



DART Sustainability Efforts

Regional Climate Action Workshop Transportation Panel

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DART Capital Planning

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Discussion Items

- DART Sustainability Overview
- Current DART System
 - DART Fleet
 - GoPass[®]
- Bus Network Redesign
- Capital Investments
- Looking Ahead
- Summary



DART Sustainability

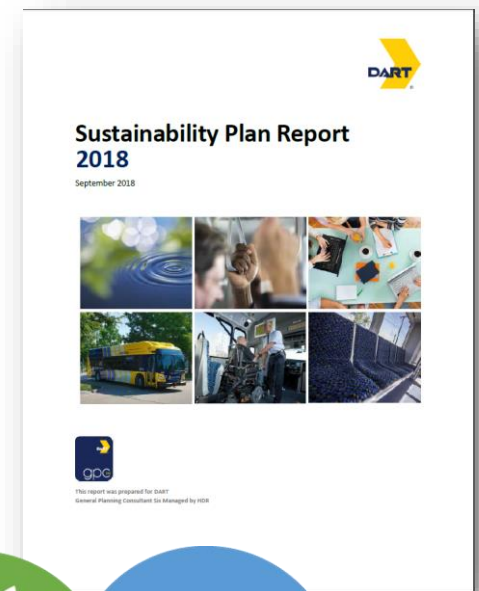
Sustainability at DART

- DART has a long history of sustainable planning, project development, as well as operations and maintenance practices.
- 2011 - DART became a signatory to the APTA Sustainability Program
- 2012 - First DART Sustainability Framework Plan
- 2013 - Bronze recognition level from APTA
- The APTA Sustainability Commitment has evolved:
 - Incorporated social considerations and economic impacts
 - Transit Emissions Quantifier Tool being updated
 - Focus on energy and environment (Clean Technology)
- DART's 2018 sustainability planning process took this into account while developing an updated framework and goals.



Sustainability Plan

- The Sustainability Plan documents the vision and purpose around three pillars – Our Community, Our Agency, and Our Planet
- The plan framework will help DART tell its story and to illustrate the many ways the agency provides social, economic and environmental benefits to a wide-range of stakeholders



“To promote a culture of sustainability that adds value for our customers, improves quality of service, attracts tomorrow’s workforce, and positions DART as a leader in sustainability with a focus on continuous improvement.”

Sustainability Plan Goals and Framework

- To communicate DART's sustainability strategy as one that:
 - Enhances service area communities
 - Improves the lives of our customers
 - Instills a sense of pride and purpose for our employees
 - Reflects the financial strength and operational resiliency
 - Demonstrates a net positive impact to the environment



Sustainability Efforts

Public Transportation

cuts greenhouse gas emissions.



Electric Vehicles

decrease dependence on fossil fuels.



LED Bulbs

use less energy and last longer.



Motion Sensors

regulate lights and HVAC systems to save energy.



Mobile Ticketing and Fare Payment Cards

reduce paper and energy use.



Quiet Zones and Sound Walls

reduce noise pollution.



Drought-tolerant Landscaping

saves water and reduces maintenance.



Solar-powered Lights

brighten bus stops and bus shelters.



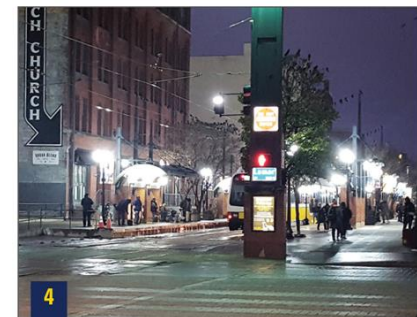
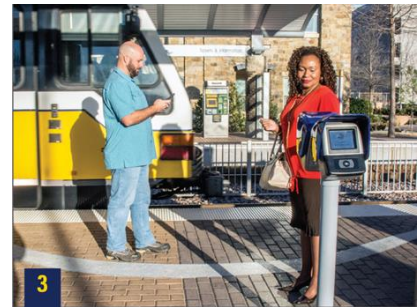
Adaptive Reuse

gives new life to old buildings.



