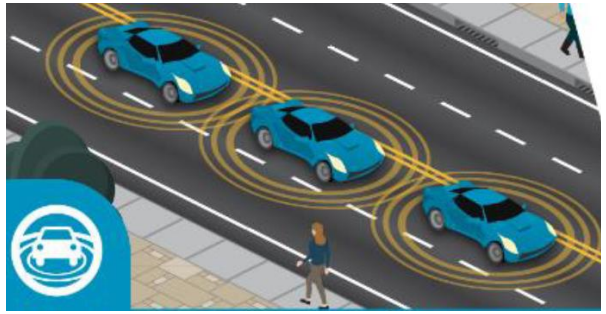

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Integrating Emerging Technology Into Transportation Planning

Georgia Planning Association, 2019 Spring Conference
March 27, 2019, Decatur, GA

Daniel Studdard, AICP, ARC Principal Planner
Maria Roell, ARC Senior Planner
Kofi Wakhisi, AICP, ARC Senior Principal Planner

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Regional Transportation Technology Policy Document

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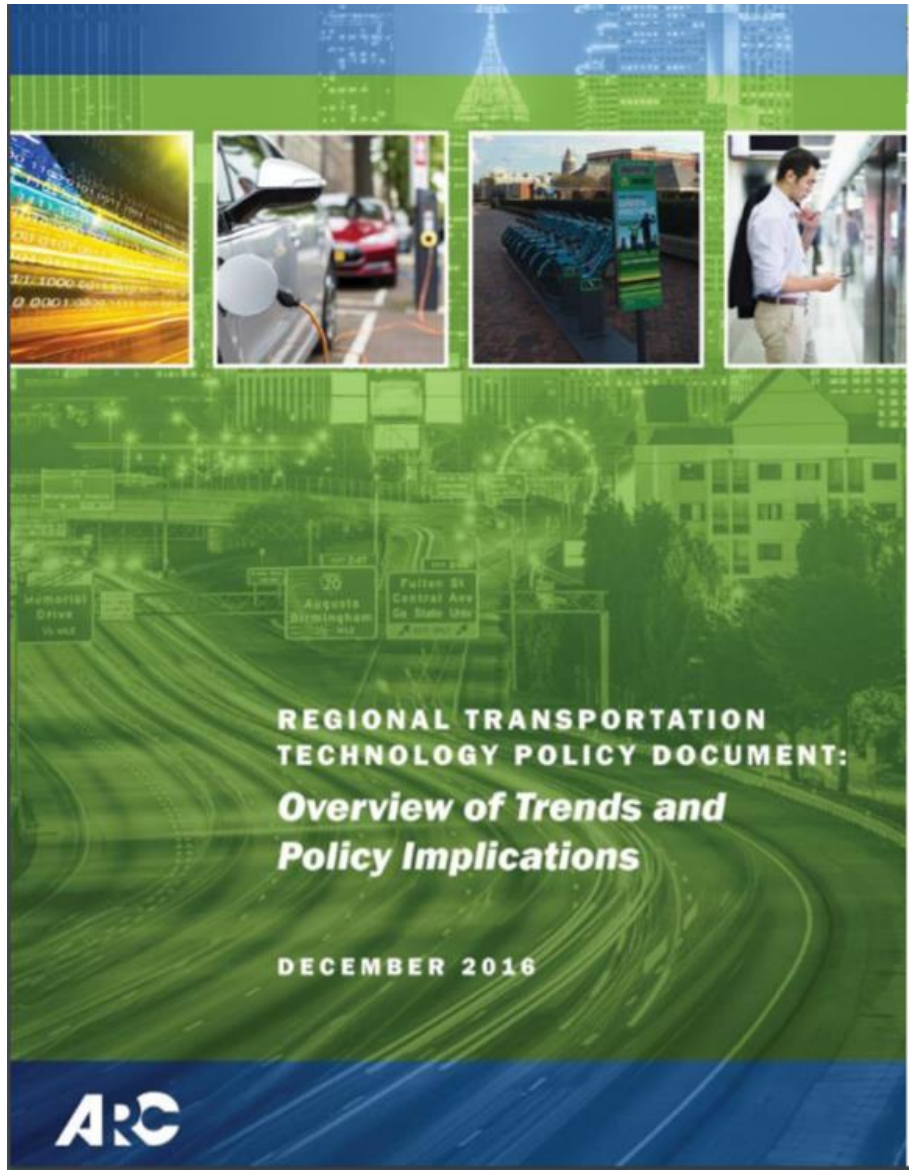
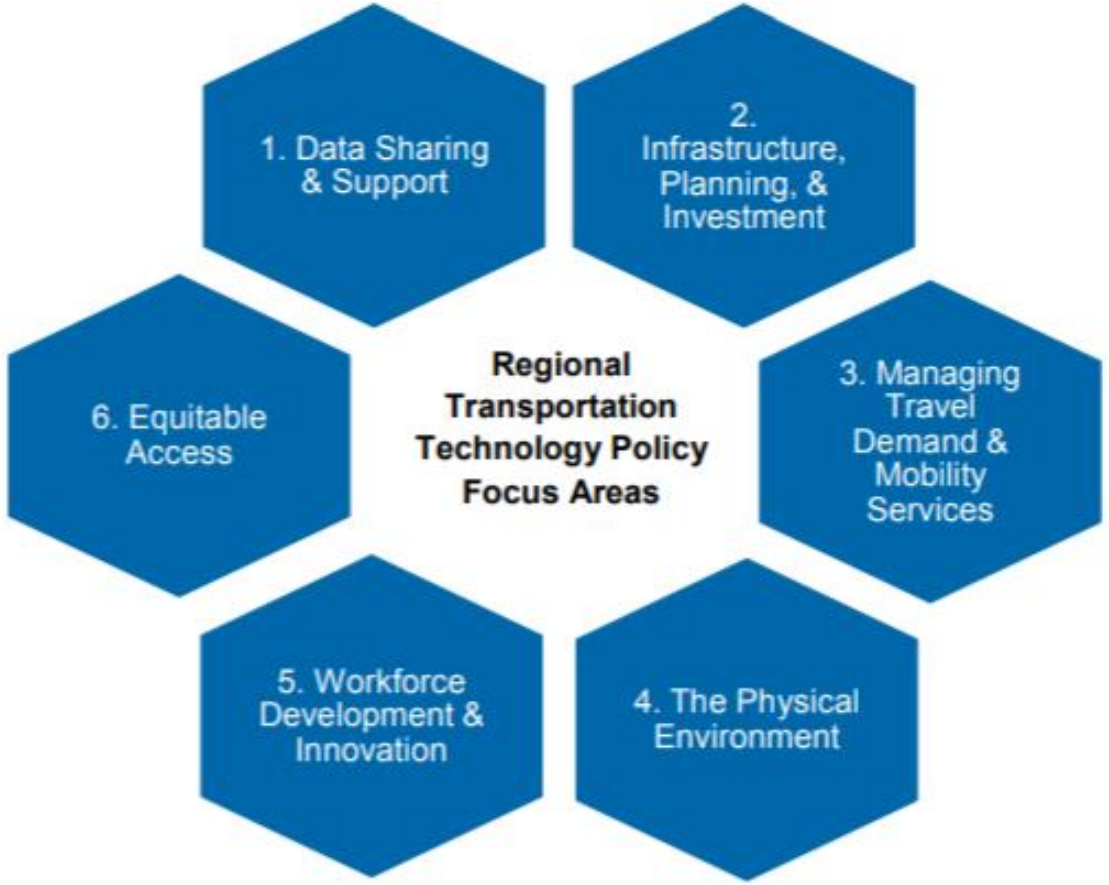


Facilitate data sharing and integration amongst public agencies and between the public and private sectors.

