Assessing Future Technologies for Effects on Lambeth's Parking and Enforcement Services

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Image from Oxyman

Lambeth

Image from Get Planning and Architecture

Inner borough of London

320,000 residents

30% of residents in poverty

London #1 city for congestion in Europe

101 hours in traffic a year

Image from Deccan Chronicle

64,000 deaths

#1 most polluted road in London

70% of drivers find parking stressful in London

67 hours   26 gallons   £1,104

Lambeth Council's parking and enforcement
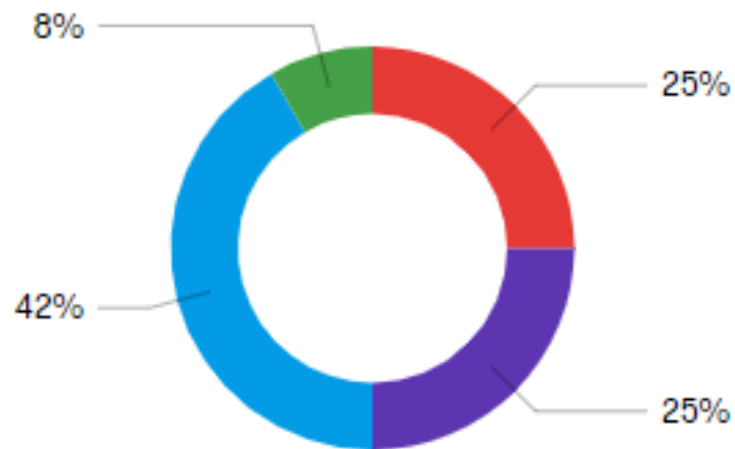
Duties

- Parking services
  - Resident parking permits
  - Blue Badges
- Parking enforcement
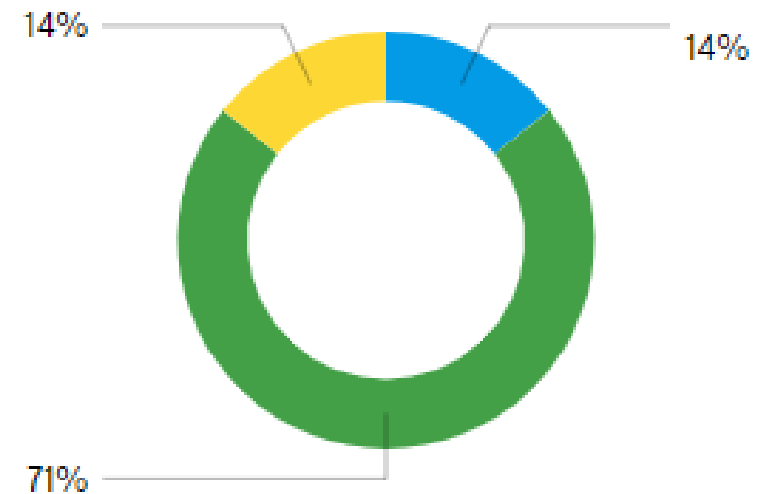 - Parking restrictions
  - Penalty Charge Notices

Strategies

- Reducing demand of parking spaces
  - Reducing private ownership of vehicles
  - Encouraging alternative transport
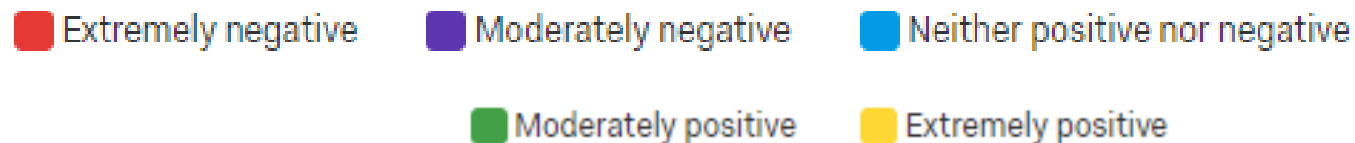
Current perception of Lambeth Council's parking and enforcement services

Respondents that have experienced Lambeth's parking and enforcement Services

8%
25%
42%
25%

Government employees that work on parking and enforcement services

14%
14%
71%

■ Extremely negative   ■ Moderately negative   ■ Neither positive nor negative

■ Moderately positive   ■ Extremely positive

Positive Parking Agenda (PPA)

Image from Creative Car Park, 2018

Goal

▶ The goal of this project was to evaluate how parking-related technologies may affect the efforts of Lambeth Council's Parking and Enforcement Department to advance the Positive Parking Agenda during the next 20 years.

