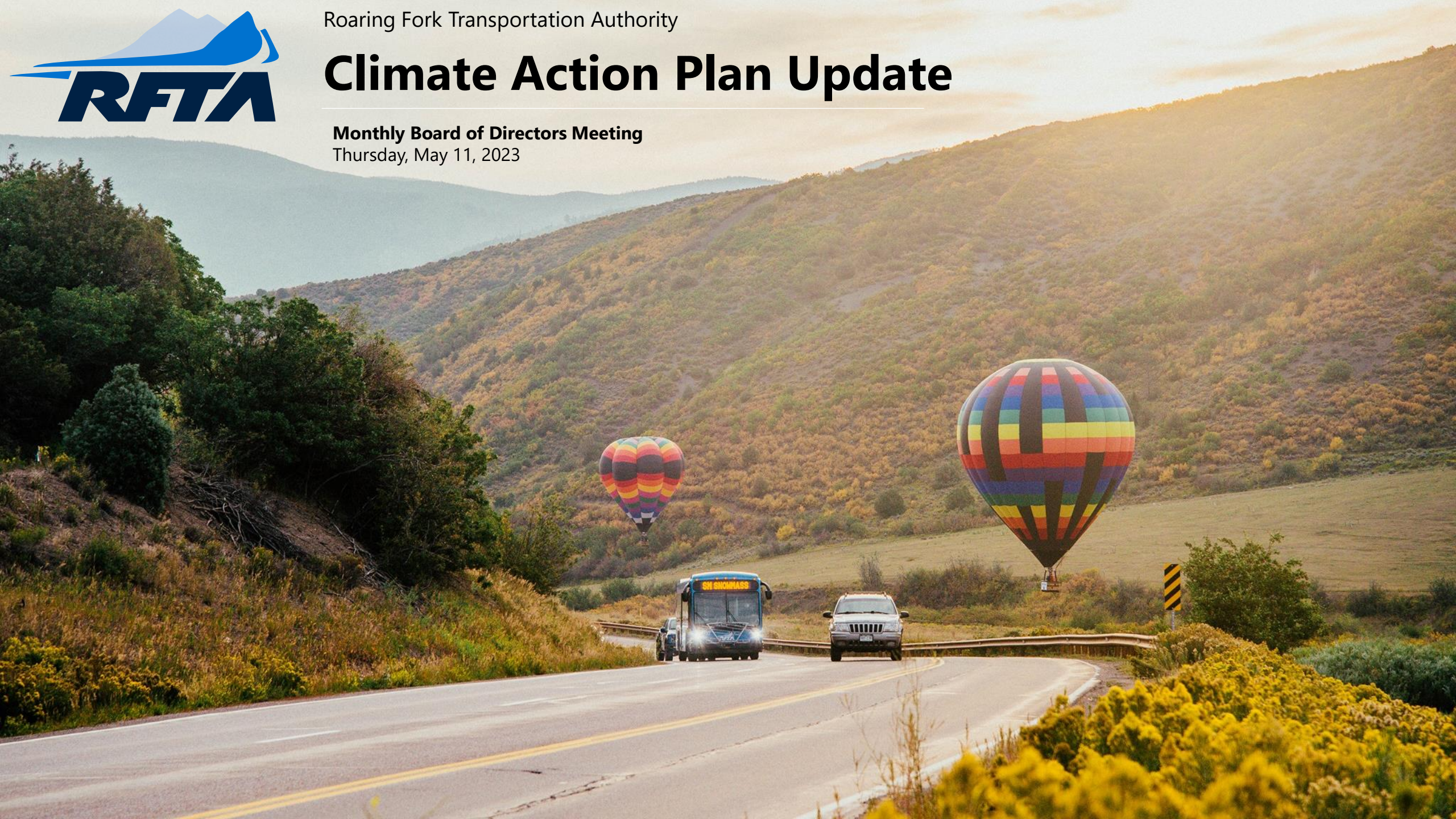
Roaring Fork Transportation Authority

Climate Action Plan Update

Monthly Board of Directors Meeting
Thursday, May 11, 2023



Presentation Summary

April Board Meeting

- Review

Strategies

- Master List of Strategies
- Screening Process
- Refined Cost Benefit Analysis

Implementation

- Timeline
- Framework
- Monitoring

Action Items and Next Steps

- Final CAP

Discussion and Conclusion

April Board Summary

Technical Discovery

- Emissions Scopes and Displacement
- Impact of transit on emissions
- Climate action strategy selection process

