

Transurban Phase 3 Outcomes

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In Partnership With:

— **THE EASTERN
TRANSPORTATION
COALITION**
CONNECTING FOR SOLUTIONS



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Overview

Transurban, in cooperation with The Eastern Transportation Coalition and the Virginia Department of Transportation (VDOT), participated in the largest Road User Charging (MBUF) pilot on the East Coast as part of USDOT's 5-year, STSFA program.

5 Month Duration

233 Recruited (192 Active) Participants

70% Chose GPS Enabled Devices

500,000 Miles Travelled

20% Out of State

OBD-II and Odometer Reporting Options

Phase 3 Pilot Goals

*Table based on the TETC Phase 3 MBUF final report.

The main objective was to demonstrate ability to leverage a modern tolling back office for use in administering MBUF, thus reduce administrative costs and ensure scalability.

Cordon Zone and Time-of-Day Congestion Schemes

Tolling-Integration Proof of Concept Demonstration

MBUF Production Feasibility and Evaluation

Potential for MBUF to disrupt incumbent tolling vendors, existing business models and the broader infrastructure industry.

Prior Transurban Efforts

- *Right*: 2016 Melbourne Road Usage Study.
- *Bottom*: 2017 Commercial Accounts GPS Tolling Trial.

Ongoing Trials (AU)

- Telematics vendor evaluations.
- Congestion zone feature study.



GPS VAS



Transitional GPS



Evidentiary GPS

THE STUDY IN NUMBERS

1,635	Melbourne motorists*
5	Charging options
1B	Data points recorded
1.2M	Trips recorded
12M	Kilometres of travel recorded
5,000	Participant surveys completed
4,500	Participant statements issued

* Includes 70 pilot group participants and 300 control group participants

Pairing MBUF with Tolling

Alongside the Coalition’s own testing of utilizing OBDII devices, Transurban evaluated utilizing a combined product approach with built-in tolling feature as part of MBUF, supported by a mobile-tolling product (GoToll).

GoToll does not require a transponder or GPS enabled OBDII device, instead utilizing existing on-road cameras part of the E-ZPass platform to read license plates and process trips, paired with an easy to manage customer account.

Study objectives

- Proof of concept and gather lessons learned for integration between MBUF and tolling.
- Compare POC to current device / OBDII based tolling proposed solutions.



Collection Approach	TU / Existing Toll Tech	GPS Enabled Plug-in
Mainline ramp tolls – separated from other traffic and single direction	✓	✓
Bi-directional plazas w/ limited separation	✓	?
Bi-directional ramp plaza w/ limited separation between travel directions	✓	?
Express Lanes in close proximity to general lanes	✓	✗
Cumulative based toll collection	✓	✓
Toll collection based on Entry / Exit Location Pairing	✓	?

✓ compatible with existing tech
 ✗ not compatible with existing tech
 ? additional analysis needed

Scheme Outline

Two congestion scheme approaches were trialed through Transurban's Phase 3 pilot, with primary focus as a technology proof-of-concept.

Time-of-Day (TOD) Scheme	M – F	6 – 10 AM EST 3 – 7 PM EST	additional \$0.05 / mile	Can be applied to any participant regardless of data collection method.
Cordon Zone Scheme	M – F	6 AM – 7 PM EST	\$5.00 entry fee / day + \$0.05 / mile	GPS enabled device with high reporting frequency required for all participants.

*Fees not yet based on real-world requirements to see behavioral shift.

Takeaways

Review Business Rules / Policy

Cordon Design Considerations

Utilization of Buffer Zones

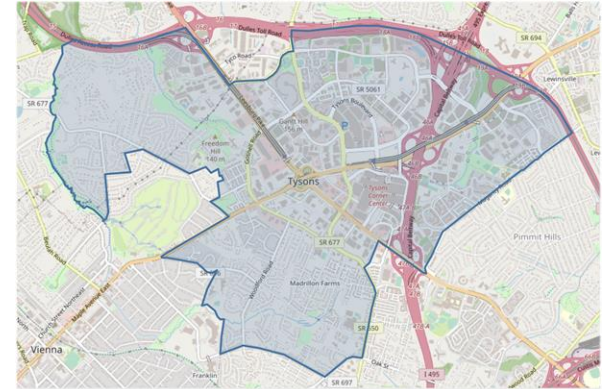
Exemption Rulesets and Areas

Device Acceptance / Privacy

Assurance of Boundary Accuracy

Cordon Boundary Complexity

Device GPS Limitations



Phase 3 Focus

Through Phase 3 work, including *integration of toll and MBUF fees on a single statement*, TU confirmed the *ability to leverage modern tolling solutions to provide a scalable MBUF product* with enticing customer features and backed by experience in creating viable commercial offerings.

Technology Considerations

Modular cloud-based architecture

Ability to *develop, implement and revise data collection, transaction processing and account management* aspects as business changes.

Agnostic data sources

Can *collect data from any or a mix of data sources* including hardware and telematics-based technologies.

Direct transfer of development experience and frameworks

Continuous integration and deployment (CI/CD), SaaS, overall end-to-end approaches.

System scalability

Tolling vendors *process large numbers of trips and customers and provide customer interfaces* for interaction.

Privacy and security

Longstanding experience in protecting customer personal data (including location), with industry leading tools, reporting, operations.

Business Factors

Scaling up of existing account management functions

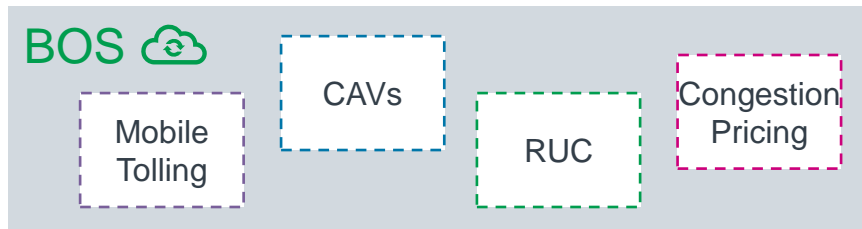
Ability to *scale up existing existing customer service systems and methodologies* to match MBUF needs.

Customer admin technology application

Digital first service approach alongside *continuous review of usability and development towards feature improvements* alongside technology teams.

Education

Built-up experience in selling difficult to accept products to a wide array of clients, customers, broader public, and investors.



Future Development Based on Phase 3 Progress

Transurban will continue to explore the features, lessons learned, and issues outlined in this presentation throughout Phase 4 and future pilots.

Transurban **successfully delivered and provided account administration for a new MBUF system**, building on Transurban's prior directly relevant research and testing experience.

Evaluation of synergies between tolling technology and MBUF, and testing of tolling-integration features **show initial promise to meet scalability and administrative cost reduction criteria** necessary for success of MBUF.

Congestion based schemes proved GPS based technology potential. **Additional evaluation may be required to determine acceptance from a policy and public perspective.**