

# Mixed Bus Fleet Composition Strategy



# Team Members

## ▪ Chief Enterprise Strategy Office

- Alisha Garrett (Chief Enterprise Strategy Officer)
- Bill Gerow (Sr Continuous Improvement Consultant)
- Tigran Melikyan (Business & Quality Analyst)
- Jacob Ekker (Business Strategy Specialist)

## ▪ Chief Planning & Engagement Office

- Eric Callison (Mgr Service Planning)
- Kerry Doane (Mgr Long Range Strategic Planning)

## ▪ Chief Service Development Office

- Kyle Stockley (Mgr Veh Overhaul & Bus Support)
- Hal Johnson (Mgr Project Dev-System Planning)
- Ethan Ray (Proj Development Planner II)
- Daniel Locke (Environmental Compliance Admin)
- Jesse Rogers (Vehicle Procurement-Comm Admin)

## ▪ Chief Financial Office

- William Greene (Chief Financial Officer)

## ▪ Chief Operating Office

- Celeste Sloan (Senior Office Specialist)
- Andres Colman (Regional General Manager)



# Areas of Analysis

## PURPOSE

Develop a data driven mixed bus fleet composition strategy that supports UTA's mission. This strategy will align with UTA's service plan, the long-range transportation plan, and serve as a guide for future vehicle procurement and facilities plans

## STRATEGY DEVELOPMENT INPUTS

- Current fleet mix & replacement schedule
- Environmental Impact
- Full life cycle vehicle cost
- Vehicle reliability
- Vehicle compatibility with service plan
- Resources per fleet (onboard, support, maintain)
- Current infrastructure & future needs
- Technological innovations
- National trends (other agencies, climate)
- External conditions ( social, political)
- Available funding



# Balanced Scorecard

Fleet Propulsion Scorecard					
	Scorecard Weighting	Category Weighting	Clean Diesel	CNG	Electric
Operational	40%	100%	4.1	2.5	1.4
Capital	20%	100%	2.5	3.0	4.0
Environment Well to Tank Emissions	9%	30%	1.0	1.2	0.2
Environment Tank to Wheels Emissions	21%	70%	0.8	2.1	3.5
Internal Assessment	10%	100%	2.0	3.5	4.5



# Balanced Scorecard

## RATING METHODOLOGIES

- All categories are scored using a 5-point scale ranging from 1–5.
- Quantitative data reviewed by the team to determine highest and lowest values and the proper incremental range.
- Qualitative data categorized by the following:
  - 1 – Not At All Supported
  - 2 – Not Very Supported
  - 3 – Neutral
  - 4 – Somewhat Supported
  - 5 – Very Supported
- Emissions data scored formulaically by taking -20% of the minimum value, +20% maximum value, and incrementing evenly for each category.



# Operational Factors

		Scorecard Weighting	Category Weighting	Clean Diesel	CNG	Electric
Operational	Life Cycle Costs	12.0%	30%	4.0	3.0	1.0
	Vehicle Reliability	14.0%	35%	4.0	3.0	2.0
	Risk	12.0%	30%	4.0	1.0	1.0
	Flexibility	2.0%	5%	5.0	4.0	1.0
	<b>Total Operational Score</b>	<b>40%</b>	<b>100%</b>	<b>4.1</b>	<b>2.5</b>	<b>1.4</b>



# Capital Factors

		Scorecard Weighting	Category Weighting	Clean Diesel	CNG	Electric
Capital	Infrastructure	10.0%	50%	4.0	4.0	3.0
	Available Funding	10.0%	50%	1.0	2.0	5.0
	<b>Total Capital Score</b>	<b>20%</b>	<b>100%</b>	<b>2.5</b>	<b>3.0</b>	<b>4.0</b>



# Environmental Factors

		Scorecard Weighting	Category Weighting	Clean Diesel	CNG	Electric
Environment Well to Tank Emissions	Nitrogen Oxides	0.9%	3%	4.0	4.0	4.0
	Volatile Organic Compounds	0.9%	3%	1.0	4.0	4.0
	Carbon Monoxide	0.6%	2%	1.0	4.0	1.0
	Greenhouse Gas	1.8%	6%	3.0	4.0	1.0
	Sulfur Oxides	0.3%	1%	4.0	5.0	1.0
	Particulate Matter	4.5%	15%	4.0	4.0	1.0
	<b>Total Environmental (W2T) Score</b>	<b>9%</b>	<b>30%</b>	<b>1.0</b>	<b>1.2</b>	<b>0.2</b>



# Environmental Factors

		Scorecard Weighting	Category Weighting	Clean Diesel	CNG	Electric
Environment Tank to Wheels Emissions	Nitrogen Oxides	2.1%	7%	1.0	4.0	5.0
	Non Methane Hydro Carbons	2.1%	7%	1.0	3.0	5.0
	Carbon Monoxide	1.5%	5%	2.0	1.0	5.0
	Greenhouse Gas	4.5%	15%	1.0	1.0	5.0
	Sulfur Oxides	0.9%	3%	1.0	2.0	5.0
	Particulate Matter	9.9%	33%	1.0	4.0	5.0
	<b>Total Environmental (T2W) Score</b>	<b>21%</b>	<b>70%</b>	<b>0.8</b>	<b>2.1</b>	<b>3.5</b>



# Internal Assessment of External Factors

		Scorecard Weighting	Category Weighting	Clean Diesel	CNG	Electric
Internal Assessment	Political Conditions	5.0%	50%	2.0	4.0	5.0
	Social Conditions	5.0%	50%	2.0	3.0	4.0
	<b>Total External Score</b>	<b>10%</b>	<b>100%</b>	<b>2.0</b>	<b>3.5</b>	<b>4.5</b>



# Scorecard Summary

Fleet Propulsion Scorecard			
	Clean Diesel	CNG	Electric
Operational	4.1	2.5	1.4
Capital	2.5	3.0	4.0
Environment: Well to Tank Emissions	1.0	4.0	1.0
Environment: Tank to Wheels Emissions	0.8	2.1	3.5
Internal Assessment	2.0	3.5	4.5
<b>Overall Weighted Score</b>	<b>2.84</b>	<b>2.91</b>	<b>2.98</b>



# Next Steps

- Factor in Board of Trustees input
- Develop a recommendation and written report
- Build financial plan
- Present recommendation to Executive Team and Board of Trustees

