JourneyWeb
&
AN XML PROTOCOL FOR THE DYNAMIC EXCHANGE OF TRAVEL INFORMATION

Protocol & Schema Guide

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DRAFT FOR CONSULTATION

[NB THIS IS AN CONSULTATION DRAFT – AND IS OPEN TO REVISION / DISCUSSION OF
  ♦ MISSING ELEMENTS – e.g. further Equipment properties
  ♦ UNNECESSARY ELEMENTS – Can be simplified / dropped
  ♦ CLARIFICATIONS & RULES FOR POPULATING – When should accessibility data be included in results and to what level of detail

JourneyWeb v2.4c
### Version History

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<th>Date</th>
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1. Introduction

*JourneyWeb* is an XML protocol to allow distributed journey planning engines to communicate journey data together in order to provide journey planning across the whole country.

The protocol is a UK national *de facto* standard sponsored by the UK Department for Transport and is being used in the Transport Direct Portal to provide contiguous distributed journey planning across the whole of Great Britain. The protocol has been implemented by all suppliers providing journey planners used by the Portal.

This Schema Guide accompanies the *JourneyWeb* 2.4 XML schema and is intended to provide a reference guide for system developers, data providers and other users of *JourneyWeb*. Detailed documentation of individual schema elements is provided as annotations within the schema: the purpose of this guide is to provide a higher level technical overview on how to use *JourneyWeb*.

1.1 JourneyWeb Antecedents

- Earlier versions of the *JourneyWeb* protocol up to v2.1.0 were developed by Mike Ness, Richard Shaw and others in the WS Atkins team under contract to the Department for Transport.
- Interim releases 2.1.0a, through 2.1.0s also managed by WS Atkins were used to roll up any required enabling changes for the first release of the Transport Direct portal project. These changes area included in *JourneyWeb* v2.4.
- A draft proposal (3.0a & 3.0b) for additions to the schema was developed in 2004 but not taken further.
- This revised version of the *JourneyWeb* protocol (v2.4), developed in 2010, includes a number of enhancements to the protocol, focused on improving support for accessibility; to add additional functions and to improve various technical aspects of XML use. It also includes a revision of the user guide to update and correct all the diagrams. For a summary of changes in *JourneyWeb* v2.4, see Appendix A.

1.2 JourneyWeb Version v2.4 Enhancements

Version v2.4 of *JourneyWeb* is intended to address the following main requirements:

- **Accessibility**: Support accessibility criteria in journey requests and information in responses. The values used are based on the CEN NeTEx representation. Clarify semantics for filtering walk legs, access legs, etc in existing schema. Enhance walk distance parameters.
- **Cycle Options**: Support accessibility criteria in requests and accessibility information in responses.
- **Path Legs**: Add elements to described detailed path legs into and through interchange structures.
- **Service Facilities**: Common service facilities classifications used in rail such as Seat Class.
- **Track Details**: Add suitable structures to allow the simple projection of journeys onto maps and spatial representations.
- **Traceability**: allow the requesting/responding System Identifier to be included on requests & responses.
- **Seeding**: The seed parameter includes an indication of the originating point so that exchange points can be distinguished from user points.
- **Algorithm**: Add “minimum number Changes” to supported optimisations
- **Submodes**: Ability to indicate additional mode information such as legacy rail, high speed rail, express coach etc.
- **Notes**: Allow additional tagging of notes associated with journey legs.
- **Routing Rules**: Allow additional tagging of journeys with a routing rule
- **Documentation**: Update the documentation to reflect changes and clarify areas of ambiguity. A number of omissions have been corrected and all of the XML diagrams updated to show the data types of all elements.
- **XML Best Practice**: Modularisation improvements to the XML encoding to improve code maintainability and documentation. The JourneyWeb services are broken down into separate schema documents. These are purely internal packaging & code reorganisations and do not affect the resulting end XML structure. These are in line with e-GIF & XML best practice guidelines.

The 2.4 version of JourneyWeb is intended to have full backwards compatibility, that is, v2.4 requests that use only v2.1 features should appear identical to existing v2.1 requests (other than the schema version number); only requests that use the new v2.4 features require additional v2.4 support of those features from a JourneyWeb server.

### 1.3 Intellectual Property Rights

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Intellectual Property Rights in the *JourneyWeb* Schema are completely separate and distinct from Intellectual Property Rights to the timetable, map and other *instance data* that a server implementing *JourneyWeb* may return, and to the specific software used to implement the protocol. Rights to data and software will reside with the providers of the various implementations and their use is subject to proper commercial agreement with these providers.

### 1.4 Document Structure

This *JourneyWeb Schema Guide* is organized as follows:

**Part I – Overview.** The chapters in Part I are intended to give a summary of the basic concepts and purpose of *JourneyWeb*. This is suitable for general readers as well as *JourneyWeb* developers. It includes:
- Basic *JourneyWeb* concepts.
- Some Scenarios for *JourneyWeb* usage.

**Part II – Reference** The chapters in Part II are intended to provide a detailed technical discussion of the schema and how to use it. It assumes knowledge of both XML and journey planning concepts. It has the following sections:
- A description of the *JourneyWeb* schema, with discussion of additional considerations and constraints on returning values.
- Example requests and replies.
Capabilities: The optional features that can be implemented.
- Conformance.
- Error handling.
- Versioning.

The Schema Guide does not cover:
- An account of the NaPTAN & NPTG models – See Separate Schema guides.
- Details of the history of JourneyWeb (some of these can be found in the ‘JourneyWeb 2.0 Creating the JourneyWeb Network’). This Schema Guide is intended rather to provide a consolidated account of the current JourneyWeb protocol.
- Details of how source data (e.g. NPTG) should be collected.
- How to implement Active JourneyWeb.

1.5 Versioning

A strict versioning system is used for JourneyWeb, following e-Gif principles. This is made explicit in Version v2.4 and is explained in Section 9.

1.6 Presentation Conventions

JourneyWeb schema XML elements are shown throughout this guide in bold italic type, for example the JourneyRequest element. XML Attributes are shown in bold, for example DataDate.
2. JourneyWeb Basic Concepts

JourneyWeb allows two or more journey planning engines with knowledge of different areas or transport modes to carry out distributed journey planning, that is, to dynamically combine data from both servers to build up composite journeys that span the respective areas covered by the different engines. The data exchanged can include locations, journey plans, timetables, and stop arrivals and departures.

JourneyWeb is a request/response protocol: each exchange of data consists of a request message and a response message. Both journey planners are peers – they can both initiate queries by sending a request. In normal use a local journey planner acts as a client to query a remote journey planner for information about an area which it does not itself hold. The messages consist of XML documents, whose tags are exactly specified by the JourneyWeb schema. An overview of the different message types is given in the next section. As well as defining the different types of request and response message allowed, the schema also includes additional response messages to handle error conditions.

2.1 Related Standards

JourneyWeb is built on top of several related standards: that allow all the journey planning engines to assume a common context:

- NaPTAN: The National Public Transport Access Node database is a UK nationwide system for uniquely identifying all the points of access to public transport in the UK. All JourneyWeb dialogs assume full knowledge of the NaPTAN database by all parties. The NaPTAN database is maintained centrally under contract to the Department for Transport. The NaPTAN standard is described in a separate document See Bibliography in Annex D.
  - Every UK station, coach terminus, airport, ferry terminal, bus stop etc is allocated a unique NaPTANID.
  - For large interchanges & termini, NaPTAN points identify the entrances from the public thoroughfare – one identifier is distinguished as the main entrance.

- NPTG: The National Public Transport Gazetteer auxiliary database to NaPTAN which provides a means of relating NaPTAN stops to UK Towns and Villages, and also to the regional groupings used to manage Public Transport data. All JourneyWeb dialogs assume full knowledge of the NPTG database by all parties; engines use the information to judge where to find remote responses. A short overview of the n model is given in the NaPTAN Schema GuideSection 4. For further details see the NaPTAN guide.

- UK Geocoding references: JourneyWeb uses OS Easting & Northing for geospatial references.

See Annex D for further information on related standards.

2.2 Compliance Levels

Not all journey planners will necessarily support all of the features of JourneyWeb. The different named features that can be supported are systematically identified as distinct modules in the ‘Compliance’ section.
3. Using the JourneyWeb Protocol

The JourneyWeb protocol supports seven basic types (Table 3-1) of travel information request between journey planning systems.

<table>
<thead>
<tr>
<th>Service</th>
<th>Purpose</th>
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<tr>
<td>POINTS</td>
<td>Returns a list of remote stops for a NPTG locality or coordinate.</td>
</tr>
<tr>
<td>JOURNEYS</td>
<td>Calculates the best journeys between combinations of stops.</td>
</tr>
<tr>
<td>LEGPATHS</td>
<td>Returns additional information about specific journey legs.</td>
</tr>
<tr>
<td>TIMETABLES</td>
<td>Returns a matrix of timetable data suitable for producing columnar</td>
</tr>
<tr>
<td></td>
<td>timetables.</td>
</tr>
<tr>
<td>STOPEVENTS</td>
<td>Returns departures for a stop at a specified time. Responses can include</td>
</tr>
<tr>
<td></td>
<td>real time as well as scheduled information.</td>
</tr>
<tr>
<td>SERVICES</td>
<td>Returns a list of services for which the remote journey planner can return</td>
</tr>
<tr>
<td></td>
<td>timetables.</td>
</tr>
<tr>
<td>OPERATORS</td>
<td>Returns the transport operators supported by the remote journey planner.</td>
</tr>
</tbody>
</table>

Table 3-1 – JourneyWeb Services

In general the JourneyWeb service types are intended to be used in a specific sequence. For example a POINTS query might be used to make an initial selection of locations that can subsequently be used to compose a JOURNEYS request. In particular the following combinations of requests are envisaged:

- POINTS + JOURNEYS
- POINTS + LEGPATHS
- JOURNEYS + LEGPATHS
- SERVICES + TIMETABLES
- OPERATORS + TIMETABLES
- STOP EVENTS

We discuss each of these scenarios further in the following section.
3.1 Using Points and Journeys

Point & Journey services provide the journey planning function fundamental to JourneyWeb. The two request types need to be combined in different ways depending on whether the query is between stops or between localities, and whether the stops or localities are both in the same or different regions – either or both of which may be remote.

For example, in order to compute a distributed journey plan between a local region and a remote region, the local journey planner would need to collaborate with the remote journey planner as follows:

1. Perform a POINTS request to obtain a list of stops at the remote end.
2. Select a remote stop.
3. Select exchange points (National and AREP) for the origin or destination from NPTG.
4. Create a local journey plan from the origin to each of the exchange points.
5. Perform a JOURNEYS request from each of the exchange points to the destination.
6. Splice the results.

Figure 3-1 shows an example interaction sequence needed to support the above to support a query made by a call centre agent.

![Figure 3-1 – Overview of Journey Request](image-url)
3.1.1 Typical Scenarios for Journey Computations

The following scenarios show the most typical journey computations that will be performed using JourneyWeb. Local refers to a location within the system’s own region; remote to one outside its own region.

- **Scenario 1:** Local stop to remote stop.
- **Scenario 2:** Local stop to remote locality.
- **Scenario 3:** Remote stop to remote stop (same region).
- **Scenario 4:** Local stop to adjacent region stop.
- **Scenario 5:** Remote stop to remote stop (different regions).

Journey planning request made to engines within the Transport Direct Portal requests will generally be according to scenario 3 or 5.

3.1.2 Scenario 1 – Local Stop to Remote Stop

A caller rings the East Anglia call centre and requests a journey from a bus stop in the local area (say in Kings Lynn) to a bus stop in a remote area (say Elgin, Scotland).