Identifying Elements of Lambeth's Parking and Enforcement Services

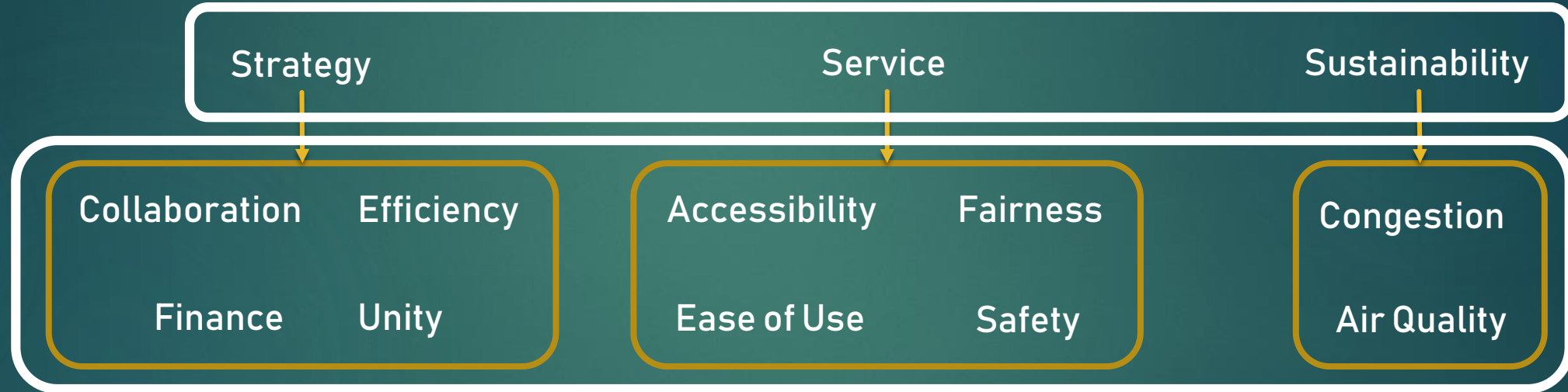# Interviews with parking and enforcement stakeholders

Lambeth Council   Contractors   Parking Officials

Criteria based on significant elements of parking and enforcement services

Strategy	Service	Sustainability

| Collaboration | Efficiency | Accessibility | Fairness | Congestion |
| Finance | Unity | Ease of Use | Safety | Air Quality |

Future Developments and Effects of Parking Related Technologies

Scenarios of Technology

DESCRIPTION OF TECHNOLOGY AND POTENTIAL FEATURES

EFFECTS ON PARKING AND ENFORCEMENT CRITERIA

TIMEFRAME FOR EFFECTS

3 Technologies

Short-term technology: smart parking apps

Medium-term technology: dynamic pricing

Long-term technology: autonomous vehicles

Images, left to right: Iconfinder, mybasin, and flaticon

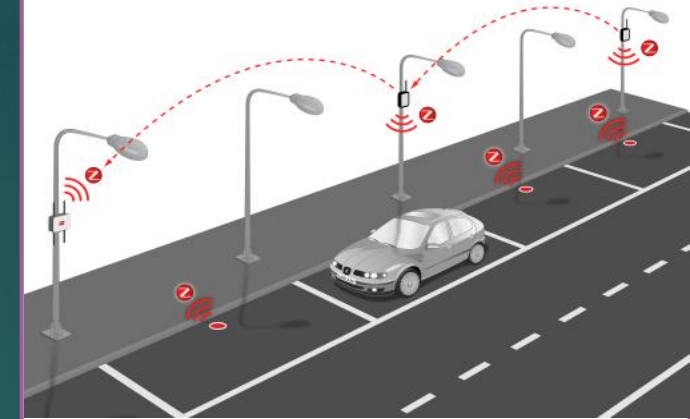# Short-term Technology: Smart Parking Apps

Image from icons8

Image from Libelium

Image from Qutel

On - Street

Online Payment

Off - Street

car park ahead
300m - 53 spots

53 Spots

detecting Spots..

