

# Challenges Faced by Smart City Finalists and Proposed Strategies

Based on Smart City Challenge Finalists Project Proposals

Challenge
Limited Tools to Support Data Driven Decision Making
Freight Delays / Congestion
N/A
Limited Data to Monitor the Transportation System
Unpredictable / Unreliable Transit Service
N/A
Lack of Available Parking and / or Parking Information for Delivery Vehicles
Digital Barriers
FMLM Challenges
Digital Barriers
Limited Data to Monitor the Transportation System
Speed-related Crashes
Lack of Available Parking and/or Parking Information
Vehicle / Vehicle Collisions (non-intersections)
N/A
Lack of EV Charging Infrastructure / Range Anxiety
Freight Delays / Congestion
FMLM Challenges
Education and Adoption of EVs
Education and Adoption of EVs

# Challenges Faced by Smart City Finalists and Proposed Strategies

Based on Smart City Challenge Finalists Project Proposals

Strategy	ID
Crash Analytics	8
Truck Routing / Traveler Information	6
Smart City Forum / Institute	4
Environmental Sensors	5
Transit Signal Priority	6
Partnership with OEM	3
Truck Parking and Staging Areas	1
Free Smartphones for the Underserved	1
FMLM Subsidies	1
Wi-Fi Parklets	1
Crowdsourced Pedestrian Data	1
Curve Speed Warning	1
Dynamic Pricing for Parking	2
Emergency Electronic Brake Light Warning	3
Partnership with Private Consulting Firm	6
Incentives for EV Charging Stations	2
Freight Signal Priority	12
FMLM Connections to Transit	7
Parking Codes to Accommodate EVs	2
EV TNC Partnership	2

# Challenges Faced by Smart City Finalists and Proposed Strategies

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## Digital Barriers

Barriers to Employment/Education, and Other Services

Vehicle / Train Collisions

Barriers to Employment/Education, and Other Services

Pedestrian / Bicyclist Safety

## Digital Barriers

Limited Data to Monitor the Transportation System

Lack of Traveler Information

Unsafe Bus Stops

Freight Delays / Congestion

Decarbonization of the Grid

Response Times for First Responders

Delays at Intersections

Lack of EV Charging Infrastructure / Range Anxiety

Education and Adoption of EVs

N/A

Education and Adoption of EVs

Lack of Travel Options

Vehicle / Vehicle Collisions (non-intersections)

N/A

Response Times for First Responders

N/A

# Challenges Faced by Smart City Finalists and Proposed Strategies

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Free Public Wi-Fi	7
Educations Offering (from Kiosks)	1
Flashing Train Coming (FTC) Warning	1
Job Information (from Kiosks)	1
Pedestrian Detectors (intersections)	6
Wi-Fi on Buses	4
CV Private Vehicles	5
Taxi Information	1
Pedestrian Detectors (bus stops)	2
Platoon Signal Priority	1
Solar Canopy at Bus Stops	1
Gunshot Analytics	1
MMITSS / I-Sig	6
EV Charging Stations	7
Converting Public Fleets to EVs	7
Partnership with Public Agency	7
EV Taxi Partnership	3
Shared Vanpool Service	1
Stopped Vehicle Ahead	1
Existing Fiber	6
CV Police Vehicles	1
Partnership with Mobileye	7

# Challenges Faced by Smart City Finalists and Proposed Strategies

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Speed-related Crashes

Digital Barriers

Limited Tools to Support Data Driven Decision Making

Unpredictable / Unreliable Transit Service

Limited Tools to Support Data Driven Decision Making

Lack of Traveler Information

Lack of Traveler Information

Siloed Data

Vehicle / Vehicle Collisions (non-intersections)

Lack of Available Parking and / or Parking Information for Long Haul Trucks

N/A

Education and Adoption of EVs

Limited Tools to Support Data Driven Decision Making

Workforce Training / Development

Limited Data to Monitor the Transportation System

N/A

Education and Adoption of EVs

Limited Data to Monitor the Transportation System

Workforce Training / Development

Education and Adoption of EVs

Limited Tools to Support Data Driven Decision Making

# Challenges Faced by Smart City Finalists and Proposed Strategies

Based on Smart City Challenge Finalists Project Proposals

Speed Warnings at School Zones	1
Instructional Videos	3
Congestion and Traffic Analytics	7
Electric BRT	1
Transportation Planning Analytics	7
Phone Call-in for Traveler Services	1
Traveler Information Kiosks	5
Fusing Transportation Data with Non-Transportation Data	6
Forward Collision Warning	3
Truck Parking Information (Rest Areas)	1
Partnership with NXP	7
EV Incentives with Auto Dealers	1
Transit Analytics	1
Training and Programs to Link People to Jobs	5
Probe Data Collection	6
Transit Benefit Program	1
EV Loan Program	1
CCTV Cameras	7
Mobile Learning Lab	3
Carbon Credits for EV Charging	1
Emissions and Air Quality Analytics	4

