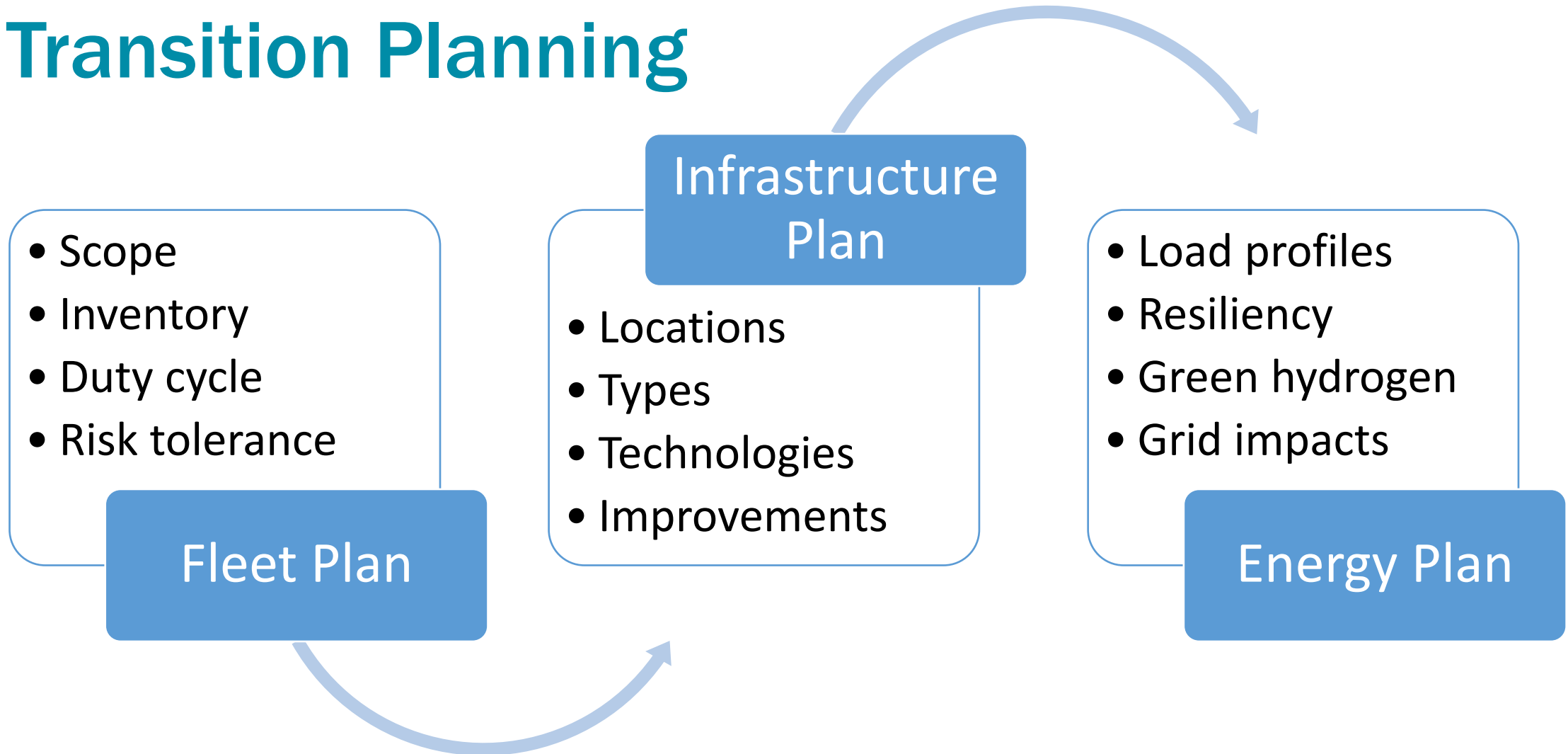




Planning for the Transition
Clean Cities Fleet Academy

Transition Planning



Scope

- What are the influencers?
- Which vehicles are included?
- What is the timeline?
- Do you have and follow vehicle retirement and procurement processes?
- Which contracts will this effect?
- What's in your inventory?
- What is your budget?