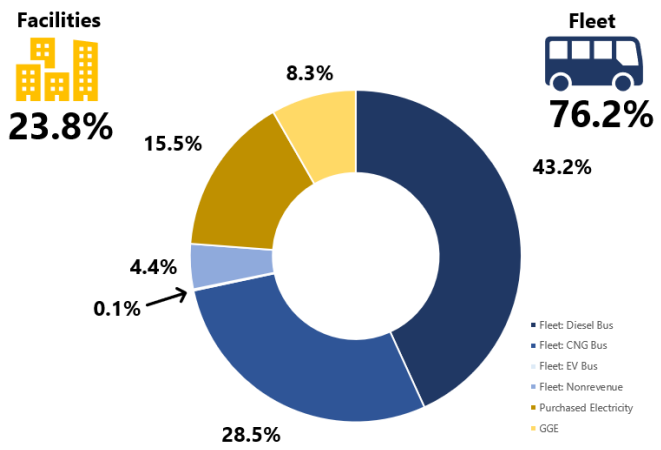
Presentation of draft Climate Action Strategies

- Cost-benefit
- GHG Emission Projections
- Alignment with RFTA's Strategic Plan

CAP Development | Goals

Goal 1: Reduce scope 1 and 2 GHG emissions **50% by 2030** and **90% by 2050**.

Emissions Produced by RFTA (Scope 1 & 2)	
Metric	**Emissions (metric tons CO2e)**
Mobile Combustion	12,450
Agency Fleet	712
Electricity for Traction Power	23
Facility Purchased Electricity	2,690
Facility Stationary Combustion	1,440
Total	**17,315**



Goal 2: Increase displaced emissions compared to baseline to **3x by 2030** and **5x by 2050**

RFTA REGIONAL NET EMISSIONS IMPACT (Metric Tons CO2e):

2019	2026	2030	2035	2040	2050
23,017	33,152	43,287	57,138	70,990	84,842

CAP Development | Strategy Selection Process

Literature Review
+1,000 strategies surveyed from leading climate action plans.

Emissions Inventory
Data collected pertaining to RFTA's emissions from fossil fuel and electricity use.

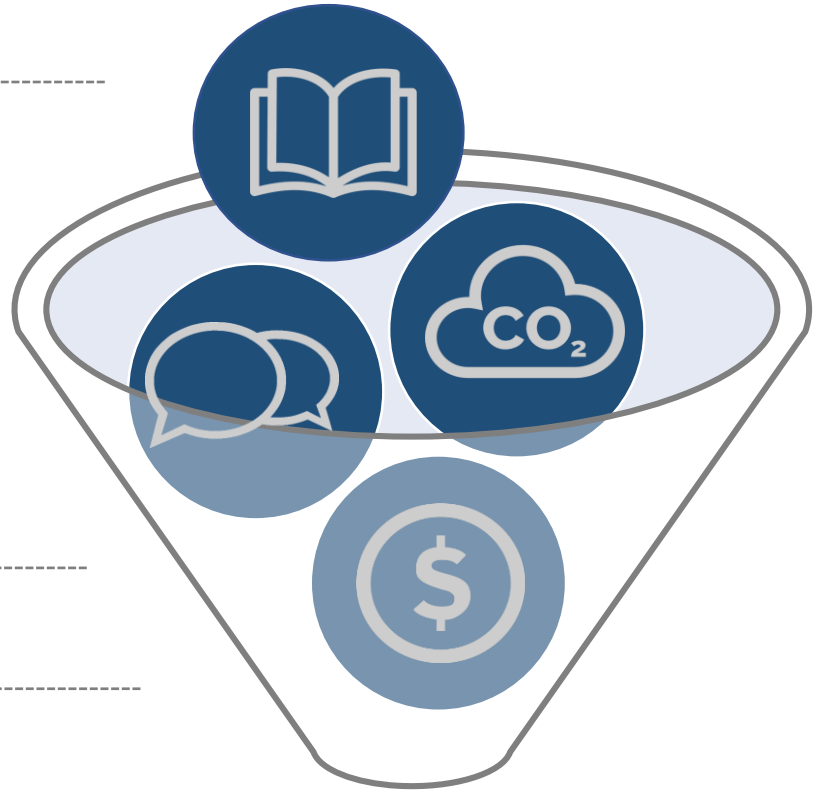
Stakeholder Input
Input solicited from all RFTA member jurisdiction planning departments.