Investments in transportation infrastructure and technologies to **take advantage of new and emerging technology**.



Actively manage travel demand and optimize system performance.

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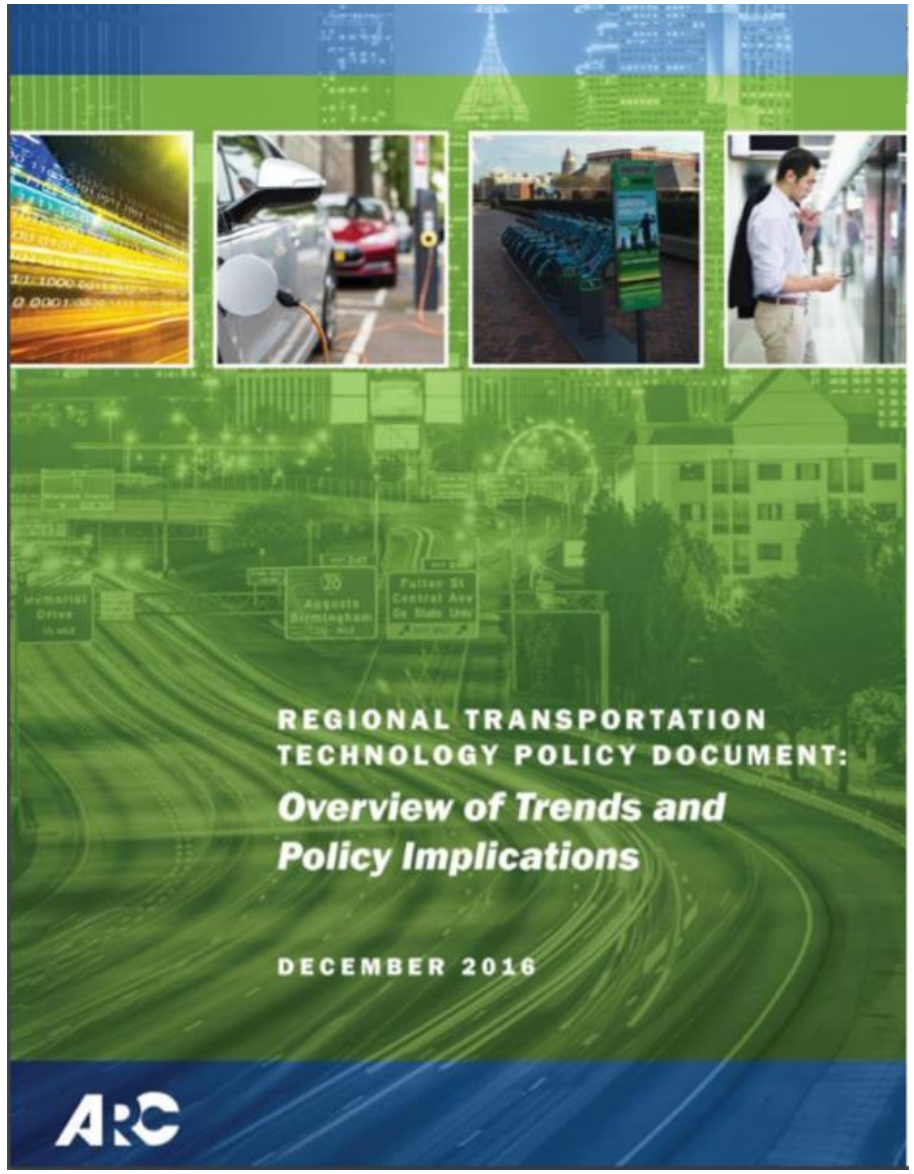

Implementation Mechanisms

- Fund pilot programs to advance technology deployment
- Develop an on-going regional forum or task force around transportation technology innovation.
- Develop partnerships and visionary concepts to help prepare the region to compete for potential future federal discretionary grants or secure private sector funding.

ARC
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Regional Forum: ConnectATL

How should the Atlanta Region prepare for technology changes that will impact transportation, logistics, and much more?

- One-Day Summits in September 2017 and 2018
- Brought together
  - City and county government leaders
  - Local transportation officials
  - Industry Leaders
- Organized by ARC

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Policy Action

Chamblee Mayor Eric Clarkson at Georgia Smart Communities Challenge meeting, 2/5/19

Incorporate technology scenarios into future regional, corridor, and local transportation and land use planning efforts:

- LCI Program
  - Georgia Smart Communities Challenge
  - Partnership with Georgia Tech
- Comprehensive Transportation Plans (CTPs)
- Freight Cluster Plans
- Other Plans?

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Pilot Implementation: Mobileye

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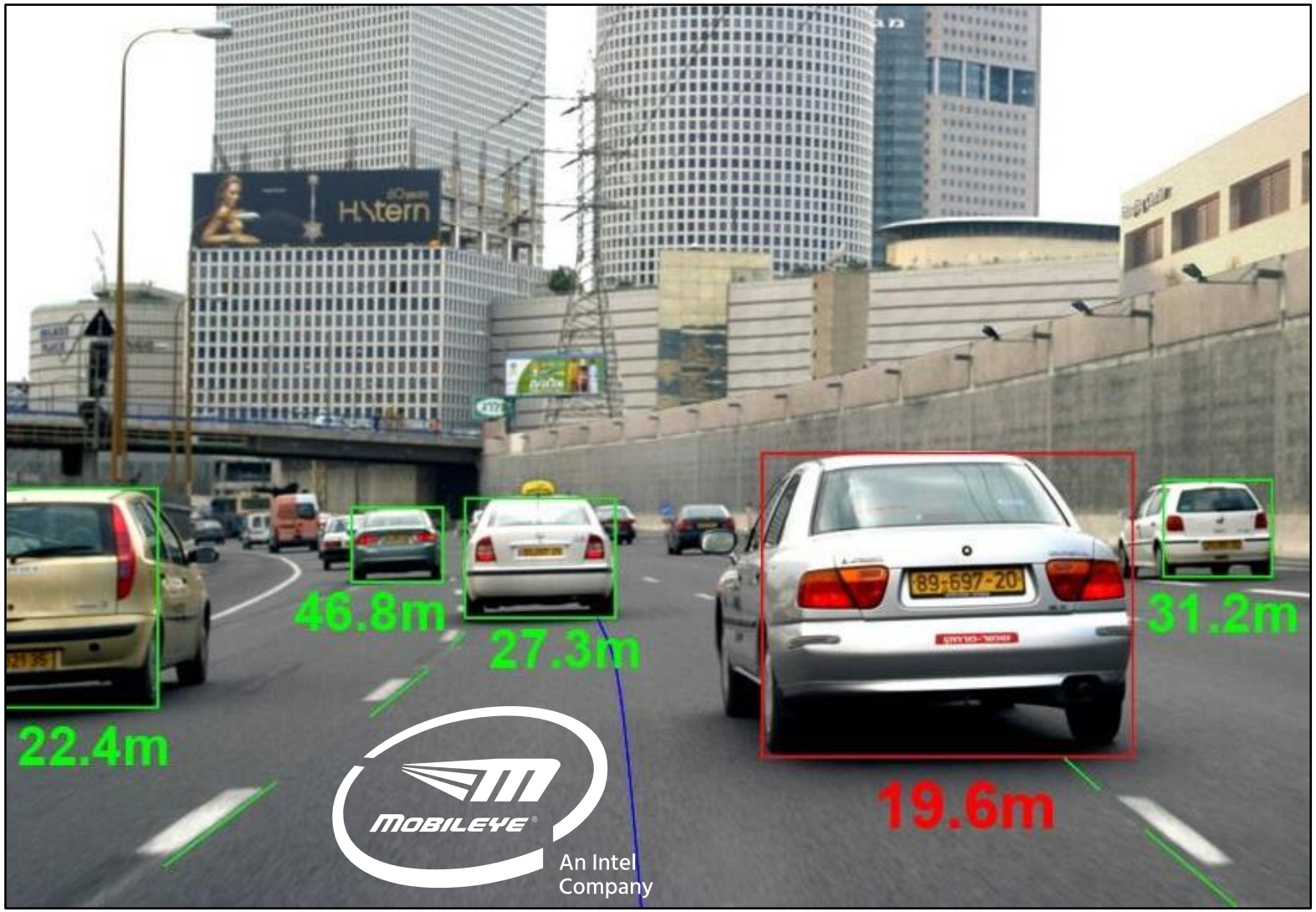
Visual and Audible Alert

- Headway/Following Time Monitoring & Warning
- Forward Collision Warning
- Lane Departure Warning
- Speed Limit Indicator
- Identifies vehicles, cyclists, pedestrians, lane markings, etc.