*Table 3-2* indicates how the call centre agent and the journey planning software will interact to process the request:

<table>
<thead>
<tr>
<th>Call Centre Agent</th>
<th>Journey Planner Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enters Origin of Kings Lynn</td>
<td>Looks at local copy of National Gazetteer and identifies that Kings Lynn is a local locality. Displays a list of the stops in Kings Lynn.</td>
</tr>
<tr>
<td>Selects a stop from the list</td>
<td></td>
</tr>
<tr>
<td>Enters Destination of Elgin</td>
<td>Looks at local copy of National Gazetteer and identifies that Elgin is a remote locality. Extracts the URL of the remote journey planner from the National Gazetteer to which to send JourneyWeb requests. Makes a JourneyWeb POINTS request (passing the National Gazetteer ID for Elgin) to obtain the stops in Elgin. Displays the returned stops.</td>
</tr>
<tr>
<td>Selects a stop from the list</td>
<td></td>
</tr>
<tr>
<td>Presses Calculate Journey</td>
<td>Lookup the national exchange points from NPTG for the remote stop. Check if remote area is adjacent to local area. Answer is ‘no’. Make a local journey request between the selected stop in Kings Lynn and each exchange point relevant to the remote locality. Makes a JourneyWeb JOURNEYS request from the each exchange point reached to the selected stop in Elgin using start times from the results of the local request. Merges the results together to give a seamless journey.</td>
</tr>
</tbody>
</table>
Table 3-2 – Example Scenario 1: Local Stop to Remote Stop

Figure 3-2 illustrates the above example. The first journey plan has managed to find journeys to two of the three exchange points. The second journey plan has been asked to only look for onward journey from these two exchange points and it has found some journeys. The final answer given depends upon the number of options requested and the relative merits of each option.
3.1.3 Scenario 2 – Local Stop to Remote Locality

A caller rings the East Anglia call centre and requests a journey from a bus stop in the local area (say in Kings Lynn) to a locality in a remote area (say Elgin) – they do not specify a stop. Table 3-3 indicates how the call centre agent and the journey planning software will interact to process the request:

<table>
<thead>
<tr>
<th>Call Centre Agent</th>
<th>Journey Planner Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enters Origin of Kings Lynn</td>
<td>Looks at local copy of National Gazetteer and identifies that Kings Lynn is a local locality. Displays a list of the stops in Kings Lynn.</td>
</tr>
<tr>
<td>Selects a stop from the list</td>
<td></td>
</tr>
<tr>
<td>Enters Destination of Elgin</td>
<td>Looks at local copy of National Gazetteer and identifies that Elgin is a remote locality. Extracts the URL of the remote journey planner to send the JourneyWeb requests to from the National Gazetteer. Makes a JourneyWeb POINTS request (passing the National Gazetteer ID for Elgin) to obtain the stops in Elgin. Displays the returned stops.</td>
</tr>
<tr>
<td>Ignores the stops and selects Elgin</td>
<td></td>
</tr>
<tr>
<td>Presses Calculate Journey</td>
<td>Looks at the list of stops returned from the points request and uses the ones identified as locality centre as the selected stops. If no stops are defined for locality centre then all stops should be used. Checks if remote area is adjacent to local area. Answer is ‘no’. Makes a local journey request between the selected stop in Kings Lynn and the each exchange point relevant to the remote locality. Makes a JourneyWeb JOURNEYS request from the each exchange point reached to the selected stops in Elgin using the start times from the results of the local request. Merges the results together to give seamless journey.</td>
</tr>
<tr>
<td>Reads the results to the caller</td>
<td></td>
</tr>
</tbody>
</table>

Table 3-3 – Example Scenario 2: Local Stop to Remote Locality
3.1.4 Scenario 3 – Remote Stop to Remote Stop (Same Region)

A caller rings the East Anglia call centre and requests a journey from a bus stop in a remote area (say in Tenby) to another bus stop in a remote area (say Swansea).

Table 3-4 indicates how the call centre agent and the journey planning software will interact to process the request:

<table>
<thead>
<tr>
<th>Call Centre Agent</th>
<th>Journey Planner Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enters Origin of Tenby</td>
<td>Looks at local copy of National Gazetteer and identifies that Tenby is a remote locality. Extracts the URL of the remote journey planner to send the JourneyWeb requests to for Tenby. Makes a JourneyWeb POINTS request (passing the National Gazetteer ID from Tenby) to obtain the stops in Tenby. Displays a list of the stops in Tenby.</td>
</tr>
<tr>
<td>Selects a stop from the list</td>
<td></td>
</tr>
<tr>
<td>Enters Destination of Swansea</td>
<td>Looks at local copy of National Gazetteer and identifies that Swansea is a remote locality. Extracts the URL of the remote journey planner to send the JourneyWeb requests to for Swansea. Makes a JourneyWeb POINTS request (passing the National Gazetteer ID from Swansea) to obtain the stops in Swansea. Displays the returned stops.</td>
</tr>
<tr>
<td>Selects a stop from the list</td>
<td></td>
</tr>
<tr>
<td>Presses Calculate Journey</td>
<td>Checks to see if the regions are different. They are the same so do a single request. Makes a JourneyWeb JOURNEYS request from the selected stop in Tenby to the selected stop in Swansea.</td>
</tr>
<tr>
<td>Reads the results to the caller</td>
<td></td>
</tr>
</tbody>
</table>

Table 3-4 – Example Scenario 3: Remote Stop to Remote Stop (Same Region)
3.1.5 Scenario 4 – Local Stop to Adjacent Region Stop

A caller rings the East Anglia call centre and requests a journey from a bus stop in the local area (say in Kings Lynn) to a bus stop in an adjacent region (say Colchester).

Table 3-5 indicates how the call centre agent and the journey planning software will interact to process the request:

<table>
<thead>
<tr>
<th>Call Centre Agent</th>
<th>Journey Planner Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enters Origin of Kings Lynn</td>
<td>Looks at local copy of National Gazetteer and identifies that Kings Lynn is a local locality. Displays a list of the stops in Kings Lynn.</td>
</tr>
<tr>
<td>Selects a stop from the list</td>
<td></td>
</tr>
<tr>
<td>Enters Destination of Colchester</td>
<td>Looks at local copy of National Gazetteer and identifies that Colchester is a remote region locality. Extracts the URL of the remote journey planner from the National Gazetteer to which to send the JourneyWeb request. Makes a JourneyWeb POINTS request (passing the National Gazetteer ID for Colchester) to obtain the stops in Colchester. Displays the returned stops.</td>
</tr>
<tr>
<td>Selects a stop from the list</td>
<td></td>
</tr>
<tr>
<td>Presses Calculate Journey</td>
<td>Looks up the national exchange points from NPTG for the remote stop. Checks if remote area is adjacent to local area. Answer is ‘yes’. Looks up the adjacent region exchange points from NPTG. Makes a local journey request between the selected stop in Kings Lynn and each of the exchange points – national and adjacent (see note 1 below). Makes a JourneyWeb JOURNEYS request from each of the exchange points reached to the selected stop in Colchester using the start times from the results of the local request. Merges the results together to give a seamless journey.</td>
</tr>
<tr>
<td>Reads the results to the caller</td>
<td></td>
</tr>
</tbody>
</table>

**Table 3-5 – Example Scenario 4: Local Stop to Adjacent Region**

**NOTE 1:** Both the national exchange points and the adjacent exchange points are used so that the best option can be calculated. The adjacent region exchange points will allow a bus journey to be calculated and the national exchange points will allow a train or coach journey to be calculated.
3.1.6 Scenario 5 – Remote Stop to Remote Stop (Different Regions)

A caller rings the West Midlands call centre and requests a journey from a bus stop in a remote area (say in Kings Lynn) to a bus stop in an adjacent region (say Colchester).

Table 3-6 indicates how the call centre agent and the journey planning software will interact to process the request:

<table>
<thead>
<tr>
<th>Call Centre Agent</th>
<th>Journey Planner Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enters Origin of Kings Lynn</td>
<td>Looks at local copy of National Gazetteer and identifies that Kings Lynn is a remote region locality. Extracts the URL of the remote journey planner from the National Gazetteer to which to send the JourneyWeb requests. Makes a JourneyWeb POINTS request (passing the National Gazetteer ID for Kings Lynn) to obtain the stops in Kings Lynn. Display the returned stop.</td>
</tr>
<tr>
<td>Selects a stop from the list</td>
<td></td>
</tr>
<tr>
<td>Enters Destination of Colchester</td>
<td>Looks at local copy of National Gazetteer and identifies that Colchester is a remote region locality. Extracts the URL of the remote journey planner from the National Gazetteer to which to send the JourneyWeb requests. Makes a JourneyWeb POINTS request (passing the National Gazetteer ID for Colchester) to obtain the stops in Colchester. Displays the returned stops.</td>
</tr>
<tr>
<td>Selects a stop from the list</td>
<td></td>
</tr>
<tr>
<td>Presses Calculate Journey</td>
<td>Checks to see if the origin and destinations are different. They are, so make two requests: • Lookup the national exchange points from NPTG for the remote stop. • Lookup the adjacent region exchange points from NPTG (see note 2 below). Makes a JourneyWeb JOURNEYS request from the selected stop in Kings Lynn to each of the national exchange points and adjacent exchange points of the selected stop in Colchester (see note 3 below). Makes a JourneyWeb JOURNEYS request from each of the national exchange points and adjacent region exchange points of the selected stop in Colchester reached to the selected stop in Colchester using the start times from the results of the first request. Merges the results together to give a seamless journey.</td>
</tr>
<tr>
<td>Reads the results to the caller</td>
<td></td>
</tr>
</tbody>
</table>

Table 3-6 – Example Scenario 5: Remote Stop to Remote Stop (Different Region)

NOTE 1: The example has assumed that the systems supporting Colchester and Kings Lynn are different adjacent remote areas.
NOTE 2: The example shows the trunk part of the journey being done as part of the first request; it could just as validly have been done as part of the second request.

3.2 Using the Leg Paths Request

The **LegPaths** can be used to obtain detailed access details for an interchange. A request can be made between two points of an interchange, for example the entrance and a specific platform. Alternatively the leg can be taken from a previous journey result:

- Specifying the accessibility criteria to be returned on a **JourneysRequest**.
- Select the **InterchangeLeg** from **JourneysResponse**.
- Request the paths for the leg identifier of the returned leg using a **LegPathsRequest**.

3.3 Using Timetables

The JourneyWeb protocol supports two different forms of timetable request:

- **Service**: To request timetables for a list of known services (e.g. 12 & 12A).
- **Stop to stop**: To request a timetable for all direct services between two stops.

Timetable results may be returned in two different formats, depending on the remote server’s capabilities:

- A matrix of columnar timetable data.
- A URL of a location on the remote server from which a pre-rendered timetable may be obtained in the preferred format of the supplier.

3.3.1 Using Service Timetables

**Figure 3-3** shows how a user might request a service timetable.

1. The **ServicesRequest** call is used to get a list of all matching services. These will be returned with a URL and a flag indicating whether the timetable can be requested in matrix data format.

2. If matrix data format is available, the local journey planner can use **ServiceTimetableRequest** to get the data and format it using local formatting rules; otherwise it will have to forward the timetable display to the given URL using a web browser.

Matrix data can be requested for multiple services at the same time to obtain a composite timetable of services e.g. service 12 and 12A. The requested timetable will be returned pre-sorted ready for display.
3.3.2 Using Stop to Stop Timetables

To request a stop-to-stop composite timetable, a start point and end point are specified with a date range (1-7 days). Matrix timetable data will be returned for all direct services between the requested stops. Only the section of the services between the requested stops will be returned. Each column will contain enough information to request a service timetable to show the complete service (either in matrix data format or as a URL to a pre-rendered version of the timetable).

3.3.3 Using Leg Timetables

The *JourneysResponse* contains timetable details for each leg of the journeys. This can be used to obtain a timetable display for each leg of the journey.

Each leg contains information to support three different potential ways of requesting a service timetable:

- A **TimetableLink** URL with which to fetch a pre-rendered timetable.
- A **PrivateTimetableID** with which to request matrix data using the *ServiceTimetableRequest*. (By Private we mean an arbitrary identifier allocated by the server purely for uses in subsequent request).
- **Operator** and **Service** details with which to request matrix data via a *ServiceTimetableRequest*.

A composite timetable of all services between the start and end points of the leg can be requested in matrix data format using the *StopTimetableRequest*.
3.4 Using the Operators Request

The **OperatorsRequest** can be used to request a list of all the operators supported by the remote *JourneyWeb* journey planner being called. This list can then be used to select operator details to be used in other requests, for example:

- Specifying the services to be returned on a **ServiceTimetableRequest**.
- Filtering the services to be returned on a **StopEventsRequest**.
- Limiting the journeys to be returned for a **JourneysRequest**.

**NOTE**: This operation will become obsolete once a national system is available for defining operators.

3.5 Using the Stop Events Request

The **StopEvents** function can be used to obtain arrivals and departures at a stop or collection of stops, for example, all bays at Bradford Interchange. The response can include:

- Scheduled arrival and departure information.
- Real time arrival and departure information.
- Associated information about the journey.

The returned list can be filtered in the following ways:

- Only show arrival events.
- Only show departure events.
- Only show the first *n* events.
- Only show the events for a fixed window of time.
- Only show the first event of each service.
- Only show the services for a particular operator.
- Only show a particular service.
- Only show services to or from a given origin or destination.
4. Using the National Gazetteer (NPTG)

The National Public Transport Gazetteer relates NaPTAN locations to topographical regions in the UK. These can in turn be used to determine the appropriate JourneyWeb server to query to service a request to a remote point.

The current version of the National Gazetteer is maintained on an internet server which allows updates to be implemented (through the use of a secure password) by Local Transport Authority administrators.

It is distributed to the journey planning developers as a number of relational database tables (in CSV format) or in an XML file.

Figure 4-1 shows the data fields and relationships between each of the tables in the NPTG.

