

# Virtual Travel: Emerging Transportation Mode

TEMPO

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NCTCOG

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# Overview

1. What is Virtual Transportation?
2. Where can Virtual Transportation take us?

# Cyberspace: Host of New Transportation System?



**150 years ago a transportation system in the air was an utterly foreign notion; yet, we now have a well-developed transportation system in the air.**



**Could cyberspace be the next host of a “transportation” system, just as the air hosted a new transportation system last century?**

# Digital Transportation Ready for Take Off?



**"It's got to be 'Infrastructure 2.0' where we focus on robotics and future technologies" –Mark Cuban**

# Transportation and Broadband Access

Extend remote work opportunities to more people via broadband access and other tech (5G)--equity

Build broadband access into transportation technology projects

Adaptive use of transportation fiber—e.g.,

- Link traffic signals to TMCs and connect other facilities in process

Transportation ROW

- Fill in fiber gaps
- Explore PPP opportunities

Broadband + Cloud = Connected vehicle ecosystem

Congestion management tool

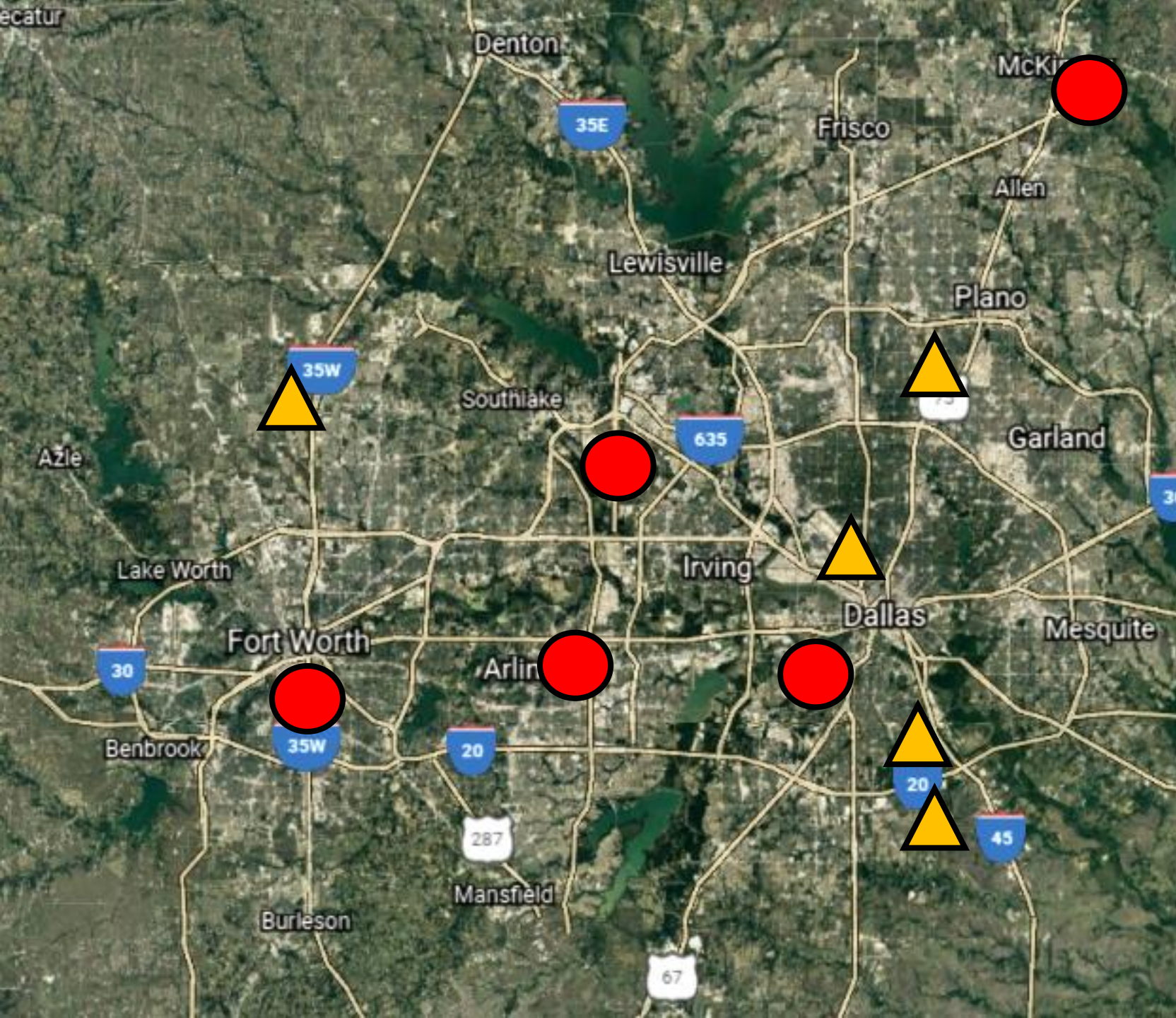
