Beyond Traffic: The Smart City Challenge

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- Encourage cities to put forward their best and most creative ideas for innovatively addressing the challenges they are facing.

- Demonstrate how advanced data and intelligent transportation systems (ITS) technologies and applications can be used to reduce congestion, keep travelers safe, protect the environment, respond to climate change, connect underserved communities, and support economic vitality.

USDOT Vision Elements

TECHNOLOGY ELEMENTS

Vision Element #1
Urban Automation

Vision Element #2
Connected Vehicles

Vision Element #3
Intelligent, Sensor-Based Infrastructure

INNOVATIVE APPROACHES TO URBAN TRANSPORTATION ELEMENTS

Vision Element #4
User-Focused Mobility Services and Choices

Vision Element #5
Urban Analytics

Vision Element #6
Urban Delivery and Logistics

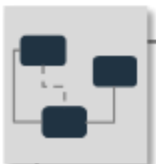**Vision Element #7**
Strategic Business Models & Partnering

Vision Element #8
Smart Grid, Roadway Electrification, & EVs

charging battery

Vision Element #9
Connected, Involved Citizens

SMART CITY ELEMENTS

Vision Element #10
Architecture and Standards

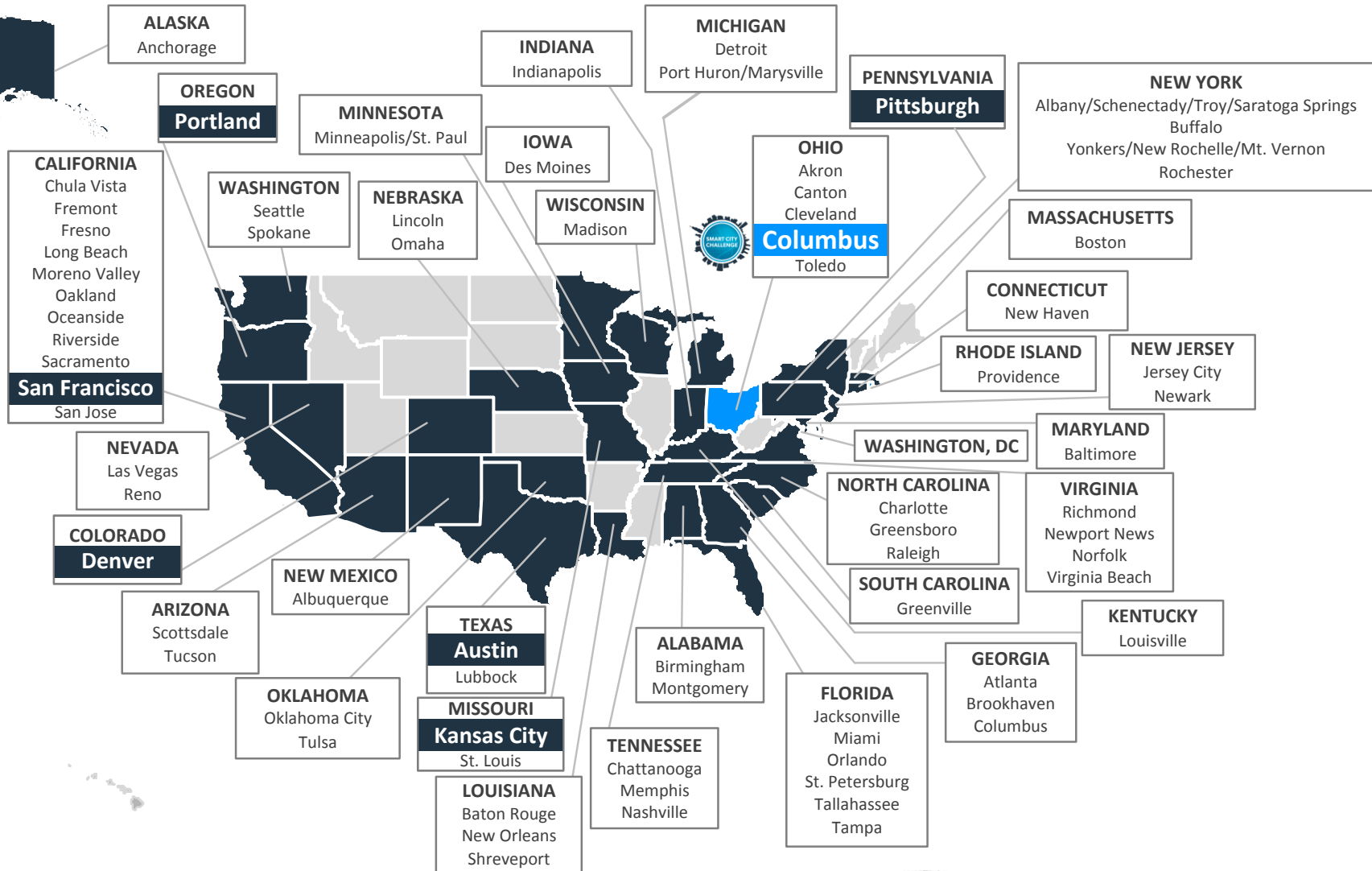**Vision Element #11**
Low-Cost, Efficient, Secure, & Resilient ICT