Emissions Reduction Potential
GHG reduction potential quantified for top climate action strategies.

Strategy Evaluation
Monetary cost for each strategy assessed relative to GHG reduction potential

Strategy Confirmation and Selection
RFTA board and agency final review and selection for climate action strategies.

Continuous Monitoring
Annual or semi-annual review of progress toward GHG goals, modification as needed.



CAP Development | Strategy Evaluation

Climate Action Strategies
Emissions From RFTA Fleet
Revenue Fleet
Non-revenue Fleet
Emissions From RFTA Facilities
Electrification Of Facility Operations
Development Of On-site Renewable Energy Systems
Energy Efficiency Measures For Existing Facilities
Advanced Building Codes, Green Standards, And Energy Benchmarking
Emissions Displaced By Transit
Expansion of Transit Priority Lanes
Expansion Of BRT (& Mobility Hubs)
Expansion Of Multi-modal Services
Fare Reductions
Connected Housing, Jobs, And Transit (TOD)

Strategy Evaluation Tool:

RFTA's Cost-Benefit Climate Calculator

A tool for making capital investment decisions based on climate impacts

Inputs: *Climate action strategy category*

- Level of implementation
- Total cost of ownership/implementation
  - Capital costs
  - Operations & maintenance
- Impact on "climate levers"
  - Passenger miles traveled (PMT)
  - Bus miles
  - Fleet composition
  - Facility fuel use

Outputs: *Evaluation Criteria*

- Cost-benefit
  - Economic impact
  - Emissions impact
  - Emissions per dollar spent
  - Emissions per PMT
- Alignment with RFTA strategic plan outcome areas

Strategy Selection | Evaluation Criteria

Cost-Benefit ($/MT CO2e Reduced)

The Total Cost of Implementation (capital costs, O&M, and fuel) divided by the emissions produced. This metric is designed to show the estimated cost per metric ton of CO2e of each strategy.

Emissions Displaced (MT CO2e)

The total sum of emissions displaced by each strategy over the analysis period.

Emissions Produced (MT CO2e)

The total sum of emissions produced by each strategy over the analysis period.

