

ANNEX 5 - Selected Data Stores ANNEX 4 - Selected Terminators and Actors

Number	Name	Description
		<p>This Data Store shall be used within the Manage Traffic Area. It shall contain data about the environmental conditions within the geographic area managed by the System. This data shall have been produced by Functions within the Area from inputs that they have received.</p> <p>The data in the Store shall be structured in the following way:</p> <ul style="list-style-type: none"><li>- date (date string)</li><li>- time (numbers defining hours, minutes and seconds)</li><li>- location (characters and/or numbers, e.g. GPS/Galileo data)</li><li>- temperature (number - in degrees Centigrade)</li><li>- humidity (number as a percentage)</li><li>- wind direction (up to five characters indicating compass points)</li><li>- wind speed (number in kph or mph)</li><li>- pollution levels (a set of numbers as percentages for different pollutants).</li></ul>
D3.3	Environmental Data	<p>The number of entries shall be fixed by the number of times that samples are taken. It shall be possible for the number and type of pollutants recorded to vary from one location to another and from one System to another.</p> <p>This Data Store shall be used within the Manage Traffic Area. It shall contain data collected about current and predicted incidents.</p> <p>The data in the Store shall be structured in the following way:</p> <ul style="list-style-type: none"><li>- start date (date string)</li><li>- start time (date string)</li><li>- forecast duration (number - minutes)</li><li>- actual duration (number - minutes)</li><li>- incident location (characters and/or numbers, e.g. GPS/Galileo data)</li><li>- incident type (characters)</li><li>- incident severity (characters)</li><li>- type and number of vehicles (characters for type(s) and numbers)</li><li>- incident strategy used (characters)</li><li>- emergency services vehicles used (characters for type(s) and numbers).</li></ul>
D3.4	Incident Data	<p>The data in some of these entries shall be provided as the incident state changes, whilst in others it shall be updated as the incident impact progresses and remedial action is taken.</p> <p>This Data Store shall be used within the Manage Traffic Area. It shall be split into two parts, one to contain data collected on the use of transport modes and the other to contain demand management strategies.</p> <p>The collected data in the Store shall be structured in the following way:</p> <ul style="list-style-type: none"><li>- date (date string)</li><li>- time (date string)</li><li>- transport mode (characters)</li><li>- amount of use (numbers as a percentage)</li></ul> <p>The number of entries shall be fixed by the number of transport modes, the period over which they are stored</p> <p>The data about the demand re-balancing strategies in the Store shall be structured in the following way:</p> <ul style="list-style-type: none"><li>- identity (characters)</li><li>- actions (characters).</li></ul>
D3.5	Demand Data	<p>The number of entries shall be fixed by the number of strategies.</p> <p>This Data Store shall be used within the Manage Traffic Area. It shall contain records of all maintenance actions that have been carried out, plus those that are yet to be completed.</p> <p>The data in the Store shall be structured in the following way:</p> <ul style="list-style-type: none"><li>- equipment identity (number)</li><li>- location (characters and/or numbers, e.g. GPS/Galileo data)</li><li>- type of equipment (characters)</li><li>- type of fault (characters)</li><li>- fault description (characters)</li><li>- date reported (date string)</li><li>- time reported (numbers defining hours, minutes and seconds)</li><li>- date of Maintenance Company notification (date string)</li><li>- time of Maintenance Company notification (numbers defining hours, minutes and seconds)</li><li>- date of fault clearance notification (date string)</li><li>- time of fault clearance notification (numbers defining hours, minutes and seconds)</li><li>- action taken to rectify fault (characters)</li><li>- Maintenance Contractor bonus/penalties (characters and numbers - in currency)</li></ul>
D3.6	Maintenance Data	<p>This data will cover all types of equipment (those located at the Roadside and at Central locations) and also the actual road network itself. In this case the "equipment identity" will contain the road name and/or number whilst the "type of equipment" will show the type of road.</p>

