



Intelligent Transit Management System, Indore



Indore Municipal Corporation



SUTP



GEF



AICTSL



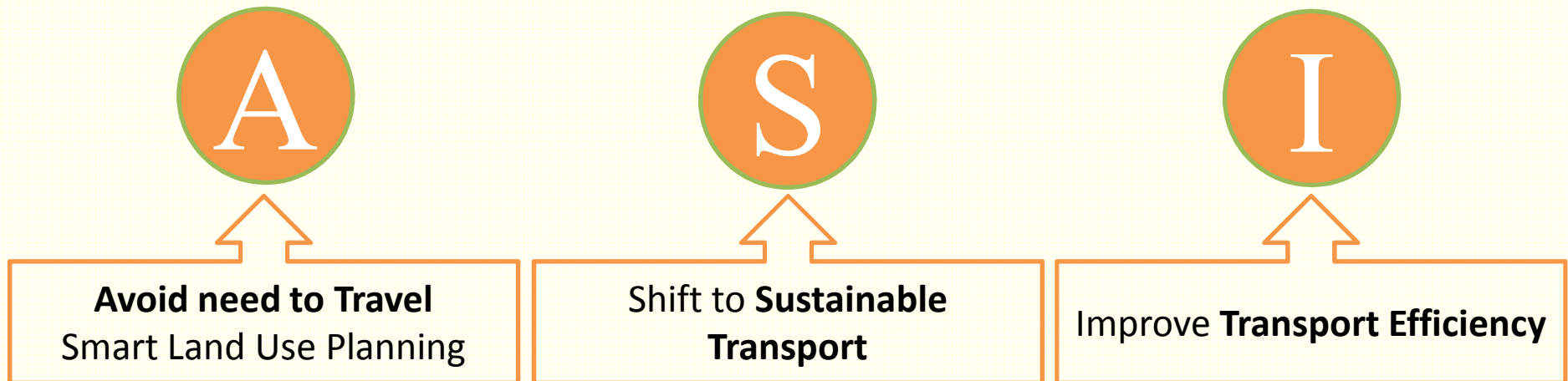
WORLD BANK GROUP

World Bank



SUTP Project

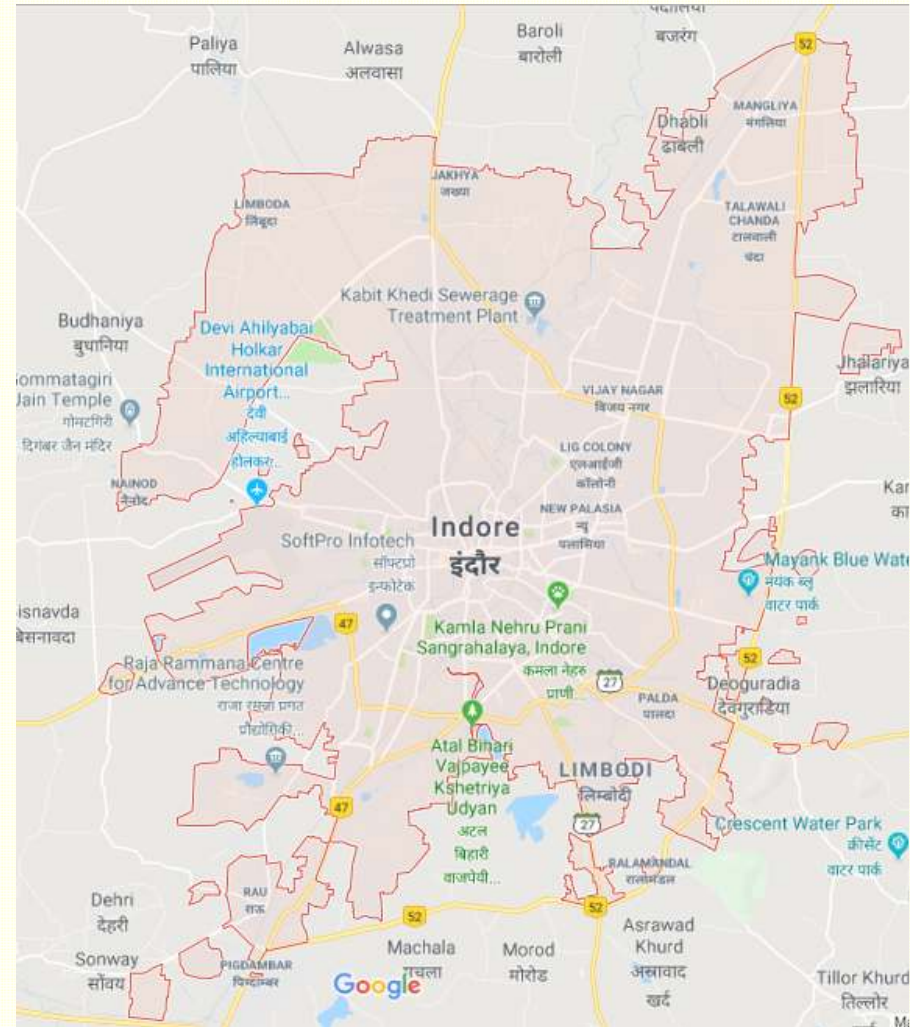
- Guiding Principles of SUTP: AVOID-SHIFT-IMPROVE



