C-ROADS PORTUGAL WORKSHOP

Câmara Municipal do Porto

28.11.17

Co-financed by the European Union
Connecting Europe Facility

Vision

Porto.

VISÃO

Ser reconhecido como um município socialmente coeso, economicamente competitivo, inovador, atrativo, transparente, submetido a escrutínio pelo cidadão e sustentável.

Therefore, Porto's ITS system should allow:

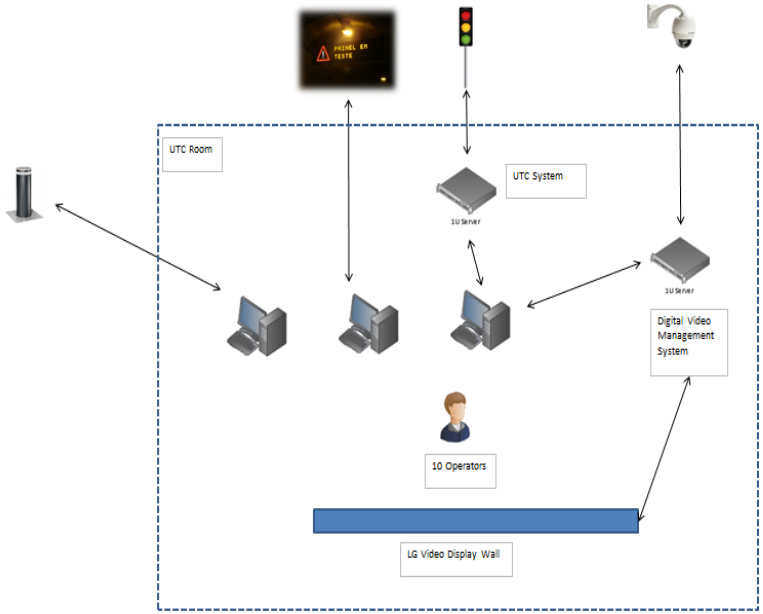
- To effectively Manage Urban Mobility (not just transport…)
- The implementation and monitoring of local policies aiming sustainability objectives.
- Easy access to the information for all interested parties (citizens and institutions).

Main instruments

- Mobility Management System (SGM.CMP)
- Integrated Management Center (CGI)
- Traffic Modelling Unit
- Monitoring - Network indicators
- Pilot – projects (C-Roads)

