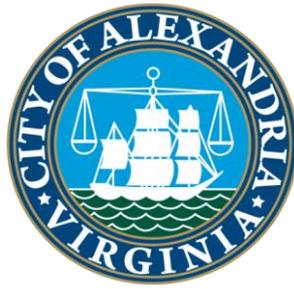




Transportation Commission

September 18, 2019



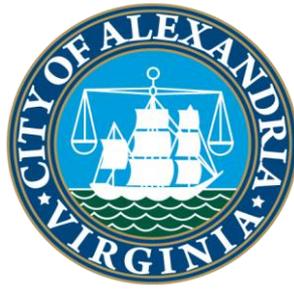
Public Comment Period - 3 min per speaker

Agenda Item #1



COMMISSION MINUTES: June 17, 2019 Meeting

Agenda Item #2



Commission Updates

Agenda Item #3



Smart Mobility

Agenda Item #4



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 and 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

CURRENT PROGRAMS

Real-time arrival screens
Fiber optics
Signal cabinets & controllers
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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

| CURRENT PROGRAMS | PLANNED PROGRAMS | PROGRAMS UNDER CONSIDERATION |
|-------------------------------|--------------------------------|--------------------------------|
| Real-time arrival screens | Transit signal priority | Ped/bike detection systems |
| Fiber optics | Mobile fare payment | Transit connection protection |
| Signal cabinets & controllers | Automated passenger counts | LED roadside lighting |
| CCTV | Real-time transit feed | Emergency response routing |
| Weather stations | Bus scheduling software | Weather motorist alerts |
| Intelligent traffic signals | Real-time transit stop texting | Incident scene staging |
| Car-sharing | Bus CAD/AVL | Accessible ped systems |
| Capital Bikeshare | Emergency vehicle preemption | Variable rate parking meters |
| Ride-hailing | Dockless mobility pilot | EV charging stations |
| Parking enforcement devices | Pay-by-plate parking | Parking guidance systems |
| Automated plate readers | Curbside management | Real-time parking info systems |
| Pay-by-phone parking | Streamlined parking permits | Parking sensors |
| Data exchange | Bluetooth data collection | HOV sensors |
| Data distribution | Video data collection | |
| Secure communications | Sensor data collection | |
| Automated interactive maps | Cellular data collection | |
| | TMC upgrades | |
| | Decision-making model | |

| CURRENT PROGRAMS | PLANNED PROGRAMS | PROGRAMS UNDER CONSIDERATION | SMART MOBILITY |
|-------------------------------|--------------------------------|--------------------------------|---|
| Real-time arrival screens | Transit signal priority | Ped/bike detection systems | Brings different departments' efforts together under one umbrella to implement and plan for the future. |
| Fiber optics | Mobile fare payment | Transit connection protection | |
| Signal cabinets & controllers | Automated passenger counts | LED roadside lighting | |
| CCTV | Real-time transit feed | Emergency response routing | |
| Weather stations | Bus scheduling software | Weather motorist alerts | |
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| CURRENT PROGRAMS | PLANNED PROGRAMS | PROGRAMS UNDER CONSIDERATION | SMART MOBILITY |
|--|--|--|---|
| <p>Real-time arrival screens</p> <p>Fiber optics</p> <p>Signal cabinets & controllers</p> <p>CCTV</p> <p>Weather stations</p> <p>Intelligent traffic signals</p> <p>Car-sharing</p> <p>Capital Bikeshare</p> <p>Ride-hailing</p> | <p>Transit signal priority</p> <p>Mobile fare payment</p> <p>Automated passenger counts</p> <p>Real-time transit feed</p> <p>Bus scheduling software</p> <p>Real-time transit stop texting</p> <p>Bus CAD/AVL</p> <p>Emergency vehicle preemption</p> <p>Dockless mobility pilot</p> | <p>Ped/bike detection systems</p> <p>Transit connection protection</p> <p>LED roadside lighting</p> <p>Emergency response routing</p> <p>Weather motorist alerts</p> <p>Incident scene staging</p> <p>Accessible ped systems</p> | <p>The City of Alexandria's Smart Mobility Framework includes nine interconnected categories of programs:</p> <p> TRANSIT</p> <p> PARKING</p> <p> PUBLIC SAFETY</p> |
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| Fiber optics | Mobile fare payment | Transit connection protection | |
| Signal cabinets & controllers | Automated passenger counts | LED roadside lighting | |
| CCTV | Real-time transit feed | Emergency response routing | |
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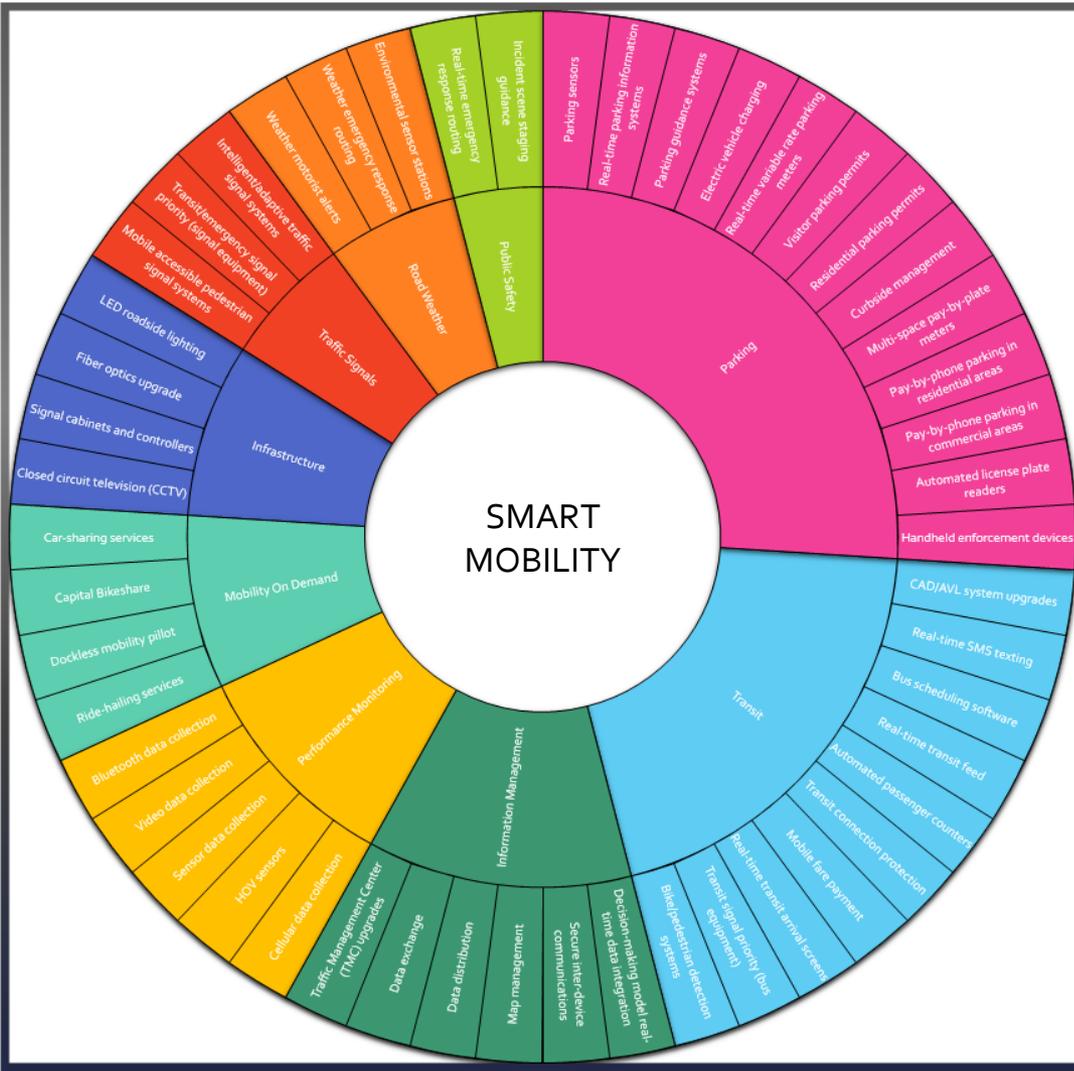
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| Fiber optics | Mobile fare payment | Transit connection protection | |
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| CURRENT PROGRAMS | PLANNED PROGRAMS | PROGRAMS UNDER CONSIDERATION | SMART MOBILITY |
|---|---|--|---|
| <p>Real-time arrival screens</p> <p>Fiber optics</p> <p>Signal cabinets & controllers</p> <p>CCTV</p> <p>Weather stations</p> <p>Intelligent traffic signals</p> <p>Car-sharing</p> <p>Capital Bikeshare</p> <p>Ride-hailing</p> <p>Parking enforcement devices</p> <p>Automated plate readers</p> <p>Pay-by-phone parking</p> <p>Data exchange</p> <p>Data distribution</p> <p>Secure communications</p> <p>Automated interactive maps</p> | <p>Transit signal priority</p> <p>Mobile fare payment</p> <p>Automated passenger counts</p> <p>Real-time transit feed</p> <p>Bus scheduling software</p> <p>Real-time transit stop texting</p> <p>Bus CAD/AVL</p> <p>Emergency vehicle preemption</p> <p>Dockless mobility pilot</p> <p>Pay-by-plate parking</p> <p>Curbside management</p> <p>Streamlined parking permits</p> <p>Bluetooth data collection</p> <p>Video data collection</p> <p>Sensor data collection</p> <p>Cellular data collection</p> <p>TMC upgrades</p> <p>Decision-making model</p> | <p>Ped/bike detection systems</p> <p>Transit connection protection</p> <p>LED roadside lighting</p> <p>Emergency response routing</p> <p>Weather motorist alerts</p> <p>Incident scene staging</p> <p>Accessible ped systems</p> <p>Variable rate parking meters</p> <p>EV charging stations</p> <p>Parking guidance systems</p> <p>Real-time parking info systems</p> <p>Parking sensors</p> <p>HOV sensors</p> | <p>The City of Alexandria's Smart Mobility Framework includes nine interconnected categories of programs:</p> <ul style="list-style-type: none">  TRANSIT  PARKING  PUBLIC SAFETY  ROAD WEATHER  MOBILITY ON DEMAND  TRAFFIC SIGNALS  PERFORMANCE MONITORING |

| CURRENT PROGRAMS | PLANNED PROGRAMS | PROGRAMS UNDER CONSIDERATION | SMART MOBILITY |
|---|---|--|---|
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| Fiber optics | Mobile fare payment | Transit connection protection | |
| Signal cabinets & controllers | Automated passenger counts | LED roadside lighting | |
| CCTV | Real-time transit feed | Emergency response routing | |
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| Automated interactive maps | Cellular data collection | | |
| | TMC upgrades | | |
| | Decision-making model | | |



SMART MOBILITY

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

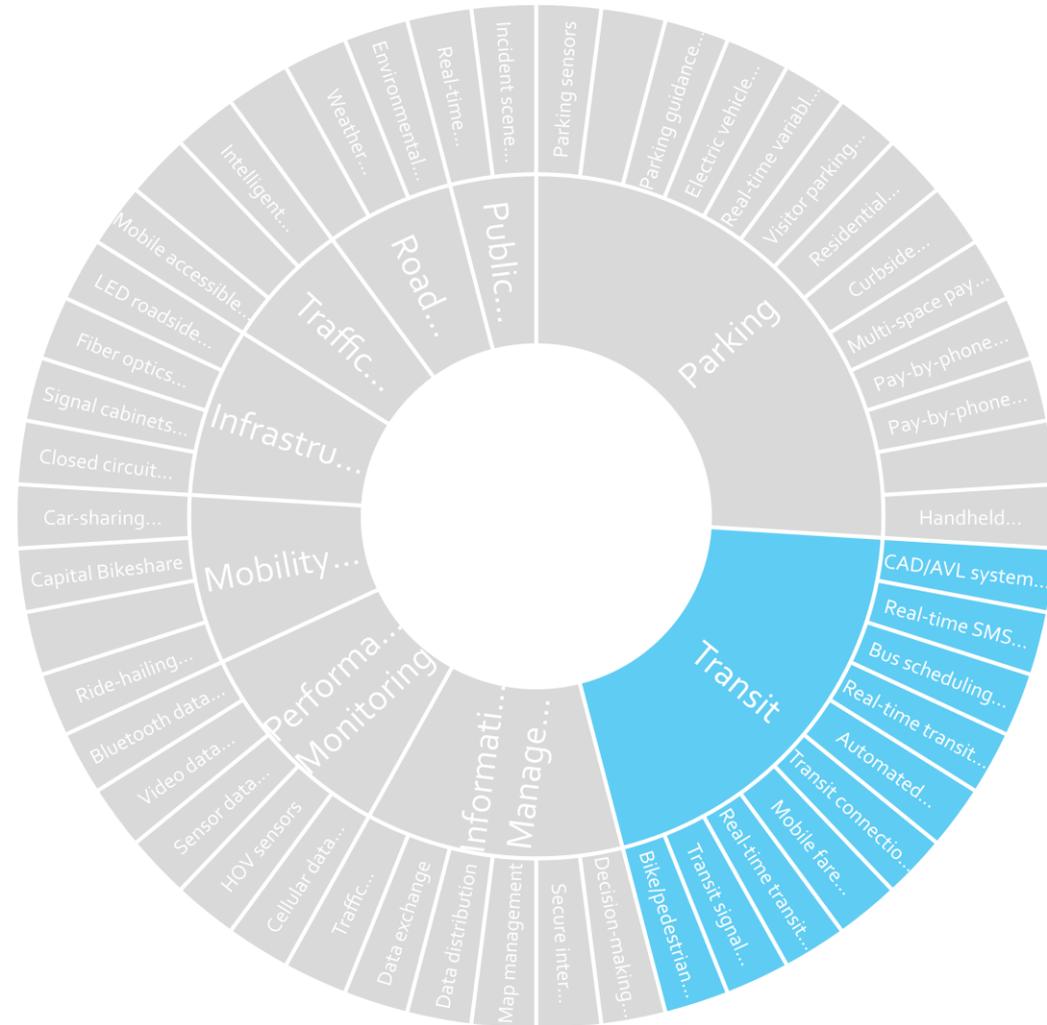
-  **TRANSIT**
-  **PARKING**
-  **PUBLIC SAFETY**
-  **ROAD WEATHER**
-  **MOBILITY ON DEMAND**
-  **TRAFFIC SIGNALS**
-  **PERFORMANCE MONITORING**
-  **INFRASTRUCTURE**
-  **INFORMATION MANAGEMENT**



TRANSIT

WHAT WE'RE DOING

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





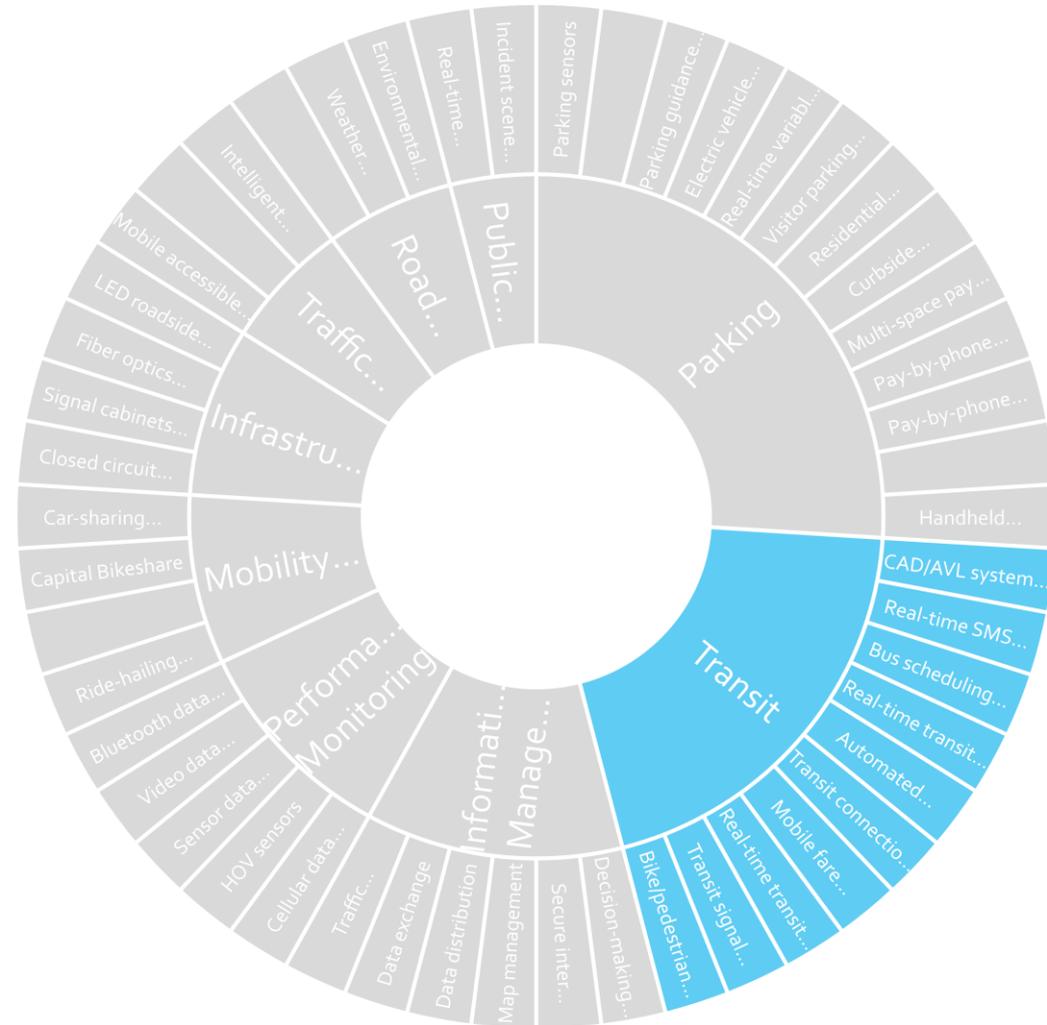
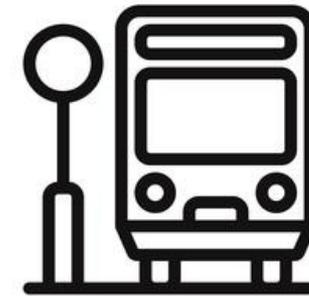
TRANSIT

