

City of Edmonton
Fleet and Facility Services

Edmonton

Zero Emission Fleet Project
Infrastructure Asset Management Alberta (IAMA)

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Agenda



Welcome and Introduction



City of Edmonton Zero Emission Vehicle Strategy



Fleet Governance and Strategy Project



Where We are Heading



Questions



1200+ EMPLOYEES

14 different trades across the sections



Completes mechanical and body midlife refurbishment of over **80 buses per year**



Performs over **1,200 road tests and provides support and training**

MAINTAINS **900+** CITY-OWNED BUILDINGS

Recreation Centres, City Hall, LRT Facilities, Libraries, Office Towers, Waste Management Facilities, Fire Halls, EPS Facilities, Spray Decks & Splash Pads



100,000
fleet work orders



35 million
LITRES OF FUEL DISPENSED

185 BUILDINGS HAVE DIGITAL BUILDING AUTOMATION

>5000

59,000 FACILITY WORK ORDERS

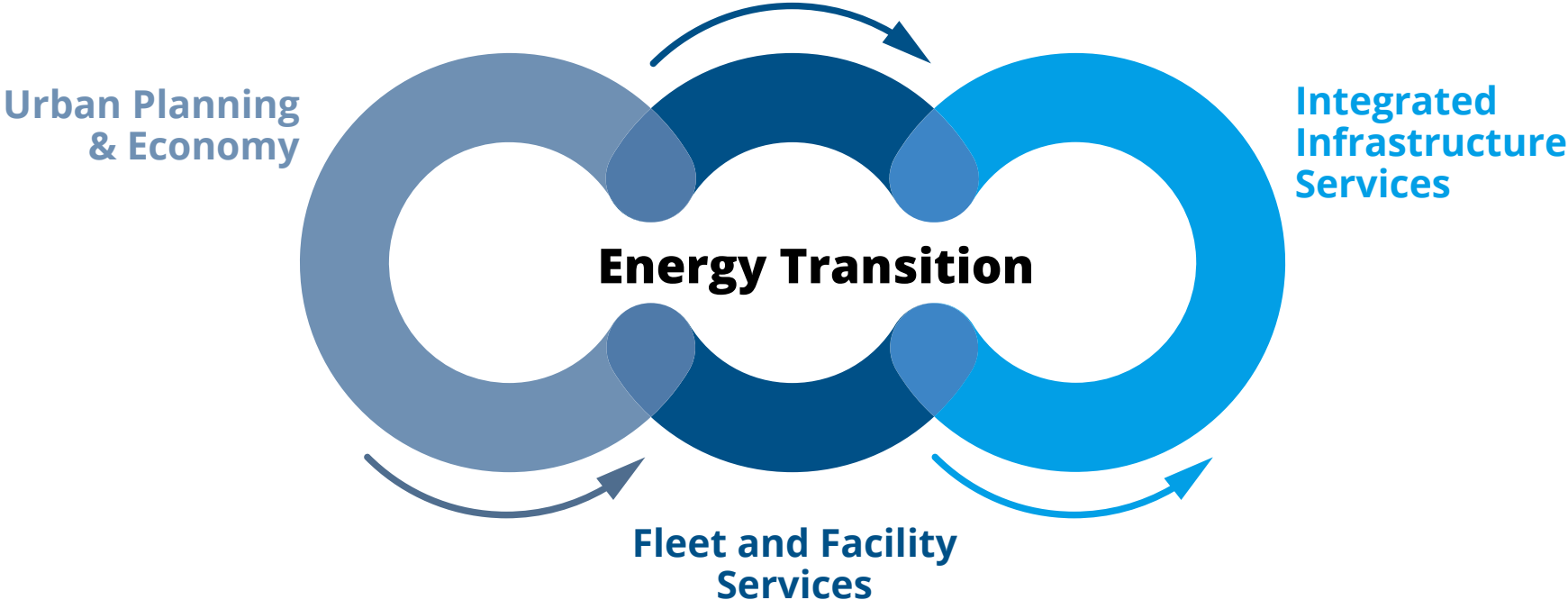
VEHICLES & PIECES OF EQUIPMENT



22 municipal, transit and facility maintenance facilities

4,600+ municipal vehicles
1,047 buses & DATS vehicles

Interdepartmental Collaboration





TRANSITIONING OUR FLEET TO GREENER TECHNOLOGIES

ICE (Internal Combustion Engine)