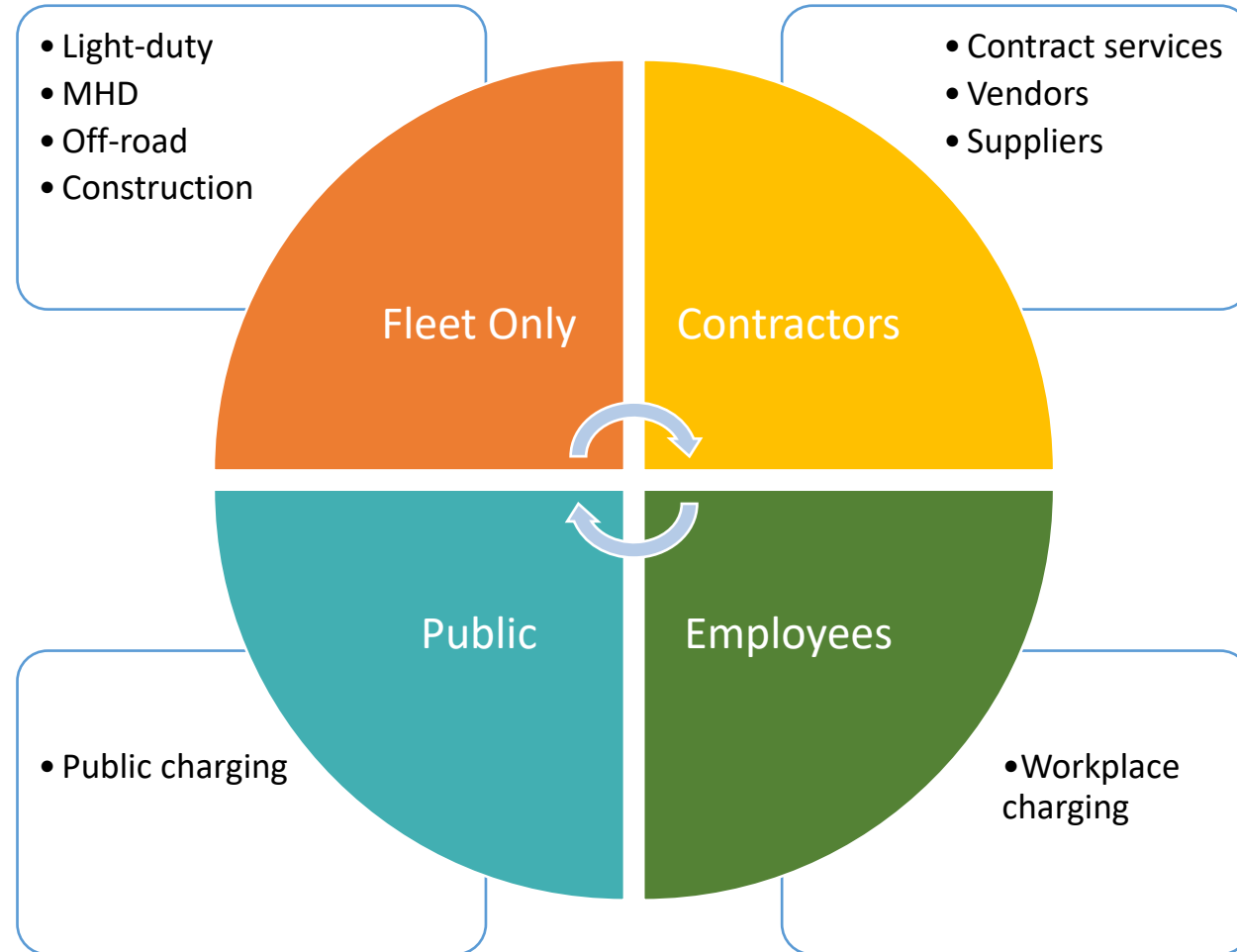
Common influencers

- State regulations
- Funding is available
- Climate Action Plans and Sustainability Plans
- Electrification efforts
- Right-sizing fleets
- Facility changes
- CEQA compliance
- Contracts ending or renewing
- Organic waste (AB 1826)

Identify all your motivators.
Do the timelines agree or
conflict with each other?

Vehicles and timelines

Phased approach or all at once?