Sustainability Efforts

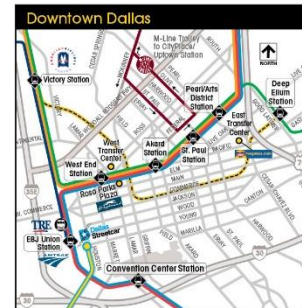
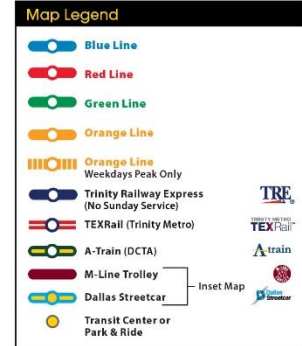
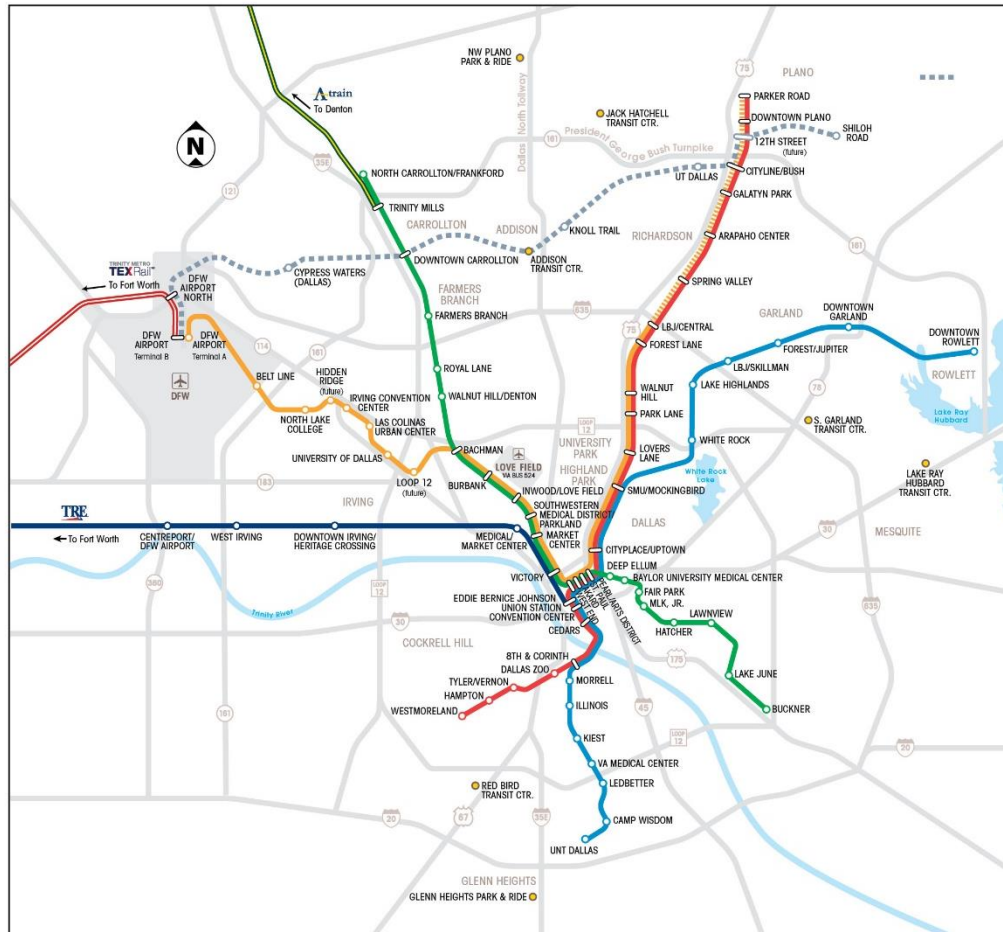
- DART Police Headquarters in Monroe Shops, first publicly owned building on the National Register of Historic Places to achieve LEED® Platinum Certification.
- At the Northwest Rail Operating Facility, motion detectors trigger the lights only when the area is in use. HVAC system recognizes whether the room is occupied or empty and adjusts itself accordingly.
- The GoPass mobile app and GoPass Tap fare payment card reduce paper ticket waste.
- New LED bulbs make West End Station brighter while using less energy. LED is being implemented at all DART facilities.