- Indore Public Transport is moving on these lines with the guidance, support of SUTP

About Indore

- Indore is the largest city in the state of Madhya Pradesh
- Industrial and educational hub for the central India
- Comes under the ambit of Smart City project
- Successively crowned the cleanest city 2017 and 2018
- Metro work in full swing with integration with Indore BRT system



About Indore

- Prior to SUTP Project (2010)
 - Less evolved form of GPS system in use in public transport
 - No mass road transport system
 - No route rationalization
 - No advanced signalling system
 - No traffic control room
 - No data analysis
 - No transit planning



SUTP Project Components

- SUTP GEF ITS Project, includes the following components of BRTS Indore
 - BRTS Stations with automatic RFID Screen doors
 - Vehicle actuated Traffic signalling system
 - CCTV surveillance system
 - ITMS system
 - CAD-AVLS
 - AFCS
 - Communication backbone
 - Network Management System
 - Optic Fibre 32 core
 - Utilities (power backups)

SUTP Project Components

BRTS Stations with automatic RFID Screen doors

- The RFID doors provide the dwell times at each station
- Aids in operations management



SUTP Project Components

Vehicle actuated Traffic signalling system

- Better Travel time reliability
- Reduced accidents/hindrances in bus operations
- Lesser end-to-end travel time



SUTP Project Components

CCTV surveillance system

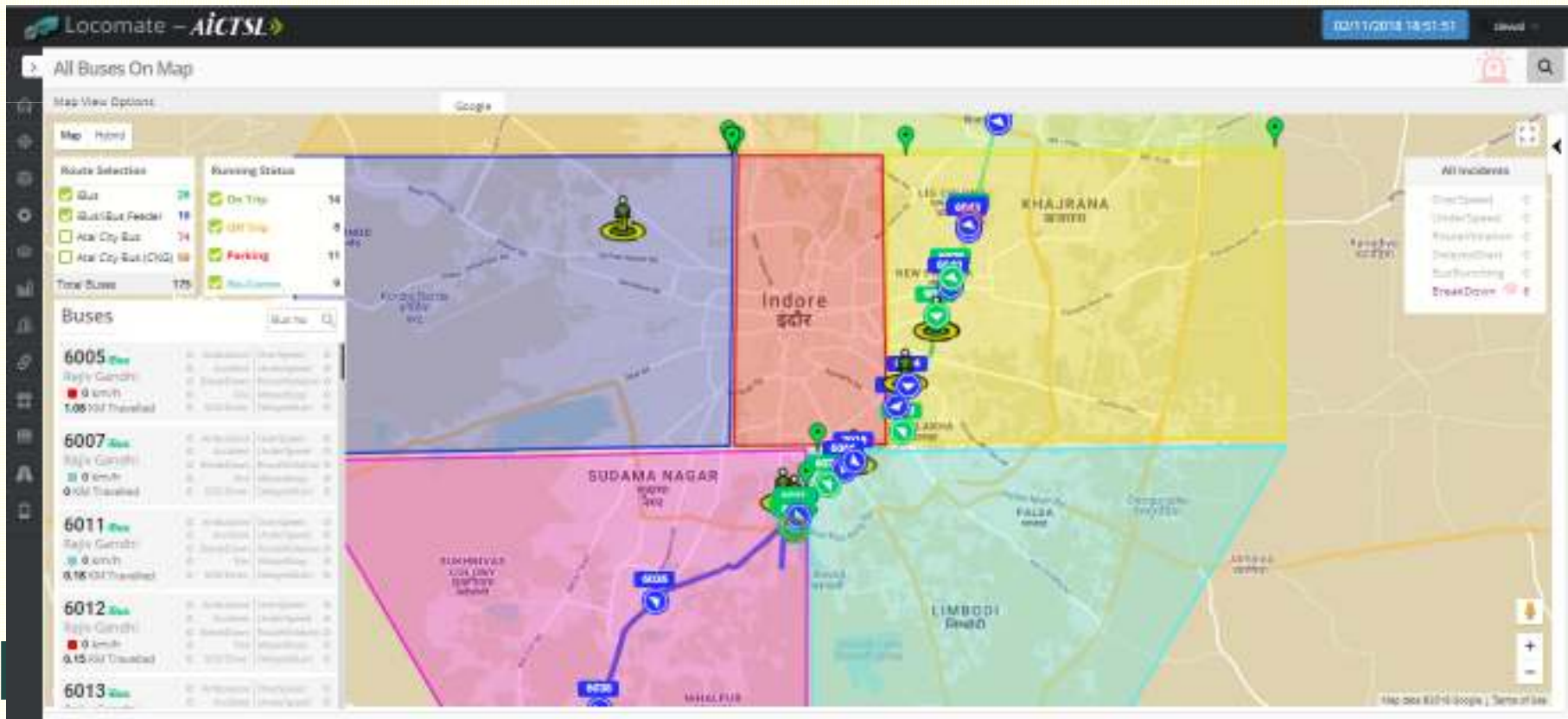
- 100 cameras installed in the system
 - 4 at each station
 - Inside TMC and AICTSL campus
- Separate cameras have been installed inside buses too