Image from Continental AG

Smart parking apps may affect public perception by:

▸Helping drivers avoid Penalty Charge Notices

▸Unifying parking services

▸Relying on smartphones

Changes to public perception of parking and enforcement due to smart parking apps

Legend:
- Much worse
- Somewhat worse
- About the same
- Somewhat better
- Much better
- Not sure
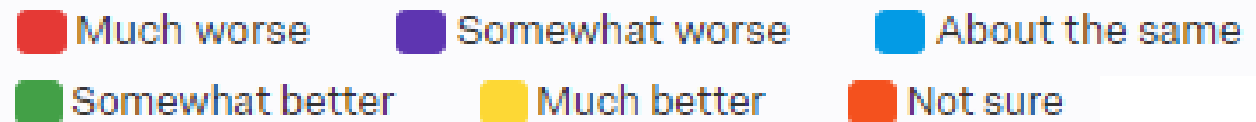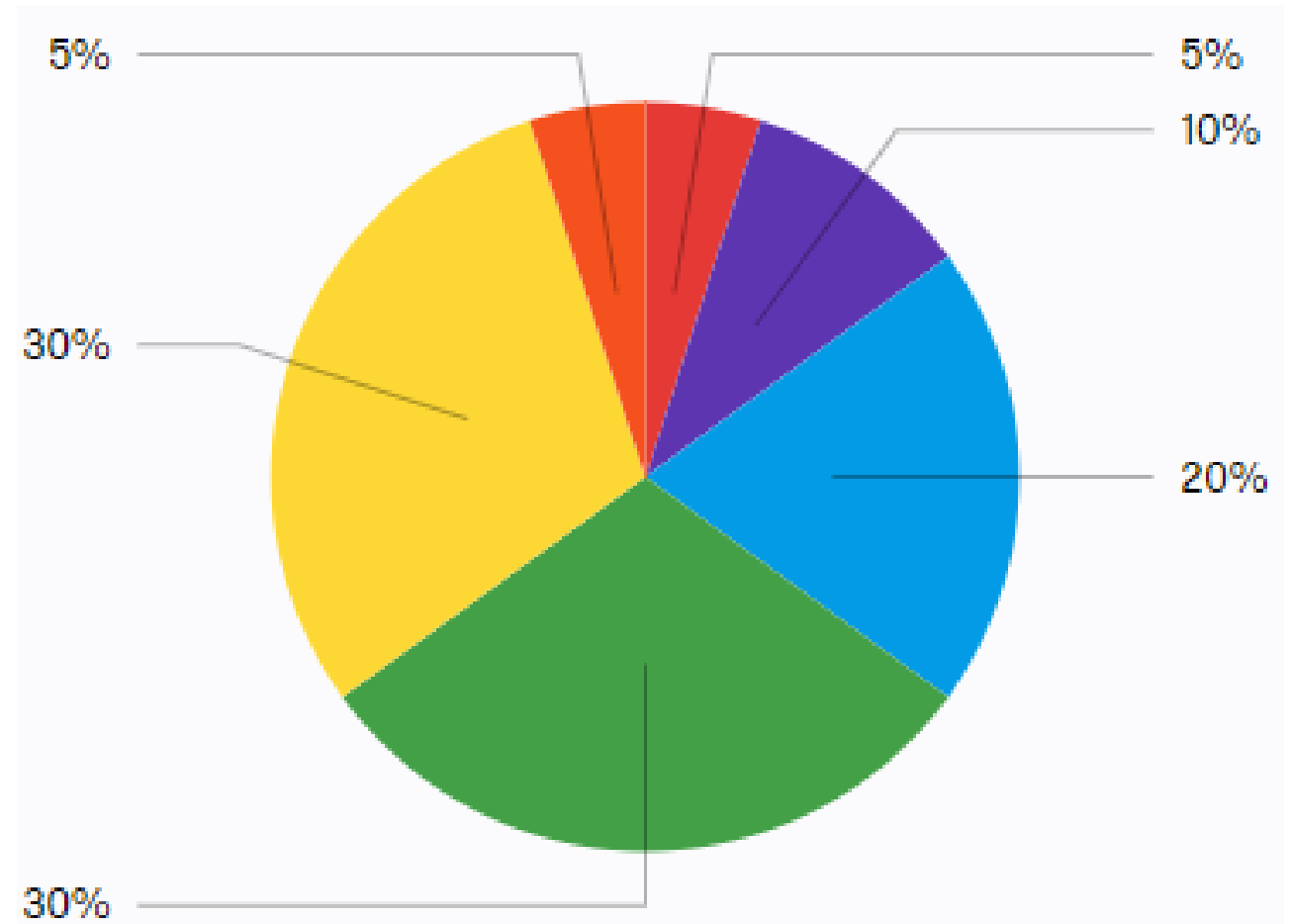
Medium-term Technology: Dynamic Pricing

