VANET Applications Use-Cases

VANET communications (V2V and V2I) can be used for dozens of potential applications with highly diverse requirements. Below we identify the most representative VANET applications and analyze their requirements through use-cases.
1. Assist driver with signage
   1.1. Traffic Signal/Stop Sign/Rail Crossing Violation Warning
   1.2. Other Signage
2. Assist Driver at Intersections
   2.1. Left Turn Assistance
   2.2. Intersection Collision Warning
3. Assist Driver on Special Road Conditions
   3.1. Work Zone Warning
   3.2. Rollover Warning
   3.3. Road Condition Warning (vehicle sensor based e.g. obstacles, unpaved road, black ice, etc.)
   3.4. Road Condition Warning (infrastructure based)
4. Assist Driver in Potentially Dangerous Situations
   4.1. Forward Collision Warning
   4.2. Emergency Brake Lights
   4.3. Blind Spot Warning
   4.4. Lane Change Warning
   4.5. Wrong Way Driver Warning
   4.6. Rail Collision Warning
5. Assist Driver in Normal Situations
   5.1. Highway Merge Assistance
   5.2. Visibility Enhancer (through obtaining data from other cars)
5.3. High Beam Turnoff request

6. Assist Driver in Accident Situations
   6.1. Crash/breakdown Warning
   6.2. OS services
   6.3. Pre-crash sensing (imminent or unavoidable collisions)
   6.4. Event Data Recording

7. Intelligent Traffic Control (vehicles report to Transportation Operation Center)
   7.1. Report Road Surface Condition
   7.2. Report Weather Probes
   7.3. Report Crash Data