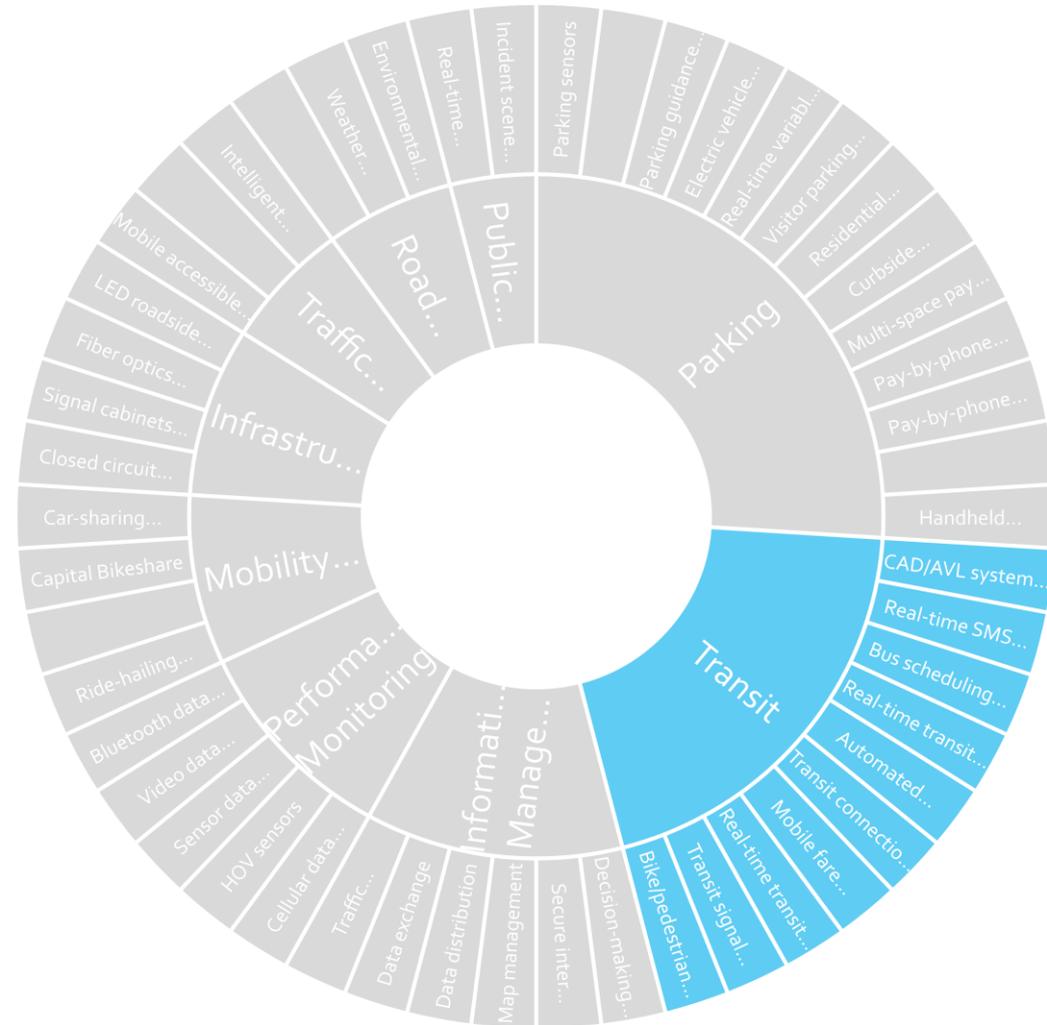
WHAT WE'RE DOING

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

WHAT IT MEANS FOR YOU

Faster bus service





TRANSIT

WHAT WE'RE DOING

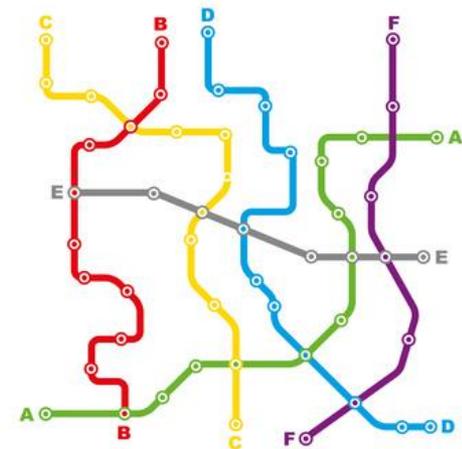
Transit signal priority, mobile fare payment, real-time arrival screens, real-time transit feed

WHAT IT MEANS FOR YOU

Faster bus service



Easier trip planning





TRANSIT

WHAT WE'RE DOING

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

WHAT IT MEANS FOR YOU

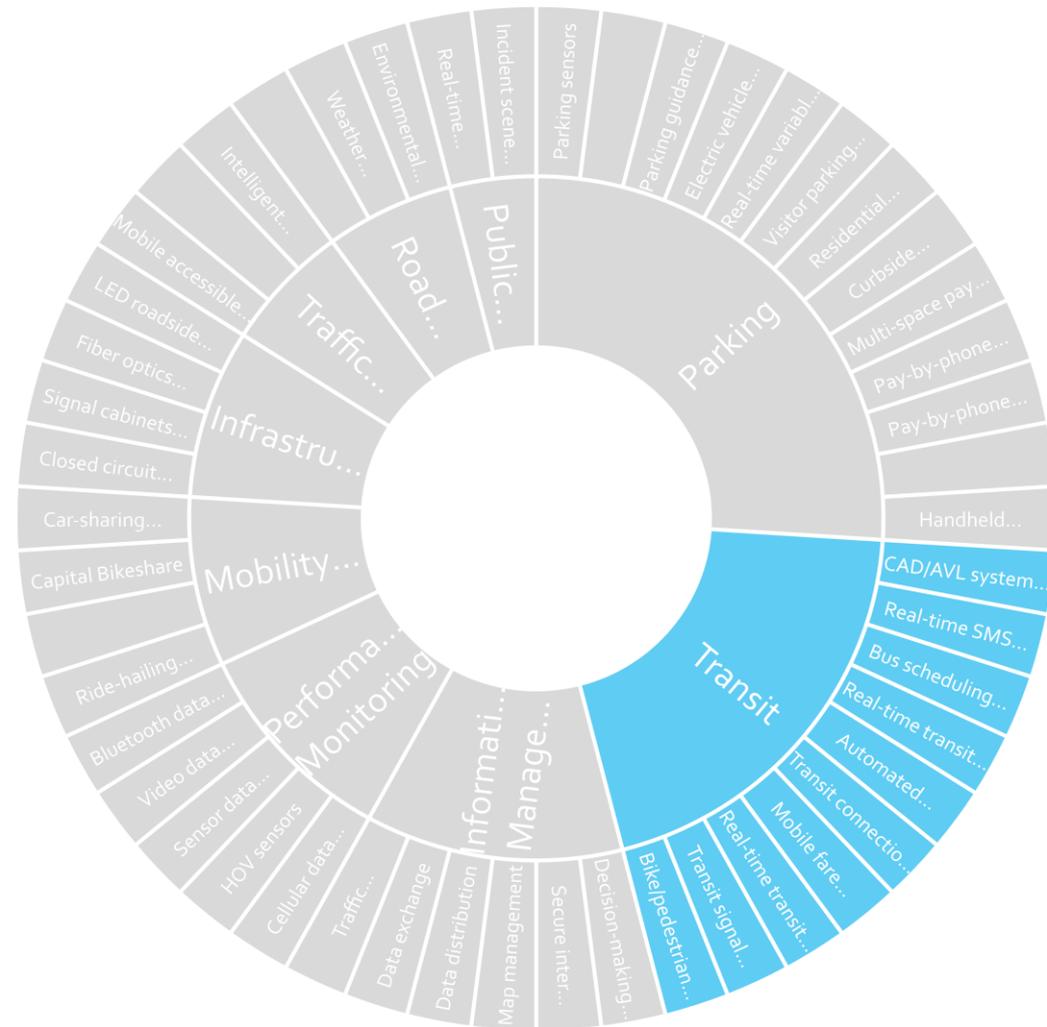
Faster bus service



Easier trip planning



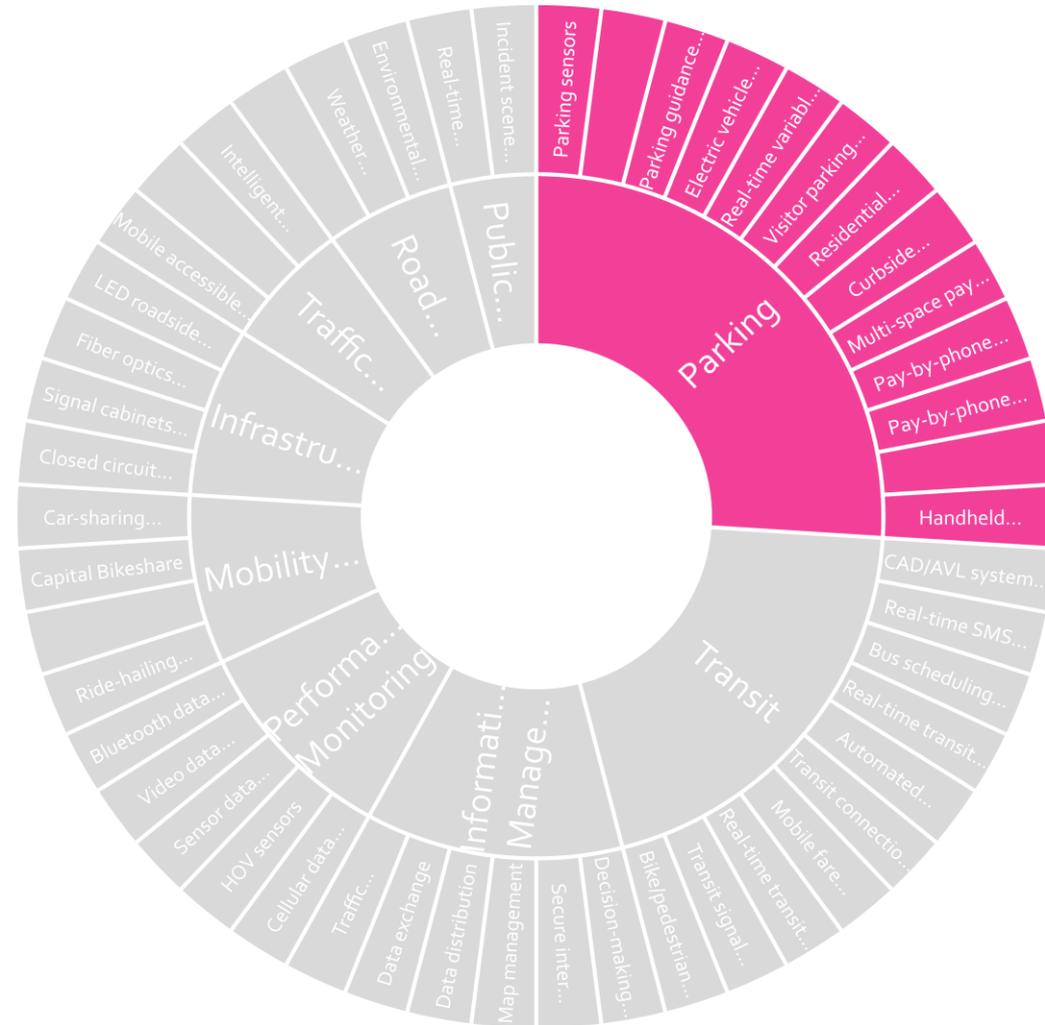
Easier trip payment



Ⓟ PARKING

WHAT WE'RE DOING

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



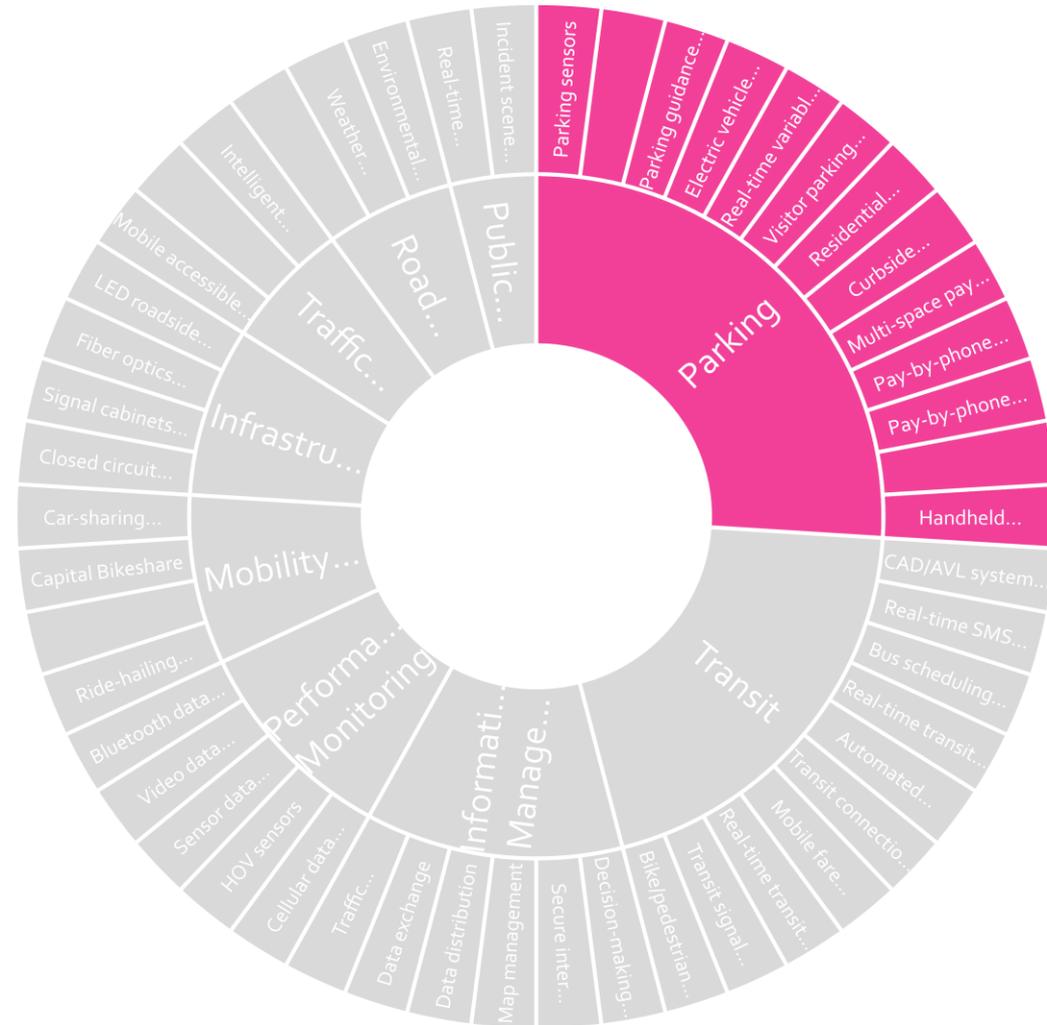
Ⓟ PARKING

WHAT WE'RE DOING

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

WHAT IT MEANS FOR YOU

Less illegal parking



Ⓟ PARKING

WHAT WE'RE DOING

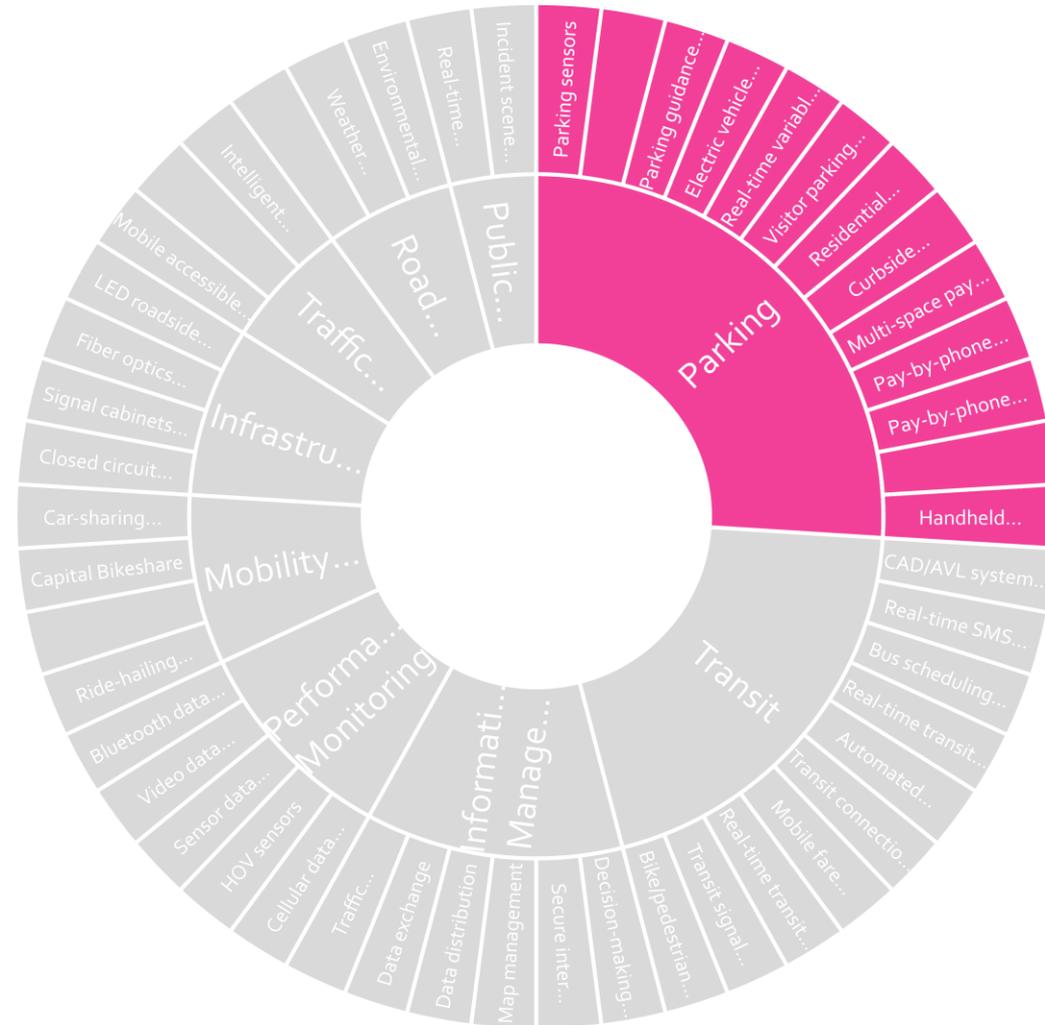
Streamlined enforcement, pay-by-phone parking, variable rate meters, curbside management

