CAV Technology Testing in Fairfax County

June 18, 2019 Presentation to the Economic Advisory Commission
by Fairfax County Staff, Dominion, DPRT, and Optimus Ride

Eta Nahapetian, Office of the County Executive

Dale Castellow, Office of the County Executive

Leonard Wolfenstein, Chief, Transportation Planning Section, Department of Transportation

Clinton Edwards, Northern Virginia Transit Programs Manager, Virginia Department of Rail and Public Transportation

Emil Avram, Vice President, Innovation, Dominion Energy

Jenny Larios Berlin, Co-Founder & Chief Operations Officer, Optimus Ride
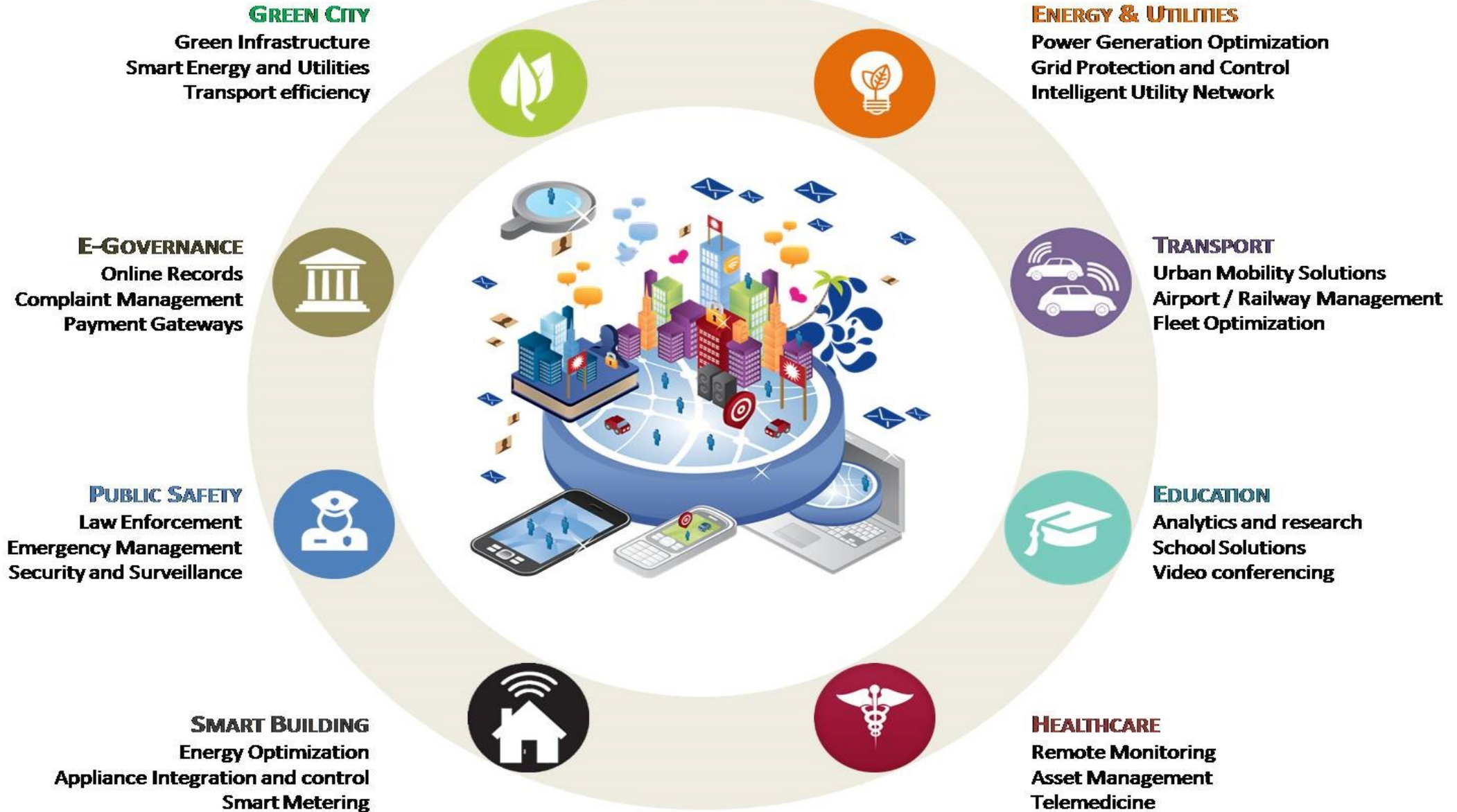
Sunil Seelamsetty, Vice President, Development, Brookfield U.S. Office Division