<table>
<thead>
<tr>
<th>Districts</th>
<th>Localities</th>
<th>Alternate Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>District ID</td>
<td>National Gazetteer ID</td>
<td>Primary ID</td>
</tr>
<tr>
<td>District Name</td>
<td>Locality Name</td>
<td>Alternate ID</td>
</tr>
<tr>
<td>Date of Issue</td>
<td>District ID</td>
<td>Date of Last Change</td>
</tr>
<tr>
<td>Issue Version</td>
<td>Admin Area ID</td>
<td>Date of Issue</td>
</tr>
<tr>
<td></td>
<td>Locality Type</td>
<td>Issue Version</td>
</tr>
<tr>
<td></td>
<td>Language</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Easting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Northing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Date of Last Change</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Date of Issue</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Issue Version</td>
<td></td>
</tr>
</tbody>
</table>

| Admin Areas        |                         |                          |
| Admin Area ID      |                          |                          |
| Admin Area Name    |                          |                          |
| Travel Region ID   |                          |                          |
| Country            |                          |                          |
| ATCO Code          |                          |                          |
| Call Centre ID     |                          |                          |
| Date of Issue      |                          |                          |
| Issue Version      |                          |                          |

| Call Centres       |                         |                          |
| Call Centre ID     |                          |                          |
| Travel Region ID   |                          |                          |
| Call Centre Name   |                          |                          |
| Call Centre Hours  |                          |                          |
| Transfer phone no. |                          |                          |
| Power user phone no.|                         |                          |
| Notes              |                          |                          |
| Date of Issue      |                          |                          |
| Issue Version      |                          |                          |

| Traveline Regions  |                         |                          |
| Traveline Region ID|                          |                          |
| Region Name        |                          |                          |
| Primary URL        |                          |                          |
| Secondary URL      |                          |                          |
| Tertiary URL       |                          |                          |
| JW Version         |                          |                          |
| Date of Issue      |                          |                          |
| Issue Version      |                          |                          |

| Localities         |                         |                          |
| Admin Area ID      |                          |                          |
| Admin Area Name    |                          |                          |
| Travel Region ID   |                          |                          |
| Country            |                          |                          |
| ATCO Code          |                          |                          |
| Call Centre ID     |                          |                          |
| Date of Issue      |                          |                          |
| Issue Version      |                          |                          |

| Alternate Names    |                         |                          |
| Primary ID         |                          |                          |
| Alternate ID       |                          |                          |
| Date of Last Change|                          |                          |
| Date of Issue      |                          |                          |
| Issue Version      |                          |                          |

| Hierarchy          |                         |                          |
| Parent ID          |                          |                          |
| Child ID           |                          |                          |
| Date of Last Change|                          |                          |
| Date of Issue      |                          |                          |
| Issue Version      |                          |                          |

| Exchange Points    |                         |                          |
| Associated NG ID   |                          |                          |
| NaPTAN             |                          |                          |
| Date of Last Change|                          |                          |
| Date of Issue      |                          |                          |
| Issue Version      |                          |                          |

| Trusted Clients    |                         |                          |
| System Name        |                          |                          |
| First IP           |                          |                          |
| Last IP            |                          |                          |
| Date of Last Change|                          |                          |
| Date of Issue      |                          |                          |
| Issue Version      |                          |                          |

| Language           |                         |                          |
| Unsupported        |                          |                          |
| Travel Region ID   |                          |                          |
| Capability         |                          |                          |
| Date of Last Change|                          |                          |
| Date of Issue      |                          |                          |
| Issue Version      |                          |                          |

| AREPs              |                         |                          |
| From Region        |                          |                          |
| To Region          |                          |                          |
| NaPTAN             |                          |                          |
| Date of Last Change|                          |                          |
| Date of Issue      |                          |                          |
| Issue Version      |                          |                          |

Figure 4-1 – National Gazetteer Tables (2.1)

The following sections detail how to extract data from the National Gazetteer, assuming it is in its delivered form as shown in Figure 4-1.
4.1 Locality Parents

Figure 4-2 shows how to find the parent localities of a given locality.

<table>
<thead>
<tr>
<th>Localities</th>
<th>Hierarchy</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Gazetteer ID</td>
<td>Parent ID</td>
</tr>
<tr>
<td>Locality Name</td>
<td>Child ID</td>
</tr>
<tr>
<td>District ID</td>
<td>Date of Last Change</td>
</tr>
<tr>
<td>Admin Area ID</td>
<td>Date of Issue</td>
</tr>
<tr>
<td>Locality Type</td>
<td>Issue Version</td>
</tr>
<tr>
<td>Easting</td>
<td></td>
</tr>
<tr>
<td>Northing</td>
<td></td>
</tr>
<tr>
<td>Date of Last Change</td>
<td></td>
</tr>
<tr>
<td>Date of Issue</td>
<td></td>
</tr>
<tr>
<td>Issue Version</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4-2 – Extracting Locality Parents
Search the Hierarchy table for all records where the ‘Child ID’ is the locality being searched for. The parents are then the localities identified by ‘Parent ID’.

4.2 Locality Children

Figure 4-3 shows how to find the child localities of a given locality.

<table>
<thead>
<tr>
<th>Localities</th>
<th>Hierarchy</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Gazetteer ID</td>
<td>Parent ID</td>
</tr>
<tr>
<td>Locality Name</td>
<td>Child ID</td>
</tr>
<tr>
<td>District ID</td>
<td>Date of Last Change</td>
</tr>
<tr>
<td>Admin Area ID</td>
<td>Date of Issue</td>
</tr>
<tr>
<td>Locality Type</td>
<td>Issue Version</td>
</tr>
<tr>
<td>Easting</td>
<td></td>
</tr>
<tr>
<td>Northing</td>
<td></td>
</tr>
<tr>
<td>Date of Last Change</td>
<td></td>
</tr>
<tr>
<td>Date of Issue</td>
<td></td>
</tr>
<tr>
<td>Issue Version</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4-3 – Extracting Locality Children
Search the Hierarchy table for all records where the ‘Parent ID’ is the locality being searched for. The children are then the localities identified by ‘Child ID’.
4.3 Locality Alternate Names

Figure 4-4 – Extracting Locality Alternate Names shows how to find the alternate names for a given locality.

Search the ‘Alternate Names’ table for records where the ‘Primary ID’ are the locality being searched for. The alternate names are then the localities identified by ‘Alternate ID’.

4.4 Exchange Points

Figure 4-5 shows how to extract the exchange points for a given locality.

The extraction is done by looking for all of the ‘Exchange Points’ records that point to the requested locality.
4.5 Extract Adjacent Region Exchange Points

Figure 4-6 shows how to extract adjacent region exchange points between two localities.

For each National Gazetteer ID, lookup the Admin Area ID and then the Traveline Region ID. With the two region IDs lookup the NaPTAN ID from the AREPs table.

4.6 URLs

Figure 4-7 shows how to obtain the URL to send a JourneyWeb request to for a given locality expressed as a national gazetteer ID.
5. JourneyWeb v2.4 Schema

5.1 Introduction

This section gives details of how to use the JourneyWeb v2.4 schema. It begins with a discussion of properties common to all or several request types. It then considers each pair of request and response types in turn.

5.1.1 Request / Response

The JourneyWeb protocol is implemented as pairs of request and response messages. Each JourneyWeb message contains either a request or a response, but not both.

![Figure 5-1 – Request / Response](image)

5.1.2 Bearer Protocol

JourneyWeb messages are exchanged using the HTTP protocol with the XML instance documents as POST data on both the request and the response.

5.1.3 Statefulness

The JourneyWeb protocol is designed so that its implementation by engines can be stateless, that is the server is not required to remember state between consecutive requests from a client.

It should be noted that because of the complex nature of dynamic distributed, multi-modal, multi-region, journey planning, results are not guaranteed to be strictly deterministic. That is, a journey planning request for the same journey made to the same engine may result in slightly different results each time it is made. Although on all occasions the results should provide plausible and useful information that meets the search criteria, slight differences in the dynamic behaviour of the multiple distributed systems that compile the results may affect the optimisation and filtering of the trips presented.

5.1.4 Efficiency
Another goal of the JourneyWeb protocol is to optimise the use of computational and bandwidth resources over the computational network. The JourneyWeb API is layered such that a client can explicitly control the amount and nature of the data returned. For example, the number of results and the presence of detailed information such as track data and accessibility information are both controlled by request parameters. In addition, detailed information about journey legs may be fetched separately from the main request.

5.2 The JourneyWeb Schema

Figure 5-2 shows the root element of the JourneyWeb schema with the general Request and Response elements.

![Diagram of JourneyWeb schema]

5.2.1 Version Identifier

The JourneyWeb element must contain a Version attribute value. In a Request, this tells the server which version of the schema is being used by the client. The server must return a Response which is generated using the same version of the schema as the request. If the schema version is not supported then an “unsupported schema” error message must be returned (see section 7).
5.3 General Request

5.3.1 Requests

The JourneyWeb Request element (Figure 4-1) acts as a container for one or more individual service requests to the remote journey planner. Multiple service requests can be made in each transaction within a single Request element.

Figure 5-3 – Requests (JW v2.4)
5.3.2 General Request Properties

The Request container element can have attributes that apply all the embedded requests for specific service protocols:

- **Language**: A using an ISO standard language code. This applies to all service requests. If a language is specified, then all data names should be returned in the requested language if available. If the requested language is not available for a stop then the following rules are used:
  - In Wales, use Welsh before English.
  - In England, use English before Welsh.
  - In Scotland, use English before Scots Gaelic.

- The **SuppressNames** attribute can be used to prevent the names of NaPTAN nodes being returned in the response at all.

- **LocationSystem** Preferred location system to use for spatial coordinates. Default is Grid. (+JW v2.4)

![Diagram](image)

**Figure 5-4 – General Request parameters**

5.3.3 Common Attributes of Service Requests

Service requests are placed inside a container **Request** and all have service specific names, of the form **xxxRequest**, for example, **PointsRequest**, or **JourneysRequest**. All service requests are subtypes of **AbstractRequestStructure** (Figure 5-5).

- A **RequestID** attribute must be placed on each service request to uniquely identify it: this will be returned on the corresponding service response.

- A **ParticipantRef** attribute may be placed on each service request to identify the system making the request. This can be helpful debugging (+JW v2.4).
Figure 5-5 – Common Request properties
5.4 General Response

5.4.1 Responses

The *JourneyWeb Response* element ([Figure 5-6](#)) acts as a container to group one or more service responses to a previous *JourneyWeb Request*.

```xml
<Response type="ResponsesStructure">
  <attributes>
    <Message type="MessageType">
      <@class, @subclass (optional)>
      Used to give error messages when no results are given, e.g. Request unknown
    </Message>
    <PointsResponse type="PointsResponseStructure">
      Returns the points for the specified RequestID.
    </PointsResponse>
    <JourneyResponse type="JourneyResponseStructure">
      @RequestID, Returns the journey for the specified request ID.
    </JourneyResponse>
    <LegPathResponse type="LegPathResponseStructure">
      Returns the navigation for the specified request ID. (+3W V2.4)
    </LegPathResponse>
    <TimetableResponse type="TimetableResponseStructure">
      Returns the timetable for the specified RequestID.
    </TimetableResponse>
    <StopEventsResponse type="StopEventsResponseStructure">
      Returns the stop events for the specified RequestID.
    </StopEventsResponse>
    <ServicesResponse type="ServicesResponseStructure">
      Returns the services for the specified RequestID.
    </ServicesResponse>
    <OperatorsResponse type="OperatorsResponseStructure">
      Returns the operators for the specified RequestID.
    </OperatorsResponse>
  </attributes>
</Response>
```

*Figure 5-6 – Response*
5.4.2 General Response Properties

The container **Response** Element has some attributes see **Figure 5-7**.

- **DataDate**: The date on which the source database used to generate the results was built. This could be used to generate a disclaimer to the end user.
- **DataName**: Can be used to identify the originating database.

![Figure 5-7 – General Response parameters](image)

5.4.3 Common Response Attributes

Service responses are placed inside a container **Response** and all have service specific names, of the form *xxxResponse*, for example, *PointsResponse*, *JourneysResponse*. All service responses are of type **AbstractResponseStructure** (Figure 5-8)

- The **RequestID** attribute on each service response allows it to be correlated with its respective request.
- A **ParticipantRef** attribute may be placed on each service response to identify the system making the response. This can be helpful debugging (+JW v2.4).

![Figure 5-8 – Common Response properties](image)

5.4.4 Message Element

The **Message** element (Figure 5-9) returns error exception and/or diagnostic information within each JourneyWeb service response. It may be used at different levels within a response. For example it might be used at the overall request level to indicate no journeys were found, or at a leg level to indicate that track information was not available for a leg.
There is a main class of error, and the subtype and a **subclass** attribute. See Section 8 for further information on the specific Error messages that may be produced by each request type.