WHAT IT MEANS FOR YOU

Less illegal parking



Easier parking payment



Ⓟ PARKING

WHAT WE'RE DOING

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

WHAT IT MEANS FOR YOU

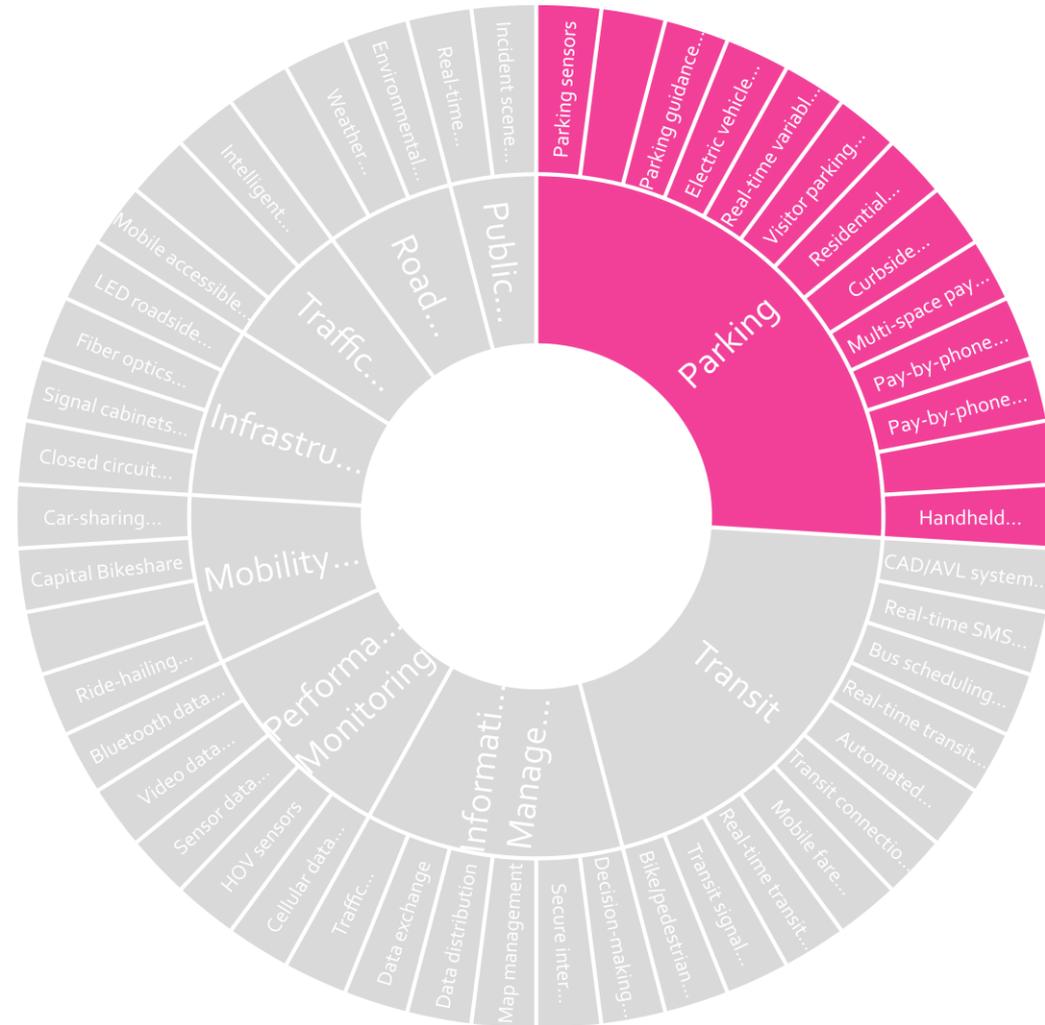
Less illegal parking



Easier parking payment



Less time searching for parking

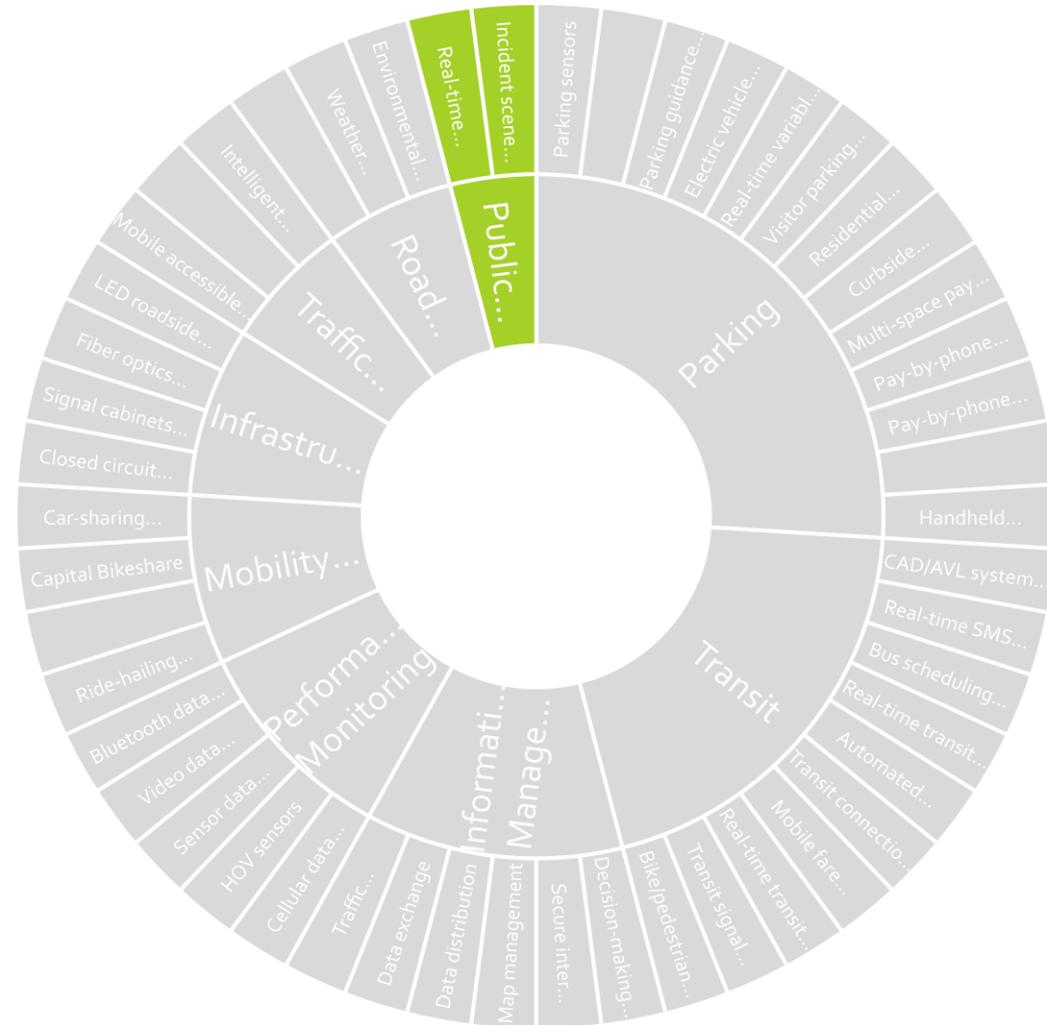




PUBLIC SAFETY

WHAT WE'RE DOING

Emergency routing support, emergency vehicle preemption

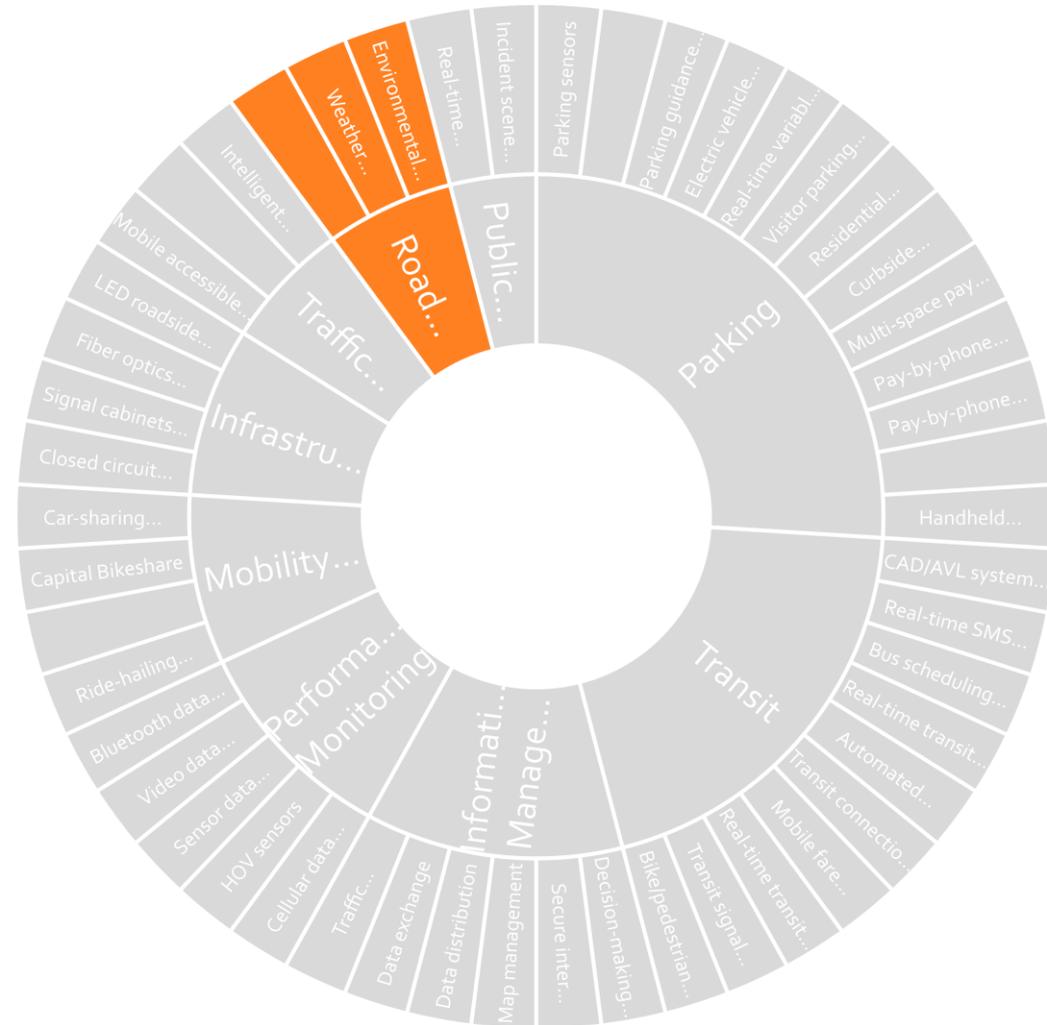




ROAD WEATHER

WHAT WE'RE DOING

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





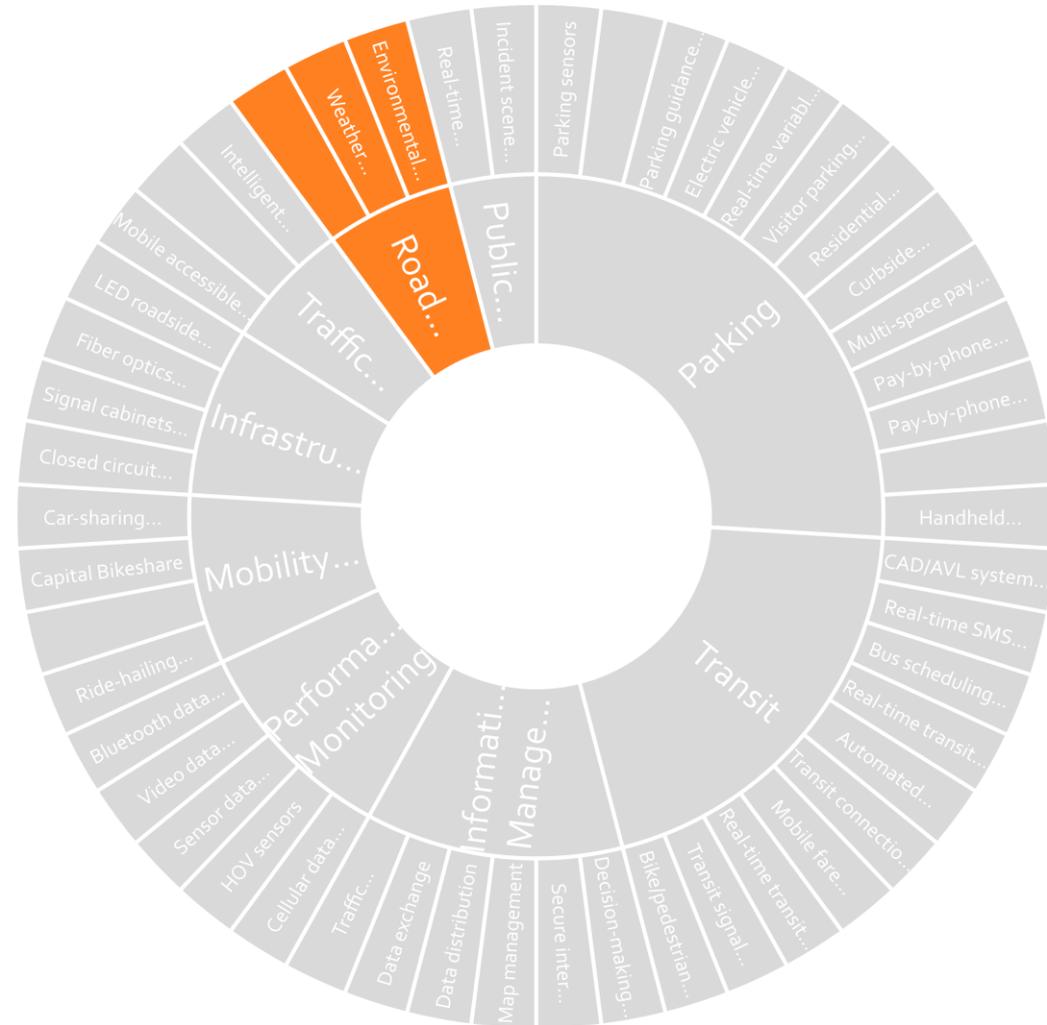
ROAD WEATHER

WHAT WE'RE DOING

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

WHAT IT MEANS FOR YOU

Faster emergency response times





ROAD WEATHER

WHAT WE'RE DOING

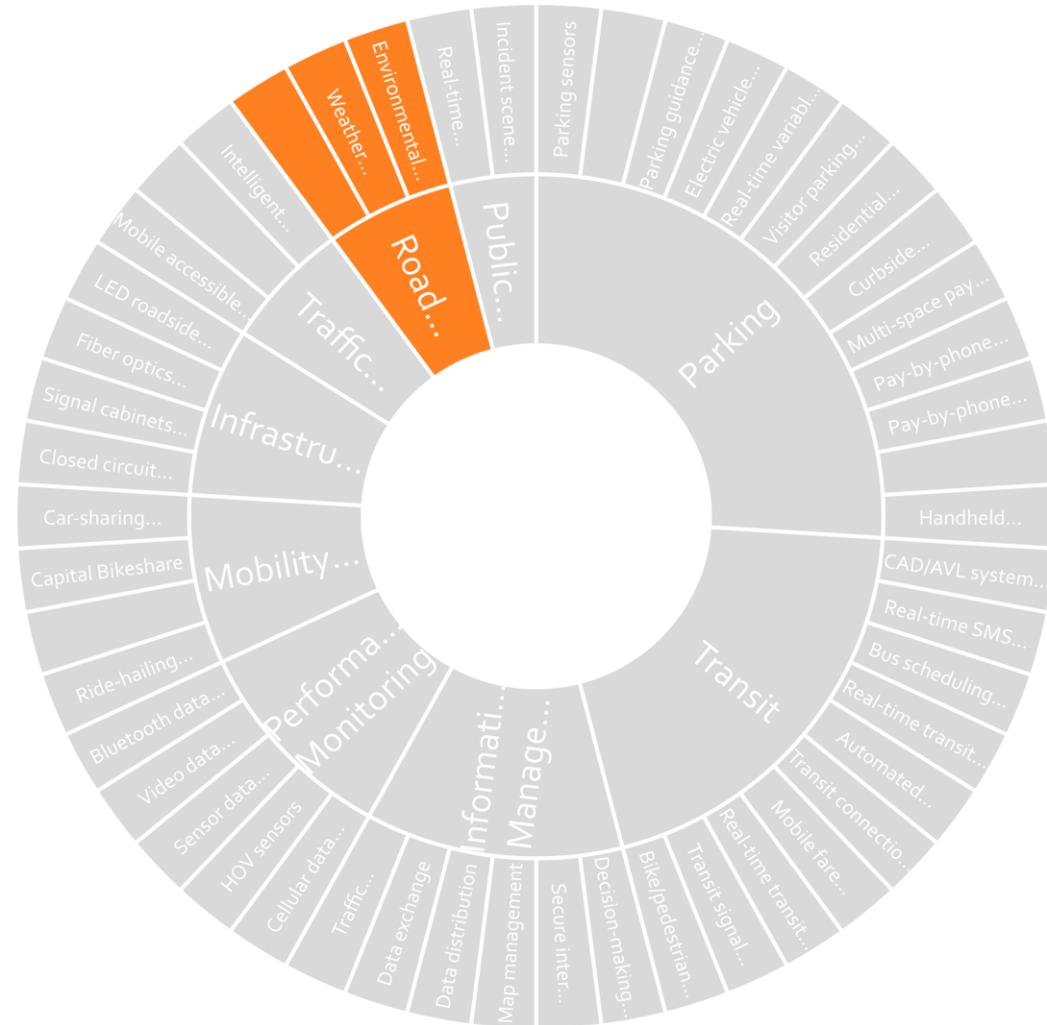
Flood sensors, weather stations, weather-informed emergency routing support