Vision Element #12
Smart Land Use

The Smart City Challenge

ALASKA
Anchorage

OREGON
Portland

MINNESOTA
Minneapolis/St. Paul

INDIANA
Indianapolis

MICHIGAN
Detroit
Port Huron/Marysville

PENNSYLVANIA
Pittsburgh

NEW YORK
Albany/Schenectady/Troy/Saratoga Springs
Buffalo
Yonkers/New Rochelle/Mt. Vernon
Rochester

IOWA
Des Moines

OHIO
Akron
Canton
Cleveland
Columbus
Toledo

CALIFORNIA
Chula Vista
Fremont
Fresno
Long Beach
Moreno Valley
Oakland
Oceanside
Riverside
Sacramento
San Francisco
San Jose

WASHINGTON
Seattle
Spokane

NEBRASKA
Lincoln
Omaha

WISCONSIN
Madison

MASSACHUSETTS
Boston

CONNECTICUT
New Haven

RHODE ISLAND
Providence

NEW JERSEY
Jersey City
Newark

NEVADA
Las Vegas
Reno

COLORADO
Denver

WASHINGTON, DC

MARYLAND
Baltimore

NORTH CAROLINA
Charlotte
Greensboro
Raleigh

VIRGINIA
Richmond
Newport News
Norfolk
Virginia Beach

NEW MEXICO
Albuquerque

SOUTH CAROLINA
Greenville

ARIZONA
Scottsdale
Tucson

TEXAS
Austin
Lubbock

ALABAMA
Birmingham
Montgomery

KENTUCKY
Louisville

GEORGIA
Atlanta
Brookhaven
Columbus

OKLAHOMA
Oklahoma City
Tulsa

MISSOURI
Kansas City
St. Louis

FLORIDA
Jacksonville
Miami
Orlando
St. Petersburg
Tallahassee
Tampa

TENNESSEE
Chattanooga
Memphis
Nashville

LOUISIANA
Baton Rouge
New Orleans
Shreveport

U.S. Department of Transportation 4

https://www.youtube.com/watch?v=bFobyi6eRGI

4 Districts

10 National Partners

17 Local Partners

$50M Vulcan+ USDOT

$90M Columbus Investment

$140M Total SMARTCOLUMB**US** Investment

SMARTCOLUMBUS

| VISION | ACCESS TO JOBS | SMART LOGISTICS | CONNECTED RESIDENTS | CONNECTED VISITORS | SUSTAINABLE TRANSPORTATION |

ENABLING TECHNOLOGIES

Columbus Connected Transportation Network (CCTN)