5.4.5 ReturnedPlaceType

The **ReturnedPlaceType** (**Figure 5-10**) is used in the Points, **Journeys**, **StopEvents** and **Timetables** responses to describe references to places returned within the response. It is extended in the POINTS, JOURNEYS and STOP EVENTS responses.

The **ReturnedPlaceType** can contain the following attributes & elements:

- **TimingInformationPoint**: Attribute - whether the point is a timing point.
- **Name**: The name of the place.
- A point identifier:
  - **NaPTANID**: The NaPTAN identifier of the place. NaPTAN identifiers identify all points of access to public transport, including stops, station entrances and station concourses and are unique within the UK. NaPTAN identifiers from other assigned ranges of values may also be used to identify other well known places such as points of interest and their entrances.
    - **Note**: where a NaPTANID of an interchange Access Area is used (e.g. NaPTAN point type RLY) this is used to represent the interchange as a whole and so implies any entrance (e.g. NaPTAN point type RSE) platform (e.g. NaPTAN point type RPL), or pole within the station.
  - **LogicalStop**: A second NaPTAN identifier associated with the stop (used to integrate certain Coach services).
  - **Geocode**: The spatial co-ordinates of the place. This may be provided as well or instead of an identifier.
  - **Bay**: Information about the travel point.
Figure 5-10 – ReturnedPlaceType

In most cases a NaPTAN identifier will be returned with a place name (unless suppressed using the SuppressNames attribute) and a co-ordinate. If a journey origin has been defined using a co-ordinate, then the first leg of the journey results will be a walk leg from the co-ordinate and therefore the first place will be defined as a place name and co-ordinate (with no NaPTAN identifier). When place names are being suppressed the place name should still be returned if:

- The alternate NaPTAN name is being used.
- The place is a co-ordinate and there is no NaPTAN name to lookup.

5.4.6 The Geocode Element

The Geocode (Figure 5-11) element specifies a spatial location. It comprises:

- **GridType**: An enumerated value indicating the Grid reference system used for Eastings and Northings. Default is UKOS. See Table 5-1 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UKOS</td>
<td>Use the UK grid System, origin off the Scilly isles.</td>
</tr>
<tr>
<td>IrishOS</td>
<td>Use the Irish grid System.</td>
</tr>
</tbody>
</table>

Table 5-1 – Allowed Values for GridType

- **Easting**: The easting coordinates to 1m precision within the specified grid.
- **Northing**: The northing coordinates to 1m precision within the specified grid.
Figure 5-11 – Geocode Element
5.5 The POINTS protocol

The POINTS service protocol is a discovery protocol used to discover the NaPTAN nodes held in an area. Typically it is used in conjunction with a subsequent JourneyRequest.

5.5.1 PointsRequest

The PointsRequest element (Figure 5-12) is used to request all points in a locality or near a co-ordinate.

- **LocalityID**: Specifies the locality.
- **Geocode**: Indicates the distance from the requested co-ordinate if it has been calculated using a method other than crow-flies.

The range to search from the co-ordinate is not defined.

![Figure 5-12 – PointsRequest](image-url)
5.5.2 PointsResponse

The **PointsResponse** element (**Figure 5-13**) returns all points in the requested locality or near the requested co-ordinate.

- **Message**: any error messages associated with the response.
- **Point**: One or more Returned points that satisfy the request. See below.

![Diagram of PointsResponse](image_url)

**Figure 5-13 – PointsResponse**
5.5.3 PointsResponse / Point

Each **Point** returned is defined by the elements of a **ReturnedPointStructure**, (Figure 5-14). This extends the **ReturnedPlaceType** (Figure 5-10) described above, with the following:

- **LocalityCentre** attribute on the **Point** element indicates whether the place is in the centre of the locality requested (Boolean).
- **Distance**: Indicates the distance from the requested co-ordinate if it has been calculated using a method other than crow-flies.

![Figure 5-14 – PointsResponse / Point](image-url)
5.6 The JOURNEYS Protocol

The JOURNEYS service protocol is used to obtain information about specific journey or journeys that can be made between any two points.

5.6.1 JourneysRequest

The JourneysRequest (Figure 5-15) element is used to request a journey between given points that satisfies a given set of search criteria, and including various optional levels of detail in the response.

JourneysRequest is a complex message with a rich set of features to control the search for suitable journeys. The parameters on the JourneysRequest can be categorised into several groups:

- **RoutingTopicGroup**: The fundamental constraints on the journey such as Origin, Destination.
- **RoutingViaGroup**: Additional constraints on the journey, such as Via points and NotVia points on the journey. See below.
- **JourneyPolicyGroup**: Policy Elements directing for when & how the journey computation should be carried out: time of travel ArrDep & Range. In addition optionally Algorithm, TravelDemandPlan (+JW c2.4).
- **JourneysRequestAccessibilityGroup**: Accessibility parameters directing how accessibility related factors should be treated in the journey computation MaxWalkDistance, etc – See and CyclingOptions (+JW V2.4) below.
- **JourneysRequestContentGroup**: Elements controlling the level of content detail to be returned. E.g. IncludeIntermediateStops & Realtime.
- **JourneysRequestDataFilterGroup**: Elements directing how the journey computation should be filtered by data values such as transport Mode, Operator & Service see JourneysRequestDataFilterGroup.

Each of these groups of parameters is described in turn below. Some additional considerations for using and combining criteria are discussed in Filtering Criteria later in this section (5.6.19).
5.6.2 JourneysRequest / RoutingTopicGroup – Required Scoping Parameters

The **RoutingTopicGroup** element (Figure 5-16) is used in the **JourneysRequest** to specify origins and destinations and any required routing points.

- **Origin**: If making a ‘depart after’ request, a time to leave the origin must be specified (see **OriginDestinationRequestType**).
- **RoutingViaGroup**: Additional constraints on routing – see description below.
- **Destination**: If making an ‘arrive by’ request, a time to arrive at the destination must be specified (see **OriginDestinationPlaceRequestType**).

5.6.3 OriginDestinationRequestType

The **OriginDestinationRequestType** element (Figure 5-16) is used in the **JourneysRequest** to specify the **Origin** and **Destination** of a journey.

- **Place**: one or more locations specified by:
  - An **ID** (which may be a **NaPTANID**, or **Geocode** or a **LocalityID** – see **PlaceRequestType** below).
  - **JourneyTime**: the time of travel. Either the time of departure from **Origin** or arrival at **Destination**. See also the **ArrDep** parameter.
  - **Seed** can optionally be specified to provide intermediate state about the journey computation so far. This will tell the remote journey planner the number of changes so far (not including the exchange point – a through service might be
used), the **Service** which was being used on the previous leg, and **StartTime** (at origin for ‘depart after’ requests, at destination for ‘arrive by’ requests). See **Seed** description below.

- The **GivenName** should be completed when the name being used cannot be derived from the **ID**, e.g. when using a co-ordinate or when using the alternate name for a NaPTAN node. This name will be returned in the resulting journey plan, or timetable title.

![Figure 5-16 – OriginDestinationRequestType](image)

If the place is being used in a **JourneysRequest** as (i) the origin in a ‘depart after’ request, or as (ii) the destination in an ‘arrive by’ request, then a time and date is specified for each point. If a place does not have a specified time, then the time for the previous place in the list will be used.

### 5.6.4 OriginDestinationRequestType / ID Element

An origin or destination place **ID** can be defined in four different ways (*Figure 5-17*):

- As a **NaPTANID** identifying a specific NaPTAN point.
- As a NaPTAN **StopAreaID** identifying a specific NaPTAN stop area (+JW v2.4).
- As a **Geocode**, specified by coordinates.
- As a NPTG **LocalityID** identifying a NPTG Locality – The centre point of the locality will be used.
Figure 5-17 – OriginDestinationRequestType / ID Element

5.6.5 OriginDestinationRequestType / Seed Element

The **Seed** element values (Figure 5-18) can be used to optimize the journeys supplied by conveying previous state. It can include:

- **StartTime**: Can be used for selecting ‘best’ journeys based on total journey time.
- **NumChanges**: The number of changes so far. Relevant if there is a limit on the number of changes on the journey.
- **Service**: Service of Previous Leg Used to avoid adding an interchange time if the same service can be used for the onward journey. See UniqueServiceGroup. Later
- **WalkDistance**: Can be used to constrain a journey to a maximum walk distance for journey from that point.
- **Mode**: Mode of previous Journey. See Table 5-10 for a list of the allowed values for Mode.
- **OriginalID**: (+JW v2.4) Original point specified by originating request. If different from ID. May be supplied for a distributed request where different stages of the journey are computed by different engines.
- **SeedPointType**: (+JW v2.4) Nature of Seed Point; AREP, Exchange point, etc. See Table 5-2 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AreaExchange</td>
<td>Point is an Area exchange point</td>
</tr>
<tr>
<td>Exchange</td>
<td>Point is an exchange point</td>
</tr>
<tr>
<td>User</td>
<td>Point is an user specified end point for the journey</td>
</tr>
</tbody>
</table>

Table 5-2 – Allowed Values for SeedType (+JW v2.4)
The **RoutingViaGroup** (Figure 5-19) allows additional optional parameters to further constrain the routing of the journeys to be returned in the response:

- **Via**: A single via point that the journey should go by. **Via** points are defined in the same way as **Origin** points, that is, as either NaPTAN points or stop areas (the latter being a JW v2.4 addition), except that they cannot have a time at the point, or **Seeds**. See **OriginDestinationRequestType** above. A journey does not necessarily make a stop at a **Via** point. A passenger does not necessarily have to alight or change services at a via point.

- **NotVia**: A list of ‘not via’ points defined in the same way as the **Via** points. Journeys should avoid the point if possible. Places may be specified as Stop points or Stop areas (+JW v2.4); see **OriginDestinationRequestType** above. The handling of NotVia is permissive, that is, if no journeys can be find that avoid the point journeys will be returned that do go via the point – see later discussion on Filtering Criteria.

- **Changes**: (+JW v2.4) A list of places at which changes are (with **Exclude** false) or are not (with **Exclude** true) allowed in the requested journey plan. Places may be specified as Stop points or Stop areas (support for the latter being added in +JW v2.4); see **OriginDestinationRequestType** above. If there is a mandatory change, then passenger must alight.
NOTE: The primary use case envisaged for Via & NotVia is to give the client a means of directing the routing of the journey plan where there are well known alternatives. The purpose of the Changes element is to prevent a journey from interchanging – or to require a journey to interchange - at a particular point, in particular for demand management for major events. The Changes values will not necessarily be exposed in a user interface. It is possible to have both Vias and Changes specified.

5.6.7 JourneysRequest / RoutingViaGroup / ChangePlace

A ChangePlace: (+JW v2.4) specifies a point at which changes are or are not allowed in the requested journey plan (Figure 5-20).

- **Exclude**: whether the point is included or excluded. A journey should make a stop at an included change point.
- **Point**: specified by any of NaPTANID, StopAreaID, Geocode or LocalityID.
5.6.8 JourneyRequest / JourneyPolicyGroup – Computational Parameters

JourneyPolicyGroup parameters (Figure 5-21) specify how the journey plan is made:

- **ArrDep**: Timing constraint. Indicates whether this is a ‘depart after’ or an ‘arrive by’ request. See Table 5-3 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>arrive</td>
<td>Constrain to arrive before the arrival time at the Destination</td>
</tr>
<tr>
<td>depart</td>
<td>Constrain to leave after the departure time from the origin</td>
</tr>
</tbody>
</table>

Table 5-3 – Allowed Values for JourneyRequest / ArrDep

- **Range**: Specifies additional constraints on the journeys to be returned as described below in the RangeStructure section.

- **Algorithm**: The optimisation algorithm to use when computing the journey plans. See Table 5-3 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>default</td>
<td>Use the remote journey planners default method.</td>
</tr>
<tr>
<td>fastest</td>
<td>Find the fastest journey.</td>
</tr>
<tr>
<td>noChanges</td>
<td>Find journeys with no changes.</td>
</tr>
<tr>
<td>max1Change</td>
<td>Find journeys with at most one change.</td>
</tr>
<tr>
<td>max2Changes</td>
<td>Find journeys with at most two changes.</td>
</tr>
<tr>
<td>minChanges</td>
<td>Find journeys with least number of changes.</td>
</tr>
</tbody>
</table>

Table 5-4 – Allowed Values for Algorithm

- **TravelDemandPlan** (+JW v2.4): Specifies the name of a TimeDemandPlan to use in the request. These must have been agreed by prior arrangement. The following three values shown in Table 5-5 are recommended, but other arbitrary plan names may be added.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Normal travel circumstances.</td>
</tr>
<tr>
<td>AccessMajorEvent</td>
<td>Recommended plan to access a major even at destination</td>
</tr>
<tr>
<td>LeaveMajorEvent</td>
<td>Recommended plan to leave a major even at origin</td>
</tr>
</tbody>
</table>

Table 5-5 – Recommended Values for TimeDemandPlan (+JW v2.4)
5.6.9 JourneysRequest / Range Element

The JourneysRequest / Range parameter is used to specify additional scoping criteria, and to limit the number of results returned by the remote engine. Three types of range are supported (Figure 5-22) in the JourneysRequest to control how multiple origin or destination places are used. Two values are specified:

- **Sequence:** Return a fixed number of results before or after the specified time, according to the ArrDep parameter.
- **Interval:** Return all journeys or events within the specified time interval, before or after the specified time, according to the ArrDep parameter.
- **LimitedInterval:** This is used to limit the number of journeys that are returned for a specified Interval, and optionally to ensure that at least a minimum number of journeys are returned for an extended Max/Interval search period if none are found within the first Interval. For example it can be used to specify to look for a maximum of five journeys in the next hour, and if there are none, to look for a minimum of one journey in following twelve hours.