- Energy efficiency
- Size reduction



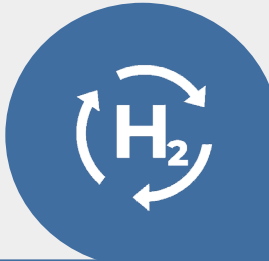
ELECTRIC

- Plug-in hybrid
- Hybrid
- Battery electric



HYDROGEN

- Hydrogen combustion
- Hydrogen fuel cell
- Dual fuel



EMERGING TECHNOLOGIES

- Alternative fuels
- Other emerging technologies

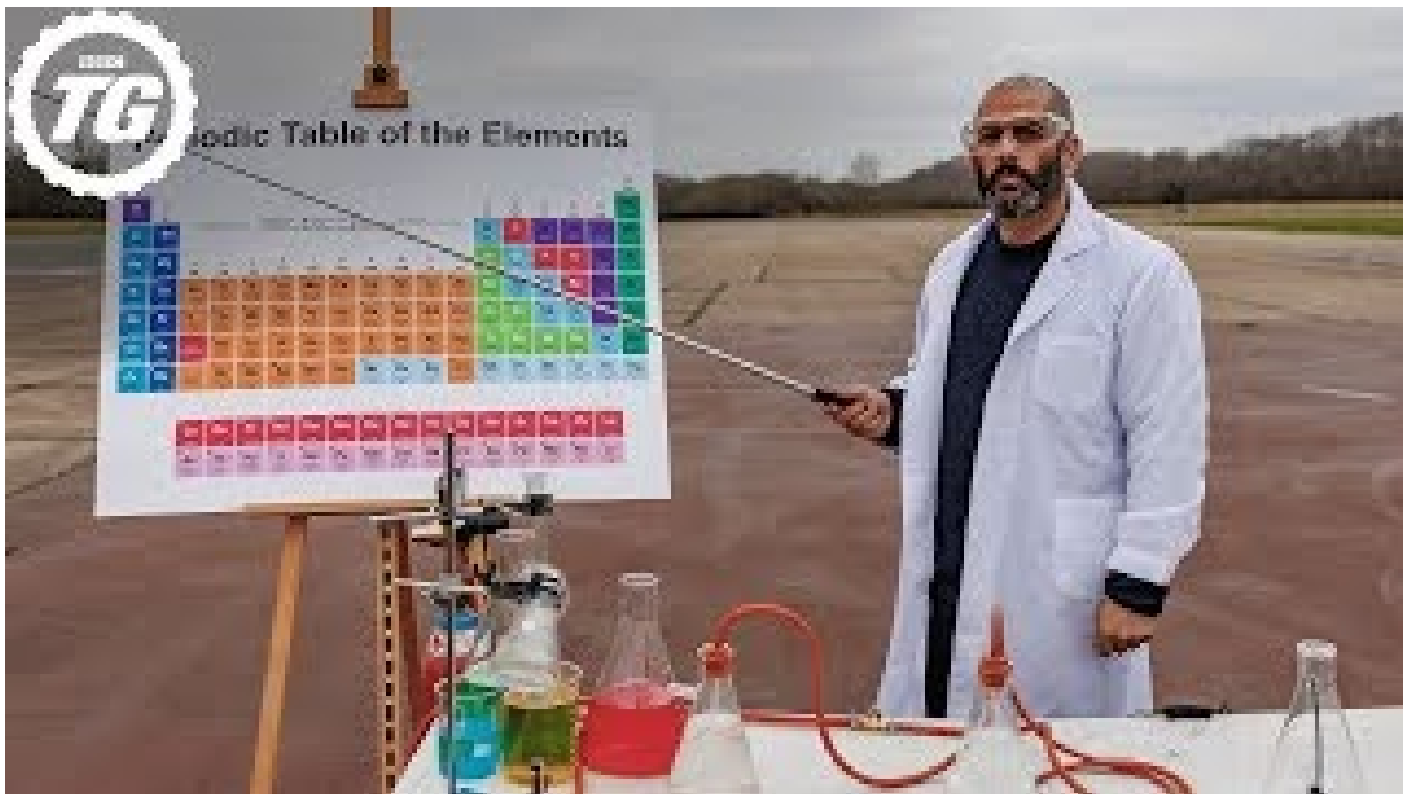




Periodic Table of the Elements

A colorful periodic table of elements is displayed on an easel. The table is organized into groups and periods, with elements color-coded by groups. A black pointer is pointing to the element in the 4th row, 10th column (Nickel, Ni).