# TECHNOLOGY PROJECTS FOR 2021

Internet for All

Unmanned Aircraft

Next Generation Freeway Design



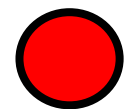


# AV2.2/2.3 Project Map



## Round 1

- Dallas College: AV Circulator/Workforce Dev
- DART: AV LoveLink
- Fort Worth: AV Truckport
- Paul Quinn College: Food Desert Delivery
- Richardson: IQ Testbed



## Round 2

- Arlington: AV RAPID
- DFWIA: AV Parking/Curb Mgmt.
- McKinney/Dallas: AV Broadband Services
- S/SE Fort Worth Projects

# AV2.2/2.3 Technologies Portfolio

Round 1	Round 2
Automated Vehicle (AV) Shuttle	App-Based Ridesharing
AV Trucking	Automated Parking
Connected Vehicle (CV)	Broadband Access/Virtual Transport
Neighborhood Delivery Bots	CV Emergency Alerts
Public Transit Buses	CV Traffic Signals
	Curb Management
	AVs as Service Delivery Tools
	Teleoperation



# TRAVEL DEMAND SUBSTITUTION AND ACCESSIBILITY IMPROVEMENTS USING TECHNOLOGY: **FOUNDATION FOR CLASSIFICATION OF A TRANSPORTATION MODE**

TRAVEL DEMAND SUBSTITUTION BENEFITS:

AIR QUALITY

MOBILITY

ACCESSIBILITY IMPROVEMENTS:

ACCESS TO NEEDS VIA TECHNOLOGY

# TECHNOLOGY FAMILY

AUTONOMOUS MOBILE VEHICLE TO RESIDENTIAL LOCATIONS:

PHASE 1 / EMERGENCY

OPEN PLATFORM INCUBATOR

ACCESS TO BROADBAND:

