelograms and trapezoids, creating a dynamic, layered effect. The text is centered on a dark blue parallelogram shape.

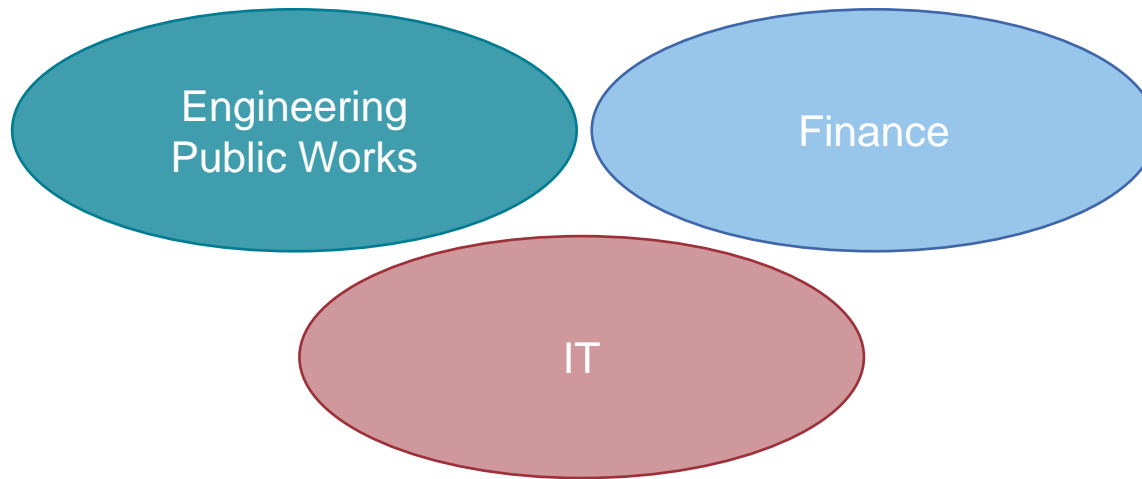
**An integrated  
approach**

# Integrated Asset Management System



# Structuring the organization

## Where is Asset Management?

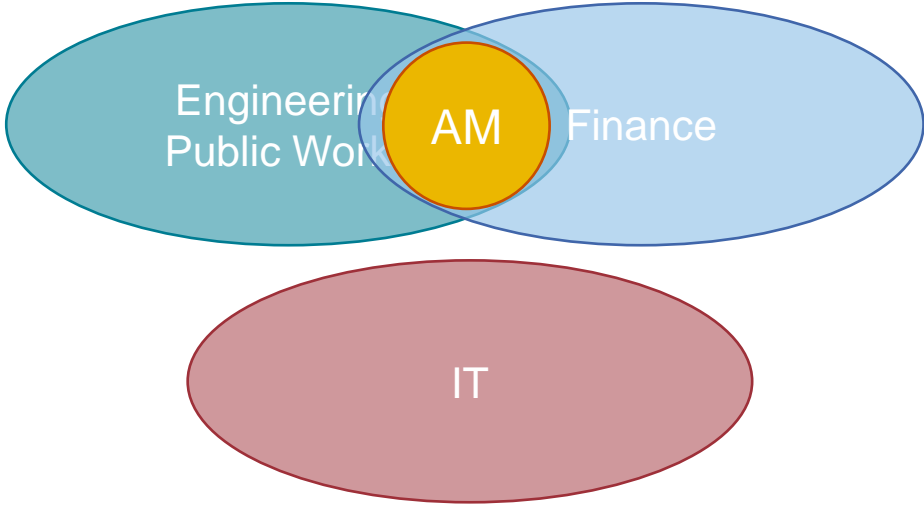


**... Who is responsible for TCA?**



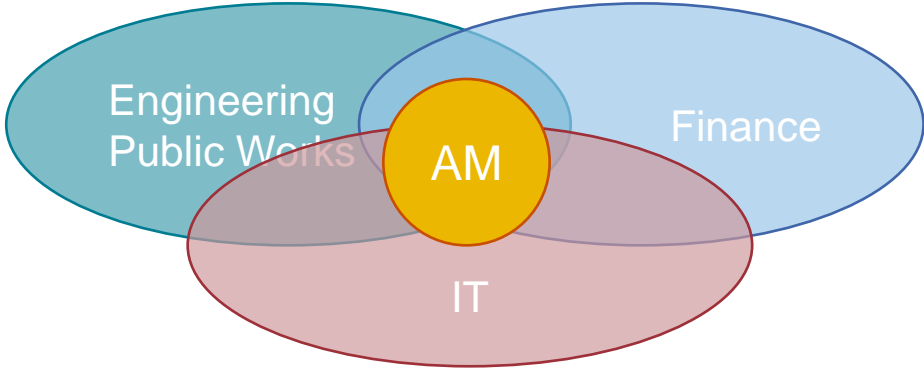