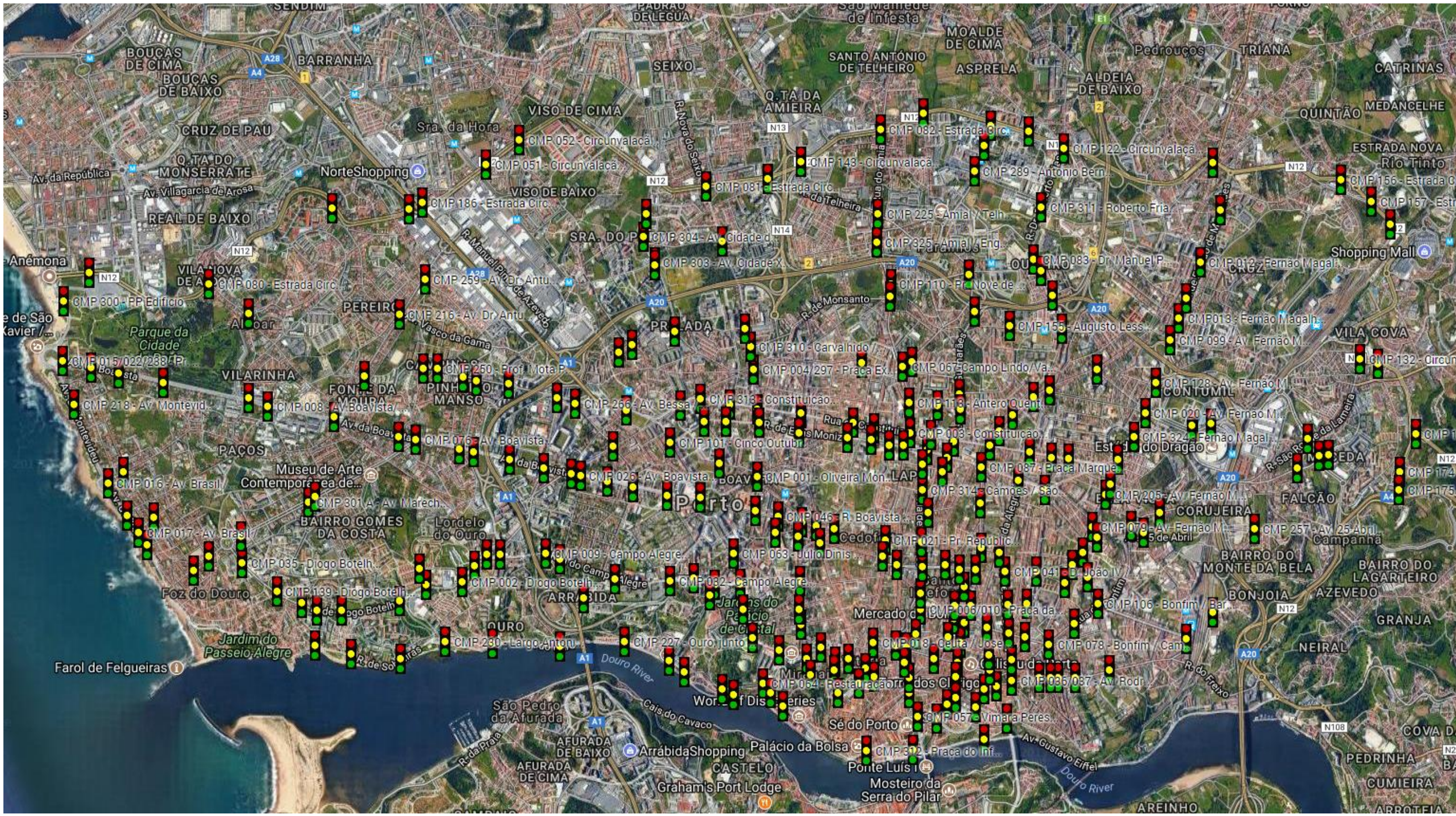
SGM – Present

- 290 Traffic lights junctions
  - 130 with remote management and real time adaptive control
- 121 CCTV
- 43 Pedestrian areas access bollards