		<p>This Data Store shall be used within the Manage Traffic Area. It shall contain the static data for the car parks that are accessed from the urban traffic road network managed by the System.</p> <p>The data in the Store shall be structured in the following way: - car park location</p> <ul style="list-style-type: none"> <li>- number of entrances (number)</li> <li>- number of exits (number)</li> <li>- total number of spaces (number)</li> <li>- float to take account of vehicles searching for spaces (number)</li> <li>- owner/operator ID (number)</li> <li>- owner/operator contact information (characters and/or numbers (characters))</li> <li>- charges (numbers - in currency)</li> <li>- periods when they operate (time and date string)</li> <li>- method of car park fee collection (characters)</li> <li>- hours when operator present (time and date string)</li> <li>- separate cycle spaces (number)</li> <li>- separate motorcycle spaces (number)</li> <li>- number of disabled spaces (number)</li> <li>- display information in inter-urban area (character indicating YES or NO)</li> <li>- list of devices on which car park information is displayed with details about whether "state" or "spaces" is to be displayed (characters and/or numbers)</li> </ul> <p>It shall be possible for the car park state calculation Function to calculate the current state of the service area using the following "live" data:</p> <ul style="list-style-type: none"> <li>- number of vehicles entered car park (number)</li> <li>- number of vehicles that have left the car park (number)</li> </ul> <p>It shall be possible for this data to be replicated depending on the number of entrances and exits that a car park has and how the data that they collect is to be used. For example it shall be possible for the car park area to have separate parking areas for different types of vehicle such as car, coaches and HGV's.</p>
D3.9	Urban Car Park Data	<p>Other data shall be used for trip planning purposes but will be stored within the Provide Traveller Journey Assistance Area.</p>
		<p>This Data Store shall be used in the Manage Traffic Area. It shall contain various data that is to be used in modelling and simulating the traffic conditions in the road network managed by the System.</p> <p>The data in the Store shall be structured in the following way:</p> <ul style="list-style-type: none"> <li>- Road network data (data for a digital roadmap using a standard format, e.g. GDF)</li> <li>- Historic traffic data collected by other functionality in the System (numbers with dates)</li> <li>- Recent traffic data collected by other functionality in the System (numbers with dates)</li> <li>- Traffic management strategies in use when the traffic data was collected (characters and numbers)</li> <li>- Processed traffic data that shows the origin and destination of traffic flows (number and digital roadmap data)</li> <li>- Results from the simulation of traffic conditions in the road network managed by the System (numbers and digital roadmap data)</li> </ul> <p>The input data shall be provided by other functionality to the Manage Road Traffic Data Store Function. It shall be possible for this data to be produced from collected data or from input provided by the Transport Planner through the Provide Traffic Simulation Operator Interface Function.</p> <p>It shall be possible for the results data identified above to show the forecast traffic conditions produced by traffic management strategies that were provided by the Transport Planner, or to be based on those used previously. These strategies shall be stored in such a way that they can be associated with the results to which they are relevant. It shall also be possible for car park space requirements to be included in the results.</p>
D3.11	Road Traffic Prediction Data	
		<p>This Data Store shall be used in the Manage Traffic Area. It shall contain information about incident strategies that have been created and used previously.</p> <p>The data in the Store shall be structured in the following way:</p> <ul style="list-style-type: none"> <li>- Strategy identity (characters)</li> <li>- Reason for implementing the strategy (characters)</li> <li>- How the strategy was implemented, e.g. Operator, Automatically - (character);</li> <li>- Implementation date (date string) <ul style="list-style-type: none"> <li>- implementation time (numbers defining hours, minutes and seconds)</li> <li>- Removal date (date string) <ul style="list-style-type: none"> <li>- removal time (numbers defining hours, minutes and seconds)</li> </ul> </li> </ul> </li> <li>- Part(s) of the road network covered by the strategy (data for a digital roadmap using a standard format, e.g. GDF)</li> <li>- Set of actions for the urban road network traffic management functionality - optional (characters);</li> <li>- Set of actions for the inter-urban road network traffic management functionality - optional (characters);</li> <li>- set of other actions - optional (characters);</li> <li>- Set of text messages to be displayed to Travellers and/or Drivers, with the identities of the equipment through which the displays shall be shown (characters).</li> </ul> <p>The above shall represent the "minimum" set of information about each strategy. It shall be possible for it to be supplemented by other sets of information such as comments from the Road Network Operator. Some of the data items shall only be populated when the strategy is used, e.g. how the strategy was implemented, date/time of implementation/removal.</p> <p>It shall be possible for the actions to be a series of commands that can be sent directly to other Functions, such as those concerned with traffic management. Other actions shall be able to be requests for the Road Network Operator to call one or more Emergency Services, or take other action that cannot be implemented by a specific Function.</p>
D3.12	Incident Strategies Data	

This Data Store shall be used within the Manage Traffic Area. It shall contain traffic flow and other traffic related data for the urban road network. The data in the Store shall be divided into two parts comprising historic and current data.

The data in the Store shall be structured in the following way:

- date (date string)
- time (numbers defining hours, minutes and seconds)
- location (characters and/or numbers, e.g. GPS/Galileo data)
- vehicle flow (number in vehicles per hour)
- vehicle speed (number in kph or mph)
- vehicle headway (number in seconds)
- road occupancy (number as a percentage)
- queue presence (number or character indicating YES or NO)
- vehicle count (number)

There shall be one set of the above data for each location in the urban road network where some or all of the data shall have been obtained. Within each set there shall be both current and historic data.

The data in the Store for predicted data shall be structured in the following way:

- predicted date (date string)
- predicted time (numbers defining hours, minutes and seconds)
- location (characters and/or numbers, e.g. GPS/Galileo data)
- vehicle flow (number in vehicles per hour)
- vehicle speed (number in kph or mph)
- vehicle headway (number in seconds)
- road occupancy (number as a percentage)

There shall be three sets of predicted data, comprising short, medium and long term predictions.

It shall be possible for the following items of data to also be included in the Data Store with the data for each segment of the urban road network, if extended floating car data is available for collection:

D3.13 Urban Traffic Data

- rain present (number or character indicating YES or NO)

This Data Store shall be used within the Manage Traffic Area. It shall contain traffic flow data and other traffic related data for the inter-urban road network. The data in the Store shall be divided into up to three parts comprising current, historic and predicted data.