Image from CPC Strategy.

Potential effects of dynamic pricing on parking and enforcement services

Congestion
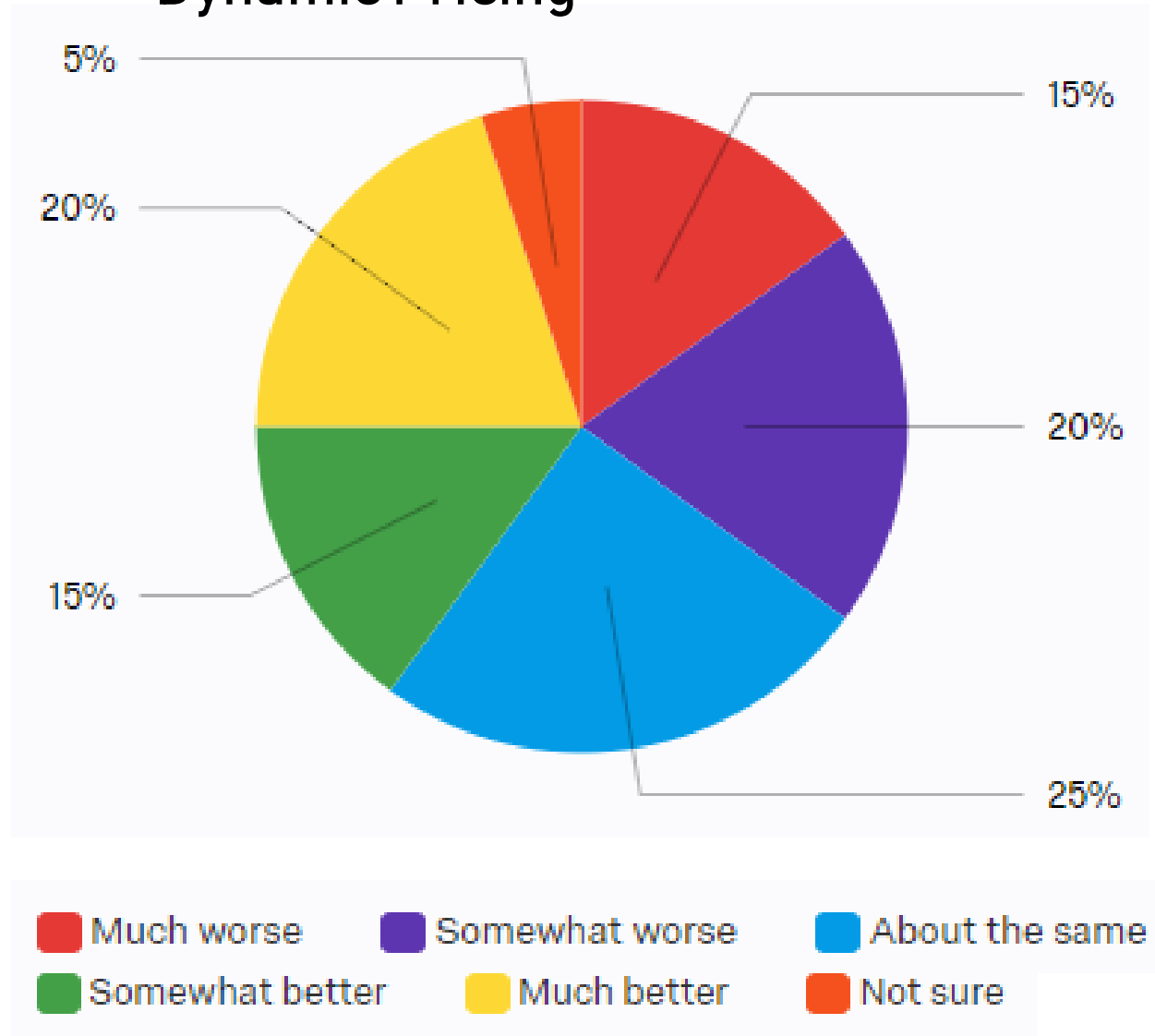
Air quality

Revenue

Model priorities

Parking distribution
Vs
Parking revenue

Dynamic Pricing may affect public perception by:

- ▶ Awareness of dynamic pricing

- ▶ Longer distance to drive for parking

- ▶ Wider range of parking price

Changes to Public Perception of Parking and Enforcement due to Dynamic Pricing

5%

15%

20%

20%

15%

25%

🟥 Much worse	🟪 Somewhat worse	🟦 About the same
🟩 Somewhat better	🟨 Much better	🟧 Not sure

Long-term Technology 3: Autonomous Vehicles