# Structuring the organization

## Where sits Asset Management?



# Structuring the organization

## Where sits Asset Management?



# Dealing with people – use their strengths

## Engineering Public Works

- Care about having the infrastructure in place
- Need to know where to find it, what it is, how old & what history it has
- Need estimates & unit costs

## Finance

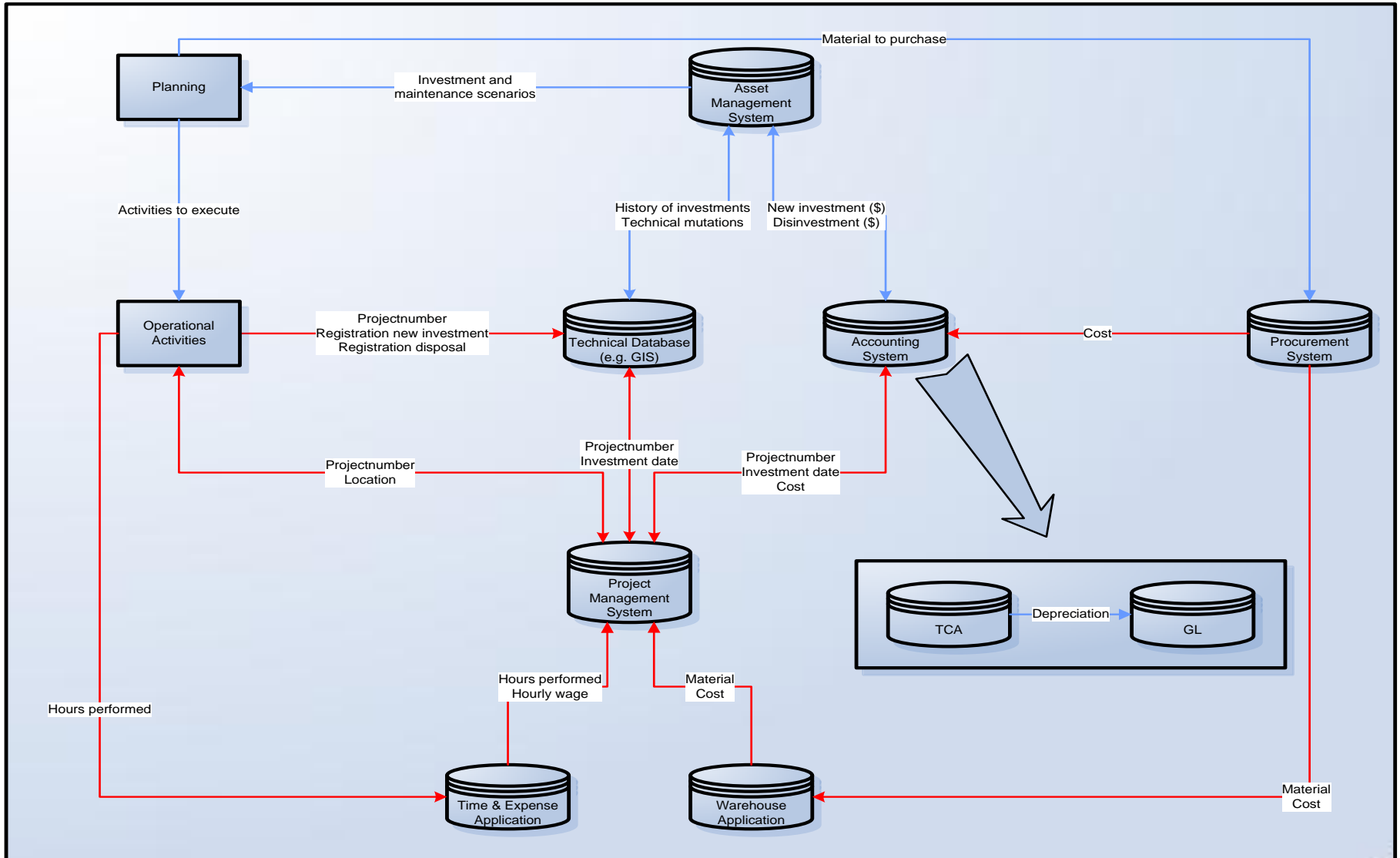
- Care about numbers & allocations
- Need to know actual values