SUTP Project Components

CAD-AVLS

- Improves schedule adherence
 - Improves incident handling
- Improves information dissemination to passengers via call centre



SUTP Project Components

AFCS

- Reduces wait times at stations
- Reduces revenue leakages
- Makes using public transport cashless and thus hassle-free



SUTP Project Components

- Control room Hardware and Software
 - 3.2m * 4.7m video wall which runs multiple screens simultaneously, for monitoring operations



SUTP Project Components

– Control room Hardware and Software

- IVRS system for call centre staff
- Dedicated Internet Lease Line and Wireless radio for direct communication with on-field supervisors



SUTP Project Components

- ITMS system
 - Communication backbone
 - Network Management System
 - Optic Fibre 48 core throughout the corridor
 - Utilities (power backups) : 6 Hour backup



Dedicated Server for
AFCS and AVLS

6 KVA batteries for
Control Centre UPS



SUTP Project Components

- For Entire City
 - Fare integration
 - Multi modal integration
 - Route rationalization
- BRTS Consultancy Services
 - BRTS station design
 - PMC
 - Monitoring and evaluation study

iBus Station



iBus (Interior)



iBus



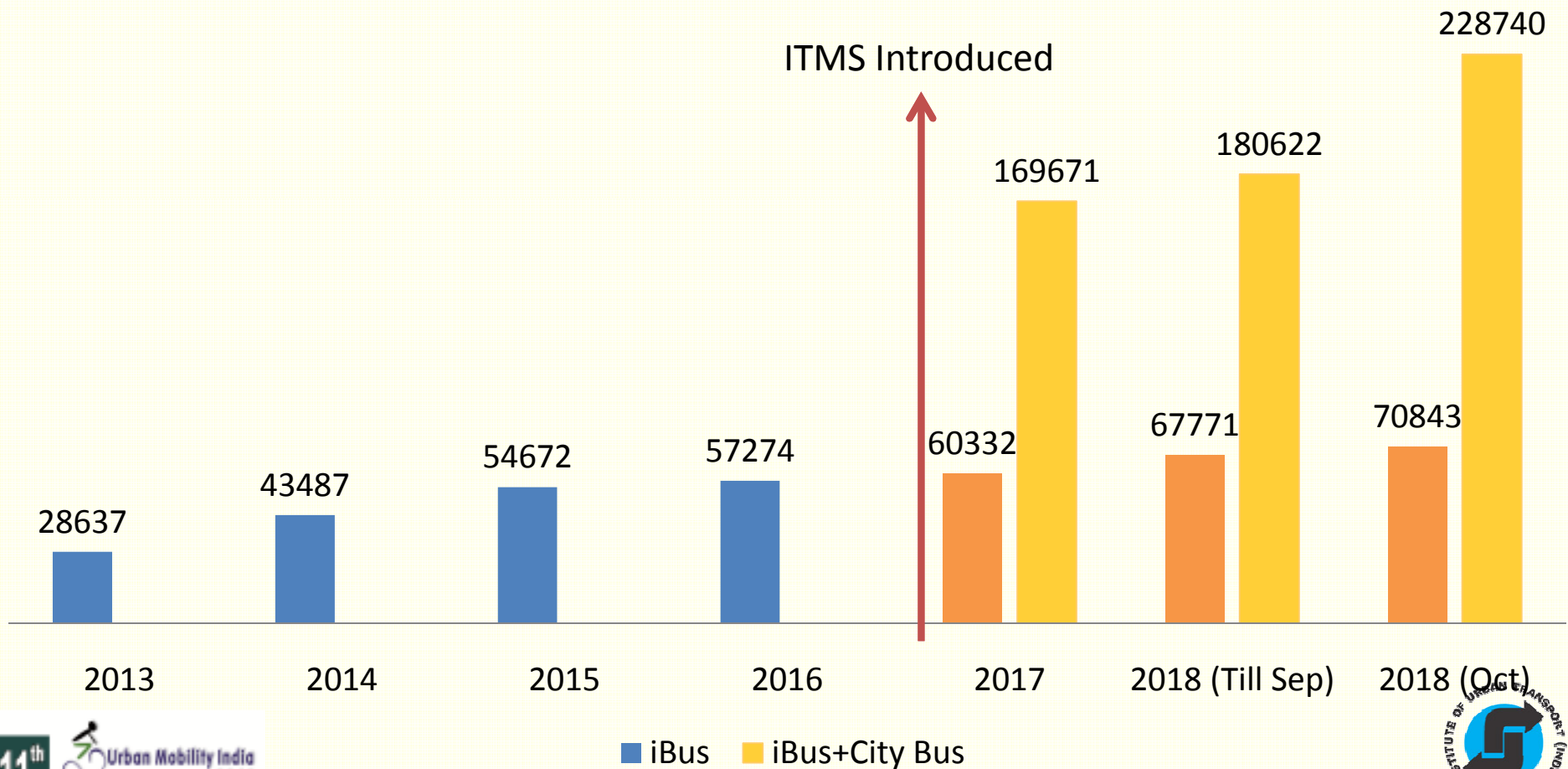
Passenger Information Boards inside the buses

CCTV cameras inside the buses



Impact

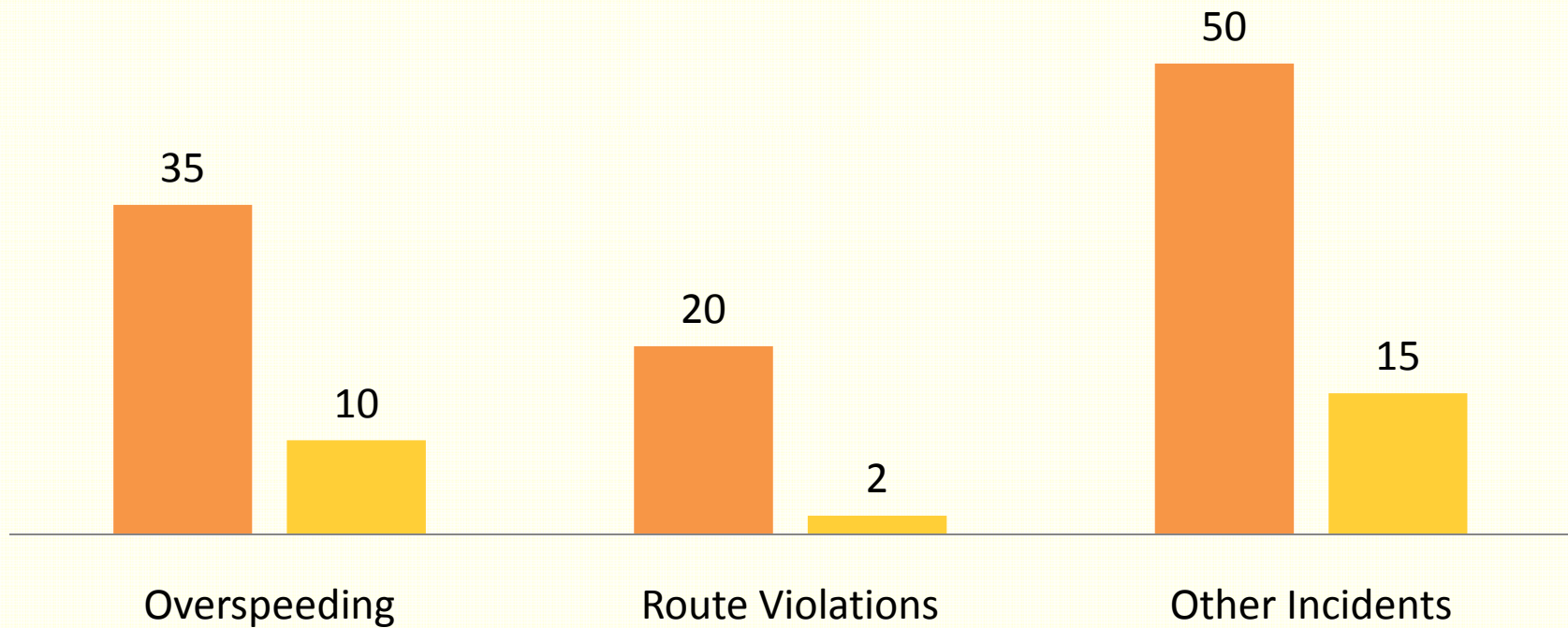
- Gradual and consistent ridership increase