Image from HPCC Systems.

The five stages of autonomy

0. DRIVER	1. FEET OFF	2. HANDS OFF	3. EYES OFF	4. MIND OFF	5. PASSENGER
No assistance	Assisted	Patially automated	Highly automated	Fully automated	Autonomous
Human	Transfer of responsibilty				Machine

Sources: Evercore ISI, SAE International

Potential effects of AVs obeying traffic and parking regulations

↑ Road Safety

↑ Efficiency

↓ Revenue

Currently 200,000 penalty charge notices/year

Potential effects of AVs on kerbside management

Reduced need for parking spaces:
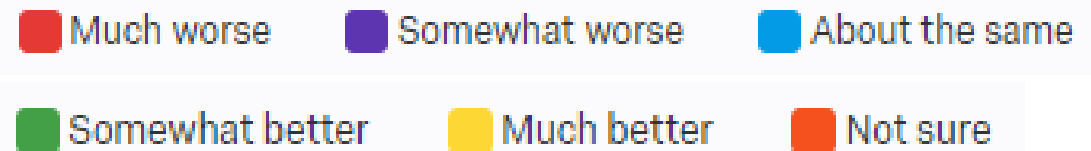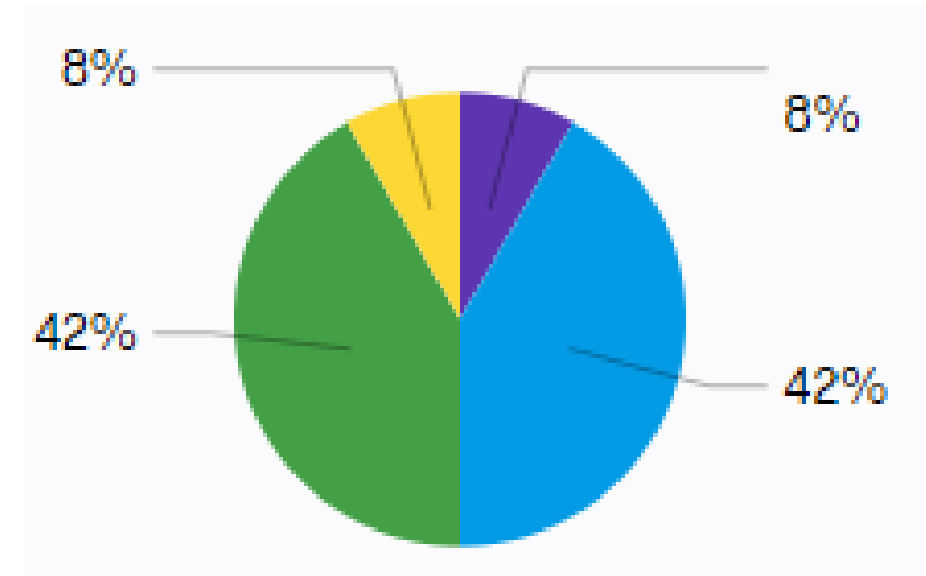
Traffic congestion