DART System

DART Services



FY19 Ridership

Mode	FY19 Ridership
Bus	38,500,000
Light Rail	28,300,000
TRE Commuter Rail	2,000,000
Streetcar	226,000
Fixed Route Subtotal	69,000,000
Paratransit	906,000
GoLink	207,000
Vanpool	611,000
Overall System	70,700,000

DART Fleet

- Compressed Natural Gas (CNG) Bus Fleet
 - 100% Renewable Energy
- Seven electric buses
- Electric light rail vehicle fleet
- Existing Policy III.12 DART Clean Fleet Vehicle Policy
 - *DART shall assess, evaluate or consider participation in programs to test, commercialize or demonstrate new technologies to improve efficiency, reduce emissions, and/or increase fuel efficiency*
- Evaluation underway for future fleet technology – electric, hydrogen cell, etc.
- Member of AECOM Automated Bus Consortium



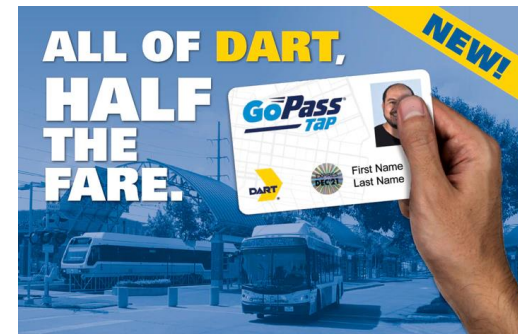
GoLink Microtransit

- 14 Zones within the DART Service Area
- Convenient on-demand, curb-to-curb transportation
- Riders also have the choice of using UberPool for added flexibility in many zones



GoPass®

- DART has established itself as a true mobility integrator
- APTA 2019 Innovation Award Winner
- GoPass® app makes it easier to use transit
 - Integrated ride-sharing services for on-demand first mile-/last-mile solution
 - Fare capping, cash-to-mobile payment option, Apple Pay and GoPass® Wallet
 - GoPass® 3.0 as a mobility manager platform that could be leveraged nationally, providing Mobility as a Service (MaaS) without regard to mode or provider





Bus Network Redesign and Capital Projects

Bus Network Redesign

- DART is working on development of a Plan to re-envision the current DART bus network
- Jarrett Walker + Associates has been engaged for this effort; JWA have worked on similar planning efforts in Houston and around the U.S.
- 15-18 month process
- Core issue for this effort: whether to design a bus network to support ridership, service coverage, or somewhere in between
- Effort includes substantial outreach program with diverse groups of people on the big choices we face in this redesign, from customers, advocate groups, businesses and City staff and elected officials

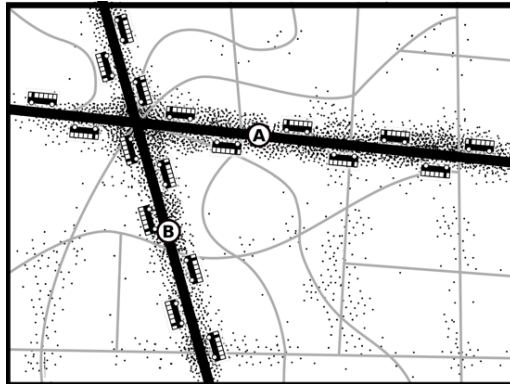
Why Redesign the Bus Network?