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Connected Vehicles: DSRC vs. 5G

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Competing Technologies

- Vehicle version of VHS vs. Beta
- DSRC (Direct Short Range Communication)
  - *Primarily* backed by government
  - Supported by General Motors, Toyota, and more
  - Focused on vehicle safety
- 5G
  - *Primarily* backed by private sector
  - Supported by Ford, Audi, and more
  - Connected vehicle support, faster internet, and IOT connectivity

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DSRC vs. 5G

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Forbes Billionaires Innovation Leadership Money Consumer Industry Lifestyle

Toyota Has Big Plans To Get Cars Talking To Each Other And Infrastructure In The U.S.

Sam Abuelsamid Senior Contributor ⓘ
Autos
A lifetime in the car business, first engineering, now communicating

Vehicle-to-Vehicle (V2V) and vehicle-to_external (V2X) communications (image credit: National Highway Traffic Safety Administration)
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

After well over a decade of development a tentative step by General Motors in 2017, vehicle-to-vehicle (V2V) communications might finally get some market momentum with a push from Toyota. The Japanese automaker has

Forbes, Sam Abuelsamid, Apr 16, 2018

CAR AND DRIVER REVIEWS NEWS FEATURES BUYER'S GUIDE SHOP FOR CARS SUBSCRIBE NEWSLETTER

Ford Will Roll Out a 5G Connected-Car Network across the Lineup by 2022

Higher-speed data and a (theoretical) connected-car network will supplement Ford's driver assistance systems.

By CLIFFORD ATIYEH JAN 8, 2019

Ford will equip its entire lineup with 5G modems within three years in anticipation of an industry standard (which is as yet undecided) for connected-car networks.

Speaking at Monday's kickoff of the CES technology show in Las Vegas, Ford's

Car and Driver, By Clifford Atiyeh, Jan 8, 2019

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ARC's Regional TSMO Plan

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TSMO today

New modal options and business models

New data sources

Connected and automated vehicles

2040 Vision

ICF Kimley»Horn Expect More. Experience Better. ConSysTec Lumenor Consulting Group ARC ATLANTA REGIONAL COMMISSION

ARC's Regional TSMO Plan

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Key Visions

- Optimizing Safety
  - Applying technology and context-sensitive approaches to achieve zero fatalities
- Reliable Travel Times
  - Managing planned and unplanned disruptions to reduce unexpected delays
- Efficient Travel
  - Coordinated systems across jurisdictions and modes; accessible, real-time travel information
- Equitable Access
  - People of all ages, abilities, languages, backgrounds, and incomes have access to safe, reliable, efficient mobility options

Foundational Elements

Operations philosophy focuses on moving people and goods, rather than vehicles

Collaboration across jurisdictional boundaries, public and private sectors, and service providers

Data sharing across public and private data providers and users

Fostering a culture of innovation and adaptability to change

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Safety

State 2018 Safety Totals	
Total Crashes	477,105
Injury Crashes	98,996
Total Injured	146,539
Fatal Crashes	1,490
Total Fatalities	1,682
Work Zone Crashes	4,500

Photo Credit: Georgia Department of Transportation

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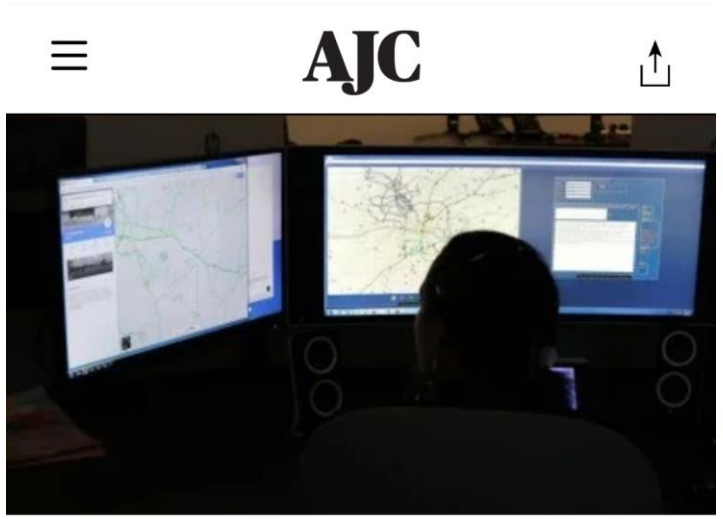
Reliability & Mobility

- Bottlenecks
- Throughput
- Traffic Incidents
- Work Zones
- Weather
- Traffic Control Devices
- Special Events



AJC

Caption

Georgia DOT opens up its playbook to keep Super Bowl traffic moving

Jan 29, 2019

By David Wickert - The Atlanta Journal-Constitution

In a second-floor room overlooking a two-story bank of enormous video monitors, a group of Georgia traffic engineers spent a

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TUESDAY, FEBRUARY 24, 2015

GUV'MENT Who's ready for Atlanta's traffic lights to be synced?