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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POWERED BY

HYDROGEN

ZERO Emission Vehicle

- YEG
- HITACHI CO.
- TOYOTA
- Ontario
- Hydrogen H2R

ZEV STRATEGY ROADMAP

Project Team Establishment

Q2 2023

- Hiring 2*48 month project term resources
- 1 secondment from UPE
- FFS Business Integration Resources
- UPE Support and Alignment



Project Structure & Plan

Q2 2023



Alignment with UPE (ZEV Consultant Recommendations)

Q4 2023

- Light Duty Fleet ZEV Transition recommendations



Update Sustainable Fleet Management Plan

Q4 2023



Installation of ZEV Infrastructure

- A. Planning and design - Q4 2023
- B. Installation starts - Q2 2024
- C. Installations complete - Q2 2024 coordinated with ZEV vehicle procurement (prior to IIS)



Ongoing

- Purchase of ZEV Vehicles (Ongoing as per Replacement Plan)
- Pilot and Proof of Concept Findings



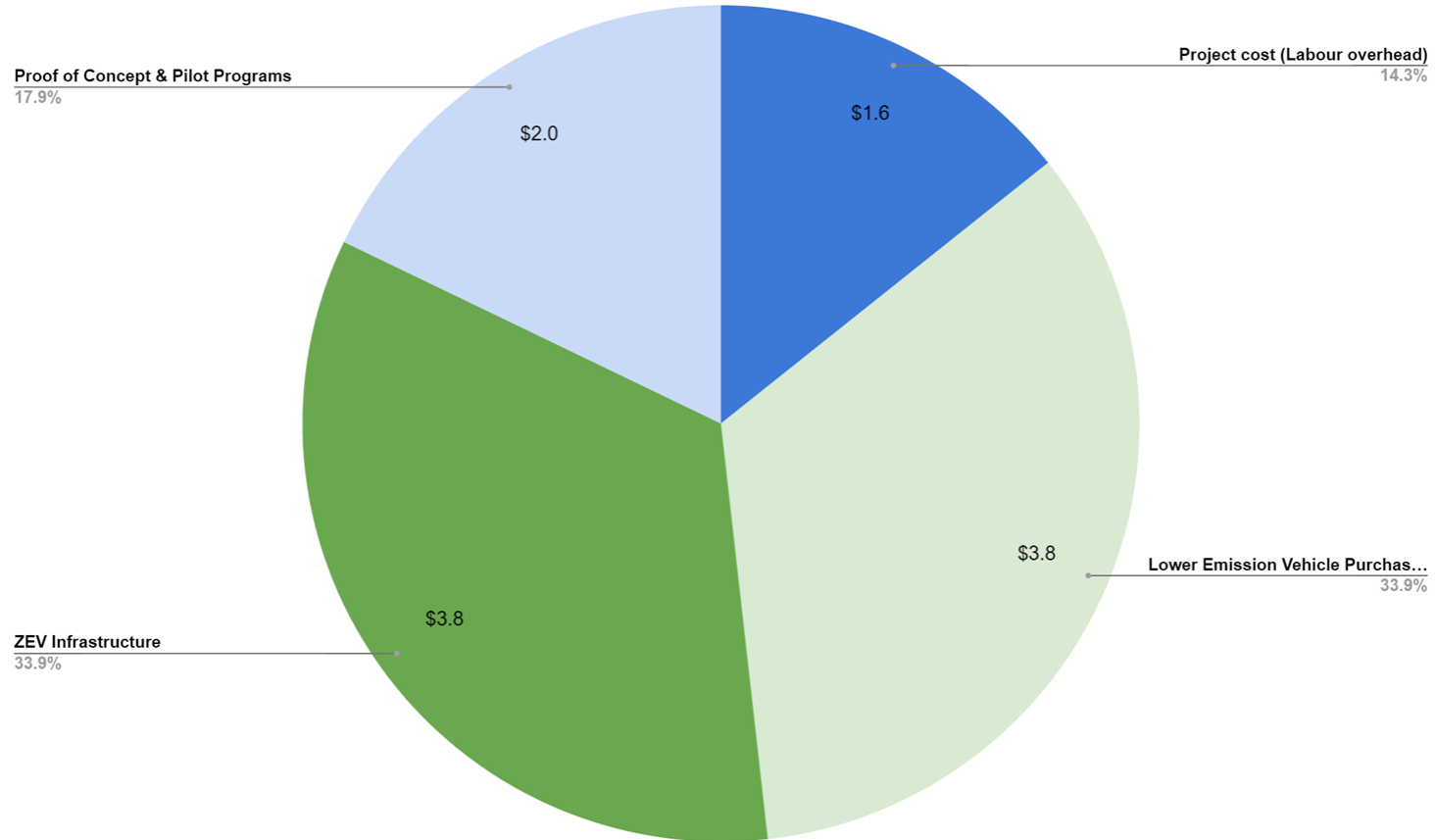
COE Zero Emissions Vehicle Transition Projects

