City of Alexandria

Smart Mobility Framework

What is Smart Mobility?

- Applying Information Technology (IT) to the transportation system
- Improving how we travel by supporting more affordable and sustainable mobility choices
- Using advancements in IT to collect, analyze, and apply data to optimize the transportation network

Strategy

- Proactive, innovative approach
- Organizing existing and planned efforts under one umbrella
- Interdepartmental team of City staff
- Implementable solutions to immediate problems
- Laying the groundwork for emerging and future technologies

Guiding Principles

	Safety	Eliminate all traffic fatalities and severe injuries while increasing safe, healthy, equitable mobility for all.
	Mobility	Improve accessibility and transportation options for residents and visitors of all abilities.
	Forward-looking	Proactively plan for emerging ad future transportation technologies.
	Sustainability	Improve environmental quality and resiliency.
	Traffic Management	Optimize traffic flow on City streets, improving travel times and reducing congestion.
	Transparency	Use data and analytics to improve decision-making and City services while broadening public access to information.

CURRENT PROGRAMS

Real-time arrival screens
Fiber optics
Signal cabinets & controllers
CCTV
Weather stations
Intelligent traffic signals
Car-sharing
Capital Bikeshare
Ride-hailing
Parking enforcement devices
Automated plate readers
Pay-by-phone parking
Data exchange
Data distribution
Secure communications
Automated interactive maps

PLANNED PROGRAMS

Transit signal priority
Mobile fare payment
Automated passenger counts
Real-time transit feed
Bus scheduling software
Real-time transit stop texting
Bus CAD/AVL
Emergency vehicle preemption
Dockless mobility pilot
Pay-by-plate parking
Curbside management
Streamlined parking permits
Bluetooth data collection
Video data collection
Sensor data collection
Cellular data collection
TMC upgrades
Decision-making model

