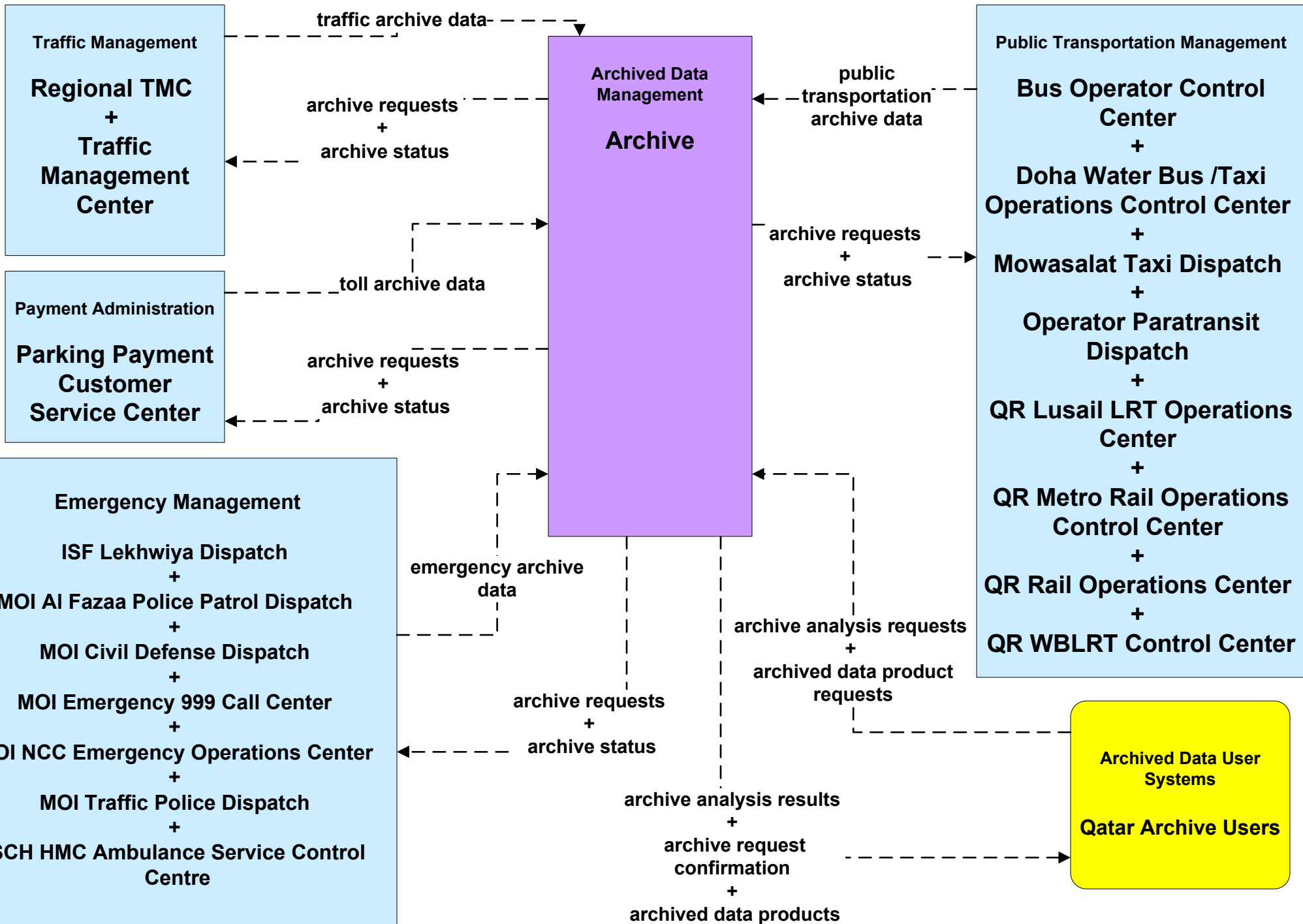
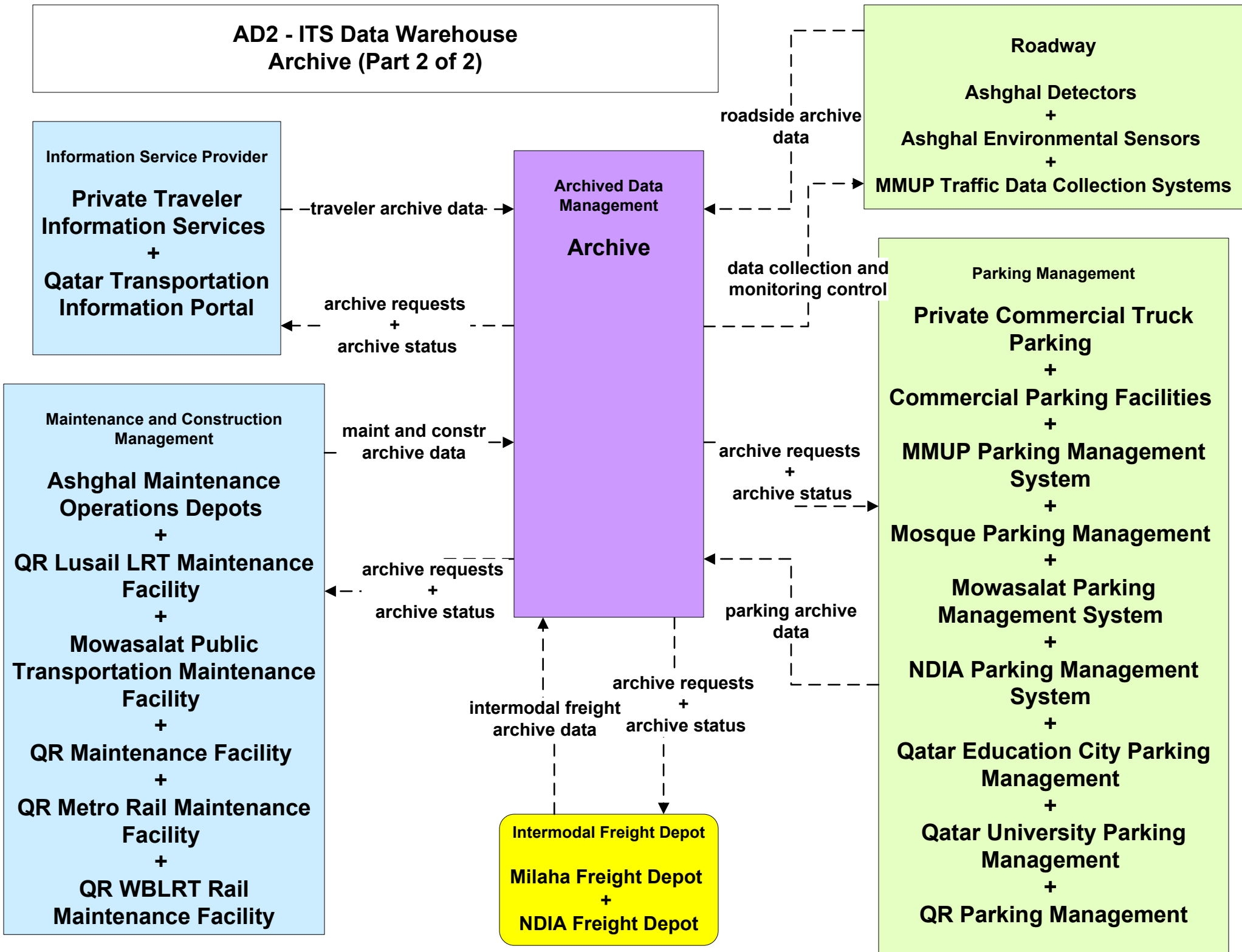
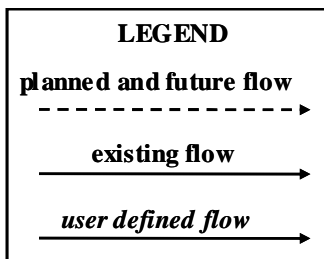
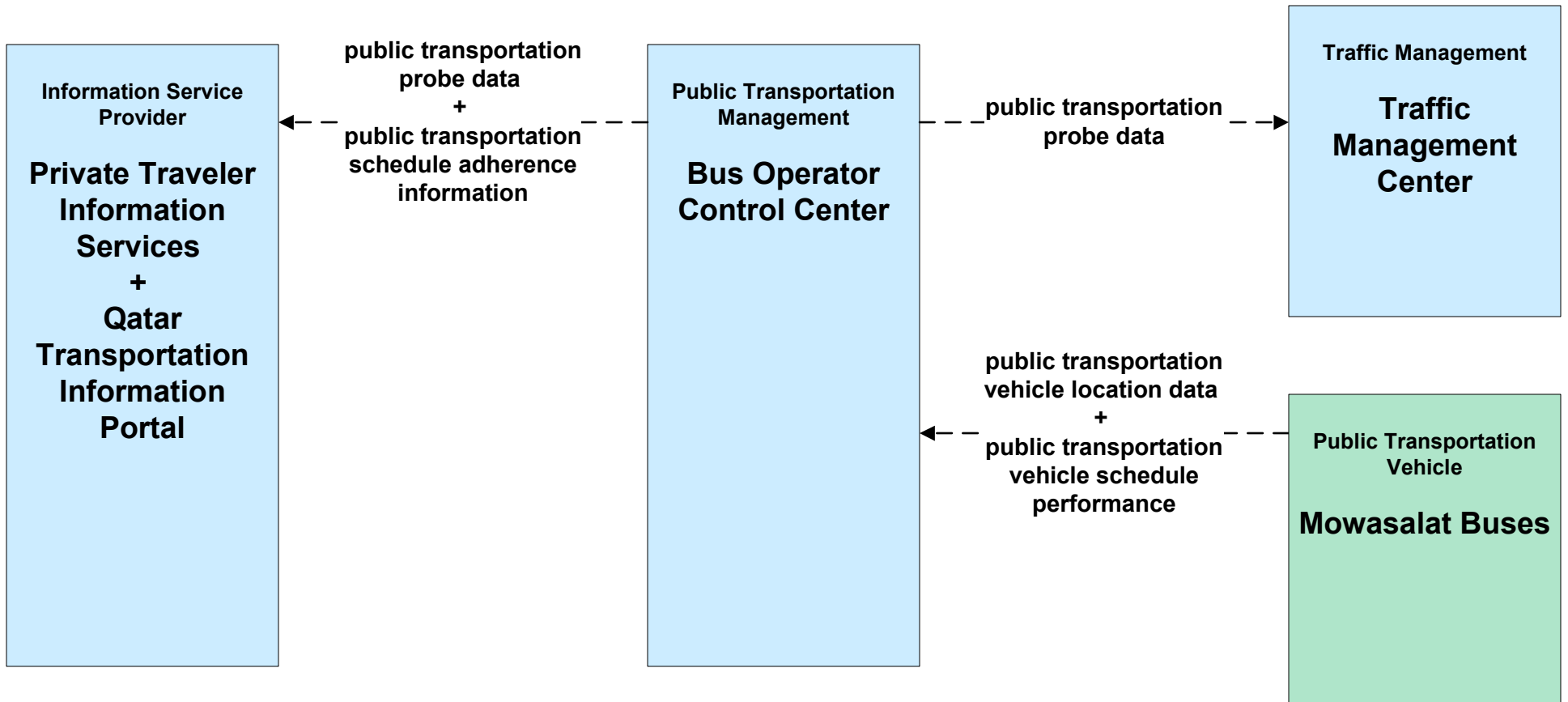


**AD2 - ITS Data Warehouse
Archive (Part 1 of 2)**

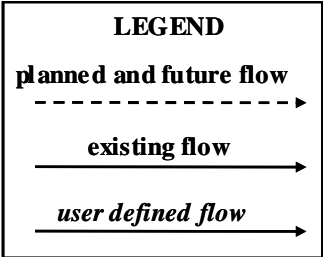
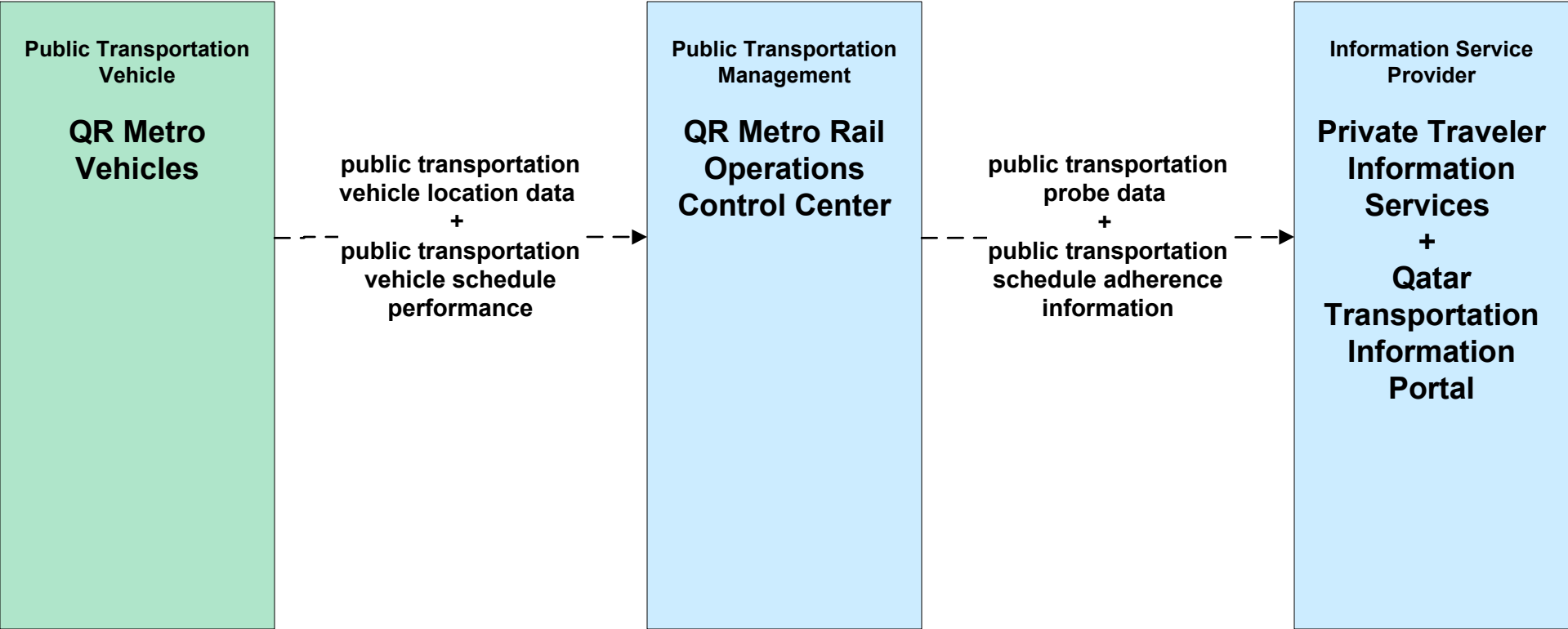




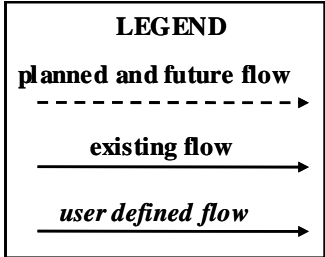
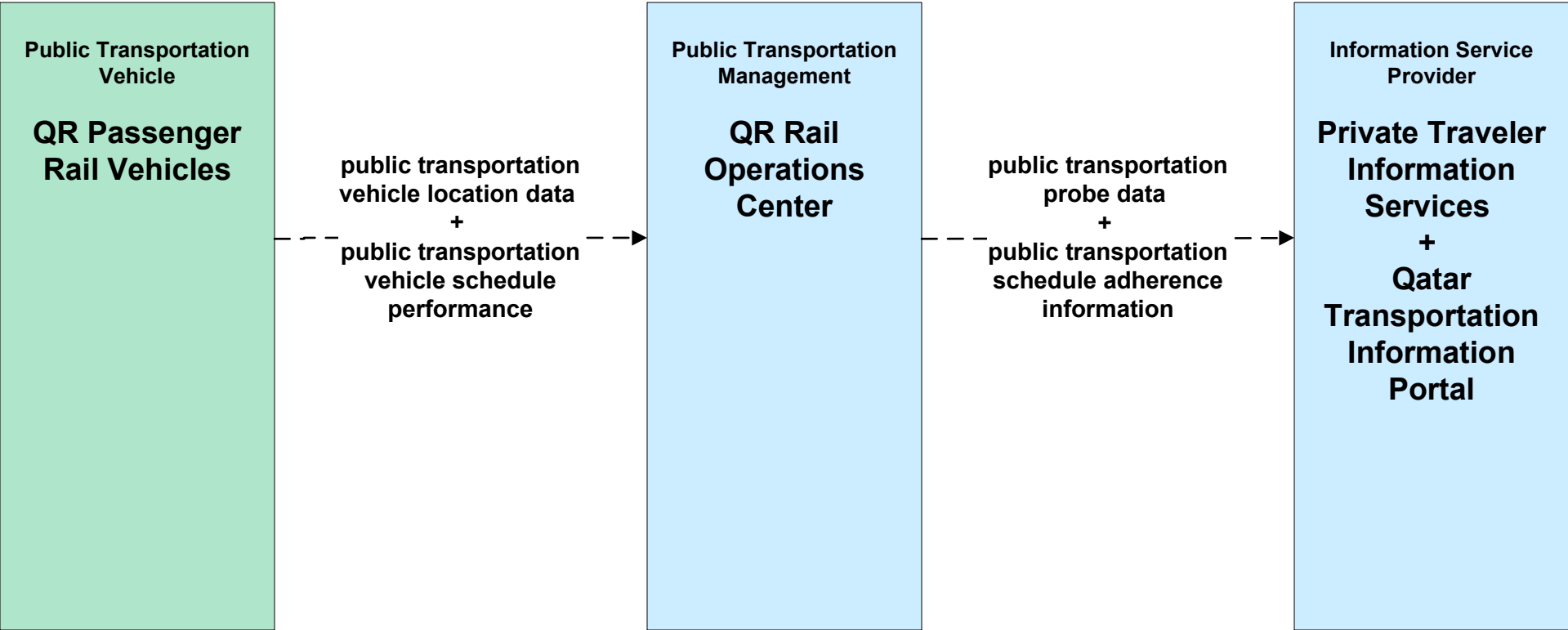
APTS01 - Public Transportation Vehicle Tracking Mowasalat Buses



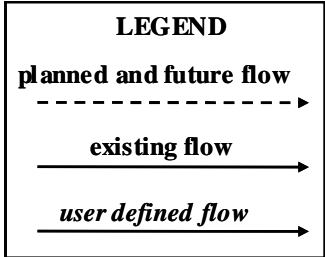
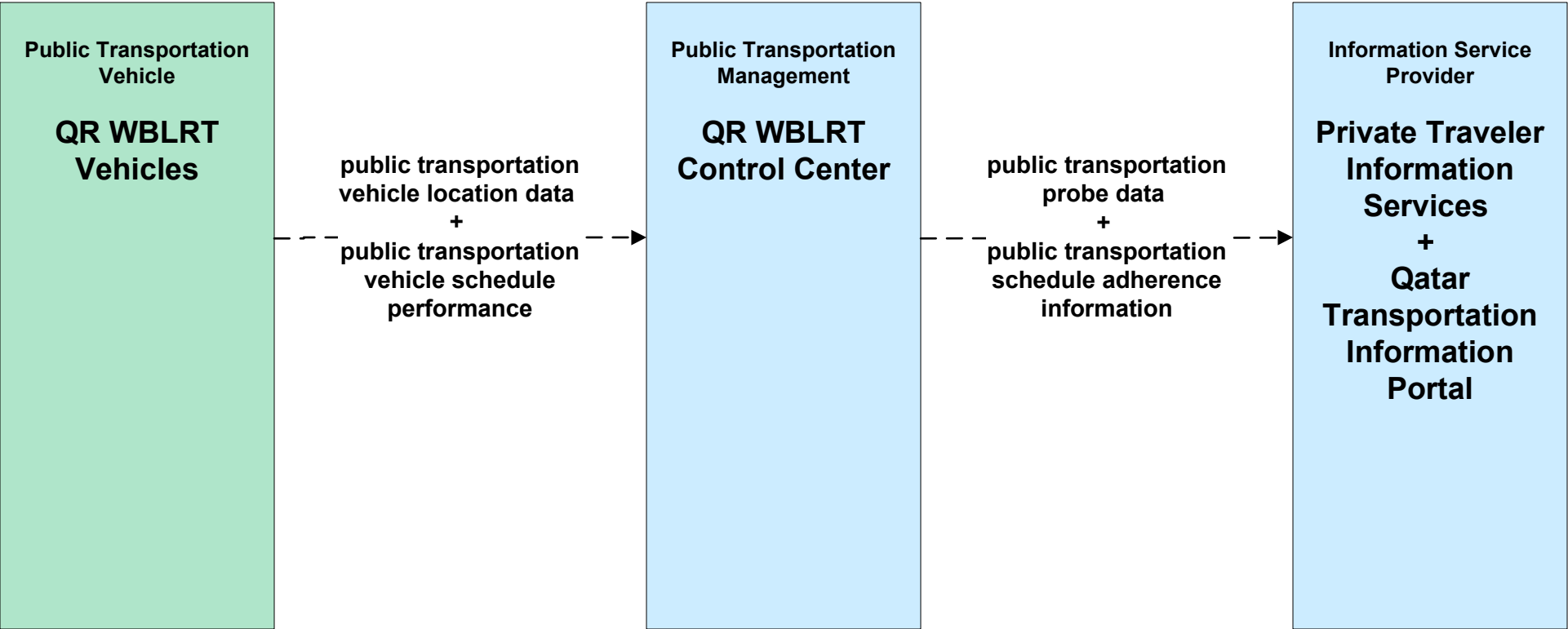
**APTS01 - Public Transportation Vehicle Tracking
Doha Metro**



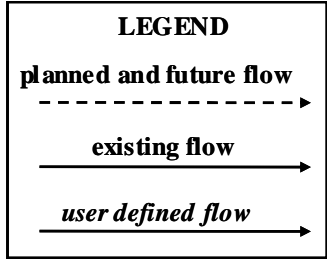
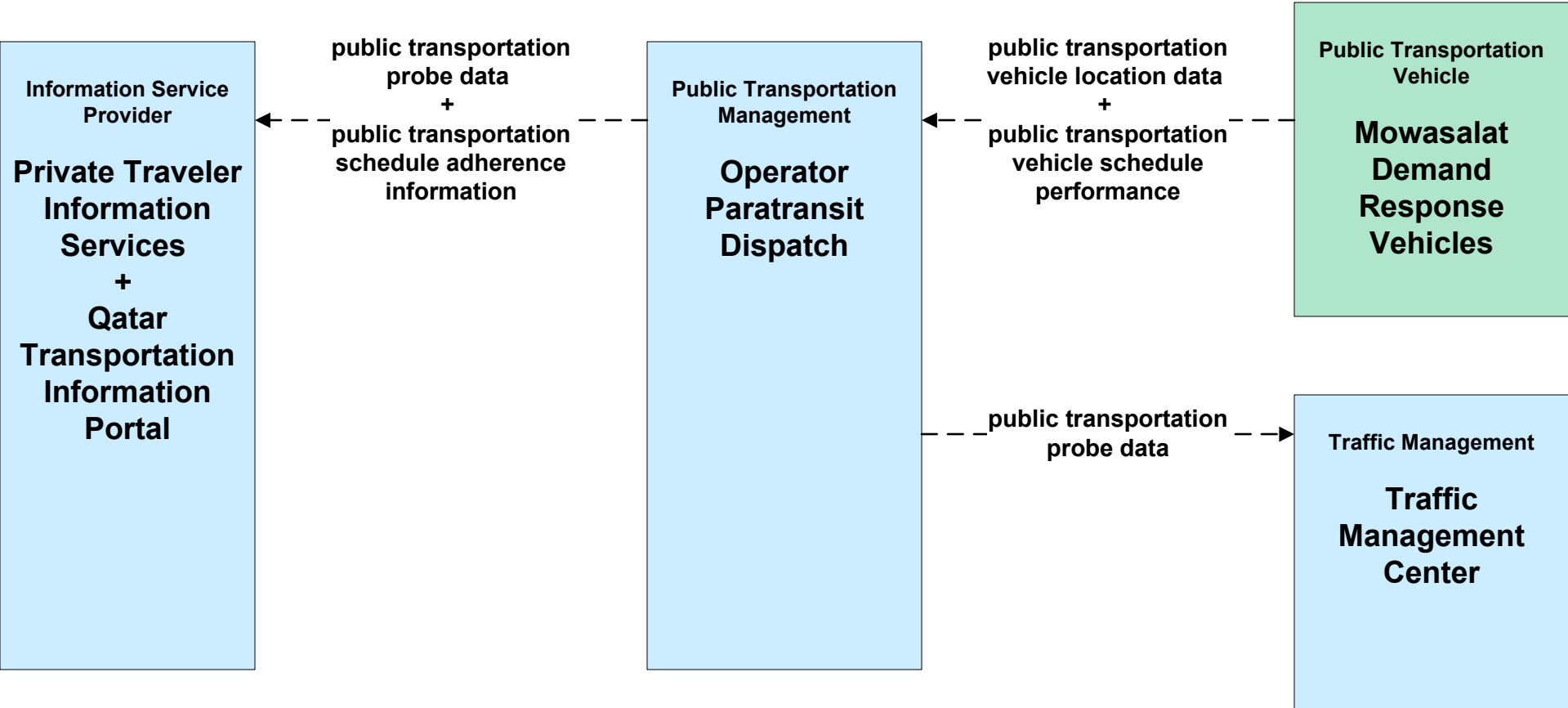
**APTS01 - Public Transportation Vehicle Tracking
Qatar Railways Passenger Rail**



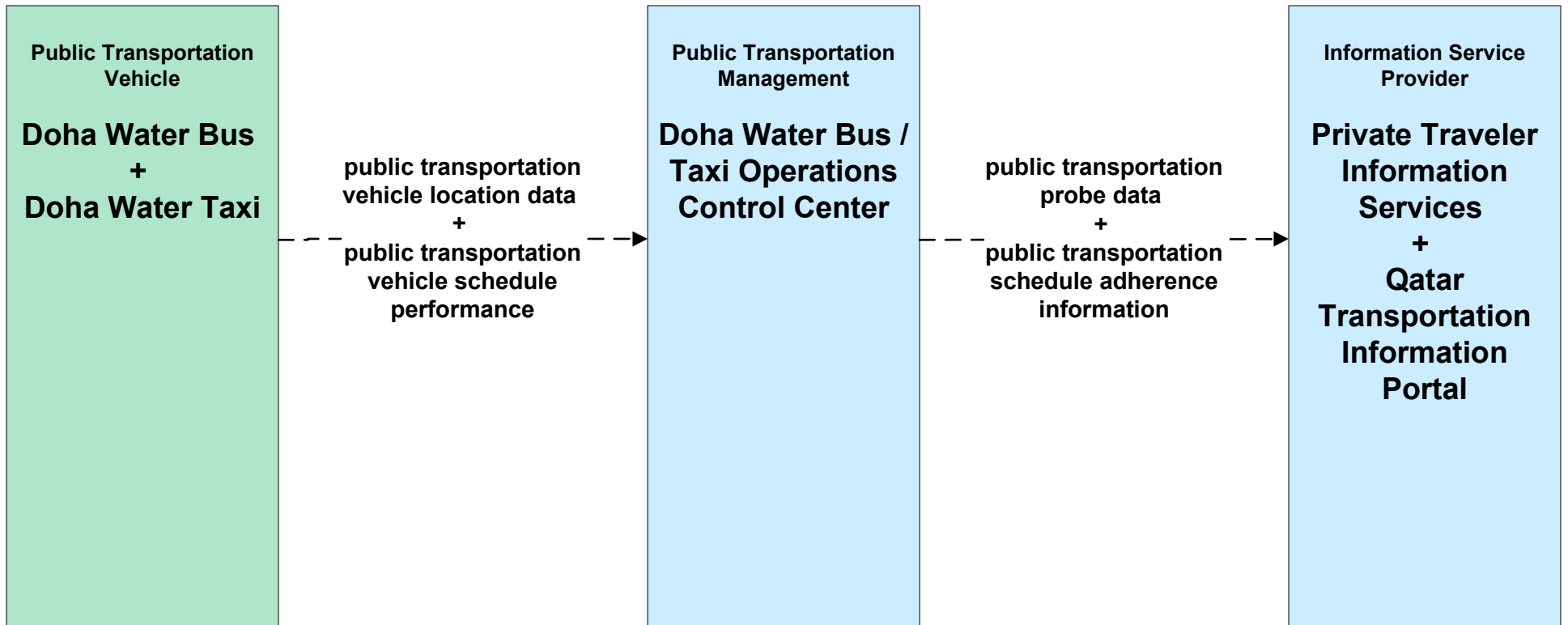
**APTS01 - Public Transportation Vehicle Tracking
West Bay LRT**



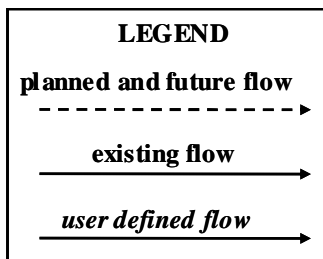
**APTS01 - Public Transportation Vehicle Tracking
Mowasalat Paratransit**



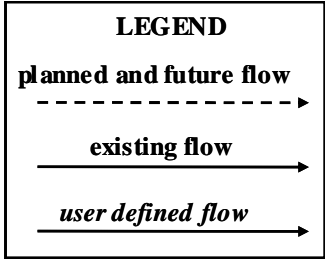
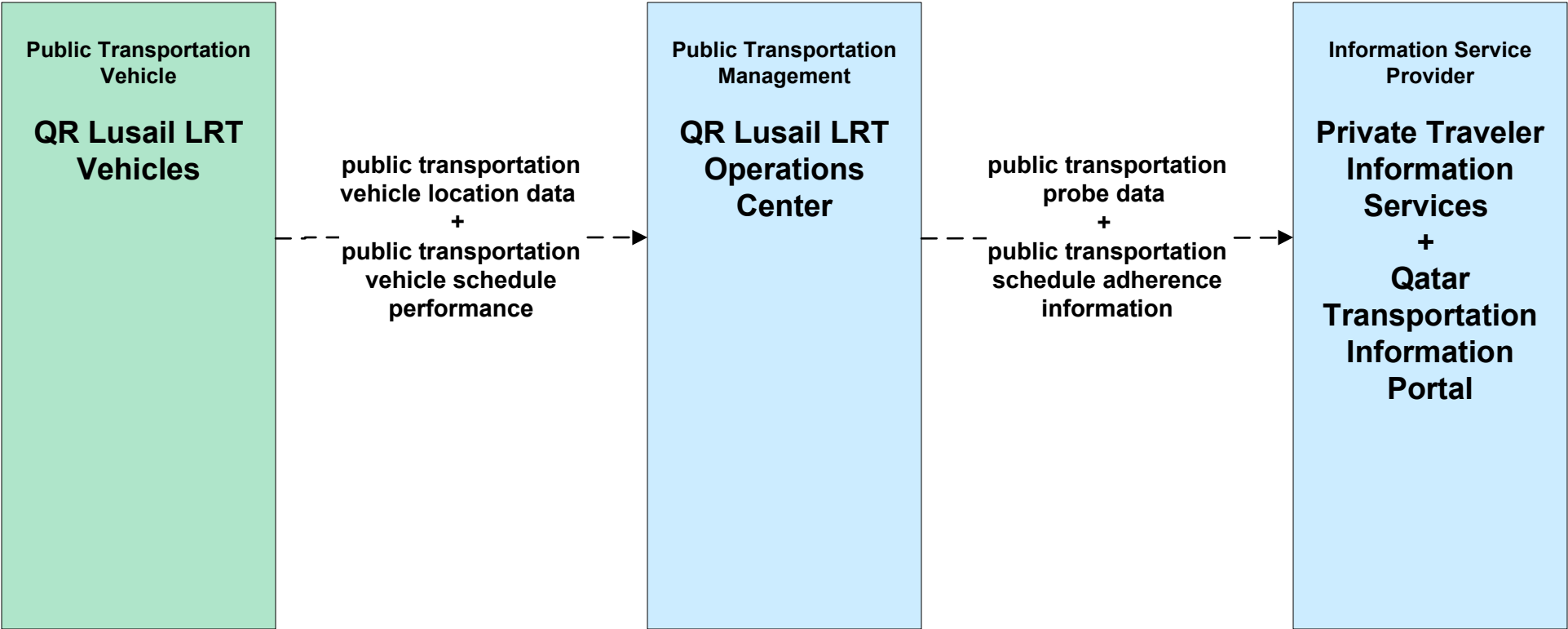
APTS01 - Public Transportation Vehicle Tracking Doha Bay Water Bus and Taxi



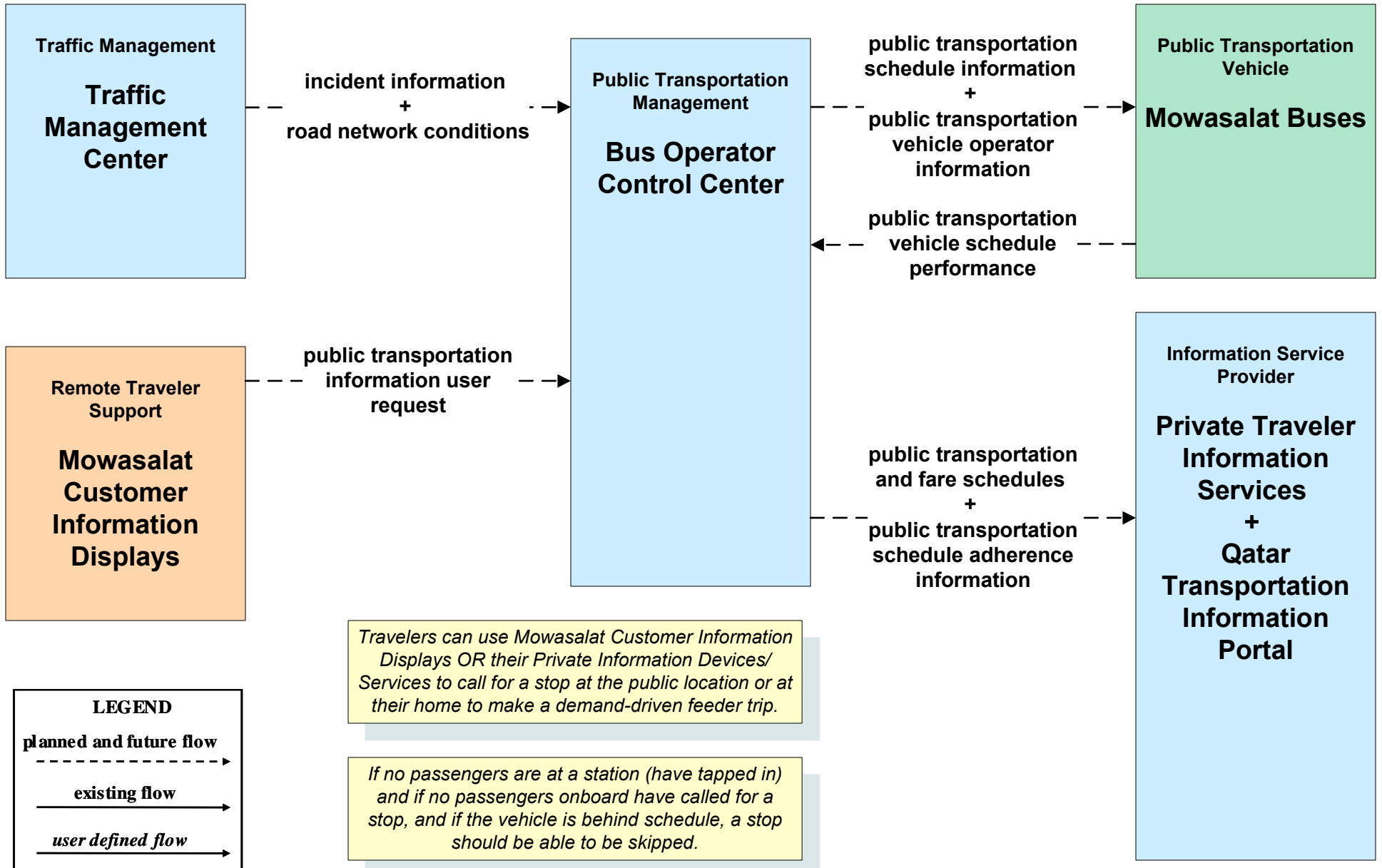
If no passengers are at a station (have tapped in) and if no passengers onboard have called for a stop, and if the vehicle is behind schedule, a stop should be able to be skipped.