Integrated Data Exchange

Enhanced Human Services

Electric Vehicle Infrastructure

DEPLOYMENT

RESIDENTIAL DISTRICT

COMMERCIAL DISTRICT

DOWNTOWN DISTRICT

LOGISTICS DISTRICT

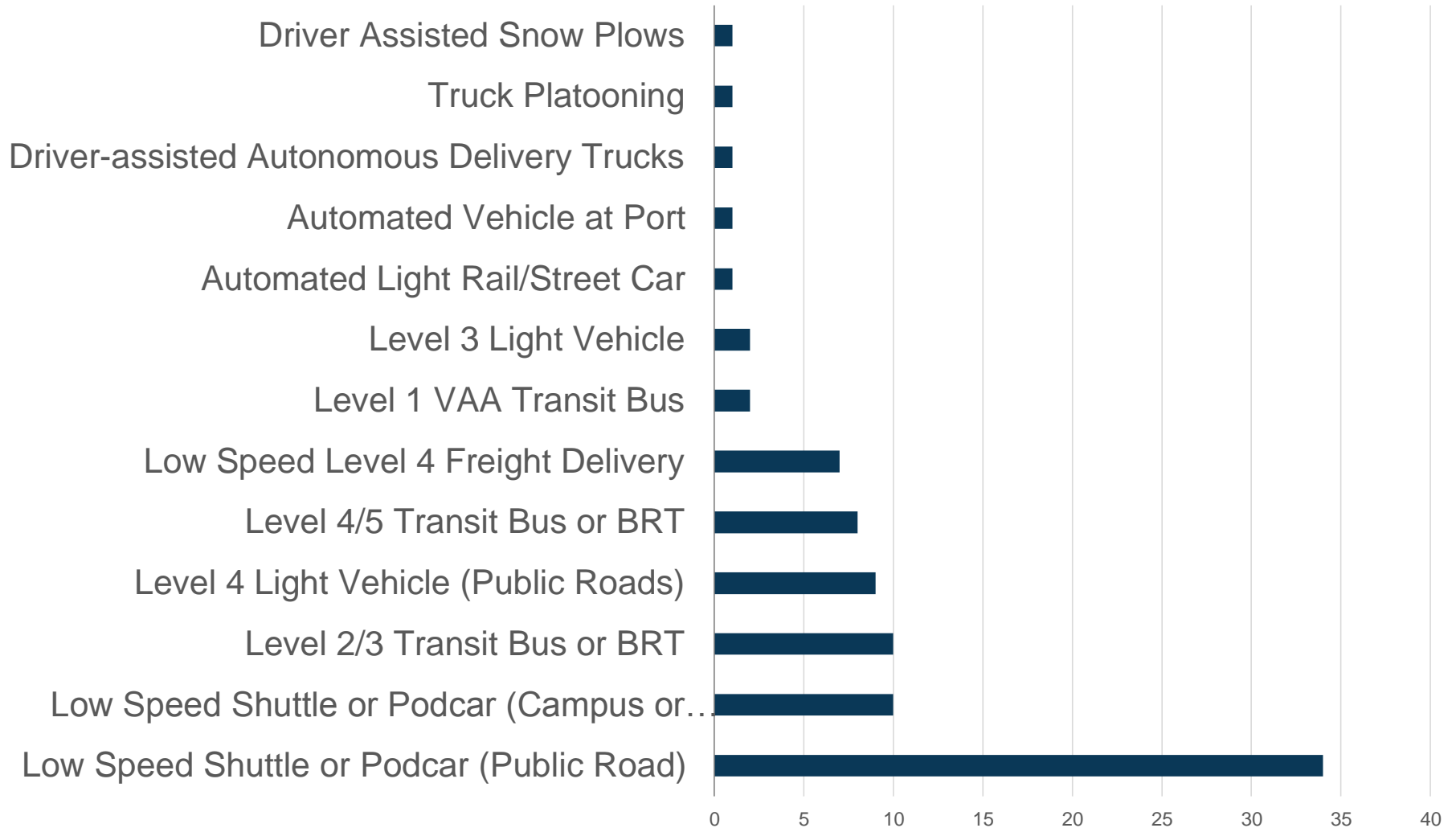## OUTCOMES

SAFETY
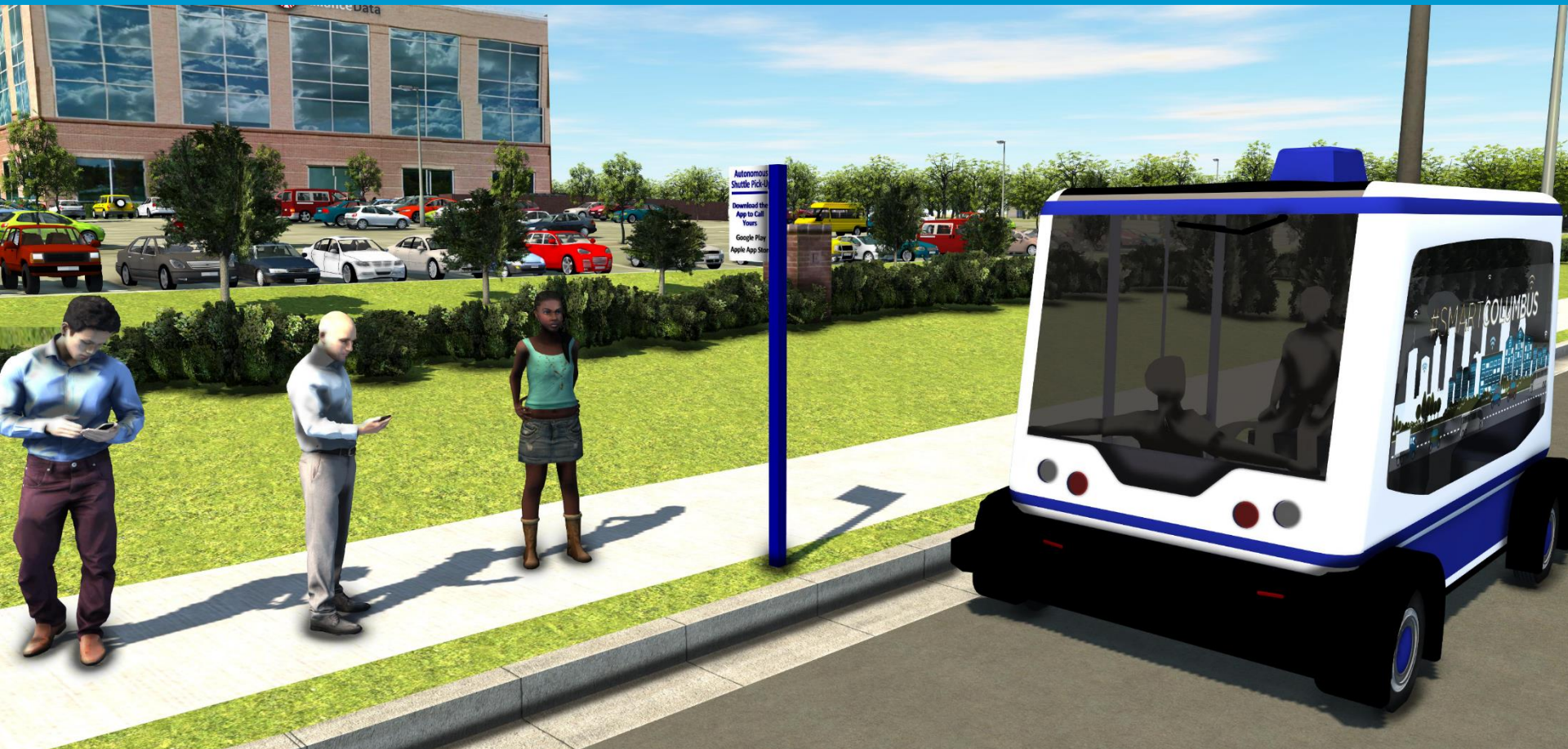
MOBILITY

LADDERS OF OPPORTUNITY

CLIMATE CHANGE

Urban Automation: 78 Applicants

Category	Value
Driver Assisted Snow Plows	1
Truck Platooning	1
Driver-assisted Autonomous Delivery Trucks	1
Automated Vehicle at Port	1
Automated Light Rail/Street Car	1
Level 3 Light Vehicle	2
Level 1 VAA Transit Bus	2
Low Speed Level 4 Freight Delivery	7
Level 4/5 Transit Bus or BRT	8
Level 4 Light Vehicle (Public Roads)	9
Level 2/3 Transit Bus or BRT	10
Low Speed Shuttle or Podcar (Campus or…)	10
Low Speed Shuttle or Podcar (Public Road)	34

SMARTCOLUMBUS
Urban Automation

Electric Automated Vehicles (First Mile / Last Mile)