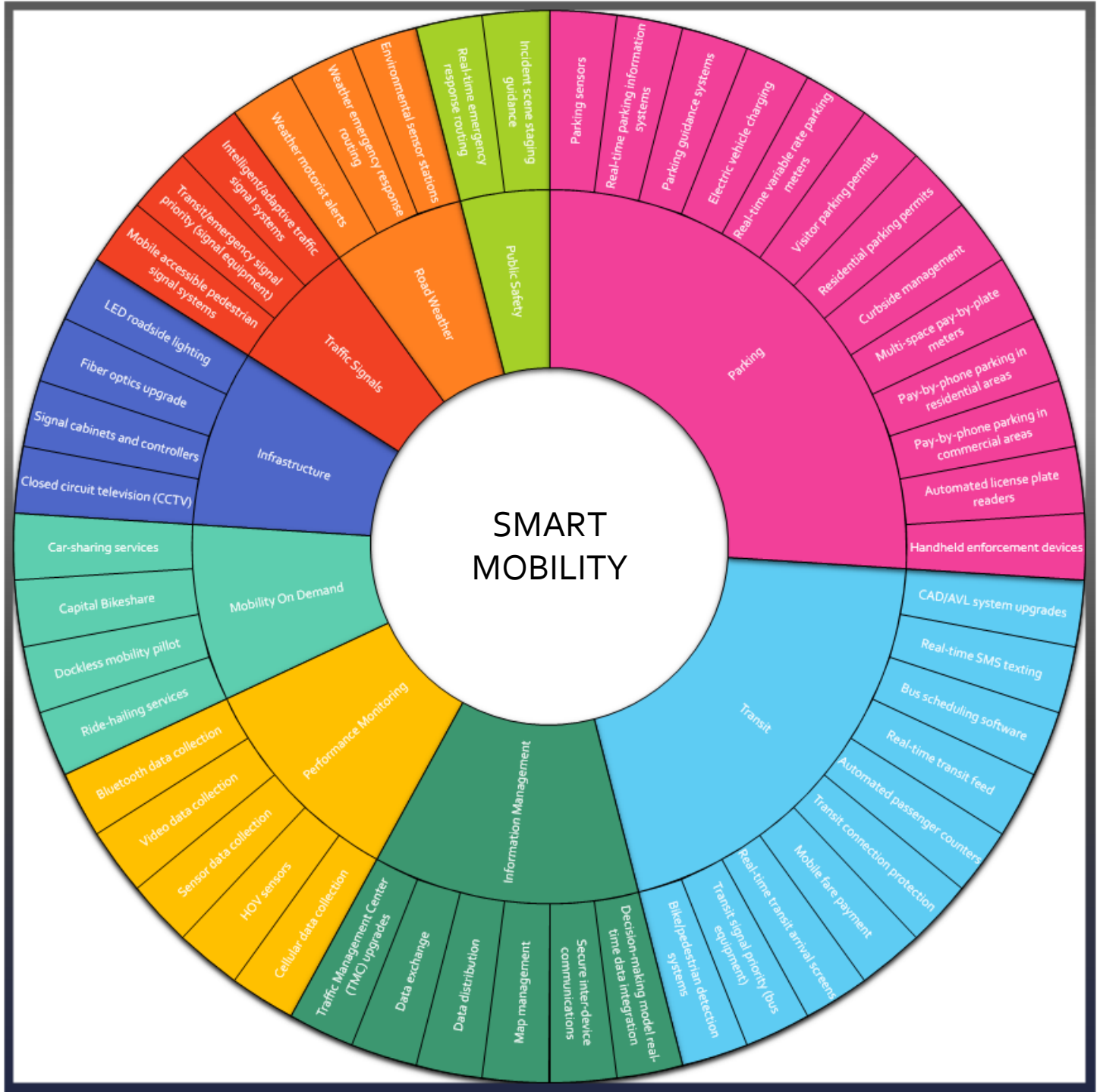
PROGRAMS UNDER CONSIDERATION

Ped/bike detection systems
Transit connection protection
LED roadside lighting
Emergency response routing
Weather motorist alerts
Incident scene staging
Accessible ped systems
Variable rate parking meters
EV charging stations
Parking guidance systems
Real-time parking info systems
Parking sensors
HOV sensors