- The DART bus and rail network was designed in the 80's and updated with DART's system growth
- There have been significant demographic and employment shifts in the region that have impacted the effectiveness of the network
 - Employment growth accelerated outside the core and away from the downtown area, which was the focal point of the rail network as originally designed
 - Neighborhood and demographic shifts have impacted the effectiveness of service for those who depend upon transit for mobility
 - Ridership relative to cost has fallen steadily for the past decade
- This is not unique to DART; many public transportation systems throughout the U.S. are experiencing these issues

Bus Redesign Goals

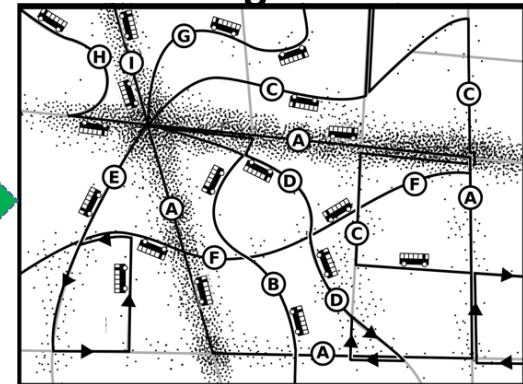
The redesign effort serves to arrive at a mix between two competing goals

Ridership Goal



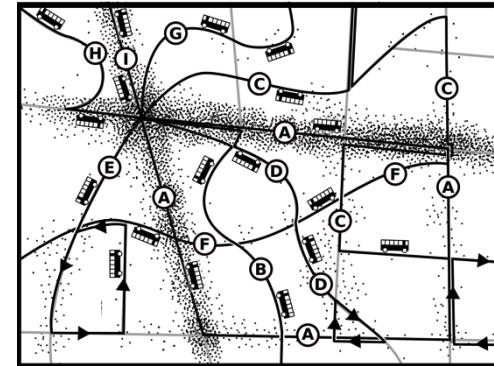
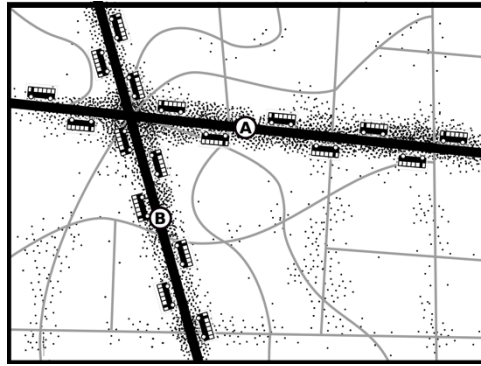
- Low subsidy, high farebox return
- Support dense and walkable development
- Maximum VMT reduction.
- Protect the economy from congestion

Coverage Goal



- “Access for all”
- Support suburban low-density development
- Lifeline access for everyone, no matter where they live
- Service to every city or electoral district

DART's Current Position



Ridership

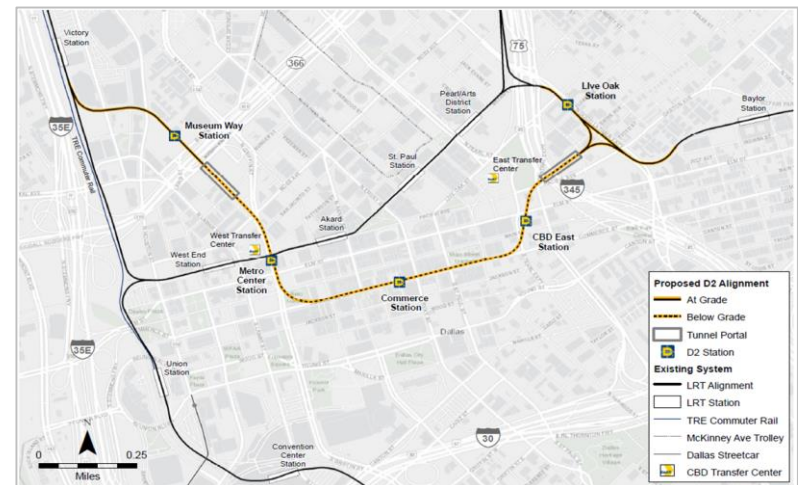
Coverage

DART's Existing Bus Network
~ 55% ridership goal

- About 55% of existing budget is spent towards a ridership goal, and the balance towards coverage goals
- 55% of the service is where it would be if ridership were the only goal
- Only 1% of current network involves duplicative coverage, often a source of resources for service re-design