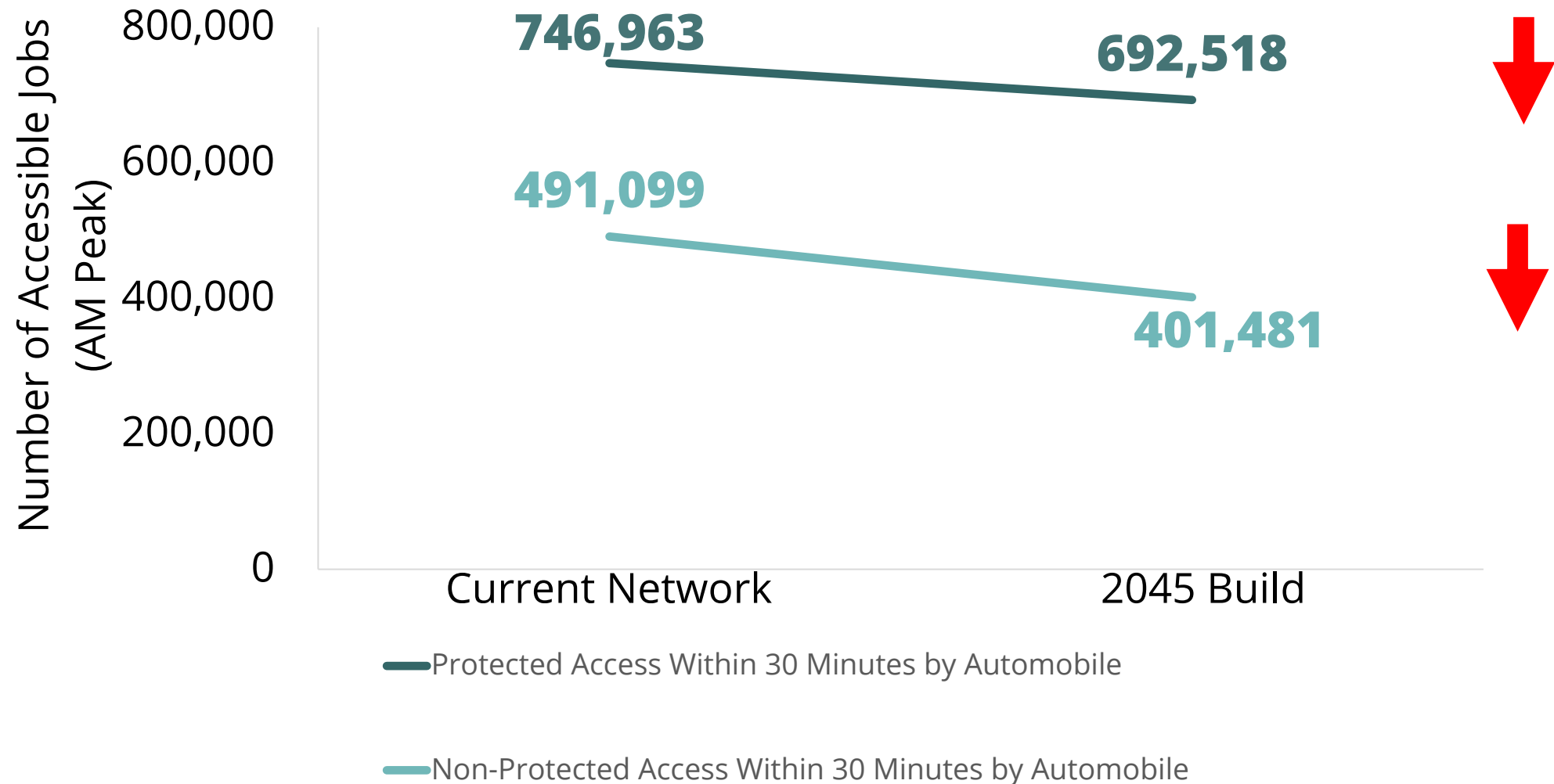
PHASE 2

RETROFIT AND NEW LOCATION

PILOTS IMPLEMENTED TOGETHER

# Where Can Virtual Transportation Take Us?

# Job Access by Auto



# Key Implications

1. Regions that deliver high-quality physical and digital transportation best positioned to compete in global economy
  - Broadband access delivers labor market agglomeration, accessibility, and equity benefits
2. Good digital transportation complements physical transportation system and vice-versa
  - Allows more work/life connections per person
  - May pressure to use more land/energy for physical infrastructure





# Federal Ministry of Transport and Digital Infrastructure

[BMDV - Homepage \(bmvi.de\)](https://www.bmvi.de)

# MPO Implications

1. Transportation planning encompasses digital issues like broadband access—New mode tradeoffs
2. New funding sources
3. New collaboration opportunities
4. MPO leadership for USDOT to fund broadband access
  - As a virtual transportation mode
  - As a travel demand management tool
5. Technologies and policies that facilitate “virtualization” of life activities



# NCTCOG REGIONAL SINGLE-OCCUPANCY VEHICLE TRIP REDUCTION TARGET RESOLUTION

NCTCOG's Regional Single-Occupancy Vehicle Trip Reduction Target Resolution establishes goal to reduce SOV commute trips by 20 percent.

All TDM strategies including carpooling, vanpooling, transit, biking, walking, telecommuting, and flexible work schedules are encouraged to achieve the regional target.

Resolution can be accessed at:

[www.nctcog.org/trans/manage/tdm/single-occupancy-vehicle-trip-reduction-target](http://www.nctcog.org/trans/manage/tdm/single-occupancy-vehicle-trip-reduction-target).

# Transportation Mode Funding: STBG

STBG: “Flexible funding to address State and local transportation needs”

§133(b)(1)(D): “Infrastructure-based intelligent transportation systems capital improvements, including the installation of vehicle-to-infrastructure communication equipment”

§133(b)(11): “Surface transportation planning programs, highway and transit research and development and technology transfer programs, and workforce development”

§133(b)(16): The installation and deployment of current and emerging intelligent transportation technologies, including the ability of vehicles to communicate with infrastructure, buildings, and other road users

# Travel Demand Management Funding: CMAQ

§149(b)(5): “program or project [that] improves traffic flow”

§149(b)(7): “project or program shifts traffic demand to nonpeak hours or other transportation modes, increases vehicle occupancy rates, or otherwise reduces demand for roads through such means as telecommuting, ridesharing, carsharing, shared micromobility (including bikesharing and shared scooter systems), alternative work hours, and pricing”

§149(b)(9): “if the project or program is for the installation of vehicle-to-infrastructure communication equipment”



# Contact

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