The JourneyRangeStructure extends the basic Range element with two further elements:

- **EachOrigin:** The requested number of journeys returned is from each origin place to any of the destination places.
- **EachDestination:** The requested number of journeys returned are from any origin place to each of the destination places (see note).

If neither is specified, then the requested number of journeys is returned between any of the origin places and any of the destination places.
NOTE: It is very important that the **EachOrigin** and **EachDestination** features are implemented. Without them an active JourneyWeb system would have to resort to making repeated JourneyWeb calls and would give a poor response time to the end user.

### 5.6.10 JourneysRequest / JourneysRequestAccessibilityGroup – Accessibility Parameters

The **JourneysRequestAccessibilityGroup** (Figure 5-23) allows additional optional parameters to constrain the journeys to be returned to satisfy various accessibility criteria:

- **WalkSpeed**: The walk speed (slow through normal to fast). See Table 5-6 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Rank</th>
<th>Description</th>
<th>Metres per minute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slower 3</td>
<td>1</td>
<td>Very slow walking speed</td>
<td>( \leq 46 )</td>
</tr>
<tr>
<td>Slower 2</td>
<td>2</td>
<td>Slow walking speed</td>
<td>47 – 60</td>
</tr>
<tr>
<td>Slower 1</td>
<td>3</td>
<td>Quite slow walking speed</td>
<td>61 – 74</td>
</tr>
<tr>
<td>Normal</td>
<td>4</td>
<td>Normal walking speed (the Default)</td>
<td>75 – 88</td>
</tr>
<tr>
<td>Faster 1</td>
<td>5</td>
<td>Quite fast walking speed</td>
<td>89 – 102</td>
</tr>
<tr>
<td>Faster 2</td>
<td>6</td>
<td>Fast walking speed</td>
<td>103 – 116</td>
</tr>
<tr>
<td>Faster 3</td>
<td>7</td>
<td>Very fast walking speed</td>
<td>( \geq 117 )</td>
</tr>
</tbody>
</table>

**Table 5-6 – Allowed Values for WalkSpeed**

- Maximum walk for interchange or access into a station from its entrance. Also use maximum walk for access to first stop if no separate **MaxAccessDistance** specified. Journeys returned should not exceed the specified value, which may be given in one of two ways:

- **MaxWalkDistance**: The maximum walk distance in metres.
- **MaxWalkTime** The maximum walk distance as a duration in minutes (+JW v2.4) at the specified **WalkSpeed**.

- **MaxAccessDistance**: (+JW v2.4) If specified, this indicates a maximum drive distance for start or end access legs that the user is prepared to make by taxi or car to reach an access point to public transport. Taxi and/or ParkAndRide must be specified as an allowed mode.

- **WalkingPreferred** (+JW v2.4) User would rather walk further if it makes the journey quicker. This may be used by journey planners, for example, to replace a bus leg that goes to a stop that is close to the destination with a combined tube and walk leg that is quicker but involves a longer walk.

- **MinLegDuration** (+JW v2.4) Minimum PT journey time – journeys shorter than this will be replaced by walk legs. Note that if the journey is required to reach a destination, for example a single underground leg to go under the river, it should still be shown even if shorter than the specified time.

- **InterchangeSpeed**: Specifies the interchange speed to allow when computing journey plans. See **Table 5-6 above** for allowed values.

- **AccessibilityOptions** (+JW v2.4): Specifies accessibility constraints to be used when computing journeys and interchange paths. See below.

- **CyclingOptions** (+JW v2.4): specifies options for using a cycle in a journey plan. See below.

- **Filtering**: (+JW v2.4) Nature of filtering to apply. See **Table 5-6** for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>strict</td>
<td>If no journey can be found that matches specified criteria, do not return any results.</td>
</tr>
<tr>
<td>permissive</td>
<td>If no journey can be found that exactly match specified criteria, return best alternatives</td>
</tr>
</tbody>
</table>

**Table 5-7 – Allowed Values for Filtering** (+JW v2.4)
AccessibilityOptions (Figure 5-24) specifies accessibility constraints to be used when computing journeys and interchange paths. If specified, then the journey planner should seek to find Journeys that only involve access points and interchanges that meet the constraint, and return these in preference to other journeys (See Filtering parameter for nature of this matching which may be strict or permissive). If accessibility options are specified the results should include any available accessibility assessment in the results for returned sites and services. Accessibility is specified in terms of an AccessibilityRanking – See Table 5-8. If the ranking is ‘1’ and the criteria is strict, then the journey planner should omit journeys that do not satisfy the criteria, potentially potentially returning no journeys. Otherwise the journey planner should seek to return the best fit.

- **WheelchairUse** (+JW v2.4): Whether user requires Wheelchair accessible journeys.
- **StepFreeUse** (+JW v2.4): Whether user requires that avoid the use of steps.
- **EscalatorFreeUse** (+JW v2.4): Whether user requires journeys that avoid the use of escalators.
- **TravelatorFreeUse** (+JW v2.4): Whether user requires journeys that avoid the use of travelators.
- **LiftFreeUse** (+JW v2.4): Whether user requires journeys that avoid the use of lifts.
- **AssistanceService** (+JW v2.4): Whether user requires assistance to travel through the interchange.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>notRequired</td>
<td>Accessibility constraint not needed</td>
</tr>
<tr>
<td>1</td>
<td>Accessibility constraint essential</td>
</tr>
<tr>
<td>2</td>
<td>Accessibility constraint highly desirable</td>
</tr>
<tr>
<td>3</td>
<td>Accessibility constraint preferable</td>
</tr>
<tr>
<td>4</td>
<td>Accessibility constraint slightly preferable</td>
</tr>
<tr>
<td>5</td>
<td>Accessibility constraint not important</td>
</tr>
</tbody>
</table>

**Table 5-8 – Allowed Values for AccessibilityRanking** (+JW v2.4)

---

**Figure 5-24 – JourneysRequest / AccessibilityOptions** (+JW v2.4):

5.6.12 JourneysRequest / CyclingOptions (+JW v2.4):

The **CyclingOptions** element (Figure 5-25) specifies options for using a cycle in a journey plan preference.

- **CyclingPreference**: (+JW v2.4): Option for using the journey – See **Table 5-9** for allowed values. Default is noCycling.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>noCycling</td>
<td>No cycling</td>
</tr>
</tbody>
</table>
cycleOnly | Only cycling options
leaveCycleAtStation | Consider options that leave cycle at origin: typical rail or underground station, or ferry point. Note this is likely to indicate that a corresponding return journey should return to the same point.
cycleOnVehicle | Consider options that take cycle on vehicle (primarily train or ferry)
foldingCycleInVehicle | Consider options that take a folding cycle on vehicle
cycleHireLegs | Consider options that consider hiring a cycle

Table 5-9 – Allowed Values for CyclingPreferences (+JW v2.4)

- **MaximumCyclingTime**: (+JW v2.4): Maximum cycle time per leg to consider in a plan.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>all</td>
<td>Include all stops</td>
</tr>
<tr>
<td>before</td>
<td>Include stops before the boarding point</td>
</tr>
<tr>
<td>beforeAndLeg</td>
<td>Include stops before the alighting point</td>
</tr>
<tr>
<td>leg</td>
<td>Include stops between the board and alighting point</td>
</tr>
<tr>
<td>afterAndLeg</td>
<td>Include stops after the boarding point</td>
</tr>
<tr>
<td>after</td>
<td>Include stops after the alighting point</td>
</tr>
<tr>
<td>none</td>
<td>Include no stops</td>
</tr>
</tbody>
</table>

Table 11 – Allowed Values for IncludeIntermediateSteps

- **IncludeTracks**: Indicates that the track plot data that is a polyline of the bus route that may be projected onto a map; should be included in journey results if available. (+JW v2.4). The level of detail is should be sufficient to follow a road on a map.
- **RealTime**: Specifies whether real-time times are to be returned if available. This should only be requested if relevant, i.e. for imminent journeys, typically within the next 30 minutes.
5.6.14 JourneysRequest / JourneysRequestContentGroup – Additional Filter Parameters

The **JourneysRequestDataFilterGroup** allows optional filter parameters to further constrain the nature of the journeys to be returned in the response:

- **Modes**: A list of transport modes to include or exclude (see **Modes** & Note below).
- **Operators**: A list of transport operators to include or exclude. See below.
- **Services**: A list of specified services to include or exclude. See below.

**NOTE**: If mode ‘walk’ is specified as an excluded mode (or not included in an include list) walking will be minimized, but walking will still be allowed for transfer legs at an interchange (transfers typically have mode ‘walk’). The **AccessibilityOptions** and a **MaxWalkDistance** should be used to further constrain the amount of walking.
◆ **Exclude**: Attribute – specifies whether the mode is to be included or excluded.

◆ **Mode**: One or more modes specified by a mode attribute; an enumerated value. See Table 5-10 for allowed values. The same list of modes is used in a number of different places in JourneyWeb, but may be restricted to a subset in some usages. In some places the list of modes is restricted to those supported by Public Transport vehicles (for example for timed legs). In other cases, the list is restricted to the access modes that can be undertaken by a pedestrian or wheelchair user (for example continuous legs).

◆ **Submode**: A sub mode that further qualifies the mode. See Annex E for submode values based on TPEG. There are different submodes for each mode. See Table 5-11 for collation of submodes with modes for use in JourneyWeb.

<table>
<thead>
<tr>
<th>JW Mode value</th>
<th>Description</th>
<th>PT</th>
<th>Access</th>
<th>TPEG Mode</th>
<th>Submodes Annex E +JW v2.4</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>air</td>
<td>Air</td>
<td>Y</td>
<td></td>
<td>air</td>
<td>AirSubmode</td>
<td>TPEG mode would be Self drive and submode is railReplacementBus</td>
</tr>
<tr>
<td>bus</td>
<td>Bus</td>
<td>Y</td>
<td>bus</td>
<td>Bus</td>
<td>BusSubmode</td>
<td></td>
</tr>
<tr>
<td>coach</td>
<td>Coach</td>
<td>Y</td>
<td>coach</td>
<td>Coach</td>
<td>CoachSubmode</td>
<td></td>
</tr>
<tr>
<td>cycle</td>
<td>Cycle</td>
<td>N</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cycleHire</td>
<td>Demand</td>
<td>N</td>
<td></td>
<td>selfDrive</td>
<td>SelfDriveSubmode</td>
<td></td>
</tr>
<tr>
<td></td>
<td>responsive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>transport</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>drt</td>
<td>Demand</td>
<td>Y</td>
<td>Y</td>
<td>bus</td>
<td>BusSubmode</td>
<td>TPEG mode would be Self drive and submode demandAndResponseBus</td>
</tr>
<tr>
<td></td>
<td>responsive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>transport</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ferry</td>
<td>Ferry</td>
<td>Y</td>
<td>water</td>
<td></td>
<td>WaterSubmode</td>
<td></td>
</tr>
<tr>
<td>metro</td>
<td>Metro</td>
<td>Y</td>
<td>metro</td>
<td>Metro</td>
<td>MetroSubmode</td>
<td></td>
</tr>
<tr>
<td>rail</td>
<td>Railway</td>
<td>Y</td>
<td>rail</td>
<td>Rail</td>
<td>RailSubmode</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Replacement</td>
<td>Y</td>
<td></td>
<td>Y</td>
<td>parkAndRide</td>
<td>TPEG mode would be rail and submode is railReplacementBus</td>
</tr>
<tr>
<td></td>
<td>bus for</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>rail service</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>parkAndRide</td>
<td>Drive to a</td>
<td>Y</td>
<td>Y</td>
<td>parkAndRide</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td></td>
<td>park / or</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>station and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ride</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>taxi</td>
<td>Taxi</td>
<td>Y</td>
<td>Y</td>
<td>taxi</td>
<td>TaxiSubmode</td>
<td></td>
</tr>
<tr>
<td>telecabin</td>
<td>Lift or</td>
<td>Y</td>
<td>telecabin</td>
<td>Telecabin</td>
<td>Use for</td>
<td></td>
</tr>
<tr>
<td></td>
<td>telecabin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tram</td>
<td>Tram</td>
<td>Y</td>
<td>tram</td>
<td>Tram</td>
<td>In NaPTAN tram stops are all of type metro</td>
<td></td>
</tr>
<tr>
<td>underground</td>
<td>Underground</td>
<td>Y</td>
<td>Y</td>
<td>metro</td>
<td>MetroSubmode</td>
<td>TPEG mode would be metro and submode is tube</td>
</tr>
<tr>
<td>walk</td>
<td>Walking options</td>
<td>N</td>
<td>Y</td>
<td>walk</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 5-10 – Allowed Values for Mode**

