Zoom Interface and Controls

Update your Zoom name if needed

Remain on mute when not speaking

Raise your hand to speak
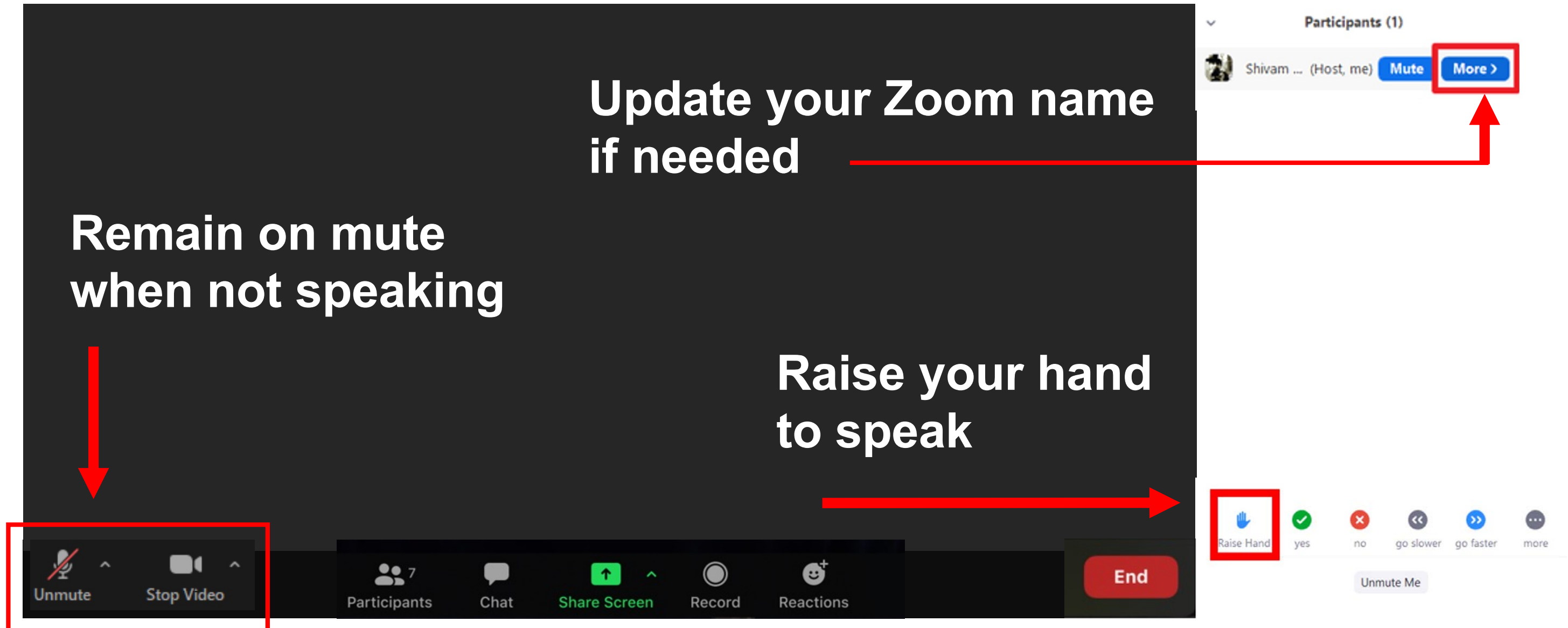
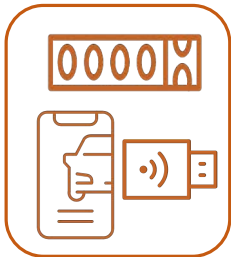Technical difficulties? Call or text Anneliese Gill, 206-708-9185

Agenda

1) Welcome & Introductions

2) Primary goals of RUC innovation research

3) Policy drivers & system improvement needs

4) Research findings

5) Pilot opportunities

6) Discussion and Q&A

WA **RUC**

Mileage Reporting Enhancements Through Research, Industry Outreach, and Design

Incorporate emerging approaches to mileage reporting into Washington's RUC research, such as in-vehicle telematics, improved smartphone apps, use of private businesses to provide odometer verification and mileage reporting services, and more

Updated mileage reporting methods ➔ RUC Innovation

WA **RUC** 4

# RUC Innovation Research Goals for Pilot Testing

RUC prototype "sub-tests" instead of a single pilot

Conduct tests of new mileage reporting methods, equity policies, RUC for new mobility, and cost reduction techniques

WA **RUC** 6

Questions to Think About

- What policy challenges facing RUC can technology address?

- What automotive, consumer, or other business trends do you believe could be useful for enhancing RUC?

- What innovations are most interesting or relevant to test?

- What other ideas for pilot tests do you have?

RUC INNOVATION RESEARCH
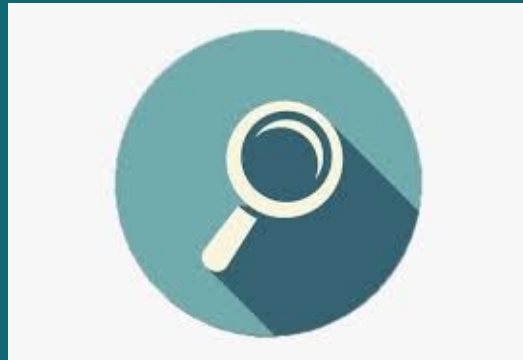
POLICY PRIORITIES DRIVE RUC INNOVATION RESEARCH

Equity

User choice

User experience

Cost reduction

WA **RUC**

POLICY PRIORITIES DRIVE RUC INNOVATION RESEARCH

Equity

User choice

User experience

Cost reduction

Go beyond the notion of horizontal equity "All road users should pay a fair share with a RUC"

WA RUC

POLICY PRIORITIES DRIVE RUC INNOVATION RESEARCH

Equity

User choice

User experience

Cost reduction

Consumer choices should be considered wherever possible

A RUC system provides choices to drivers for not only how they report their miles but also how and when they pay

WA **RUC**

POLICY PRIORITIES DRIVE RUC INNOVATION RESEARCH

Equity

User choice

User experience

Cost reduction

A RUC system should be simple, convenient, transparent to the user

Compliance should not create an undue burden

WA RUC

POLICY PRIORITIES DRIVE RUC INNOVATION RESEARCH

Equity

User choice

User experience

Cost reduction

The administration of a RUC system should be cost effective and cost efficient

WA **RUC**

POLICY PRIORITIES DRIVE RUC INNOVATION RESEARCH

Equity

User choice

User experience

Cost reduction

WA **RUC**

Equity – focus on systems and operational equity

Definitions: What is equity?