# Challenges Faced by Smart City Finalists and Proposed Strategies

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N/A

N/A

Limited Tools to Support Data Driven Decision Making

Pedestrian / Bicyclist Safety

Freight Delays / Congestion

Limited Tools to Support Data Driven Decision Making

Lack of Interoperability of Payment Systems for Transportation Services

Lack of EV Charging Infrastructure / Range Anxiety

Digital Barriers

Limited Data to Monitor the Transportation System

Poor Lighting

Digital Barriers

Lack of Travel Options

N/A

Education and Adoption of EVs

Lack of Travel Options

Education and Adoption of EVs

Delays on Freeways

N/A

Unpredictable / Unreliable Transit Service

N/A

# Challenges Faced by Smart City Finalists and Proposed Strategies

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Vision Zero Program	7
Partnership with Microtransit	2
Hackathons	3
Pedestrian Detection and Warning	6
Truck Platooning	5
Data Management and Analytics Platform	8
Integrated Payment	6
Pre-Wiring Homes for EV Charging	1
Wi-Fi on Taxis	1
TNC Data	3
Smart Street Lights	4
Training for Transportation Options and Technology	6
Microtransit Service	2
Incident Scene Work Zone Alerts	1
EV TNC Partnership (Renting Vehicles)	1
Electric Vehicle Carshare	2
EV Bulk Buy Program	2
Ramp Metering	2
Road Diets	2
CV Buses	5
Partnership with Healthcare	2

# Challenges Faced by Smart City Finalists and Proposed Strategies

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Vehicle / Vehicle Collisions (non-intersections)

N/A

FMLM Challenges

Limited Data to Monitor the Transportation System

N/A

Pedestrian / Bicyclist Safety and Mobility

N/A

N/A

Limited Tools to Support Data Driven Decision Making

Poor Air Quality / Harmful Vehicle Emissions

Barriers to Employment/Education, and Other Services

N/A

Poor Air Quality / Harmful Vehicle Emissions

N/A

Lack of Traveler Information

Response Times for First Responders

Education and Adoption of EVs

Lack of Available Parking and / or Parking Information for Delivery Vehicles

Noise Pollution

Freight Delays / Congestion

Poor Air Quality / Harmful Vehicle Emissions

# Challenges Faced by Smart City Finalists and Proposed Strategies

Based on Smart City Challenge Finalists Project Proposals

Blind Spot Warnings / Lane Change Warnings	2
CV Taxis	3
AV Shuttle Hailing Application	2
CV Onboard Equipment (Total)	6
Local Business Information (from Kiosks)	1
Bike Lanes	7
Partnership with Academic	7
AV Testing Facility	4
Developer Platform (APIs and SDKs)	7
Emissions Reduction Plan	7
Web App with Service Needs for Homeless	1
Mesh Network	1
EV Working Group	1
News and Entertainment (from Kiosks)	1
Traffic Information	7
Gunshot Detectors	2
EV Education and Promotional Events	4
Truck Parking Information (Urban)	3
Noise Sensors	2
Shared Use Delivery Vehicles	1
Hydrogen Opportunity Analysis	1

# Challenges Faced by Smart City Finalists and Proposed Strategies

Based on Smart City Challenge Finalists Project Proposals

Poor Air Quality / Harmful Vehicle Emissions

Understanding Citizen Needs / Issues

Lack of Travel Options

Limited Data to Monitor the Transportation System

Overweight Trucks

Limited Tools to Support Data Driven Decision Making

Vehicle / Vehicle Collisions (non-intersections)

Payment for Transportation for the Unbanked

Workforce Training / Development

Limited Data to Monitor the Transportation System

Natural Events (i.e., Earthquakes)