Project	Description	Funding Source	Lead
Fleet ZEV Transition	That new capital profile for planning, design and delivery of Emissions Neutral City Fleet and Equipment with funding from Fleet Replacement Reserve.	CoE CM-17-2000	FFS
Light Duty Fleet ZEV Transition Strategy Development	Light Duty Fleet Transition Strategy Development	50k ERA Grant and UPE Projects & Initiatives Operating budget	UPE/FFS
EVenture Project	EV Charger infrastructure between Grande Prairie and Edmonton (by ATCO, location from CoE)	ATCO funded	UPE
EV Charger Procurement	EPCOR led specification development and Level 3 Charger procurement	CoE - UPE Projects & Initiatives Operating Budget	UPE
Facility EV Charger Evaluation and Installation	Evaluation of select facilities and installation of Level 2 Chargers	\$600k CoE Remaining TBD (application in progress)	UPE
ATCO/EPCOR EV Charger Installation Agreements	Ends 2023	ATCO funded	UPE
Zoning Bylaw to enable EV installations	Focus on MURB installations		

ZEV Fleet Transition Project

Description	That new capital profile CM-17-2000 - Emissions Neutral City Fleet and Equipment be approved for \$11,200,000 (\$1,200,000 in 2023, \$2,000,000 in 2024, \$3,000,000 in 2025, and \$5,000,000 in 2026) for planning, design and delivery of Emissions Neutral City Fleet and Equipment with funding from Fleet Replacement Reserve. This profile supports climate action related to transitioning City of Edmonton fleet and equipment to zero emissions technology.				
Summary:	Fund: Increase Capital Requirement				
Capital Profile	New Profile: (CM-17-2000 - Emissions Neutral City Fleet and Equipment)				
Funding Source	2023	2024	2025	2026	Total
CM-17-2000	\$1,200	\$2,000	\$3,000	\$5,000	\$11,200
Scope	Plan for changes to policy, procedure, procurement and organization required to successfully transition the City of Edmonton Fleet vehicles as well as the operations, maintenance and fueling infrastructure from current to Zero Emissions				
Notes	This profile does not include transitioning the transit fleet to zero emissions.				

ZEV Transition Project Funding Allocation



ZEV Fleet Transition Project

Goals and Objectives	Goal 1 ZEV implementation strategy and planning	Objective 1.1 Actualize a strategy for ZEV implementation, based on operational requirements and physical limitations. Determine a specific plan to guide the work of Goals 2 and 3. Objective 1.2 Proof of concept	Responsibility: FFS & UPE
	Goal 2 Increasing the number of ZEVs and low emission vehicles in the City of Edmonton's Fleet	Objective 2.1 Execute a plan for phased replacement of the current COE fleet with ZEV's and low emission vehicles, to comply with City Plan emissions targets.	Responsibility: FFS
	Goal 3 Expansion of ZEV-supporting infrastructure	Objective 3.1 Implement projects for plug-in electric vehicle charging, fuel cell electric vehicles and hydrogen fueling infrastructure. Determination of appropriate Policy to facility ZEV infrastructure on future projects	Responsibility: IIS
Project Budget	\$11.2 M		
Sponsor	Eddie Robar, Branch Manager, Fleet and Facility Services		
Project Lead	Arjan Sharma, Director, Business Integration		
Project Manager	Garth Odsen, General Supervisor, Fleet Engineering		

Deliverables and Timelines

Deliverable	Responsibility	Target Date
Establishment of Project Team - Hiring Process	FFS & UPE	Q2 2023
Establishing Project Structure and Plan	FFS & UPE	Q2 2023
Alignment with UPE re: ZEV Consultant Recommendations	FFS & UPE	Q4 2023 (following delivery of Recommendations)
Update Sustainable Fleet Management Plan	FFS	Q4 2023
Pilot and proof of concept programs	FFS	Ongoing, as available
Purchase of ZEV vehicles	FFS	Ongoing and continuous, per Replacement Plan
Installation of ZEV Infrastructure A. Planning and design B. Installation starts C. Installations complete	IIS	A. Planning and design - Q4 2023 B. Installation starts - Q2 2024 C. Installations complete - coordinated with ZEV vehicle procurement (prior to IS)

**Fleet and Facility
Services**

**Integrated Infrastructure
Services**

**Urban Planning
and Economy**

City of Edmonton
Fleet and Facility Services

Edmonton

Fleet Strategy and Governance

Infrastructure Asset Management Alberta (IAMA)

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FLEET GOVERNANCE AND STRATEGY PROJECT