The data in the Store for current and historic data shall be structured in the following way:

- date (date string)
- time (numbers defining hours, minutes and seconds)
- location (characters and/or numbers, e.g. GPS/Galileo data)
- vehicle flow (number in vehicles per hour)
- vehicle speed (number in kph or mph)
- vehicle headway (number in seconds)
- road occupancy (number as a percentage)
- queue presence (number or character indicating YES or NO)
- vehicle count (number)

There shall be one set of the above data for each location in the inter-urban road network where some or all of the data shall have been obtained. Within each set there shall be both current and historic data.

The data in the Store for predicted data shall be structured in the following way:

- predicted date (date string)
- predicted time (numbers defining hours, minutes and seconds)
- location (characters and/or numbers, e.g. GPS/Galileo data)
- vehicle flow (number in vehicles per hour)
- vehicle speed (number in kph or mph)
- vehicle headway (number in seconds)
- road occupancy (number as a percentage)

There shall be three sets of predicted data, comprising short, medium and long term predictions.

It shall be possible for the following items of data to also be included in the Data Store with the data for each segment of the urban road network, if extended floating car data is available for collection:

D3.14 Inter-urban Traffic Data

- rain present (number or character indicating YES or NO)

This Data Store shall be used within the Provide Traveller Journey Assistance Area. It shall contain information about the road network and the traffic conditions within it for use in planning trips.

The data in the Store shall be structured in the following way:

- area covered (characters, e.g. nation, region, city, state, area names(s))
- road network data (data for a digital roadmap using a standard format, e.g. GDF)
- link:
  - ID (number)
  - current traffic flow (number in vehicles per hour)
  - current average traffic speed (number in kph or mph)
  - current average traffic headway (number in seconds)
  - date for current traffic data (date string)
  - time for current traffic data (numbers defining hours, minutes and seconds)
  - predicted traffic flow (number in vehicles per hour)
  - predicted average traffic speed (number in kph or mph)
  - predicted average traffic headway (number in seconds)
  - prediction date (date string)
  - prediction time (numbers defining hours, minutes and seconds)

D6.3 Road Trip Planning Data

It shall be possible for link data to be stored for every link in the road network and for the current and predicted data to be updated whenever new data is received. Also it shall be possible for there to be several sets of predicted data for different date/time combinations.

This Data Store shall be used within the Provide Traveller Journey Assistance Area. It shall contain information about the services provided by the Public Transport operations plus the fares that will be charged and shall be for use in planning trips.

The data in the Store for each service shall be structured in the following way:

- ID (number)
- name (characters)
- route (data for a digital roadmap using a standard format, e.g. GDF plus characters and/or numbers, e.g. GPS/Galileo data)
- type of PT Vehicle preferred (characters)
- type of PT Driver preferred (characters)
- type of day on which service operates (characters)
- timetable (time in hours and minutes)
- frequency (numbers defining hours and minutes)
- variations to the service (characters)

The data in the Store shall be structured in the following way:

- fare scheme ID (number)
- fare scheme name (characters)
- date when fare scheme expires (date string)
- time(s) of day when fare scheme operates (numbers defining hours and minutes)
- route ID(s) to which fare scheme applies (numbers)
- type(s) of PT Passenger to which fare scheme applies (characters)

For each type of PT Passenger, the following fare information shall be provided:

- range ID's of stop to which fare applies (numbers)
- numbers ID's of stops to which fare applies (numbers)

D6.4 PT Trip Planning Data

The above data shall be provided by functionality in the Manage Public Transport Operations Area and shall be updated every time a change is made.

This data store shall be used within the Provider Traveler Journey Assistance Area. It shall contain travel information that has been produced from data collected by trip planning and other functionality.

The data in the Store shall be structured in the following way:

- Points of Interest (POI):
  - location (characters and/or numbers, e.g. GPS/Galileo data)
  - information (characters)
- Personal Services (PS):
  - location (characters and/or numbers, e.g. GPS/Galileo data)
  - information (characters)
- Other Modes:
  - departure location (characters and/or numbers, e.g. GPS/Galileo data)
  - arrival location characters and/or numbers, e.g. GPS/Galileo data()
  - service details including schedules and costs (characters and numbers, some in currency)
- Toll Information:
  - link ID (number)
  - type of link, e.g. toll road, tunnel, bridge (characters)
  - details of charges (characters and numbers some in currency others showing time in minutes and hours)
- PT service information (see store of PT Trip Planning Data)
- link:
  - ID (number)
  - current traffic flow (number in vehicles per hour)
  - current average traffic speed (number in kph or mph)
  - current average traffic headway (number in seconds)
  - date for current traffic data (date string)
  - time for current traffic data (numbers defining hours, minutes and seconds)
  - predicted traffic flow (number in vehicles per hour)
  - predicted average traffic speed (number in kph or mph)
  - predicted average traffic headway (number in seconds)
  - prediction date (date string)

D6.5      Travel Information Data