WHAT IT MEANS FOR YOU

Faster emergency response times



More accurate road weather info





ROAD WEATHER

WHAT WE'RE DOING

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

WHAT IT MEANS FOR YOU

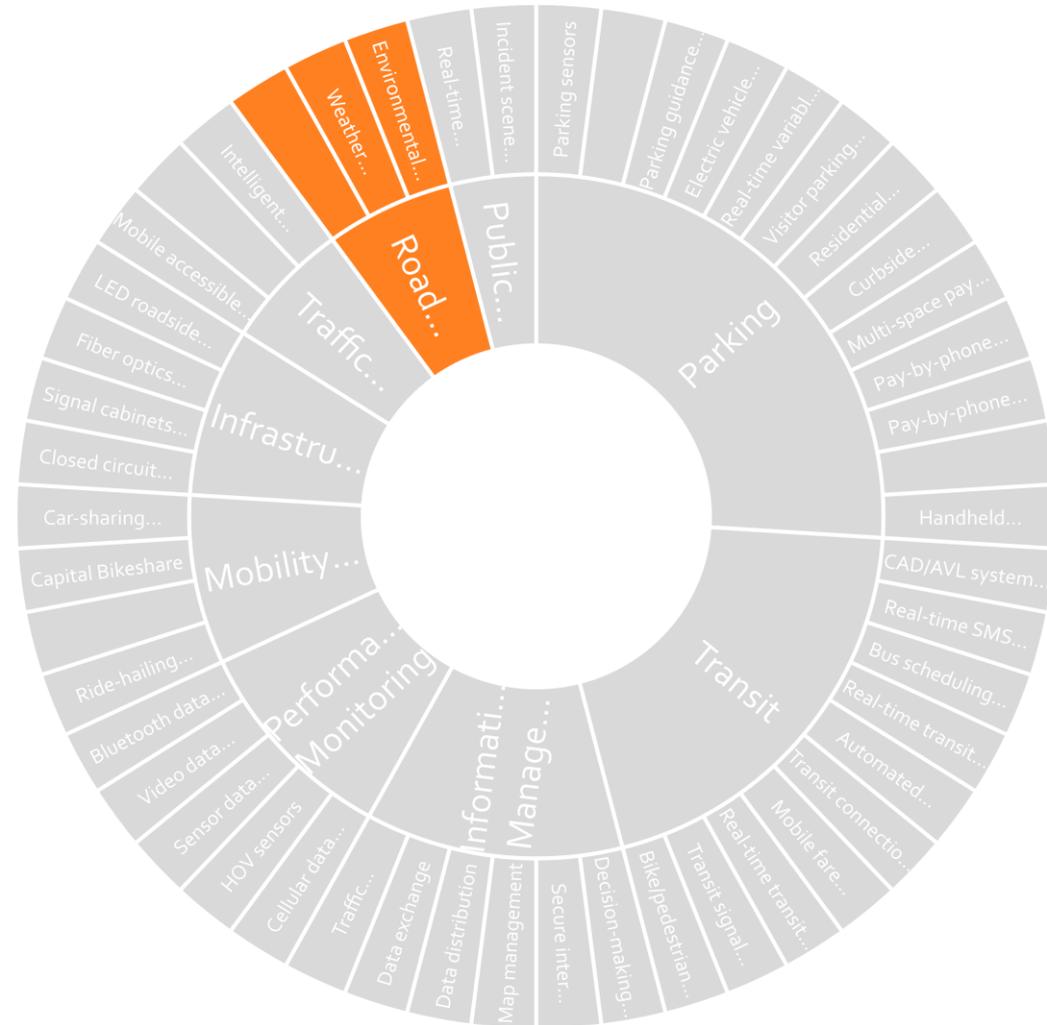
Faster emergency response times



More accurate road weather info



Preemptive flooding prediction

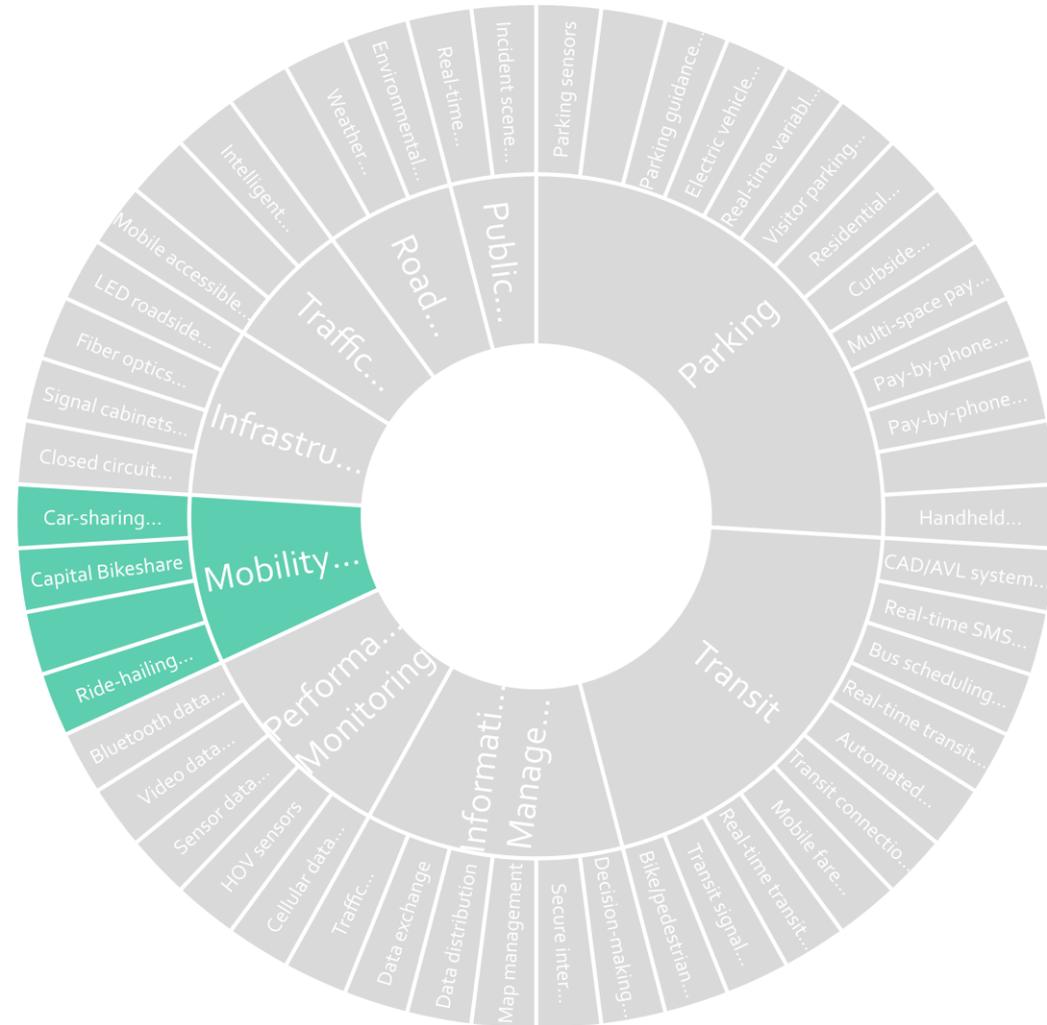




MOBILITY ON DEMAND

WHAT WE'RE DOING

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





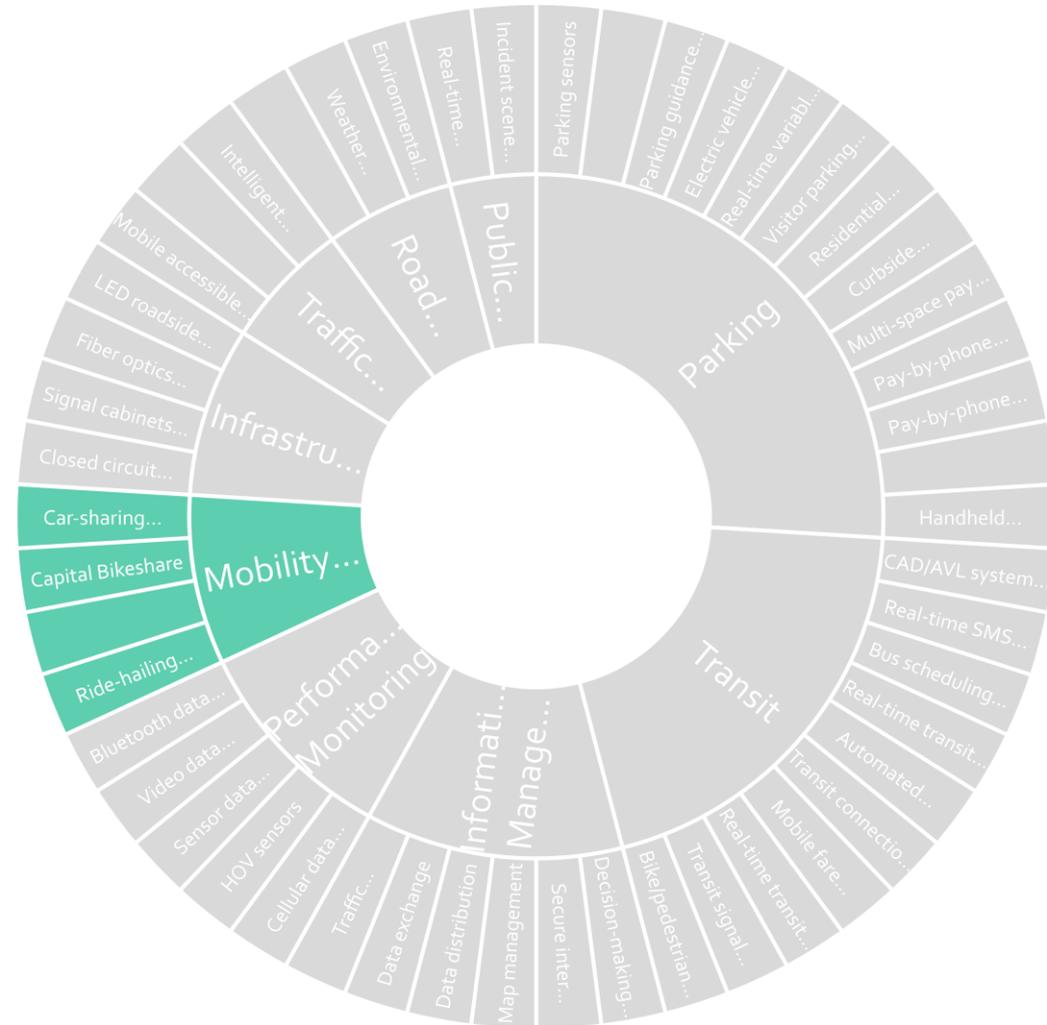
MOBILITY ON DEMAND

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





MOBILITY ON DEMAND

WHAT WE'RE DOING

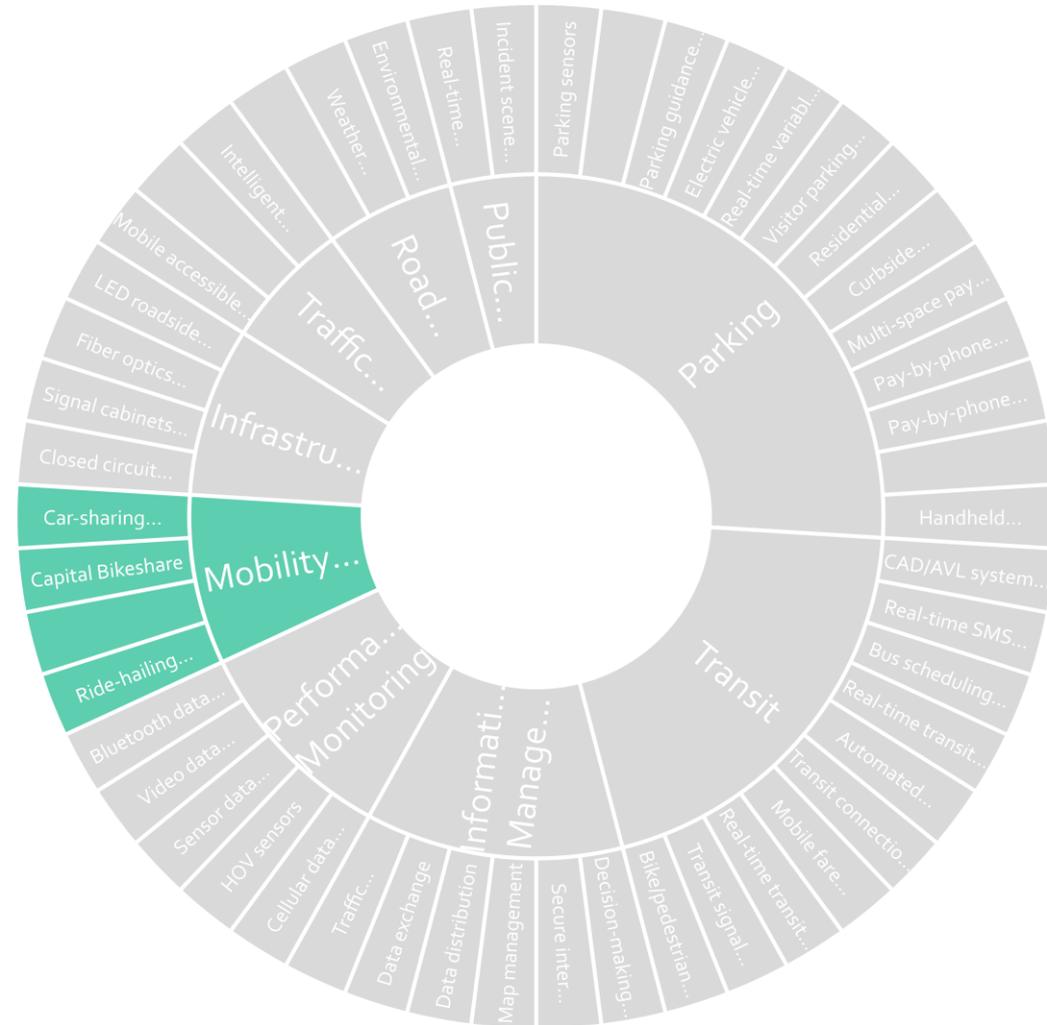
Dockless mobility pilot, Capital Bikeshare expansion, continued car-sharing and ride-hailing

WHAT IT MEANS FOR YOU

More ways to get around



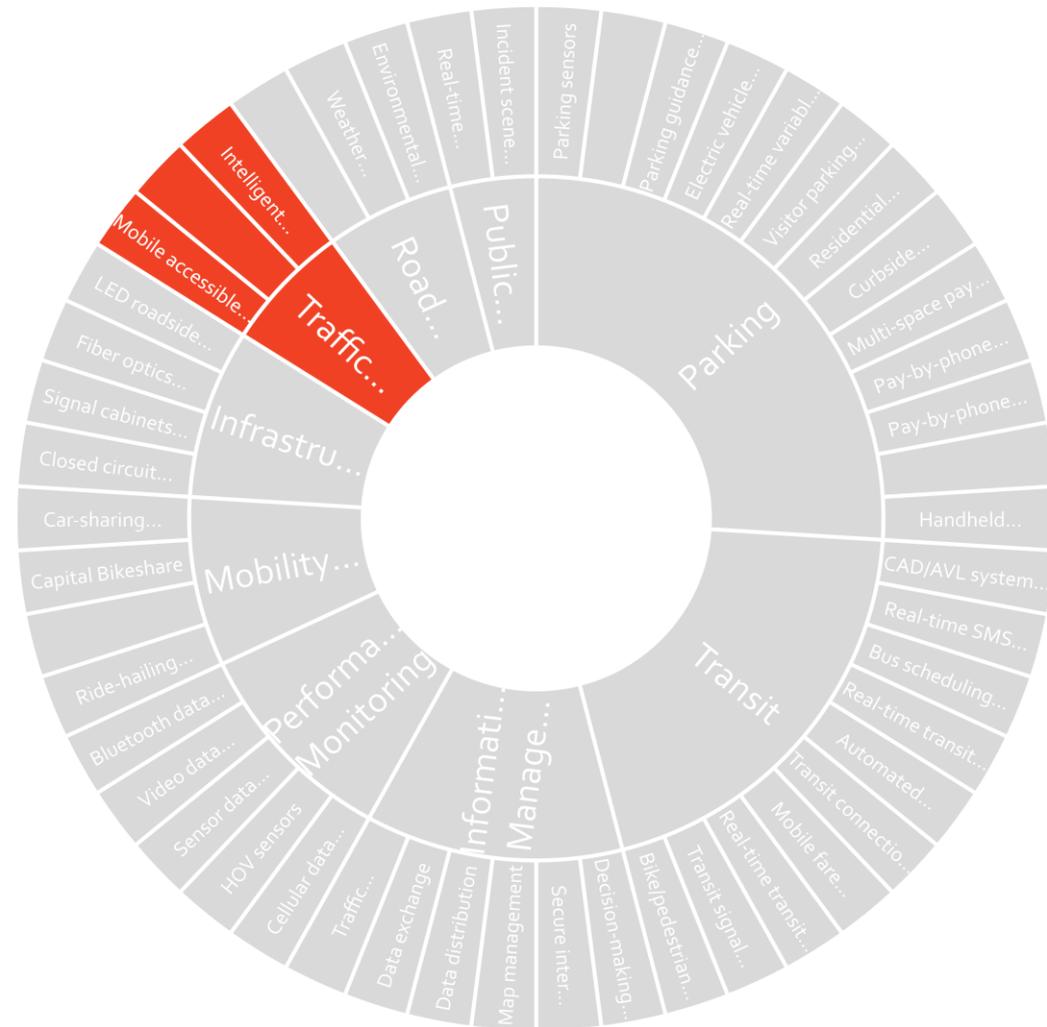
Less demand for parking



? TRAFFIC SIGNALS

WHAT WE'RE DOING

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



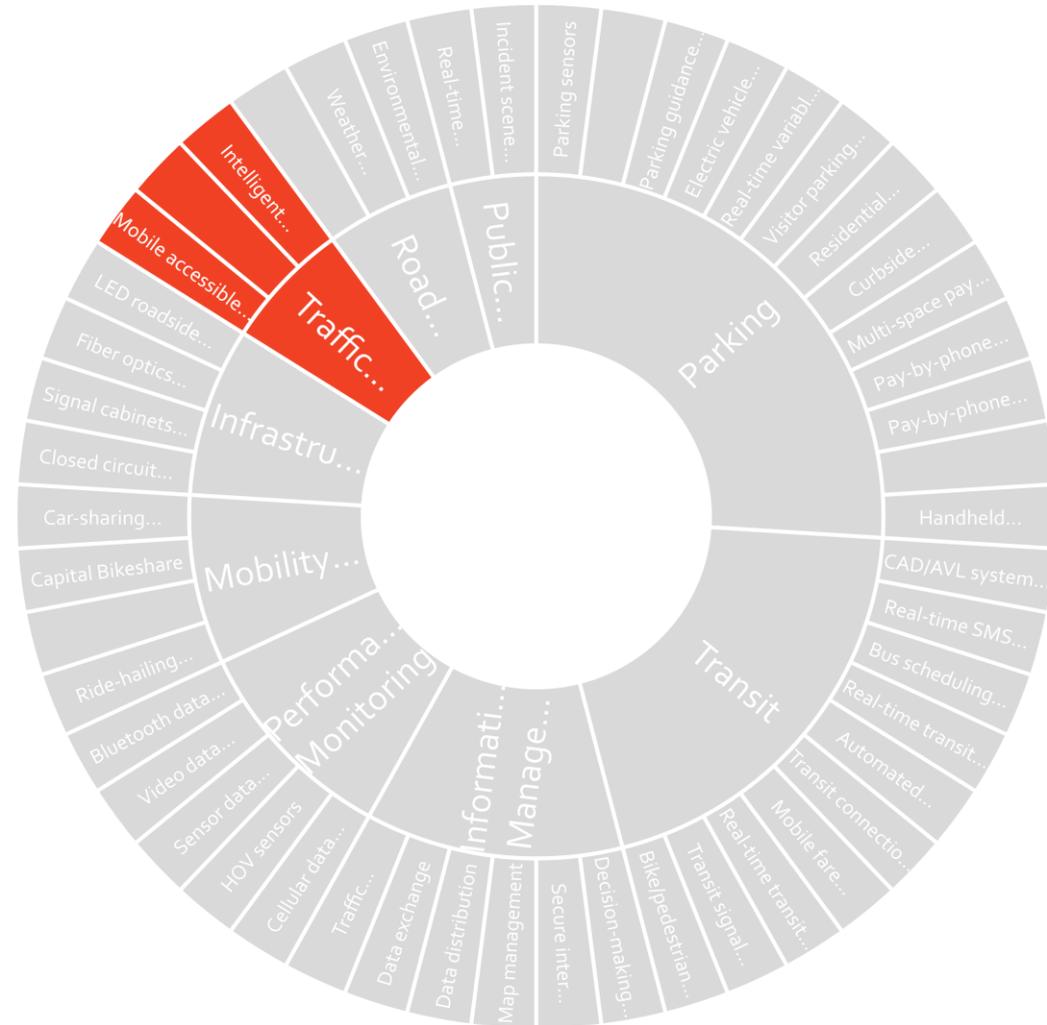
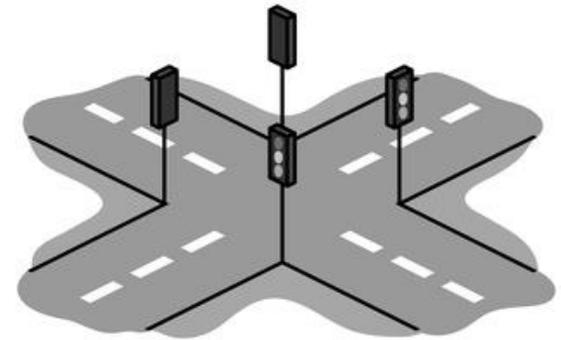
? TRAFFIC SIGNALS