Goals and Objectives

Optimize the Fleet Size
and Composition

Optimize the Fleet Lifecycle

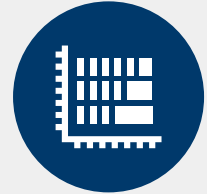
Fleet Governance Strategy

Driving Principles

Data Driven



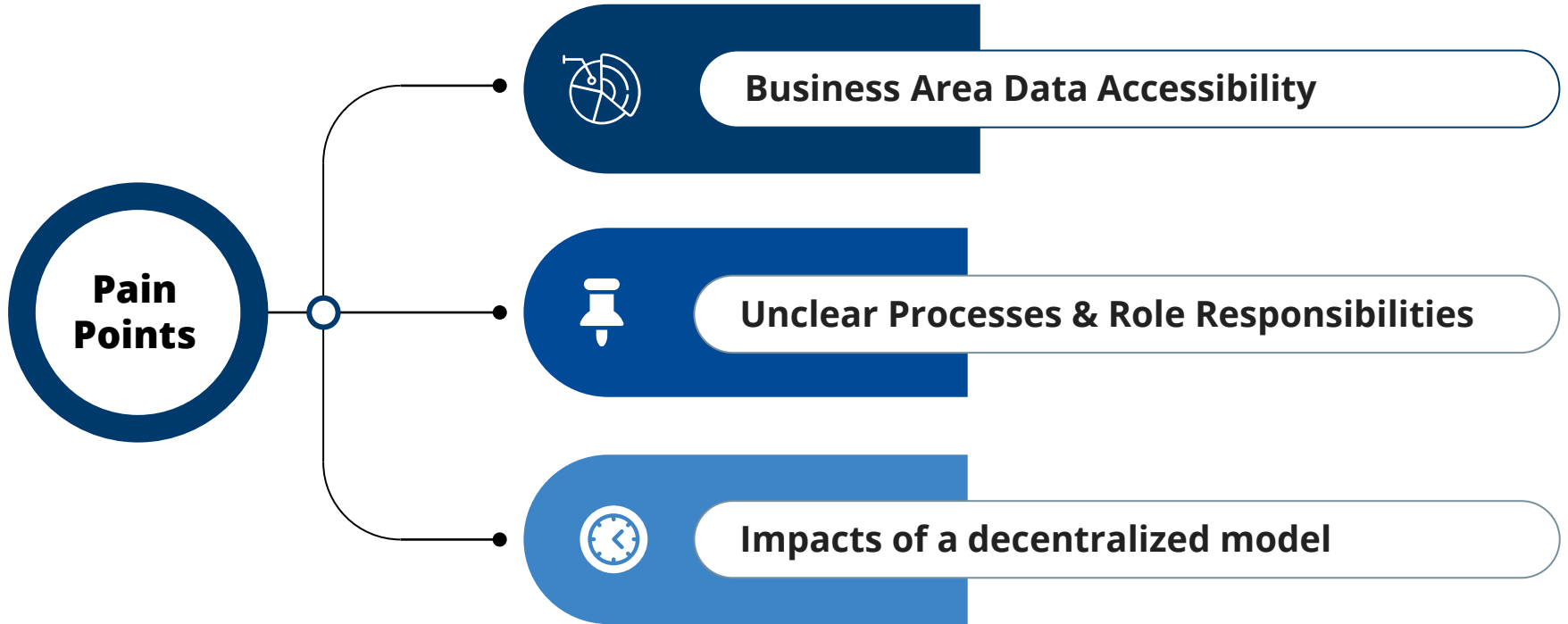
Systematic



Adaptive



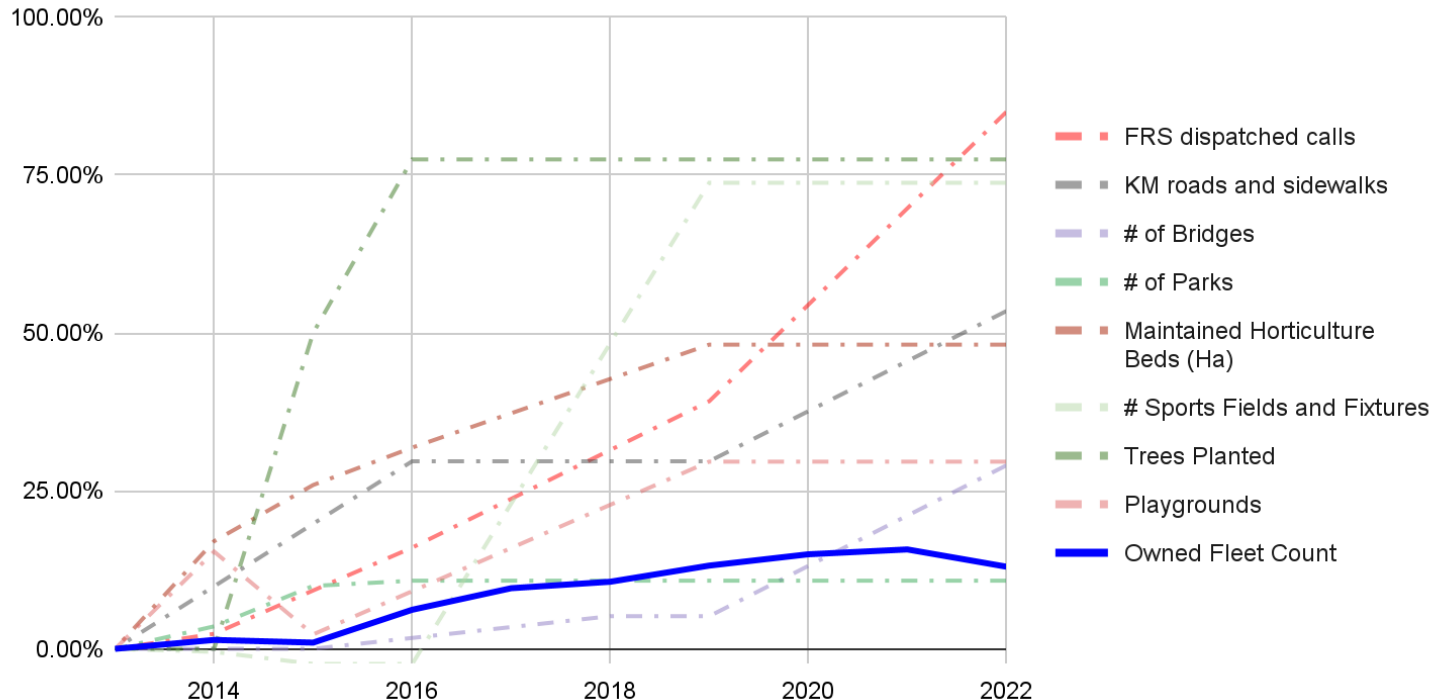
What We Heard



Fleet Size - Compared to City Services

Fleet growth is not keeping up with City service demands

Fleet Growth Compared to City Service Growth



Outcomes

Transformation Changes

Aligning
governance and
management of
corporate fleet

Rightsizing
the fleet
based on
findings

Clear and flexible
financing options
for growth and
replacement units

Creating
approval &
process
frameworks

Enhanced greening
plan to align with
corporate and
Council mandates

Standard Key Concepts, Changes and Outputs

Focus on Service Level Requirements (Section 4.1)

Change

Fleet needs are now directly tied to service level requirements.

Outputs

Fleet to establish bookout requirements for each Branch annually.