  - 16 with remote managem
- 15 Tunnel VMS
- UTC Control Room (in CGIP)



Traffic lights junctions (290)

C-ROADS



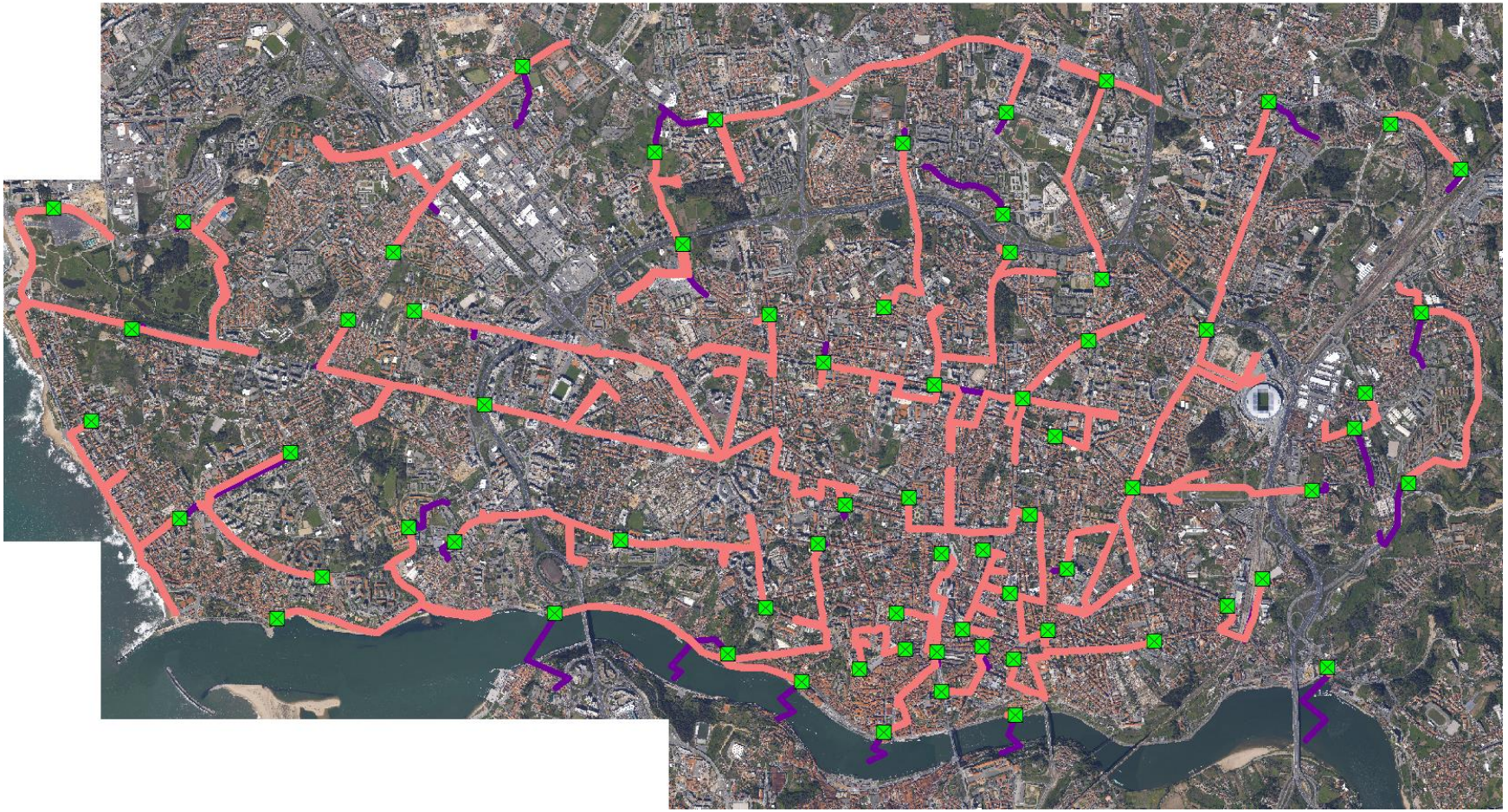
CCTV (121)