Posted by Max Blau @maxblau on Tue, Feb 24, 2015 at 11:33 AM

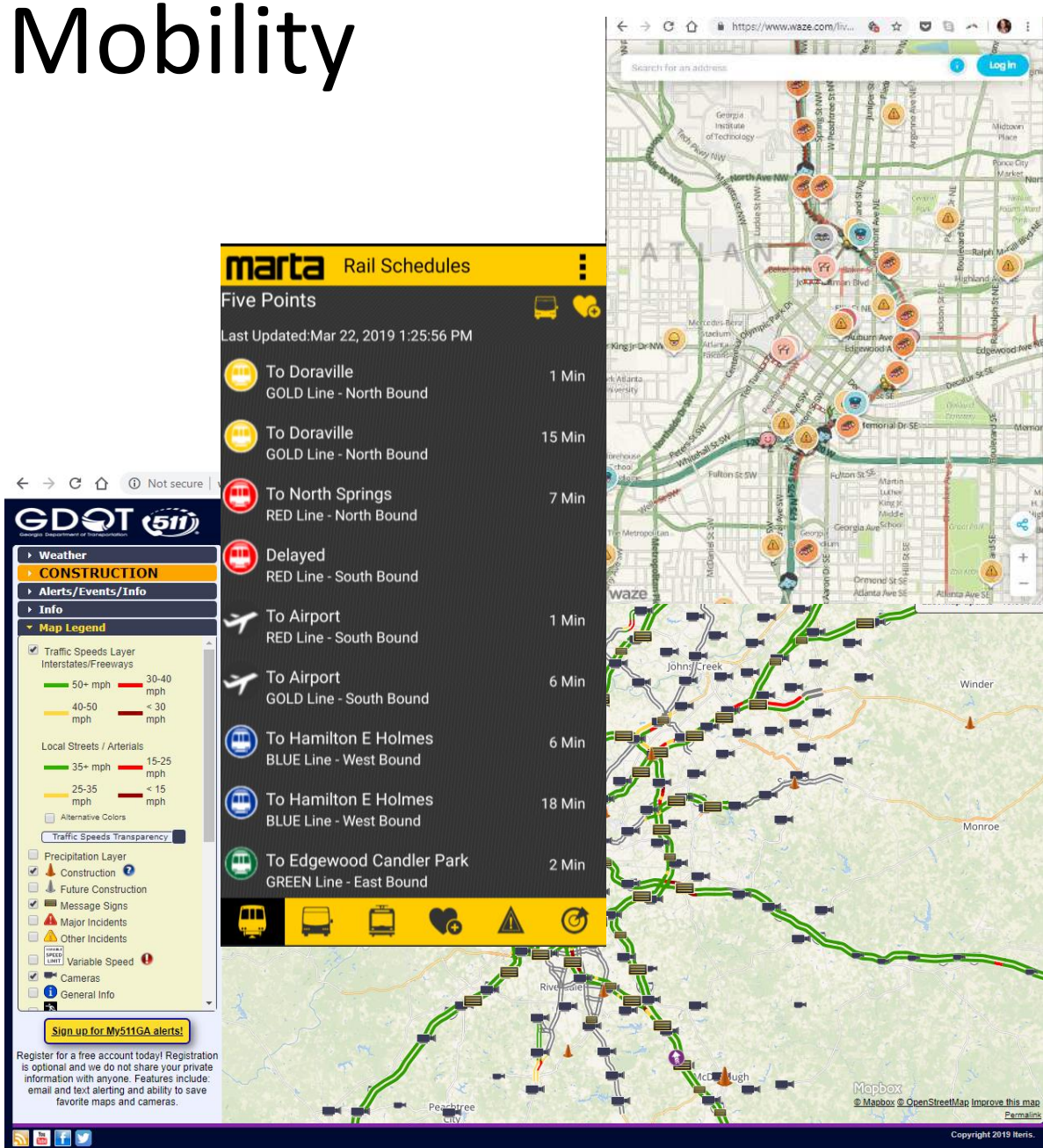
Tweet 39 Like 1k

Atlanta has a traffic-light problem. If you've driven through much of the city, you've encountered this first hand. Motorists can make it past one green light, only to be stopped by another two red lights. Cruising through the city, on many occasions, can be an extremely frustrating experience.

The city wants to change that. As part of its upcoming $250 million infrastructure bond package, it currently plans to spend more than $35 million — **the final figure and list of projects is still being approved** — to sync traffic signals and replace others across the city. Though traffic engineers have updated signals in some parts of Atlanta, lights haven't been synchronized on a citywide level in a long, long time. **According to at least one report**, we're talking the 1970s.

Reliability & Mobility

- Integrated Corridor Management
  - Active Traffic Management
  - Managed Lanes
  - Real-Time Traveler Information
    - Lane Closures
    - Incidents
    - Work Zones
    - Transit Connections
    - Weather
    - Parking
    - Charging Stations



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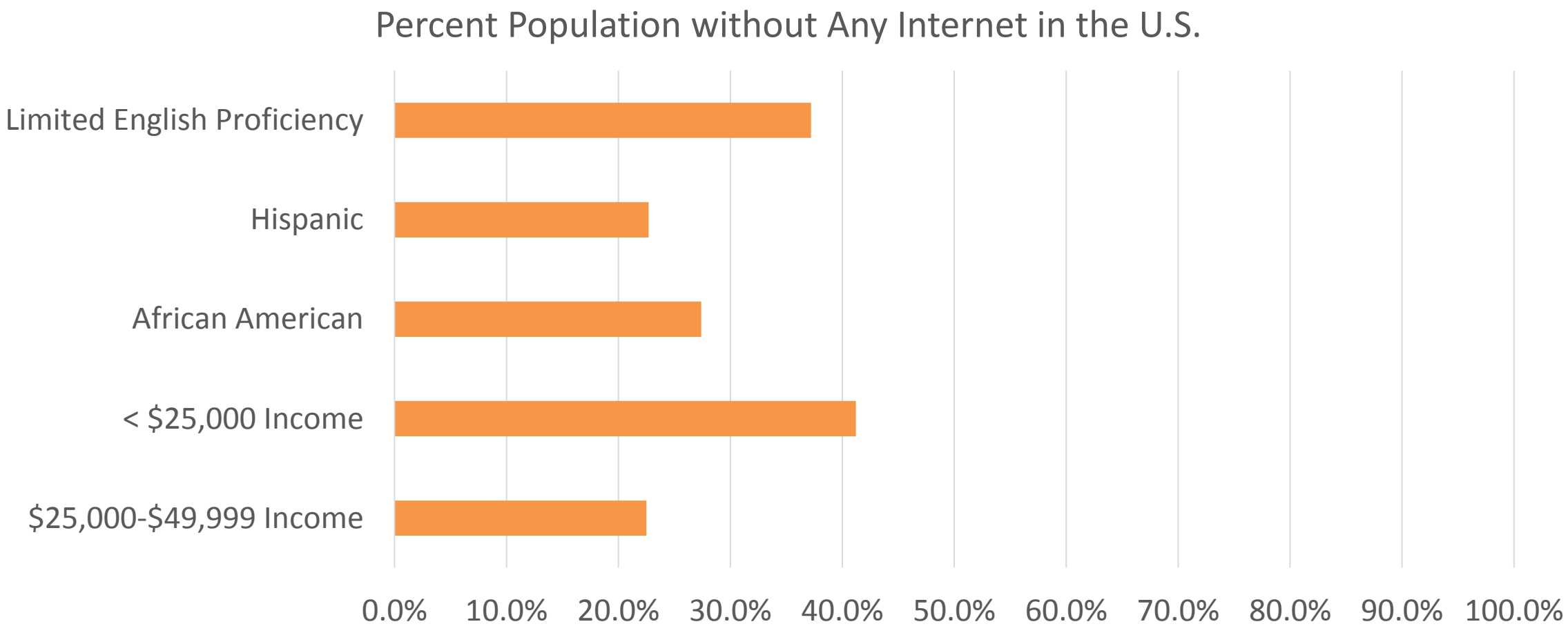
Equity & Accessibility



Source: American Community Survey 2016, 5-Year

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Flexibility

- Curbside Management
- Disruptors
- New Technologies

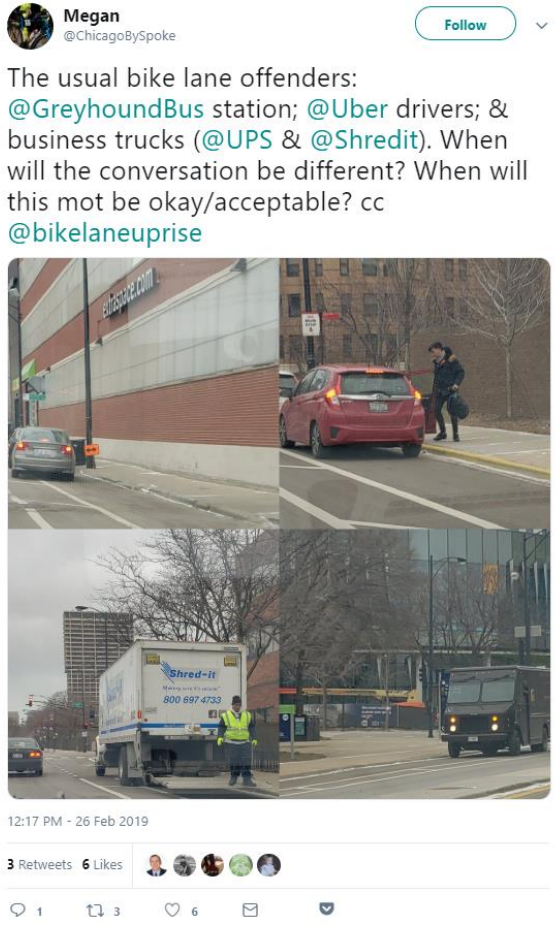
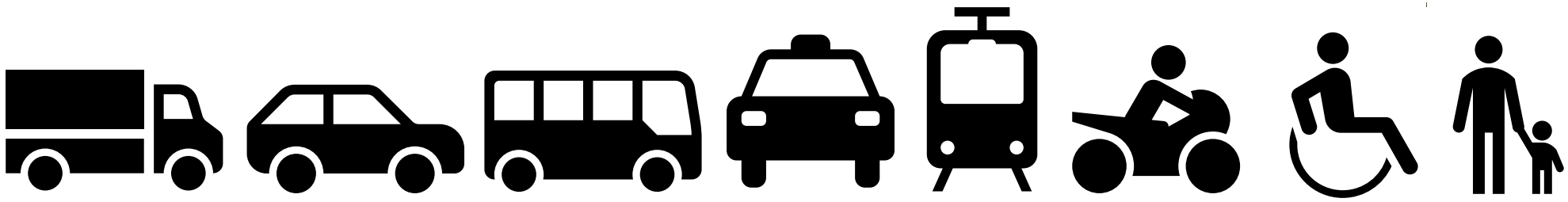