Fleet Services (in collaboration with business areas) is responsible for fulfilling bookout requirements using growth requests, internal rental pool, external rentals and/or subcontracting.



Aligning
governance and
management of
corporate fleet

Rightsizing
the fleet
based on
findings

Standard Key Concepts, Changes and Outputs

Fleet Utilization (Section 4.3)

Change

Utilization is monitored using a variety of relevant data sets to ensure optimal use of each fleet unit.

Outputs

Units that are overused or underused are identified quickly and mitigated.

Fleet is right sized over time according to utilization data.



Enhanced greening
plan to align with
corporate and
Council mandates

Rightsizing
the fleet
based on
findings

Standard Key Concepts, Changes and Outputs

Rentals Centralization (Section 5)

Change

Centralization of fleet rentals program.

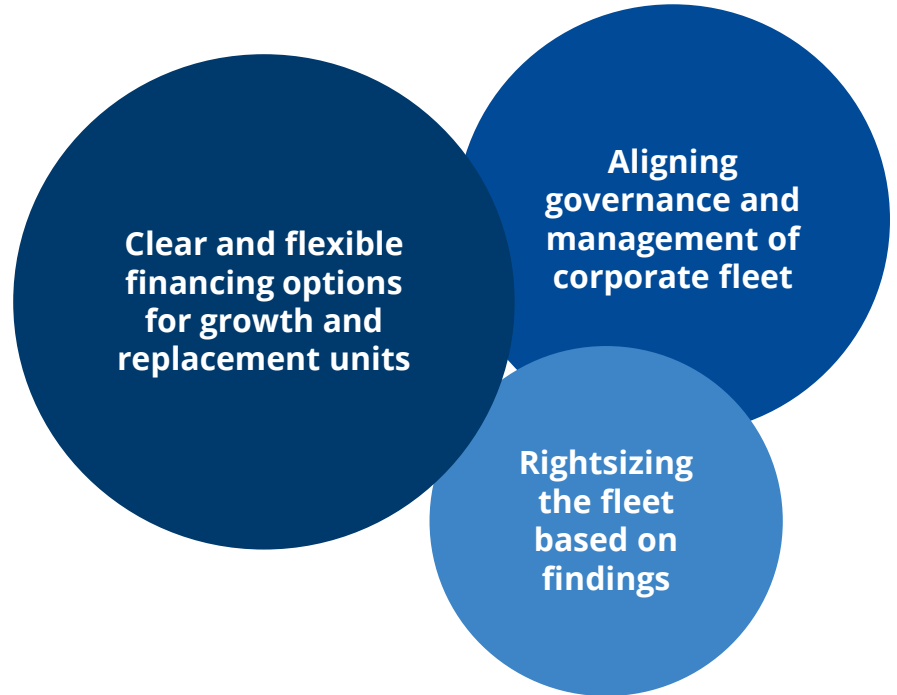
Creation of light-duty internal rental pool.