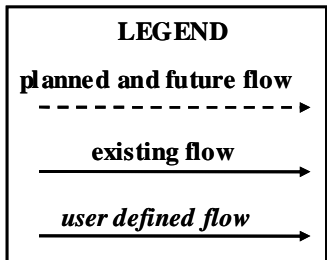
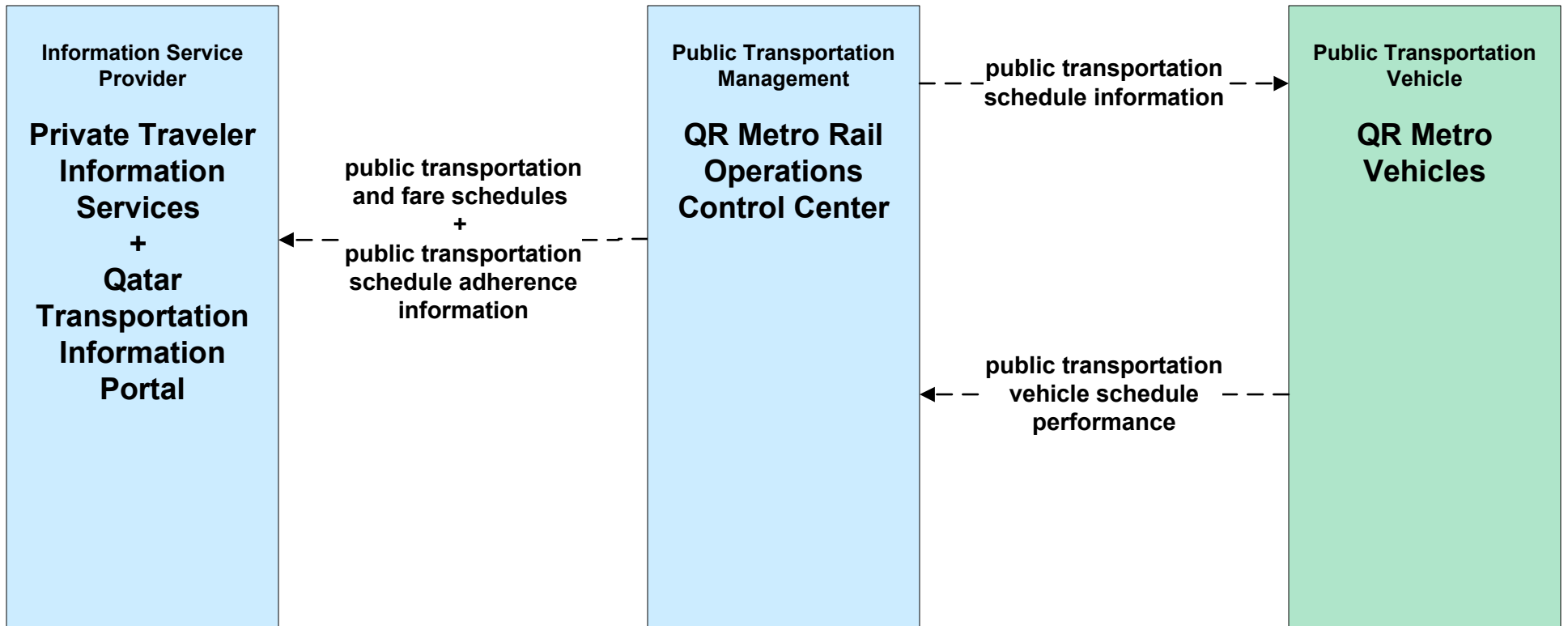
**APTS01 - Public Transportation Vehicle Tracking
Lusail LRT**



APTS02 - Public Transportation Fixed-Route Operations Mowasalat Bus



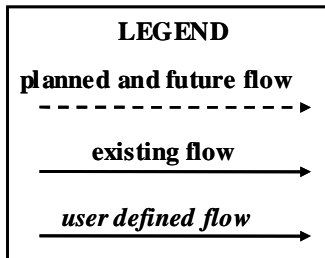
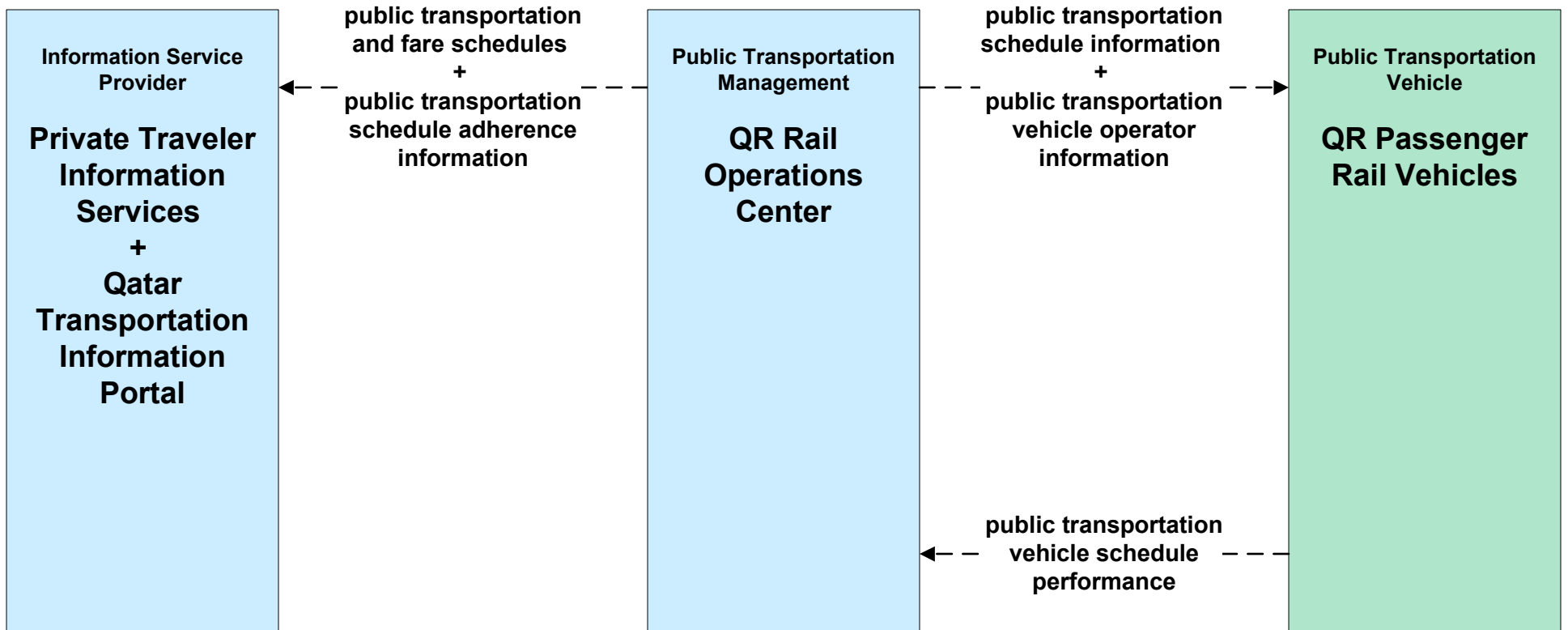
APTS02 - Public Transportation Fixed-Route Operations QR Metro Rail Operations Control Center



If no passengers are at a station (have tapped in) and if no passengers onboard have called for a stop, and if the vehicle is behind schedule, a stop should be able to be skipped.

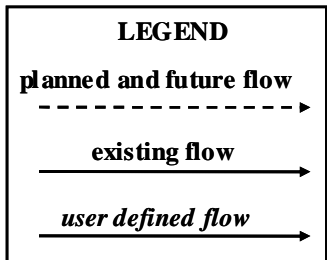
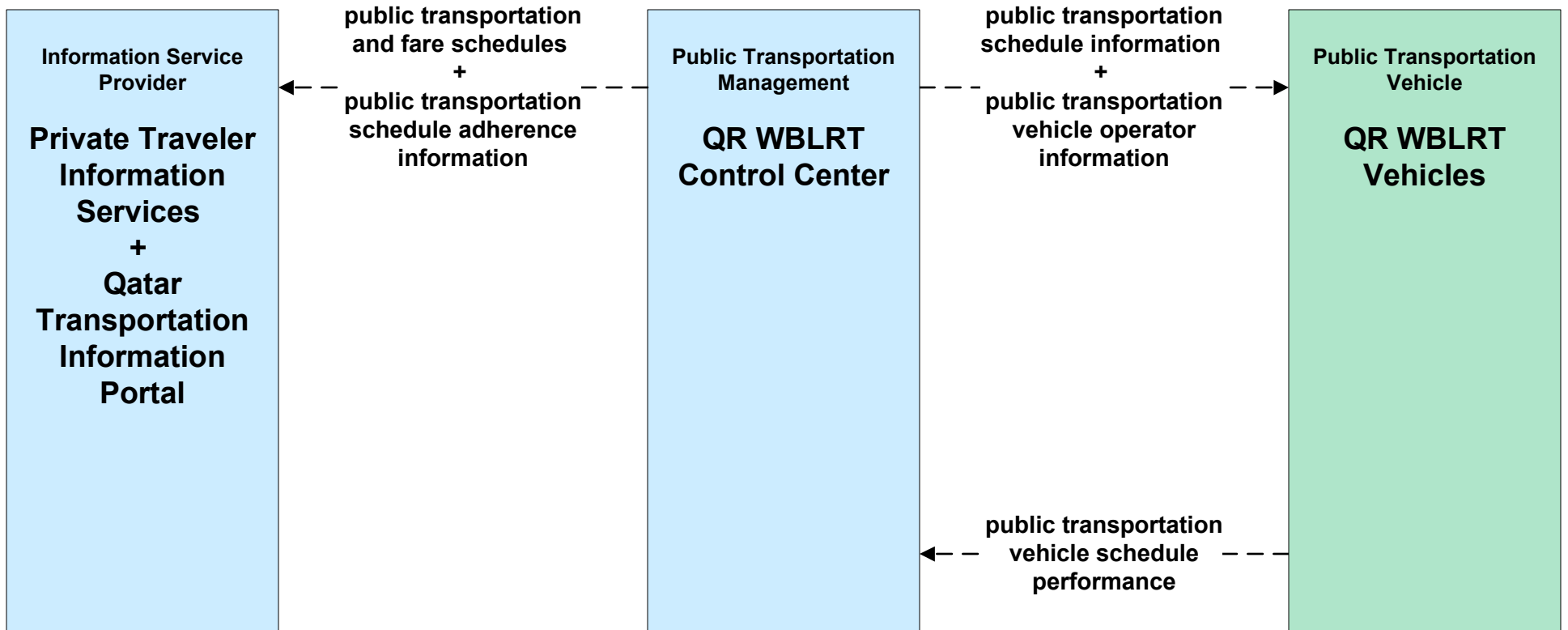
No Driver Expected on Metro (different on the LRTs)

APTS02 - Public Transportation Fixed-Route Operations Qatar Passenger Rail



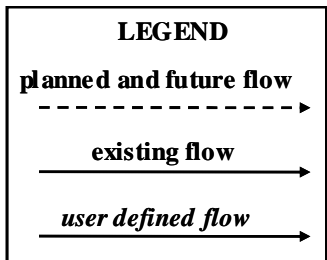
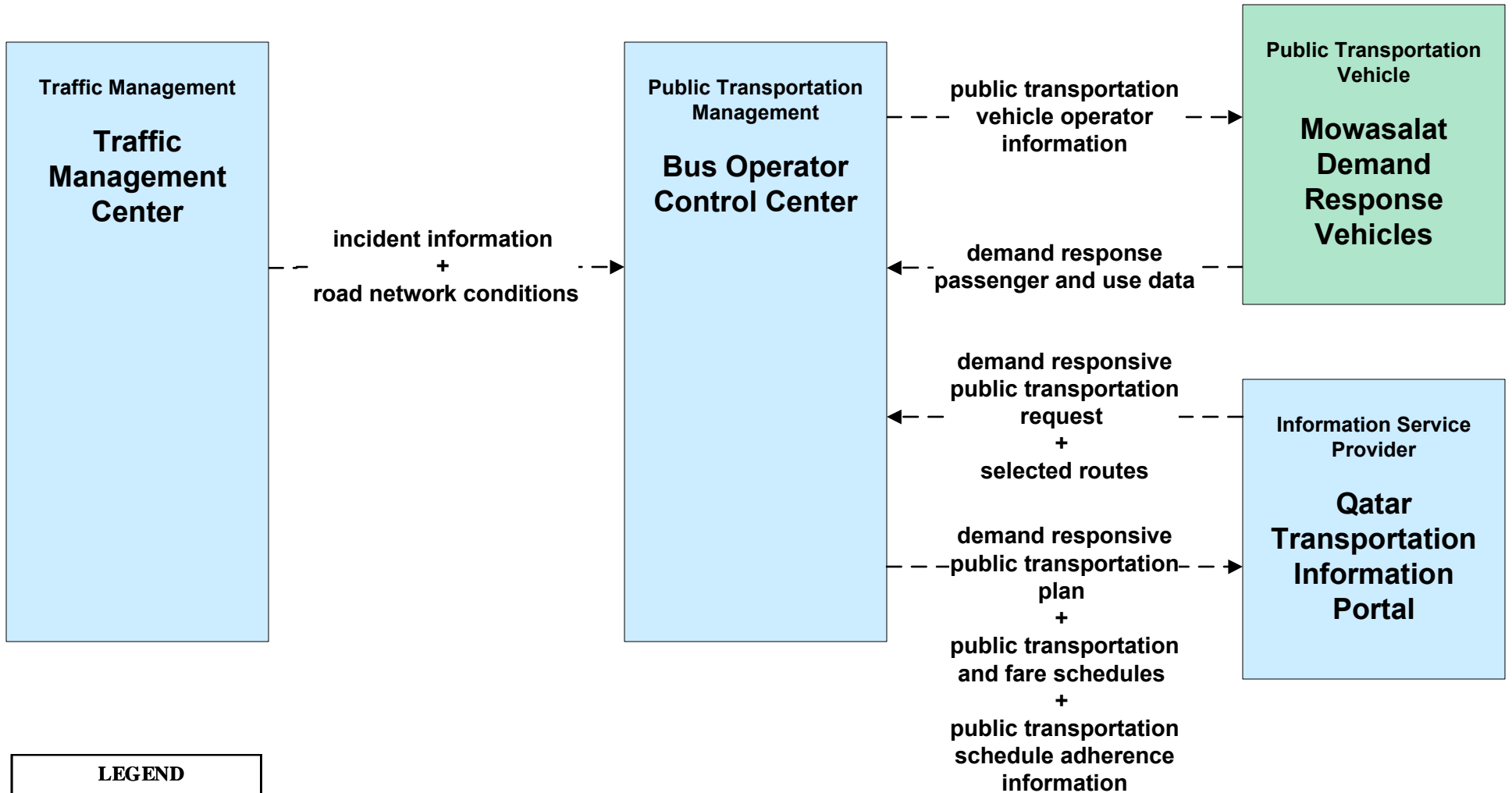
If no passengers are at a station (have tapped in) and if no passengers onboard have called for a stop, and if the vehicle is behind schedule, a stop should be able to be skipped.

APTS02 - Public Transportation Fixed-Route Operations WBLRT

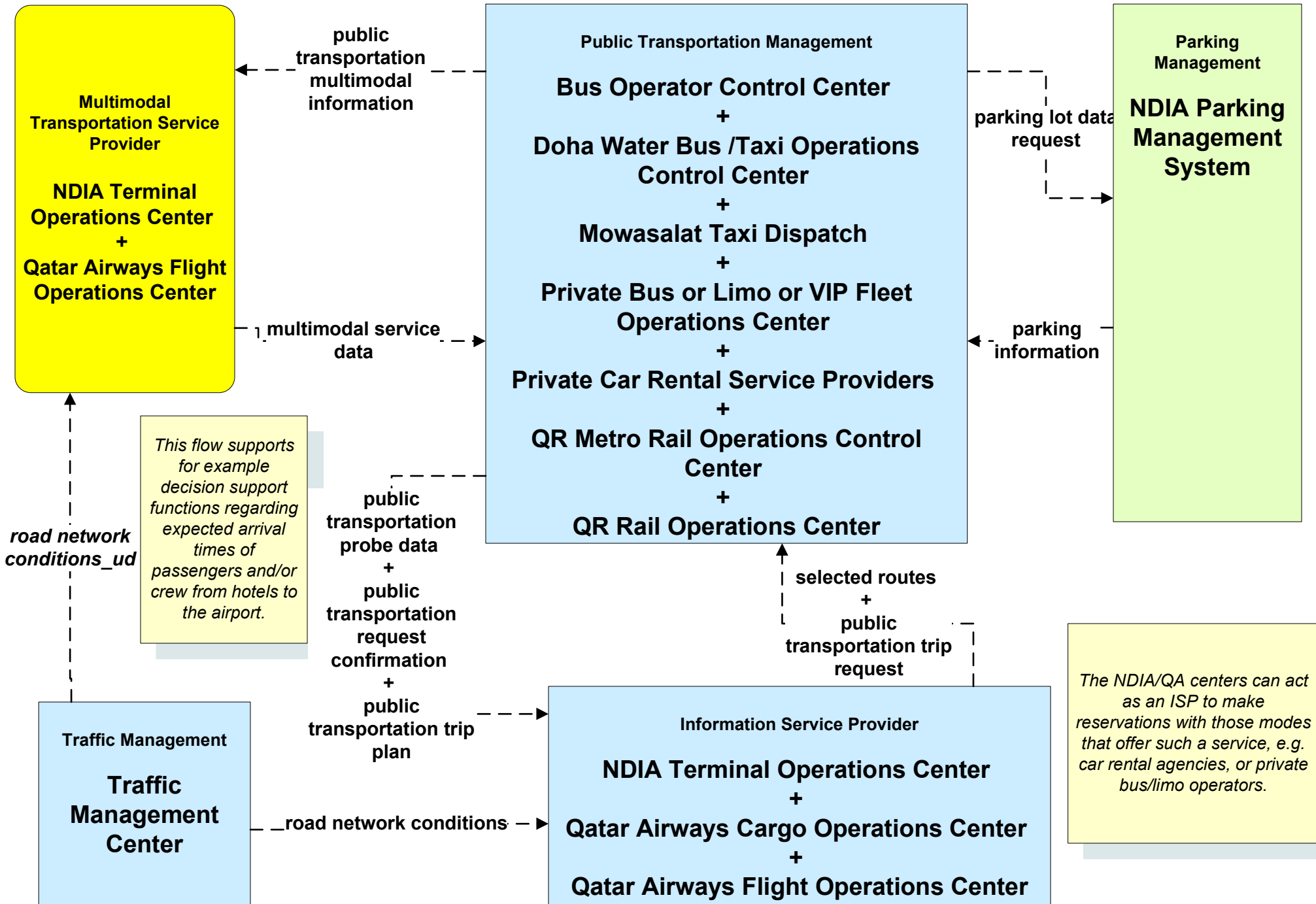


If no passengers are at a station (have tapped in) and if no passengers onboard have called for a stop, and if the vehicle is behind schedule, a stop should be able to be skipped.

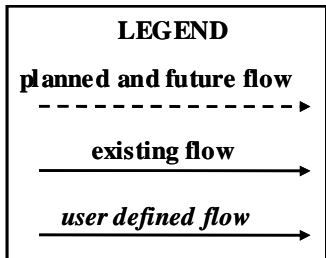
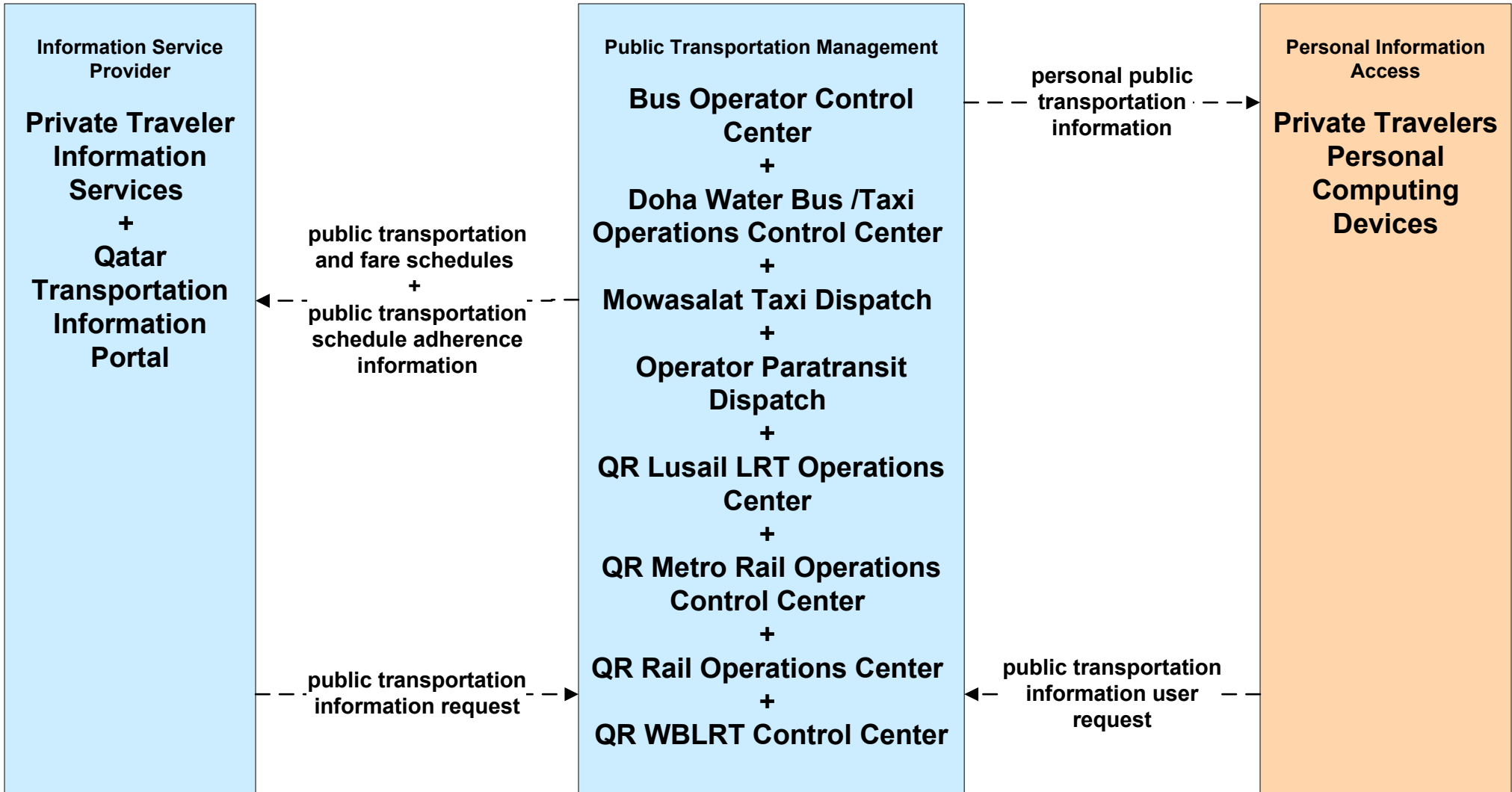
**APTS03 - Demand Response Public Transportation Operations
Mowasalat Demand Response**



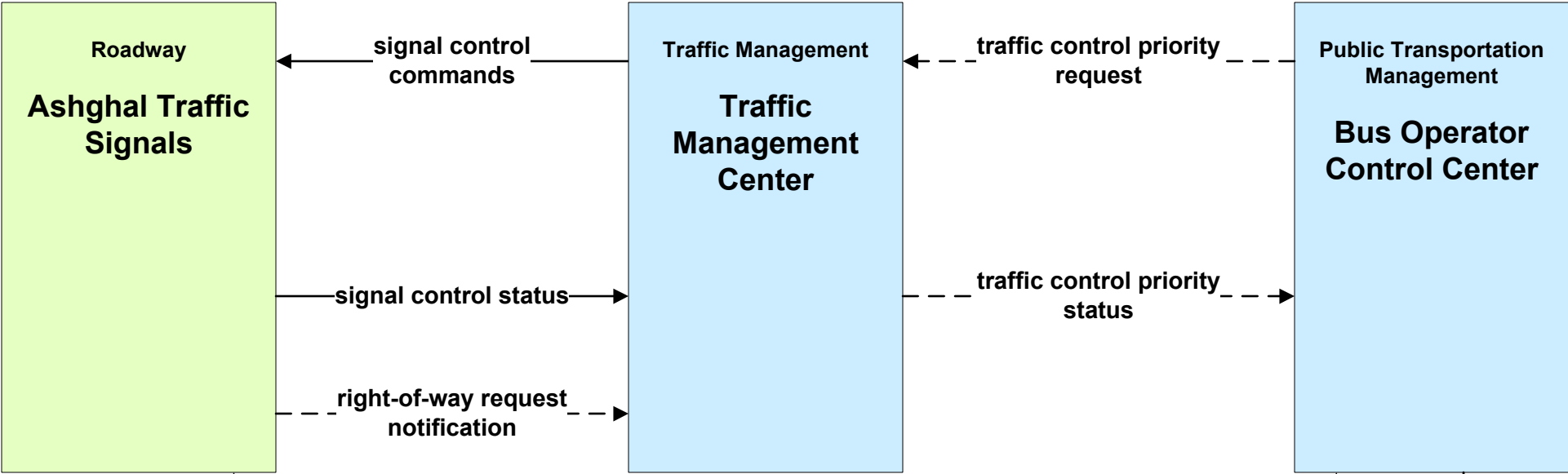
APTS07 - Multimodal Coordination NDIA



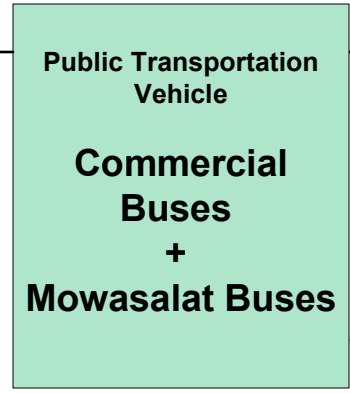
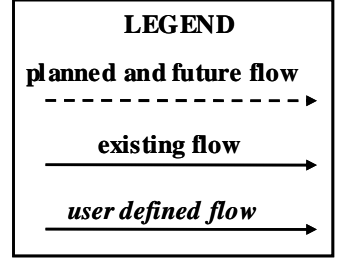
**APTS08 - Public Transportation Traveler Information
Private Traveler Information**



APTS09 - Public Transportation Signal Priority Mowasalat Buses

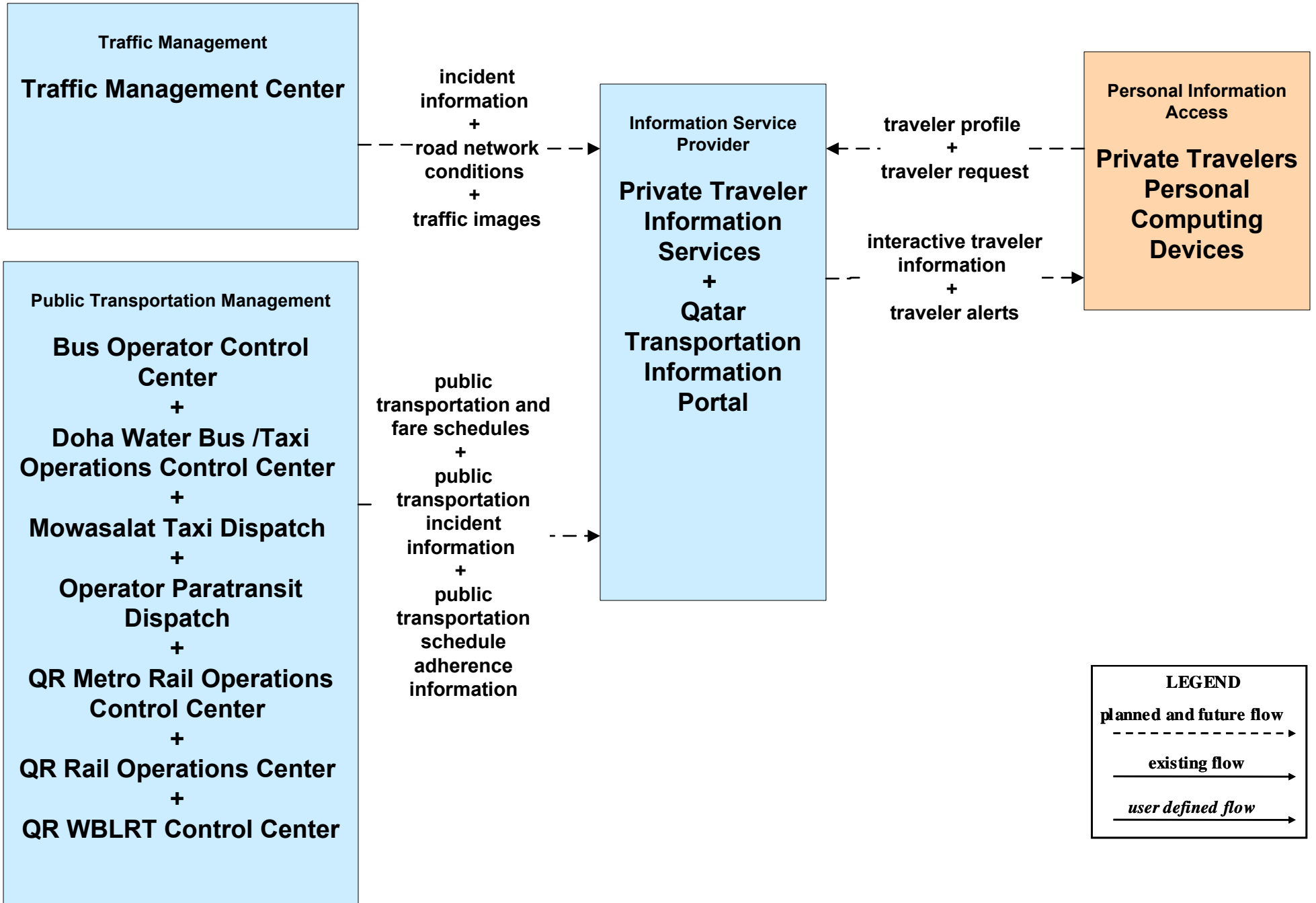


Need to determine if signal priority will be DSRC or C2C.