Photo Credit: Bird

Photo Credit: USDOT



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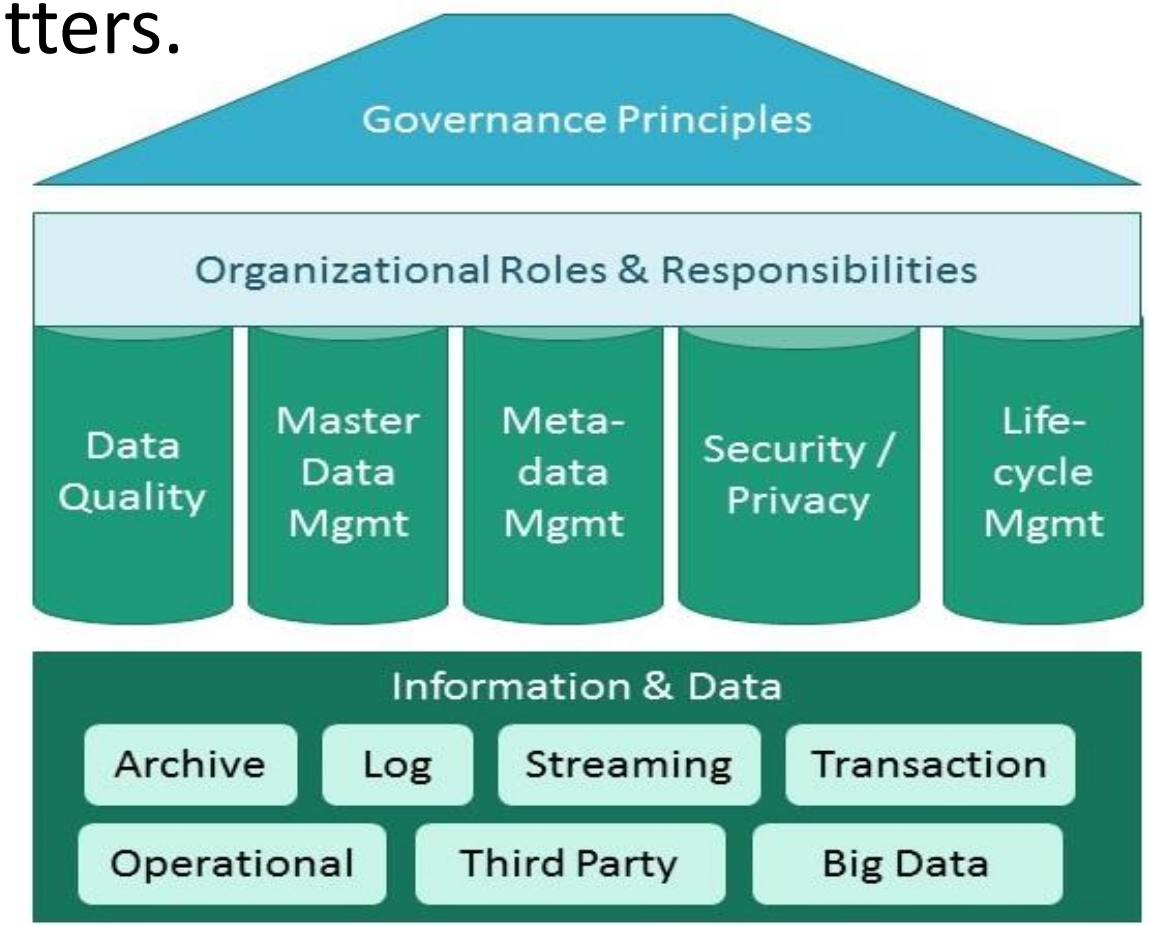
Efficiency

Data Governance: exercise of decision-making and authority for data-related matters.



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Name That Phrase!