<table>
<thead>
<tr>
<th>Mode</th>
<th>VALUE</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>air</td>
<td>internationalFlight</td>
<td>Flights to or from non-UK airports. Heathrow to Paris</td>
</tr>
<tr>
<td></td>
<td>domesticFlight</td>
<td>Flights internal to UK. Scottish Islands, London to Glasgow.</td>
</tr>
<tr>
<td></td>
<td>helicopterService</td>
<td>Helicopter flights internal to UK. Penzance to St, Mary’s and Tresco</td>
</tr>
<tr>
<td>ferry</td>
<td>nationalCarFerry</td>
<td>Ferries that convey passengers and cars. Portsmouth to Fishbourne, Oban to Craighnure, Woolwich Ferry, Caledonian MacBrayne, Sandbanks Ferry</td>
</tr>
<tr>
<td></td>
<td>regionalCarFerry</td>
<td>Ferries that convey vehicles, their drivers and passengers but not passengers without vehicles. Fleetwood to Larne (Stena)</td>
</tr>
<tr>
<td></td>
<td>LocalPassengerFerry</td>
<td>Ferries that do not convey any vehicle other than cycles. London River Services, Isle of Scilly Ferries, Southsea to Ryde Hovercroft.</td>
</tr>
<tr>
<td>Submode</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><code>postBoatService</code></td>
<td>Ferries that convey only passengers.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>PS Waverley Cruises, Camden to Regent's Park Waterbus, Cardiff Bay Waterbus.</em></td>
<td></td>
</tr>
<tr>
<td><code>rail</code></td>
<td>Franchised operations, Open-access operations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All National Rail services.</td>
<td></td>
</tr>
<tr>
<td><code>touristRailway</code></td>
<td>Heritage Railway Services that are not National Services.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Bluebell Railway, Talyllyn Railway, Snowdon Mountain Railway.</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Local Sub Mode may be used for railways that are set up as Community Railways</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Weardale Railway, Wensleydale Railway</em></td>
<td></td>
</tr>
<tr>
<td><code>railShuttle</code></td>
<td>Olympic Javelin</td>
<td></td>
</tr>
<tr>
<td><code>replacementRail</code></td>
<td>Bus service as a substitute for rail services because of engineering works or long term closures. Alternatively the Rail Sub Mode <code>railReplacementBus</code> can be used.</td>
<td></td>
</tr>
<tr>
<td><code>local</code></td>
<td>Services that are not National Services and that are set up as Community rather than Heritage Railways. Alternatively <code>touristRailway</code> Sub Mode may be used.</td>
<td></td>
</tr>
<tr>
<td><code>metro</code></td>
<td>Any tram, metro or light rail service. Must be a service other than National Rail. Does not include any heavy rail services (such as Heritage or Tourist Railways). TRAM/LIGHT RAIL is an alternative and the decision as to which should be used may be driven by the system name.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Blackpool Tramway, Tyne &amp; Wear Metro, Docklands Light Railway, Croydon Tramlink, Gatwick Airport Shuttle, Manchester Metrolink, Midland Metro, Nottingham Express Transit, Birmingham Airport Shuttle, Sheffield Supertram</em></td>
<td></td>
</tr>
<tr>
<td><code>tube</code></td>
<td>To be used for London Underground ONLY. Other systems use Metro or Tram/Light Rail q.v</td>
<td></td>
</tr>
<tr>
<td><code>tram</code></td>
<td>Any tram, metro or light rail service. Must be a service other than National Rail. Does not include any heavy rail services (such as Heritage or Tourist Railways). METRO is an alternative and the decision as to which should be used may be driven by the system name.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Blackpool Tramway, Tyne &amp; Wear Metro, Docklands Light Railway, Birmingham Airport Shuttle, Croydon Tramlink, Gatwick Airport Shuttle, Seaton Tramway, Great Orme Tramway</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Includes cliff railways where the angle of ascent is less than 45 degrees. <em>outh Railway</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Lytton &amp; Lynn</em></td>
<td></td>
</tr>
<tr>
<td><code>bus</code></td>
<td>Unregistered service restricted to mobility impaired users. Olympic rail station to event shuttles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Used for all registered bus services including long distance services on which it is not generally necessary to reserve a place.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Includes Horse drawn, guided busway and trolleybus services.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Leeds Trolleybus, Cambridge Guided Busway</em></td>
<td></td>
</tr>
<tr>
<td><code>shuttleBus</code></td>
<td>Unregistered service for a specific service e.g. car park to event.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Olympic car park shuttles</td>
<td></td>
</tr>
<tr>
<td><code>railReplacementBus</code></td>
<td>Bus service as a substitute for rail services because of engineering works or long term closures. Alternatively the Rail Sub Mode <code>replacementRail</code> can be used</td>
<td></td>
</tr>
<tr>
<td><code>demandAndResponseBus</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>coach</code></td>
<td>Coach services i.e. service on which a place must be reserved although other long distance services that operate as a local bus service for part of the route may be included.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>National Express, Megabus, Scottish Citylink.</em></td>
<td></td>
</tr>
<tr>
<td><code>hireCar</code></td>
<td>Used when the only option to complete a journey is car hire</td>
<td></td>
</tr>
<tr>
<td><code>hireCycle</code></td>
<td>Used when the only option to complete a journey is cycle hire</td>
<td></td>
</tr>
<tr>
<td><code>licensedTaxi</code></td>
<td>Used for all instances of Taxi.</td>
<td></td>
</tr>
<tr>
<td><code>telecabin</code></td>
<td>Lifts</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Middlesbrough Transporter Bridge, Newport Transporter Bridge, Thames Cable Car, Heights of Abraham Cable Car, Great Orme Cablecar</em></td>
<td></td>
</tr>
</tbody>
</table>

### Table 5-11 – JourneyWeb Submodes
5.6.16 JourneysRequest / Operators

The Operators list specifies any operators to include or exclude in the results.

- **Exclude**: whether the operators is to be included or excluded.
- **OperatorCode**: One or more operators specified by a code.

**NOTE**: If operator codes are not available, ‘strict exclusion, permissive exclusion’ will be applied, that is, if an Operator is specified for inclusion but operator codes are not available, journeys without any operator code will be excluded. If an Operator is specified for exclusion but operator details are not available, journeys without an operator code will be included.

5.6.17 JourneysRequest / Services

The Services list specifies any Services to include or exclude in the results.

- **Exclude**: whether the Services is to be included or excluded.
- **Service**: One or more Services specified by some or all of the following (Which will be logically ANDed together):
  - A ServiceNumber, and or a code.
  - A Direction.
5.6.18 JourneysResponse

Each **JourneysResponse** (Figure 5-31) returns;

- **Message**: any error messages associated with the response.
- **Journeys**: one or more **Journey** instances that satisfy the request. See below.

5.6.19 Filtering Criteria on a JourneysRequest

The elements on **JourneysRequest** are inputs to a journey planning engine which must select journeys which satisfy the stated criteria to return as a **JourneysResponse**. The selection criteria may be used in one of two ways, as indicated by **Table 5-12**.

- **Strict**: Only journeys which exactly satisfy the criteria will be returned.
- **Permissive**: If no journeys that exactly match the criteria can be found, then alternative journeys will be shown. Legs that do not fully satisfy the criteria can be marked as non-compliant.

<table>
<thead>
<tr>
<th>Group</th>
<th>Element</th>
<th>Subelement</th>
<th>Exclude/Include</th>
<th>Filtering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>Origin</td>
<td>(point)</td>
<td></td>
<td>Always Strict</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JourneyTime</td>
<td></td>
<td>Permissive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seed</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Destination</td>
<td>(point)</td>
<td></td>
<td>Always Strict</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JourneyTime</td>
<td></td>
<td>Permissive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seed</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>ArrDep</td>
<td>Arrive</td>
<td>depart</td>
<td>Always Strict</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Permissive</td>
</tr>
<tr>
<td></td>
<td>Via</td>
<td>(point)</td>
<td></td>
<td>Permissive</td>
</tr>
<tr>
<td>Method</td>
<td>Algorithm</td>
<td>Plan</td>
<td>Accessibility</td>
<td>Cycle</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------------</td>
<td>--------------------------------</td>
<td>------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>NotVia (point)</td>
<td>Permissive</td>
<td>TravelDemandPlan</td>
<td>WalkSpeed</td>
<td>CyclingOptions</td>
</tr>
<tr>
<td>Changes Place</td>
<td>Y</td>
<td>Use controlled by Filtering</td>
<td>MaxWalkDistance</td>
<td>CyclingPreference</td>
</tr>
<tr>
<td>Range</td>
<td>Sequence</td>
<td>Parameter</td>
<td>MaxAccessDistance</td>
<td>MaximumCyclingTime</td>
</tr>
<tr>
<td>Interval</td>
<td>--</td>
<td></td>
<td>WalkingPreferred</td>
<td>IncludeIntermediateStops</td>
</tr>
<tr>
<td>LimitedInterval</td>
<td>--</td>
<td></td>
<td>InterchangeSpeed</td>
<td>--</td>
</tr>
<tr>
<td>EachOrigin/ Destination</td>
<td>--</td>
<td></td>
<td>AccessibilityOptions</td>
<td>--</td>
</tr>
<tr>
<td>Interval</td>
<td>--</td>
<td></td>
<td>WheelchairUse</td>
<td>--</td>
</tr>
<tr>
<td>LimitedInterval</td>
<td>--</td>
<td></td>
<td>StepFreeUse</td>
<td>--</td>
</tr>
<tr>
<td>EachOrigin/ Destination</td>
<td>--</td>
<td></td>
<td>EscalatorFreeUse</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TravelatorFreeUse</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LiftFreeUse</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AssistanceService</td>
<td>--</td>
</tr>
<tr>
<td>Filtering</td>
<td>--</td>
<td></td>
<td>--</td>
<td>RealTime</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Filter</td>
<td>--</td>
</tr>
</tbody>
</table>

**Table 5-12 – Filtering Criteria on JourneysRequest**

### 5.6.1 Combining Criteria on a JourneysRequest

Multiple criteria will generally be combined as follows:

- Separate criteria will generally be logically ANDed together, that is, each selected journey must satisfy all of the criteria. For example, if both a **Mode** and an **Operator** are specified, then only journeys that satisfy both of the criteria will be returned.

- Multiple values for a given criteria will generally be logically ORed together, that is, journeys that match any of the criteria may be selected. For example, if a list of **Modes** is specified, journeys for any of the specified modes may be used. An exception to this principle is found in **Vias** and **Change** points which are ANDed.
5.6.2 JourneysResponse / Journey

Each *Journey* (Figure 5-32) is made up of one or more *Legs*. It may also have a *Fares* element.

The *Fares* element is present as a placeholder for future development. Any content within the Fares element will be ignored.

- **Leg**: A leg of the journey
- **RoutingRuleId**: Identifier of a Transport Direct routing rule that is being applied to the journey (+JW2.4c).
- **RoutingReason**: Text explanation of a Transport Direct routing rule that is being applied to the journey. Can be used to inform the user of why the journey is routed as it is. For example, to avoid expected congestion. (+JW2.4c).
- The *Fares* element is present as a placeholder for future development. Any content within the Fares element will be ignored.

![Figure 5-32 Journey](image)

5.6.3 JourneysResponse / Leg

Each *Leg* in each returned journey (Figure 5-33) will be one of the following types:

- **TimedLeg**: For a service that runs to a timetable on a PT vehicle.
- **FrequencyLeg**: For a service that runs to a frequency pattern.
- **ContinuousLeg**: For a service that runs at any time within a given period (includes walking and cycling).
- **InterchangeLeg**: (+JW V2.4). For a pedestrian transfer within or to/from a transport interchange, for which there may be detailed in station information available.
5.6.4 Common Leg Elements

TimedLeg, FrequencyLeg and ContinuousLeg all share a common order of elements for the basic elements. See Figure 5-34 for a visualisation that shows how the points that make up an overall journey can be grouped within a Journey Leg. The actual trip is the set of points, IntermediateB, lying between the LegBoard and LegAlight points. The part of the overall service that runs from ServiceOrigin to the LegBoard is described by IntermediateA; and from the LegAlight to the ServiceDestination by IntermediateC.

Table 5-13 shows the common list of elements. Note however that TimedLeg, FrequencyLeg and ContinuousLeg differ as to the properties of certain of these elements.