Impact

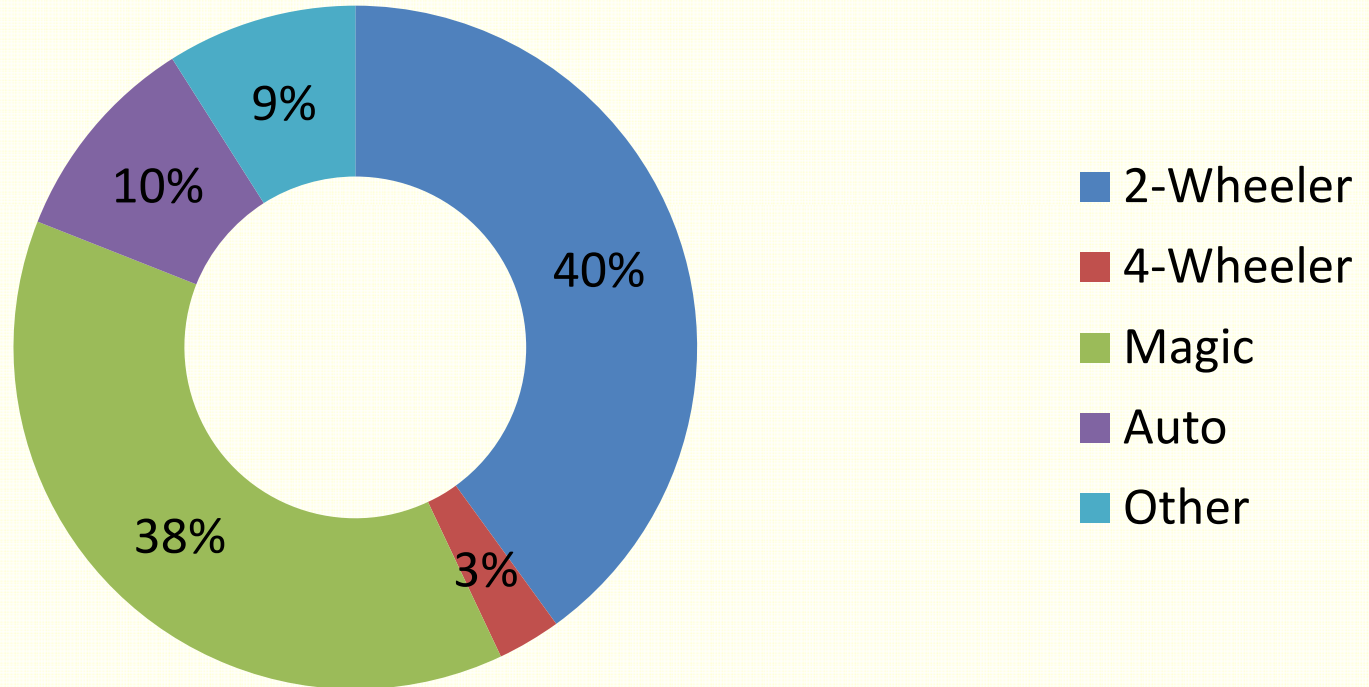
Average Number of Daily Incidents

■ Prior to ITMS ■ Post ITMS



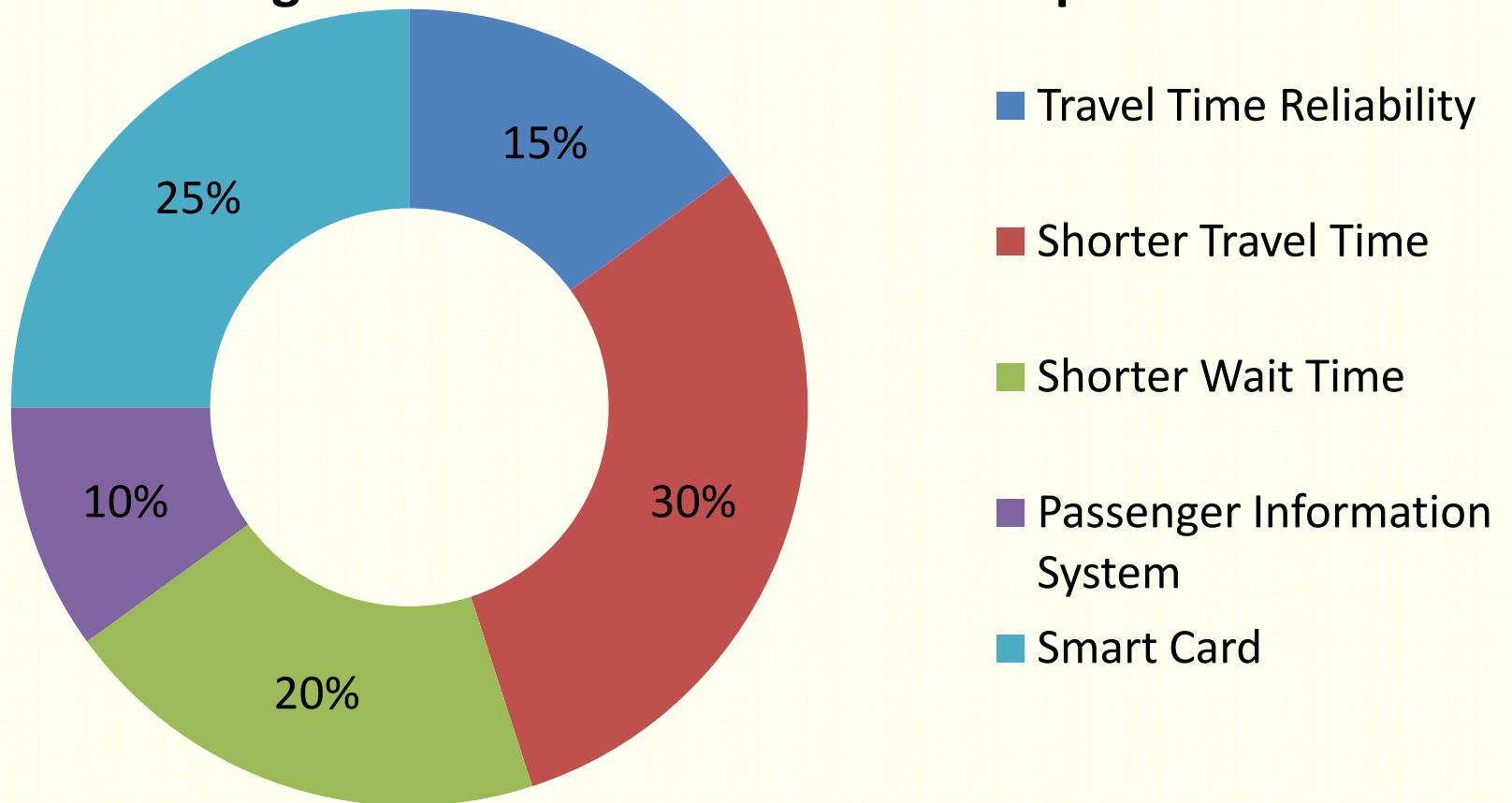
Impact

Mode Shift Statistics



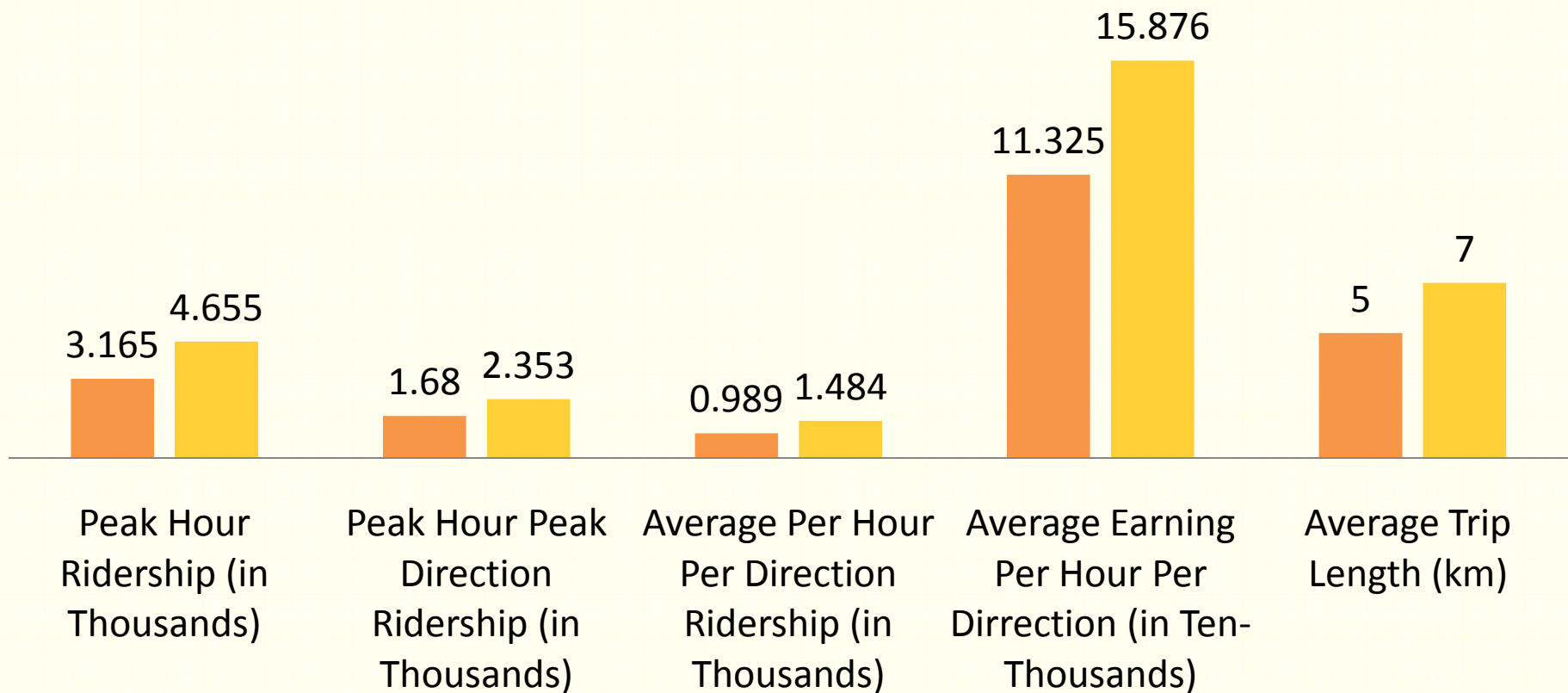
Impact

Passenger Satisfaction With ITMS Components



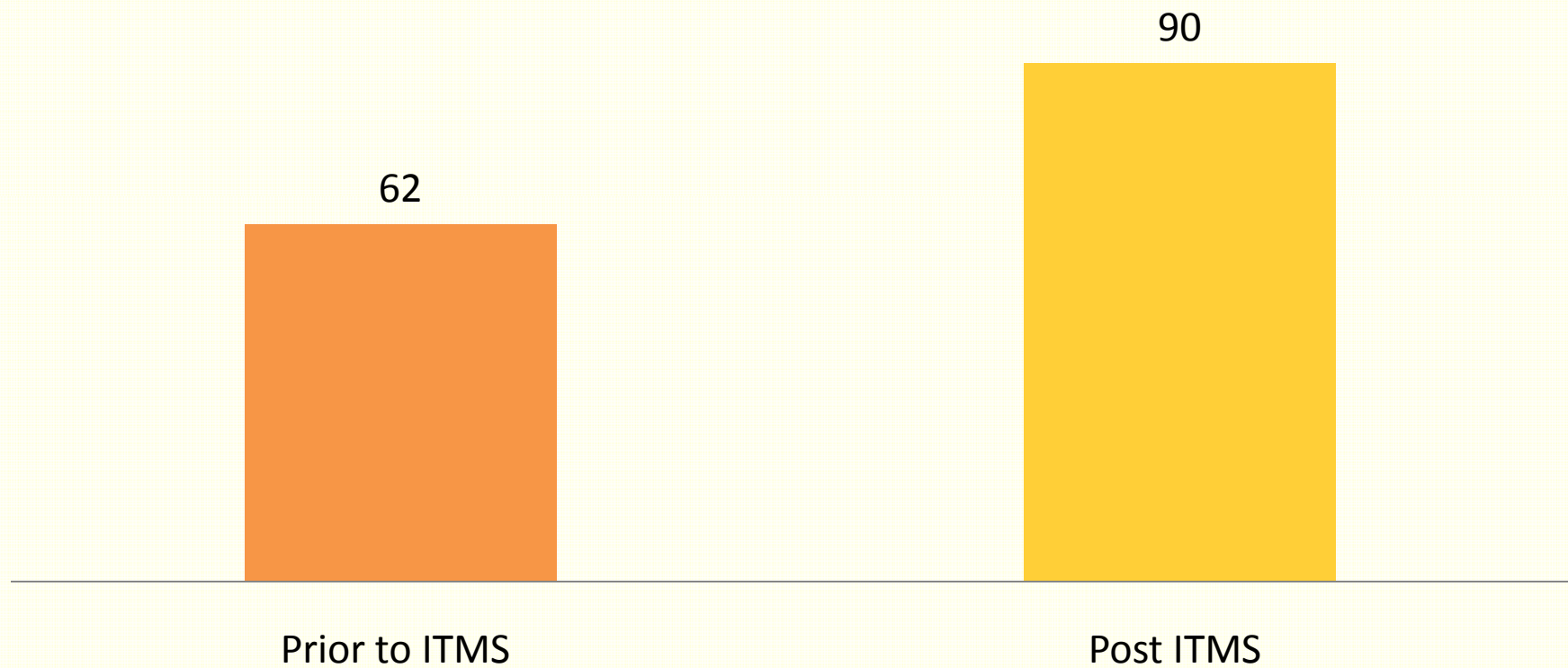
Impact

■ Prior to ITMS ■ Post ITMS



Impact

Earnings Per Kilometer



Hurdles

- No experience on AICTSL's part in world class ITS system