Some dimensions of equity in relation to taxation and transportation:
- **Horizontal equity:** everyone is taxed the same for the same usage
- **Vertical equity:** considers ability to pay and relative burden
- **Vehicle weight equity:** considers impacts of different vehicles
- **Geographic equity:** considers impacts on urban and rural areas
- **Cross-generational equity:** considers impacts on future generations
- **Systems equity/operational equity:** ability to interact with/comply with system
- **Process equity:** ability to participate in/shape policy

Preliminary list

What features can we offer?
- Mileage reporting methods to choose from
- Clear privacy protections
- Varying choices of payment frequency
- Multiple payment channels
- Non-RUC driver services

How to make it easy to comply?
- Simple
- Accessible
- Convenient
- Low level of effort and time

Help with decision making?
- Best mileage reporting method
- Discount opportunities

POLICY PRIORITIES DRIVE RUC INNOVATION RESEARCH
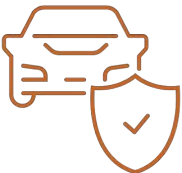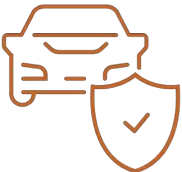
Equity

User choice

User experience

Cost reduction

WA **RUC**
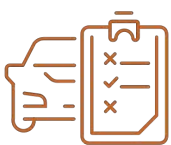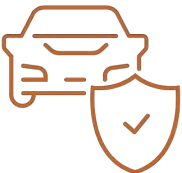
User choice and accessibility – mileage reporting services

Connectivity / Level of assistance	No connectivity	3rd party connectivity	Native connectivity
Assisted (in-person assistance)	No connected phone No vehicle compatibility		
Self-reporting (manual action required)		Phone with internet connection, smartphone or "compatible" vehicle	
Fully automated (no action required)			Connected vehicles (in-vehicle-telematics)
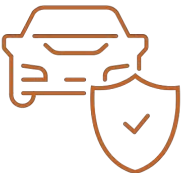
User choice and accessibility – mileage reporting services provided in first pilot

Connectivity / Level of assistance	No connectivity	3rd party connectivity	Native connectivity
Assisted (in-person assistance)	• Vehicle Licensing Offices (using odometer-capture app)		
Self-reporting (manual action required)		Odometer-image capture • smartphone app • camera/web browser	
Fully automated (no action required)			Not tested in previous pilot

User choice and accessibility – mileage reporting services provided in first pilot

Connectivity / Level of assistance	No connectivity	3rd party connectivity	Native connectivity
Assisted (in-person assistance)	• Vehicle Licensing Offices (using odometer-capture app)		
Self-reporting (manual action required)		Odometer-image capture • smartphone app • camera/web browser	
Fully automated (no action required)		• Plug-in device (location and no location)	Not tested in previous pilot

WA **RUC** 19

User choice and accessibility – options considered to enhance service offering

Connectivity / Level of assistance	No connectivity	3rd party connectivity	Native connectivity
Assisted (in-person assistance)	• Vehicle Licensing Offices (using odo-capture app)	• Assisted installation (technology provider or retail partner)	• Automaker support
Self-reporting (manual action required)	• Camera phone (text) • Website portal	• Odometer-image capture • smartphone app or camera/web browser • Smartphone mileage logging	• In-vehicle telematics (infotainment systems)?
Fully automated (no action required)	• VIN look-up services	• Plug-in device (location and no location) • 3rd party interface to telematics	• In-vehicle telematics (infotainment systems) • Data aggregator platform

WA RUC 20

User choice and accessibility – account management services

Account Management

- Notifications (Mail/Email/Text)
- Invoicing (paper or electronic)
- Payment
  - Payment methods
  - Payment timing (prepay or post-pay)
  - Payment frequency
- Technical support

Customer service channels

- Walk-in option
- General website
- Online user portal
- Mobile App
- Mail
- Call-in center: Phone, Email, Texts, Chats

WA RUC 21

POLICY PRIORITIES DRIVE RUC INNOVATION RESEARCH

Equity

User choice

User experience

Cost reduction

A RUC system should be **simple, convenient, transparent** to the user

Compliance should not create an undue burden

WA RUC

Overall user experience – find opportunities to streamline

1. Sign up and receive invitation to enroll

- a. Interest List
- b. Take survey
- c. Wait for invitation to enroll (MailChimp)
- d. Receive invitation

Website

2. Enroll

- a. Click on link in invitation email
- b. Read brief introduction to pilot before enrolling*
- c. Create WA RUC account (login/passwd, addresses, phone)
- d. Enroll vehicle(s)
- e. Select mileage reporting method*
- f. Sign participant agreements, T&C

Create account

Service provider website

3. Set up (MRM)

- a. Wait for installation email (text?)
- b. Wait for device
- c. Receive device + instructions
- d. Step 1 – Install Device
- e. Step 2 – Install App (optional?) / login / opt-in
- f. Step 3 – Activate method

Follow set-up instructions

Email, texts, phone

4. Drive & Report

- a. Receive confirmation that device works (first mileage report received)
- b. Report mileage
- c. Anomaly detected**
- d. Receive RUR

5. Manage account

- a. Change mileage reporting method (back to set-up) - EoM
- b. Change vehicle (back to 2d for new vehicle and 5c for old vehicle) – EoM***
- c. Leave pilot

Service provider website

6. Complete pilot

- a. Step 1 – Receive email with instructions
- b. Step 2 – Return device
- c. Step 3 – Uninstall app?