SMART MOBILITY

The City of Alexandria's Smart Mobility Framework includes nine interconnected categories of programs:

- TRANSIT
- PARKING
- PUBLIC SAFETY
- ROAD WEATHER
- MOBILITY ON DEMAND
- TRAFFIC SIGNALS
- PERFORMANCE MONITORING
- INFRASTRUCTURE
- INFORMATION MANAGEMENT



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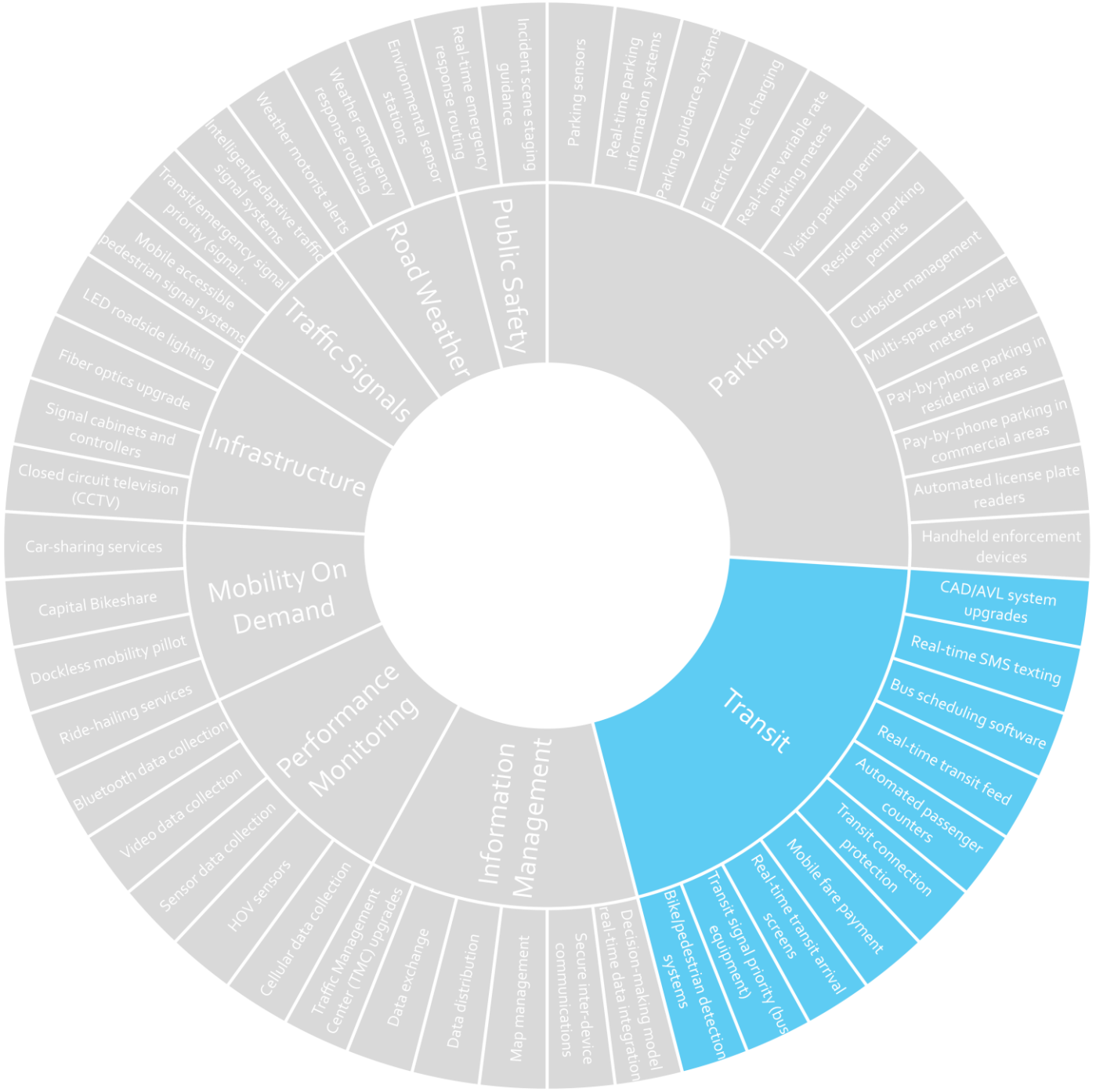