Emissions vs 2019 Baseline

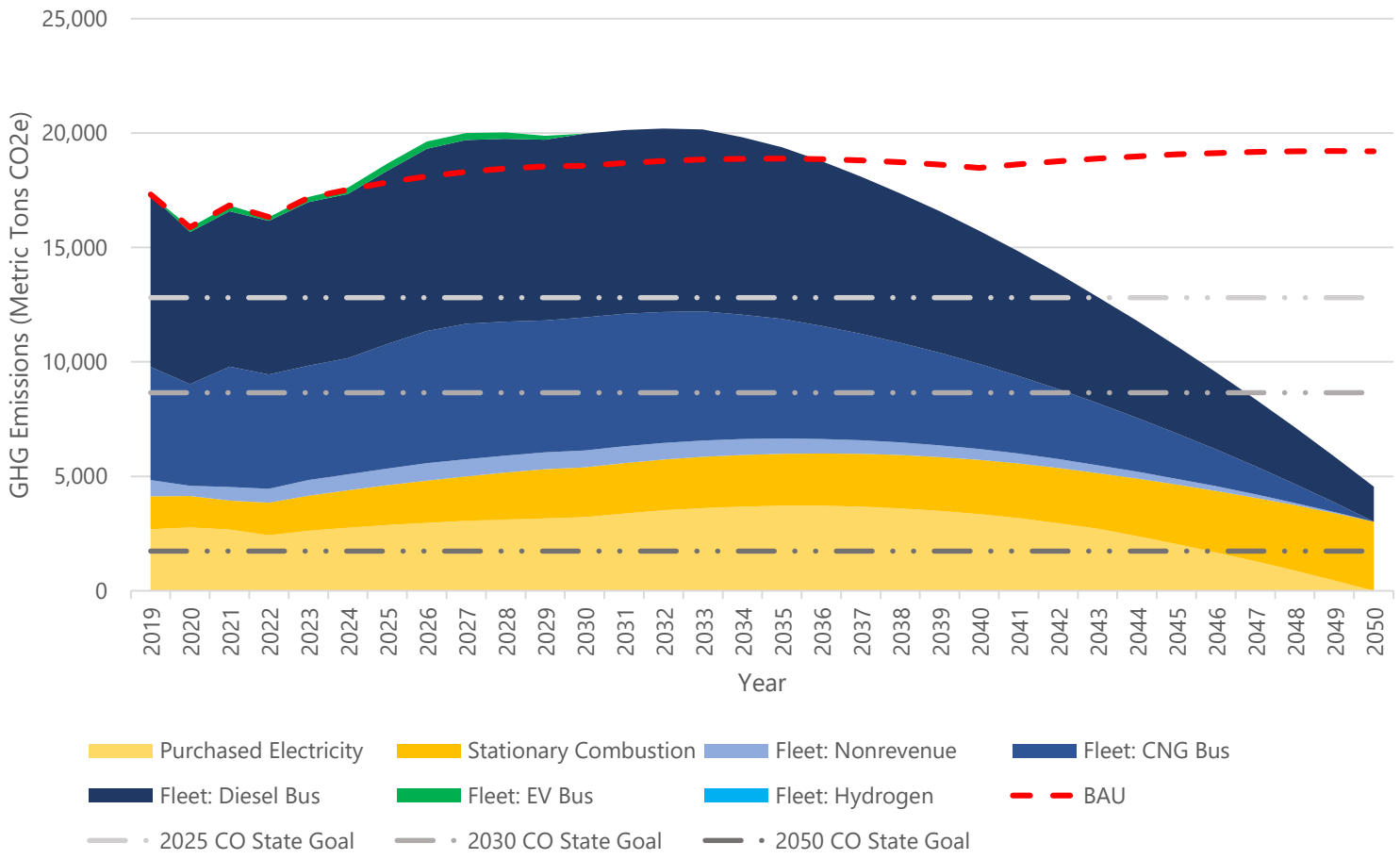
The percent reduction of emissions due to the selected strategies with respect to the 2019 baseline emissions minus the strategies' 2050 emissions, all divided by the 2019 baseline emissions.

CAP Development | Evaluation

- **Scope 1:** direct emissions from sources that are controlled or owned by RFTA
- **Scope 2:** indirect emissions associated with the purchase of electricity
- **Scope 3:** emissions that RFTA indirectly affects throughout the region