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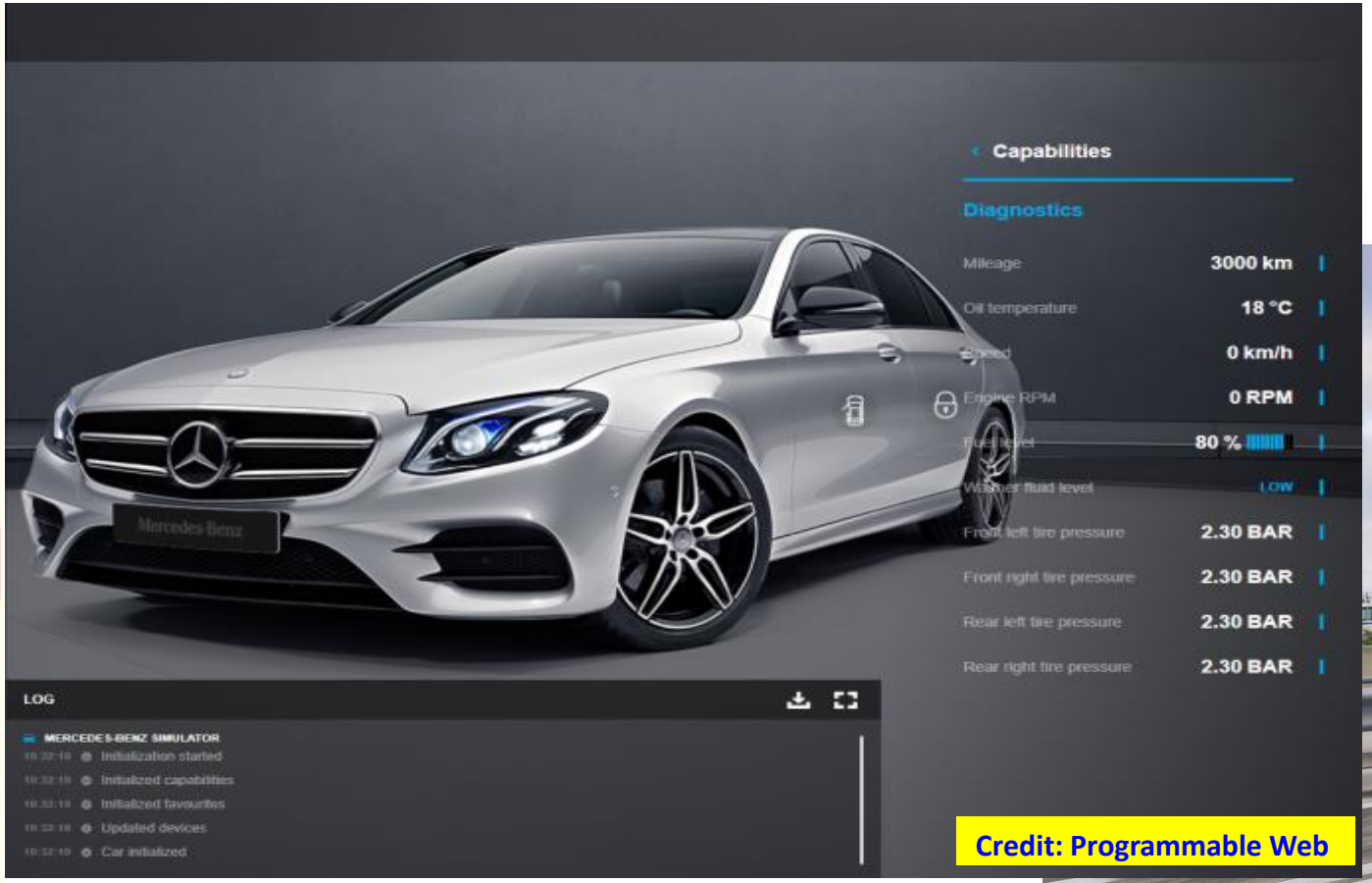
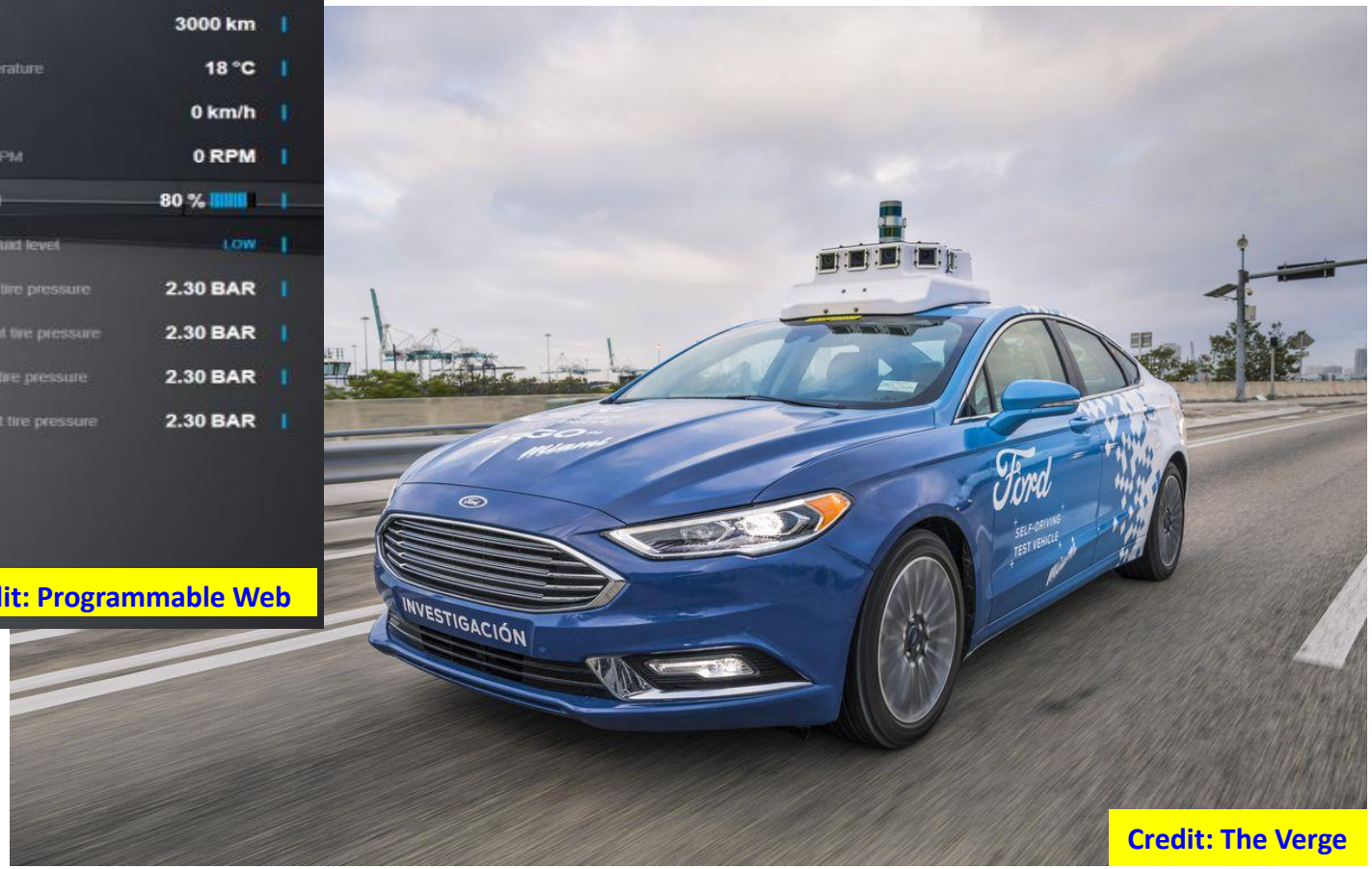
What are These?



Credit: Programmable Web



Credit: The Verge

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Automated/Connected Vehicle

Credit: GCN

*"**Automated** vehicles are those in which at least some aspect of a safety-critical control function (e.g., steering, throttle, or braking) occurs without direct driver input. Automated vehicles **may be autonomous** (i.e., use only vehicle sensors) or **may be connected** (i.e., use communications systems such as connected vehicle technology, in which cars and roadside infrastructure communicate wirelessly). Connectivity is an important input to realizing the full potential benefits and broad-scale implementation of automated vehicles."*

- USDOT ITS-JPO

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Automated/Connected Vehicle

"Connected vehicle technology will enable cars, trucks, buses, and other vehicles to "talk" to each other with in-vehicle or aftermarket devices that continuously share important safety and mobility information."

- USDOT ITS-JPO

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Visible C/AV Infrastructure

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DSRC Roadside Unit (RSU)

5G Antenna / Small Cell

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What is This?

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What is This?

Lincoln Journal Star

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What are These?