WA **RUC** 23

Overall user experience – find opportunities to streamline

Step 2 of 6: Enroll

Step 1 onboarding

Link to enrollment website

Orientation

Create account (login/password, addresses, phone)

Enroll vehicle(s)

Select mileage reporting method *

Sign participant agreements, T&C

4 more steps

State administered website

Service provider website

WA **RUC** 24

User experience – system & process improvement needs

Level of Effort & Time Required to Start Actively Reporting Mileage, by Mileage Reporting Method

Mileage Reporting > Methods (MRMs)	Mileage Permit	Odometer Charge	Smartphone App (MileMapper)	DriveSync Plug-in Device	Off-the-shelf Plug-in Device*
Enroll					
Create Account					
Enroll vehicle					
Set-up method					
Activate method					
Drive and Report Mileage					

*Automatic™ brand commercial off-the-shelf plug-in device.

Effort/time required: ● Low   ● Medium   ● High

WA **RUC** 25

User experience – system & process improvement needs

Level of Effort & Time Required to Start Actively Reporting Mileage, by Mileage Reporting Method
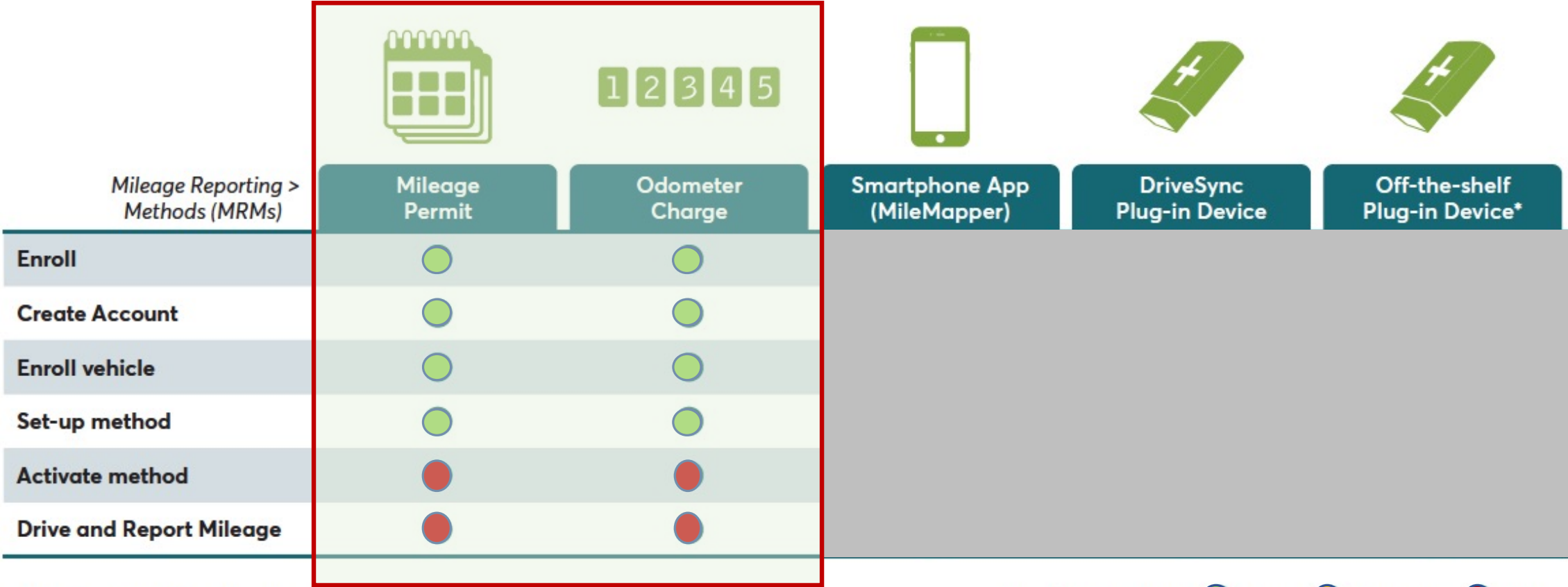

Mileage Reporting > Methods (MRMs)	Mileage Permit	Odometer Charge	Smartphone App (MileMapper)	DriveSync Plug-in Device	Off-the-shelf Plug-in Device*
Enroll	Low	Low			
Create Account	Low	Low			
Enroll vehicle	Low	Low			
Set-up method	Low	Low			
Activate method	High	High			
Drive and Report Mileage	High	High			

*Automatic™ brand commercial off-the-shelf plug-in device.

Effort/time required: ● Low ● Medium ● High

Example of Odometer Image Capture for Reporting Mileage in the WA RUC Pilot

Odometer

2016 Honda Civic

+

Upload Odometer Photo

RETAKE   ACCEPT

Enter Odometer Number*

What is this?