## IT

- Support through standardized reports
- Automated import / export functionality
- Data validation rules

**Tap into existing processes & information**  
**Clearly define roles & responsibilities**  
**Ensure accountability**

# Information flow



# Information Flow - New investments (1)

Asset Inventory Database								
ID	Project number	Length/ Amount	Invest. date	Unit Cost	Asset type	Historical unit acquisition cost	Status	Disposal date
ID 1		2	5/1/1980	\$ 105.21	Type 1	\$ 50.00	In Service	
ID 2		1	13/1/1980	\$ 50.43	Type 2	\$ 25.00	In Service	
ID 3		1	25/1/1991	\$ 50.43	Type 2	\$ 33.89	In Service	
ID 4	Pxxxx001	1	7/7/2006	\$ 20.00	Type 3	\$ 15.00	In Service	
ID 5	Pxxxx002	1	12/7/2006	\$ 20.00	Type 3	\$ 15.00	In Service	
ID 6	Pxxxx003	1	23/7/2006	\$ 20.00	Type 3	\$ 15.00	Sold	20/9/2011
ID 7	Pxxxx004	1	30/7/2006	\$ 20.00	Type 3	\$ 15.00	Removed	18/08/2011
ID 8	Pxxxx005	1	10/2/2011	\$ 20.00	Type 3		In Service	
ID 9	Pxxxx006	1	15/2/2011	\$ 20.00	Type 3		In Service	
ID 10	Pxxxx006	2	15/2/2011	\$ 105.21	Type 1		In Service	

Project Management System												
Project number	Activity	Project closing date	Material cost	Wages	Bills	Third party financing	Total Cost	Length/ Amount	Item-number	Billing-number	Personnel ID-number	Client ID-number
Pxxxx005	Act. A	10/2/2011	\$ 5.00	\$ 10.00	\$ 5.00	\$ -2.00	\$ 18.00	1	xxxx-129	xxx-194	xx-768-x	xx-0145
Pxxxx006	Act. A	15/2/2011	\$ 5.00	\$ 15.00	\$ 6.00	\$ -2.00	\$ 24.00	1	xxxx-347	xxx-975	xx-768-x	xx-5679
Pxxxx006	Act. C	15/2/2011	\$ 40.00	\$ 90.00	\$ 100.00	\$ -40.00	\$ 190.00	2	xxxx-674	xxx-975	xx-768-x	xx-5679