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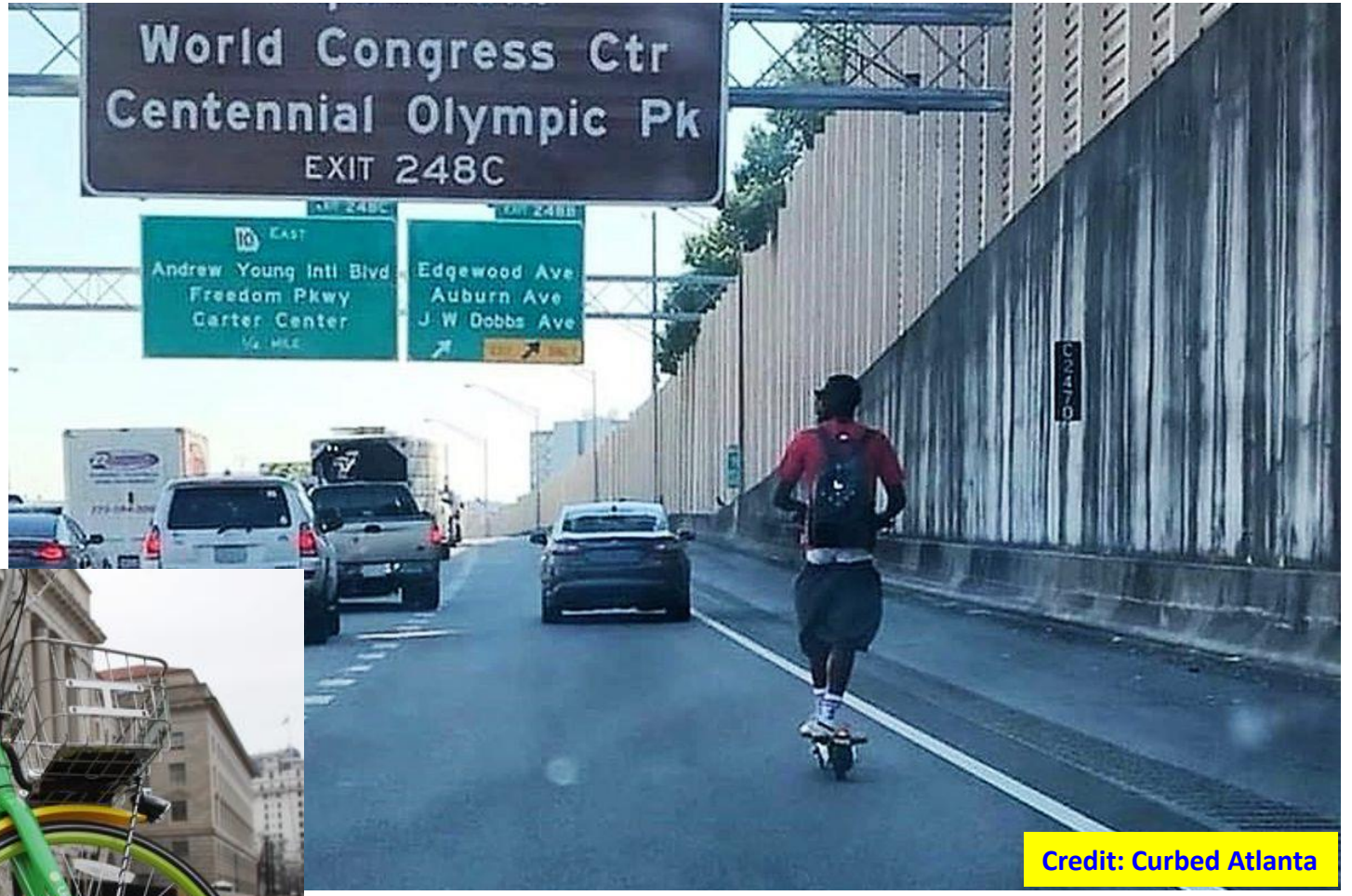
Credit: Curbed Atlanta



Credit: Curbed Atlanta

Credit: Chicago Tribune

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Dockless / E-Scooter Management

Metro Atlanta Documentation

- [City of Atlanta ordinance]
- [02.08.19 – Curbed Atlanta]
- [02.07.19 - Midtown Alliance News Center]

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What is This?

Credit: arsTECHNICA

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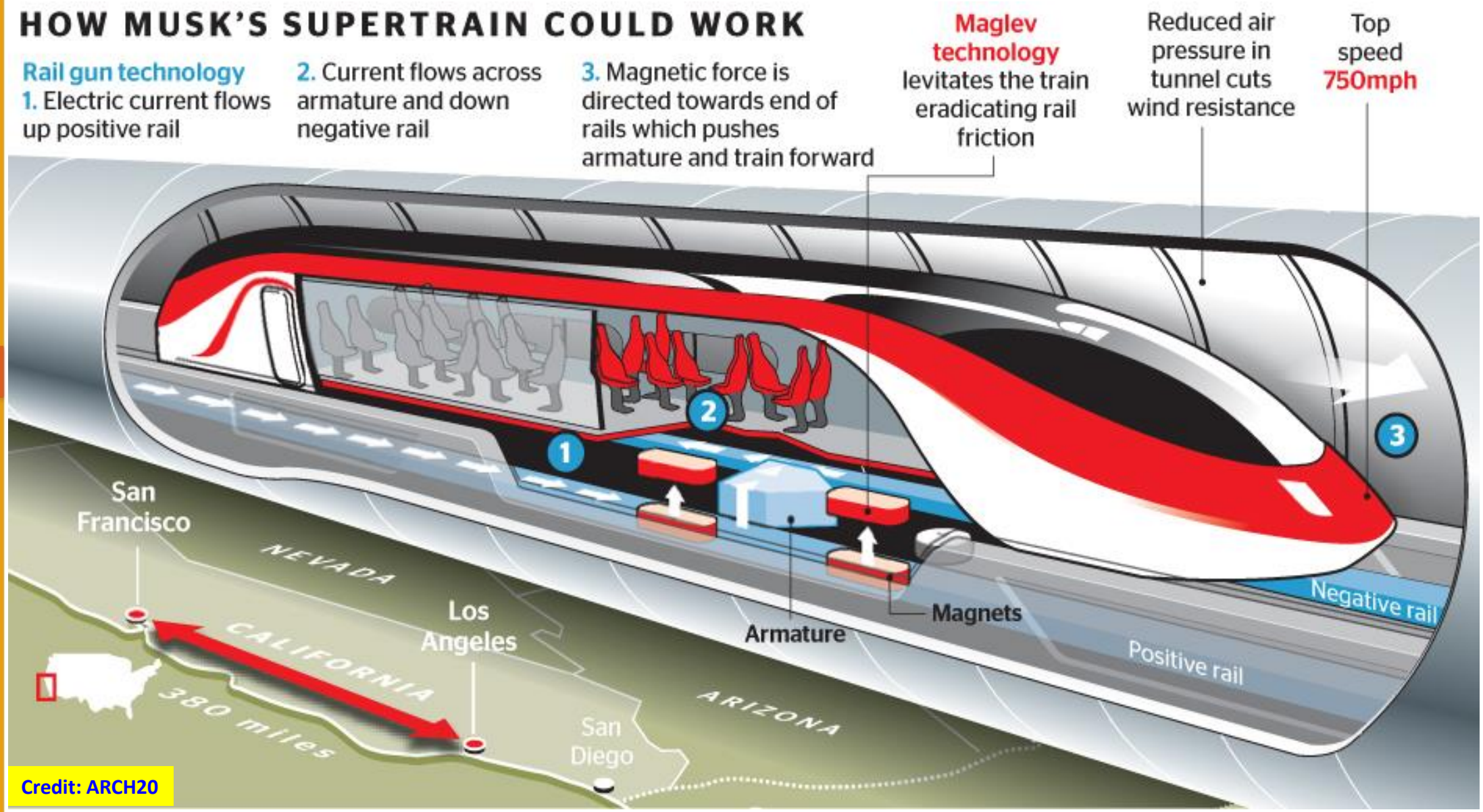
How it Works