Outputs

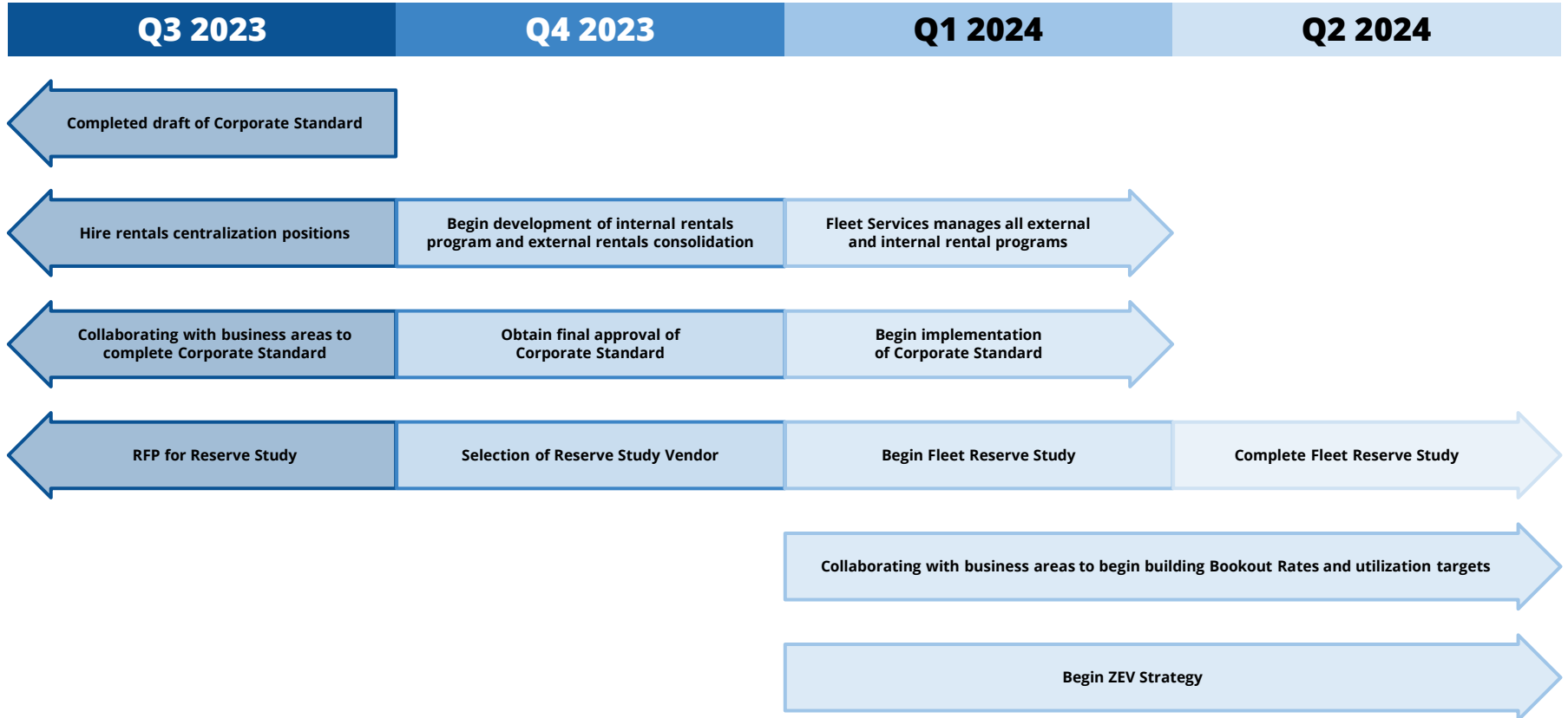
Centralized management of fleet assignment.

Spare units managed centrally based on bookout requirements.

New unit status definitions.