# Information Flow - New investments (2)

Project Management System												
Project number	Activity	Project closing date	Material cost	Wages	Bills	Third party financing	Total Cost	Length/ Amount	Item-number	Billing-number	Personnel ID-number	Client ID-number
Pxxxx005	Act. A	10/2/2011	\$ 5.00	\$ 10.00	\$ 5.00	\$ -2.00	\$ 18.00	1	xxxx-129	xxx-194	xx-768-x	xx-0145
Pxxxx006	Act. A	15/2/2011	\$ 5.00	\$ 15.00	\$ 6.00	\$ -2.00	\$ 24.00	1	xxxx-347	xxx-975	xx-768-x	xx-5679
Pxxxx006	Act. C	15/2/2011	\$ 40.00	\$ 90.00	\$ 100.00	\$ -40.00	\$ 190.00	2	xxxx-674	xxx-975	xx-768-x	xx-5679

Accounting System						
Accounting ID	Invest. date	asset class	field y	Historical acquisition value	field z	field q
1	1980	GL acc. 1	xxxxx	\$ 125.00	xxxxx	xxxxx
2	1991	GL acc. 1	xxxxx	\$ 33.89	xxxxx	xxxxx
3	7/2006	GL acc. 2	xxxxx	\$ 30.00	xxxxx	xxxxx
4	2/2011	GL acc. 2	xxxxx	\$ 42.00	xxxxx	xxxxx
5	2/2011	GL acc. 1	Xxxxx	\$ 190.00	xxxxx	xxxxx

# Information Flow - New investments (3)

Technical Database								
ID	Project number	Length/ Amount	Invest. date	Unit Cost	Asset type	Historical acquisition cost	Status	Disposal date
ID 1		2	5/1/1980	\$ 105.21	Type 1	\$ 50.00	In Service	
ID 2		1	13/1/1980	\$ 50.43	Type 2	\$ 25.00	In Service	
ID 3		1	25/1/1991	\$ 50.43	Type 2	\$ 33.89	In Service	
ID 4	Pxxxx001	1	7/7/2006	\$ 20.00	Type 3	\$ 15.00	In Service	
ID 5	Pxxxx002	1	12/7/2006	\$ 20.00	Type 3	\$ 15.00	In Service	
ID 6	Pxxxx003	1	23/7/2006	\$ 20.00	Type 3	\$ 15.00	Sold	20/9/2011
ID 7	Pxxxx004	1	30/7/2006	\$ 20.00	Type 3	\$ 15.00	Removed	18/08/2011
ID 8	Pxxxx005	1	10/2/2011	\$ 20.00	Type 3		In Service	
ID 9	Pxxxx006	1	15/2/2011	\$ 20.00	Type 3		In Service	
ID 10	Pxxxx006	2	15/2/2011	\$ 105.21	Type 1		In Service	

} \$ 40

Accounting System						
Accounting ID	Invest. date	asset class	field y	Historical acquisition value	field z	field q
1	1980	GL acc. 1	xxxxx	\$ 125.00	xxxxx	xxxxx
2	1991	GL acc. 1	xxxxx	\$ 33.89	xxxxx	xxxxx
3	7/2006	GL acc. 2	xxxxx	\$ 30.00	xxxxx	xxxxx
4	2/2011	GL acc. 2	xxxxx	\$ 42.00	xxxxx	xxxxx
5	2/2011	GL acc. 1	xxxxx	\$ 190.00	xxxxx	xxxxx