Credit: ARCH20

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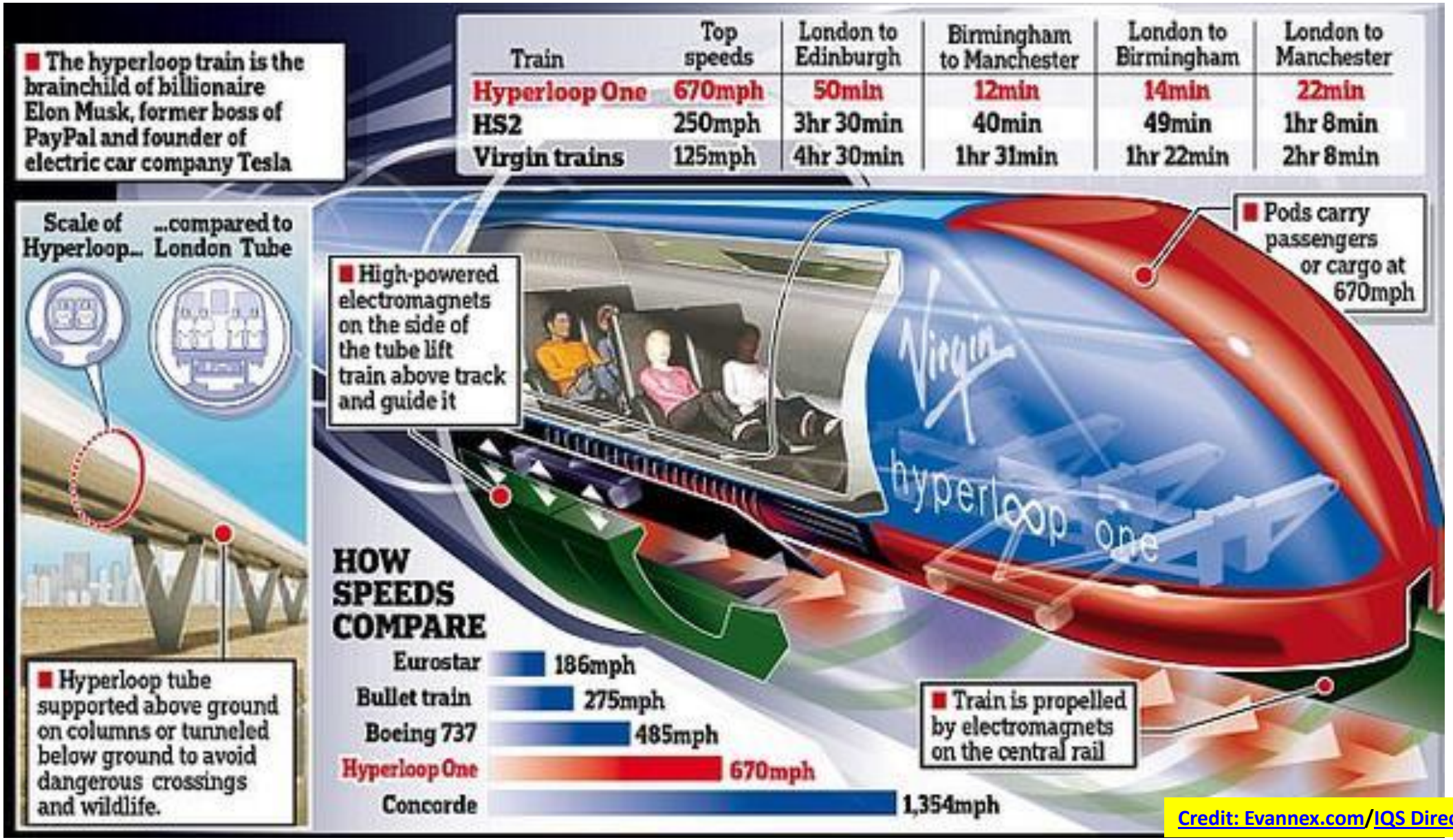
Comparison to Existing Modes



Credit: Evannex.com/IQS Directory

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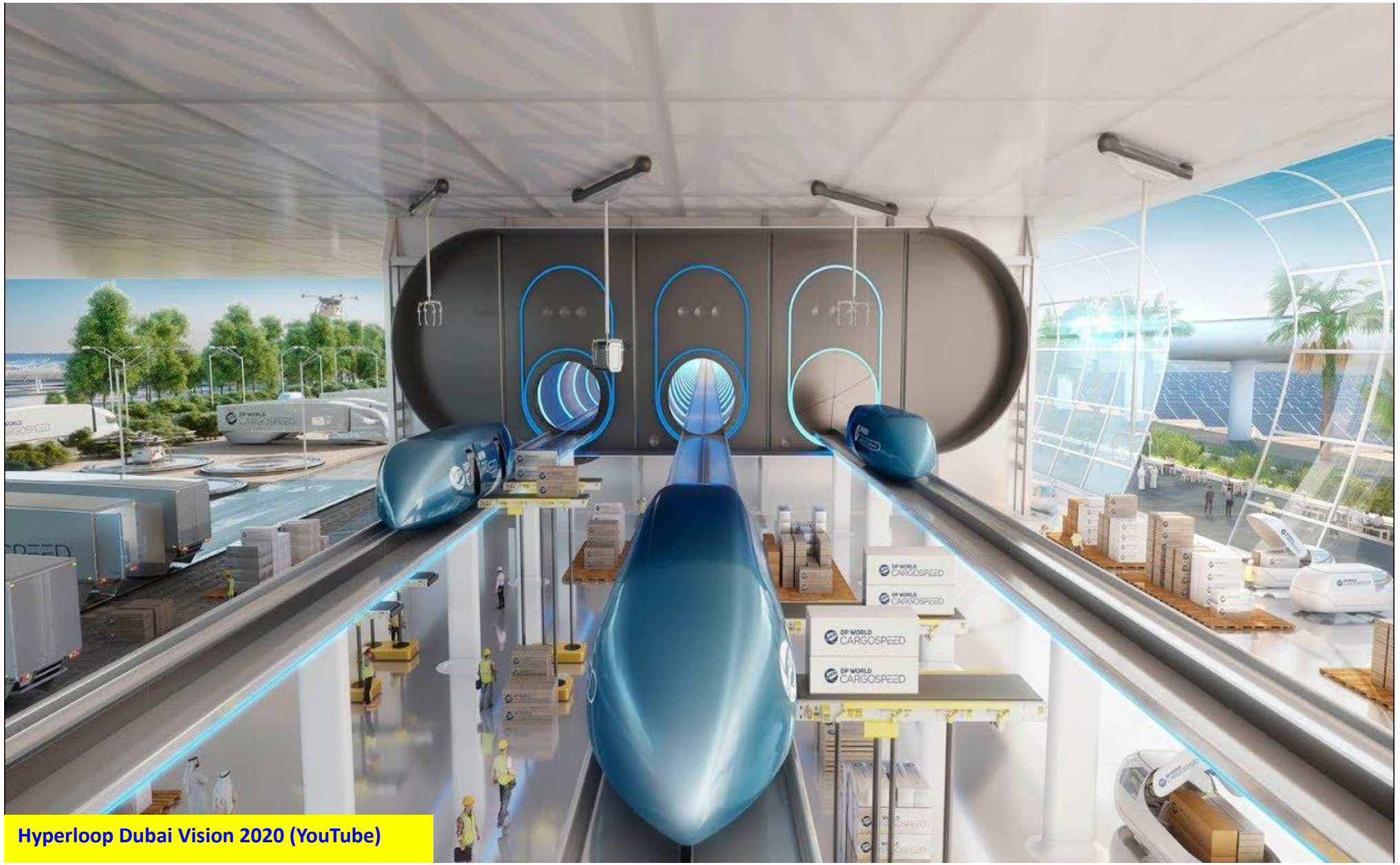
Is this Really for Real?



Hyperloop Dubai Vision 2020 (YouTube)

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Is this Really for Real?

Credit: New Atlas

Credit: New Atlas

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Is this Really for Real?

Commercial Interior Design

Daily Mail.com

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What is This?

Credit: The Verge

Uber Air/ Uber Elevate Video

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What is This?

“Link & Fly” Video

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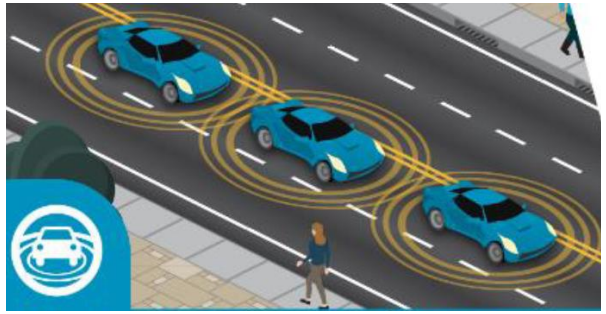

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Pilot Projects Discussion

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