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| Input contributionUse case |
| Use Case Title:\* | Use cases for dynamic traffic lights timing |
| Group Name:\* | TP#24 |
| Source:\* | CMCC |
| Contact: | Yawen Niu (niuyawen@chinamobile.com) |
| Date:\* | 2016-7-18 |
| Abstract:\* | Propose to add the use case for dynamic traffic lights timing to relief the traffic pressure.  |
| Agenda Item:\* |  |
| Work item(s): |  |
| Document(s) Impacted\* | Technical Specification TR 0026 – Vehicular Domain Enablement Technical Report |
| Intended purpose ofdocument:\* | [x]  Decision[x]  Discussion[ ]  Information[ ]  Other <specify> |
| Decision requested or recommendation:\* | Approval of the Use Case |

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* 1. **Title**

Use cases for dynamic trffic lights timig.

* 1. **Description**

Normally the traffic lights timing is fixed. However, in some situations, vehicle flowrate varies a lot. In this case, dynamic traffic lights timing will be able to relief the traffic pressure and improve the traffic efficiency.

* 1. **Source**

CMCC

* 1. **Actors**
* Traffic lights (M2M Devices embedded in traffic lights).
* Vehicles (M2M Devices embedded in vehicles)
* Vehicle Service Centre
	1. **Pre-conditions**
* Traffic lights are connected to the Vehicle Service Centre
* Vehicles are connected to the Vehicle Service Centre
	1. **Triggers**
	2. **Normal Flow**
* Vehicles report data (such as location, time, speed, direction…) to vehicle service centre.
* Traffic lights report data (such as location, current traffic lights timing policy) to vehicle service centre.
* The vehicle service centre analyzes the data (such as vehicles flowrate for each direction) periodically. If the current traffic lights timing policy need to be updated according to the policies (policies can be pre-configured in the vehicle service centre, such as maximize flowrate policy), the vehicle service centre re-compute the new traffic lights timing policy. (Noted: as it is not possible for the vehicle service centre to compute all the vehicles data, it should have some query conditions, for example, to compute all the vehicles data within a radius. The radius can be both fixed and dynamically according to the flowrate)
* The vehicle service centre sends the new traffic lights timing policy to traffic lights.
* Traffic lights control the vehicles flowrate according to the new policy.
	1. **Post-conditions** (if any)

NONE.

* 1. **High Level Illustration (**as applicable)

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* 1. **Potential requirements (as applicable)**
* The M2M service platform shall enable the data exchange between M2M Devices and M2M application with query condition (for example, all the vehicles data within a radius).
* The M2M service platform can real-time monitor the vehicles flowrate and analyze
* The M2M service platform can also self-determine which data will be exchanged according to its analyze result (for example, dynamically determine the radius and report vehicles data within the radius to M2M applications according to vehicles flowrate analyze result)
* The M2M service platform can configure the parameters of the M2M devices (for example, the timing of the traffic lights)