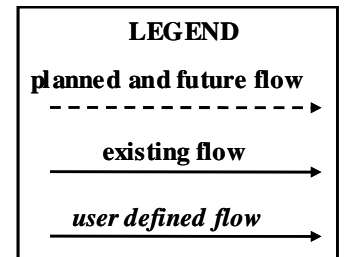
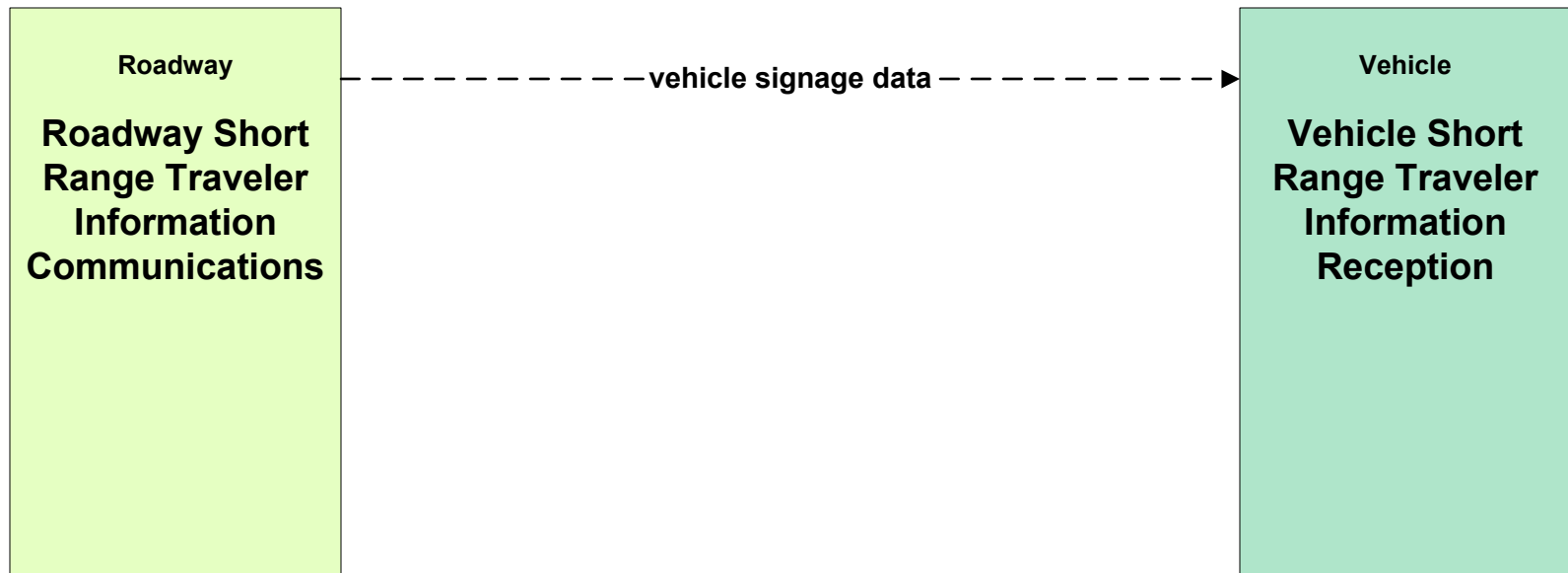


public transportation schedule information

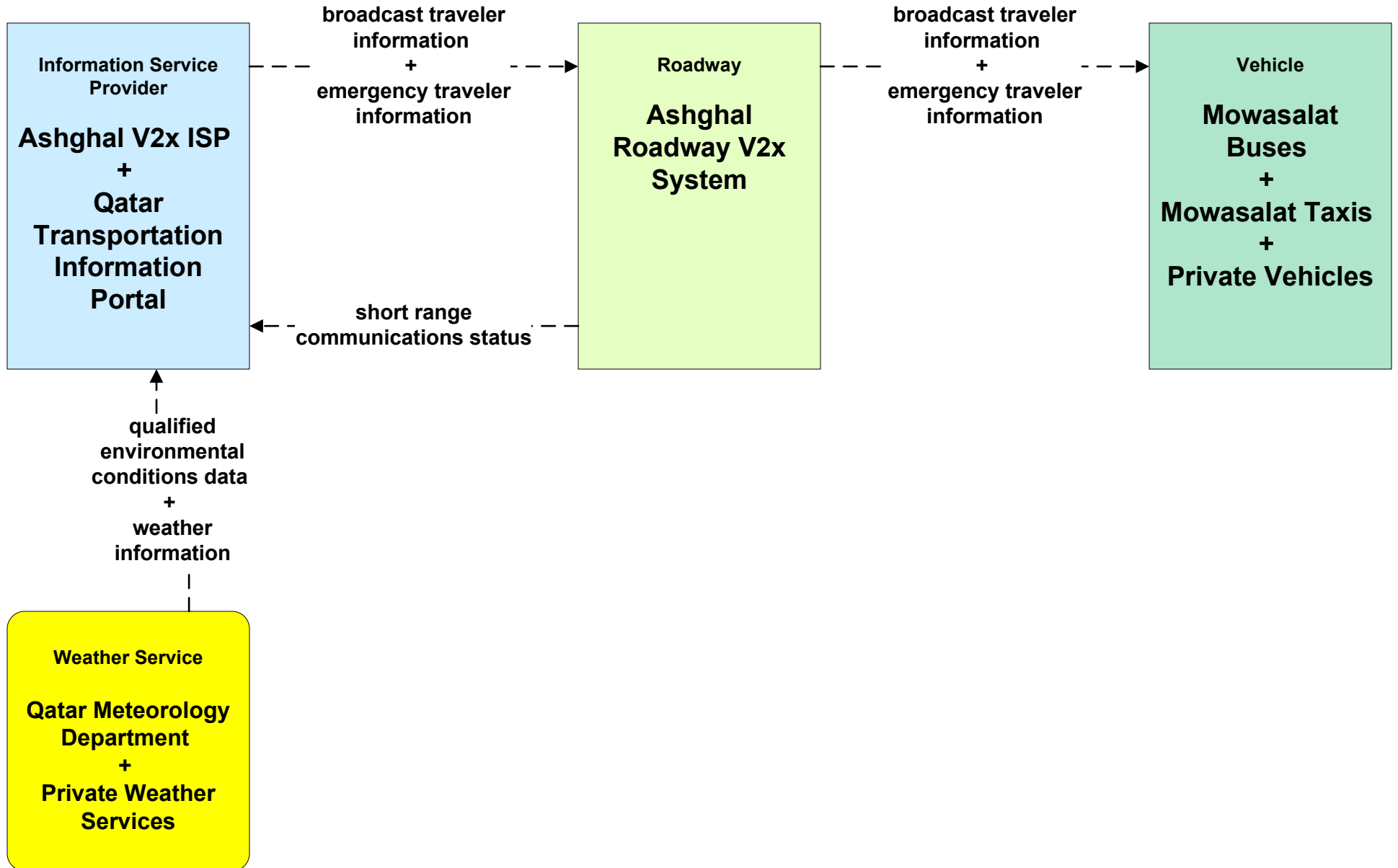
ATIS02 - Interactive Traveler Information



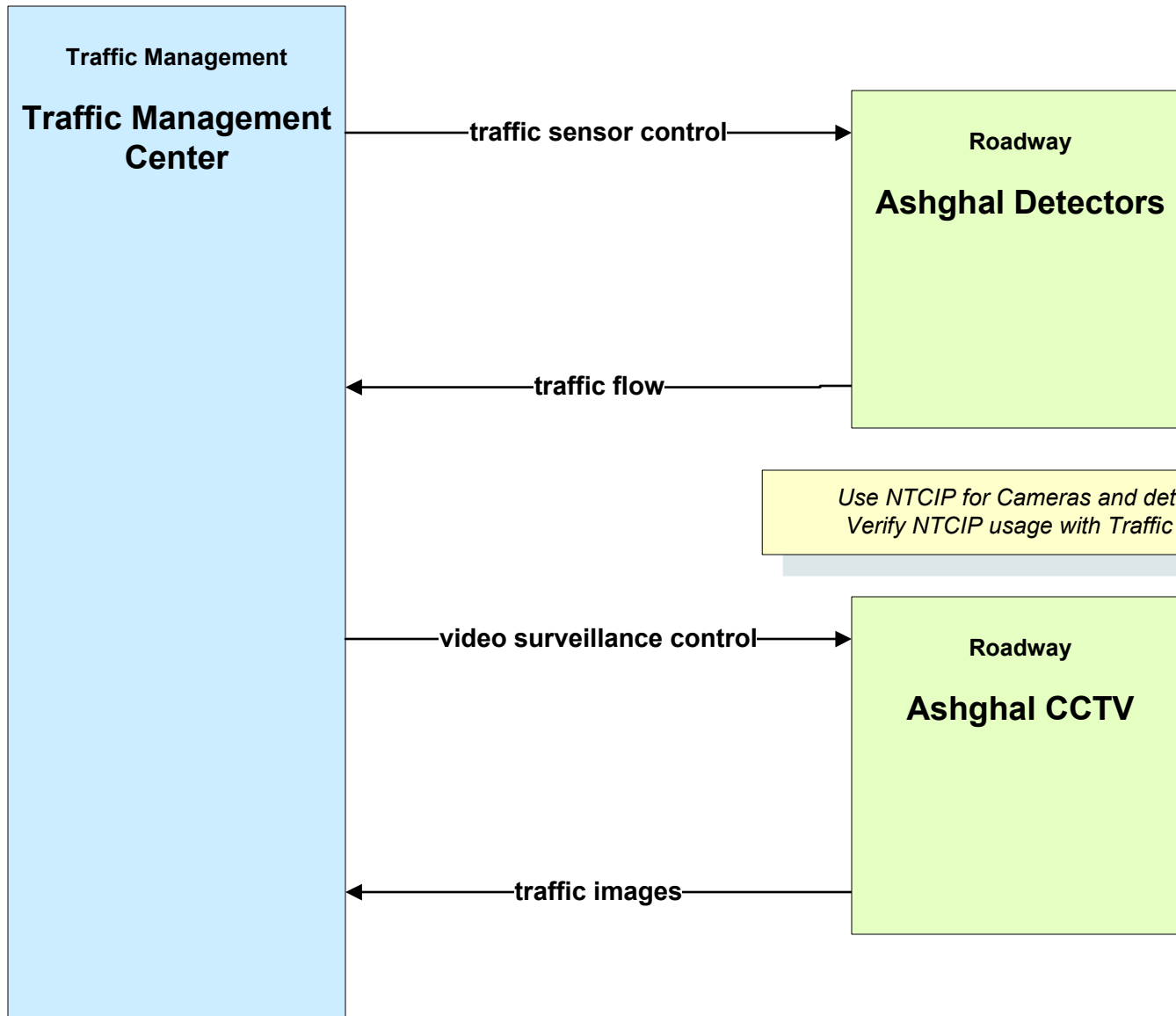
ATIS09 – In Vehicle Signing



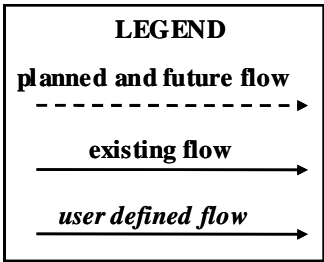
ATIS10 - SHORT Range Communications Traveler Information



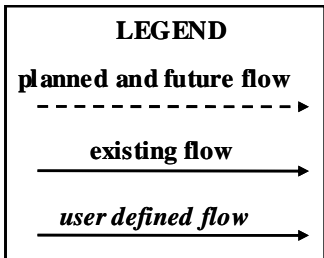
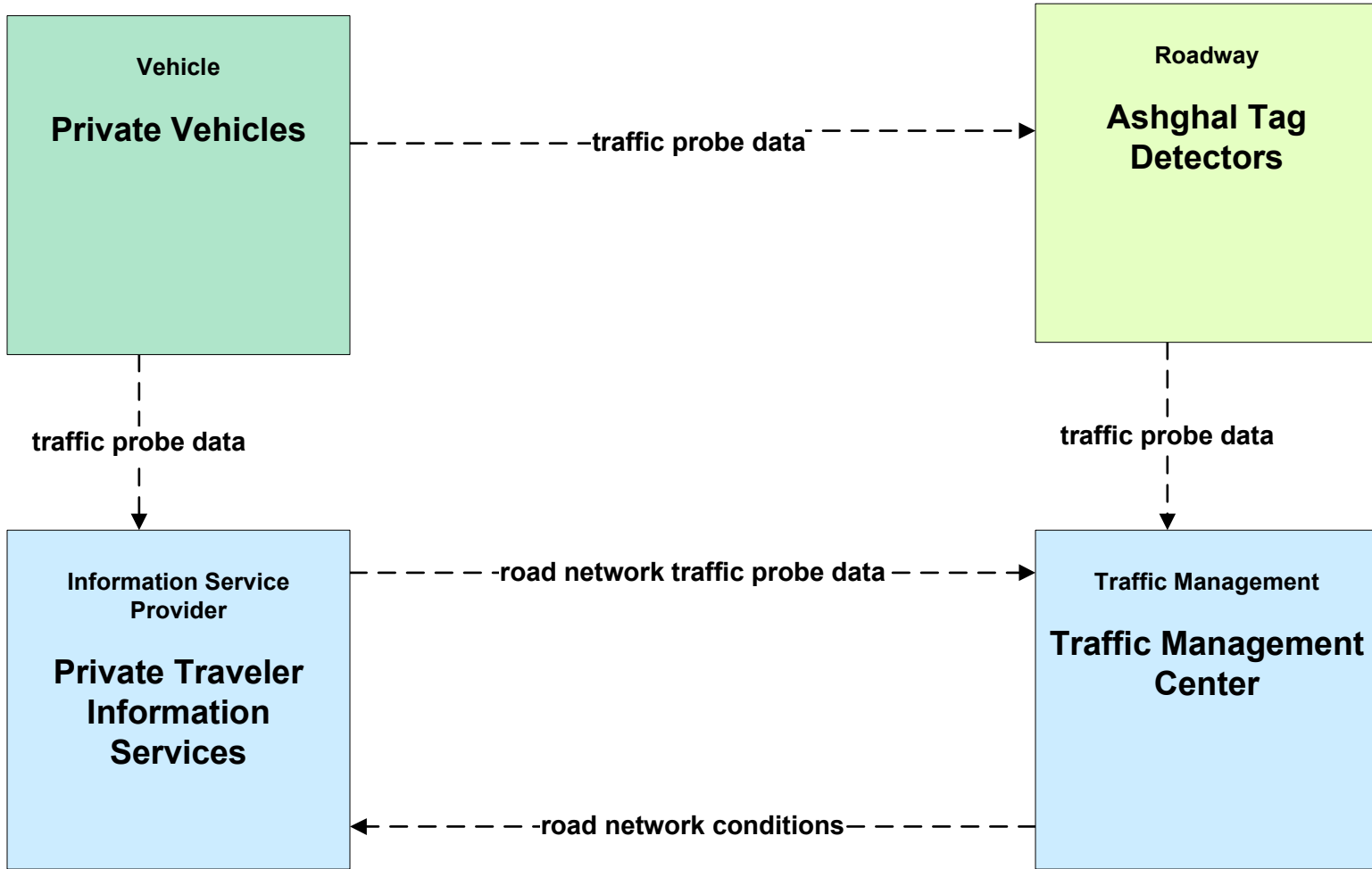
ATMS01 - Network Surveillance



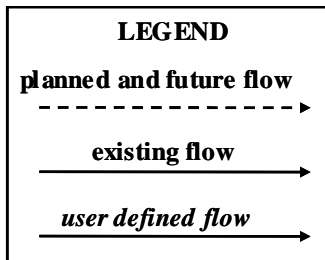
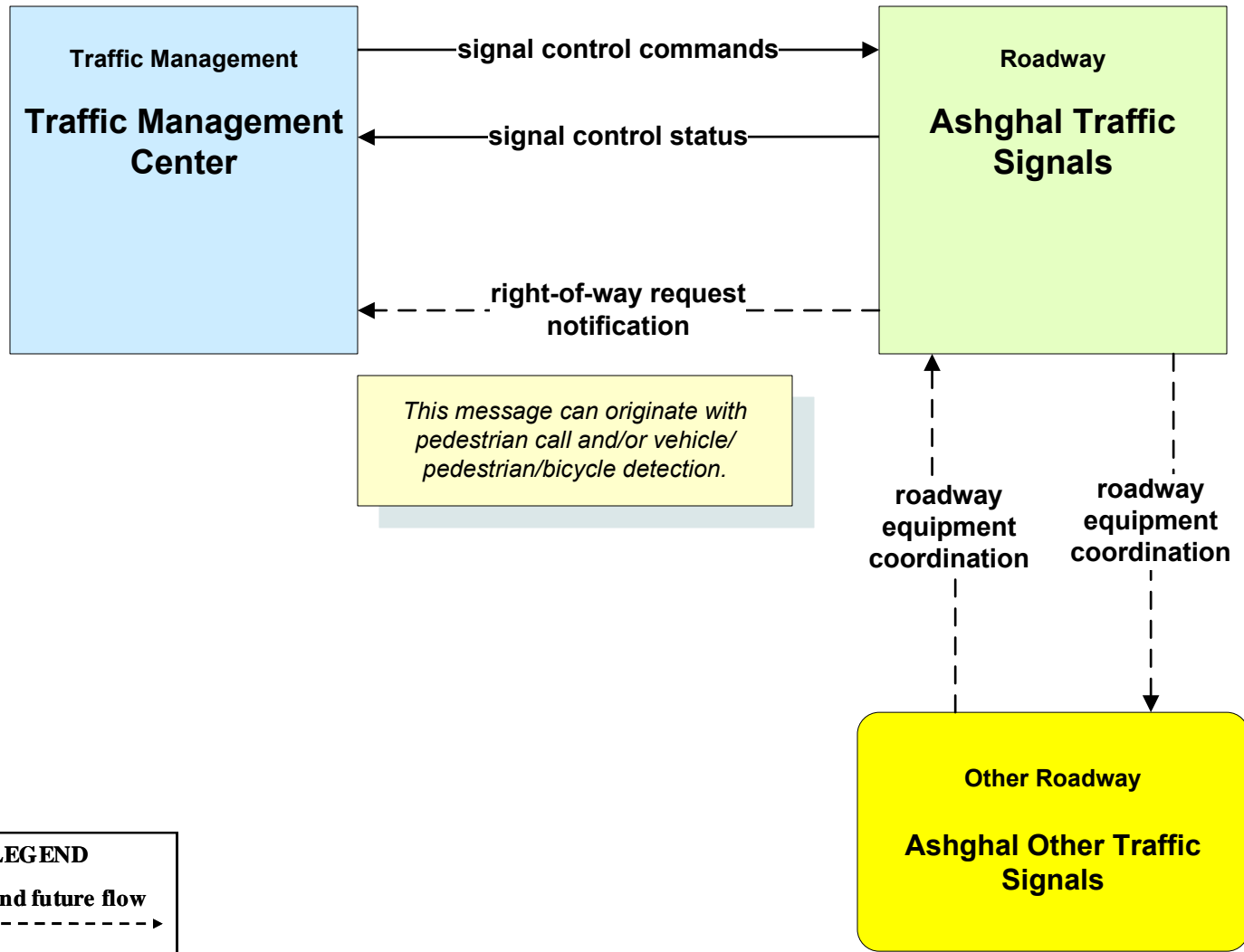
*Use NTCIP for Cameras and detectors.
Verify NTCIP usage with Traffic Tech.*



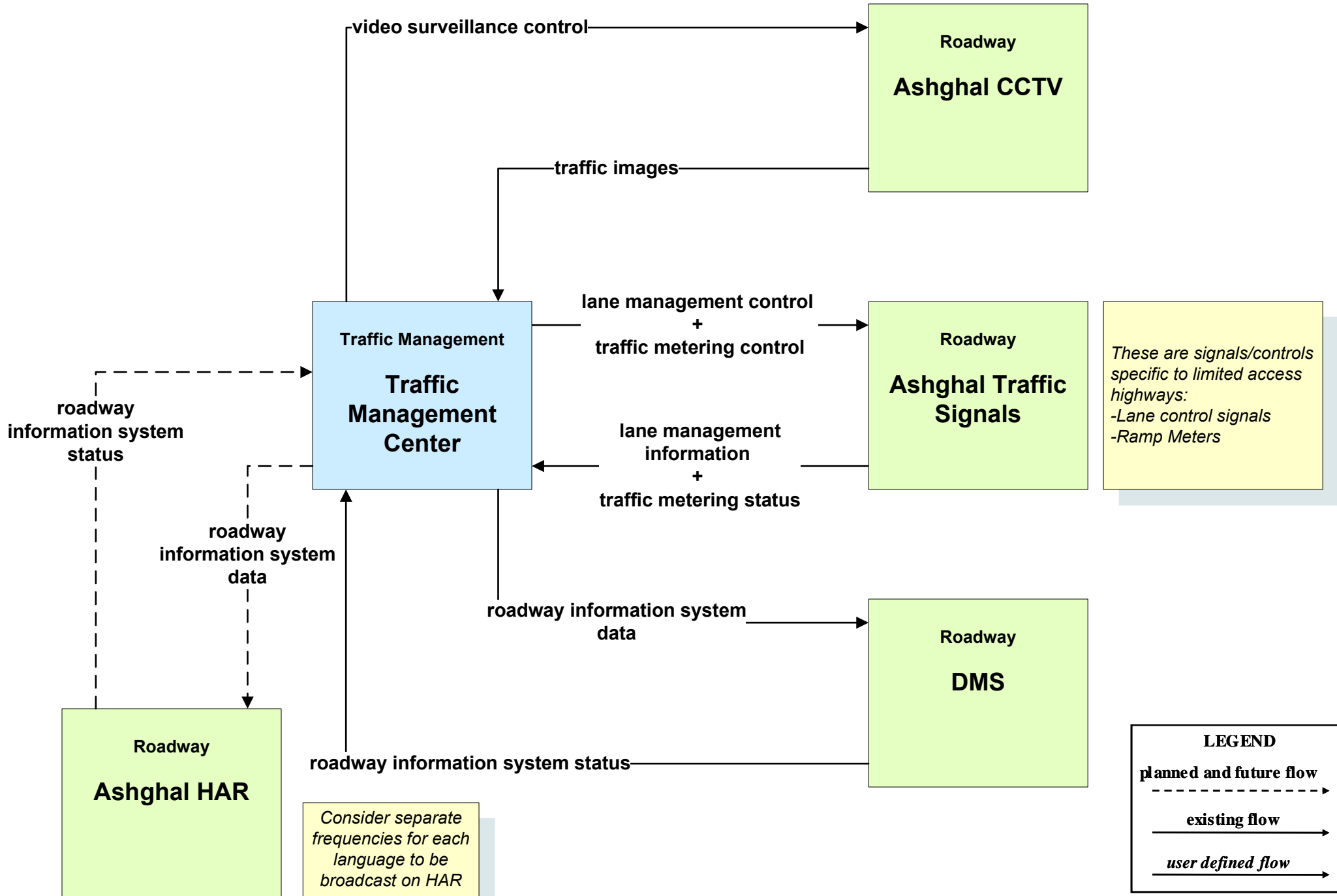
ATMS02 - Probe Surveillance



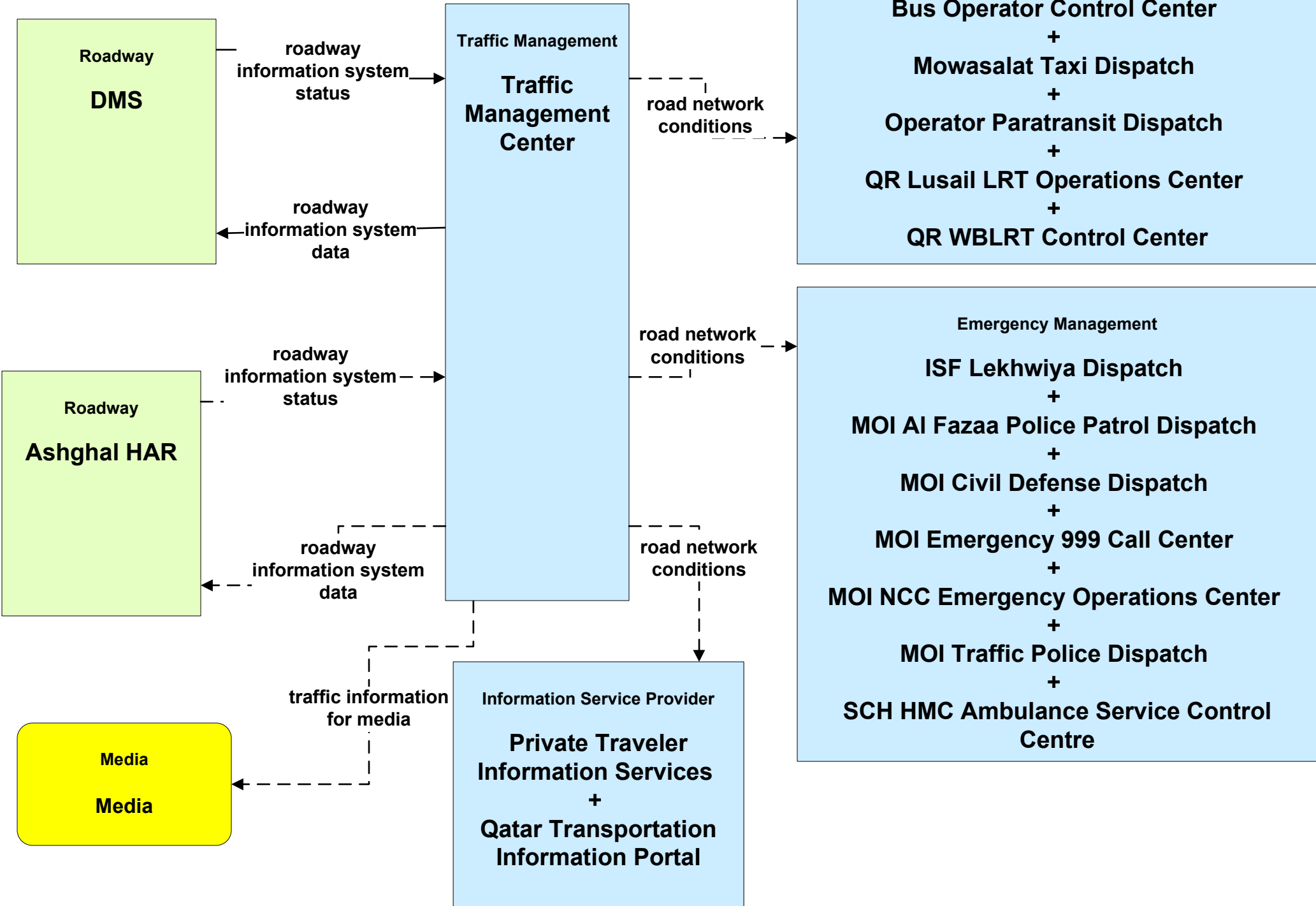
ATMS03 - Surface Street Control



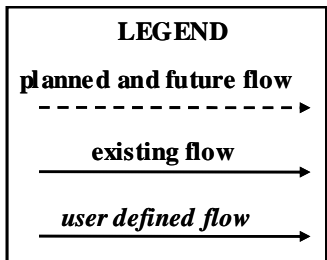
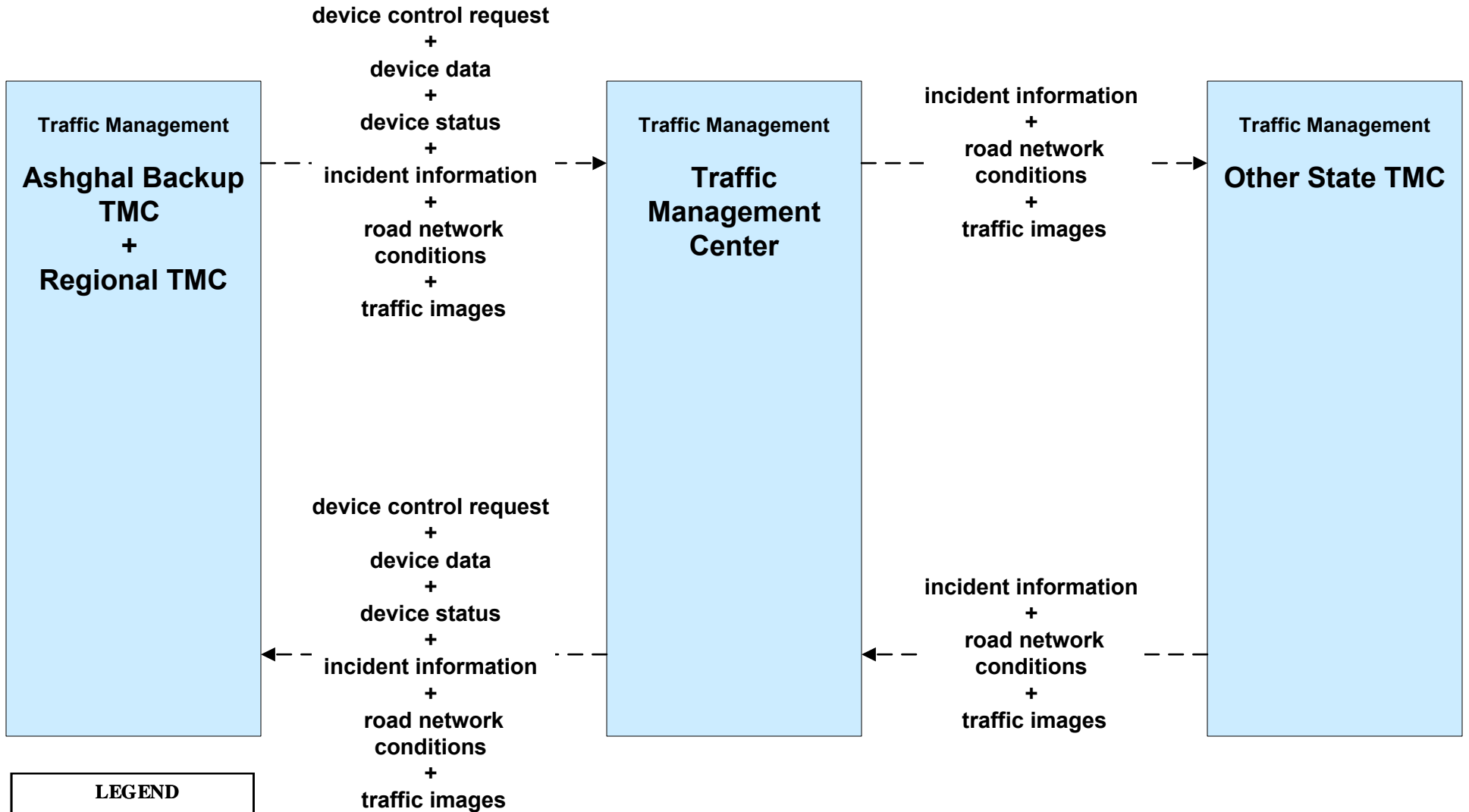
ATMS04 – Traffic Metering Qatar Expressway Management Systems