TRANSIT

WHAT WE'RE DOING

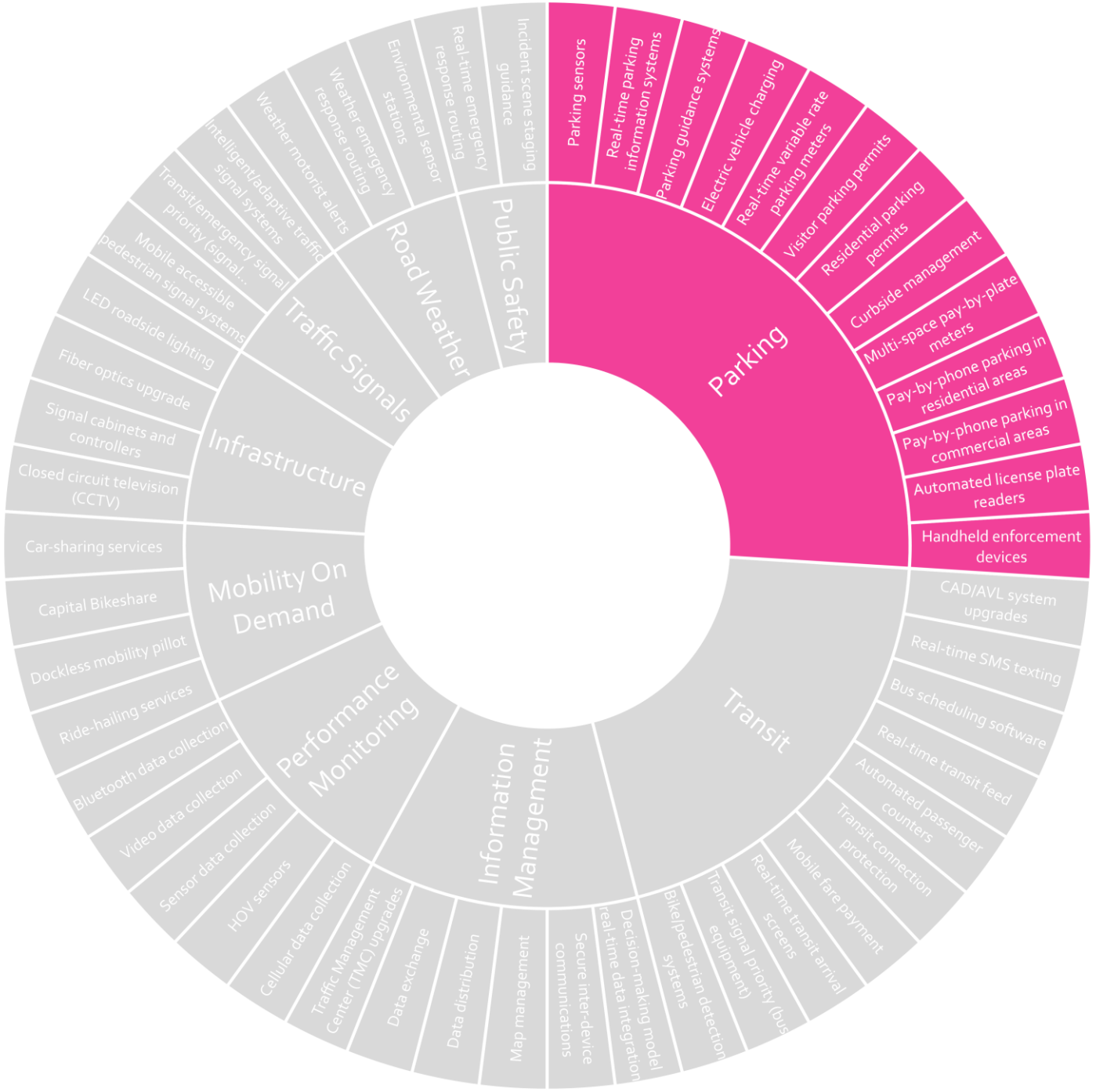
Transit signal priority, mobile fare payment, real-time arrival screens, real-time transit feed

WHAT IT MEANS FOR YOU

Faster bus service

Easier trip planning

Easier trip payment



Ⓟ PARKING

WHAT WE'RE DOING

Streamlined enforcement, pay-by-phone parking, variable rate meters, curbside management