CRUZ DE PAU
Sra. da Hora
NorteShopping
Q.TA DO ROCHA
BAIRRO DA AZENHA
ISEP - Instituto Superior de Engenharia do Porto
Faculdade de Engenharia da Universidade do Porto
VISO DE BAIXO
REAL DE BAIXO
Farmácia Porto
Paranhos
OUTEIRO
CRUZ
PEREIRÓ
Rama de
Av. Vasco da Gama
R. de Monsanto
Rua da Constituição
R. de Egas Moniz
Av. da Boavista
PAÇOS
Museu de Arte Contemporânea de..
Boavista
LAPA
CORUJEIRA
BAIRRO GOMES DA COSTA
L'ordelo do Ouro
Rua do Campo Alegre
Foz do Douro
Jardins do Palácio de Cristal
BONJOIA
OURO
R. do Douro
Farol de Felgueiras
Ponte da Arrábida
Douro River
São Pedro da Afurada
World of Discoveries
FREIXO
AFURADA DE BAIXO
ArrábidaShopping
Av. Gustavo Eiffel

SGM – Future (next 5 years)

- Creation of 42 local area networks across the city, extending the municipality fibber optical network capillarity
- Remote interconnection and management of **all** the traffic controllers (290 and increasing)
- 265 Traffic controllers replacement
- Remote interconnection, using IP network, of all the CCTVs (121 and increasing)
- 69 analog CCTVs replacement
- New/upgraded traffic management software

SGM – LANs (42)