} \$ 42

# Information Flow - New investments (4)

Technical Database								
ID	Project number	Length/ Amount	Invest. date	Unit Cost	Asset type	Historical unit acquisition cost	Status	Disposal date
ID 1		2	5/1/1980	\$ 105.21	Type 1	\$ 50.00	In Service	
ID 2		1	13/1/1980	\$ 50.43	Type 2	\$ 25.00	In Service	
ID 3		1	25/1/1991	\$ 50.43	Type 2	\$ 33.89	In Service	
ID 4	Pxxxx001	1	7/7/2006	\$ 20.00	Type 3	\$ 15.00	In Service	
ID 5	Pxxxx002	1	12/7/2006	\$ 20.00	Type 3	\$ 15.00	In Service	
ID 6	Pxxxx003	1	23/7/2006	\$ 20.00	Type 3	\$ 15.00	Sold	20/9/2011
ID 7	Pxxxx004	1	30/7/2006	\$ 20.00	Type 3	\$ 15.00	Removed	18/08/2011
ID 8	Pxxxx005	1	10/2/2011	\$ 20.00	Type 3	\$ 21.00	In Service	
ID 9	Pxxxx006	1	15/2/2011	\$ 20.00	Type 3	\$ 21.00	In Service	
ID 10	Pxxxx006	2	15/2/2011	\$ 105.21	Type 1	\$ 95.00	In Service	

Accounting System						
Accounting ID	Invest. date	asset class	field y	Historical acquisition value	field z	field q
1	1980	GL acc. 1	xxxxx	\$ 125.00	xxxxx	xxxxx
2	1991	GL acc. 1	xxxxx	\$ 33.89	xxxxx	xxxxx
3	7/2006	GL acc. 2	xxxxx	\$ 30.00	xxxxx	xxxxx
4	2/2011	GL acc. 2	xxxxx	\$ 42.00	xxxxx	xxxxx
5	2/2011	GL acc. 1	xxxxx	\$ 190.00	xxxxx	xxxxx

$$Multiplier = \frac{C_i}{(A_1 \times B_1) + (A_2 \times B_2) + \dots + (A_n \times B_n)}$$

# Information flow - Disposal

Technical Database								
ID	Project number	Length/ Amount	Invest. date	Unit Cost	Asset type	Historical acquisition cost	Status	Disposal date
ID 1		2	5/1/1980	\$ 105.21	Type 1	\$ 50.00	In Service	
ID 2		1	13/1/1980	\$ 50.43	Type 2	\$ 25.00	In Service	
ID 3		1	25/1/1991	\$ 50.43	Type 2	\$ 33.89	In Service	
ID 4	Pxxxx001	1	7/7/2006	\$ 20.00	Type 3	\$ 15.00	In Service	
ID 5	Pxxxx002	1	12/7/2006	\$ 20.00	Type 3	\$ 15.00	In Service	
ID 6	Pxxxx003	1	23/7/2006	\$ 20.00	Type 3	\$ 15.00	In Service	
ID 7	Pxxxx004	1	30/7/2006	\$ 20.00	Type 3	\$ 15.00	Removed	18/08/2011



Accounting System						
Accounting ID	Invest. date	asset class	field y	Historical acquisition value	field z	field q
1	1980	GL acc. 1	xxxxx	125,00\$	xxxxx	xxxxx
2	1991	GL acc. 1	xxxxx	33,89\$	xxxxx	xxxxx
3	7/2006	GL acc. 2	xxxxx	45,00\$	xxxxx	xxxxx

# Information flow – Other Transactions

## Physical

- Acquisition
- Lease
- Donation
- “Ready”
- In/Out of service
- Disposal
- Abandoned
- Sale

## Financial

- Accounting adjustment
- Late invoice
- Internal transfer

## Data

- Data correction
- GIS update



# Information flow – Important aspects

## Information adequate for purpose

- Each department has their own information needs
- Keep it simple – Don't track more than required

## All departments speak a different language

- Accept it, don't fight it
- Define translation tables & hierarchies

## Know your information

- Identify the master source for each piece. Avoid duplication.
- Incorporate the option to correct and modify data. Mistakes will happen.

## Information has a time component

- Not all information as quickly as wanted.
- Process needs to be robust to deal with information gaps

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**Q&A**

# Thank you

Presentation by  
Judy Elias – City of Calgary  
Sebastiaan Lampo - KPMG





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