Capital Investments

- 28 Red/Blue Platform extensions to reduce crowding and allow for longer trains systemwide
- 26-mile Silver Line east-west corridor Plano to DFW Airport
 - Regional travel demand model estimates annual reduction in vehicle miles of travel (VMT) by 24,000,000
- D2 Subway second light rail alignment in downtown Dallas to add capacity and sustain system into the future
 - Will allow DART to add more trains, service patterns to accommodate regional growth
 - Operational flexibility

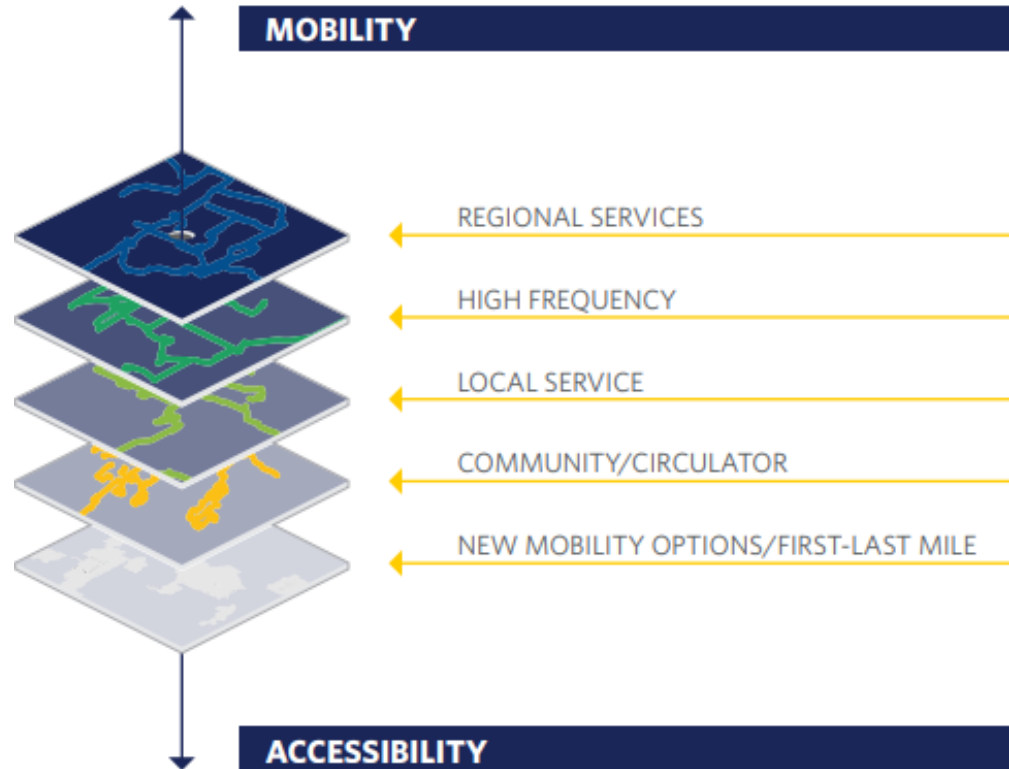




Looking Ahead

Looking Ahead Transit System Plan

- 2045 Transit System Plan is in development concurrent with Bus Network Redesign
- Coordinated with the DART 20-Year Financial Plan
- With rapidly changing industry will include near-term, strategic element
- Policy guidance
- Vision for future