Climate Action Strategies	Scope	Start Year	End Year	Cost-Benefit ($/MT CO2e Reduced)	Emissions Displaced (MT CO2e)	Emissions Produced (MT CO2e)	Emissions vs 2019 Baseline
Revenue Fleet							-74%
100% Electric (placeholder until ZEB Transition Plan completed)	●	2028	2050	$1,084	-	-65,916	
Non-Revenue Fleet							
100% Electrification	●	2025	2050	$(678)	-	-10,949	
Electrification of Facility Operations							
Aspen Maintenance Facility	●	2033	2043	$644	-	-1,966	
Glenwood Springs Maintenance Facility	●	2033	2043	$461	-	-4,362	
Development of On-Site Renewable Energy Systems							
Destination 2040 – S6: Aspen Maintenance Facility Expansion (Solar PV addition)	●	2030	2043	$282	-	-1,558	
Expansion of Transit Priority Lanes							
Rio Grande Exclusive Corridor (27th street to 8th Street in Glenwood Springs)	●●	2030	2033	$624	-49,064	-	
Expansion of BRT (& Mobility Hubs)							
West Glenwood Springs Transit Hub & BRT Extension to West Glenwood	●●	2025	2030	$543	-63,472	-	
Expansion Of Multi-modal Services							
Destination 2040: Bike Share Expansion	●	2023	2028	$6,918	-2,330	-	
Fare Reductions							
20% Reduction (through targeted fare reductions where bus capacity is not an issue)	●	2025	2026	$(4,308)	-11,907	-	
Connected Housing, Jobs, and Transit (TOD)							
Carbondale BRT Station Development (based on 2014 TOD Assessment)	●	2030	2035	-	-298,187	-	

CAP Development | Strategy Summary



Cost-Benefit ($/MT CO2e Reduced)	Climate Outputs: Net Difference vs BAU Forecast Through 2050		2050 Emissions vs 2019 Baseline
	Emissions Displaced (MT CO2e)	Emissions Produced (MT CO2e)	
$199	-424,150	-84,750	**-74%**

Climate Action Strategies	Total Cost of Implementation
Revenue Fleet	
100% Electric	$71,443,352
Non-Revenue Fleet	
100% Electrification	$(7,427,566)
Electrification of Facility Operations	
Aspen Maintenance Facility	$1,265,506
Glenwood Springs Maintenance Facility	$2,012,739
Development of On-Site Renewable Energy Systems	
Destination 2040 – S6: Aspen Maintenance Facility Expansion (Solar PV addition)	$440,161
Expansion of Transit Priority Lanes	
Rio Grande Exclusive Corridor	$30,600,000
Expansion of BRT (& Mobility Hubs)	
West Glenwood Springs Transit Hub & BRT Extension to West Glenwood	$34,450,000
Expansion Of Multi-modal Services	
Destination 2040: Bike Share Expansion	$16,120,750
Fare Reductions	
20% Reduction	$(47,807,653)
Connected Housing, Jobs, and Transit (TOD)	
Carbondale BRT Development	-
TOTAL	**$101,097,289**

CAP Development | Other Potential Strategies

In addition to the strategies evaluated in detail, RFTA will continue to evaluate the feasibility of additional actions to reach CAP goals.

These may include but are not limited to:

- Increased Transit in the I-70 Corridor
- Increased Multimodal/First and Last Mile Mobility Options: Downtowner-type service in Carbondale, bike share expansion, etc.
- Opportunities to streamline transit travel times, such as more bus priority lanes, to both increase ridership and reduce GHG emissions
- Energy Benchmarking of facilities
- Green Standards for facilities
- Advanced Building Codes for facilities
- Transit Oriented Development at other BRT stations

Preparing for the Future
Monitoring

RFTA will develop a monitoring program based on their implementation of the selected strategies. This will include:

1. Continued collection of data
    - Revenue and non-revenue fleet use
    - Utilities
    - Ridership
2. Detailed timelines for implementation
3. Opportunities for funding
4. Evaluation of new technology

Action Items and Next Steps

Establishing a Vision for the Future
- Kickoff meeting & board presentation
- Facilitated workshop pertaining to the CAP's purpose, need, vision and goals
- National review of leading climate action plans

Climate Action Plan Development
- Modifiable master spreadsheet for measuring CAP criteria, supported by user-friendly, open-source tools
- Evaluation criteria and measurement process for climate action strategies
- Master list of potential strategies
- Documented process for strategy screening and advancement of promising strategies for further development
- Refined set of cost-benefit-based strategies tailored to RFTA's unique operational environment
- Implementation program guidance

Technical Discovery
- Baseline emissions inventory considering RFTA's internal operations and facilities relative to regional transportation and land use trends

Review and Approval
- Agency review and recommendations
- Climate Action Plan finalization
- Delivery of final Climate Action Plan (mid-May)

Plan on track for completion by June Board Retreat

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