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Fairfax Smart Community Goals and Strategies

- Leverage existing business sectors

- Spark business growth

- Nurture innovation ecosystem

- Strengthen partnerships with educational institutions

- Use technology to more effectively and efficiently provide services to residents

- Evaluate the infrastructure framework for deploying smart technology

- Partner with Community and Business on Pilot Projects

- Continue to develop partnerships with state, educational institutions, business community, public utilities.

Service Sectors

GREEN CITY
Green Infrastructure
Smart Energy and Utilities
Transport efficiency

ENERGY & UTILITIES
Power Generation Optimization
Grid Protection and Control
Intelligent Utility Network

E-GOVERNANCE
Online Records
Complaint Management
Payment Gateways

TRANSPORT
Urban Mobility Solutions
Airport / Railway Management
Fleet Optimization

PUBLIC SAFETY
Law Enforcement
Emergency Management
Security and Surveillance

EDUCATION
Analytics and research
School Solutions
Video conferencing

SMART BUILDING
Energy Optimization
Appliance Integration and control
Smart Metering

HEALTHCARE
Remote Monitoring
Asset Management
Telemedicine

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Connected Autonomous Vehicle Shuttle Pilot Project

Why CAVs?

- Position Fairfax as a leader in smart community initiatives
- Determine the viability of an autonomous shuttle as a first- and last-mile mobility solution
- Understand how the project integrates and impacts county's existing TDP

- Gain better understanding of integrating technology in public spaces and civic infrastructure.
- Gain understanding of project structure from a governmental, private sector, financial and legal perspective
- Expand the test bed for VDOT's CAVs

Research Objectives

- Explore innovative technologies to support and expand public transportation

- Identify how CAV shuttles can fill service gaps in traditional transit.

- Determine how CAVs can assist in congestion mitigation and environmental quality

- Investigate what kinds of environments CAV shuttles can operate in best

- Test the transit rider market for interest and readiness

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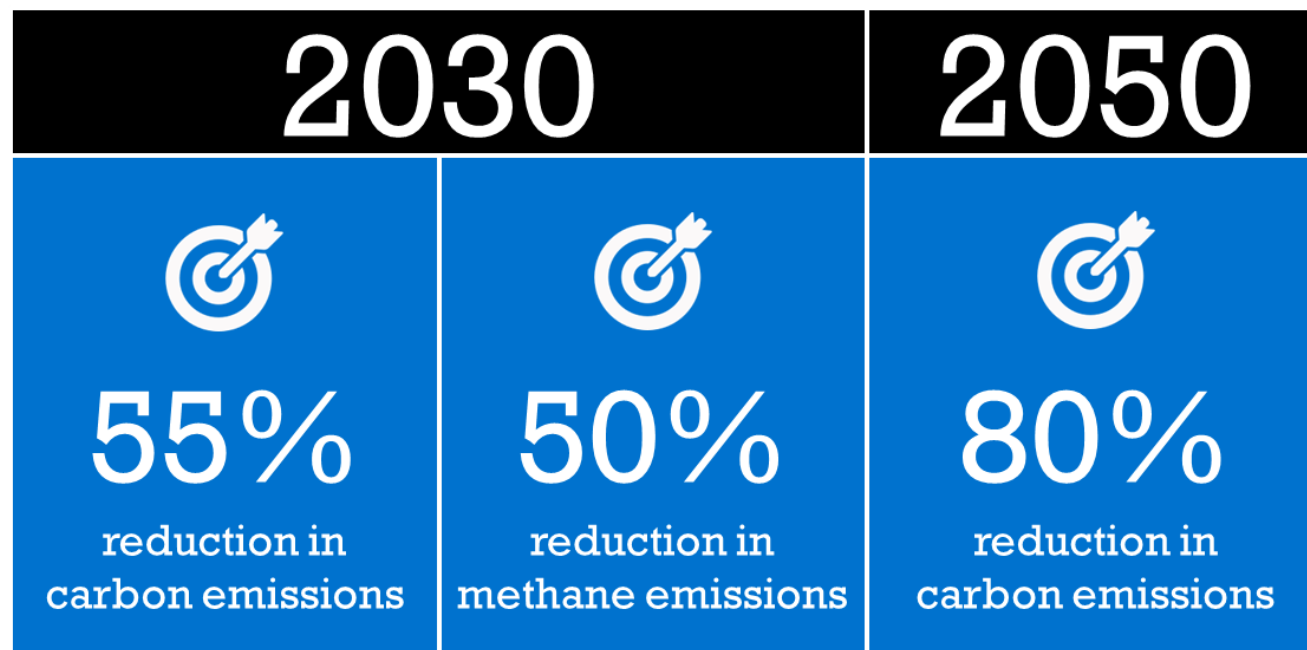
EasyMile EZ10 shuttle. Photo source: Virginia Tech