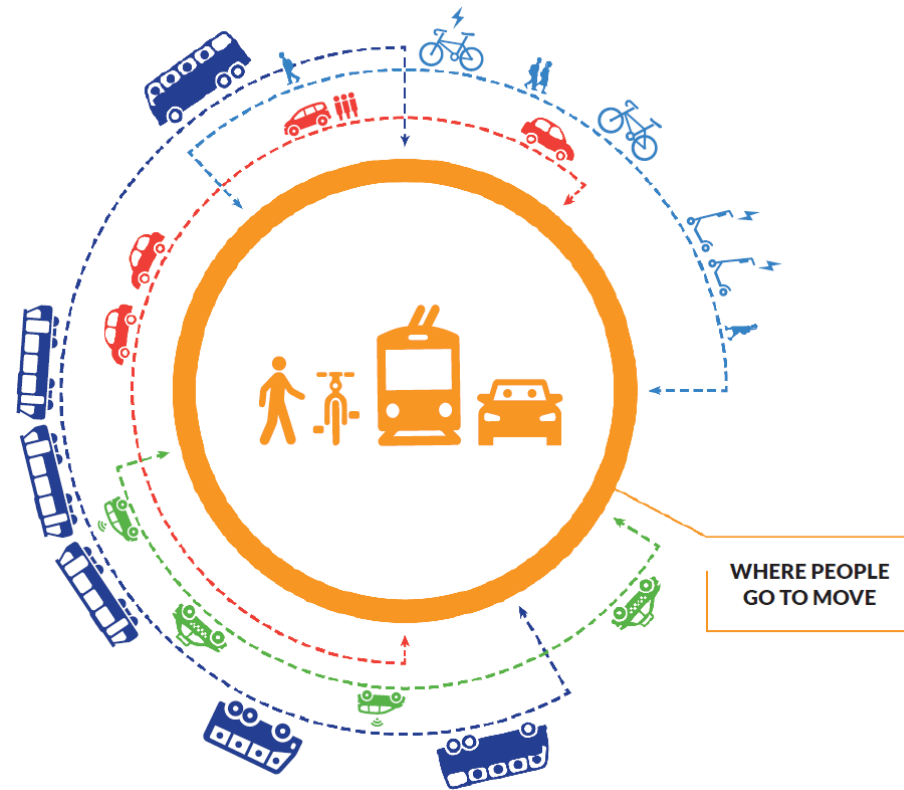
Themes for Transit System Plan

- Integrate **mobility** options to enhance opportunities and reduce reliance on automobile
- Focus on **innovation** to improve efficiency and experience
- Targeted **service** improvements and system **expansion**
- **Collaboration** with local, regional, private partners
- Coordinated **land use** and transit planning for **sustainable** future

Public transportation continues to be the backbone for connecting and building thriving communities. There is no other way to move large numbers of people quickly, safely, affordably and with a minimum of environmental impact.

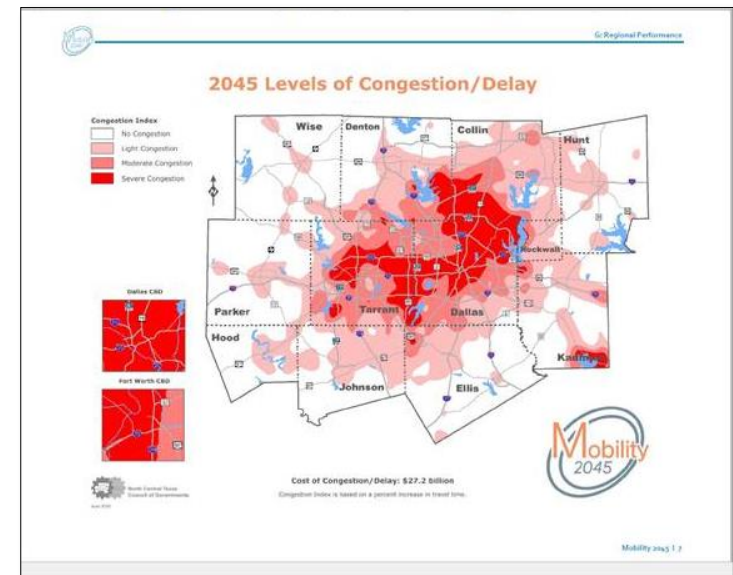
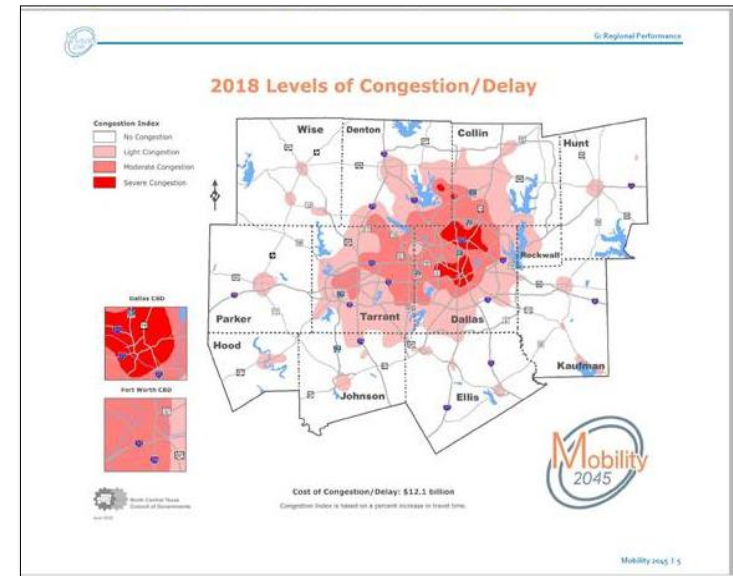
DART Facilities as Shared Use Mobility Hubs