WHAT IT MEANS FOR YOU

Less illegal parking

Easier parking payment

Less time searching for parking

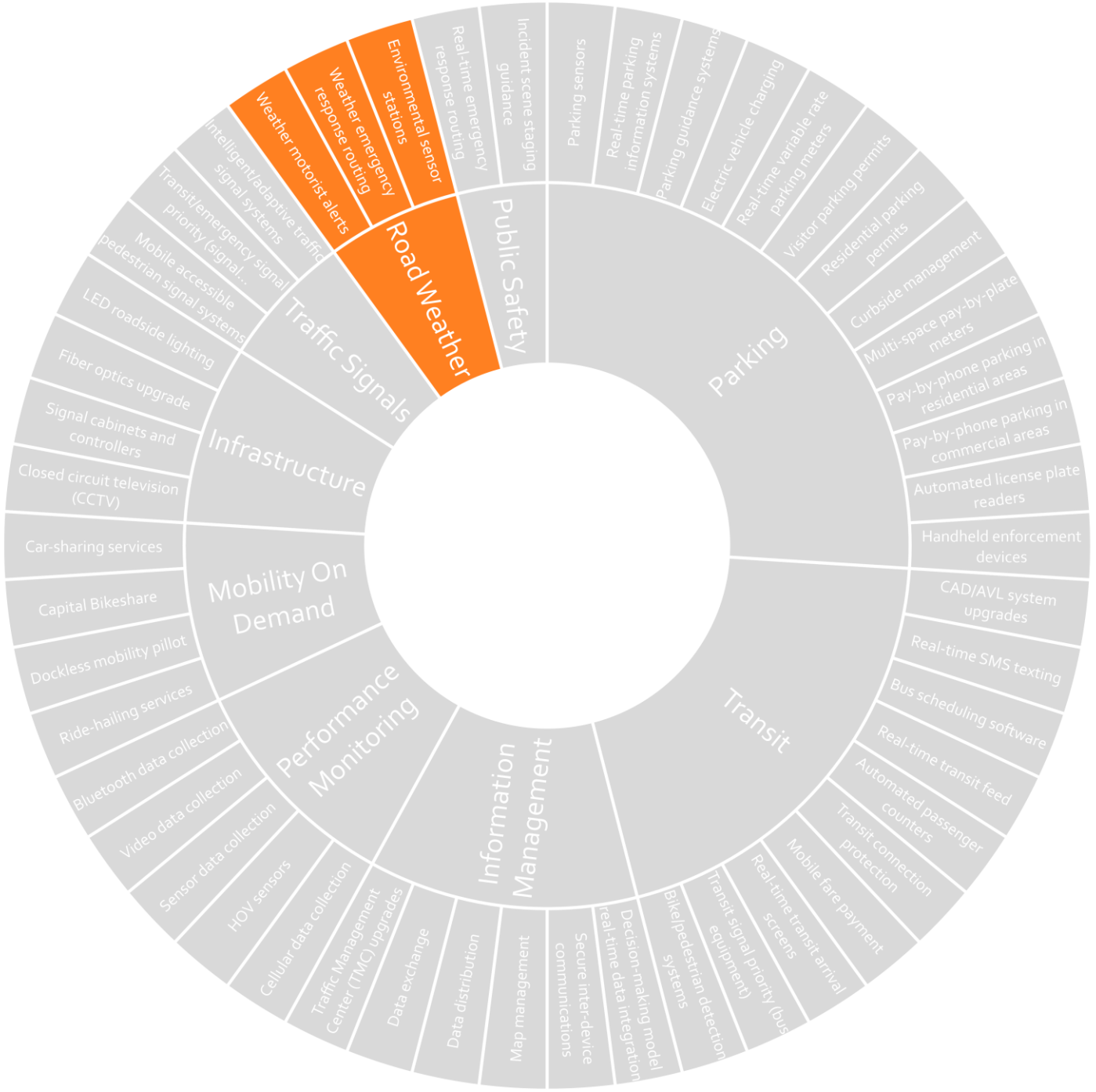
PUBLIC SAFETY

WHAT WE'RE DOING

Emergency routing support, emergency vehicle preemption

WHAT IT MEANS FOR YOU

Faster emergency response times △



ROAD WEATHER

WHAT WE'RE DOING

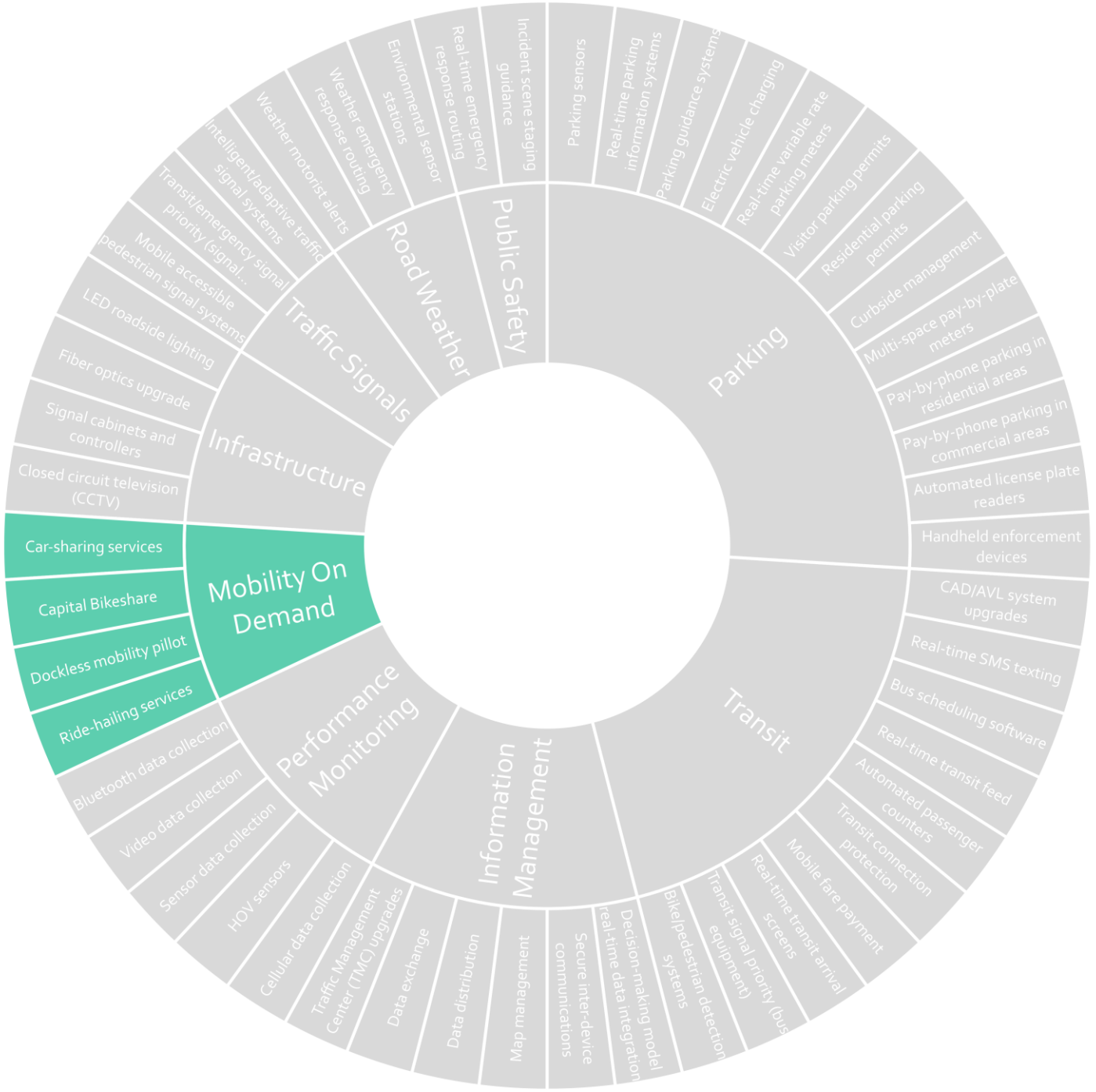
Flood sensors, weather stations, weather-informed emergency routing support