Where We Are Headed



Fleet Future Unit Status Definitions

Unit Status	Definition
Active	A Fleet Asset operating in good condition within its originally forecast useful life, fleet recovery payments still active
Repurposed	A Fleet Asset that was returned to the Corporate Pool and repurposed for another user group to use, operating in good condition within its original forecast useful life, fleet recovery payments still active from new user group
Planned Rental	A Fleet Asset rented for seasonal needs as identified in the monthly bookout rate forecast, with a period exceeding 30 continuous days but not exceeding 9 months
Unplanned Rental	During the course of the year, Business Area realized bookout rate was too low to meet their needs and now needs a seasonal rental to supplement their fleet
Emergency Rental	A Fleet Asset rented for short-term needs, needed because a critical asset broke down or otherwise became unavailable
Deferred: Fleet Services Suggested	Unit is operating in good condition, past lifecycle, Fleet suggests deferring replacement for Business Area to continue using, to be reviewed annually
Supplement: Business Area Requested	Unit in good condition, past lifecycle, replacement has already arrived, Business Area requested to keep (formalizing approval of "Ghost" units), to be reviewed annually
Corporate Spare	Unit in good condition, past lifecycle, replacement has already arrived, Fleet Services intentionally delays disposal, unit can be assigned anywhere in corporation to replace units down for maintenance, to be reviewed annually
Ready for Disposal	Unit is either: past lifecycle and the replacement has arrived, or no longer in good operating condition, or there is no longer a corporate need for the asset

Standard Key Concepts, Changes and Outputs

Fleet Growth Approval Process (Section 6)

Concept

Review business cases, explore owned underutilized options, prioritize growth requests with a corporate-wide lens

Outputs

Adoption of the Fleet Change Request Approval Framework.



Creating
approval &
process
frameworks

Clear and flexible
financing options
for growth and
replacement units

Fleet Change Request Approval Framework

Business Area Desired Outcome	Unfunded Capital \$ Required	Unfunded Operating \$ Required	Business Case Required	Budget Ask Required (Council or CFO)	Fleet Advisory Sponsorship / Endorsement	Approval
Unit Swap (same branch)	No	No	No	No	No	BM Fleet Services + BM Business Area
Unit Swap (different branches)	No	No	Yes	No	No	DCM Approval (impacted departments)
New Growth Unit (No Funding Required)	No	No	Yes	No	No	DCM Approval & Finance Manager Approval
New Growth Unit (Funding Required)	Yes	Yes	Yes	Yes	Yes	ELT Approval
Supplemental Unit	No	Variance explanation required	Yes	No	No	Annual approval by BM Fleet Services & BM Business Area
Convert Rental Unit to Owned Unit	Yes	No	Yes	Yes	Yes	ELT Approval
Scope Change Replacement Unit (cost increase)	Yes	No	Yes	Yes	No	Refer to Common Authority Chart below
Scope Change Replacement Unit (cost decrease)	NA	No	No	NA	No	BM Fleet Services + BM Business Area
Decrease Quantity of Units	NA	NA	NA	NA	Notify for awareness	BM Fleet Services + BM Business Area + Controller

Increase Fleet Quantity - Due Diligence by Fleet Services



Fleet Growth Units - Financial Options

Financial Options:

1

Existing Funds Available
within Program

2

Budget Adjustment
Between Programs
(Common Authority Chart)

3

Capital Profile
Submission
Business Area and
Fleet Collaboration

4

Maintain Status Quo
(No Growth)

Standard Key Concepts, Changes and Outputs

Condition Based Assessments (Section 4.4)

Change

Move to the industry best practice of a **Lifecycle Replacement Framework** that includes Condition Based Assessments as part of proactive preventative maintenance.

Outputs

The condition of fleet units or their components will be assessed throughout their lifecycle.

Could lead to more deferred vehicles.

Improved longer term planning.



Aligning
governance and
management of
corporate fleet

Rightsizing
the fleet
based on
findings

Standard Key Concepts, Changes and Outputs

Transition to Sustainable Fleet (Section 4.7)

Change

The City commits to sustainable fleet operations through various carbon reduction activities.

Outputs

Transition to sustainable fleet led by the Zero Emissions Vehicle (ZEV) project team.

Right sizing the fleet to maintain service levels while also avoiding surplus and oversized units.



Aligning
governance and
management of
corporate fleet

Enhanced greening
plan to align with
corporate and
Council mandates

Rightsizing
the fleet
based on
findings

Business Area Review and Feedback

Corporate Standard Review & Approval Strategy

STEP-1

Corporate Standard (SIP/Fleet Services)

Present via online session to Branch
SMEs (September - October)

STEP-2

Corporate Standard
[Branch Manager
Feedback Form](#)
(October)

STEP-3

Fleet Advisory Approval
(November)

STEP-4

Present Corporate
Standard to ELT
for approval
(November)

Bookout Rates (Fleet Services)

Meet with individual business areas
to determine seasonal bookout
requirements (Ongoing)

Rentals Consolidation (Fleet Services)

Coordinate with PARS/business
areas and launch centralization of
external rentals program
(September - December)

Thank You

Edmonton