* Indicates required fields
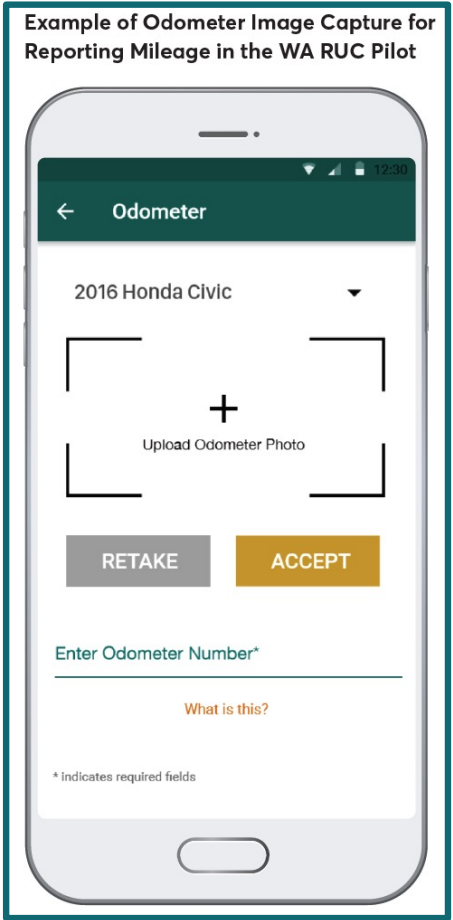
WA **RUC** 26

User experience – system & process improvement needs

Level of Effort & Time Required to Start Actively Reporting Mileage, by Mileage Reporting Method
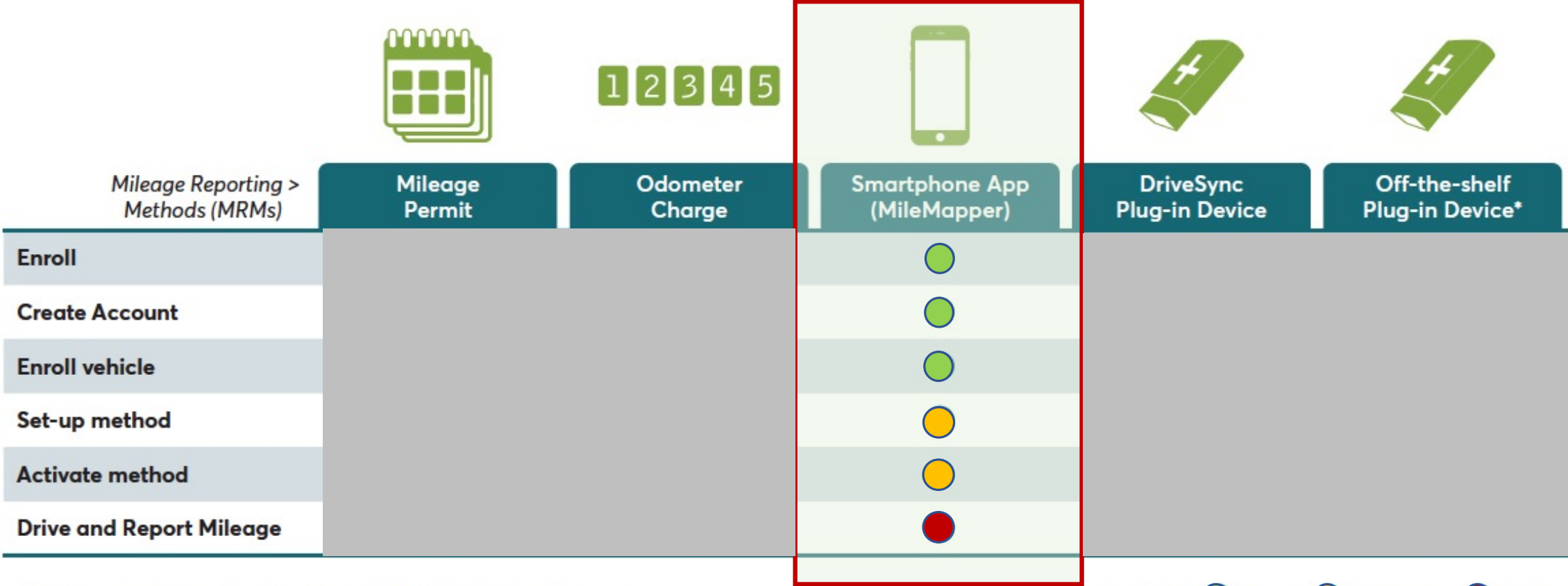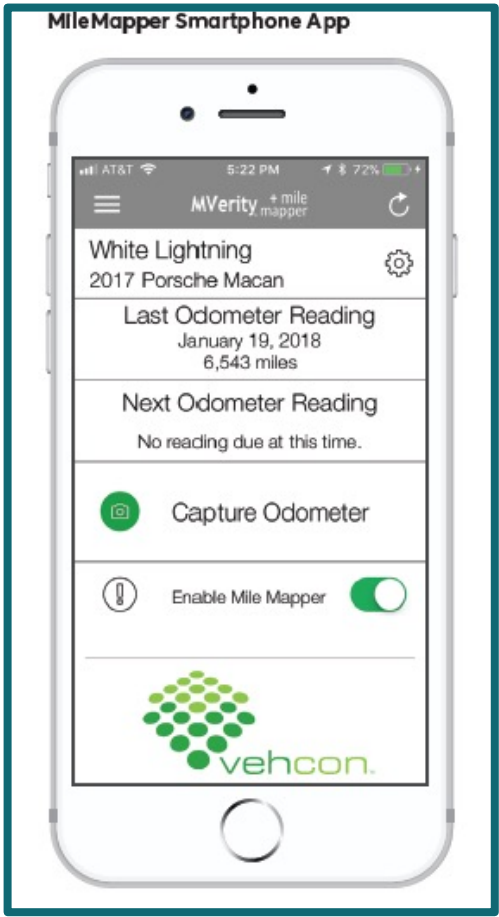
Mileage Reporting > Methods (MRMs)	Mileage Permit	Odometer Charge	Smartphone App (MileMapper)	DriveSync Plug-in Device	Off-the-shelf Plug-in Device*
Enroll			🟢		
Create Account			🟢		
Enroll vehicle			🟢		
Set-up method			🟡		
Activate method			🟡		
Drive and Report Mileage			🔴		

*Automatic™ brand commercial off-the-shelf plug-in device.