- Lacking scientific/technical approach when executing project ideas
- RFP was technically very sound, so resulted in 3 tendering rounds to finalise vendors/ award contract
- The contract was signed in 2017, but by then AICTSL's operation scope increased thus requiring addition of multiple modules and requirements

Learning's

- Now the approach to project planning, execution and maintenance is very scientific, thorough and data oriented
- With the consultancy services through SUTP and World Bank it was easier to understand and implement new technology
- SUTP project added capacity building through capacity programs for AICTSL staff
- Earlier there was only 1 ITS component (GPS) with AICTSL but now entire system has been developed
- Via SUTP project only AICTSL is working with Multi Modal approach
- Business planning & service planning brought a revolutionary change
- Use of state of the art technology was possible with SUTP support
- Project sustainability, overall feasibility and applicability was brought by SUTP
- Last mile connectivity provisions for new projects added after guidance from SUTP

Replications

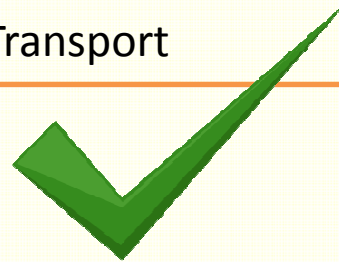
- E-Buses
- Smart poles
- Single utility card
- Integration with Indore Metro project, public bicycle system (iBike) etc.
- Mobile application and other public transport projects



Avoid need to Travel



Shift to Sustainable
Transport



Improve Transport Efficiency



*Thank
You!*