Truck Platooning with Platoon Signal Priority
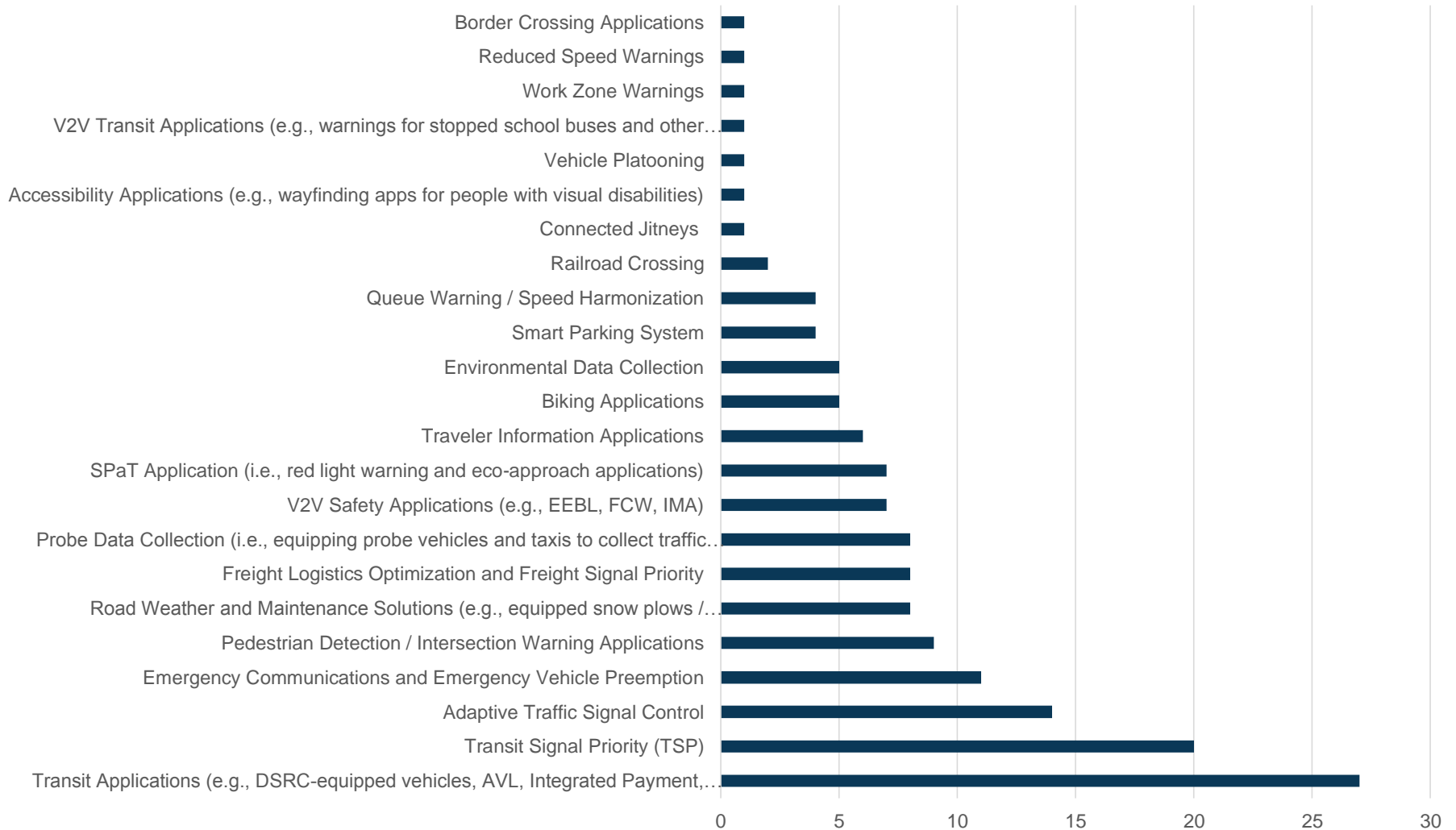
200 DSRC Roadside Units