Innovation

Defining Our Shared Future

Presentation to the Fairfax County Economic Advisory Commission June 18, 2019

VISION: Become the Most Sustainable Energy Company in America

- Environmentally & socially responsible

- Customer-focused

- Community partner

- Employer of choice

2030		2050
55% reduction in carbon emissions	50% reduction in methane emissions	80% reduction in carbon emissions

Note: Targets do not include Southeast Energy Group at this time.

Energy Industry Changes

Technology Changes   Customer Changes   Marketplace Changes

Dominion Energy®

Transportation: Converging Changes

Shared
- Increased prevalence of ride-hailing and shared economy services

Autonomous
- Investment and capability of AV tech

Electric
- Higher utilization, lower maintenance and fuel costs
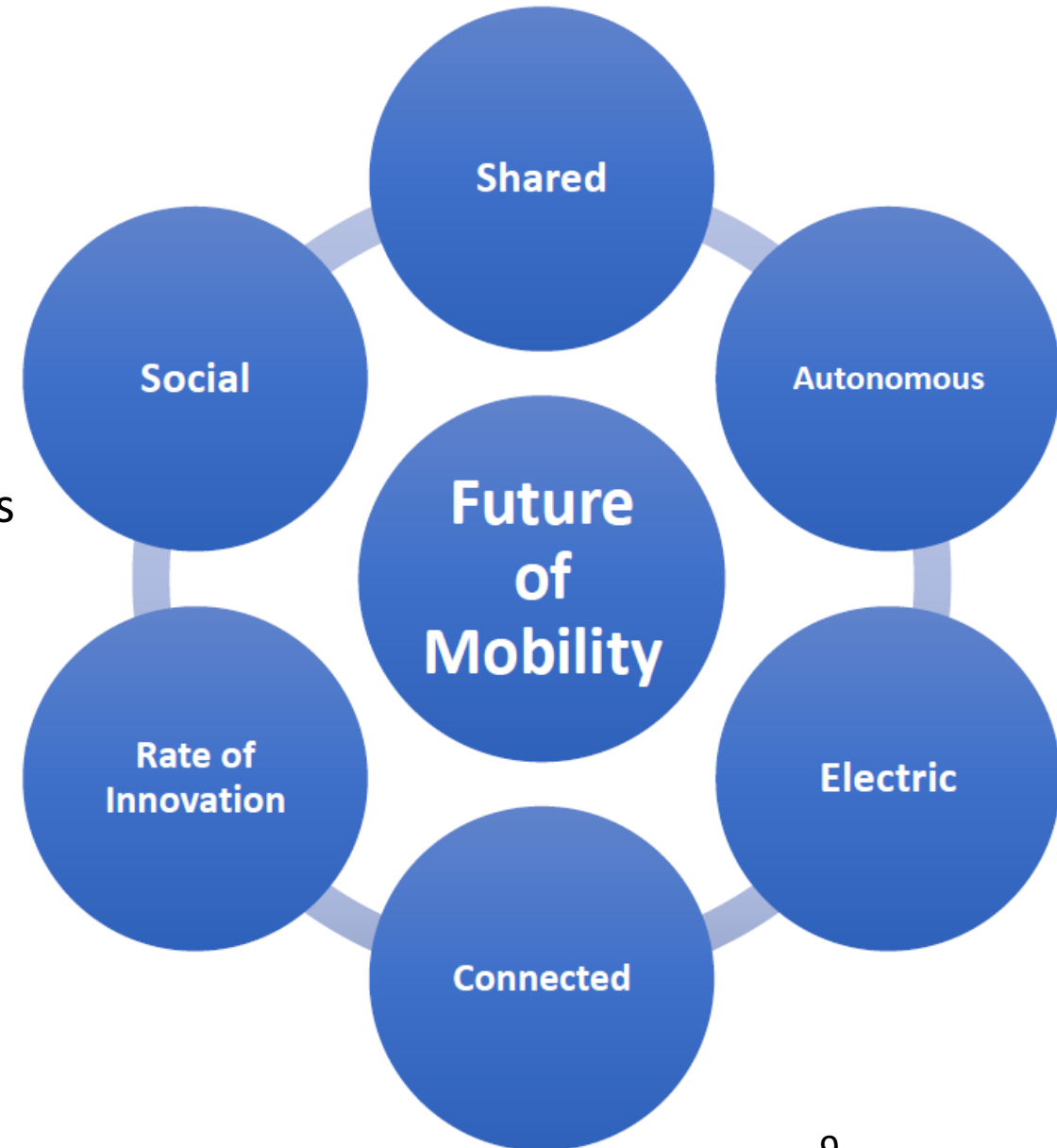
Connected
- Allow card to interact with surrounding infrastructure and other vehicles

Rate of Innovation
- Increased update cycle

Societal
- Generational changes in how users view services and transportation

Dominion Energy's Interest In Autonomous Electric Vehicles

❑ We are a public service entity

- We started in the early 1900's as an electric street car company
- Seeking solutions to benefit the public
- Transportation electrification is on the rise