WHAT IT MEANS FOR YOU

Faster emergency response times

More accurate road weather info

Preemptive flooding prediction



MOBILITY ON DEMAND

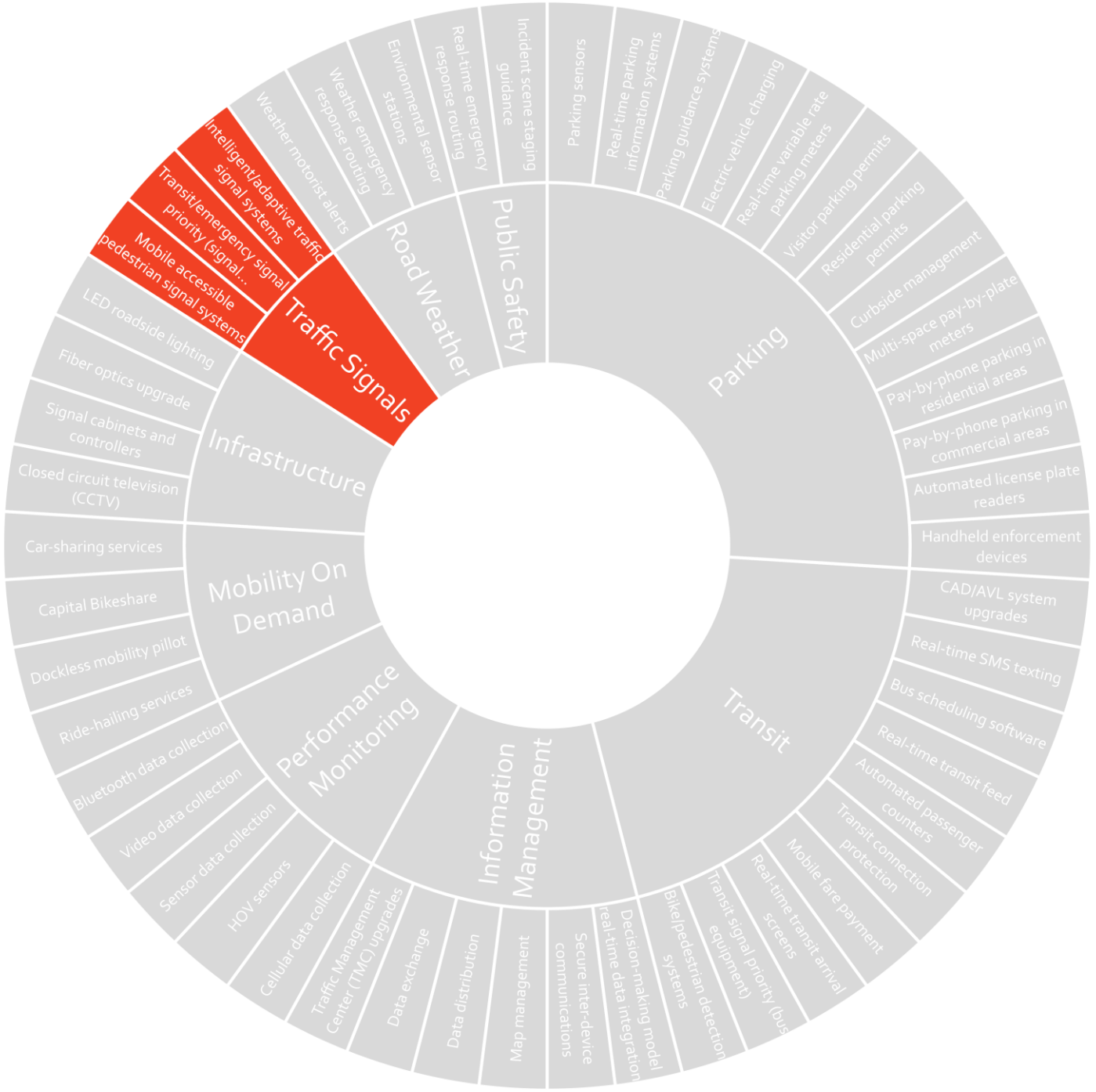
WHAT WE'RE DOING

Dockless mobility pilot, Capital Bikeshare expansion, continued car-sharing and ride-hailing

WHAT IT MEANS FOR YOU

More ways to get around

Less demand for parking



TRAFFIC SIGNALS

WHAT WE'RE DOING

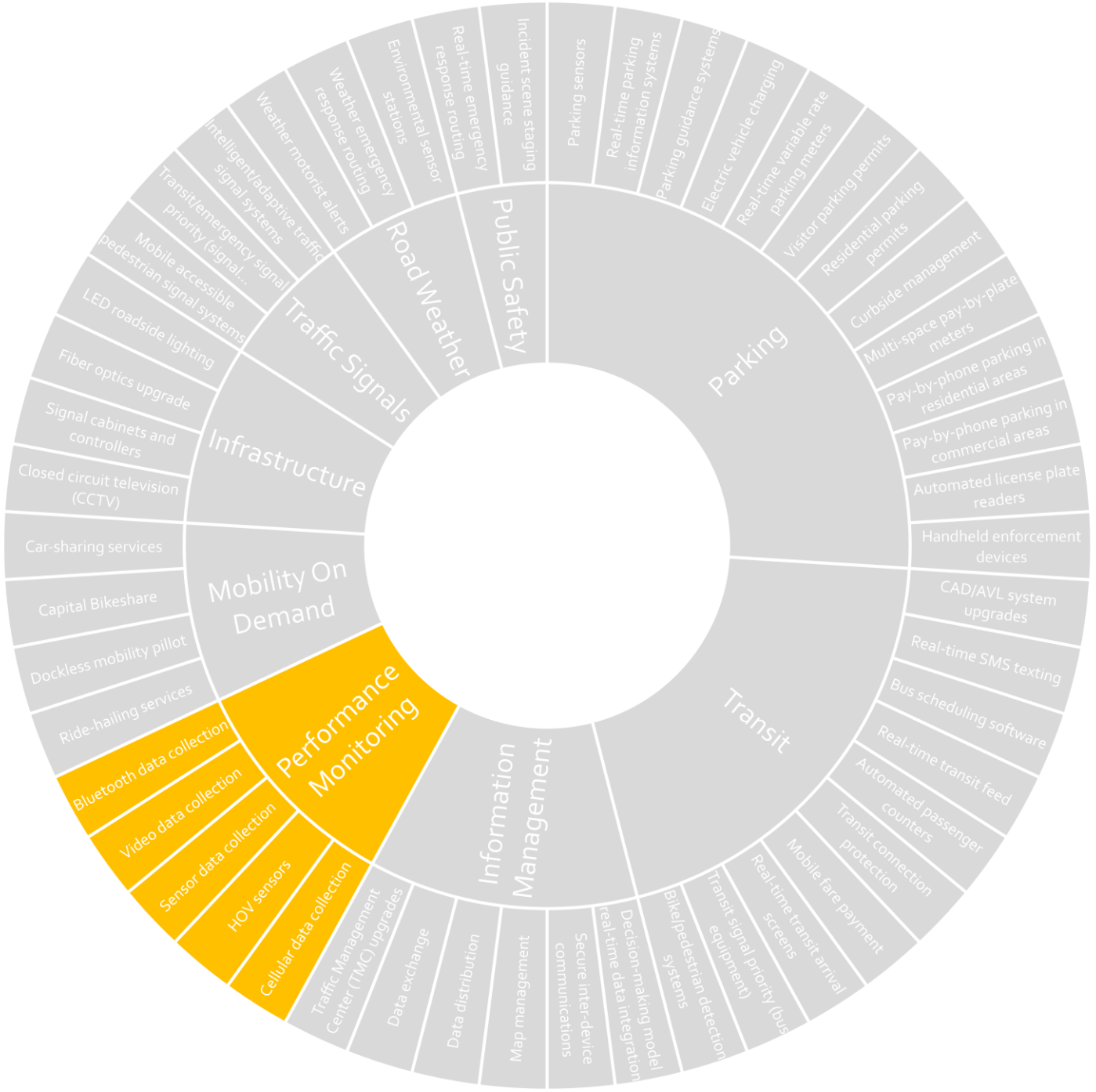
Intelligent/adaptive signal systems, transit signal priority, emergency vehicle preemption