WHAT WE'RE DOING

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

WHAT IT MEANS FOR YOU

Better-managed traffic flow



? TRAFFIC SIGNALS

WHAT WE'RE DOING

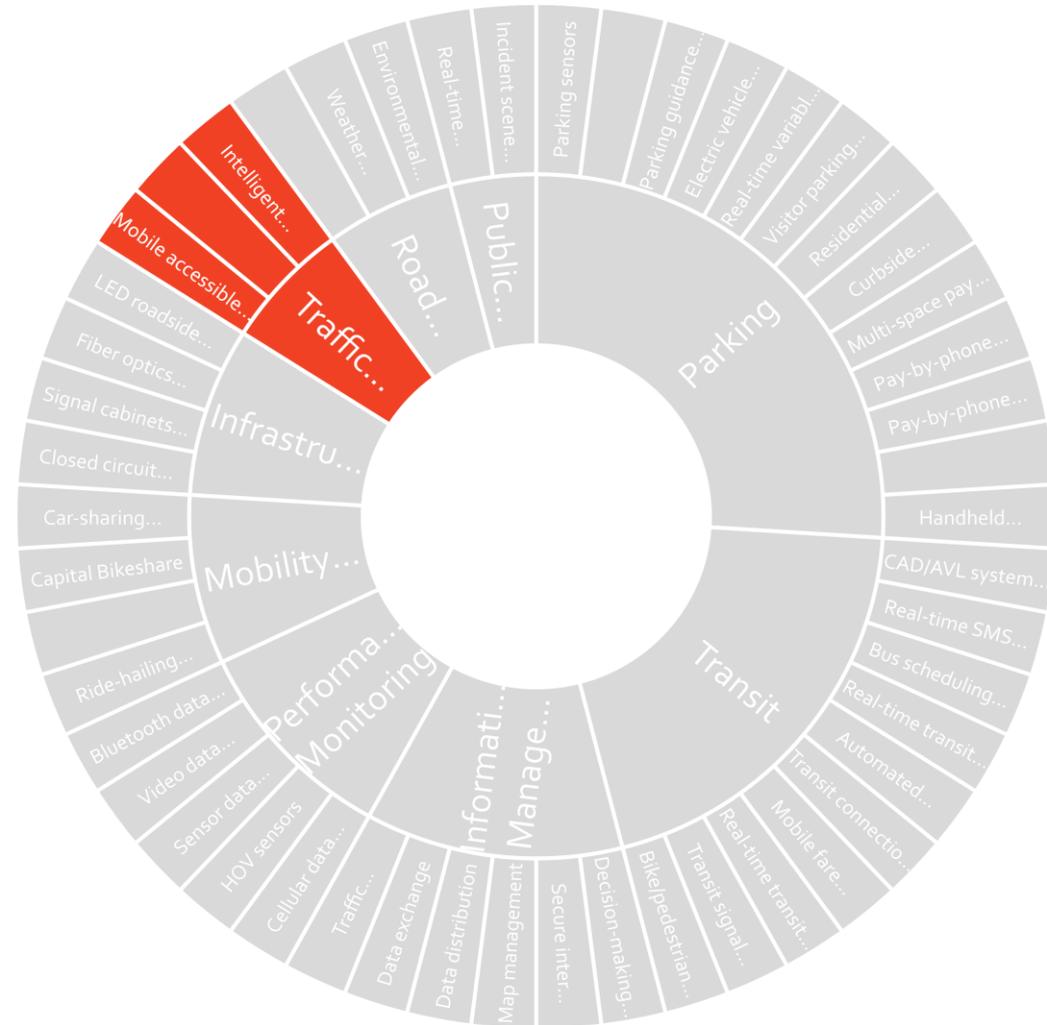
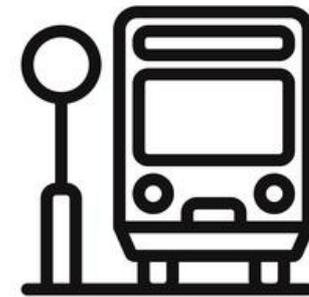
Intelligent/adaptive signal systems, transit signal priority, emergency vehicle preemption

WHAT IT MEANS FOR YOU

Better-managed traffic flow



Faster bus service



? TRAFFIC SIGNALS

WHAT WE'RE DOING

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

WHAT IT MEANS FOR YOU

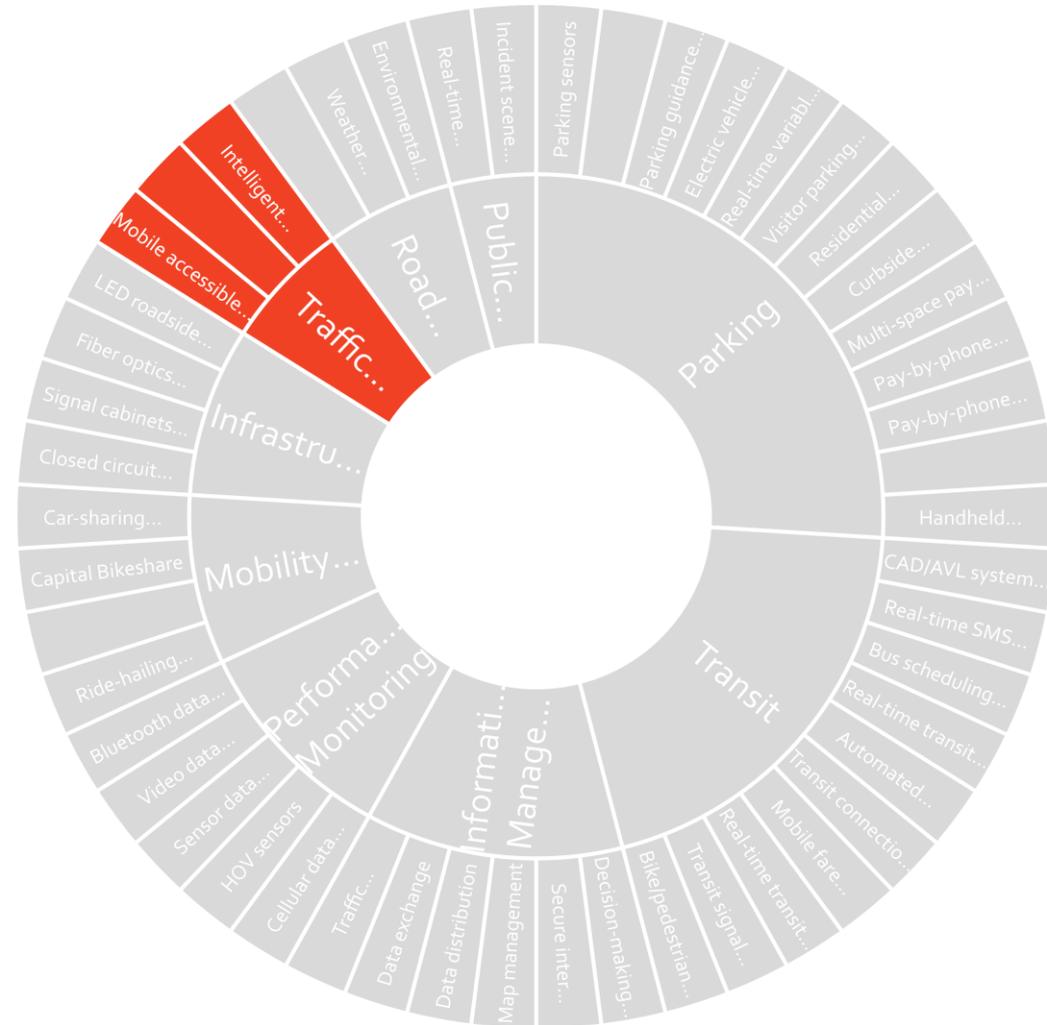
Better-managed traffic flow



Faster bus service



Faster emergency response times

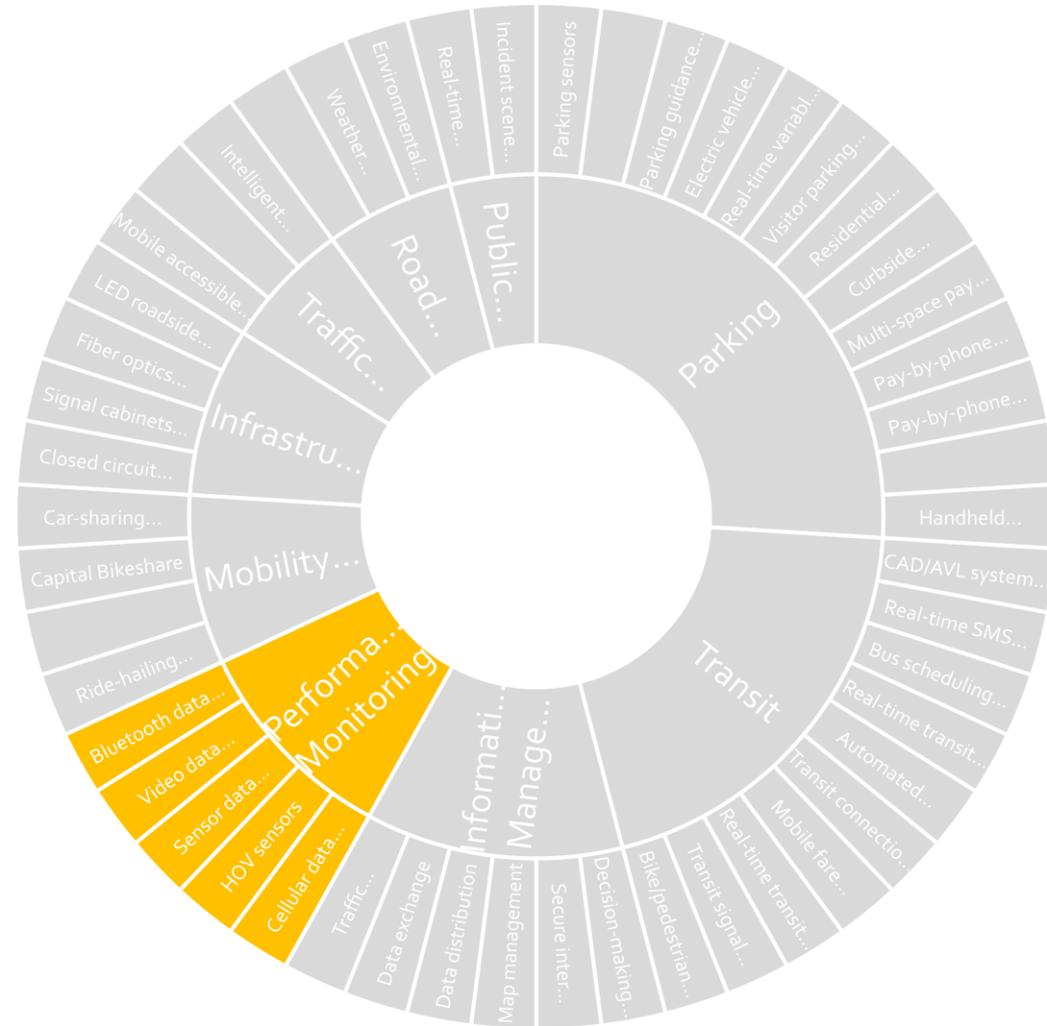




PERFORMANCE MONITORING

WHAT WE'RE DOING

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



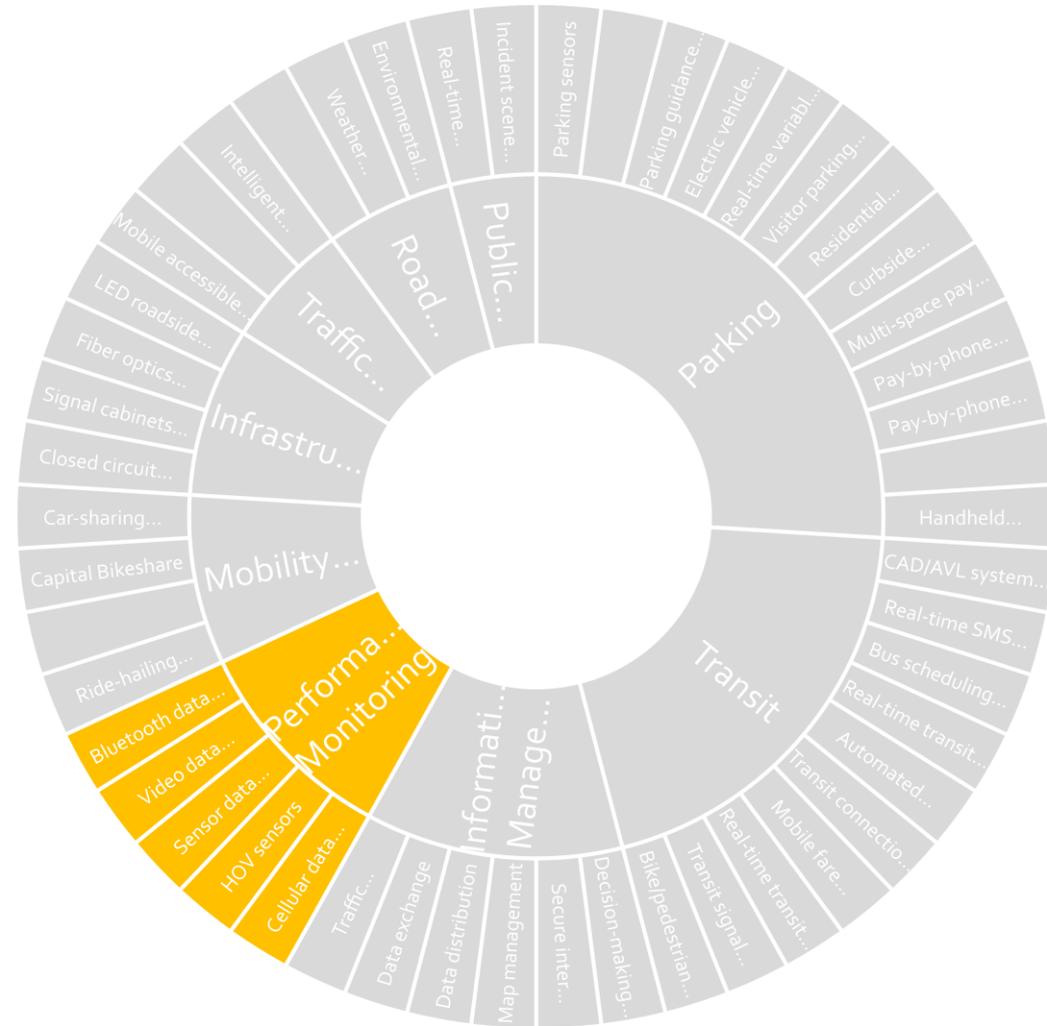
PERFORMANCE MONITORING

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





PERFORMANCE MONITORING

WHAT WE'RE DOING

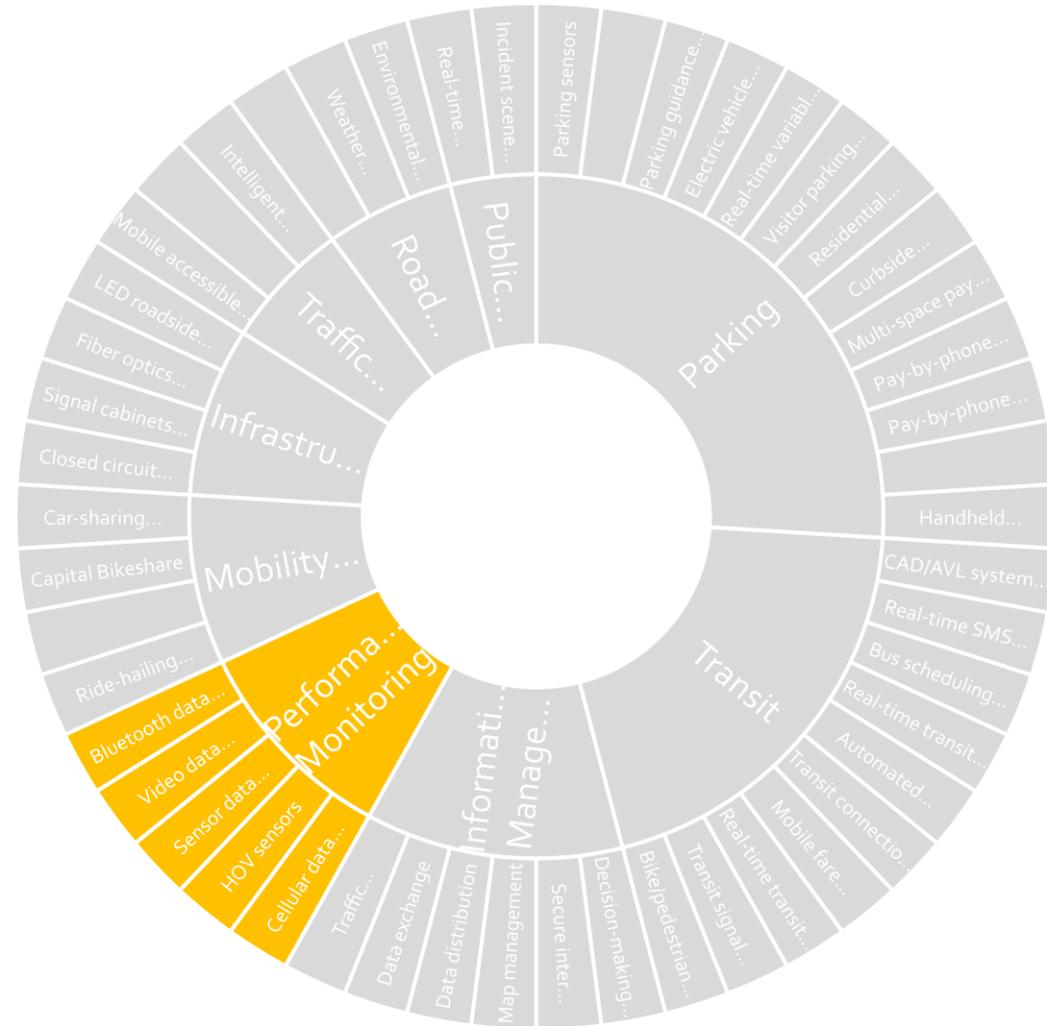
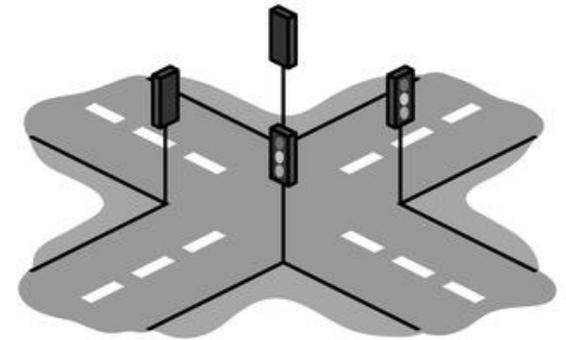
Expand bluetooth and sensor data collection, research HOV sensors and video and cellular data collection