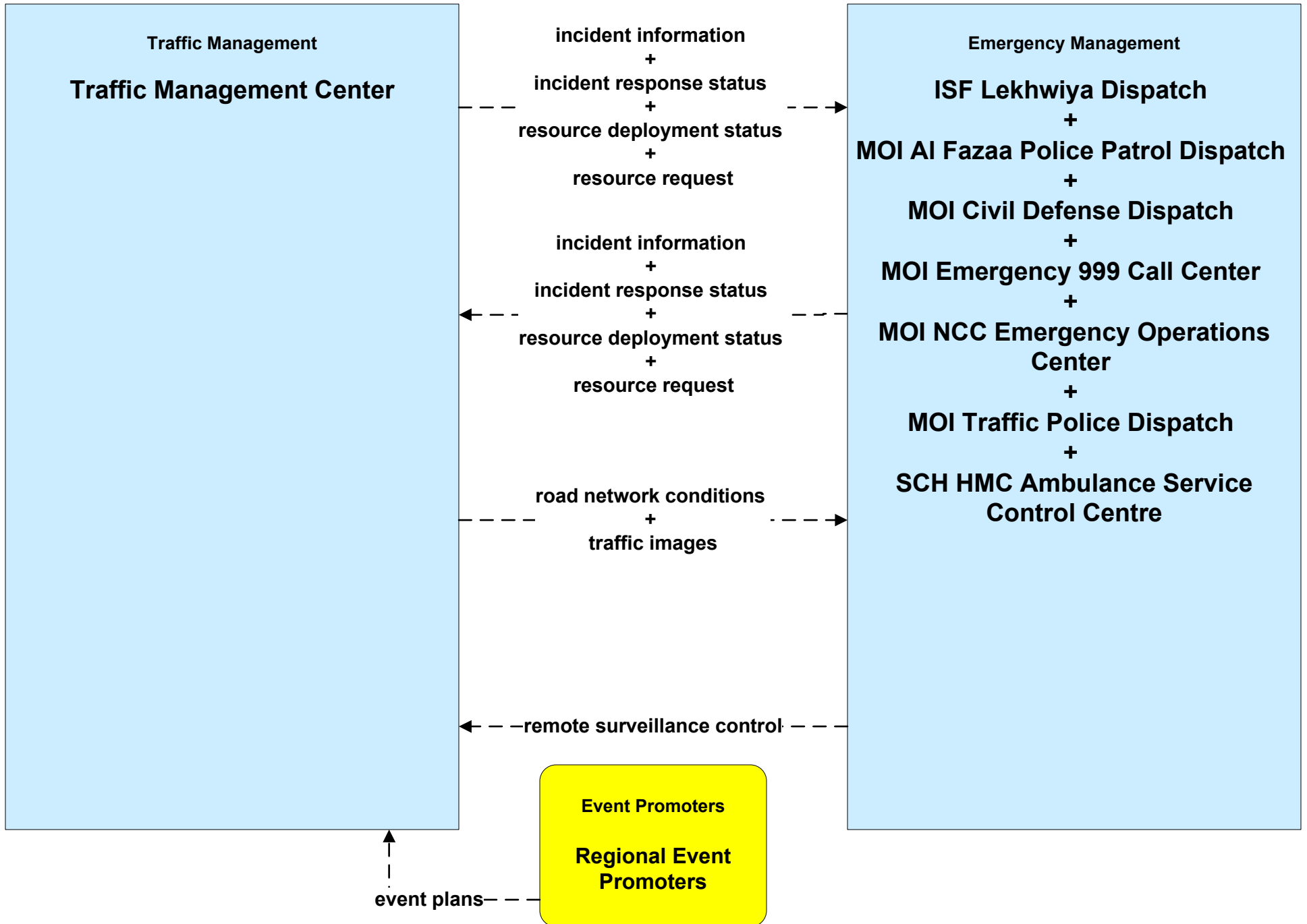
ATMS06 - Traffic Information Dissemination



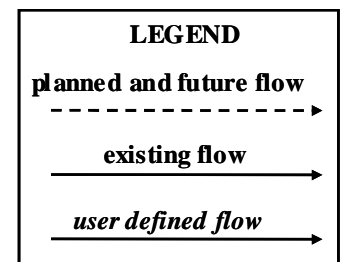
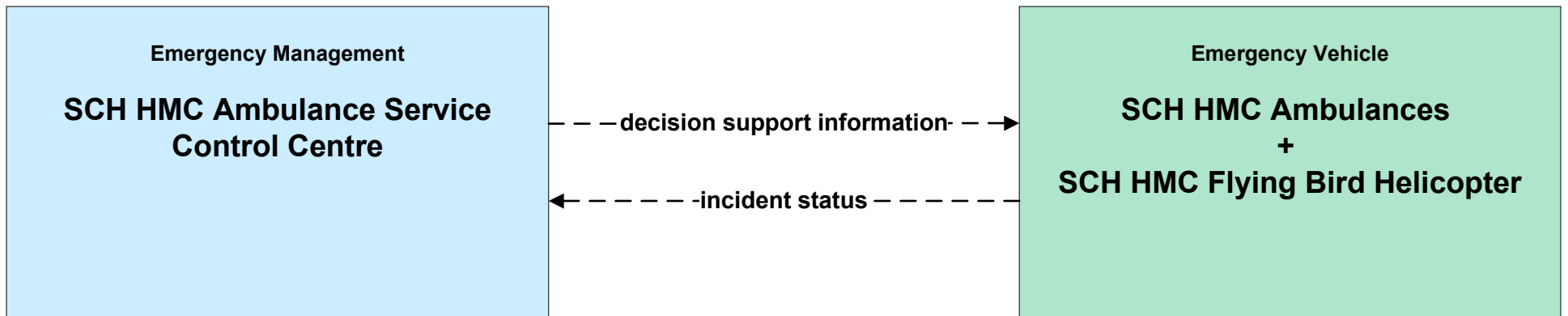
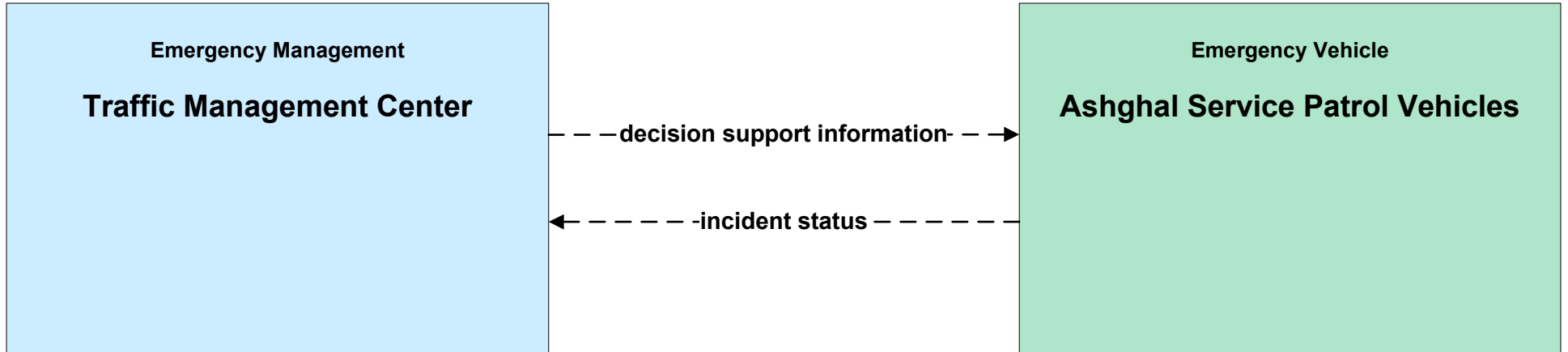
ATMS07 - Regional Traffic Control



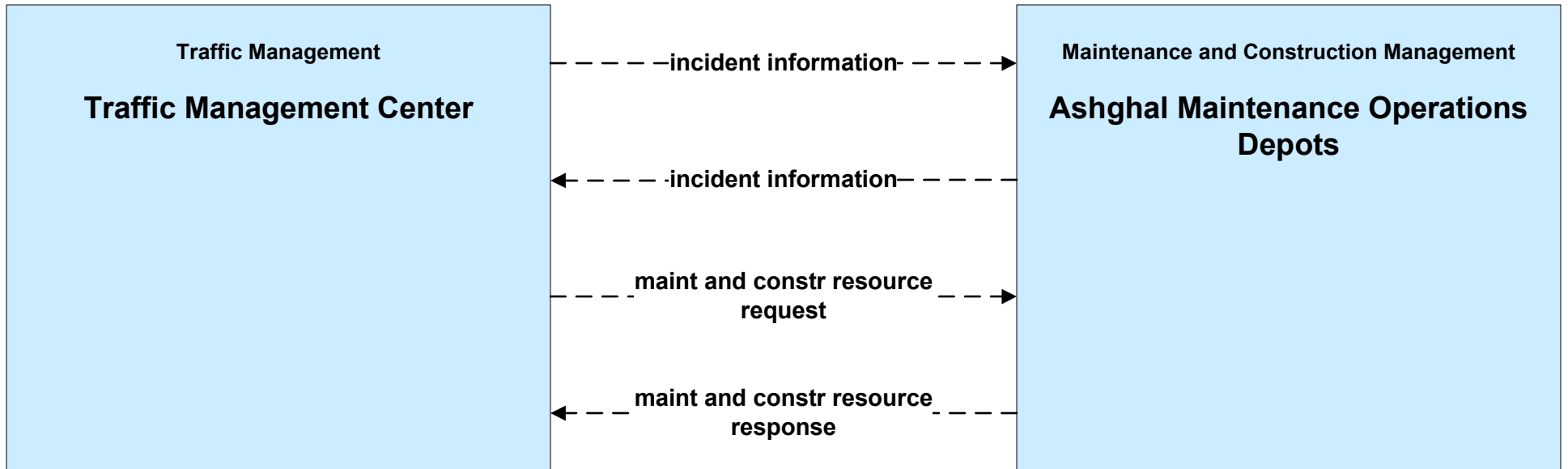
ATMS08 - Incident Management
TMC and Emergency Management Agencies and Event Promoters



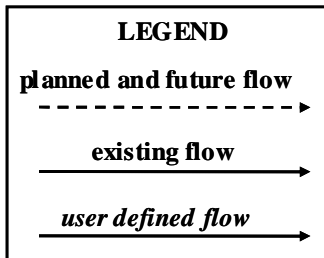
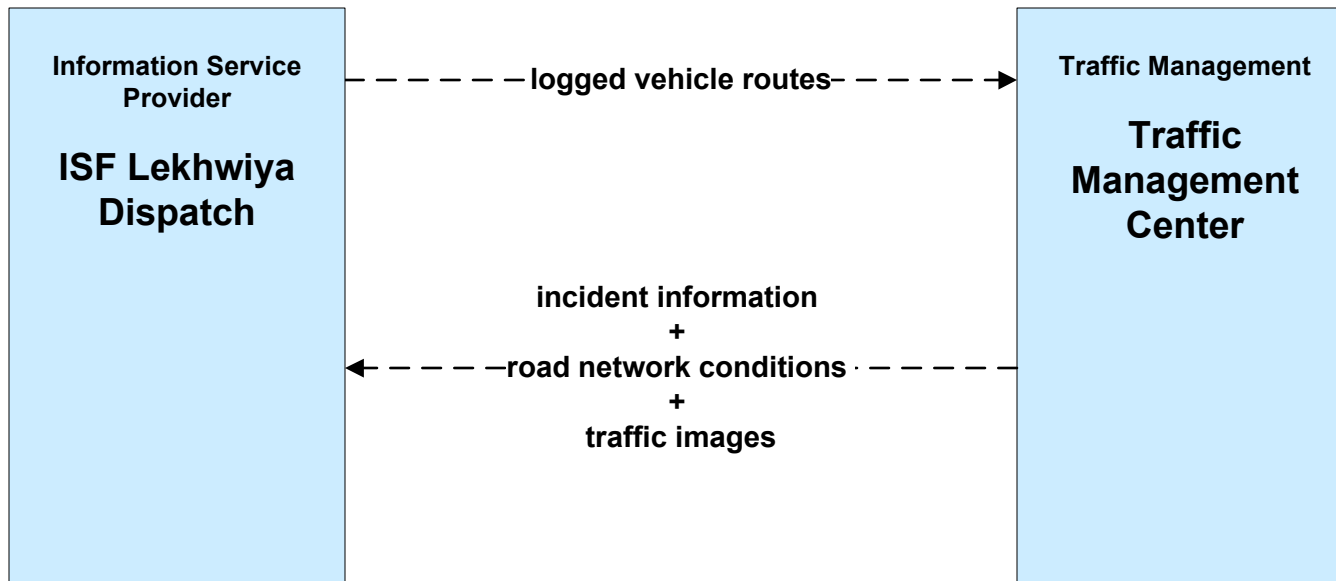
ATMS08 - Incident Management
Emergency Management Agencies and their Emergency Vehicles



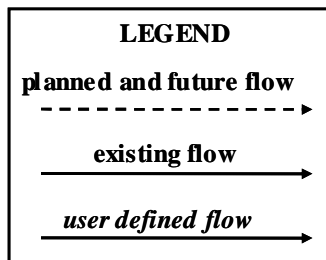
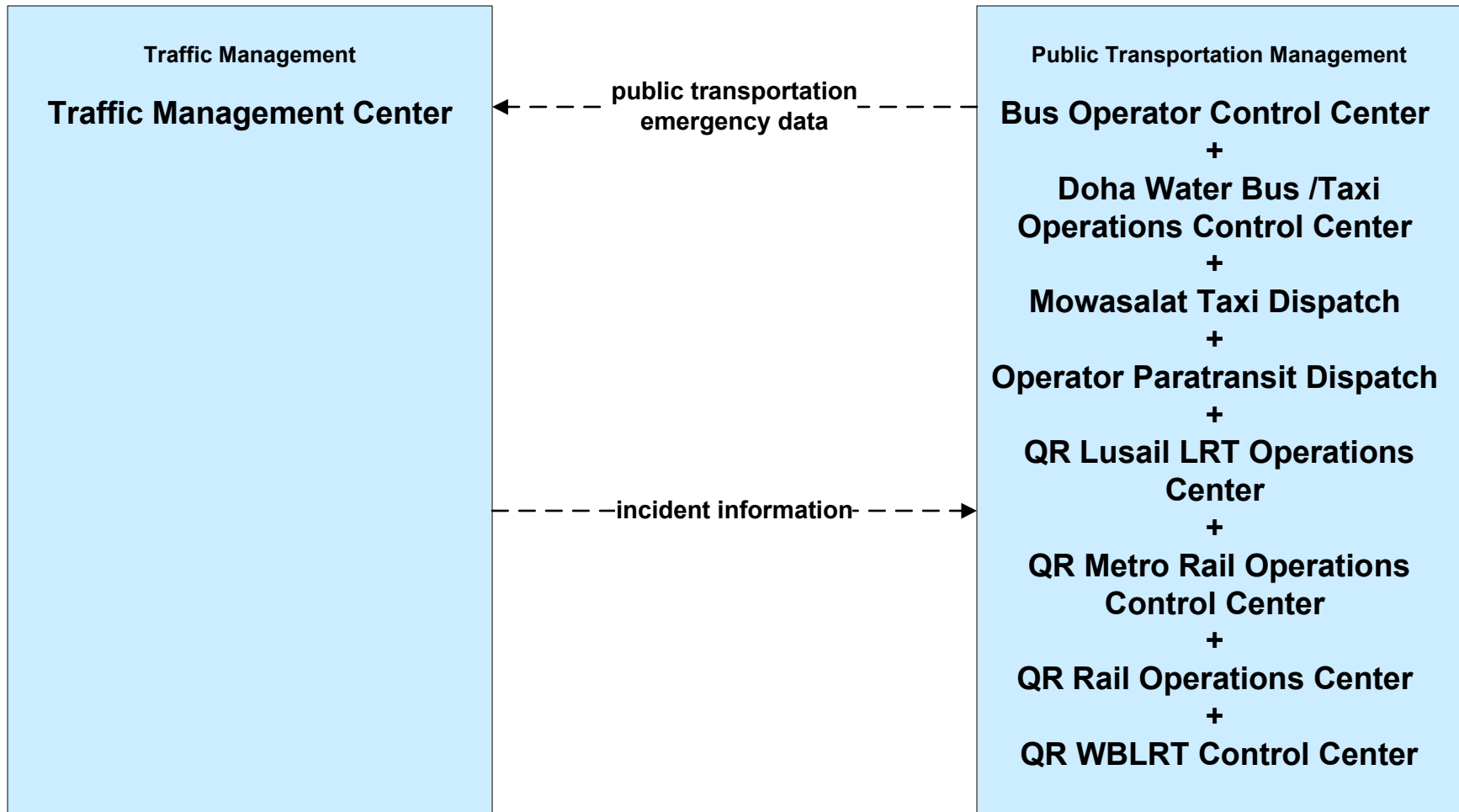
**ATMS08 - Incident Management
TMC to Maintenance Interface**



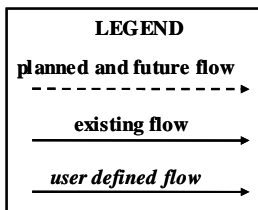
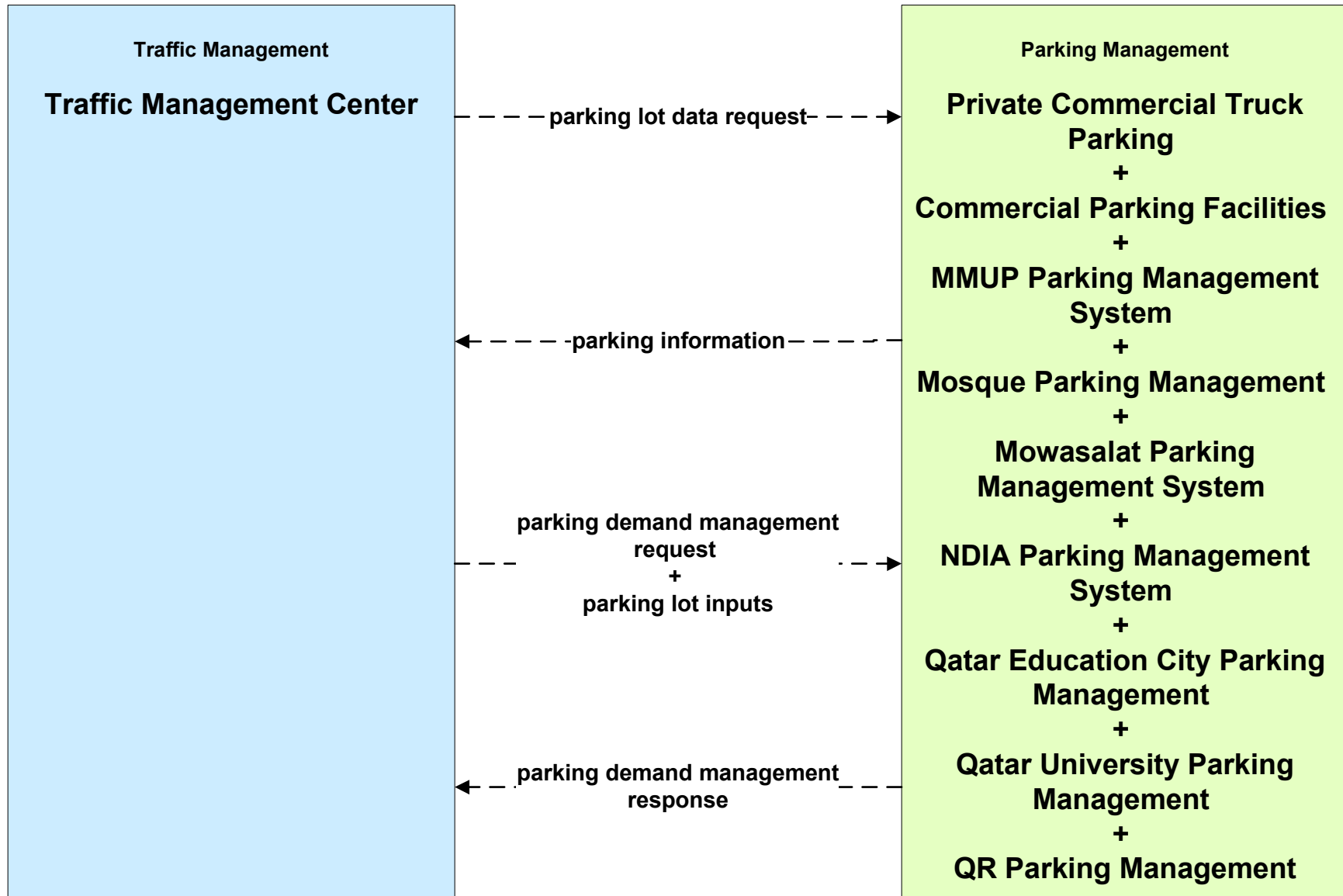
ATMS08 - Incident Management VVIP Motorcade Operations



ATMS08 - Incident Management Public Transportation Operations

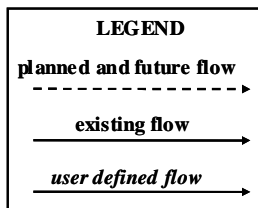
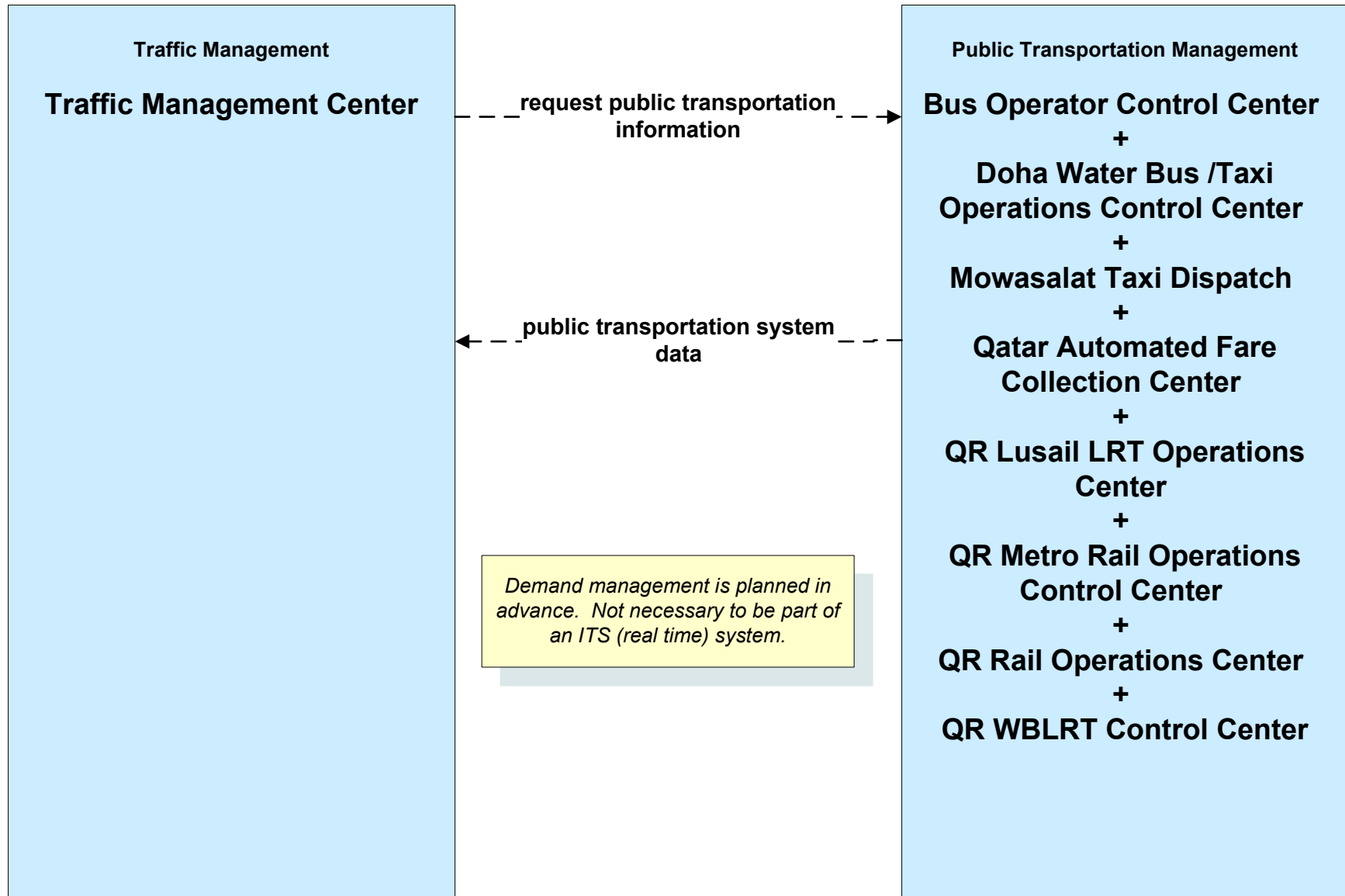


ATMS09 - Traffic Forecast and Demand Management Parking Management Systems for Special Events



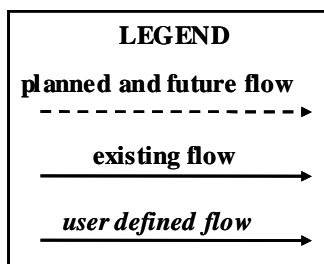
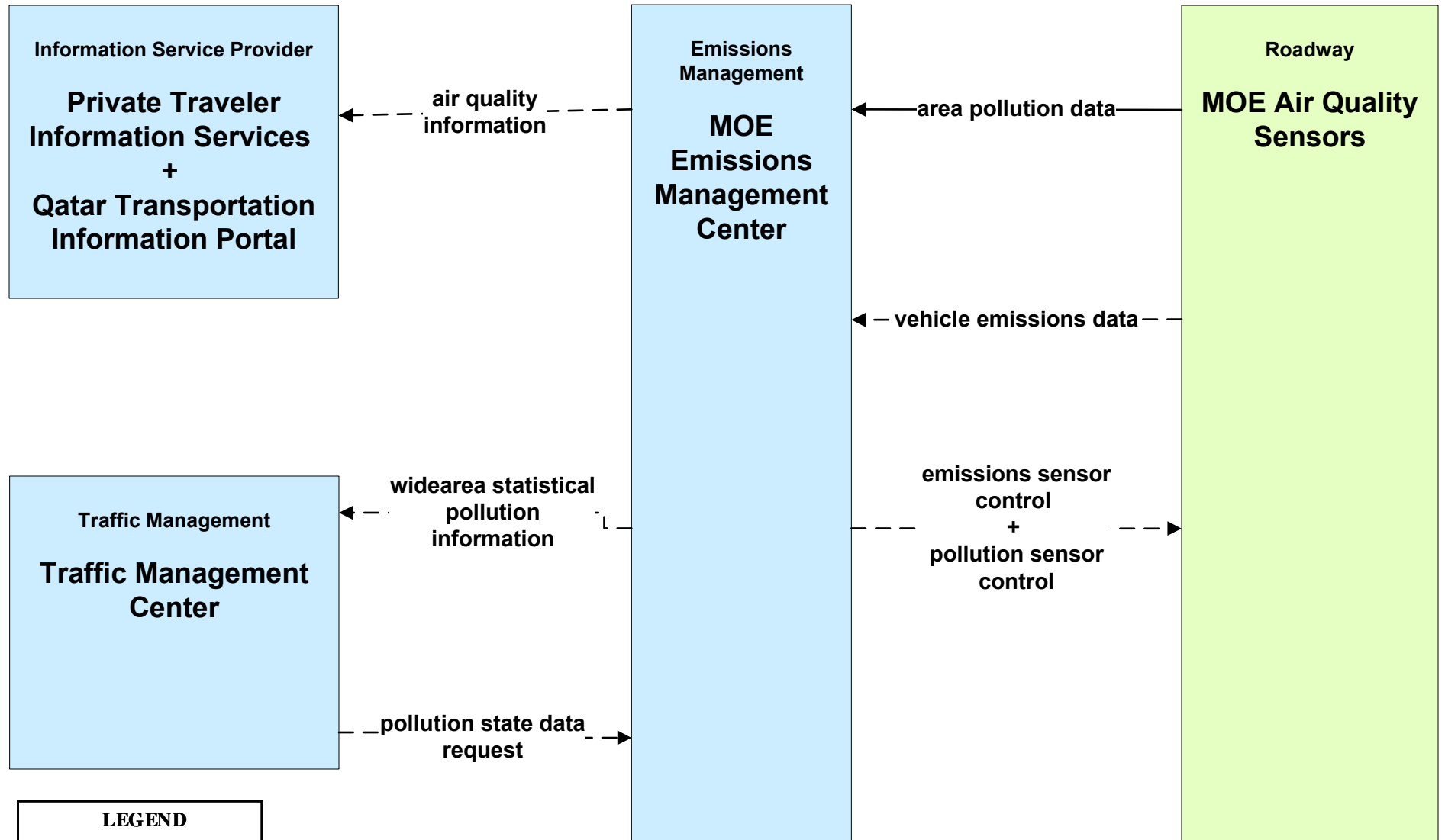
Will Ashghal include: Lusail Parking or Ashghal (TBD?) Park and Ride parking?