Effort/time required: 🟢 Low 🟡 Medium 🔴 High

MileMapper Smartphone App

MVerity +mile mapper

White Lightning
2017 Porsche Macan

Last Odometer Reading
January 19, 2018
6,543 miles

Next Odometer Reading
No reading due at this time.

📷 Capture Odometer

Enable Mile Mapper

vehcon.

User experience – system & process improvement needs

Level of Effort & Time Required to Start Actively Reporting Mileage, by Mileage Reporting Method

| Mileage Reporting > Methods (MRMs)	Mileage Permit	Odometer Charge	Smartphone App (MileMapper)	DriveSync Plug-in Device	Off-the-shelf Plug-in Device*
Enroll				🟢	🟢
Create Account				🟢	🟢
Enroll vehicle				🟢	🟡
Set-up method				🔴	🔴
Activate method				🟢	🔴
Drive and Report Mileage				🟢	🟢

Plug-in Device Provided in the Pilot

*Automatic™ brand commercial off-the-shelf plug-in device.

Effort/time required: 🟢 Low 🟡 Medium 🔴 High

WA **RUC** 28

User experience – preliminary guidelines

- Provide context, clarity and simplicity so users can
  - Understand choices available
  - Make the best choices
  - Easily comply with reporting requirements

- Be transparent
  - Experience makes it clear what is happening, and why, and next steps expected
  - User understands how their RUC is calculated

- Support a personal experience
  - Use relevant personal data so users understand impact of RUC