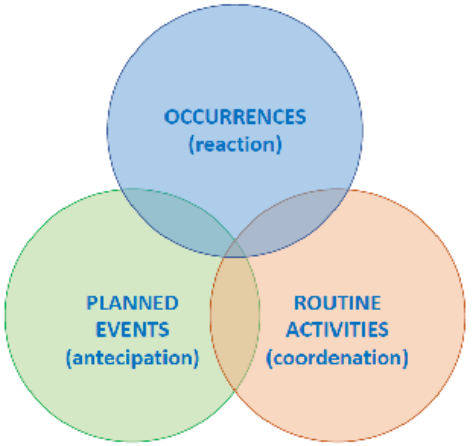


SGM – expected results

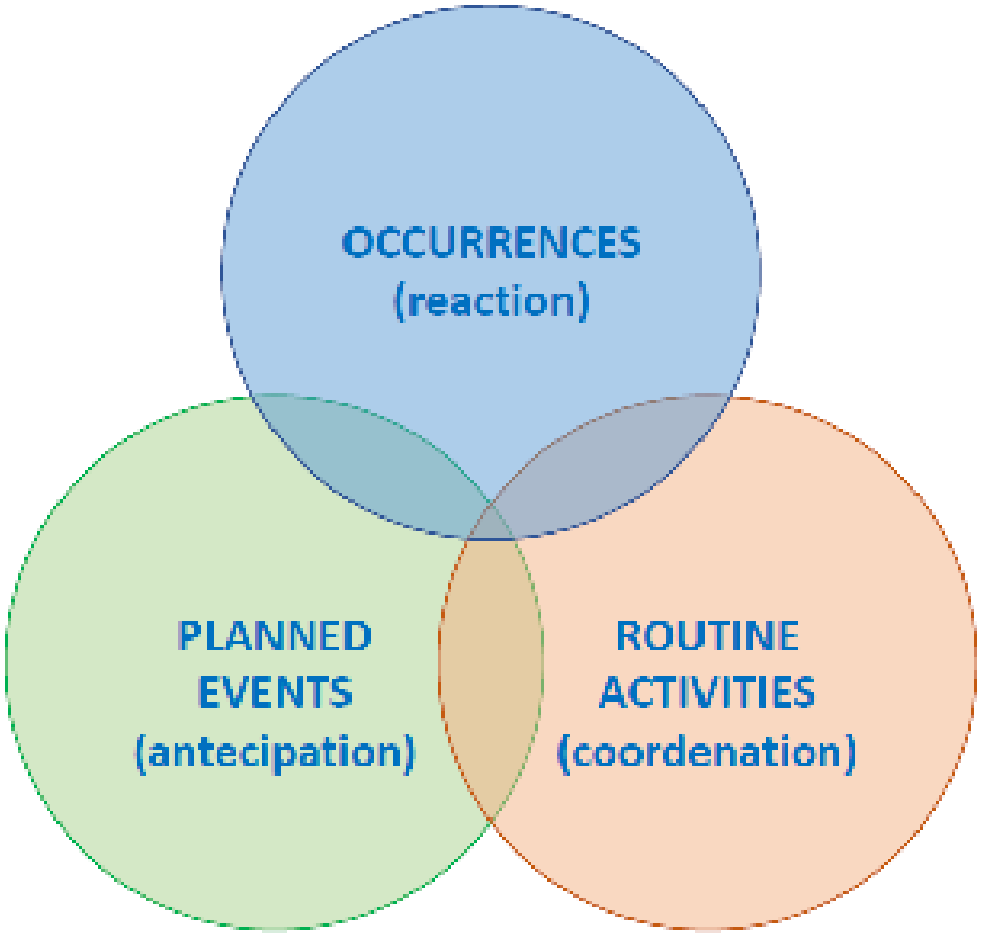
- City-wide traffic monitoring and management
- Effective intervention capabilities
- Flexibility to incorporate other municipal needs (sensors, etc...)
- Traffic/other data exchange (input/output)
- Safety (maintenance response reduction)
- Pollution and travel times decrease
- Security upgrade

CGI

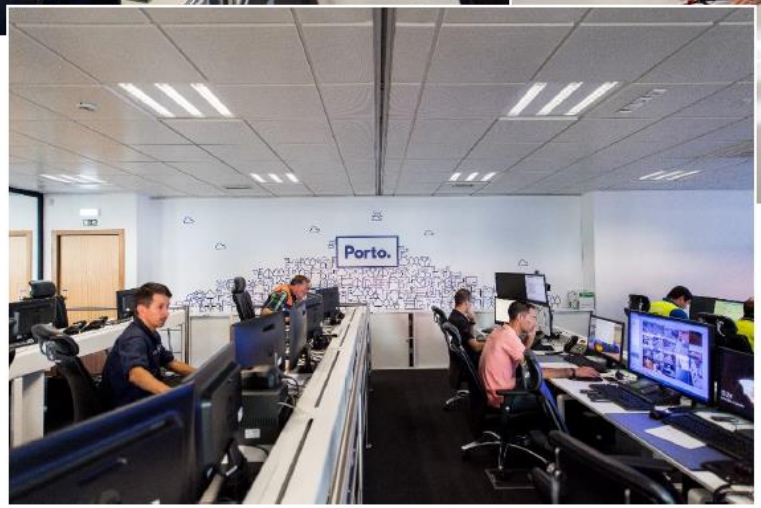
- Opened in December 2016
- Replaced the previous Traffic Control Room
- Operates on a 24/7 basis
- Capability to incorporate other aspects of urban life
- Several Municipal Departments and 2 external entities integrate CGI (so far):
  - Mobility and Public Space Management
  - Municipal Police (MP)
  - Fire Department
  - Civil Protection
  - Environment and Innovation
  - Information Systems
  - National Police (PSP)
  - Porto Digital Association