<table>
<thead>
<tr>
<th></th>
<th>TimedLeg</th>
<th>FrequencyLeg</th>
<th>ContinuousLeg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>LegIdType</td>
<td>LegIdType</td>
<td>LegIdType</td>
</tr>
<tr>
<td>Mode</td>
<td>Vehicle modes</td>
<td>Vehicle modes</td>
<td>Access modes</td>
</tr>
<tr>
<td></td>
<td>(See Table 5-10)</td>
<td>(See Table 5-10)</td>
<td></td>
</tr>
</tbody>
</table>

Figure 5-33 – JourneysResponse / Leg

Figure 5-34 – Leg points
The following are common attributes of journey legs:

- **Id**: (JW +2.4) Attribute - leg identifier that can be used for subsequent reference to the leg.
- **Mode**: Attribute – Transport mode of leg (the allowed values depend on the leg type). See Table 5-10 earlier for allowed values.

The following are common elements of journey legs:

- **ServiceOrigin**: Describes the start point of the service providing the leg as a *ReturnedSiteStructure* and an *OriginTimeGroup* or subset. Optional.
- **IntermediateA**: Journey pattern, i.e. collection of timing points between ServiceOrigin and LegBoard.
  - Each timing point is described as a *ReturnedSiteStructure*, together with an *IntermediateTimeGroup* or subset.
- **LegBoard**: Describes the point at which the passenger boards the service as a *ReturnedSiteStructure*, and a *BoardTimeGroup* or subset. Required.
  - If the point is one of the requested Via points it is flagged with a *Pass* element.
  - If the point is a request stop it is flagged with a *Request* element.

### Table 5-13 – Stop elements for different Journey / Leg types

(O = optional. R= required)

<table>
<thead>
<tr>
<th><strong>ServiceOrigin</strong></th>
<th>ReturnedSite</th>
<th>ReturnedSite</th>
<th>ReturnedSite</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OriginTimeGroup</strong></td>
<td>RTDepartureTimeGroup</td>
<td>RTDepartureTimeGroup</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>IntermediateA</strong></th>
<th>ReturnedSite</th>
<th>ReturnedSite</th>
<th>ReturnedSite</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IntermediateTimeGroup</strong></td>
<td>RTArrivalTimeGroup</td>
<td>RTArrivalTimeGroup</td>
<td></td>
</tr>
<tr>
<td><strong>Intermediate</strong></td>
<td>RTDepartureTimeGroup</td>
<td>RTDepartureTimeGroup</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>LegBoard</strong></th>
<th>ReturnedSite</th>
<th>ReturnedSite</th>
<th>ReturnedSite</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pass</strong></td>
<td>Pass</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td><strong>IntermediateTimeGroup</strong></td>
<td>RTArrivalTimeGroup</td>
<td>RTArrivalTimeGroup</td>
<td></td>
</tr>
<tr>
<td><strong>Intermediate</strong></td>
<td>RTDepartureTimeGroup</td>
<td>RTDepartureTimeGroup</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>LegAlight</strong></th>
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<th>ReturnedSite</th>
<th>ReturnedSite</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pass</strong></td>
<td>Pass</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td><strong>IntermediateTimeGroup</strong></td>
<td>RTArrivalTimeGroup</td>
<td>RTArrivalTimeGroup</td>
<td></td>
</tr>
<tr>
<td><strong>Intermediate</strong></td>
<td>RTDepartureTimeGroup</td>
<td>RTDepartureTimeGroup</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>IntermediateB</strong></th>
<th>ReturnedSite</th>
<th>ReturnedSite</th>
<th>ReturnedSite</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IntermediateTimeGroup</strong></td>
<td>RTArrivalTimeGroup</td>
<td>RTArrivalTimeGroup</td>
<td></td>
</tr>
<tr>
<td><strong>Intermediate</strong></td>
<td>RTDepartureTimeGroup</td>
<td>RTDepartureTimeGroup</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>IntermediateC</strong></th>
<th>ReturnedSite</th>
<th>ReturnedSite</th>
<th>ReturnedSite</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IntermediateTimeGroup</strong></td>
<td>RTArrivalTimeGroup</td>
<td>RTArrivalTimeGroup</td>
<td></td>
</tr>
<tr>
<td><strong>Intermediate</strong></td>
<td>RTDepartureTimeGroup</td>
<td>RTDepartureTimeGroup</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Service-Destination</strong></th>
<th>ReturnedSite</th>
<th>ReturnedSite</th>
<th>ReturnedSite</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DestinationTimeGroup</strong></td>
<td>RTArrivalTimeGroup</td>
<td>RTArrivalTimeGroup</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>LegTrack</strong></th>
<th>Track</th>
<th>Track</th>
<th>Track</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Notes</strong></td>
<td>string</td>
<td>string</td>
<td>string</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Service-Response-Group</strong></th>
<th>ServiceResponseGroup</th>
<th>ServiceResponseGroup</th>
<th>ServiceResponseGroup</th>
</tr>
</thead>
</table>
If available, **PlaceAccessibility** should be specified for the accessibility of the point from the end point of the previous leg.

- **Intermediate B**: Journey pattern, i.e. collection of timing points between **LegBoard** and **LegAlight**.
  - Each timing point is described as a **ReturnedSiteStructure**, together with an **IntermediateTimeGroup**. If the point is one of the requested **Via** points it is flagged with a **Pass** element.

- **LegAlight**: Describes the point at which the passenger alights from the service. Required.
  - If the point is one of the requested **Via** points it is flagged with a **Pass** element.
  - If available, **PlaceAccessibility** should be specified for the accessibility of the point to the start point of the previous leg.

- **Intermediate C**: Journey pattern, i.e. collection of timing points between **LegAlight** point and **ServiceDestination**.
  - Each timing point is described as a **ReturnedSiteStructure**, together with an **IntermediateTimeGroup**.

- **ServiceDestination**: Describes the ultimate end point of the service providing the leg as a **ReturnedSiteStructure**.

- **CommonLegGroup**: Common additional elements that can be provided on most leg types. See **CommonLegGroup** below.
5.6.5 ReturnedSite Structure (+JW v2.4).

The **ReturnedSiteStructure** is used to return details for each point in a leg. It extends the **ReturnedPlaceType** details described earlier. In addition, in JW 2.4 it may contain:

- **SitePlaceId** (+JW v2.4). An additional Site component identifier associated with the point. This can be used in a subsequent **LegPathRequest** to reference a particular point within an interchange. The **Bay** element may provide a text label corresponding to this point, for example the label of a **BoardingPoint** along a platform. In many cases the NaPTANID will be sufficient.
**PlaceAccessibility** (+JW v2.4) rating of the point if available and if accessibility details were requested on the request via the **AccessibilityOptions** element. Normally this will only be populated on a **Board** or **Alight** stop – however it is also possible to use it to indicate accessibility of other stations passed on the journey. Note that to get the full details of the accessibility of an **InterchangeLeg**, including the number of steps, availability of escalators, lifts, etc a separate **LegPathsRequest** should be made with the **LegID** as the key.

![Figure 5-36 – Common Leg / ReturnedSite Structure (+JW v2.4)](image)

### 5.6.6 Common Leg / PlaceAccessibility (+JW v2.4)

A **PlaceAccessibilityStructure** (Figure 5-37) describes the accessibility of a point (if used as a **PlaceAccessibility** on an **Origin**, **Destination** or interchange **Point**), or of a leg between two points (if used as a **LegAccessibility** on any type of leg).

- **MobilityImpairedAccess**: (+JW v2.4) an overall assessment of the accessibility of the **Place** as accessible or not accessible, typically to a wheelchair user. In the context of JourneyWeb the Accessibility indicates whether the point can be reached from the previous. For example, for a point that is a platform within a station this will imply that the platform can be reached from outside of the station by wheelchair.

- **Compliant**: (+JW v2.4) Whether this leg is compliant. Default is true. May possibly be false if **Filtering** permissive is specified to indicate a leg that does not meet criteria.

- **MobilityLimitationGroup**: a detailed assessment of the accessibility of the **Place**.
  - **WheelchairAccess**: (+JW v2.4): Whether point is Wheelchair accessible.
  - **StepFreeAccess**: (+JW v2.4): Whether there is step free access to the point.
  - **EscalatorFreeAccess**: (+JW v2.4): Whether there is access to the point without the use of escalators.
- **TravelatorFreeAccess** (+JW v2.4): Whether there is access to the point without the use of travelators.
- **LiftFreeAccess** (+JW v2.4): Whether there is access to the point without the use of lifts.
- **SensoryLimitationGroup**: additional assessment of the accessibility of the Point for aspects relevant to deaf and blind travellers.
- **AudibleSignsAvailable** (+JW v2.4): Whether audible signs or announcements of departures are available.
- **VisualSignsAvailable** (+JW v2.4): Whether visible signs of departures are available.
- **AccessSummaries**: (+JW v2.4) List of AccessSummary elements describing features e.g. lifts up down. See below.
- **GapToPlatform** (+JW v2.4) Normal distance between vehicle and platform at this stop in metres.

![Diagram of PlaceAccessibility/AccessSummary](image)

**Figure 5-37 – Common Leg / PlaceAccessibility (+JW v2.4)**

5.6.7 PlaceAccessibility / AccessSummary
An **AccessSummary** (Figure 5-41) describes the access to a point at a summary level. Use LegPath to obtain a detailed step by step account.

- **AccessFeatureType** (+JW v2.4) describes the nature of the feature, e.g. lift. See Table 5-24 later below.
- **Count**: (+JW v2.4) describes the number of features: e.g. 2 escalators.
- **Transition**: (+JW v2.4) describes the use of the feature e.g. up, down. See Table 5-23 later below.

![AccessSummary diagram](image)

**Figure 5-38 – PlaceAccessibility / AccessSummary (+JW v2.4)**

5.6.8 Common Leg / OriginTimeGroup

An **OriginTimeGroup** (Figure 5-39) is a syntactic element that groups the possible scheduled and real time departure times from an origin as a reusable element.

- **TimetabledDepartureTime**: Scheduled time of departure.
- **RTDepartureTimeGroup**: Elements for Real-time departure times.
  - **RTEstimatedDepartureTime**: Predicted time of departure in real-time.
  - **RTRecordedDepartureTime**: Actual time of departure in real-time.

![OriginTimeGroup diagram](image)

**Figure 5-39 – Common Leg / OriginTimeGroup**

5.6.9 Common Leg / BoardTimeGroup

The **BoardTimeGroup** (Figure 5-40) is a syntactic element that groups the possible scheduled and real time times of a service at an intermediate stop as a reusable element. There must be at least one departure time.

- **RTArrivalTimeGroup**: Elements for Real-time arrival times.
  - **RTEstimatedArrivalTime**: Predicted time of arrival in real-time.
- **RTRecordedArrivalTime**: Actual time of arrival in real-time.
- **TimetabledArrivalTime**: Scheduled time of arrival.
- **TimetabledDepartureTime**: Scheduled time of departure.
- **TimetabledTime**: Only to be used when scheduled arrival and departure times are the same.
- **RTDepartureTimeGroup**: Elements for Real-time departure times.
  - **RTEstimatedDepartureTime**: Predicted time of departure in real-time.
  - **RTRecordedDepartureTime**: Actual time of departure in real-time.

**Figure 5-40 – BoardTimeGroup**

5.6.10 Common Leg / IntermediateTimeGroup

An **IntermediateTimeGroup** *(Figure 5-41)* is a syntactic element that groups the possible scheduled and real-time times at an Intermediate stop as a reusable element. See **BoardTimeGroup** for descriptions. Note that a **TimetabledDepartureTime** is optional.
5.6.11 Common Leg / ChangePointGroup

A ChangePointGroup (Figure 5-41) is a syntactic element that groups elements for board and alight points as reusable element.

- **Pass**: Whether the stop was a requested via point.
- **RequestStop**: Whether the stop was a request stop.

Figure 5-42 – Common Leg / ChangePointGroup
5.6.12 Common Leg / AlightTimeGroup

The **AlightTimeGroup** *(Figure 5-43)* is a syntactic element that groups the possible scheduled and real time arrival times at an intermediate stop as a reusable element. See **BoardTimeGroup** for descriptions. There must be at least one arrival time.

![Figure 5-43 – Common Leg / AlightTimeGroup](image)

5.6.13 Common Leg / DestinationTimeGroup

A **DestinationTimeGroup** *(Figure 5-44)* is a syntactic element that groups the possible scheduled and real time arrival times at a destination stop as a reusable element. See **BoardTimeGroup** for descriptions.

![Figure 5-44 – Common Leg / DestinationTimeGroup](image)

5.6.14 Common Leg / CommonLegGroup
A **CommonLegGroup** (Figure 5-45) is a syntactic element that groups the possible common properties of journey legs.