- System inspires trust
  - Respects privacy rights and protects privacy
  - Meets standards for data security
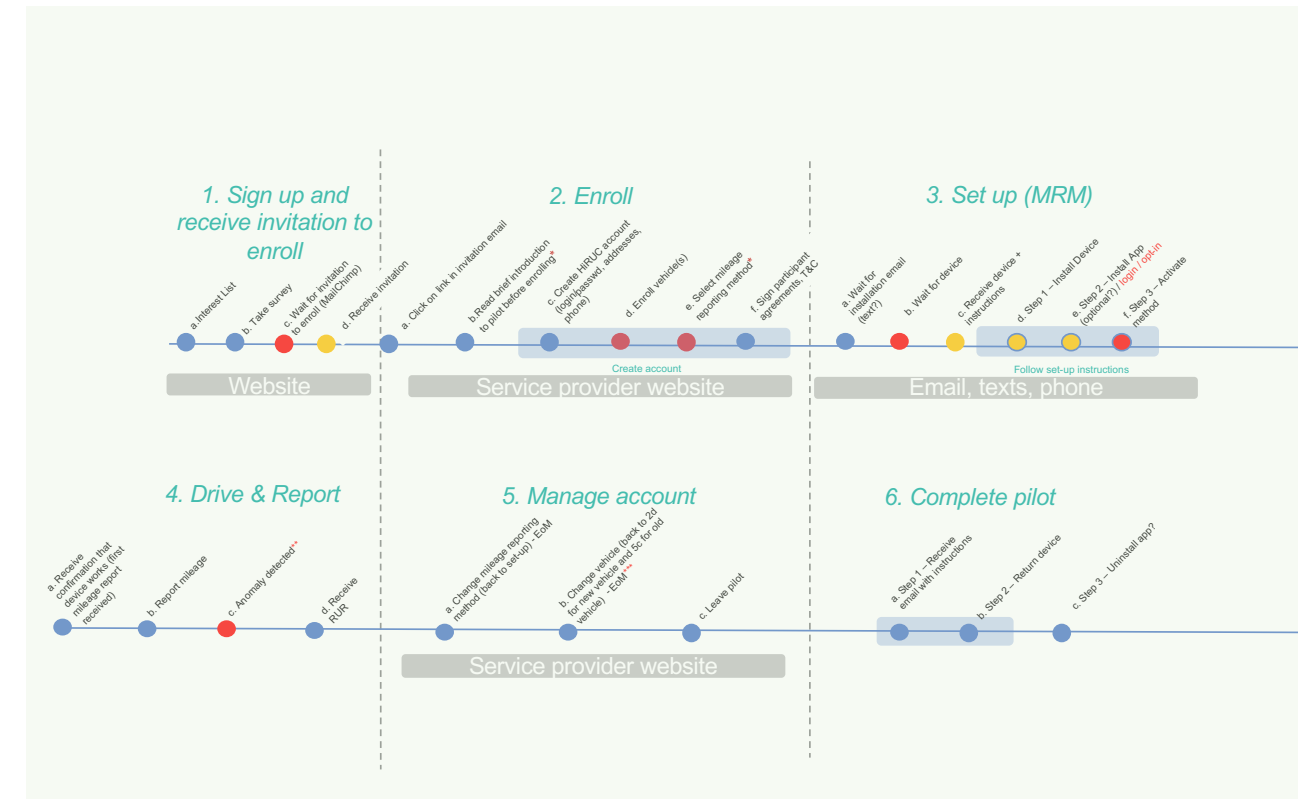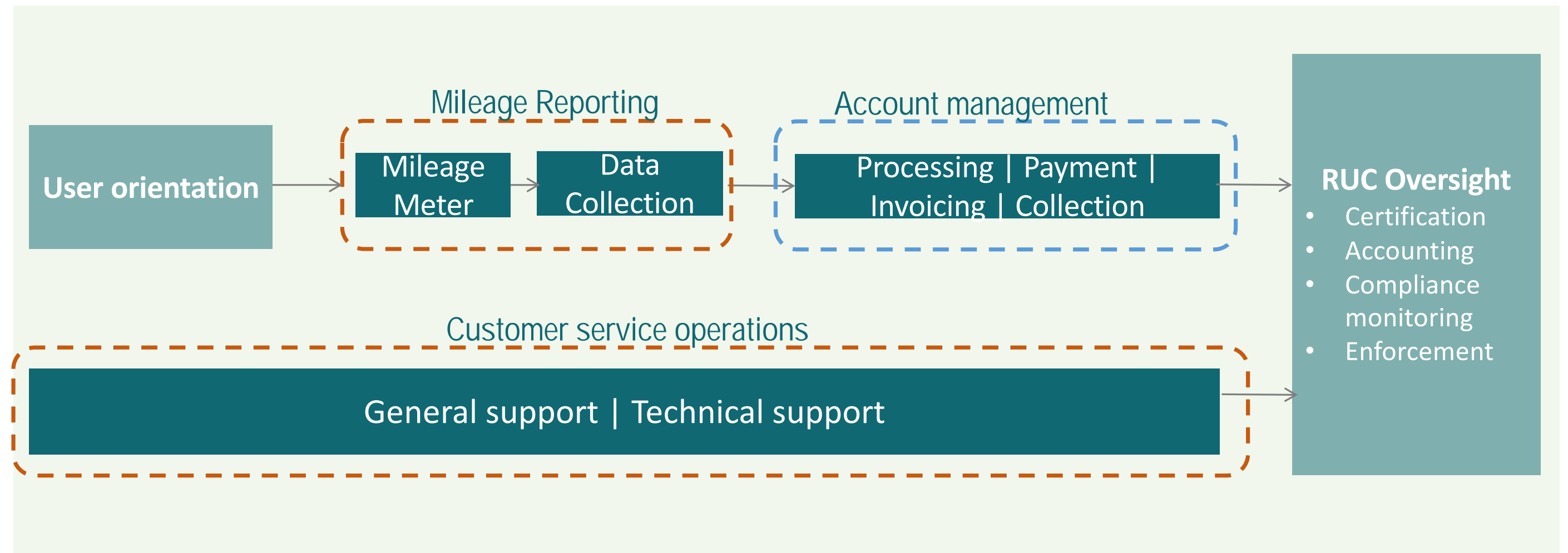
POLICY PRIORITIES DRIVE RUC INNOVATION RESEARCH
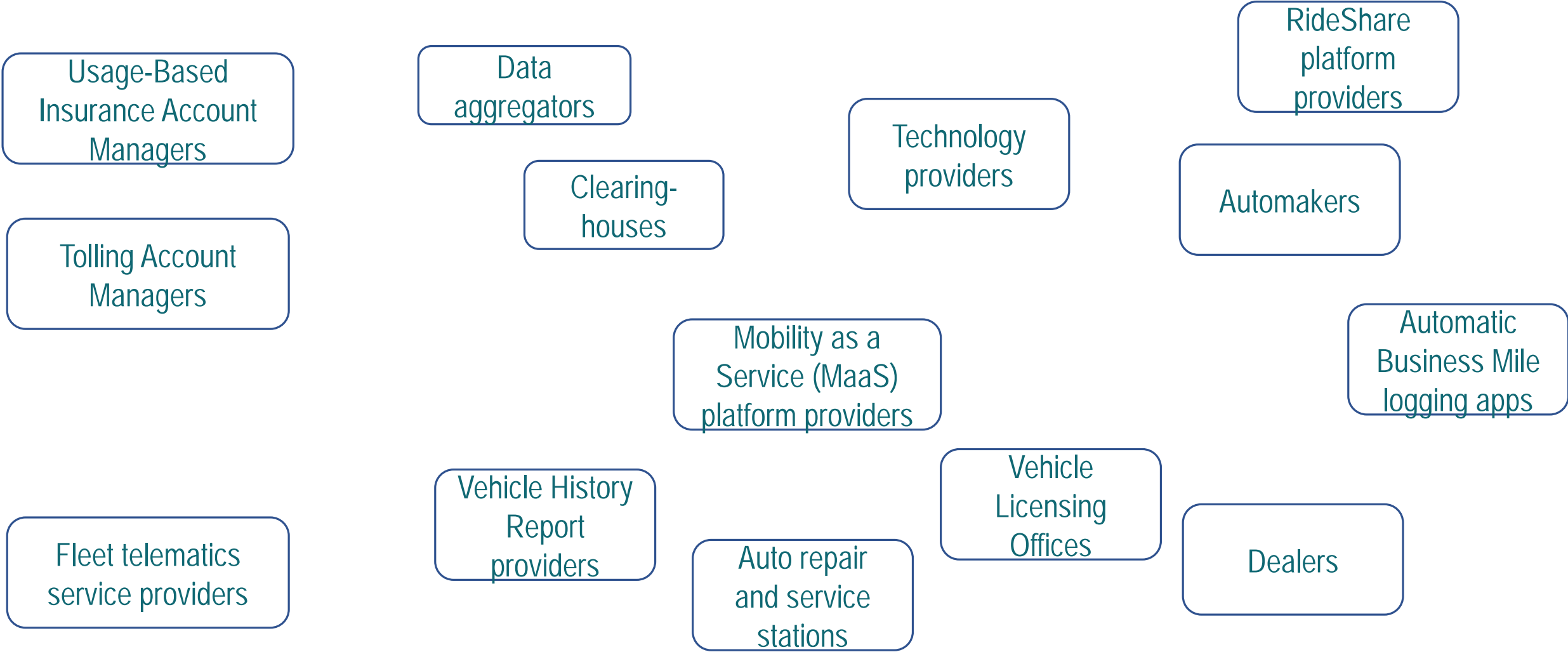
Equity