- This project will test an advancing last-mile transportation solution

❑ Electrification benefits

- Fuel cost reduced by ~75%
- CO_2 emission reduced by ~75%

❑ Automation benefits

- Reduces cost
- Improves safety (in the long run)

Fairfax County

ACCELERATING INNOVATION

OPTIMUS RIDE

EXPANDED SELF-DRIVING
VEHICLE TESTING ZONE

RAYMOND L. FLYNN
MARINE INDUSTRIAL
PARK & SELF-DRIVING
VEHICLE TESTING ZONE

OPTIMUS RIDE
HEADQUARTERS

OPTIMUS
RIDE

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FLEET AS A SERVICE

- Optimus Ride develops technology to deploy and operate fleets of self-driving electric vehicles in geo-fenced areas

- Custom mobility networks are designed for client sites to provide flexible mobility and delivery solutions that do not require fix routes or stations

USER INTERFACES

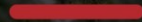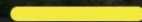**FLEET OPERATOR**

IN-VEHICLE DISPLAYS

FLEET MONITORING PLATFORM

BOSTON DEPLOYMENT

T

MBTA COMMUTER RAIL

OPTIMUS RIDE SELF-DRIVING VEHICLE NETWORK

DEPLOYMENT UPDATES

– Brooklyn Navy Yard
  (Brooklyn, NY)

– Paradise Valley Estates
  (Fairfield, CA)

– Brookfield Halley Rise
  (Reston, VA)

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Questions?