CGI


OCCURRENCES
(reaction)
PLANNED
EVENTS
(antecipation)
ROUTINE
ACTIVITIES
(coordenation)

CGI



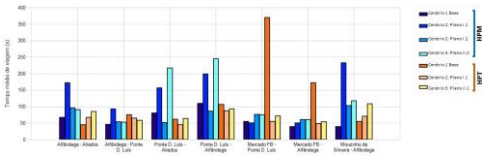
Traffic Modelling Unit

- Decision Support to evaluate mobility projects:
  - Test scenarios in virtual environment
  - Provide information in a systematic way
- Use (and quality check) of the SGM.CMP data
- Quantify the benefits of ITS
- Predict how drivers will react to new devices and solutions

Traffic Modelling

- Macroscopic
  - City level

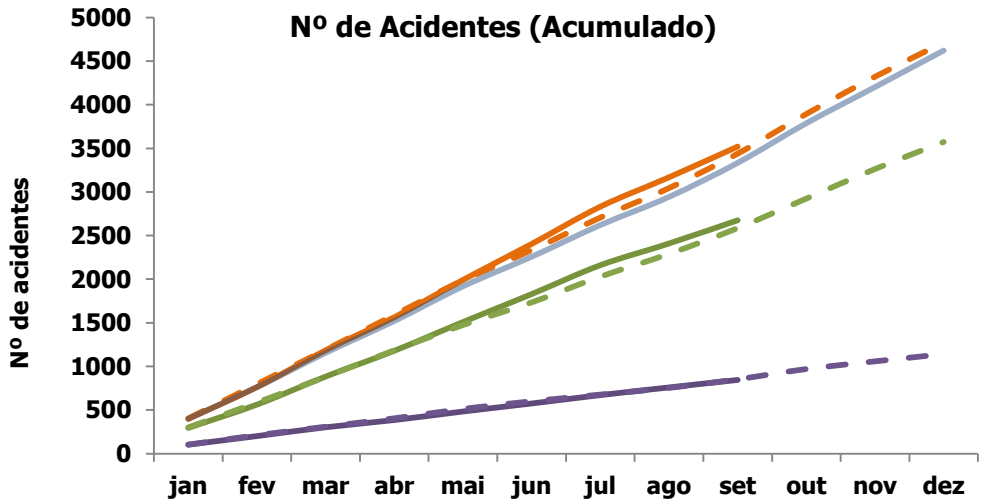
- Microscopic
  - Traffic Control

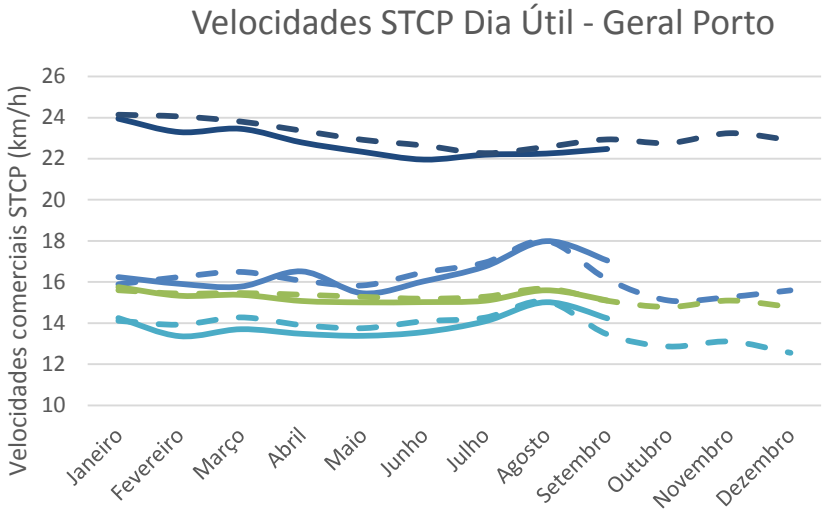


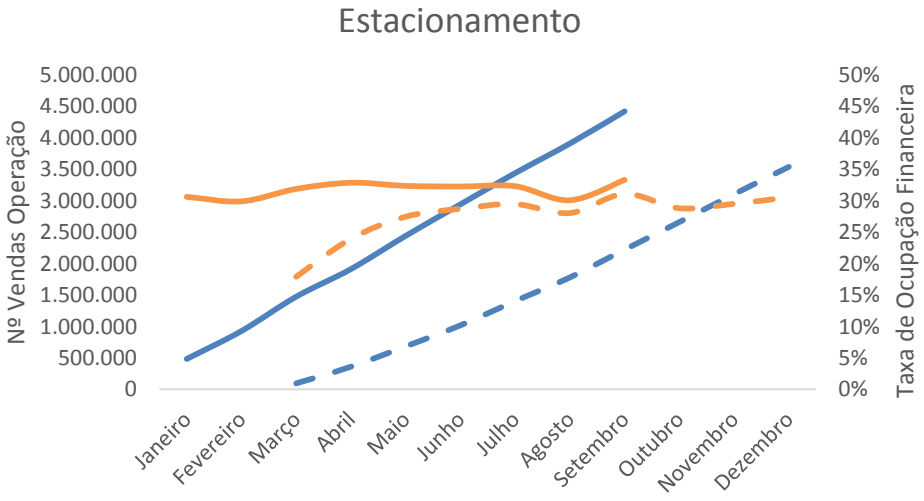
a) Hora de ponta da manhã b) Hora de ponta da tarde

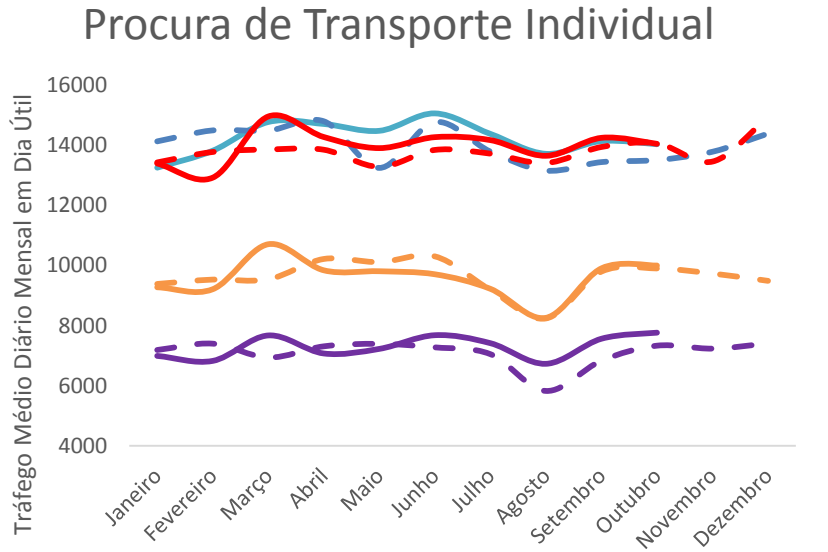
- PT Priority

Monitoring - Mobility Indicators









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C-ROADS pilot projects

- Project 1
  - Traffic service level monitoring and 2-hour travel time prediction in the Porto node
- Project 2
  - V2I and I2V integration of the CaetanoBUS vehicle with the infrastrucuture in Porto node

Project 1

Traffic service level monitoring and 2-hour travel time prediction in the Porto node

- Future integration on a UTC control room
- Interoperability with other ITS softwares
- Real-time traffic monitoring
- Defining and evaluating of dynamic scenarios/contingency plans;

Project 2

V2I and I2V integration of the CaetanoBUS vehicle with the infrastrucuture in Porto node

- Information from the vehicle to the PT operator (STCP) and CGIP:

  Operational information: posicioning, malfunctions (e.g.: ilegal parking), battery level,..)

- Information to the vehicle from the PT operator and CGIP:

  Operational guidance, route suggestions, estimated travel times, incidents, …

C-ROADS

THANK YOU!

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