WHAT IT MEANS FOR YOU

Better-managed traffic flow

Faster bus service

Faster emergency response times



PERFORMANCE MONITORING

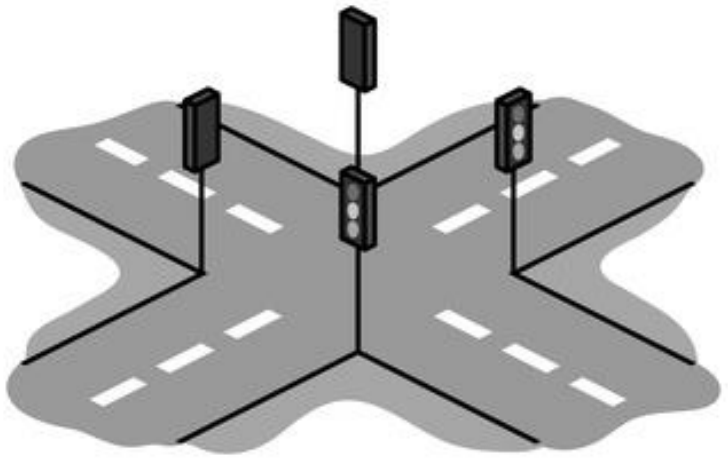
WHAT WE'RE DOING

Expand bluetooth and sensor data collection, research HOV sensors and video and cellular data collection

WHAT IT MEANS FOR YOU

Results-based road management

Better-managed traffic flow



INFRASTRUCTURE

WHAT WE'RE DOING

Expand fiber optics, upgrade traffic signals, expand CCTV, research LED roadside lighting

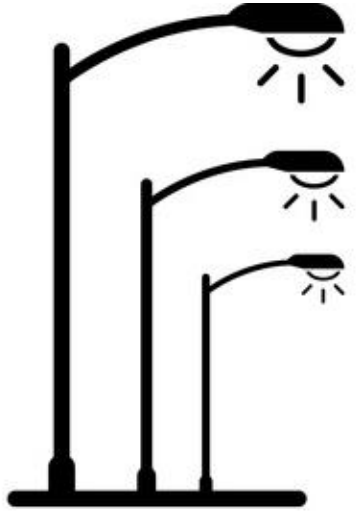
WHAT IT MEANS FOR YOU

Optimized transportation network

Better-managed traffic flow

Municipal broadband

More efficient roadside lighting



ⓘ INFORMATION MANAGEMENT

WHAT WE'RE DOING

Upgraded traffic management center, regional data exchanges, interactive maps

WHAT IT MEANS FOR YOU

Optimized transportation network

Better-managed traffic flow

More informed decision-making

Accurate data for third party apps

SMART MOBILITY TIMELINE

SHORT TERM

Real-time arrival screens
Automated passenger counts
Real-time transit feed
Real-time transit stop texting
Parking enforcement devices
Automated plate readers
Pay-by-phone parking
Weather stations
Car-sharing
Dockless mobility pilot
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LONG TERM