ATMS09 - Traffic Forecast and Demand Management Public Transportation Management Systems for Special Events

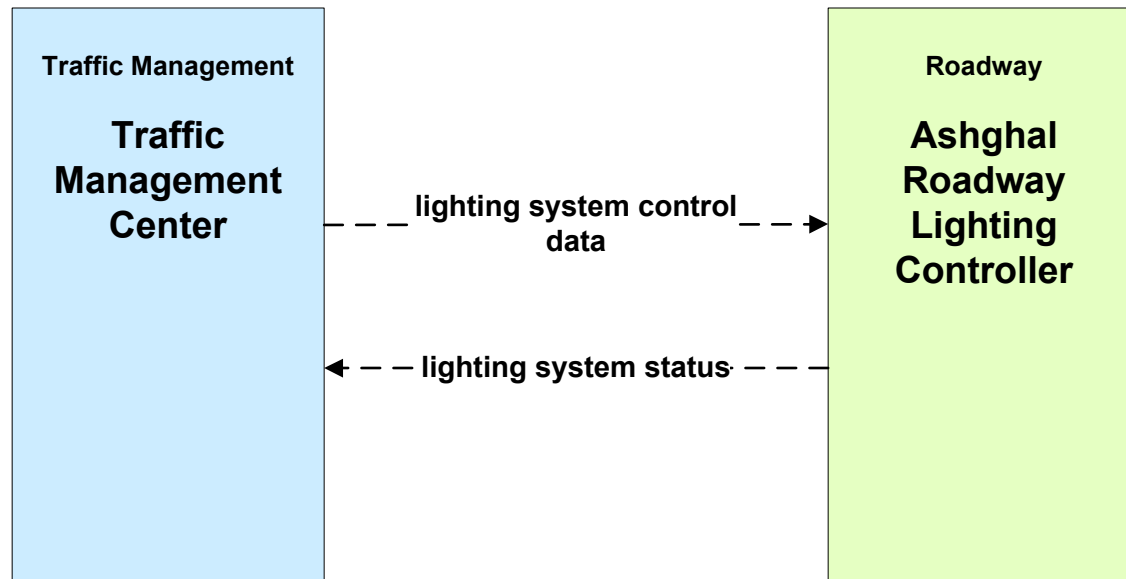


ATMS11 - Emissions Monitoring and Management

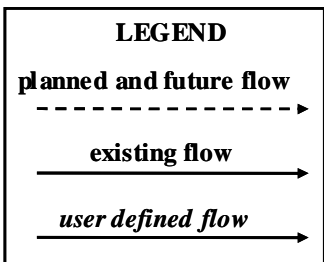
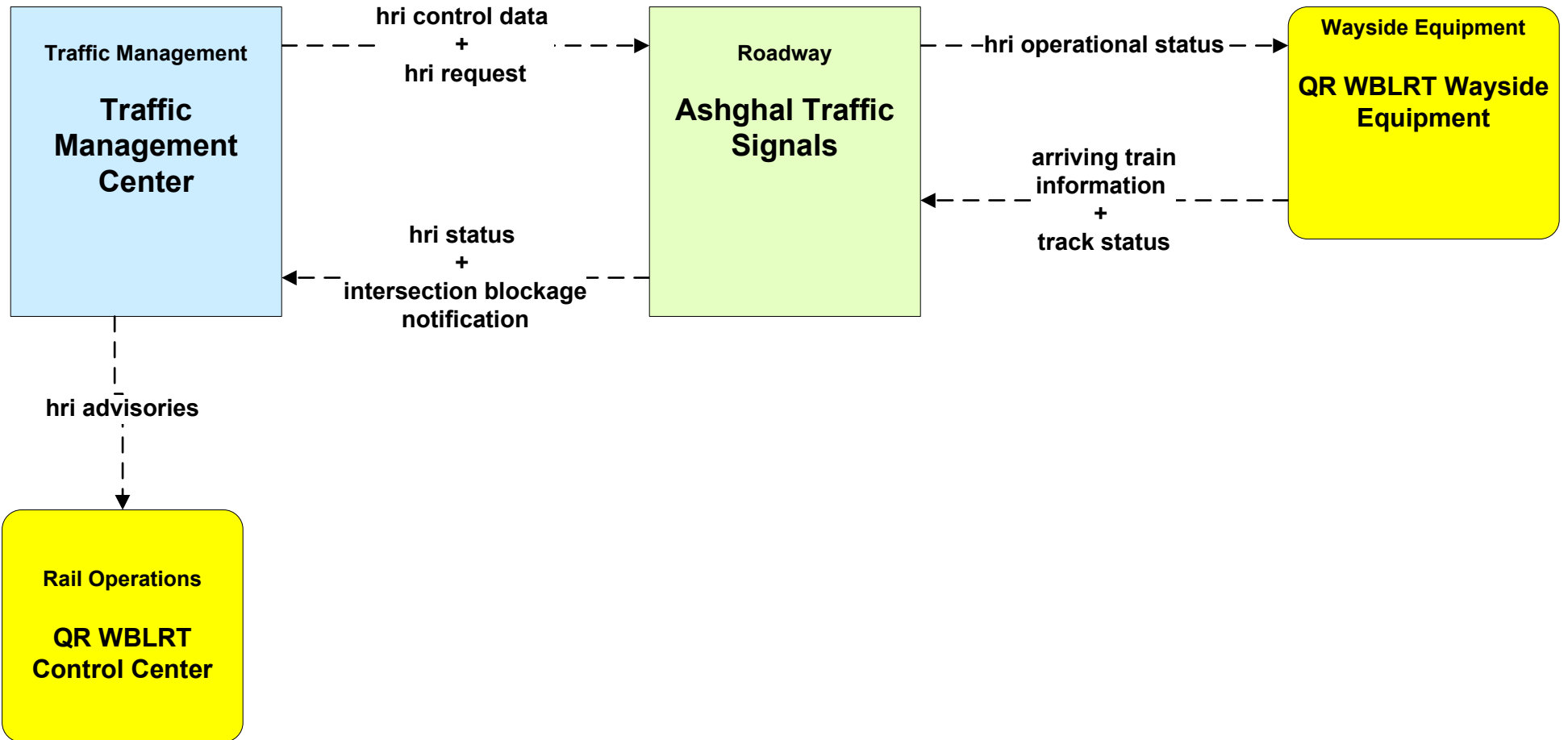
Ministry of Environment



ATMS12 – Roadside Lighting Control Ashghal

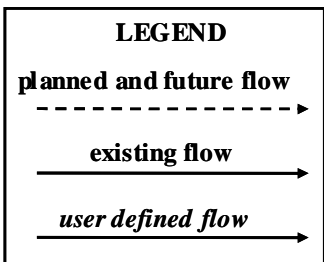
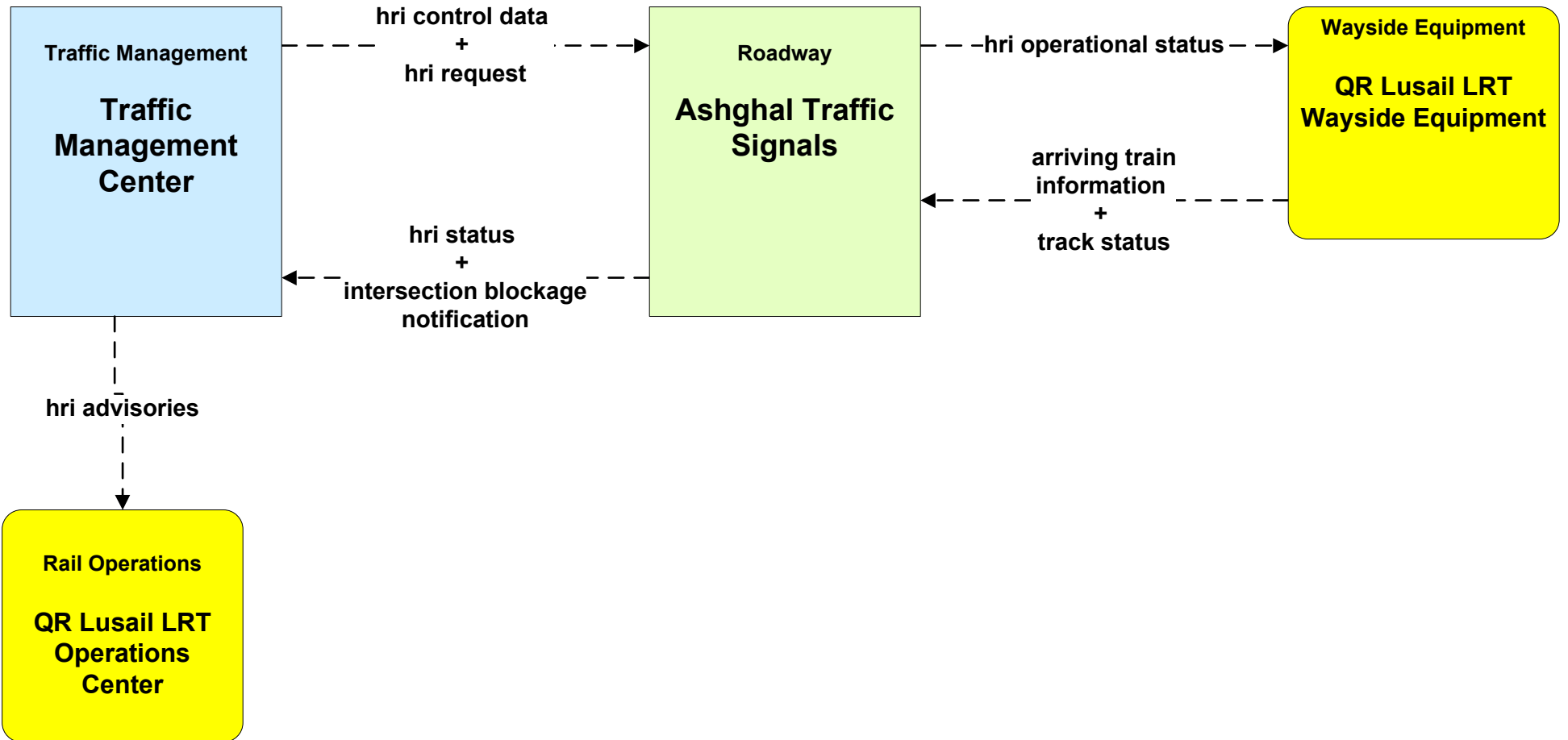


ATMS14 - Advanced Railroad Grade Crossing WBLRT Rail



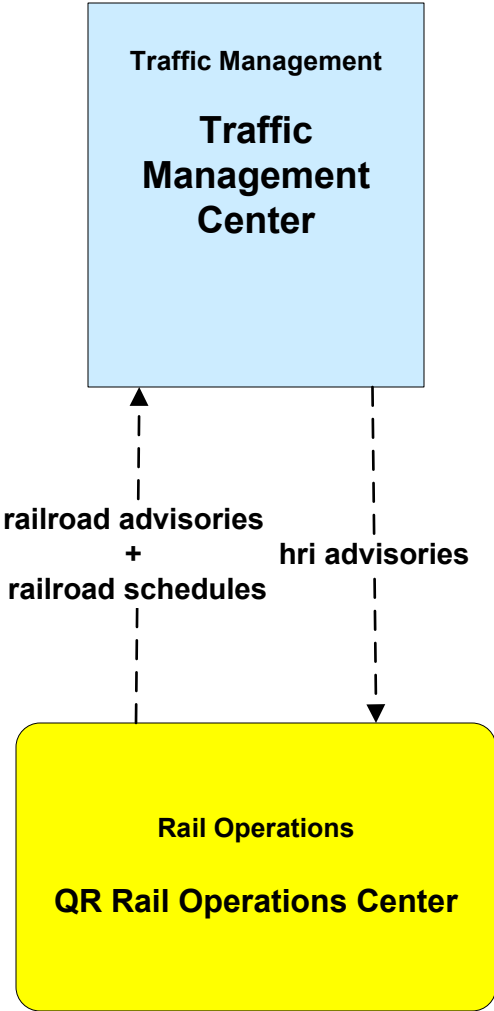
Only QR Lusail LRT and WBLRT have at-grade (level) crossings.

ATMS14 - Advanced Railroad Grade Crossing QR Lusail LRT



Only QR Lusail LRT and WBLRT have at-grade (level) crossings.

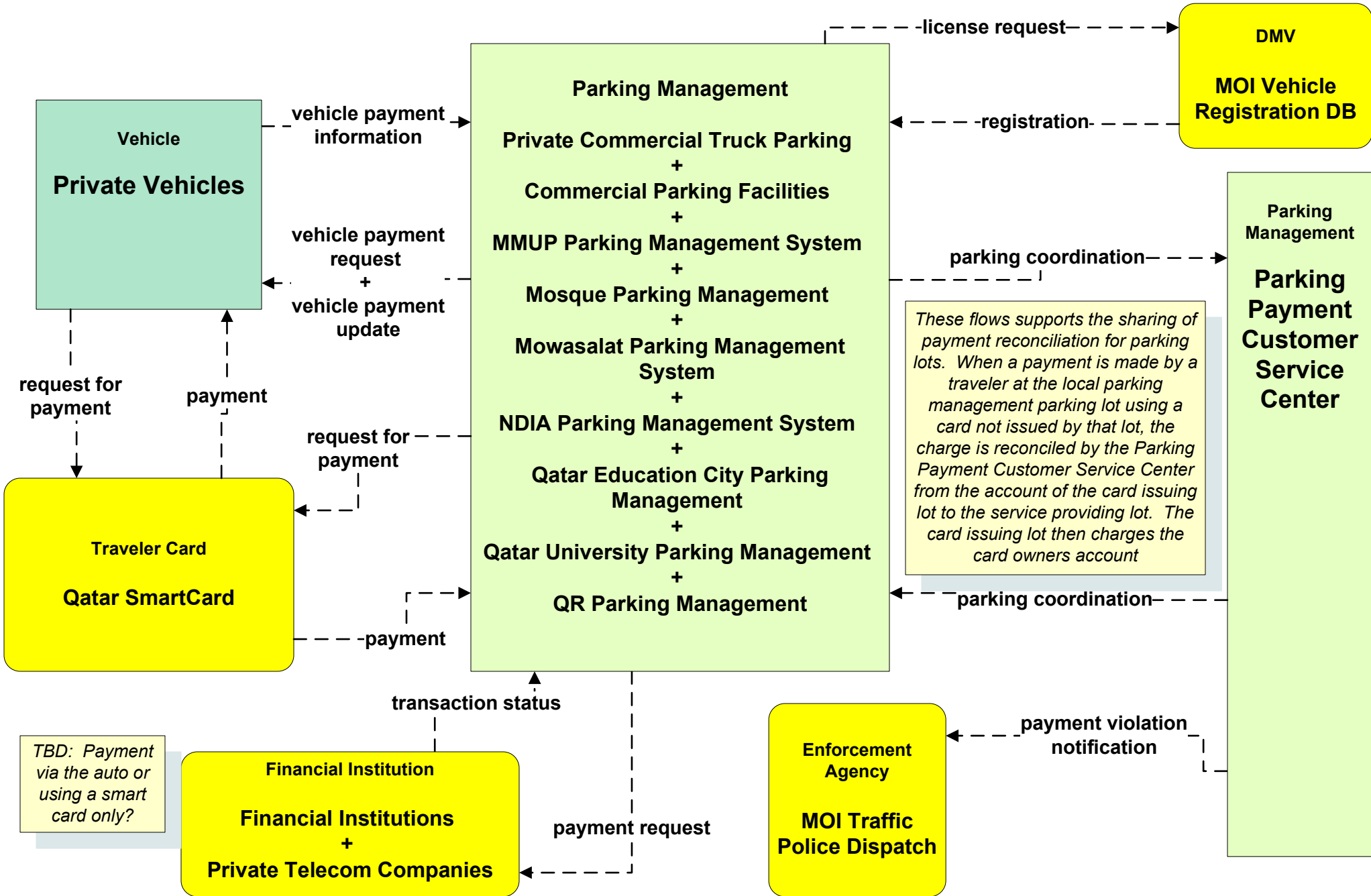
ATMS15 - Railroad Operations Coordination



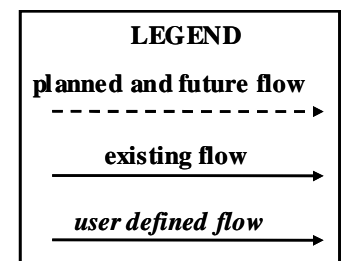
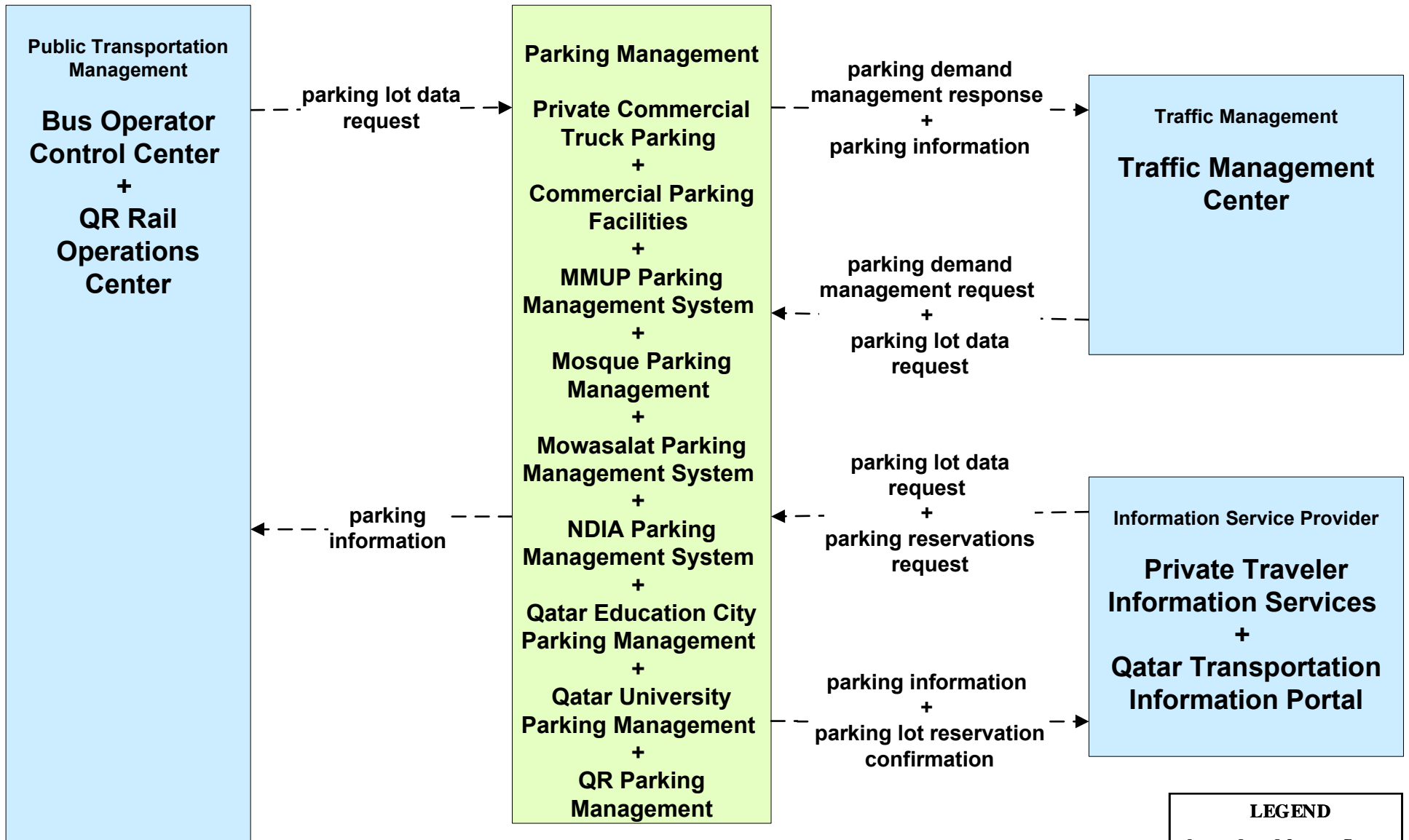
LEGEND

- planned and future flow** (dashed arrow)
- existing flow** (solid arrow)
- user defined flow** (solid arrow)

ATMS16 - Parking Facility Management Ashghal

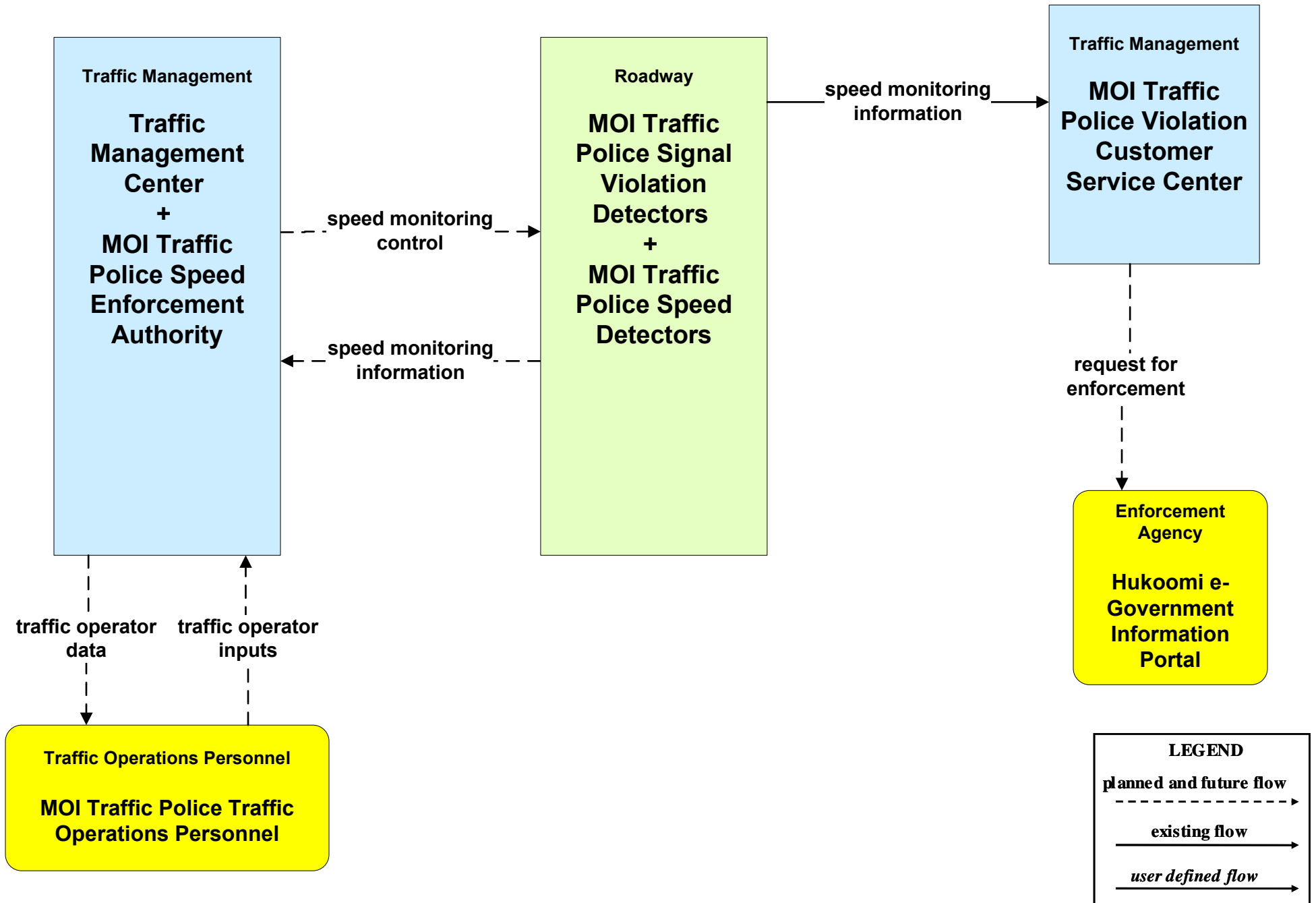


ATMS17 - Regional Parking Management

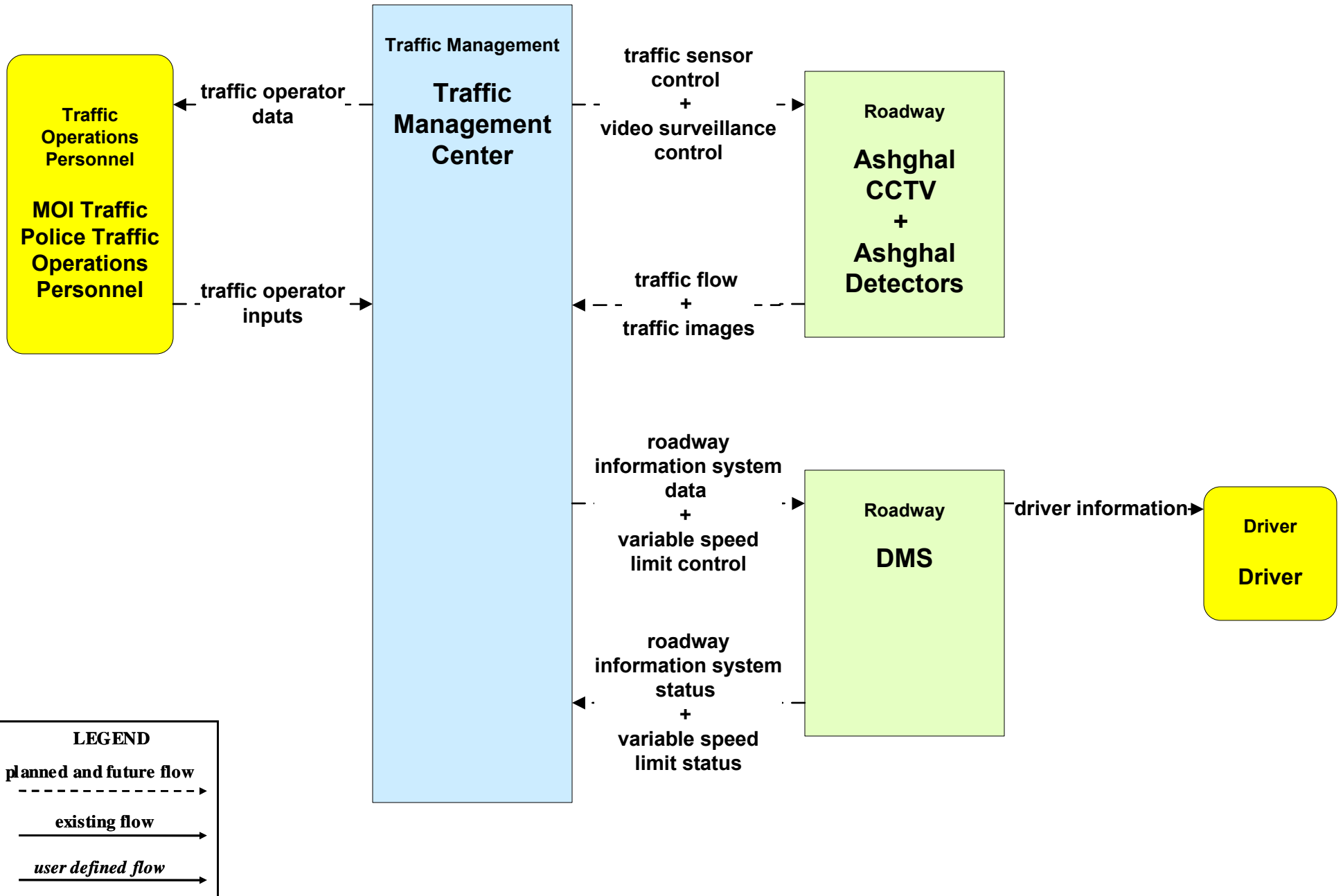


ATMS19 - Speed Monitoring

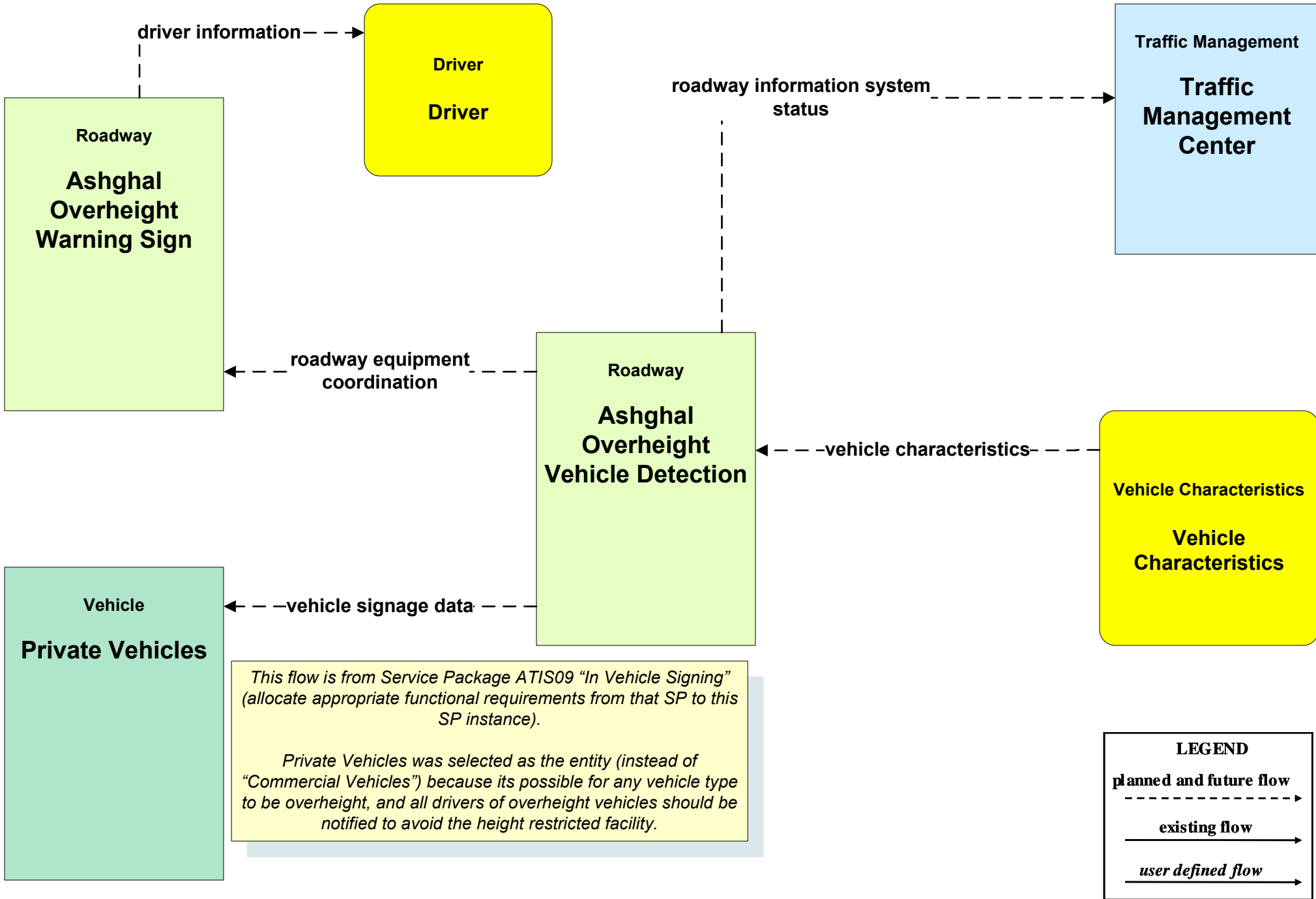
Speed Monitoring and Signal Violation Enforcement