Replacement process

Equipment Scores by 6 Criteria

Date Printed: March 10, 2021
LRC/PROFIT\$



Equipment Name	Unit #	Class	Dept.	Condition	Service		Mileage or Hours	Maint/		Score
					Type	Reliability		Repairs	Age	
Ford	Ambo 19B	AMBU123	6	1.0	5.0	1.0	0.5	1.0	1.4	9.8
Ford	Ambo 19a	AMBU123	6	1.0	5.0	1.0	3.0	1.0	2.1	13.1
Ford	Ambo 15	AMBU123	6	3.0	5.0	5.0	4.7	1.0	3.8	22.3
Ford	Ambo 14	AMBU123	6	3.0	5.0	5.0	7.0	1.0	5.7	28.8
Ford	Ambo 03	AMBU123	99	5.0	5.0	5.0	5.3	1.0	12.9	34.1
Cat	W-98	DEFLT	19-E	2.0	4.0	1.0	0.5	1.0	1.7	10.2
Freightliner	Tender17	DEFLT	6	2.0	4.0	1.0	0.8	1.0	2.0	10.8
Freightliner	S-39-4	DEFLT	18	2.0	4.0	3.0	0.8	1.0	2.0	12.6
Ford	PA-46-2	DEFLT	11	2.0	3.0	1.0	0.4	1.0	1.0	8.4
John Deere	PA-152	DEFLT	11	2.0	2.0	5.0	1.7	1.2	3.0	14.9
Toro	PA-149	DEFLT	11-E	2.0	2.0	5.0	1.3	1.5	4.0	15.8
Toro	PA-148	DEFLT	11-E	2.0	2.0	5.0	0.1	2.1	4.0	15.2
EZGO	PA-145	DEFLT	11	3.0	2.0	1.0	1.0	1.0	9.0	17.0
Kubota	PA-142	DEFLT	11-E	2.0	3.0	3.0	1.0	1.0	2.5	12.5
Toro	PA-105	DEFLT	11-E	4.0	2.0	5.0	2.1	7.4	13.0	33.5
Smeal	Ladder99	DEFLT	99	5.0	5.0	5.0	3.2	1.0	10.8	29.7
Pierce	Engine09	DEFLT	99	4.0	5.0	5.0	5.2	1.3	7.5	28.1
Spartan	Engine03	DEFLT	99	5.0	2.0	3.0	3.4	1.0	11.3	25.7
Ford	E-52-2	DEFLT	14	1.0	3.0	1.0	0.1	1.0	0.5	6.8
Ford	E-44-2	DEFLT	14	2.0	3.0	1.0	1.0	1.0	2.0	10.0
Counter	Counter	DEFLT	6	5.0	3.0	1.0	0.0	16.2	0.0	25.2
Ford	BC17	DEFLT	6	2.0	2.0	1.0	2.0	1.0	5.0	13.0
Ford	AD-1-4	DEFLT	1	5.0	3.0	3.0	1.1	1.0	11.5	24.6
Mack	S-40-4	DUMPT	18	2.0	3.0	5.0	0.3	1.0	2.0	13.3
Freightliner	D-10-4	DUMPT	19	3.0	3.0	3.0	0.0	1.0	0.3	10.3
Kubota	W-97	EQUIP	19-E	5.0	2.0	5.0	1.3	1.0	7.0	21.3
Serco	W-96	EQUIP	19-E	5.0	2.0	1.0	0.0	1.0	8.0	17.0
Rodder	W-95	EQUIP	19-E	5.0	2.0	1.0	0.0	1.0	7.0	16.0
Deutz	W-94	EQUIP	19-E	5.0	2.0	1.0	0.0	0.0	7.0	15.0
Deutz	W-93	EQUIP	19-E	5.0	2.0	1.0	0.0	1.0	7.0	16.0
Yale	W-92	EQUIP	19-E	5.0	2.0	1.0	0.0	0.0	9.0	17.0
Case	W-91	EQUIP	19-E	3.0	2.0	5.0	1.7	1.0	4.5	17.2
John Deere	S-98	EQUIP	18-E	4.0	2.0	1.0	0.7	1.0	7.5	16.2
Neumatic Roller	S-97	EQUIP	18-E	5.0	2.0	1.0	0.0	0.0	5.3	13.3

- “We keep all the old vehicles in case we need them.”
- “Whomever is loudest gets the new vehicle.”
- “We only replace vehicles when we have the budget.”
- “We replace based on O&M costs.”

Is this enough time to order EVs and install charging stations?

Existing contracts

- Conventional fuels
- Vehicle maintenance
- Service and warranties
- Cooperative purchasing
- Labor
- Contracted services

If any are coming up for rebid or negotiation, what do you need to consider in your plan?

The inventory

Desired Information	Alternative #1	Alternative #2
Vehicle VIN, make, model, model year, vehicle type, fuel type	Vehicle ID/unit number (if different from VIN)	
Vehicle description (detailed)	Vehicle description (brief)	N/A
In-service and replacement year	In-service <u>or</u> replacement year	N/A
Original cost, expected surplus proceeds, and budgeted replacement cost	Original cost <u>and</u> budgeted replacement cost	Original cost <u>or</u> budgeted replacement cost
Address of domicile (or “take home”)	N/A	
Assigned division and department	Assigned department	Specific vehicle use case
Hours parked at assigned domicile	Hours parked and domicile address	Domicile address
Typical and max duty cycle (or telematics data)	Weekly mileage data or fuel use	Current odometer
Annual O&M cost: fuel, maintenance, insurance, licensing, fuel infrastructure	Annual O&M cost: subset	Assumption data from team
Special equipment or configuration (e.g., liftgate, license plate reader, 4WD, snowplow)	N/A	

What is a duty cycle and why do we care?