100 Traffic Signal Controller Upgrades

3,000 Connected Vehicles

350 Mobileye Shield + and Enhanced Transit Safety Retrofit

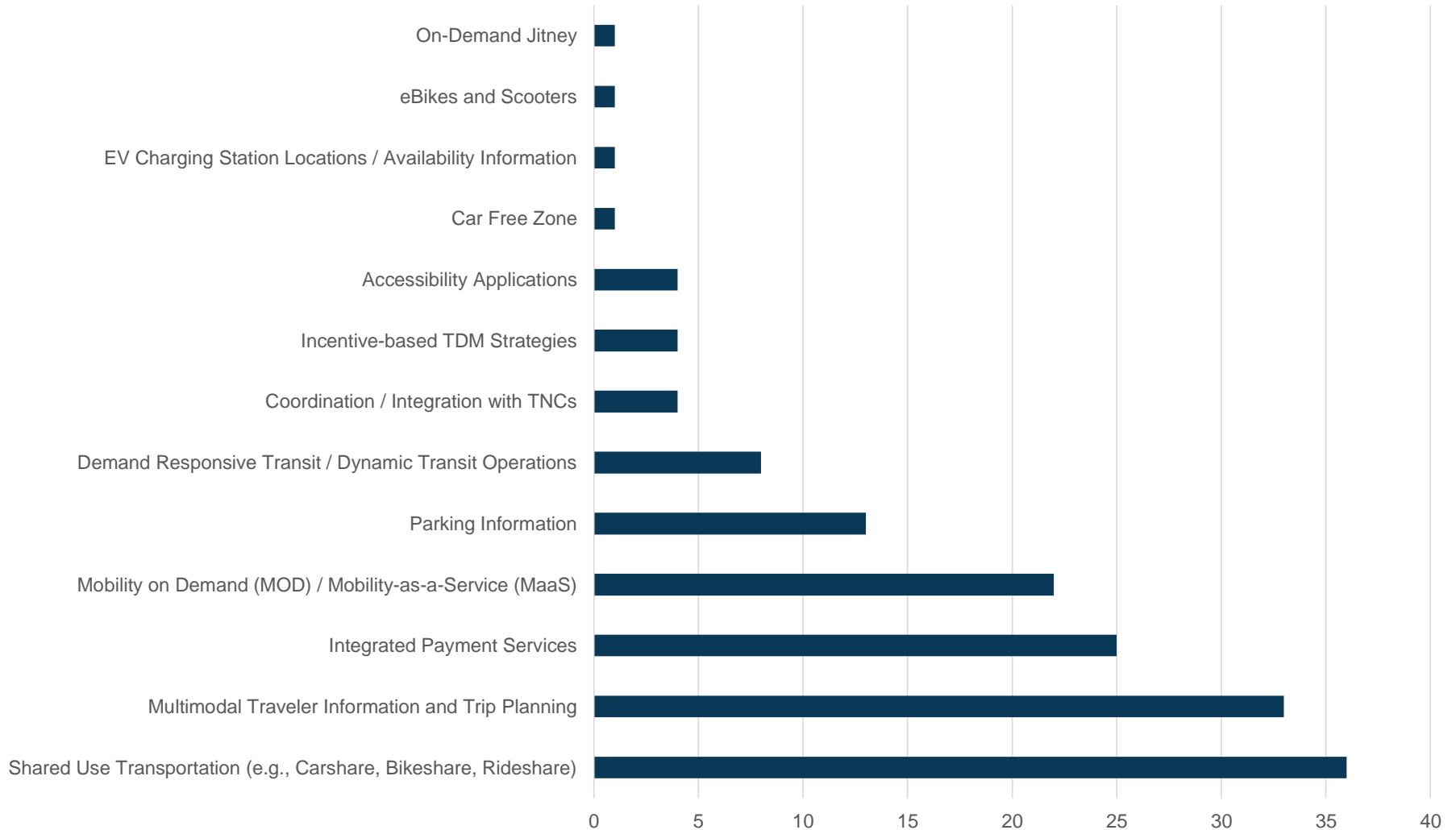**50,000** RFID Customized Windshield Stickers

Proposed Applications

- Dynamic Transit Operations
- Connection Protection
- Dynamic Ridesharing
- Integrated Multi-Modal Electronic Payment
- Transit Signal Priority
- Freight Signal Priority

- Transit Stop Pedestrian Warnings
- Pedestrian in Signalized Crosswalk Warnings
- Vehicle Turning Right in Front of Bus Warnings
- Forward Collision Warning
- Emergency Brake Light Warning
- Eco-Approach and Departure

User-Focused Mobility: 78 Applicants

Enhanced Human Services (EHS)

Multi-Modal Trip Planning Application

Integrated Common Payment System

Inclusive Mobility

SMARTCOLUMB**US**
Examples of Measurable Outcomes

SAFETY

Reduce truck accidents

Leverage Columbus' Connected Traffic Signal System upgrades to safely move people

MOBILITY

Minimize travel times

Increase mobility options, including FMLM options

LADDERS OF OPPORTUNITY

Improve ladders of opportunity for residents in the most underserved neighborhoods

CLIMATE CHANGE

Improve air quality resulting from truck congestion

Increase the number of EV charging stations

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