- How do we physically accommodate our app capabilities?
- DART facilities can transform into shared use mobility hubs with DART continuing to provide the “mass transit” element and physically integrating other DART microtransit and private services
- Facilities can also integrate technology and clean energy innovations
 - EV Charging
 - Solar
 - Customer amenities



Optimizing Bus Operations and Customer Access

- With increasing congestion, potential improvements to enhance bus operations and customer access will focus on:
 - Bus Rapid Transit
 - Traffic signal priority
 - Queue-jumping lanes
 - Dedicated transit lanes
 - Coordination with bicycle and pedestrian facilities





Summary

Summary

- DART is a major part of efforts to reduce emissions and reduce reliance on the automobile
 - We continue to evolve to demonstrate value of transit
- Several agency efforts are underway to continue to work towards sustainability at all levels
- Collaboration will continue to be a key effort to achieve objectives
 - City efforts - land use planning including focused transit-oriented development and access to transit
 - Regional policies to support transit and related programs
 - Coordination on specific plans such as Dallas Comprehensive Environmental and Climate Action Plan (CECAP)



DART.org

Sustainability Project Highlight

Renewable Natural Gas

- **Project Description:**

- DART will contract for the use of 100% Renewable Natural Gas (RNG) to fuel DARTs CNG bus fleet. The contractor will apply for Renewable Identification Number (RIN) credits with the EPA and then sell those RIN credits on an open market. DART will receive a fixed percentage of the RIN sale price. The RNG is produced from raw biogas from landfills collected and upgraded to pipeline quality biomethane, or RNG. The finished gas is then injected to a common carrier pipeline, where the Environmental Attributes are separated from physical gas and delivered back when natural gas is converted to vehicle fuel. Data is collected to ensure the proper accounting of Environmental Attributes and fuel usage. This data is then used to generate RINs.

Renewable Natural Gas

- **Background history:**

- In late 2017, DART received an unsolicited proposal from the Operator and Maintainer of our 4 CNG Fueling Stations through the DART Innovation Portal. Their proposal was simple: DART would receive a minimum of \$250,000 annually and/or 2.5% of the Renewable Identification Number (RIN) sales.
- In 2018, DART released an RFP for a revenue generating contract for Renewable Natural Gas. Our evaluation criteria weighting was 50% technical, which focused mainly on the contractor's experience and processes in generating and selling RINs, and 50% revenue. Revenue considered the RNG MMBTUs to be delivered annually and the percentage of RIN sale price.
- DART received 4 proposals. On September 11, 2018 the DART Board passed resolution #180098 authorizing DART to enter into a revenue contract with Element Markets Renewable Energy, LLC for a term of 5-years with one two-year option.
- The period of performance began on January 1, 2019 and DART received its first check in March of 2019.

Renewable Natural Gas

- **Funding/Cost:**
 - Revenue Generating
- **Internal Benefits:**
 - Based on today's market value of D3 RINs DART stands to generate over \$7 million in revenue over 5 years
- **External Benefits:**
 - Many municipalities and corporations are implementing sustainability strategies, the majority include the use of alternative fuels such as electric vehicles (EVs). RNG has up to 90.7% less greenhouse gas emissions and 85.9% less nitrogen oxides (NOx) than electricity as reported by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy. RNG also produces zero particulate matter. When a fleet uses RNG, the life cycle of greenhouse gas is reduced by an additional 83%.