User choice

User experience

Cost reduction

WA RUC

Cost reduction – identifying cost drivers

Mileage Reporting

Account management

User orientation

Mileage Meter → Data Collection

Processing | Payment | Invoicing | Collection

RUC Oversight
- Certification
- Accounting
- Compliance monitoring
- Enforcement

Customer service operations

General support | Technical support

WA **RUC** 31

Cost reduction – identifying business models that can support RUC efficiently

Usage-Based Insurance Account Managers

Tolling Account Managers

Fleet telematics service providers

Data aggregators

Clearing-houses

Vehicle History Report providers

Mobility as a Service (MaaS) platform providers

Auto repair and service stations

Technology providers

Vehicle Licensing Offices

RideShare platform providers

Automakers

Automatic Business Mile logging apps

Dealers

WA RUC 32

RESEARCH FINDINGS: UPDATES FROM THE INDUSTRY

Explore new opportunities.
- Identify emerging technologies
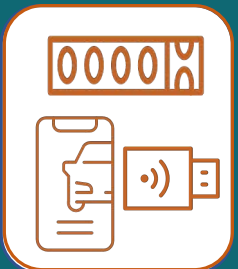
Build on past efforts.
- Identify opportunities to enhance Mileage Reporting Methods

WA RUC

In-vehicle telematics services

- Background
  - No hardware required
  - Data directly from vehicle
  - Increasing number of connected vehicles
  - Retail payment partners

- Current challenges:
  - Lack of automaker support
  - Proprietary technology
  - Audit and certification

- Latest developments:
  - One automaker has publicly discussed supporting RUC
  - Two automakers have in-vehicle tolling hardware

Third party telematics services
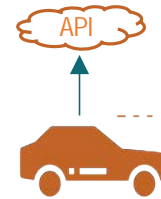
- Background
  - No hardware required
  - Data "pulled" from vehicle telematics by third party
  - Compatible with an increasing number of car brands
  - Compatible with some vehicles since MY2012 (varies by brand)

- Current challenges:
  - Lack of precise location data
  - Battery drain when vehicle is off
  - Need to share vehicle platform password

- Latest developments:
  - How to identify out-of-state travel without sharing continuous location data?
  - Can a pull API be initiated by the user?

WA **RUC**
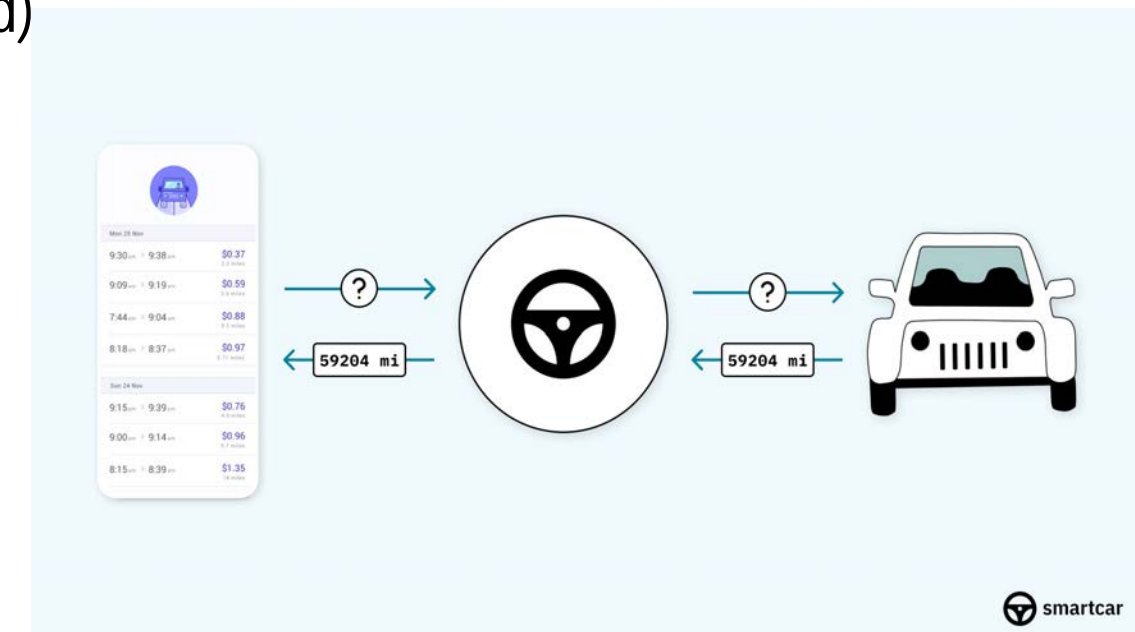
Smartphone with Bluetooth beacon

- Background
  - Bluetooth beacon (stick inside car)
  - No car interface
  - Battery and accelerometer to capture miles when smartphone not in vehicle, powered on
  - Appear to be 95% accurate
  - Can detect attempts to remove from vehicle

- Current challenges:
  - Beta version to be further tested
  - Previous attempts had poor user interface
  - User interface will need to be polished for RUC

- Latest developments:
  - Deployment for usage-based insurance

VIN Lookup service

- Background
  - Odometer readings required by federal law (TIMA)
  - Odometers collected at vehicle service, title transfers,
  - Private firms (CARFAX, AutoCheck, and smaller players), access and consolidate this data into a single source
- Current challenges
  - Data not collected for users who do not use car mechanics or service vehicles regularly
- Enhanced User Experience
  - RUC Account Manager could integrate with VIN lookup service and uses odometer readings
  - User "passively reports" odometer readings and has the option to make more frequent payments
  - Potentially use CARFAX or AutoCheck services as Account Manager, and smartphone app interface to add RUC reminders and summaries.