WHAT IT MEANS FOR YOU

Results-based road management



Better-managed traffic flow

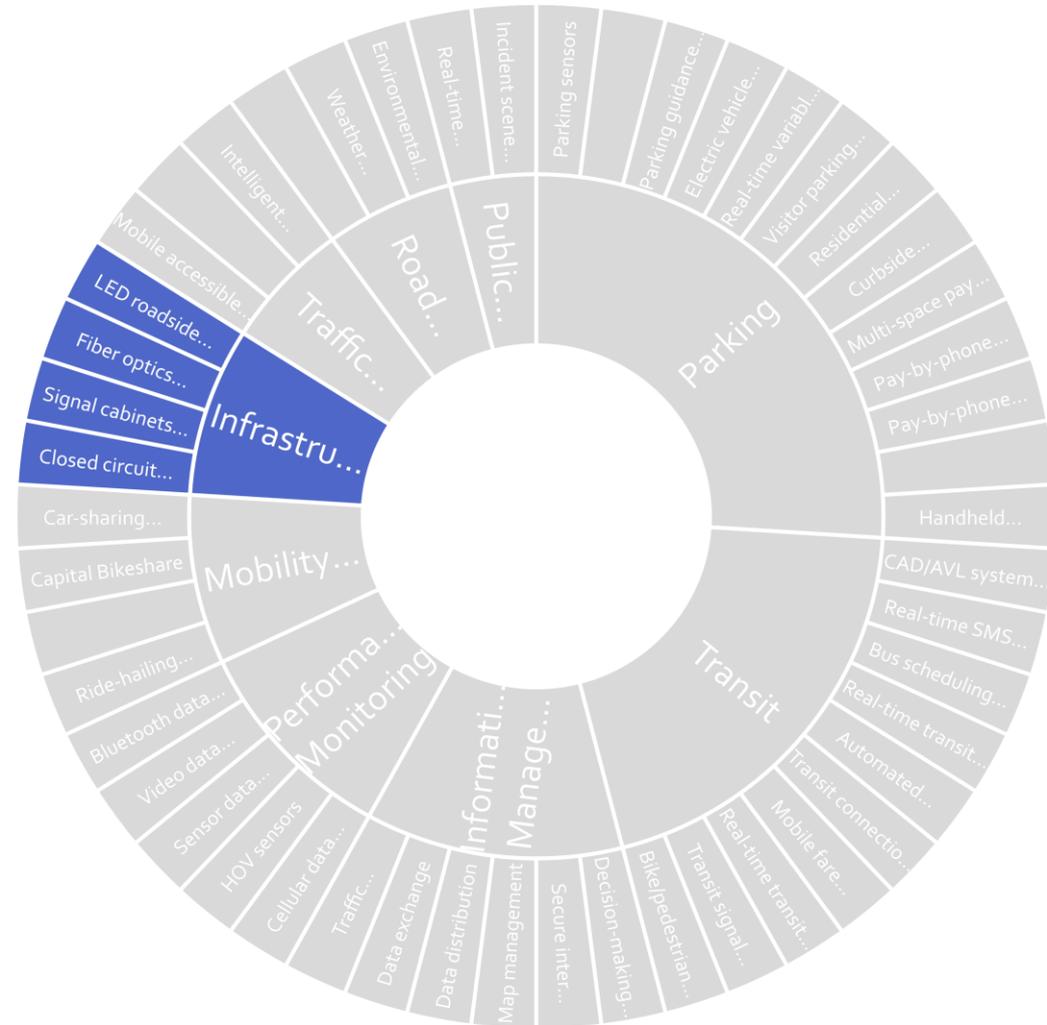




INFRASTRUCTURE

WHAT WE'RE DOING

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





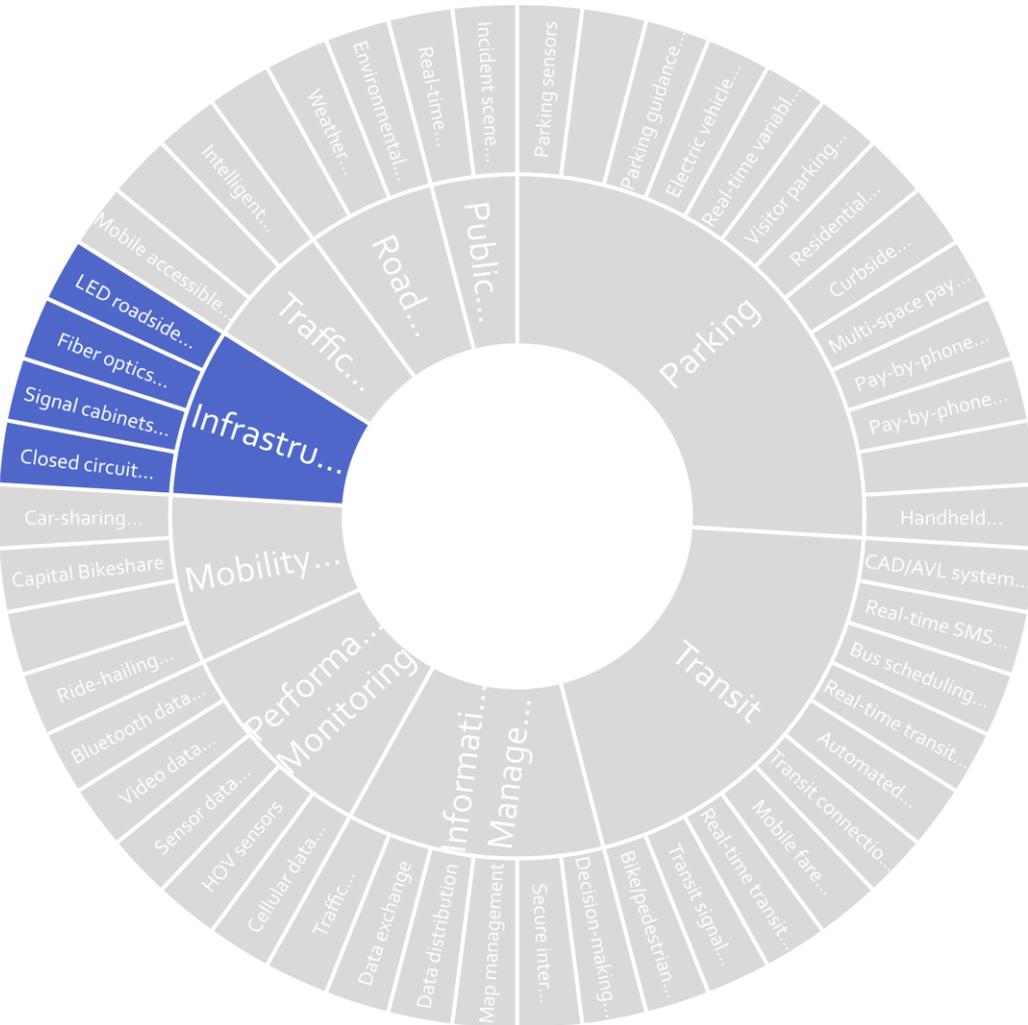
INFRASTRUCTURE

WHAT WE'RE DOING

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

WHAT IT MEANS FOR YOU

Optimized transportation network





INFRASTRUCTURE

WHAT WE'RE DOING

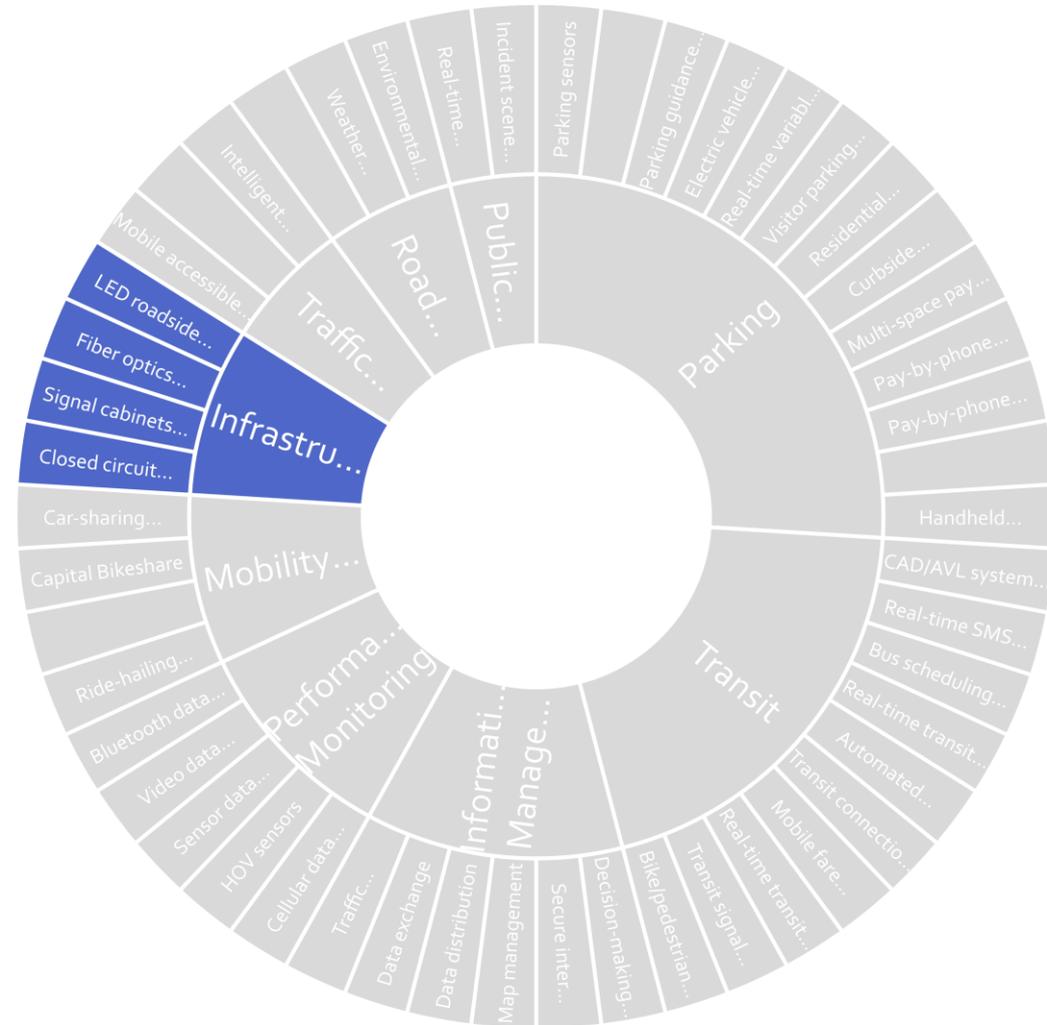
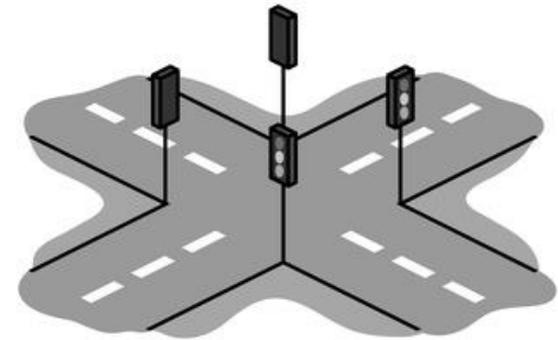
Expand fiber optics, upgrade traffic signals, expand CCTV, research LED roadside lighting

WHAT IT MEANS FOR YOU

Optimized transportation network



Better-managed traffic flow





INFRASTRUCTURE

WHAT WE'RE DOING

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WHAT IT MEANS FOR YOU

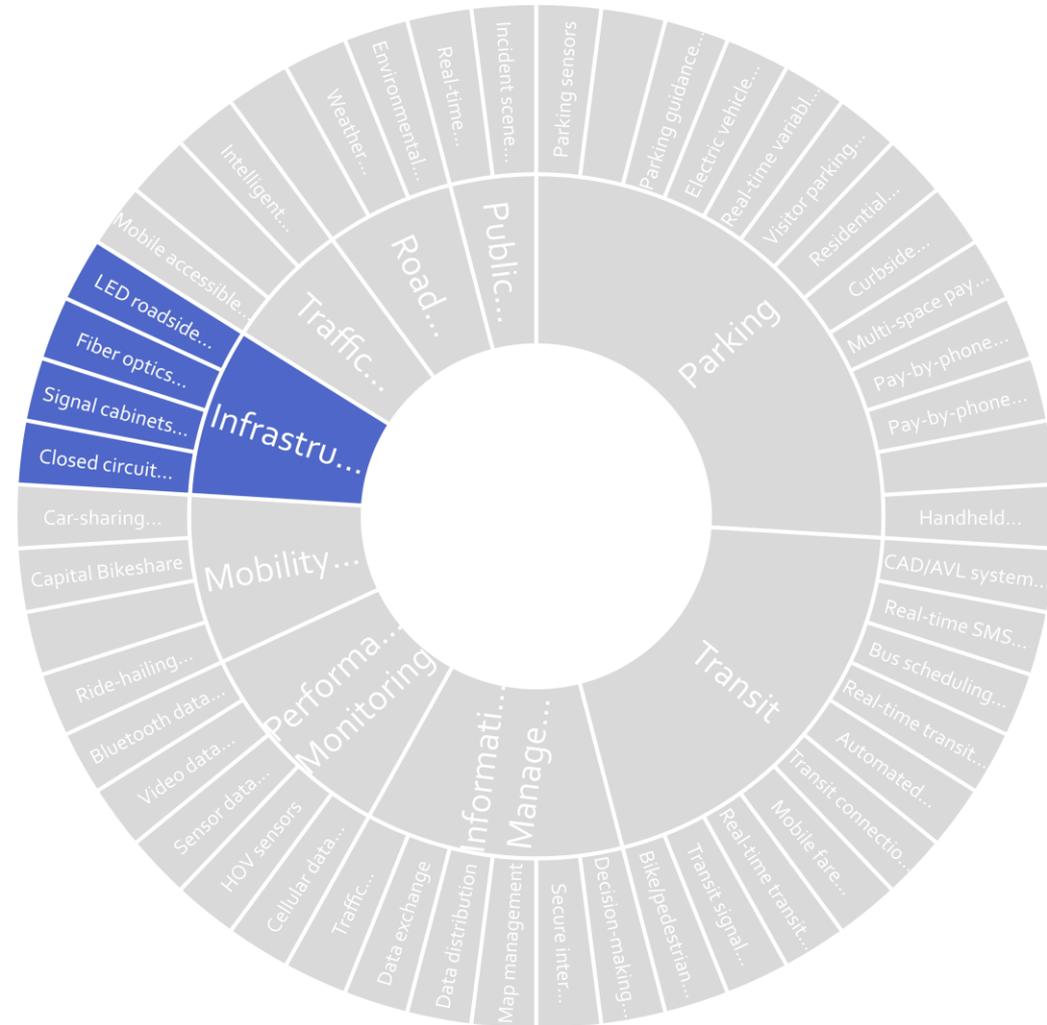
Optimized transportation network



Better-managed traffic flow



Municipal broadband





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



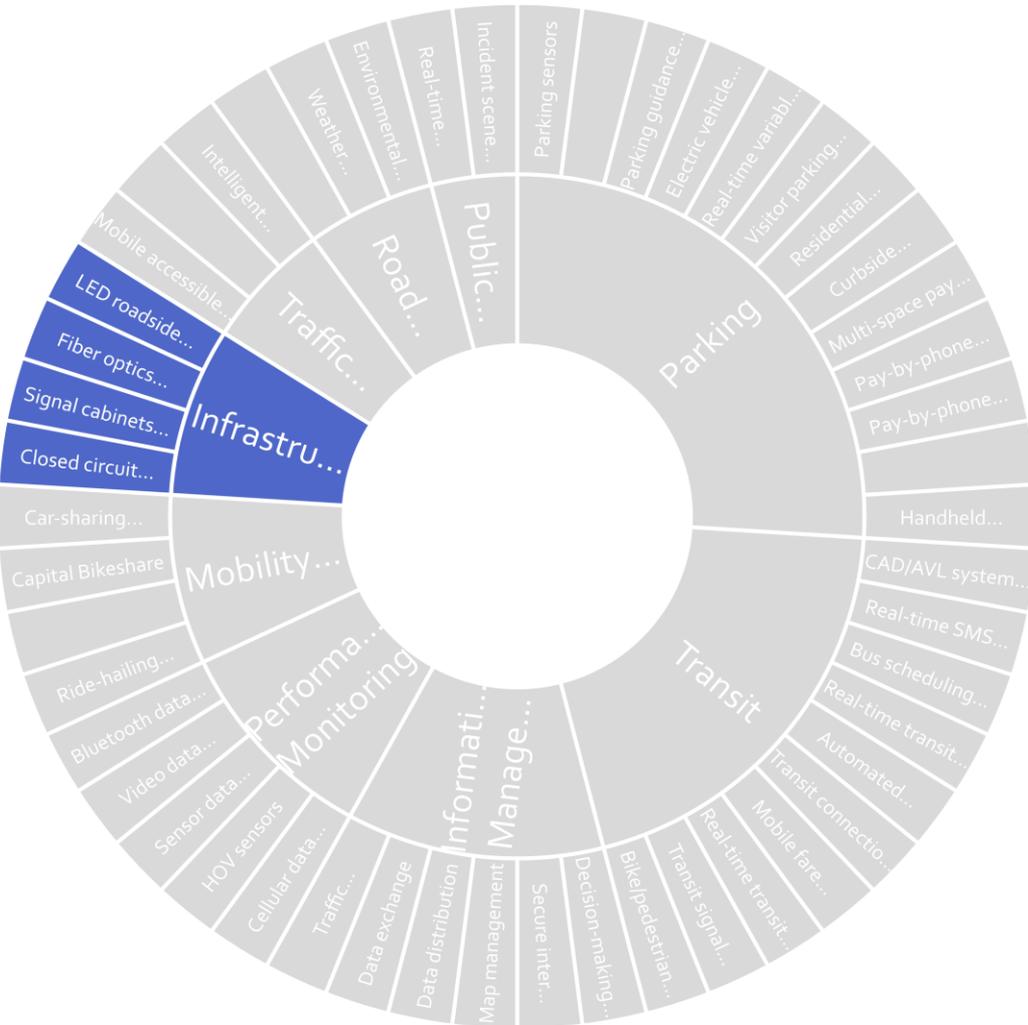
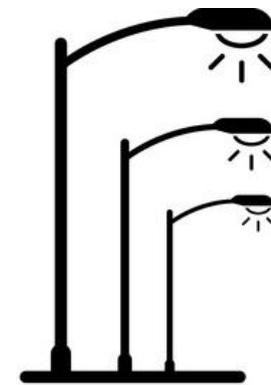
Better-managed traffic flow