Limited Data to Monitor the Transportation System

Understanding Citizen Needs / Issues

Freight Delays / Congestion

Lack of Traveler Information

Unpredictable / Unreliable Transit Service

N/A

Payment for Transportation for the Unbanked

Poor Air Quality / Harmful Vehicle Emissions

N/A

Interoperability, Privacy, and Security

# Challenges Faced by Smart City Finalists and Proposed Strategies

Based on Smart City Challenge Finalists Project Proposals

Air Quality Alerts	1
Community Challenges for Neighborhoods	1
Bikeshare Options	7
Traffic Data	7
Weigh-in-Motion	1
Vehicle Emissions Estimation	1
Queue Warning	1
Payment Alternatives for Unbanked	1
Smart City, Smart Student Travel Information and Training Program	1
Transit Data	7
Seismic Sensors	1
RFID Tags for Pedestrians and Bicyclists	1
Community Liaisons	3
AV Truck Demonstration	2
Transit Information	7
Connection Protection	1
Public Safety Information (from Kiosks)	1
Payment Cards for the Unbanked	4
EV Police Vehicles (Parking Enforcement and Non-Cruisers)	1
Partnership with Sidewalk Labs	7
Standards and Architecture	7

# Challenges Faced by Smart City Finalists and Proposed Strategies

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Lack of Travel Options

Lack of Available Parking and/or Parking Information

Lack of EV Charging Infrastructure / Range Anxiety

Complexity of Planning / Completing a Trip

N/A

Missed Trips to Services (i.e., Doctor Appointments)

Poor Air Quality / Harmful Vehicle Emissions

Lack of Traveler Information

Lack of Available Parking and/or Parking Information

Freight Delays / Congestion

Lack of Available Parking and/or Parking Information

Limited Data to Monitor the Transportation System

N/A

Lack of Travel Options

Accessibility for People with Disabilities and the Elderly

N/A

Limited Tools to Support Data Driven Decision Making

Limited Data to Monitor the Transportation System

Transit Collisions with Vehicles / Pedestrians

Limited Tools to Support Data Driven Decision Making

Poor Air Quality / Harmful Vehicle Emissions

# Challenges Faced by Smart City Finalists and Proposed Strategies

Based on Smart City Challenge Finalists Project Proposals

Coordination with Real Estate Developers for Shared Transportation	1
Parking Management and Information	7
Wireless Inductive Charging	3
Multimodal Hubs / Stations	5
Regional Ops Management Center - Consolidation of Traffic Management Centers	1
Notifications of Missed Trips to Private Service Providers	1
GreenCar App	1
Turn-by-Turn Directions	2
Real-Time Parking Data	6
Off-Peak Delivery	1
Smart Parking RFID Tags	1
V2I Roadside Equipment	7
Partnership with Autodesk	4
AV for Delivery and Municipal Services	2
Paratransit	3
Partnership with Amazon Web Services	7
EV Charging Station Analytics	1
DSRC Equipment	6
Vehicle Turning Right in Front of Transit Vehicle	3
Performance Measure Dashboard	7
Rewards for Safe and Eco-Driving	1

# Challenges Faced by Smart City Finalists and Proposed Strategies

Based on Smart City Challenge Finalists Project Proposals

N/A

Accessibility for People with Disabilities and the Elderly

N/A

Interoperability, Privacy, and Security

N/A

Lack of Travel Options

Lack of Traveler Information

Understanding Citizen Needs / Issues

FMLM Challenges

N/A

Lack of Travel Options

Complexity of Planning / Completing a Trip

Understanding Citizen Needs / Issues

Delays at Intersections

Interoperability, Privacy, and Security

Accessibility for People with Disabilities

Education and Adoption of EVs

Poor Air Quality / Harmful Vehicle Emissions

Siloed Data

Unpredictable / Unreliable Transit Service

Poor Air Quality / Harmful Vehicle Emissions

# Challenges Faced by Smart City Finalists and Proposed Strategies

Based on Smart City Challenge Finalists Project Proposals

Partnership with Vulcan	7
Apps for People with Disabilities	7
CV Construction Vehicles	1
SCMS	7
Partnership to Engage Small Businesses and DBEs	7
Shared Electric Connected Automated Vehicles (SECAVs)	1
City Services (from Kiosks)	1
Smart Ambassadors	3
Low Speed Automated Vehicles	7
Package/Food Lockers	1
Ridesharing Options	7
Mobility Marketplace	7
Community Outreach / Engagement	7
Adaptive Signal System	1
Data Standards Working Group	1
Wheel Chair Accessible AV Shuttles	1
EV Ride and Drive Events	1
Electric Buses	4
Open Data	7
Bus Rapid Transit (BRT)	5
Eco-Approach and Departure at Signalized Intersections	3