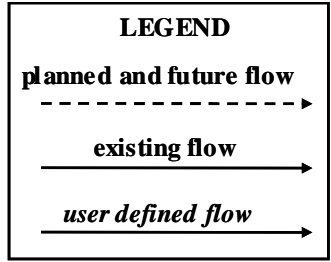
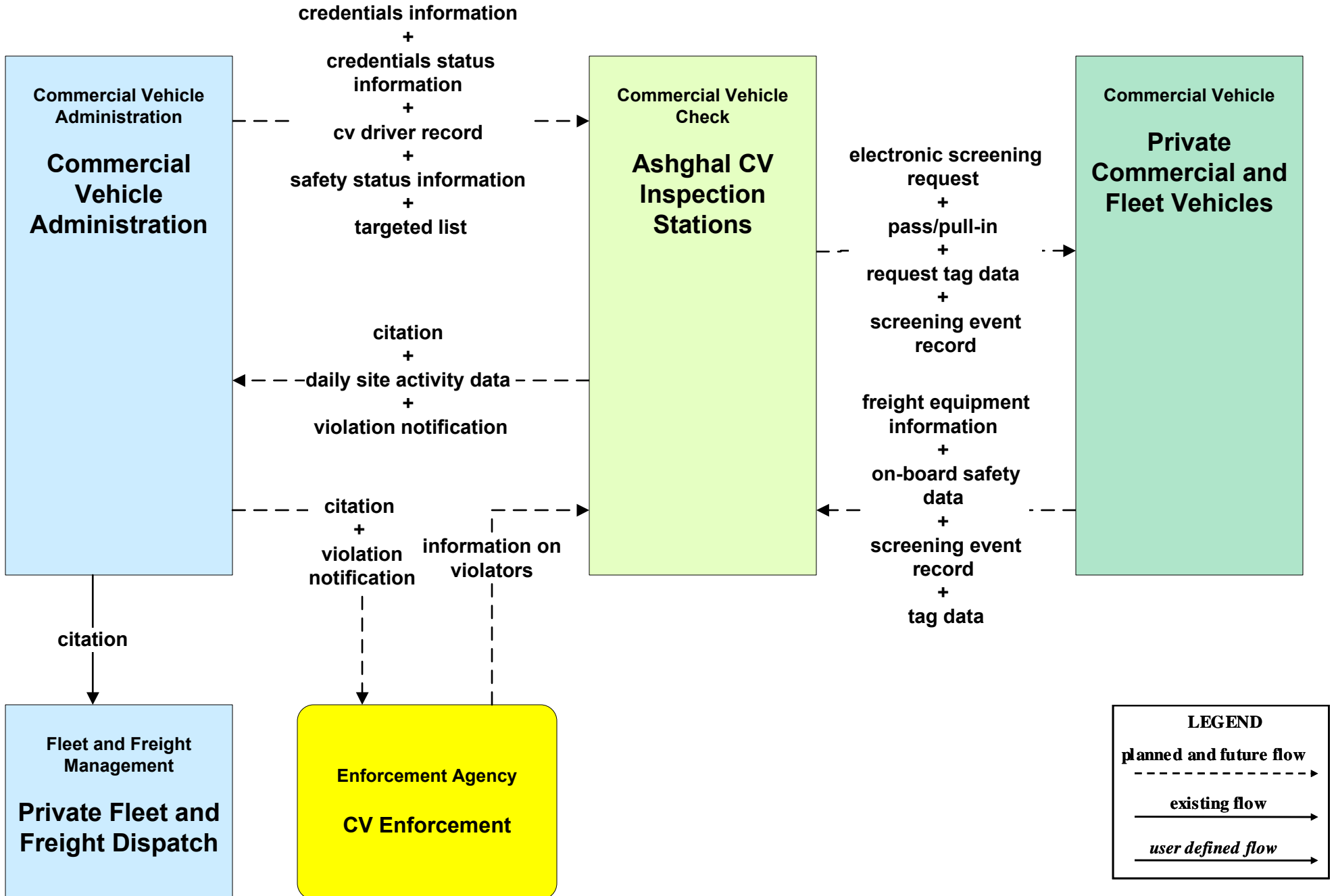
ATMS22 – Variable Speed Limits



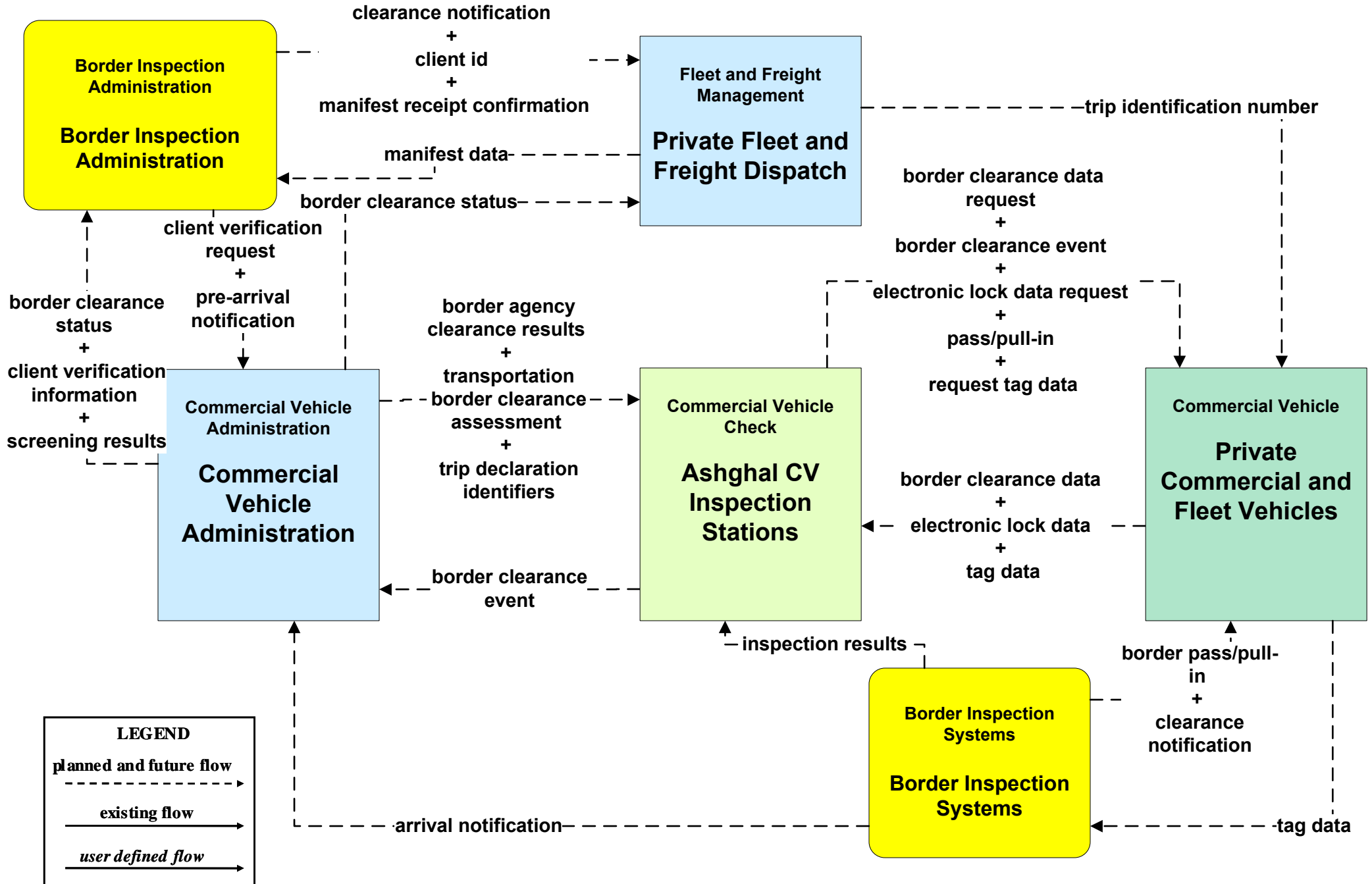
ATMS24 - Dynamic Roadway Warning Overheight Detection and Alarms



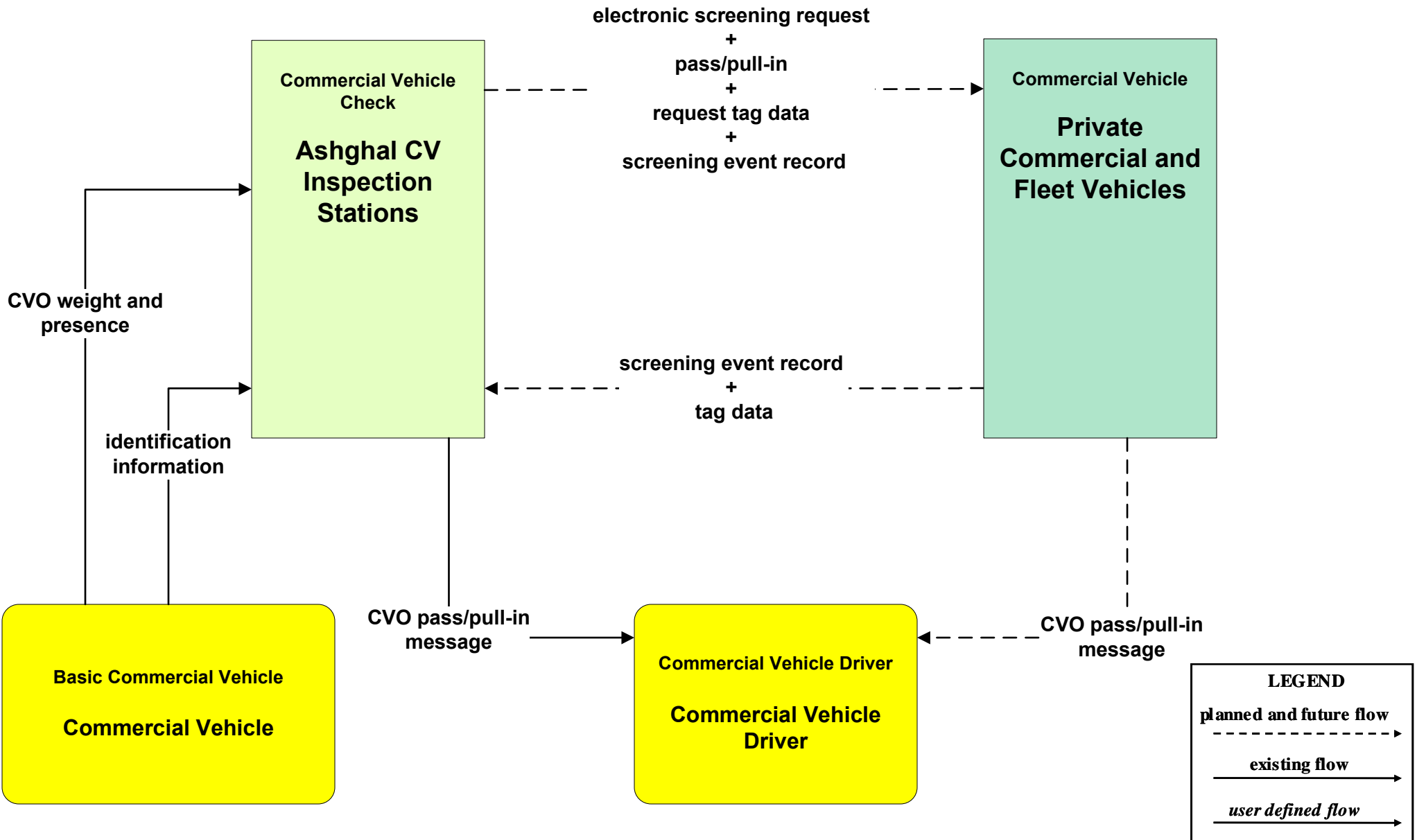
CVO03 - Electronic Clearance



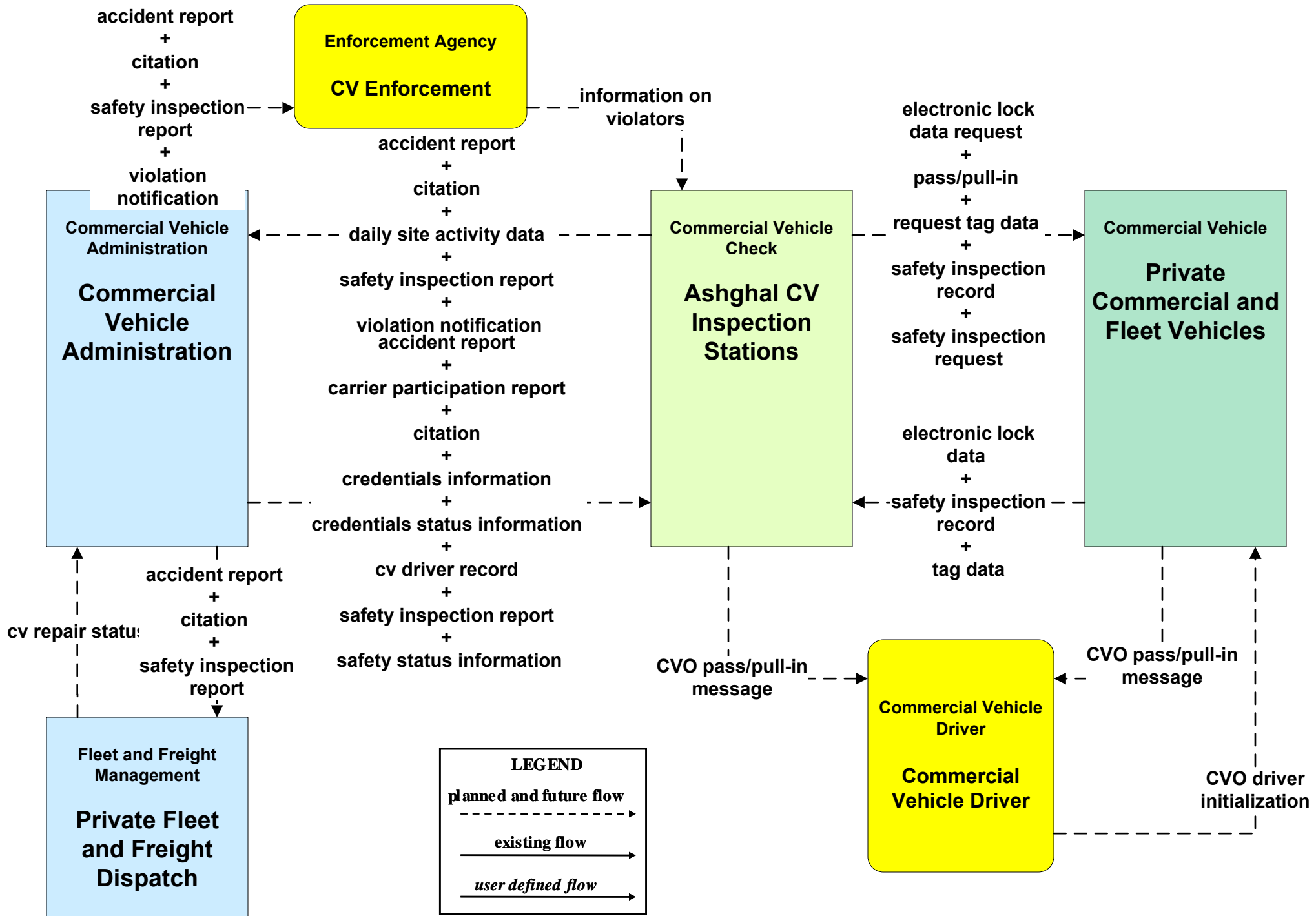
CVO05 - International Electronic Border Clearance



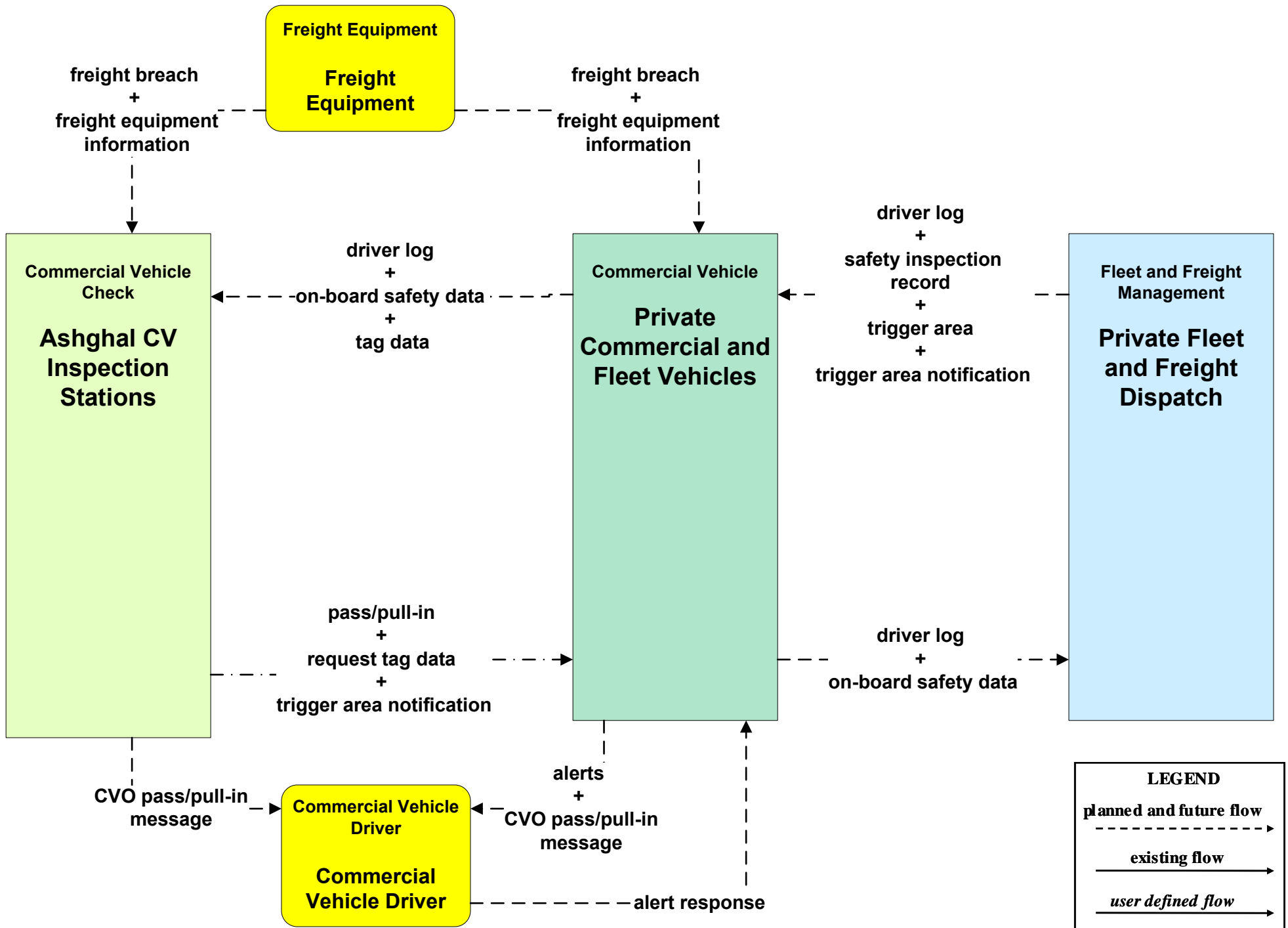
CVO06 - Weigh-In-Motion



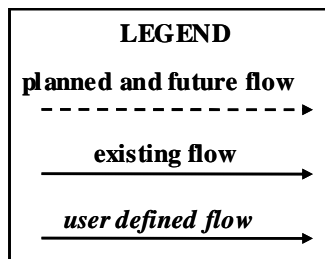
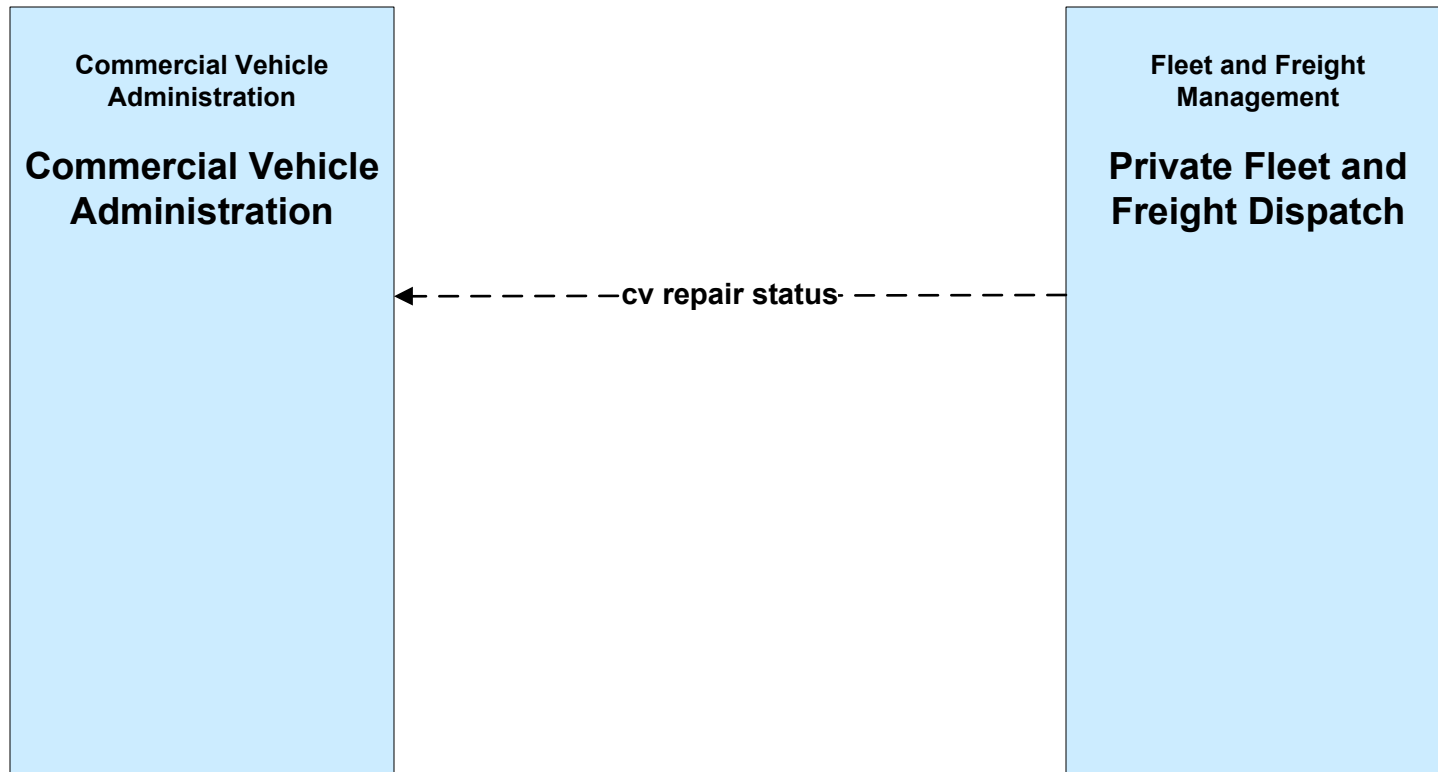
CVO07 – Roadside CVO Safety



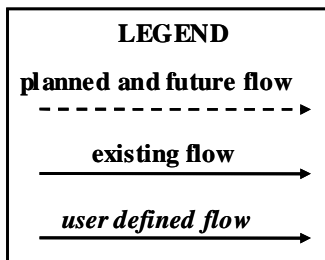
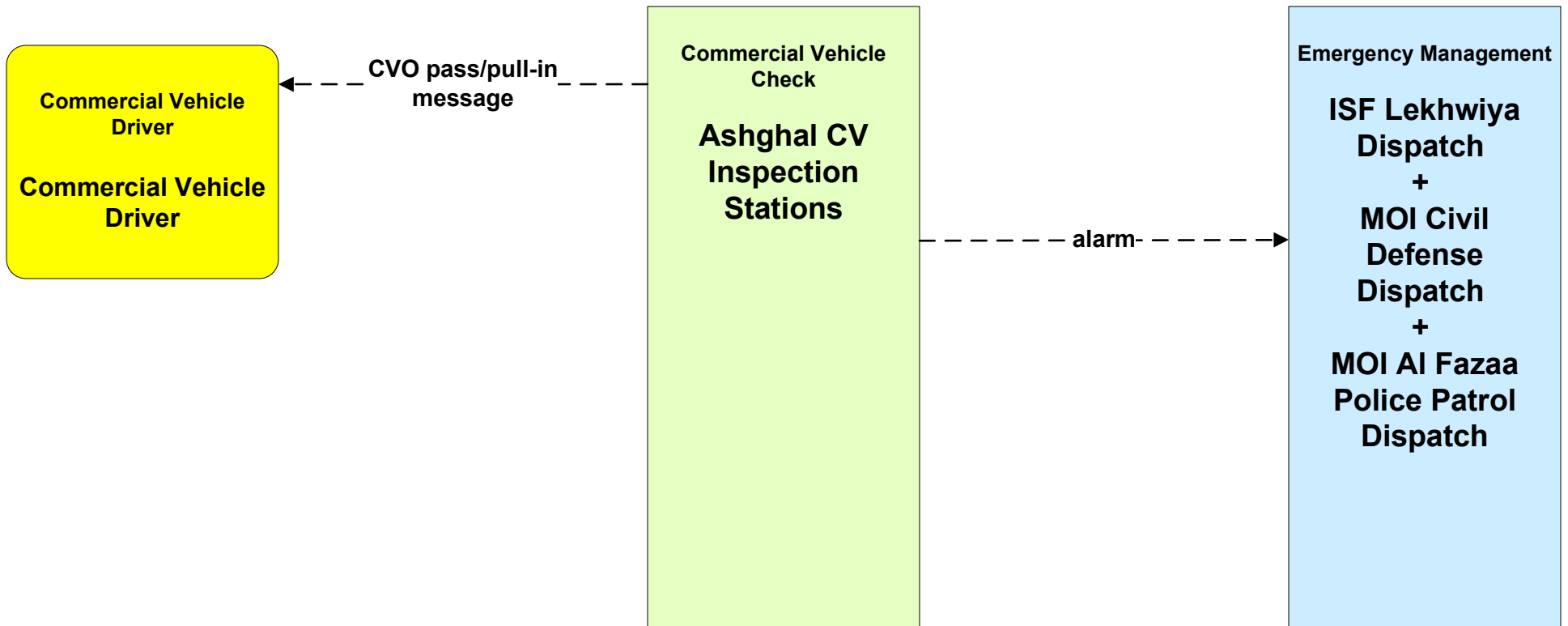
CVO08 - On-board CVO Safety



CVO09 – CVO Fleet Maintenance



CVO11 - Roadside HAZMAT Security Detection and Mitigation



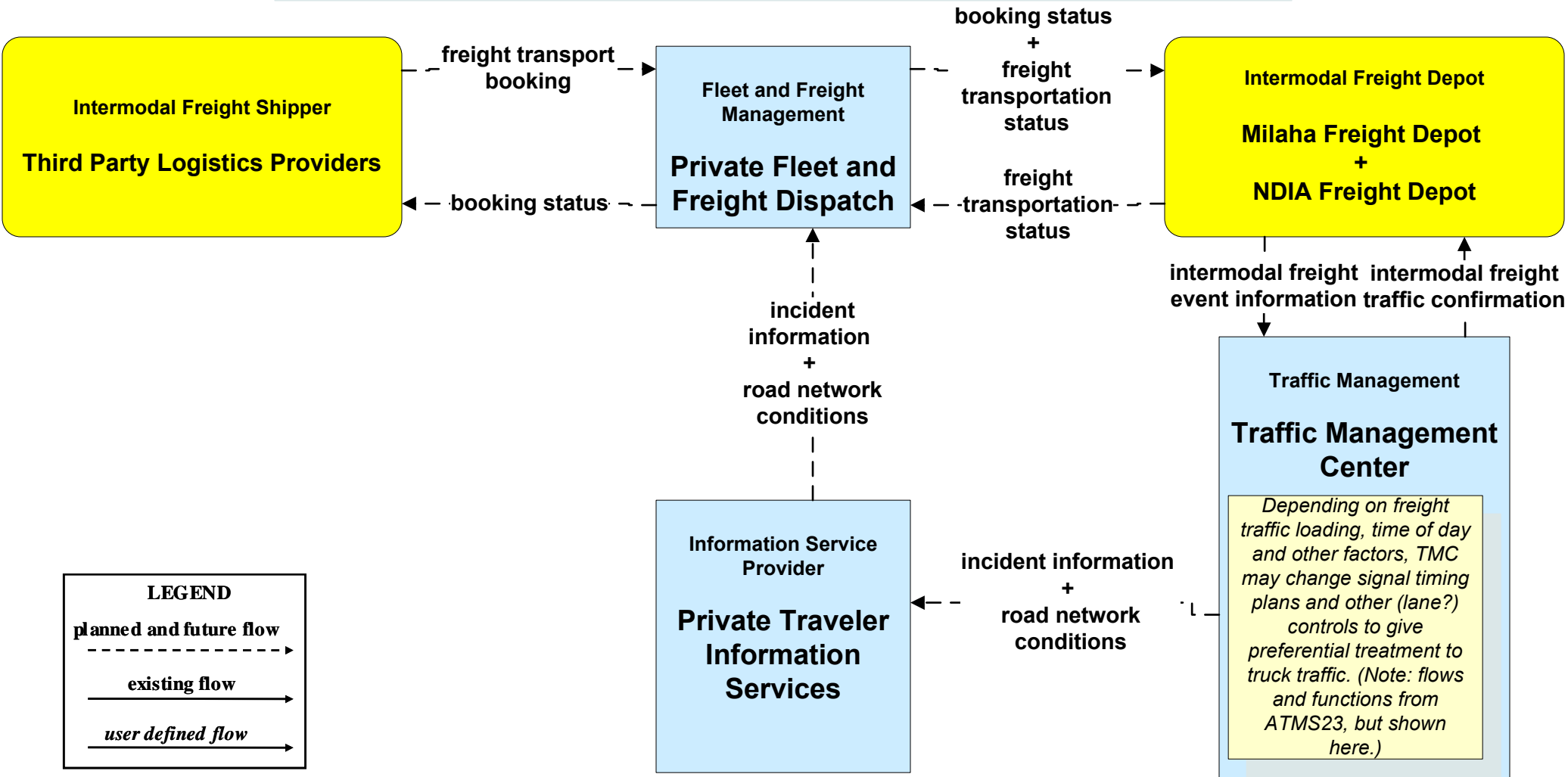
CVO13 - Freight Assignment Tracking Logistics

freight transportation status (CVO02):

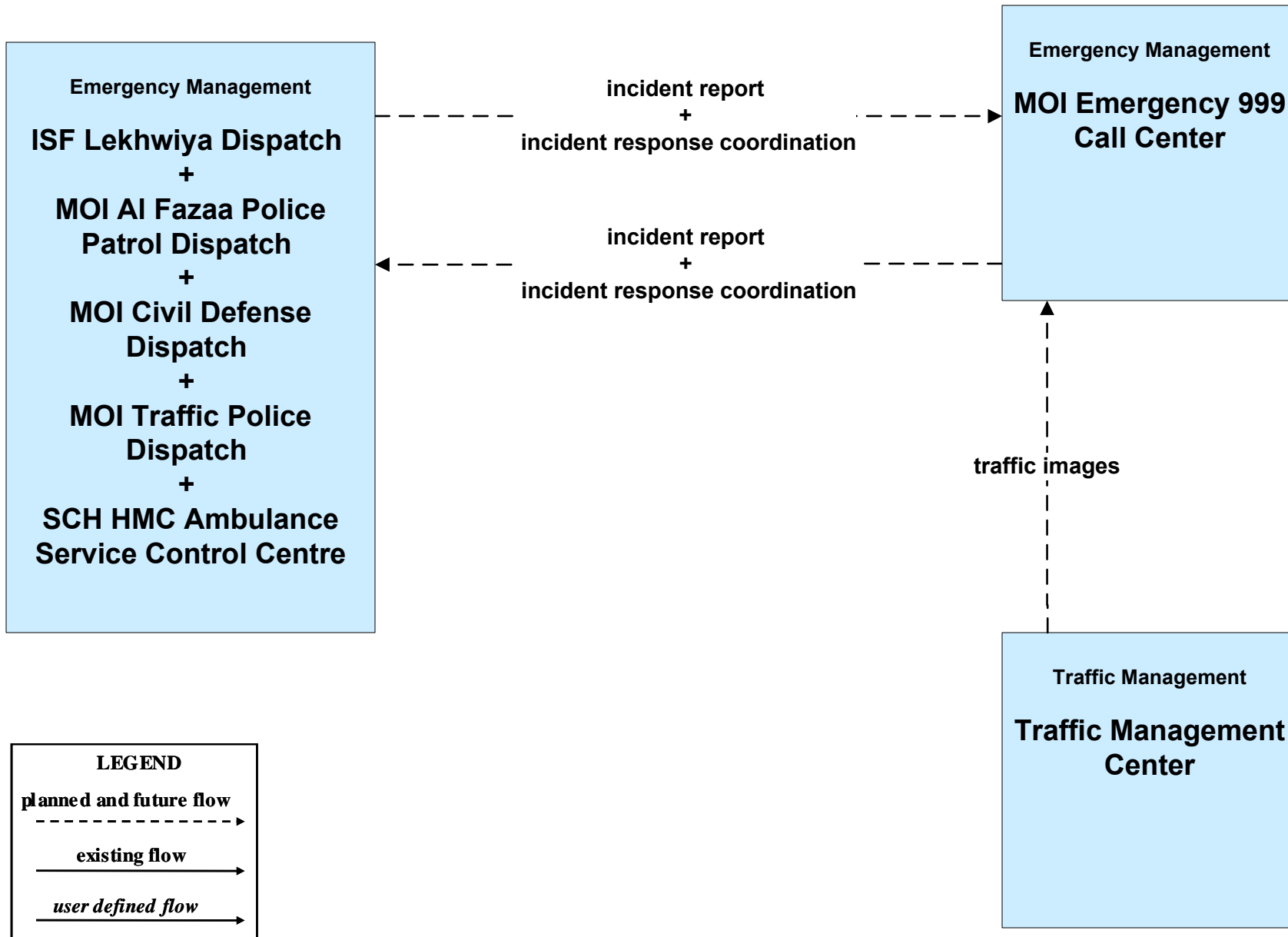
A time-stamped status of a freight shipment as it passes through the supply chain from manufacturer through arrival at its final destination; including cargo movement logs, routing information, and cargo ID's.