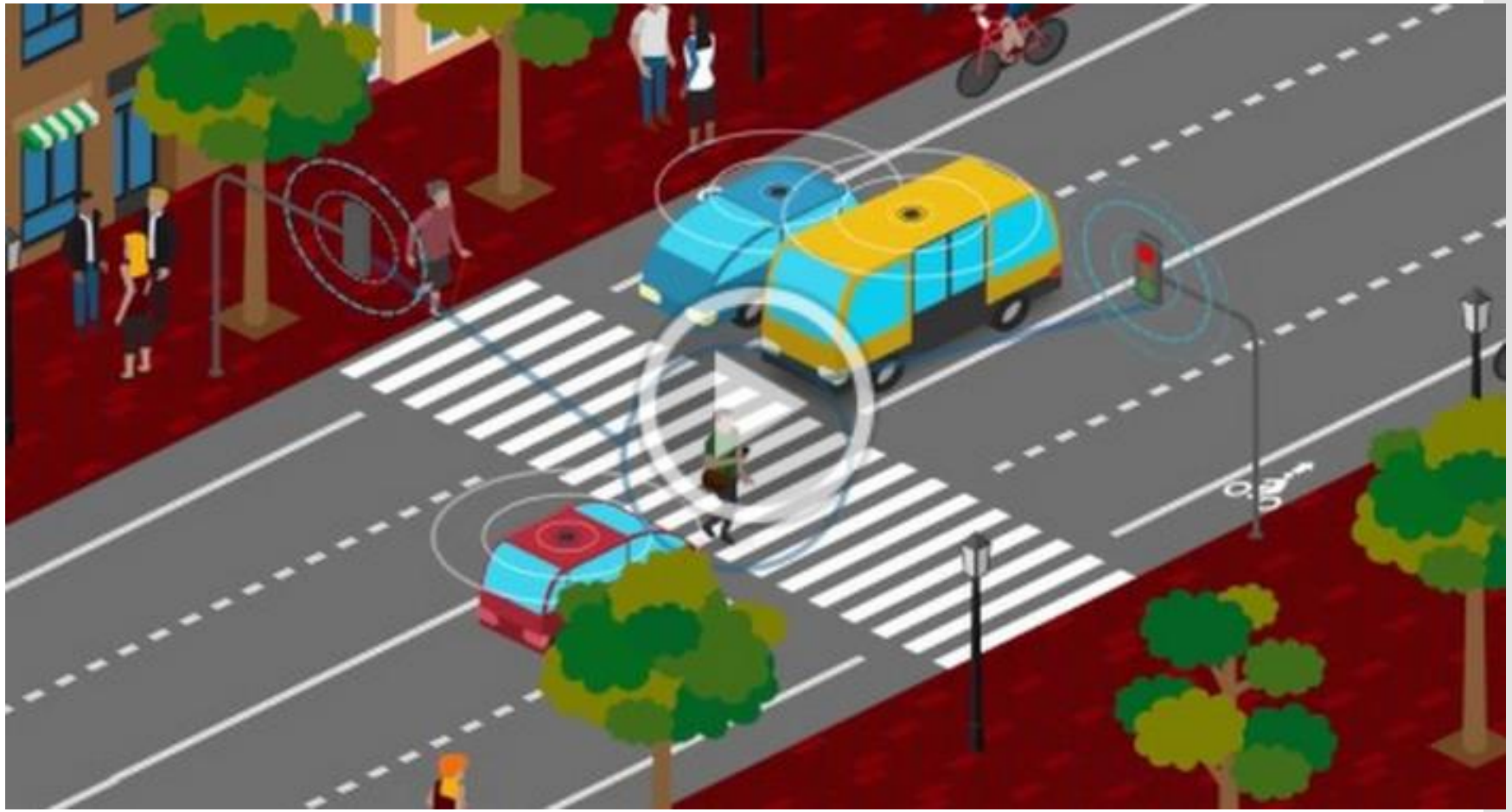
Incident scene staging
Emergency response routing
Weather motorist alerts
Accessible ped systems
LED roadside lighting
Decision-making model

CATEGORIES

TRANSIT
PARKING
PUBLIC SAFETY
ROAD WEATHER
MOBILITY ON DEMAND
TRAFFIC SIGNALS
PERFORMANCE MONITORING
INFRASTRUCTURE
INFORMATION MANAGEMENT

Smart Mobility Financing

Prior Year	FY19	FY20	FY21	FY22	FY23	FY24	FY25	City Funding	Total Grant Funding	Total Financing
$15,742,493	$4,066,400	$2,596,570	$2,205,123	$7,716,000	$3,910,000	$3,015,745	$3,250,000	$1,812,277	$40,636,988	$43,072,265

Source	Funding
Prior Year (through FY 18)	$16,312,427
NVTA	$1,431,491
CMAQ/RSTP	$9,619,347
SmartScale	$14,709,000
City	$1,000,000
Total Program Financing	**$43,072,265**

Smart Mobility Video