Municipal broadband



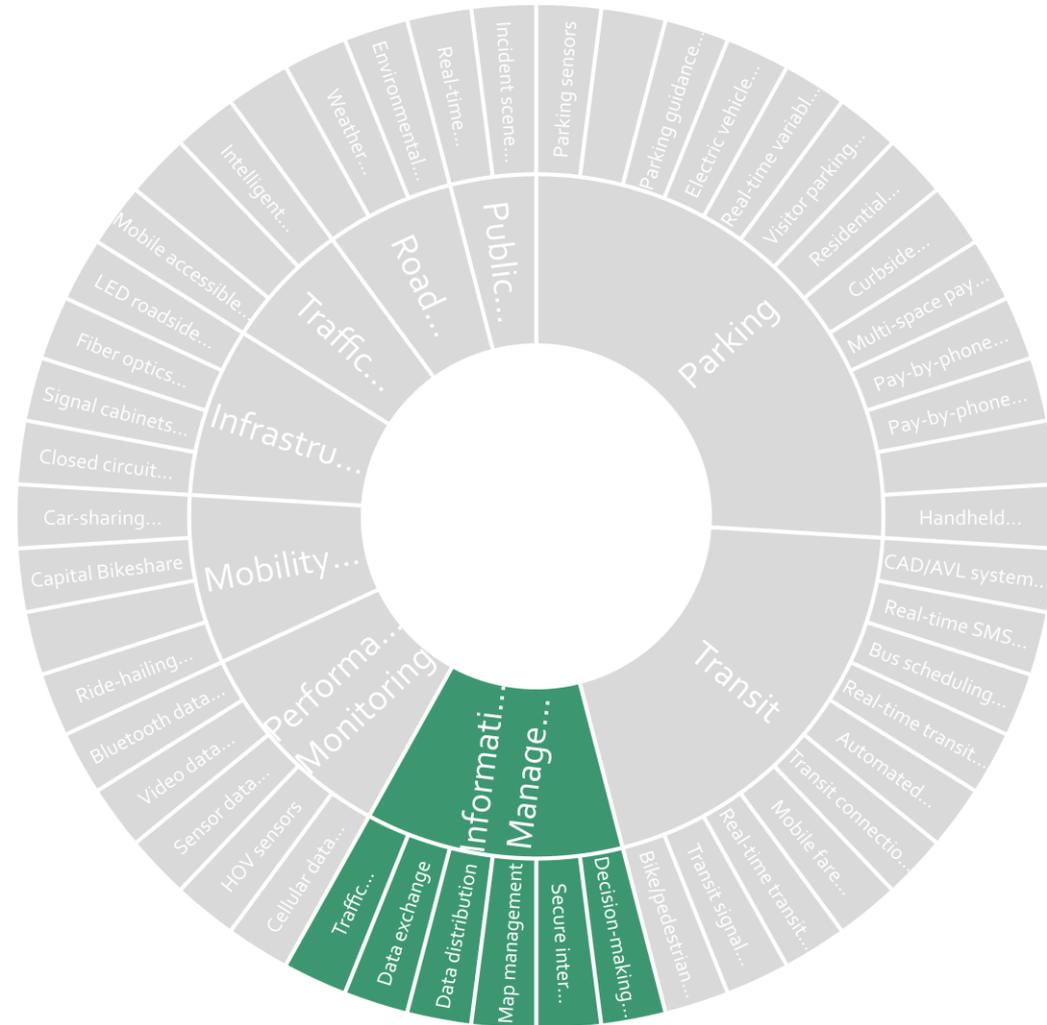
More efficient roadside lighting



INFORMATION MANAGEMENT

WHAT WE'RE DOING

Upgraded traffic management center, regional data exchanges, interactive maps



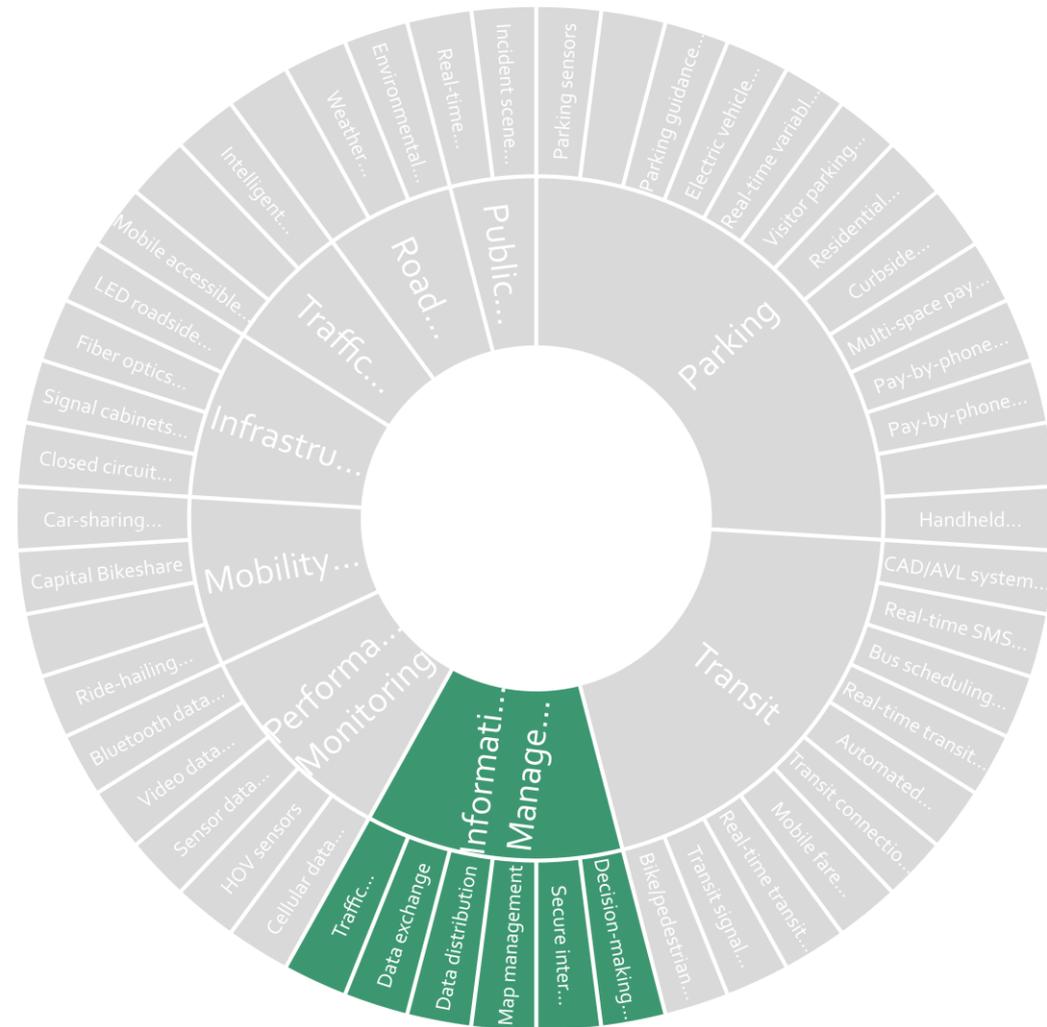
i INFORMATION MANAGEMENT

WHAT WE'RE DOING

Upgraded traffic management center, regional data exchanges, interactive maps

WHAT IT MEANS FOR YOU

Optimized transportation network



i INFORMATION MANAGEMENT

WHAT WE'RE DOING

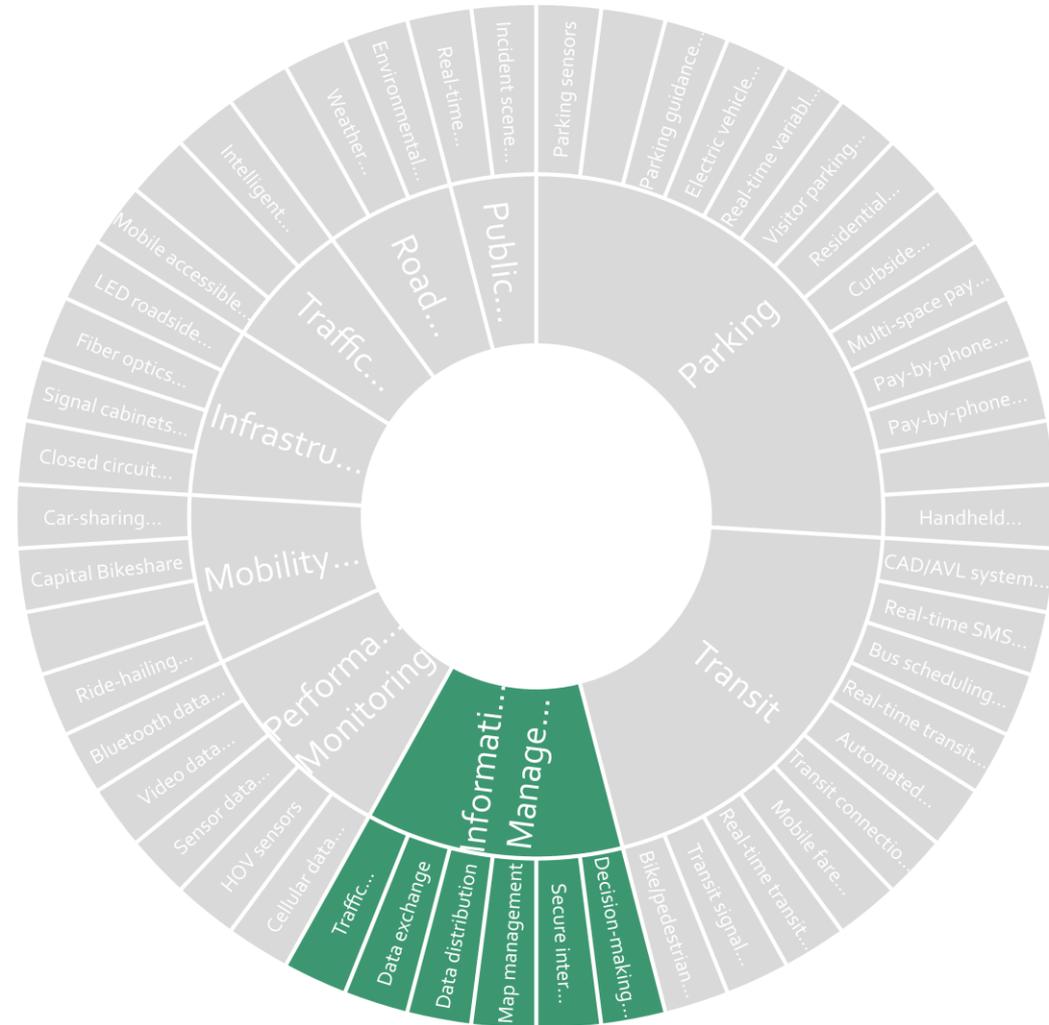
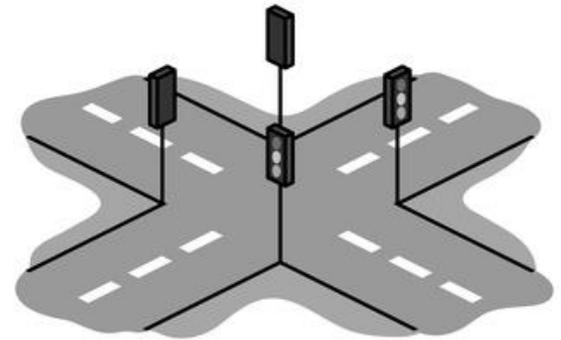
Upgraded traffic management center, regional data exchanges, interactive maps

WHAT IT MEANS FOR YOU

Optimized transportation network



Better-managed traffic flow



INFORMATION MANAGEMENT

WHAT WE'RE DOING

Upgraded traffic management center, regional data exchanges, interactive maps

WHAT IT MEANS FOR YOU

Optimized transportation network



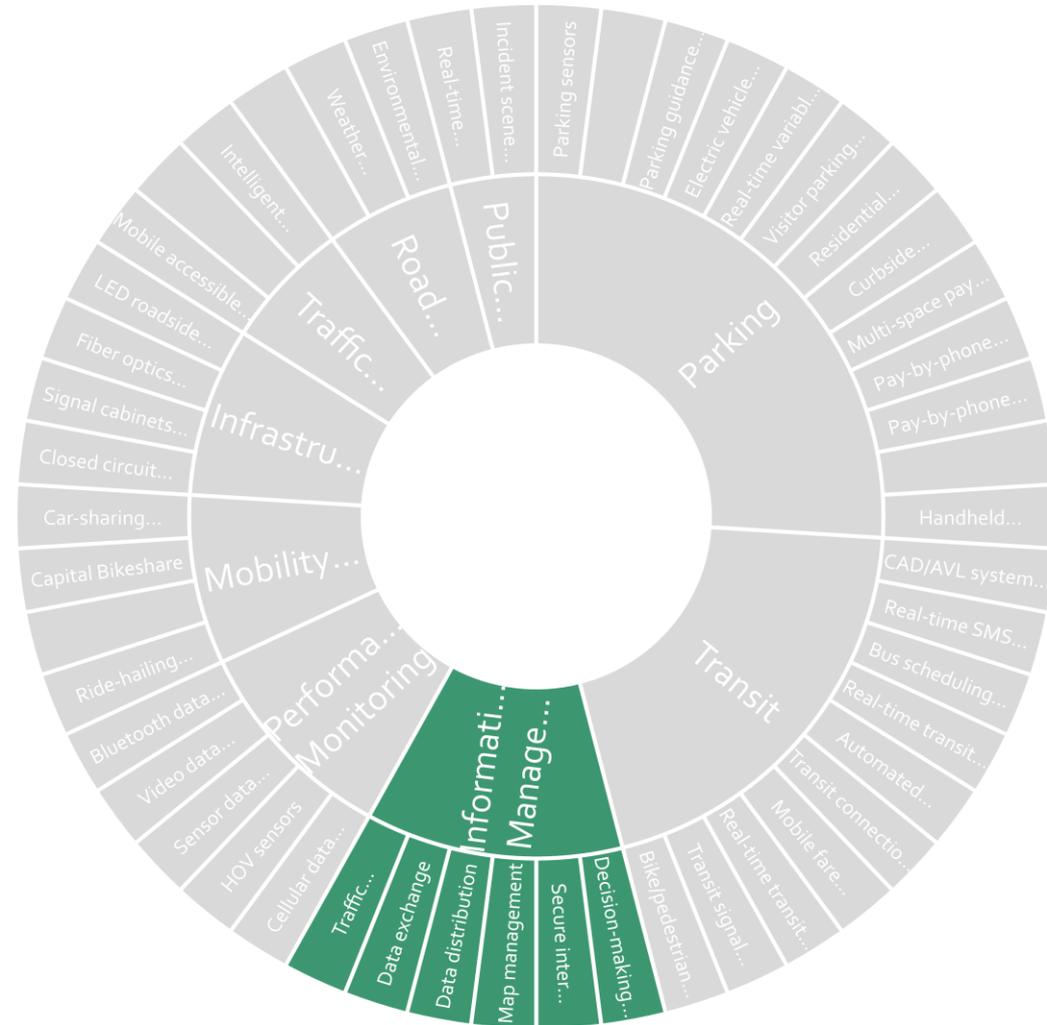
Better-managed traffic flow



More informed decision-making



Accurate data for third party apps



SMART MOBILITY TIMELINE

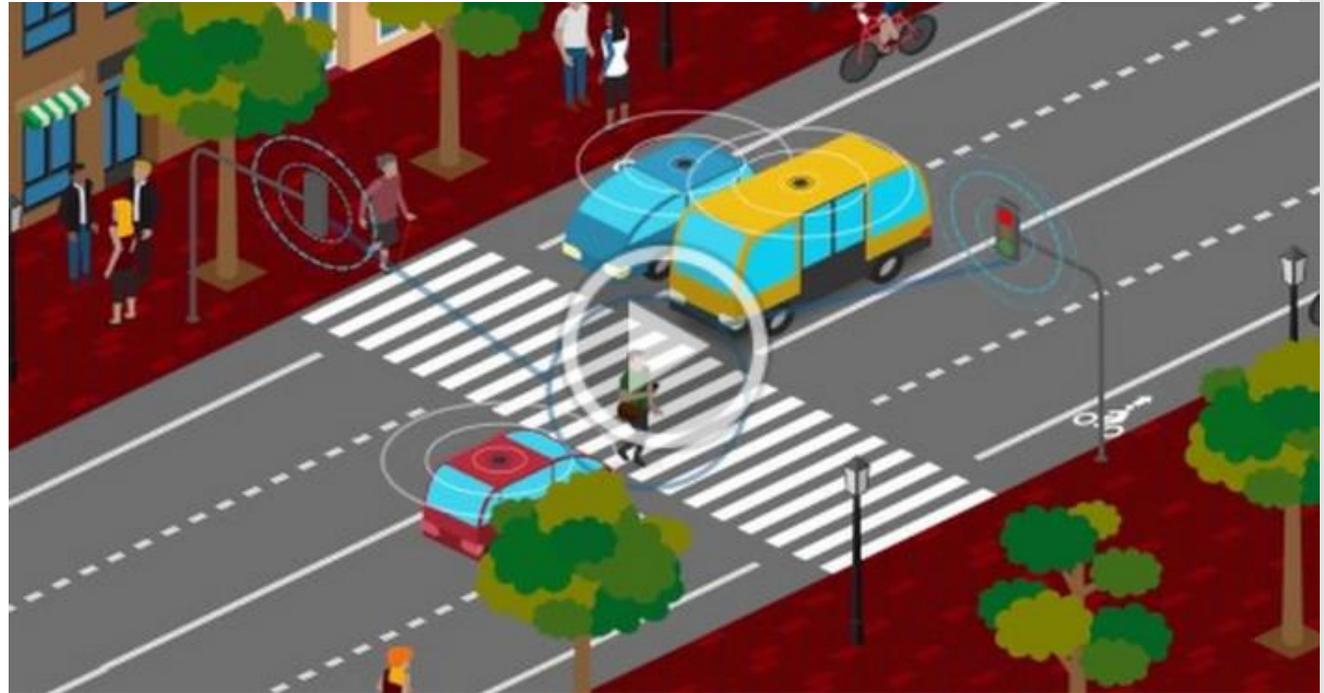
| SHORT TERM | MEDIUM TERM | LONG TERM | CATEGORIES |
|--------------------------------|--------------------------------|----------------------------|--|
| Real-time arrival screens | Ped/bike detection systems | Incident scene staging |  TRANSIT |
| Automated passenger counts | Transit signal priority | Emergency response routing | |
| Real-time transit feed | Mobile fare payment | Weather motorist alerts |  PARKING |
| Real-time transit stop texting | Transit connection protection | Accessible ped systems | |
| Parking enforcement devices | Bus scheduling software | LED roadside lighting |  PUBLIC SAFETY |
| Automated plate readers | Bus CAD/AVL | Decision-making model | |
| Pay-by-phone parking | EV charging stations | |  ROAD WEATHER |
| Weather stations | Pay-by-plate parking | | |
| Car-sharing | Curbside management | |  MOBILITY ON DEMAND |
| Dockless mobility pilot | Streamlined parking permits | | |
| Ride-hailing | Variable rate parking meters | |  TRAFFIC SIGNALS |
| Intelligent traffic signals | Parking guidance systems | | |
| Bluetooth data collection | Real-time parking info systems | |  PERFORMANCE MONITORING |
| Video data collection | Parking sensors | | |
| Sensor data collection | Emergency vehicle preemption | |  INFRASTRUCTURE |
| Cellular data collection | Capital Bikeshare | | |
| HOV sensors | Automated interactive maps | |  INFORMATION MANAGEMENT |
| Fiber optics | | | |
| Signal cabinets & controllers | | | |
| CCTV | | | |
| TMC upgrades | | | |
| Data exchange | | | |
| Data distribution | | | |
| Secure communications | | | |

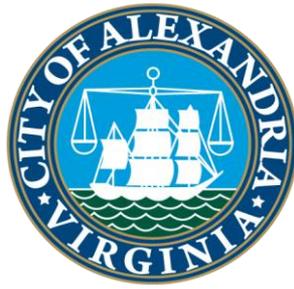
Smart Mobility Financing

| 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



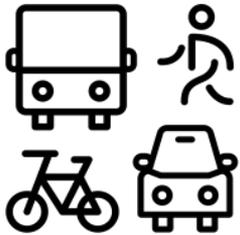
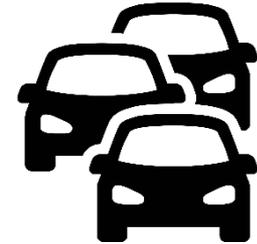


FY21 Budget Priorities

Agenda Item #5

Questions for Discussion

- What are the **highest priority services and initiatives** within your policy area that you feel should be addressed in the **FY 2021 budget**?
- What **additional resources** might be needed to address your high priorities?