booking status (CVO13):

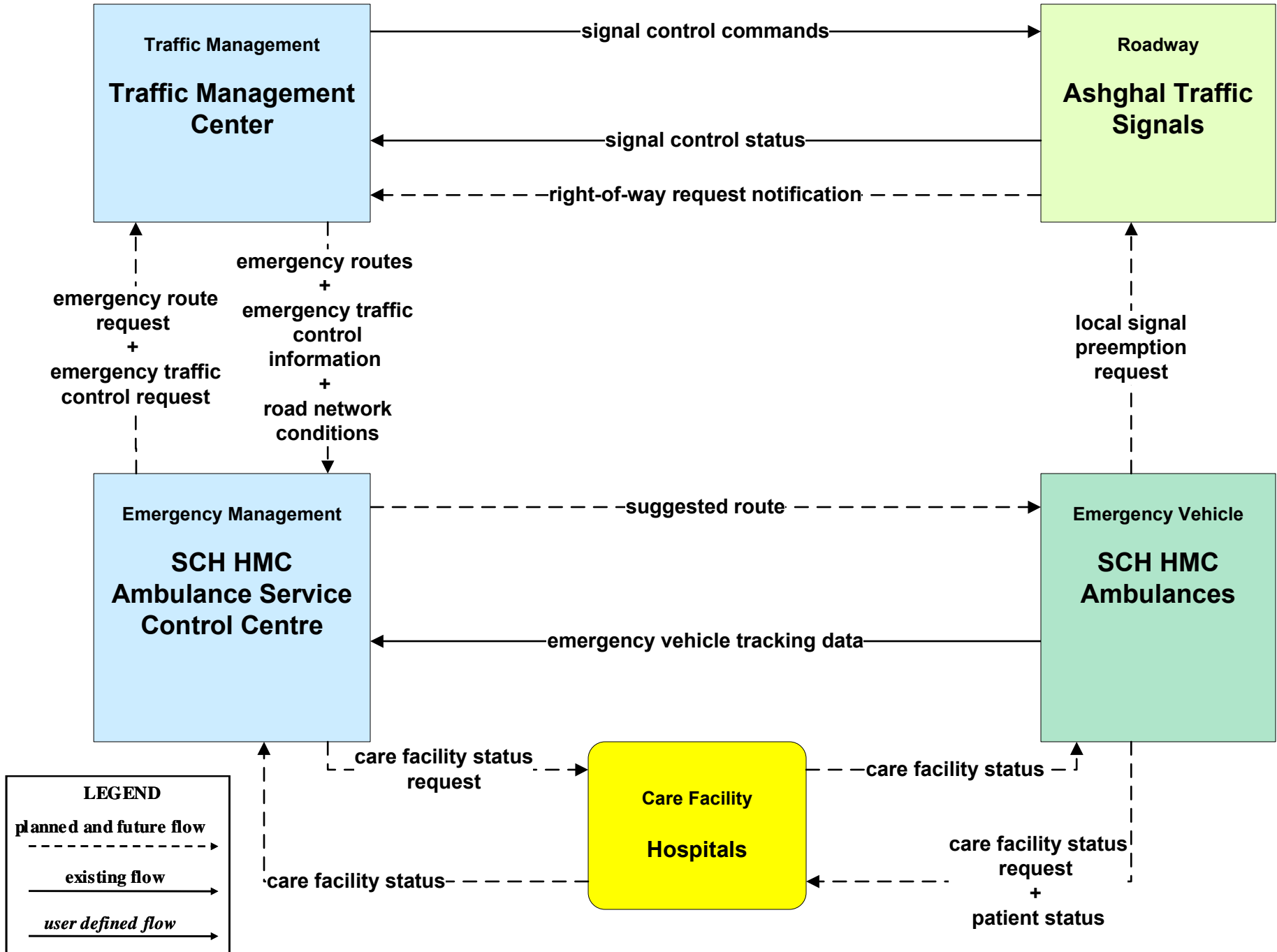
Status of the freight transport booking that includes the identities of the Commercial Vehicle and driver who will pick-up the freight or a request for more information from the originator.



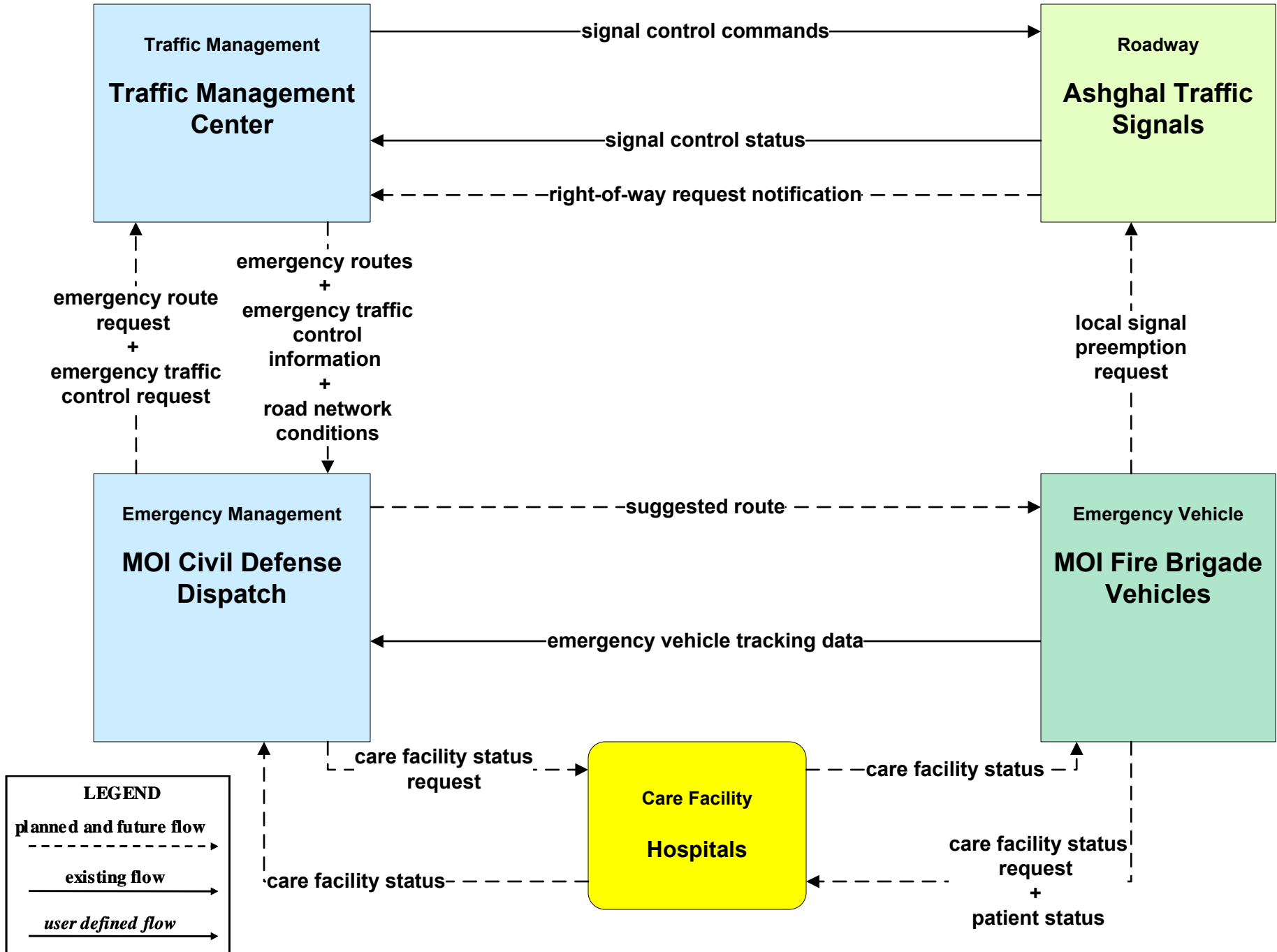
EM01 - Emergency Response Coordination Emergency Call-Taking and Dispatch



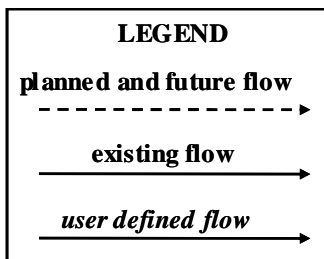
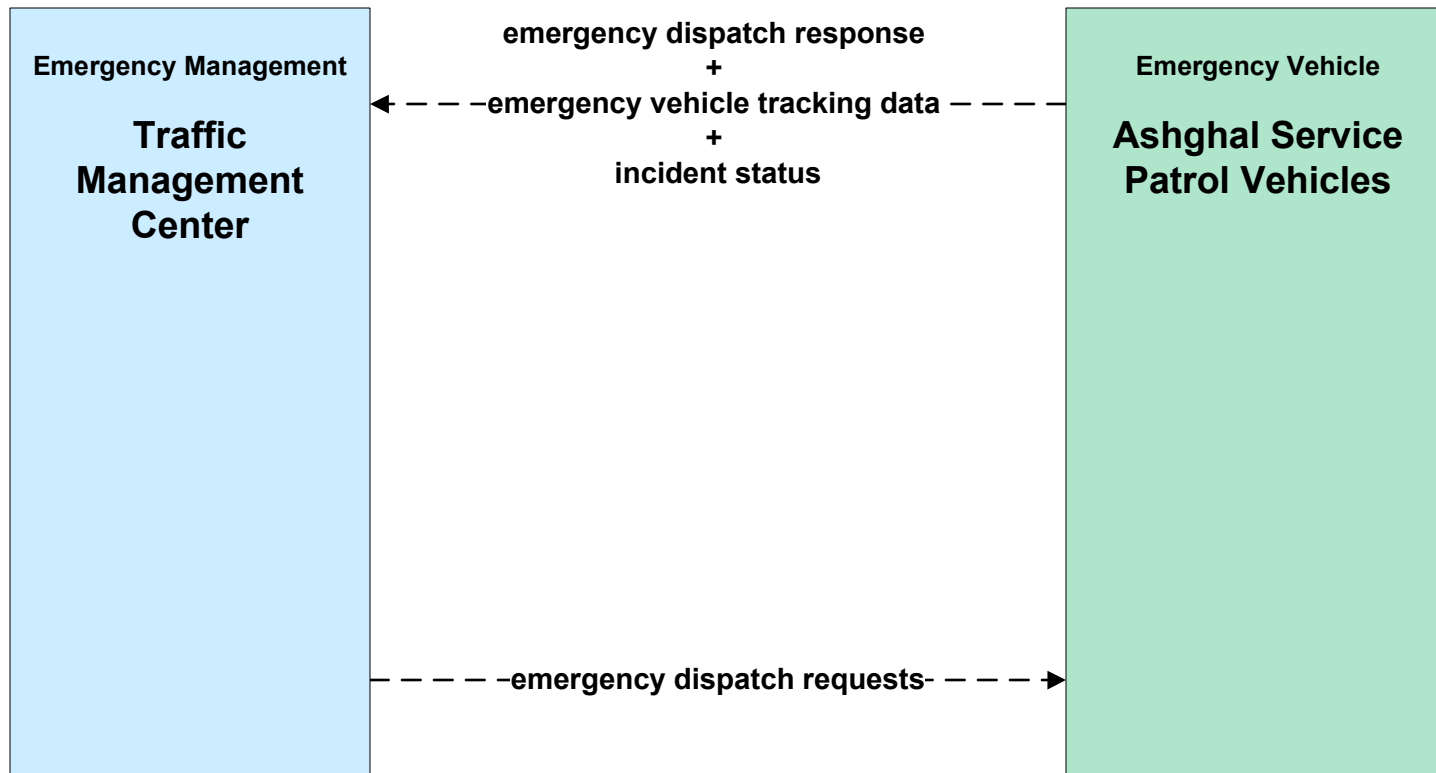
EM02 - Emergency Routing Ambulance



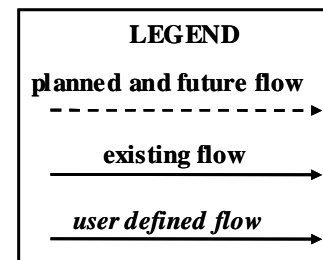
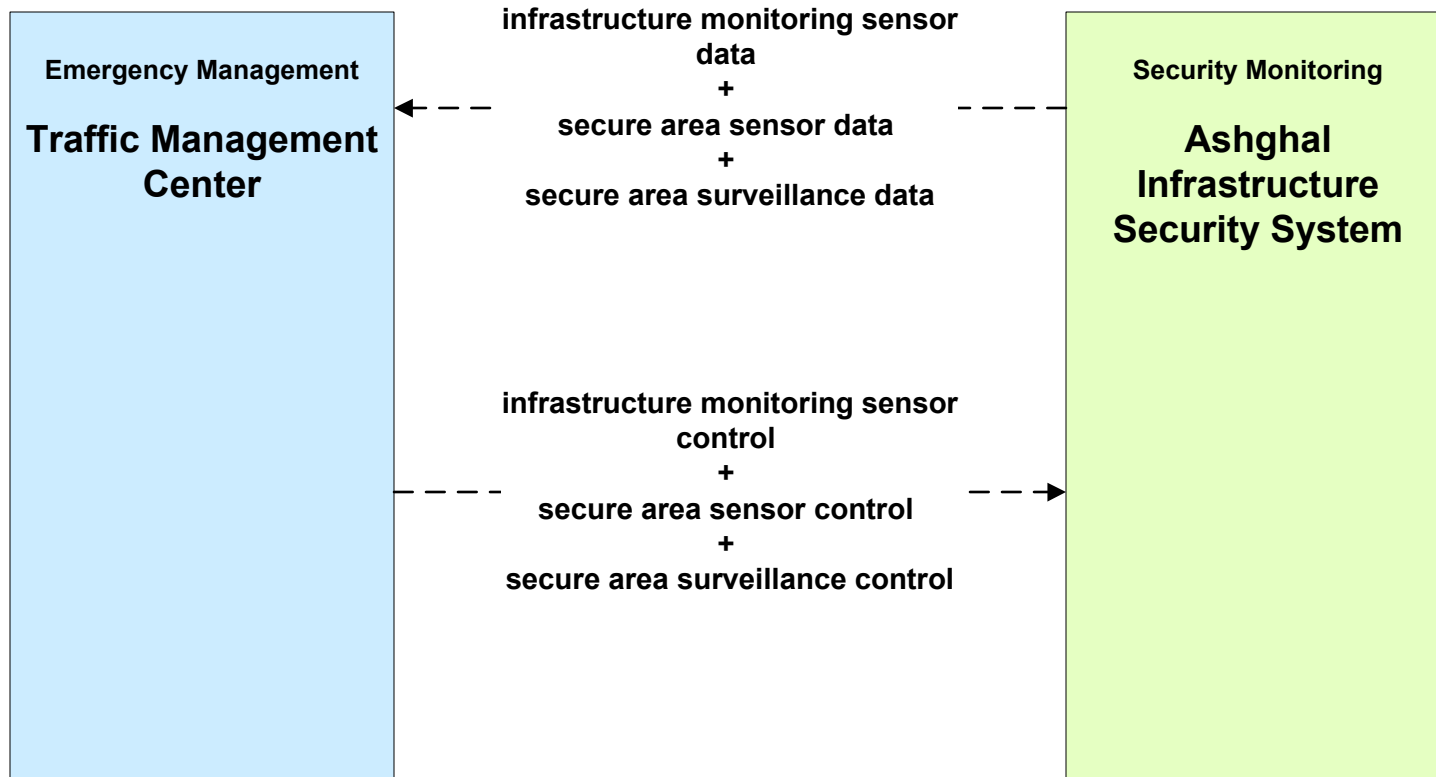
EM02 - Emergency Routing MOI Fire Brigade



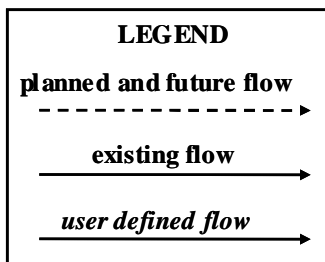
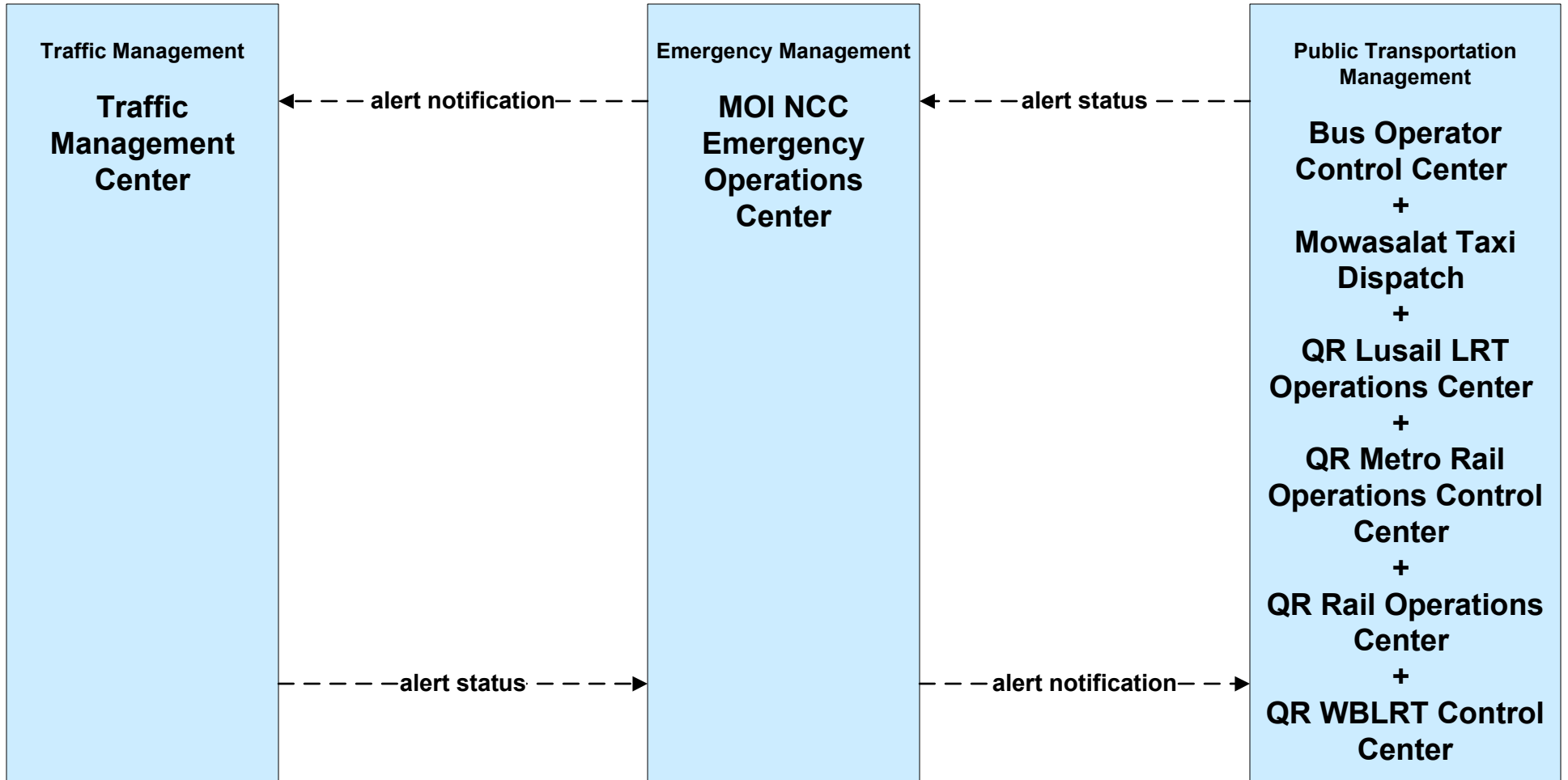
EM04 - Roadway Service Patrols



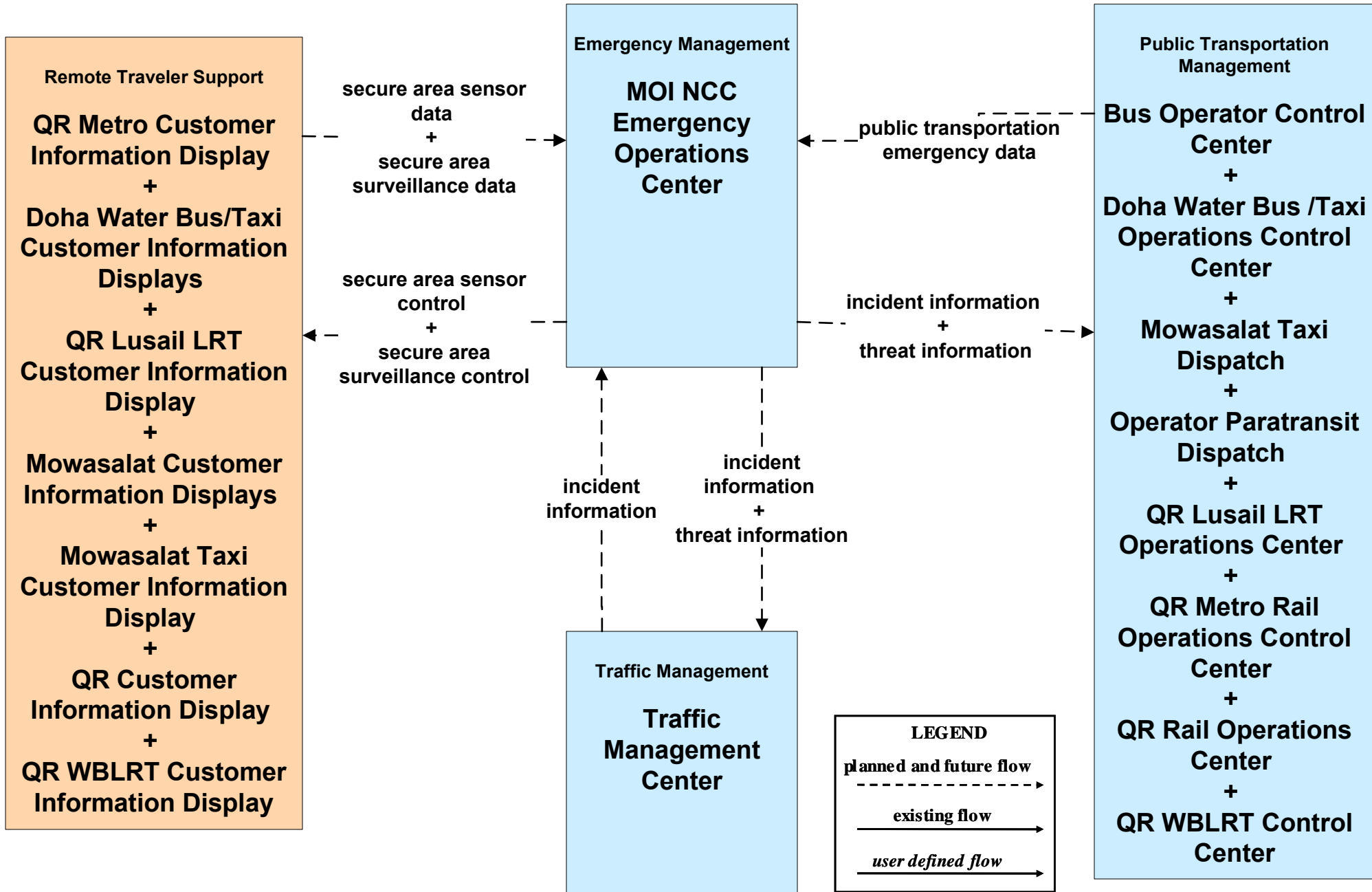
EM05 - Transportation Infrastructure Protection



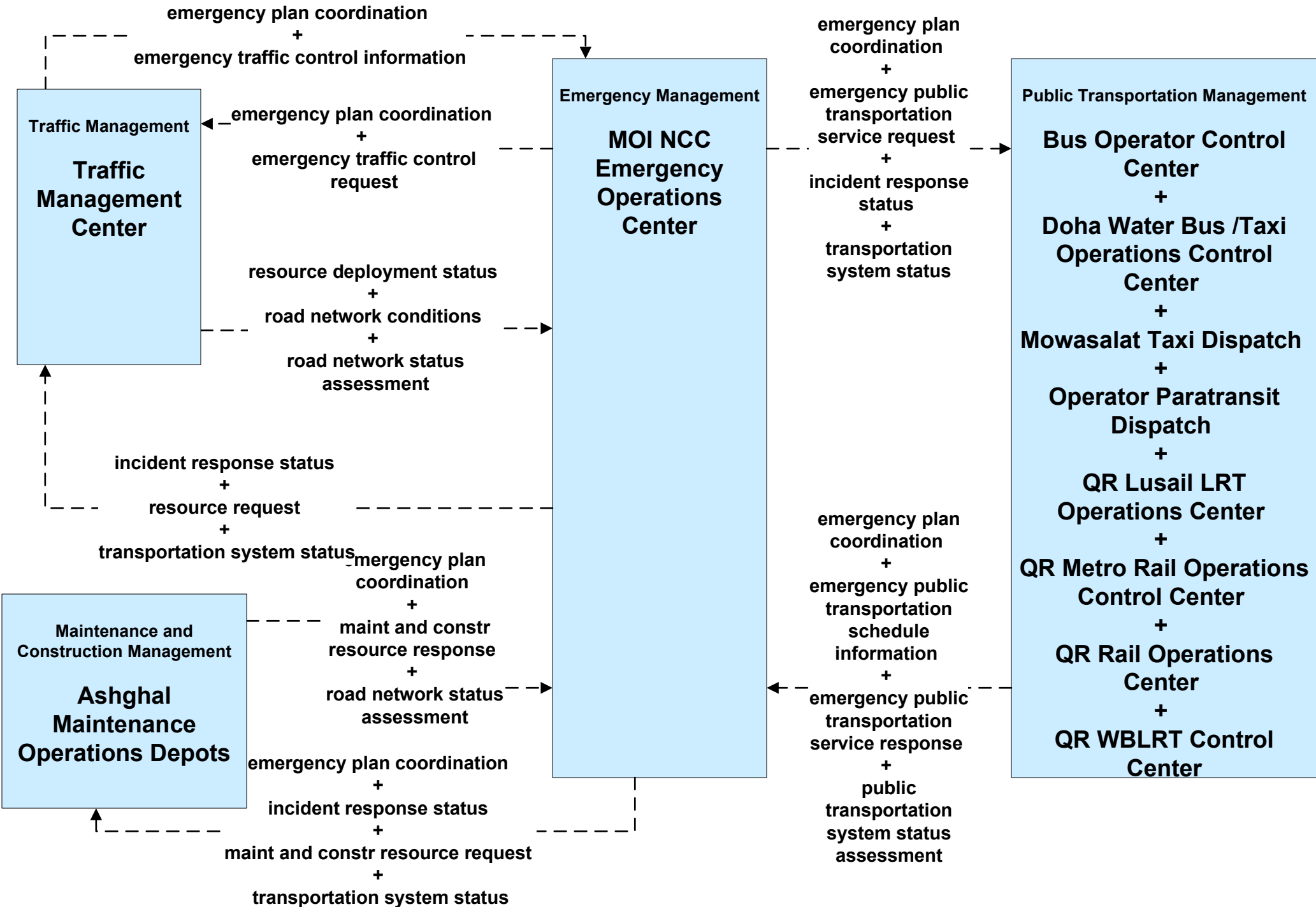
EM06 - Wide Area Alerts



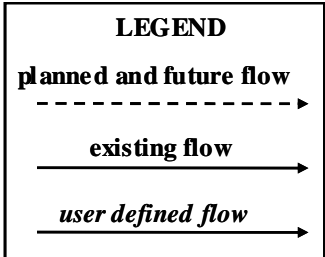
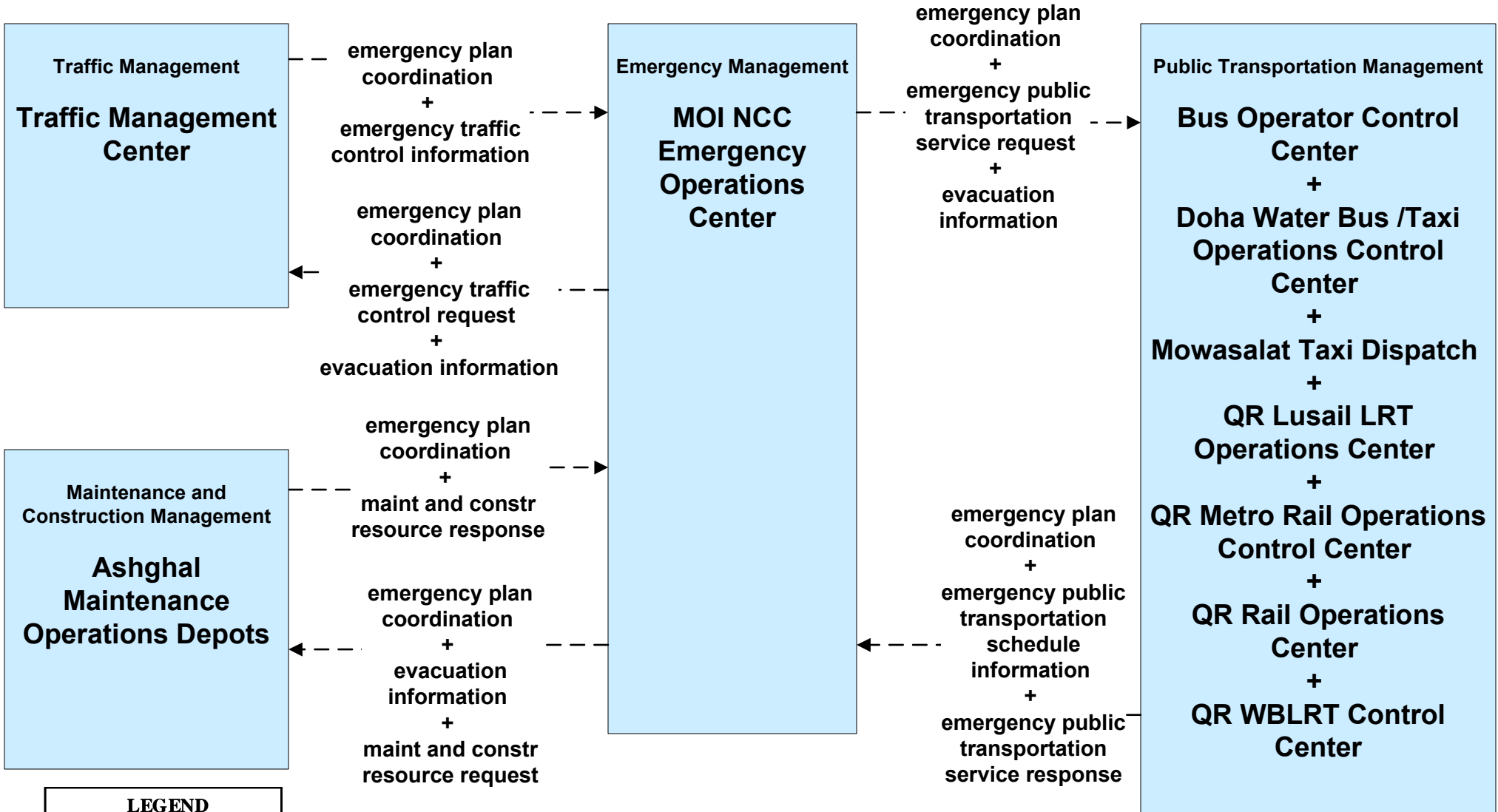
EM07 - Early Warning System