Revenue

Changed purpose of kerb space

Revenue

Efficiency

How residents' perception of the Lambeth Council might change if there was automatic payment for kerbside parking

8%   8%

42%   42%

■ Much worse   ■ Somewhat worse   ■ About the same

■ Somewhat better   ■ Much better   ■ Not sure

Potential effects of a shared AV network

↑ (green up arrow)

Traffic congestion

Accessibility of public transit

Decrease in alternative mode share

↓ (red down arrow)

Air quality

How residents' perception of the Lambeth Council might change if the Council promoted shared AV use

- 8%
- 42%
- 25%
- 25%

Legend:
- 🟥 Much worse
- 🟪 Somewhat worse
- 🟦 About the same
- 🟩 Somewhat better
- 🟨 Much better
- 🟧 Not sure
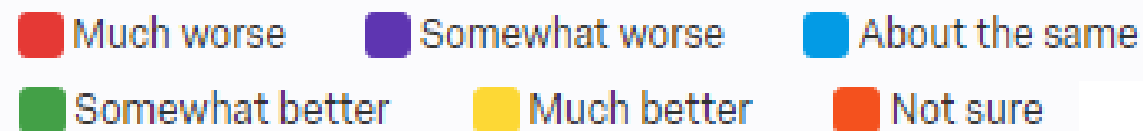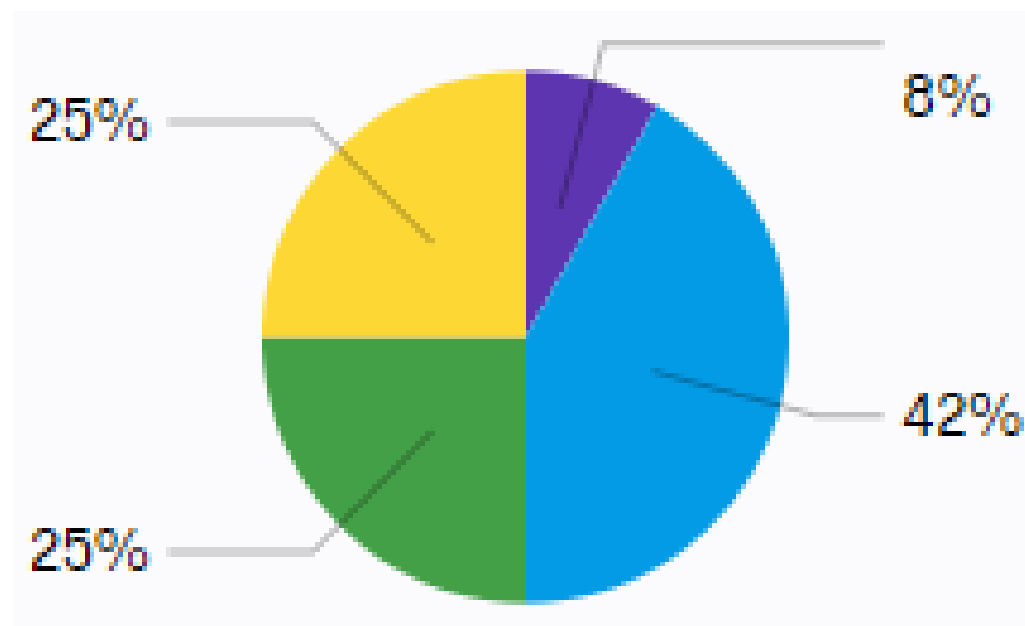
Recommendations

To prepare for the opportunities of technology to advance the PPA

Short-term:
- Collect real-time occupancy data for parking spaces to implement smart parking apps
- Publish an annual parking report

Long-term:
- Promote shared AV use in areas with less access to public transit

- Consult with other parking authorities about:
  - Standards for data sharing and digitising traffic management orders
  - Best practices for conducting dynamic pricing trials

Future Work

Explore
- Explore other technologies for effects on parking and enforcement

Track
- Track developments of technologies we researched

Research
- Research differences in perception across demographics in Lambeth

Acknowledgements

Advisors

Professor Seth Tuler
Professor Joel Brattin

Sponsors

Jonathan Pook
Thomas Burgess

The Lambeth Council, and everyone else who we interviewed and took our questionnaire

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Thank you!