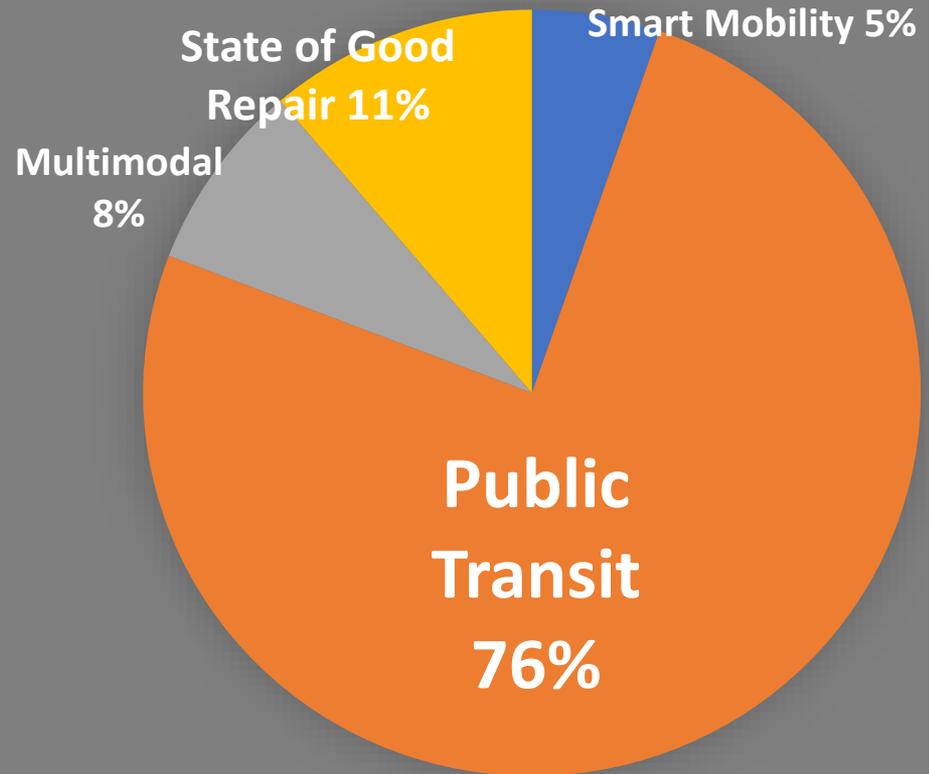


Alexandria's Planned Transportation Priorities:

- Transit
- State of Good Repair
- Reducing Congestion
- Smart Mobility

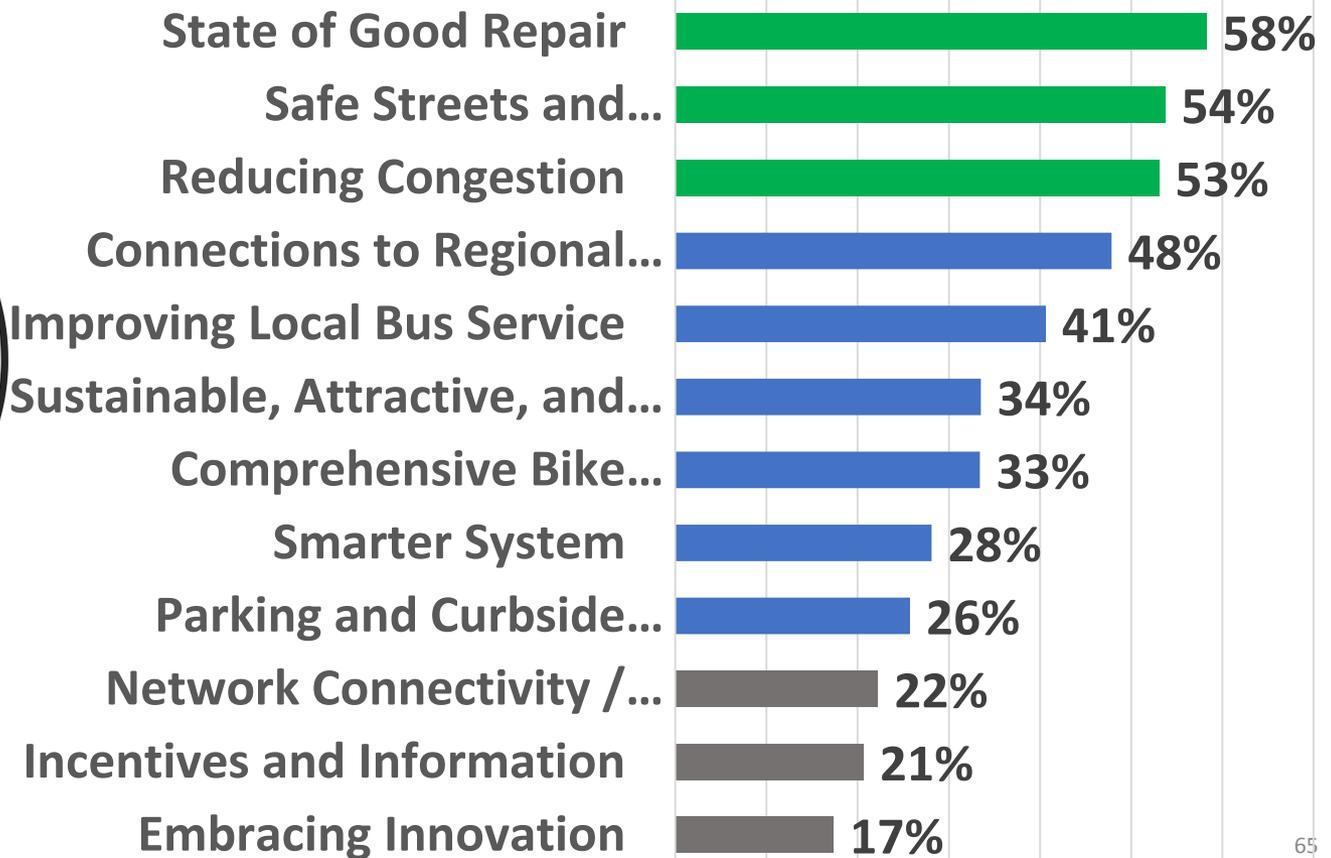
FY20 – FY25 Transportation Funding

How we
are
planning
to invest

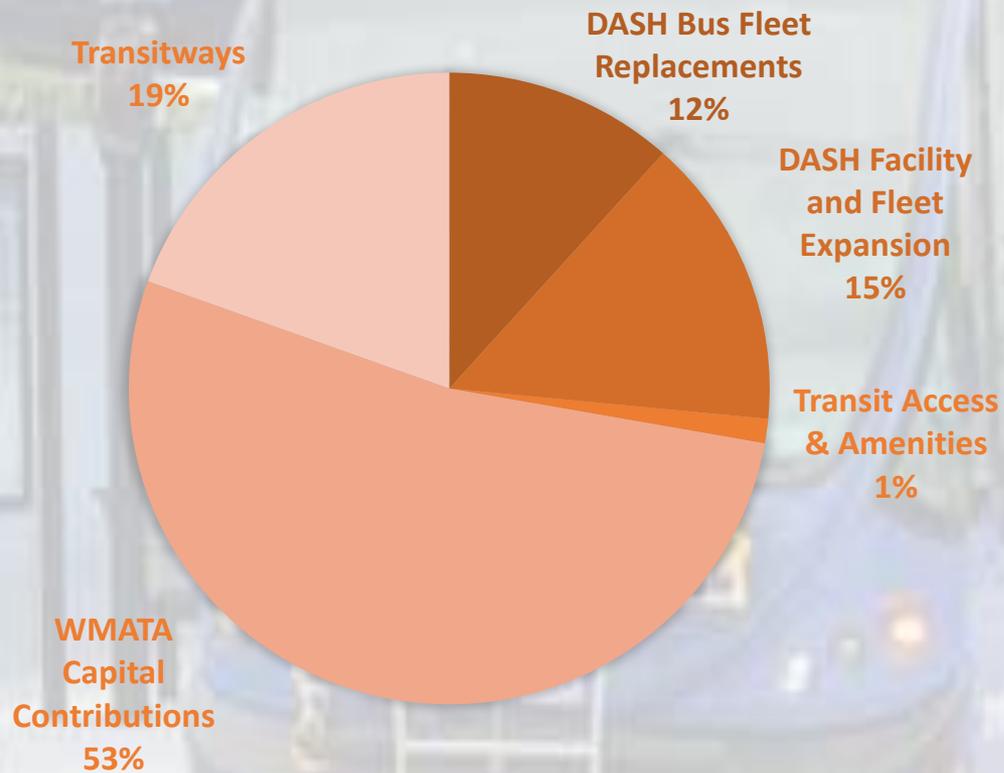


2019 Community Feedback

Where should Alexandria invest in the future?



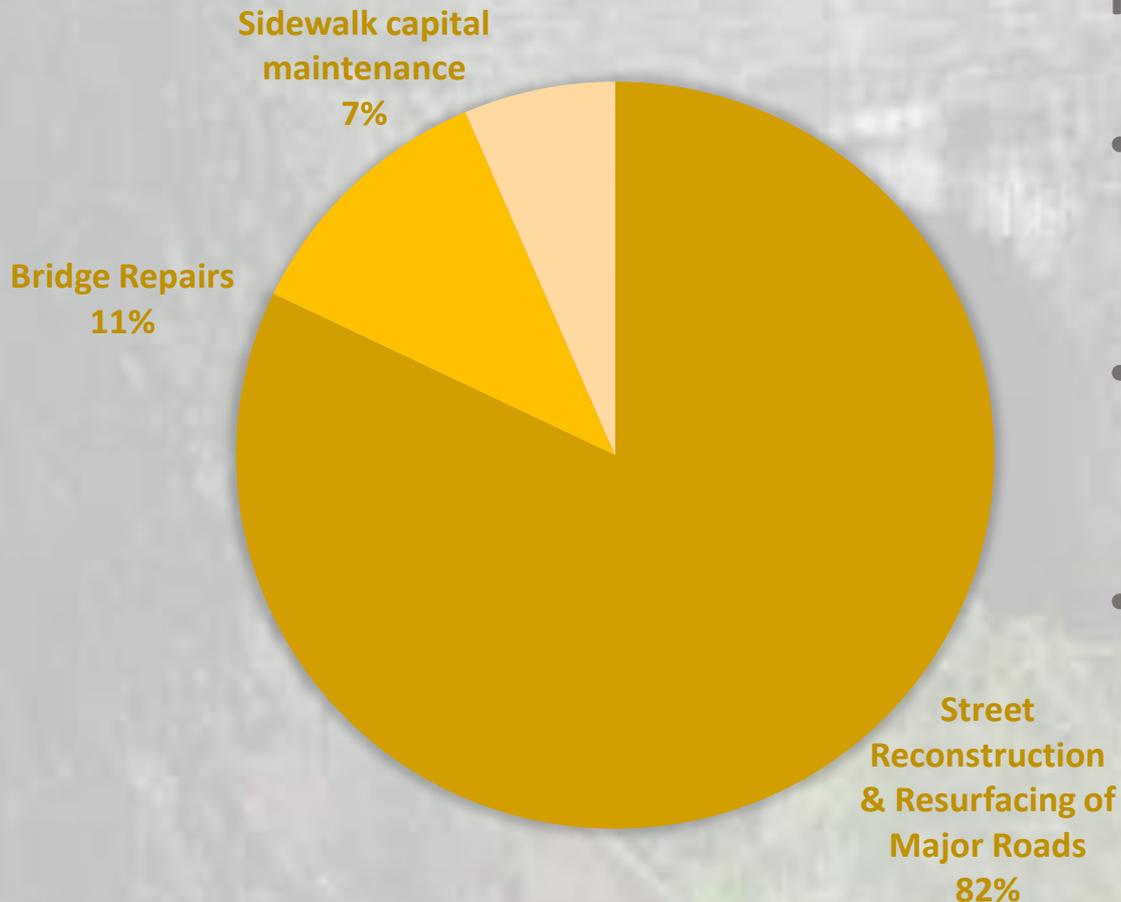
Public Transit



FY20-25 CIP Projects:

- \$30M for transitways
- \$143M for WMATA Capital
- \$51M for DASH: More Frequent, Reliable & Electric Buses

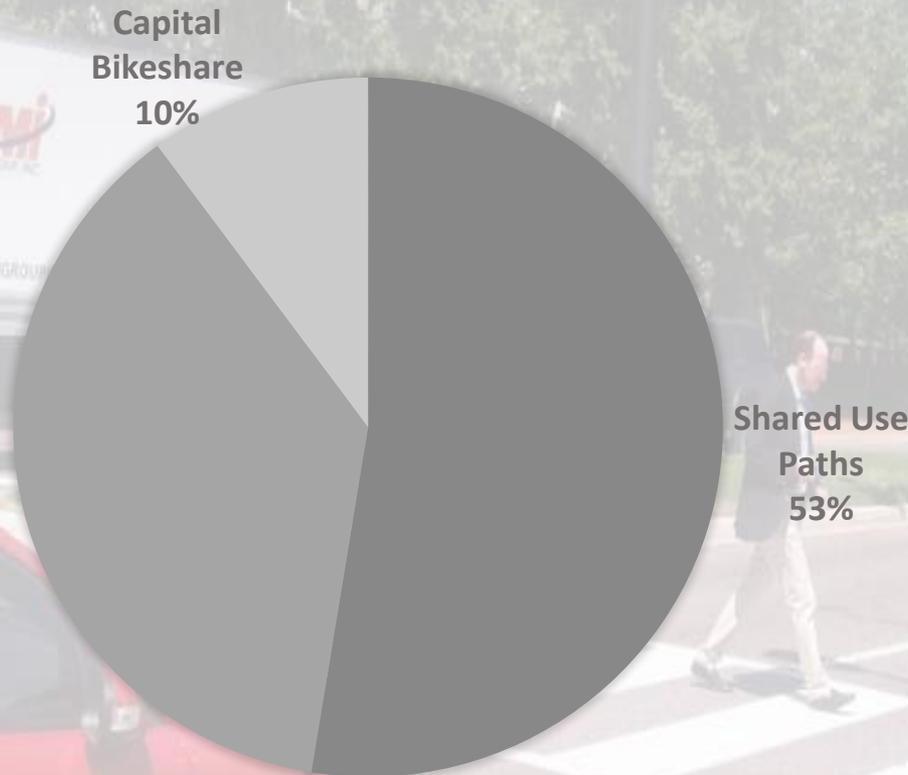
State of Good Repair



FY20-25 CIP Projects:

- \$51M to get road pavement condition grade to B-
- \$14M for bridge maintenance & repair
- \$4.8M for sidewalk maintenance

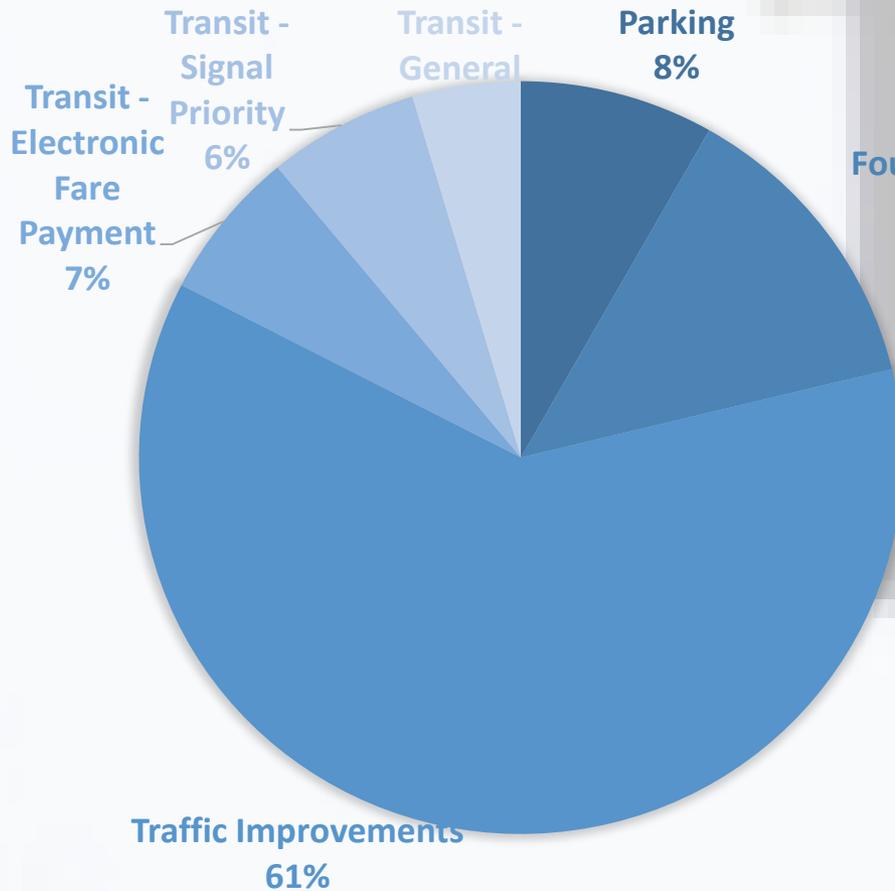
Multi-Modal



FY20-25 CIP Projects:

- \$9.7M for shared-use paths
- \$8.7 for multi-modal safety projects
- \$1.6M for Capital Bikeshare

Smart Mobility

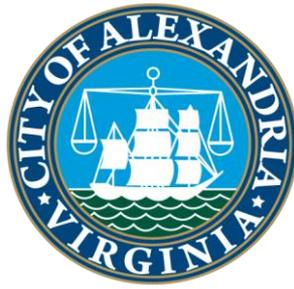


FY20-25 CIP Projects:

- \$7.6M for adaptive signal control
- \$2.5M for fiber network
- \$1.2M for transit signal priority

Questions for Discussion

- What are the **highest priority services and initiatives** within your policy area that you feel should be addressed in the **FY 2021 budget**?
- What **additional resources** might be needed to address your high priorities?



FY26 RSTP / CMAQ Request

Agenda Item #6



CMAQ / RSTP FUNDING

- Funding requests are bundled to provide NVTA maximum flexibility, increasing its ability to fund more projects
- Alexandria typically receives a larger share of CMAQ funding

CMAQ

Funds projects that reduce emissions and improve air quality.

- New Projects that Reduce Emissions
- Operating Costs for Initial 3 Years of New/Expanded Service
- Non-Motorized Capital Projects
- Transportation Demand Management

RSTP

More flexible funds for projects that improve or preserve transportation infrastructure:

- General Non-Motorized Capital Projects
- Research & Studies
- Bike/Ped Improvements, Trails, ADA Upgrades
- Transportation Demand Management
- Intelligent Transportation Systems (ITS)
- Shelters and Stations



Previous Funding Totals

| Year | Funding |
|---------|-------------|
| FY 2019 | \$4,560,200 |
| FY 2020 | \$4,232,237 |
| FY 2021 | \$4,280,860 |
| FY 2022 | \$4,000,000 |
| FY2023 | \$4,300,000 |
| FY 2024 | \$4,500,000 |
| FY 2025 | \$4,585,000 |

Typical **CMAQ**
funding amounts:
\$2.1M – \$2.8M

Typical **RSTP**
funding amounts:
\$1.0M – \$1.45M



Timeline & Process

| Timeline | Process |
|--------------------|--|
| September 18, 2019 | <ul style="list-style-type: none">• Transportation Commission Consideration |
| October 17, 2019 | <ul style="list-style-type: none">• Transportation Commission Endorsement |
| November 12, 2019 | <ul style="list-style-type: none">• City Council Consideration and Approval |
| December 13, 2019 | <ul style="list-style-type: none">• City submits funding request to NVTA |
| Spring 2019 | <ul style="list-style-type: none">• NVTA makes funding determinations and transmits approvals to CTB |
| June 2019 | <ul style="list-style-type: none">• CTB incorporates projects into Six Year Plan for approval |



FY25 CMAQ / RSTP Request

Proposed Projects

Transportation Demand Management

Electric buses, trolleys or city fleet vehicles and charging infrastructure

Smart Mobility - Autonomous shuttle pilot

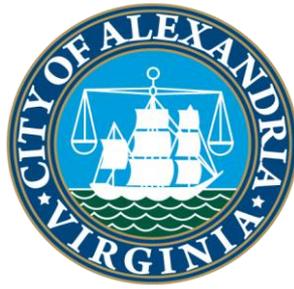
Parking Technology equipment

Additional or replacement Capital Bikeshare stations and bicycles



Transportation Commission Discussion

- Which of these options are **most important** for fulfilling the Transportation Master Plan?
- Are there **other budget priorities** that the City should be considering for these grant funds?



Updates to Receive

Agenda Item #7

MEET US AT THE INTERSECTION OF TECHNOLOGY AND TRANSPORTATION!

Alexandria Mobility Plan Innovation Forum

Monday, October 7, 2019 | 6:30-9:00 PM



US Patent and Trademark Office
600 Dulaney Street
Madison Clara Barton Auditorium

More information at:
alexandriava.gov/MobilityPlan



EXPLORE. LEARN. DISCUSS.

- ✓ Open house with informational boards and input activity
- ✓ Brief presentation from leading national industry experts
- ✓ Moderated panel discussion with public and private representatives

The City is bringing together a diverse group of industry experts to talk about what is new in mobility and transportation planning. Bring your ideas and questions!



Panelists

- Linda Bailey (local government)
- Emiko Atherton (advocacy group)
- Ryan Sullivan (service provider)
- Jordan Davis (smart mobility/private sector)