Public works has a van that drives 12 miles a day. Easy BEV replacement.....



It's a CCTV van and the engine idles to provide power to the camera and other equipment needed for pipeline inspection. Plus, it's in a hot environment and the air-conditioned cab provides shelter for the technician.

What is a duty cycle and why do we care?

Tesla cars and the Mustang Mach-E are fast cars with long range that would work for police patrol.....



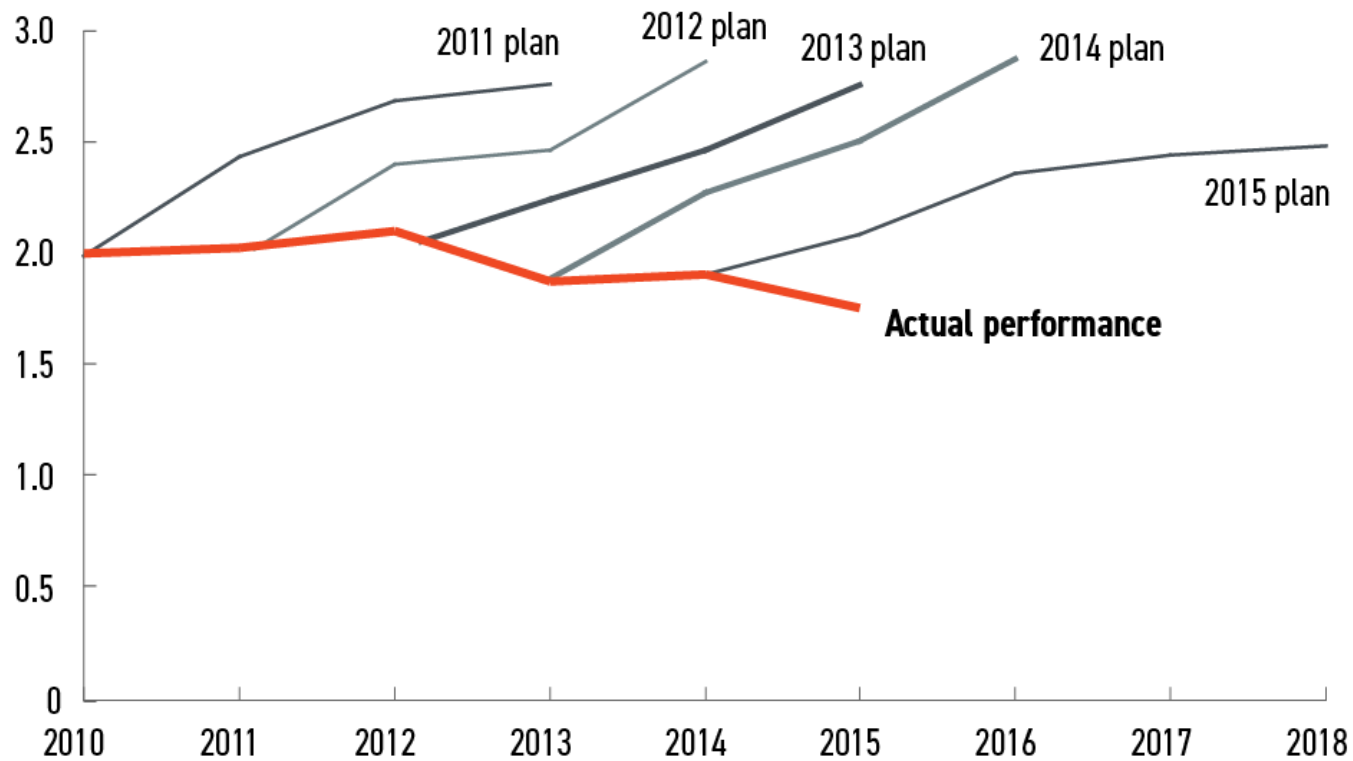
PD uses “hot seat” car swapping. Patrol cars dwell for less than 10 minutes, which isn’t ideal for a charge. You may need additional charging stations or additional patrol cars.

Does the vehicle...

1. Carry or tow something heavy?
2. Idle to operate electronics or equipment?
3. Stop for 2+ hours during the shift?
4. Go home with the operator?
5. Drive more than 150 miles a day at any time? If so, how often?
6. Get used for emergency response?
7. Have a special use?

Budget

Hockey stick dreams and the hairy back of reality



A few other parameters

- Willingness to try emerging technology
- Disaster preparedness and resilience
- Fuels you want or do not want
- Loyalty to brand or badge
- Resources to go after funding
- Workforce and training needs
- Change management



Thank you!

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