PRELIMINARY PILOT OPPORTUNITIES

Build RUC scenarios

- Select technologies evaluated during research phase to design RUC scenarios that address policy priorities
- Identify business models that can efficiently support RUC

WA **RUC**

Identifying business models that can support RUC efficiently

Usage-Based Insurance Account Managers

Data aggregators

Technology providers

RideShare platform providers

Clearing-houses

Automakers

Tolling Account Managers

Mobility as a Service (MaaS) platform providers

Automatic Business Mile logging apps

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Vehicle Licensing Offices

Dealers

Fleet telematics service providers

Auto repair and service stations
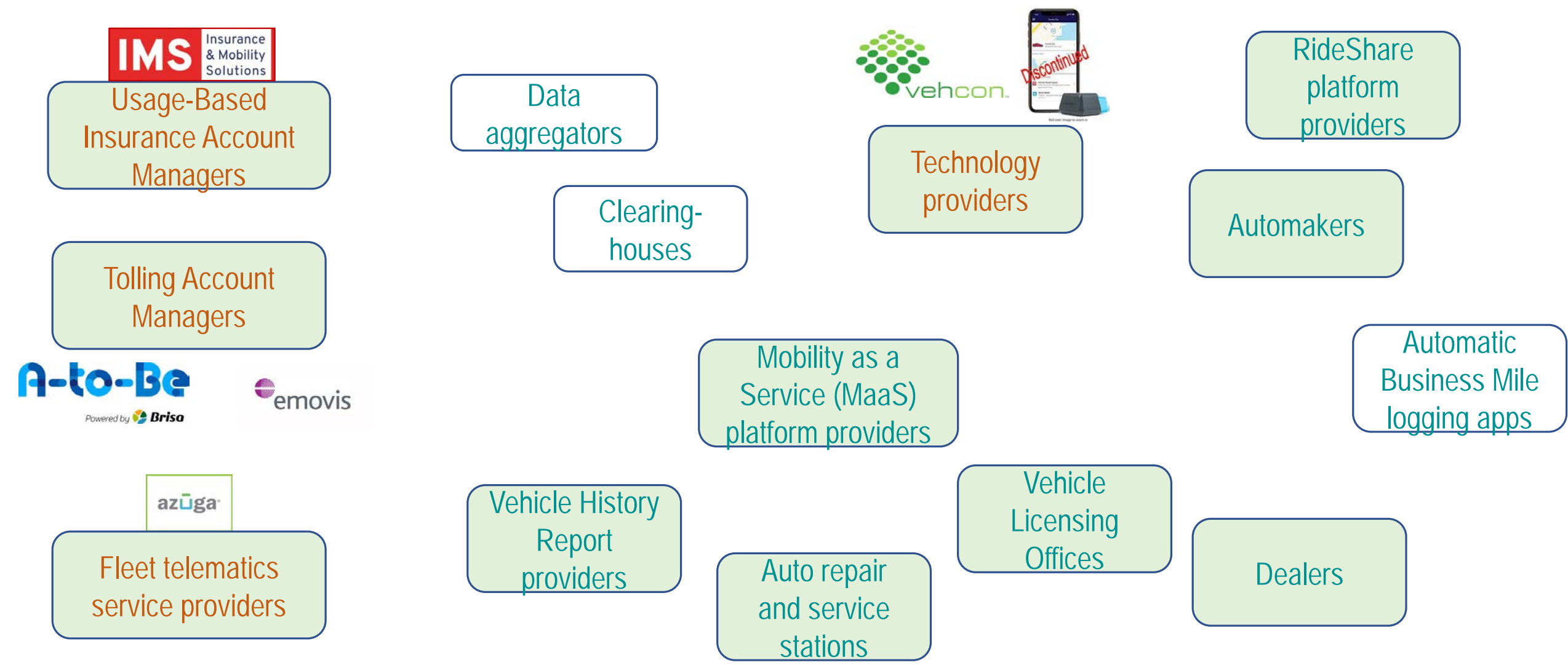
Automaker-RUC opportunity

Equity **Cost of collection** **User Experience**

Services \ Feasibility	No connectivity	3rd party connectivity	Native connectivity
Assisted (in-person assistance)			X
Self-reporting (manual action required)			X
Fully automated (no action required)			X

Research areas informed:

- Equity
  - Can automakers address potential connectivity issues in rural areas?
- Cost of collection
  - What is the lowest cost of RUC collection Automakers can achieve?
- User experience
  - Can automakers address user needs and concerns and provide a positive RUC experience?
  - Could automakers assess a RUC service provider fee for their value added services?

WA **RUC** 40

Opportunity to use Mobility-as-a-Service platform

Equity   Cost of collection   User Experience

Feasibility / Services	No connectivity	3rd party connectivity	Native connectivity
Assisted (in-person assistance)			
Self-reporting (manual action required)	X	X	X
Fully automated (no action required)	X	X	X

Research areas informed:

- Equity
  - Support a variety of mileage reporting options
  - Help with decision making
  - Flexible payments, low transaction fees
  - Rely more on incentives than enforcement for compliance

- Cost of collection
  - Built-in incentives could help increase compliance rate, lowering enforcement costs for the state

- User Experience
  - Well designed MaaS app
  - Help with compliance
  - Gamification for a positive user experience

WA RUC 41

Opportunity to use retail partners

 Equity

 Cost of collection

 User Experience

Services ╲ Feasibility	No connectivity	3rd party connectivity	Native connectivity
Assisted (in-person assistance)	X	X	X
Self-reporting (manual action required)			
Fully automated (no action required)			

Cash payment option at local retailers

Add cash at over 175+ 7-Eleven, Walgreens, CVS and other stores in the Puget Sound area.

Learn more ▶

TRANSIT GO TICKET

Research areas informed:
- Equity
  - Provide flexible set-up, reporting and payment options
  - Providing in-person support for diverse needs through retail partners (accessibility, in-person assistance, cash)
- Cost effectiveness:
  - Encourage compliance through convenience
  - Leverage existing retail outlets and processes
- User experience
  - Customer familiarity with existing relationships and outlets
  - Accept cash

WA RUC 42

Questions & Discussion

Questions to Think About

- What policy challenges facing RUC can technology address?

- What automotive, consumer, or other business trends do you believe could be useful for enhancing RUC?

- What innovations are most interesting or relevant to test?

- What other ideas for pilot tests do you have?

WA **RUC** 44

Upcoming Spotlight Sessions

- June 4, 1:30 pm - Cost Reduction

Next Steering Committee Meeting

- July 28, 9:30am-Noon via Zoom