# Challenges Faced by Smart City Finalists and Proposed Strategies

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Overheight Freight Vehicles

Poor Air Quality / Harmful Vehicle Emissions

Lack of Available Parking and / or Parking Information for Delivery Vehicles

Lack of Travel Options

Interoperability, Privacy, and Security

Data Storage and Management

Lack of Traveler Information

Lack of Travel Options

Lack of Travel Options

Poor Roadway / Pavement Conditions

Decarbonization of the Grid

Limited Data to Monitor the Transportation System

Complexity of Planning / Completing a Trip

Lack of Available Parking and/or Parking Information

Vehicle / Vehicle Collisions (non-intersections)

Language Barriers

Lack of Available Parking and / or Parking Information for Delivery Vehicles

N/A

Lack of Travel Options

Unpredictable / Unreliable Transit Service

N/A

# Challenges Faced by Smart City Finalists and Proposed Strategies

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Low Clearance Warnings for Trucks	1
EV Trucks	2
Truck Parking Reservations (Urban)	1
Carshare Options	7
Approach to Data Security and Privacy	7
AWS Cloud Hosting	7
Transit Options	7
Electric Motorcycles	1
TNCs	7
Pothole and Roadway Condition Data	2
Solar Parking Canopy	1
CV Public Vehicles	5
Multimodal Trip Planning	7
Parking Reservations	2
Safe Driving App	1
Multilingual Applications	3
Sensors at Truck Loading Zones	1
Partnership with non-Profit	2
e-Bikes	2
Electric L4 Automated Bus	1
Partnership with DOE	7

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Lack of EV Charging Infrastructure / Range Anxiety

N/A

Lack of Travel Options

N/A

Limited Tools to Support Data Driven Decision Making

Complexity of Planning / Completing a Trip

Affordability of Housing and Associated Travel Impacts

Limited Data to Monitor the Transportation System

Limited Curb Space for Carpooling and Ridesourcing Vehicles

FMLM Challenges

N/A

Complexity of Planning / Completing a Trip

Response Times for First Responders

Engaging Partners / Start-ups

Freight Delays / Congestion

Lack of Travel Options

Decarbonization of the Grid

Vehicle / Vehicle Collisions (intersections)

Accessibility for People with Disabilities and the Elderly

Understanding Citizen Needs / Issues

Lack of Travel Options

# Challenges Faced by Smart City Finalists and Proposed Strategies

Based on Smart City Challenge Finalists Project Proposals

EV Charging Station Location and Availability Information	1
Smart Growth Initiatives	7
New TNC Service Providers	1
Website	7
Sidewalk Labs Flow Platform	7
Monthly Mobility Packages	1
Linking Transportation Data with Housing Data	1
Crowdsourced App	2
Reservations for Curb Space	1
FMLM Connections and Shuttles to Healthcare Clinics	2
Gamification / Incentivization	4
Subsidies for Travel Services	2
Real-Time Emergency Response Information	1
Non-Profit Model for TNC Service	1
CV Trucks	5
After School Vanpool Shuttles	1
Solar Panels for EV Charging Stations	1
Intersection Movement Assist (IMA)	2
ADA Upgrades at Intersections	1
Customer Engagement for Urban Delivery	1
Connected Carpool Lanes	1

# Challenges Faced by Smart City Finalists and Proposed Strategies

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Transit Collisions with Vehicles / Pedestrians

N/A

Response Times for First Responders

Lack of Travel Options

Complexity of Planning / Completing a Trip

Unsafe Bus Stops

Limited Tools to Support Data Driven Decision Making

N/A

Lack of EV Charging Infrastructure / Range Anxiety

Unpredictable / Unreliable Transit Service

Red Light Violations

Education and Adoption of EVs

Education and Adoption of EVs

N/A

# Challenges Faced by Smart City Finalists and Proposed Strategies

Based on Smart City Challenge Finalists Project Proposals

Mobileye Technology	7
CV School Buses	1
Emergency Vehicle Preemption	5
Late Night Worker Vanpools	1
Transit Subsidies	2
Transit Stop Pedestrian Warning	1
Urban Analytics Research Platform	1
Local History (from Kiosks)	1
Incentives for Off-Peak Charging	1
Dynamic Transit Operations	1
Red Light Warning Violation	3
Tax Exemptions for EV Purchase	3
Energy Credits	2
Partnership with Service / Equipment Vendors	7