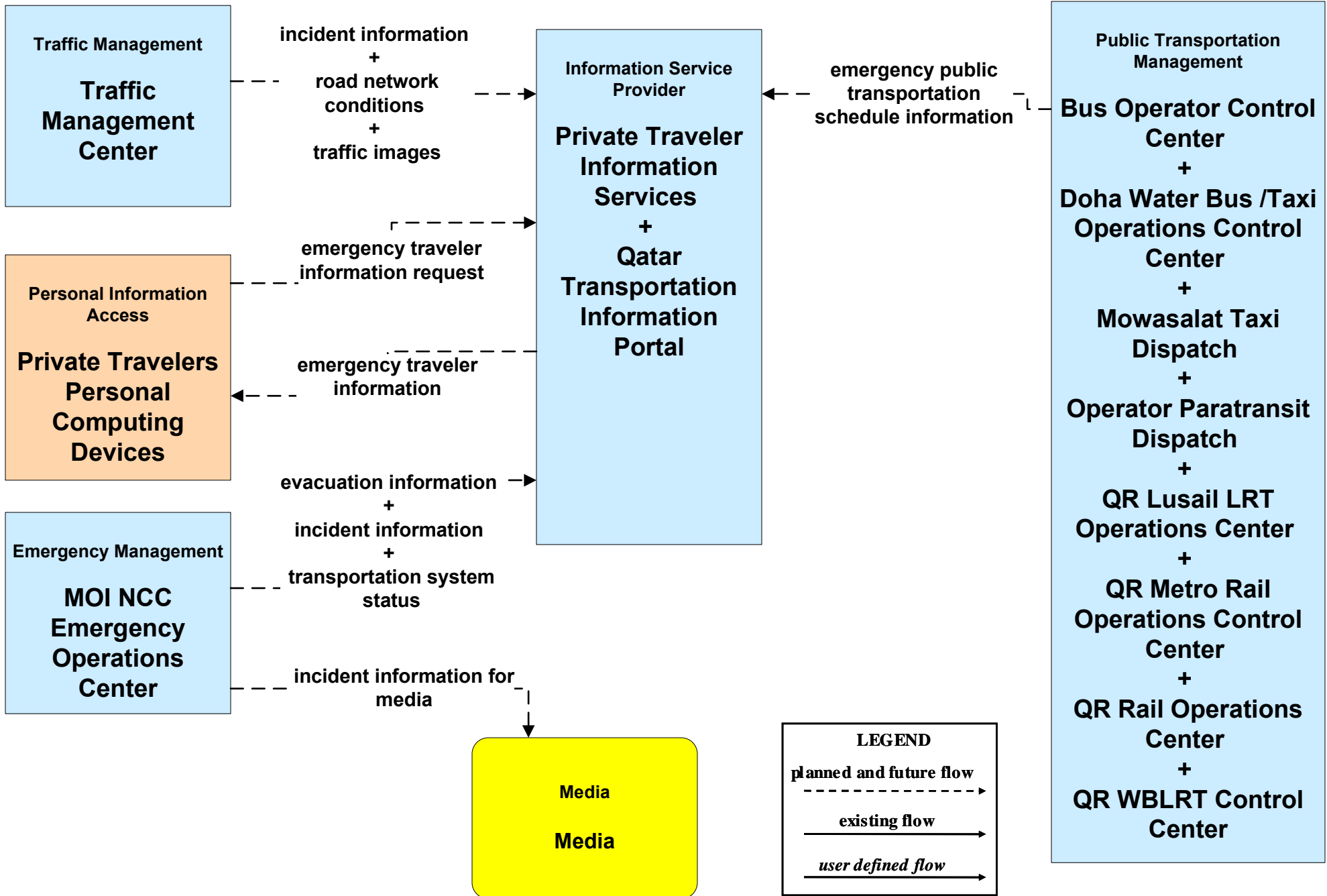
EM08 - Disaster Response



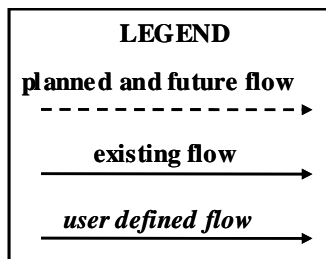
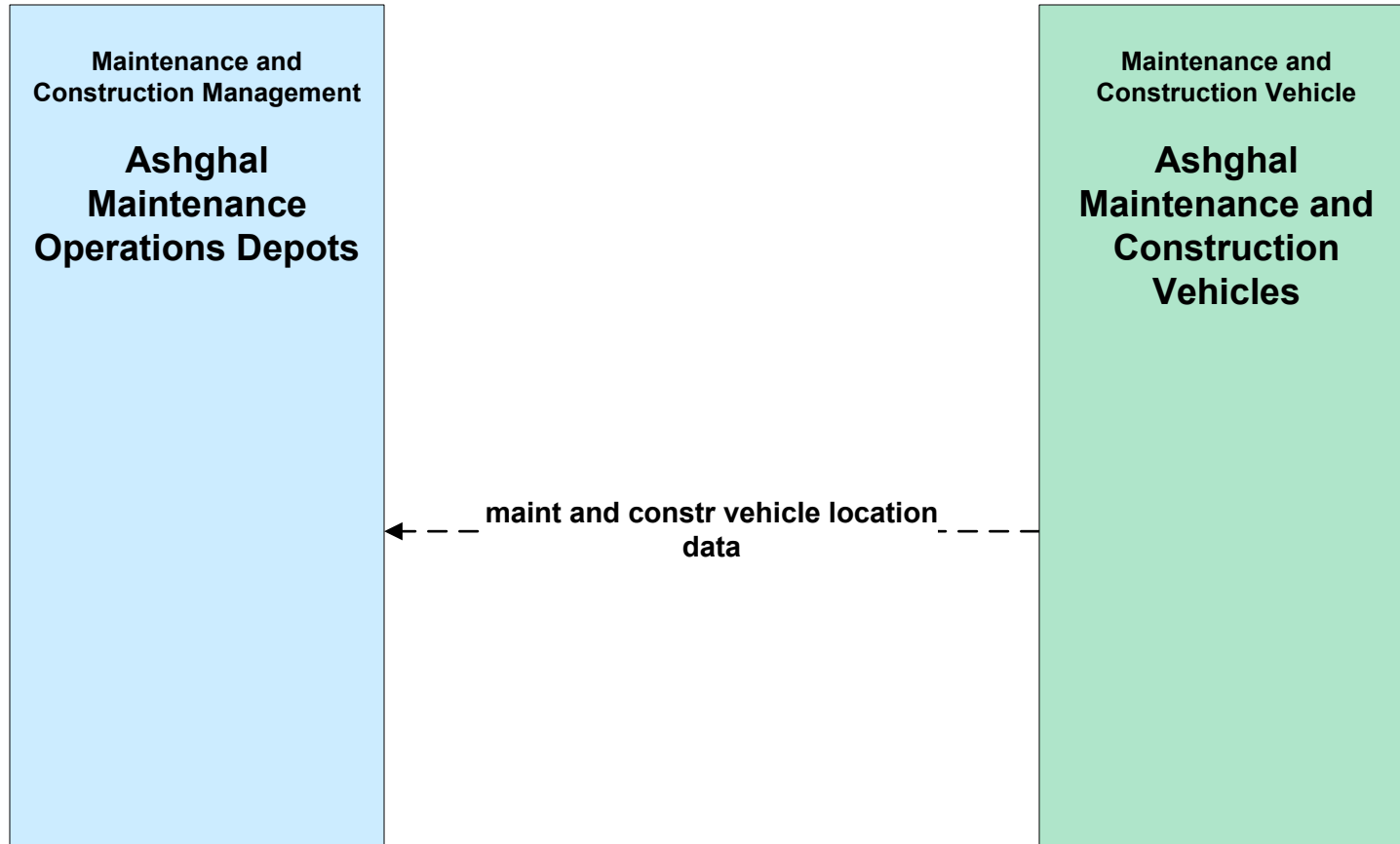
EM09 - Evacuation and Reentry Management



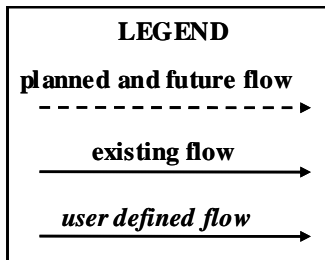
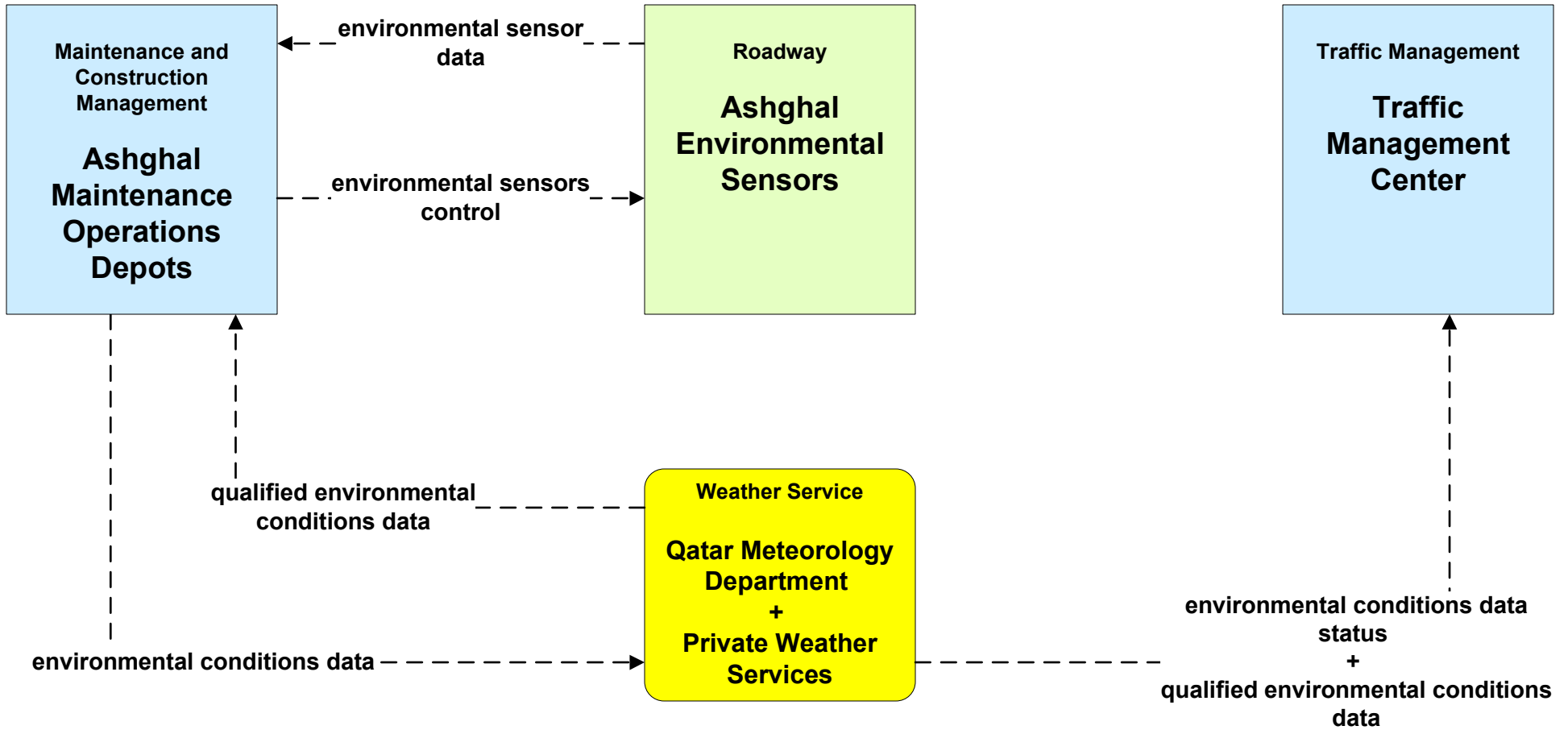
EM10 - Disaster Traveler Information



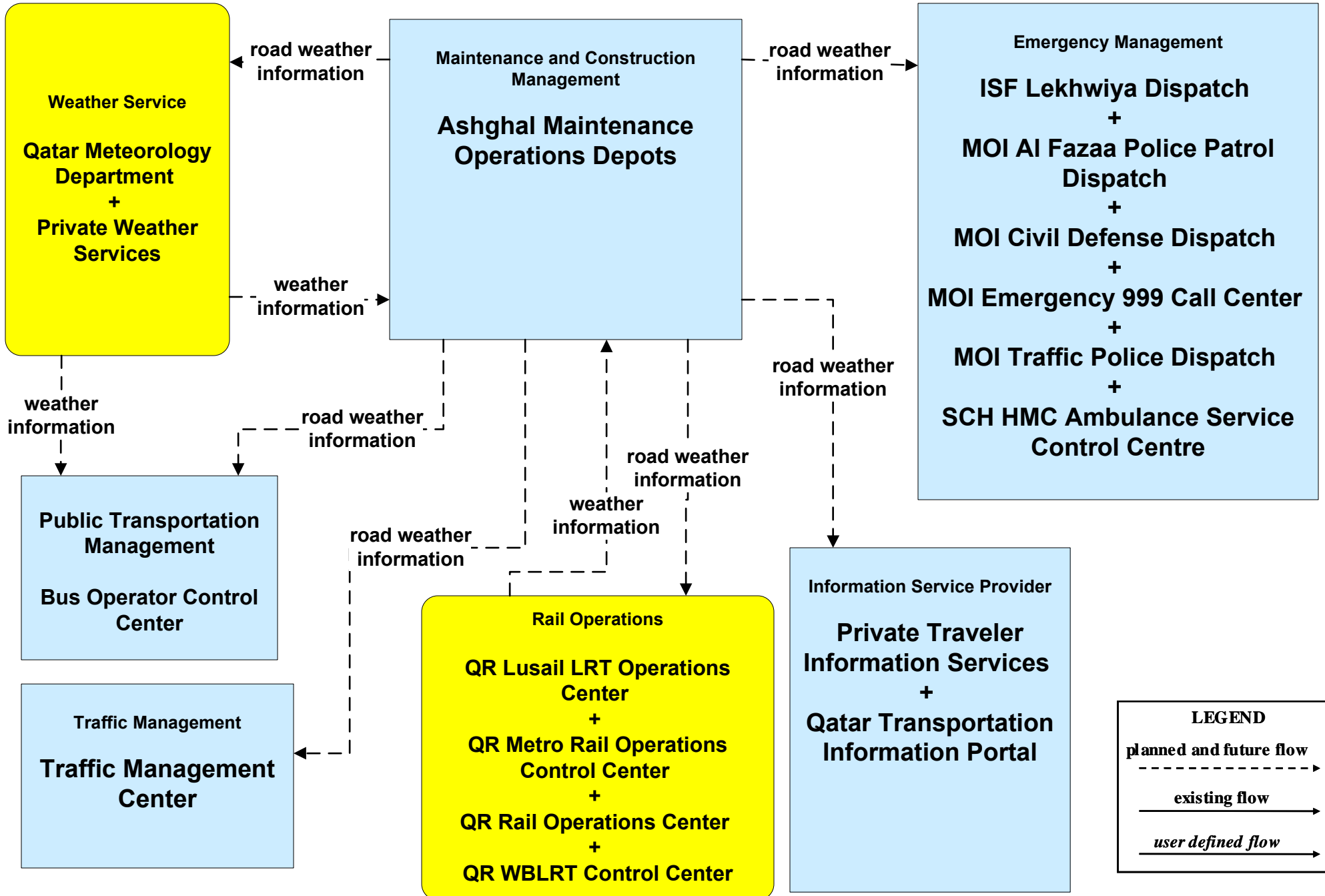
MC01 - Maintenance and Construction Vehicle Tracking



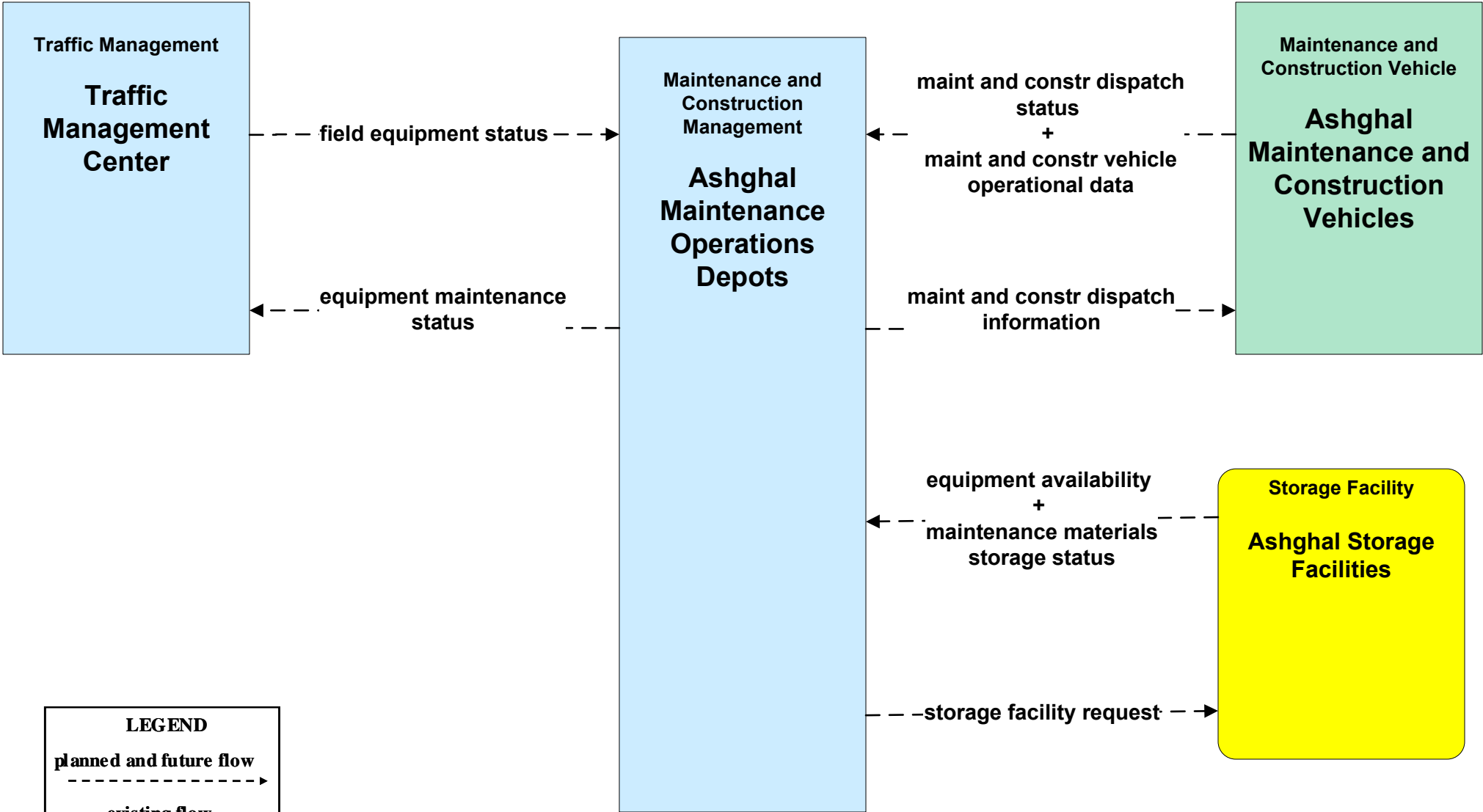
MC03 - Road Weather Data Collection



MC04 - Weather Information Processing and Distribution



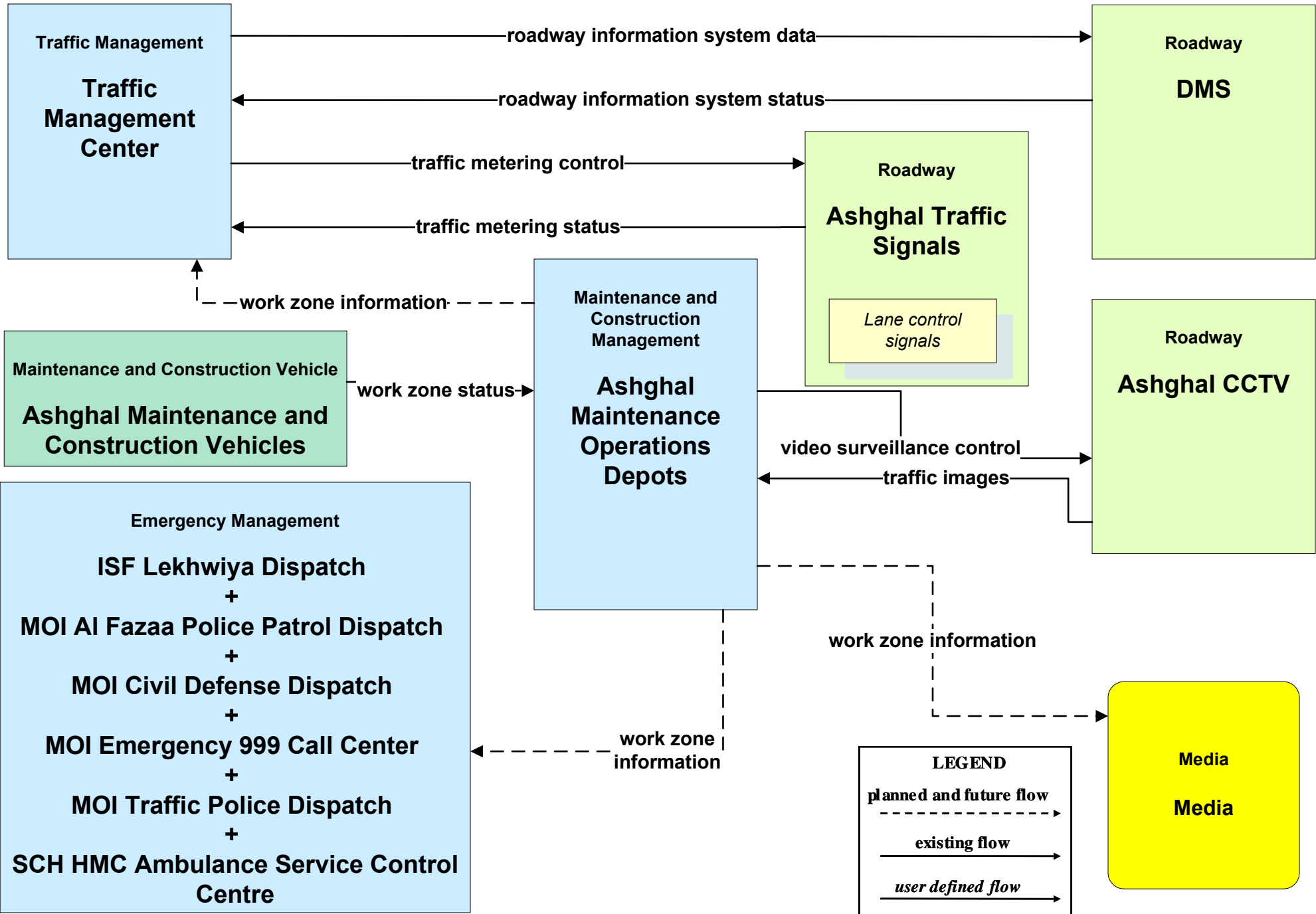
**MC07 - Roadway Maintenance and Construction
Ashghal**



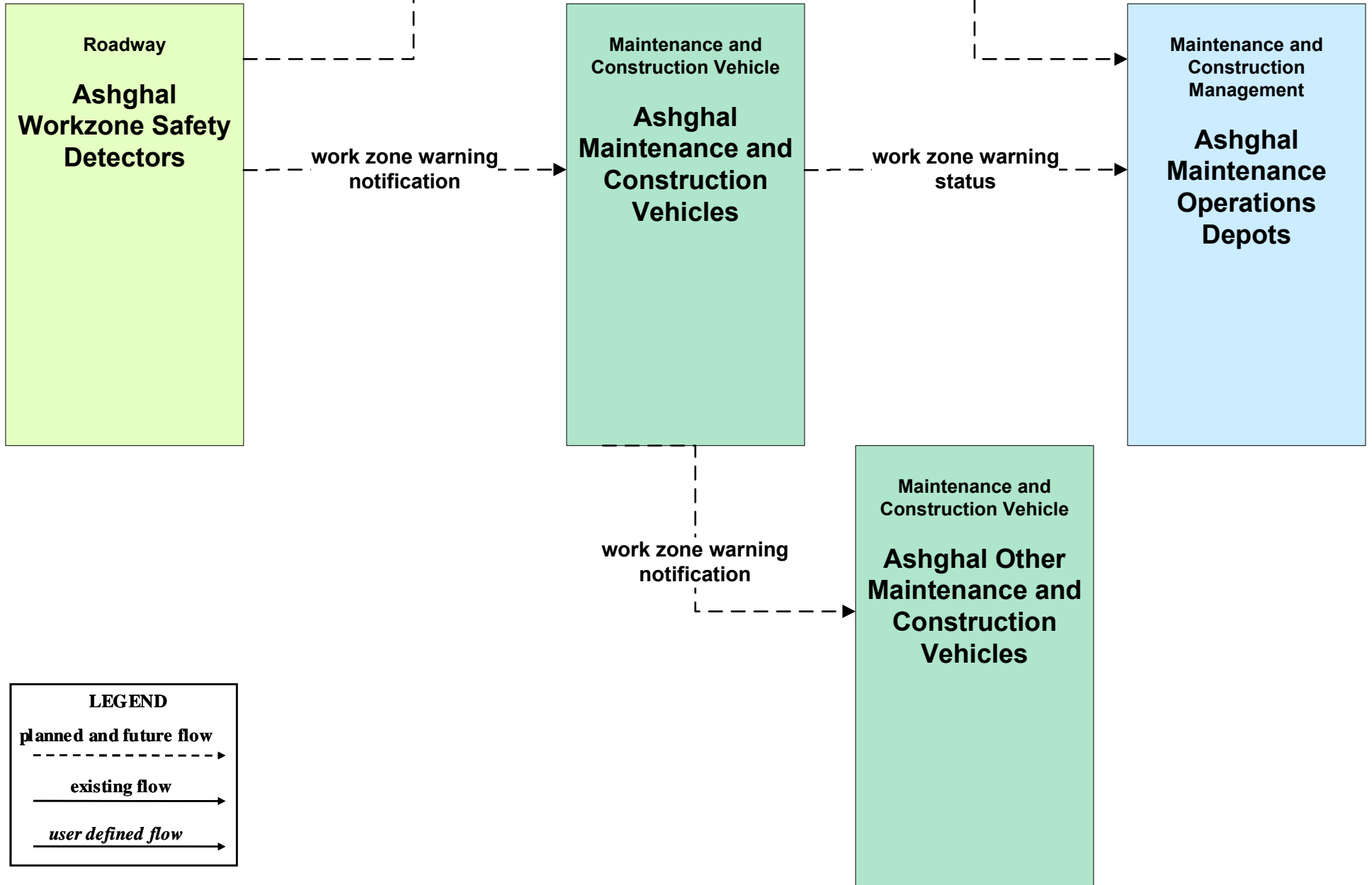
LEGEND

- planned and future flow*
- existing flow*
- user defined flow*

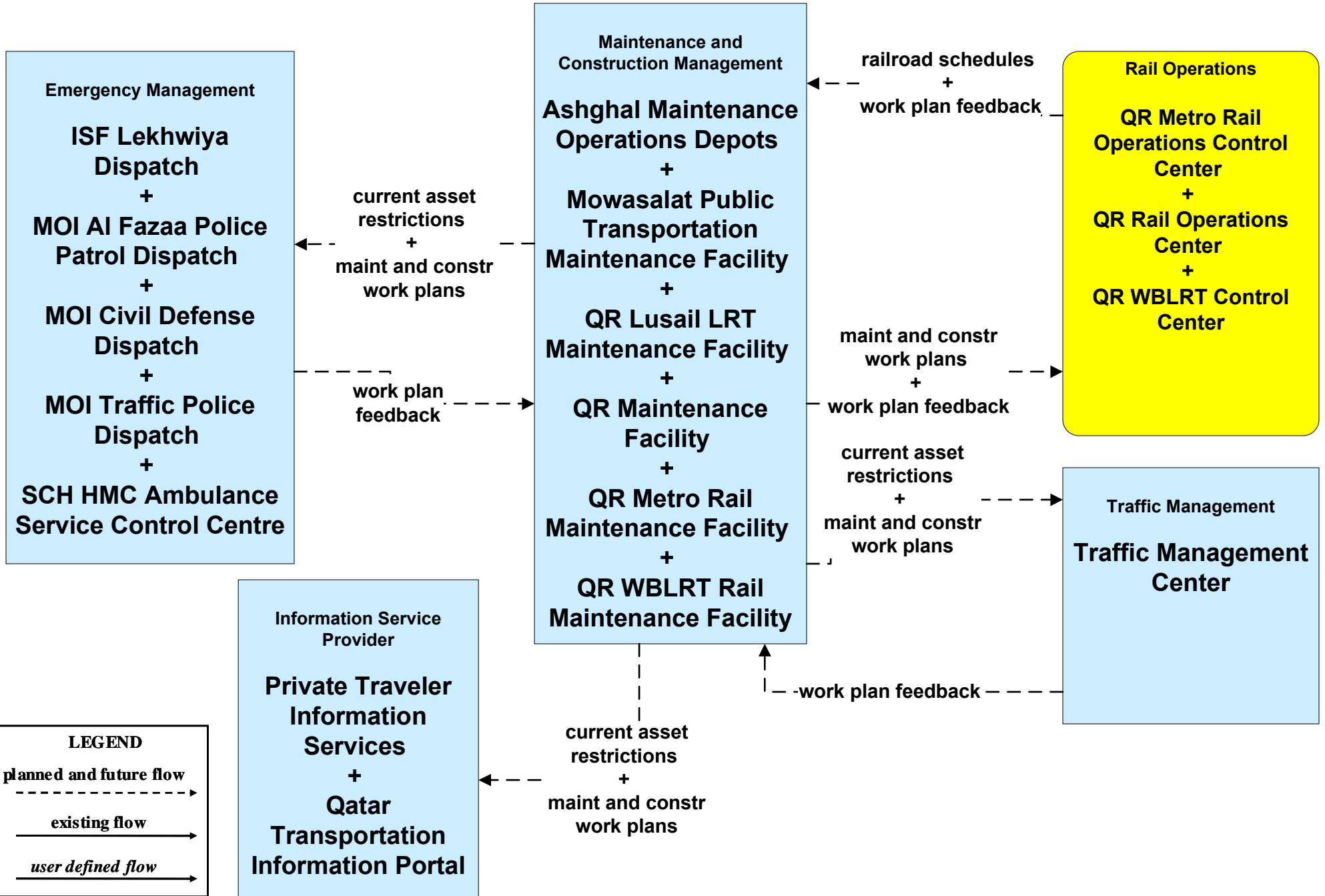
MC08 - Work Zone Management



**MC09 - Workzone Safety Monitoring
Ashghal**



**MC10 - Maintenance and Construction Activity Coordination
Restrictions, Work Plans and Feedback**



MC12 – Infrastructure Monitoring Ashghal