- **NotesGroup**: Comments attached to journey. See below. **ServiceResponseGroup**: Describes the service properties. See **ServiceResponse / Service** later below.
- **LegTrack**: (+JW v2.4) Coordinates of leg suitable for projecting onto a map.

**Figure 5-45 – Common Leg / CommonLegGroup**

5.6.15 Common Leg / NotesGroup

A **NotesGroup** (Figure 5-46) is a syntactic element that groups notes that may be associated with journeys.

Zero, one or many instances of either a **Note** or a **Notice** as follows:

- **Notes**: A simple free format comment attached to journey.
- **Notice**: A comment attached to a journey made up of structured parts.
  - **ID**: Identifier of the Notice.
  - **Summary**: A headline summary for the note
    - i. **ContentType**: Whether the note contains embedded html mark-up tags such as `<href> <p>` etc. See Table 5-14 Mark-up should be embedded in a CDATA tag, for example `<Notes content="html"><![CDATA[<click <href ref="http://nus.co.uk">here

- **Detail**: Further details of the note.
- **Severity**: The severity of impact of the note on the journey. Based on TPEG pti26 values See Table 5-15
- **Classification**: A classification of the note type. See Table 5-16.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>TPEG PTI 26</th>
</tr>
</thead>
<tbody>
<tr>
<td>plainText</td>
<td>Text is plain text without mark-up</td>
<td></td>
</tr>
<tr>
<td>html</td>
<td>Note text I marked up as HTML embedded in a CDATA tag</td>
<td></td>
</tr>
</tbody>
</table>

**Table 5-14 – Allowed Values for Notice / ContentType**

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>TPEG PTI 26</th>
</tr>
</thead>
<tbody>
<tr>
<td>unknown</td>
<td>unknown</td>
<td>PTV26 0</td>
</tr>
<tr>
<td>undefined</td>
<td>undefined</td>
<td>PTV26 255</td>
</tr>
<tr>
<td>noImpact</td>
<td>No Impact</td>
<td>PTV26 6</td>
</tr>
<tr>
<td>verySlight</td>
<td>Very Slight Impact</td>
<td>pti26 1</td>
</tr>
<tr>
<td>slight</td>
<td>Slight Impact</td>
<td>PTV26 2</td>
</tr>
<tr>
<td>normal</td>
<td>Some Impact</td>
<td>PTV26 3</td>
</tr>
<tr>
<td>severe</td>
<td>Severe Impact</td>
<td>PTV26 4</td>
</tr>
<tr>
<td>verySevere</td>
<td>Very Severe Impact</td>
<td>PTV26 5</td>
</tr>
</tbody>
</table>

**Table 5-15 – Allowed Values for Notice / Severity**
<table>
<thead>
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<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>accessibilityAdvisory</td>
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</tr>
<tr>
<td>bookingAdvisory</td>
<td>Booking Advisory</td>
</tr>
<tr>
<td>contactDetails</td>
<td>Contact Details</td>
</tr>
<tr>
<td>disruptionWarning</td>
<td>Disruption Warning</td>
</tr>
<tr>
<td>drtAdvisory</td>
<td>Drt Advisory</td>
</tr>
<tr>
<td>engineeringWorksNotice</td>
<td>Engineering Works Notice</td>
</tr>
<tr>
<td>holidayServiceAdvisory</td>
<td>Holiday Service Advisory</td>
</tr>
<tr>
<td>schoolAdvisory</td>
<td>School Advisory</td>
</tr>
<tr>
<td>ticketAdvisory</td>
<td>Ticket Advisory</td>
</tr>
<tr>
<td>other</td>
<td>otherAdvisory</td>
</tr>
</tbody>
</table>

Table 5-16 – Allowed Values for Notice / Classification

5.6.16 CommonLegGroup / LegTrack Element (+JW v2.4)

A **LegTrack** (Figure 5-47) provides a representation of the track of a Public Transport leg suitable for plotting on a map. A **LegTrack** is made up of one or more **TrackSection** elements in sequential order.
5.6.17 TrackSection Element (+JW v2.4)

A _TrackSection_ (+JW v2.4) (Figure 5-48) describes part of a track and contains the following:

- **Projection**: Two or more Location points that plot the route.
- **RoadName**: The name of a Road associated with this section. A new section is needed if the road name changes.
- A **MapSystemReference**: An optional reference to a mapping system feature identifier such as a TOID or an OSGR.

5.6.18 Journey / TimedLeg

The _TimedLeg_ element (Figure 5-49) describes a timed leg within a _Journey_.

- **Id**: (+JW V2.4) Attribute - leg identifier that can be used for subsequent reference to the leg.
- **Mode**: Attribute - a _TimedLeg_ can have any of the vehicle transport modes shown in Table 5-10, for example:
  - Air, Bus, Coach, Ferry, Metro, Park And Ride, Rail, Rail Replacement Bus, Tram, Underground.

See discussion of common leg elements above, which can be used on a _TimedLeg_ as follows:
A TimedLeg can optionally have a ServiceOrigin and a ServiceDestination describing the full extents of the service being used. ServiceOrigin should be the name shown on vehicles and information displays as the origin of the service. ServiceDestination should be the name shown on vehicles and information displays as the destination of the service.

A TimedLeg must have a LegBoard, a LegAlight, a single IntermediateB (if it passes the requested via point) and service details as described by a Service element.

The InterchangeTime at the board point and the alight point must be returned so that an active JourneyWeb system can splice journeys together. Table 5-17 indicates the useful values with which to populate the InterchangeTime.

<table>
<thead>
<tr>
<th>Time</th>
<th>Usage</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Access</td>
<td>LegBoard / InterchangeTime</td>
<td>Time to reach platform from entrance of station and get onto vehicle</td>
</tr>
<tr>
<td>Leg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermediate</td>
<td>LegAlight / InterchangeTime</td>
<td>Time to get off vehicle and go from platform to reach a common</td>
</tr>
<tr>
<td>Access when</td>
<td></td>
<td>measurement point within a station. This point may be distinct</td>
</tr>
<tr>
<td>interchanging</td>
<td></td>
<td>from the main entrance, for example the main concourse.</td>
</tr>
<tr>
<td>between</td>
<td></td>
<td></td>
</tr>
<tr>
<td>subsequent</td>
<td>LegBoard / InterchangeTime</td>
<td>Time to go from a common measurement point within a station to</td>
</tr>
<tr>
<td>legs</td>
<td></td>
<td>platform and board vehicle.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End Access</td>
<td>Leg alight / InterchangeTime</td>
<td>Time to get off vehicle and reach entrance of station from platform</td>
</tr>
</tbody>
</table>

Table 5-17 – Use of Interchange Times

If the request has indicated that intermediate stops are required (Include-Intermediate) then the intermediate stop sections should also be returned – IntermediateA, IntermediateB, and IntermediateC.

CommonLegGroup: Describes the service properties. See ServiceResponse above.
5.6.19 TimedLeg / ServiceOrigin

The **ServiceOrigin** of a **TimedLeg** element (Figure 5-50) combines a **ReturnedSite** with an **OriginTimeGroup**. See common elements above.
5.6.20 TimedLeg / IntermediateA

The *IntermediateA* element of a *TimedLeg* element (Figure 5-50) combines a *ReturnedSite* with an *IntermediateTimeGroup*. See common elements above.

5.6.21 TimedLeg / LegBoard

The *LegBoard* element of a *TimedLeg* element (Figure 5-52) combines a *ReturnedSite* with:

- **ChangePointGroup**: Elements common to board and alight points. See earlier.
- **InterchangeTime**: Time to interchange if no separate *InterchangeLeg* time. See also Table 5-17 earlier.
- **BoardTimeGroup**: Times at stop: See above.
5.6.22 TimedLeg / IntermediateB

The **IntermediateB** element of a **TimedLeg** element (Figure 5-50) combines a ReturnedSite with:

- **Pass**: Whether the element was a requested via point.
- **IntermediateTimeGroup**: Times at stop: See above.

5.6.23 TimedLeg / LegAlight

The **LegAlight** element of a **TimedLeg** element (Figure 5-52) combines a ReturnedSite with an **AlightTimeGroup**.

- **ChangePointGroup**: Elements common to board and alight points. See earlier.
- **InterchangeTime**: Time to interchange. See also Table 5-17 earlier.
- **AlightTimeGroup**: Times at stop: See above.
5.6.24 TimedLeg / IntermediateB

The **IntermediateC** element of a **TimedLeg** element (Figure 5-50) combines a ReturnedSite with an **IntermediateTimeGroup** and is the same as an **IntermediateA** element – see above.

5.6.1 TimedLeg / ServiceDestination

The **ServiceDestination** of a **TimedLeg** element (Figure 5-50) combines a **ReturnedSite** with a **DestinationTimeGroup**. See common elements above.
5.6.2 Journey / FrequencyLeg

The **FrequencyLeg** element (Figure 5-56) describes a frequency leg within a Journey.

- **Id**: (+JW +v2.4) Attribute - leg identifier that can be used for subsequent reference to the leg.
- **Mode**: Attribute - a **FrequencyLeg** can have any of the vehicle transport modes. See Table 5-10 earlier for allowed values.
  - Air, Bus, Coach, Ferry, Metro, ParkAndRide, Rail, RailReplacementBus, Tram, Underground.

See discussion of common leg elements above: these can be used on a **FrequencyLeg** as follows:

- The leg can optionally have a **ServiceOrigin** and **ServiceDestination** describing the full extents of the service being used. **ServiceOrigin** should be the name shown on vehicles and information displays as the origin of the service. **ServiceDestination** should be the name shown on vehicles and information displays as the destination of the service. A **FrequencyLeg** must have a **LegBoard**, a **LegAlight**, a **Pass** (if it passed the requested via point), service details (see **ServiceResponse / Service** later) and a **BoardAlightTimes** (which defines the average duration of the leg – see Common Leg elements above).
- If the request has indicated that intermediate stops are required (**Include-Intermediates**) then the intermediate stop sections should also be returned – **IntermediateA**, **IntermediateB**, and **IntermediateC**.

The following additional elements are specific to a **FrequencyLeg**:

- **OriginDestinationTimes** (which defined the average duration of the service – see **FrequencyTimeGroup** below).
- **BoardAlightTimes** (which define times for the part of the journey the traveller will make – see **FrequencyTimeGroup** below).
Figure 5-56 – Journey / FrequencyLeg

Frequencies are defined at each point in a similar way to passing times on timed legs.
5.6.3 FrequencyLeg / ServiceOrigin

The **ServiceOrigin** of a **FrequencyLeg** element (Figure 5-50) combines a **ReturnedSite** with an **RTDepartureTimeGroup**. See **BoardTimeGroup** above.

![Figure 5-57 – FrequencyLeg / ServiceOrigin](image)

5.6.4 FrequencyLeg / IntermediateA

The **IntermediateA** element of a **FrequencyLeg** element (Figure 5-50) combines a **ReturnedSite** with an **RTArrivalTimeGroup** and an **RTDepartureTimeGroup**.

![Figure 5-58 – FrequencyLeg / IntermediateA](image)

5.6.5 FrequencyLeg / LegBoard

The **LegBoard** element of a **FrequencyLeg** element (Figure 5-52) combines a **ReturnedSite** with:

- **ChangePointGroup**: Elements common to board and alight points. See earlier.
- **RTArrivalTimeGroup**: Real-time arrival times at stop. See **BoardTimeGroup** above.
- **RTDepartureTimeGroup**: Real-time departure times at stop. See **BoardTimeGroup** above.
5.6.6 FrequencyLeg / IntermediateB

The IntermediateB element of a FrequencyLeg element (Figure 5-50) combines a ReturnedSite with:

- **ChangePointGroup**: Elements common to board and alight points. See earlier.
- **RTArrivalTimeGroup**: Real-time arrival times at stop. See BoardTimeGroup above.
- **RTDepartureTimeGroup**: Real-time departure times at stop. See BoardTimeGroup above.
5.6.7 FrequencyLeg / LegAlight

The LegAlight element of a FrequencyLeg element (Figure 5-61) combines a ReturnedSite with an AlightTimeGroup.

- **ChangePointGroup**: Elements common to board and alight points. See earlier.
- **RTArrivalTimeGroup**: Real-time arrival times at stop. See BoardTimeGroup above.
- **RTDepartureTimeGroup**: Real-time departure times at stop. See BoardTimeGroup above.
The *IntermediateC* element of a *FrequencyLeg* element (Figure 5-50) combines a ReturnedSite with real-time values and is the same as an *IntermediateA* element – see above.

### 5.6.9 FrequencyLeg / ServiceDestination

The *ServiceDestination* of a *FrequencyLeg* element (Figure 5-50) combines a ReturnedSite with an RTArrivalTimeGroup. See common elements above.

- **RTArrivalTimeGroup**: Real-time arrival times at stop. See BoardTimeGroup above.

![Figure 5-62 – FrequencyLeg / ServiceDestination](image1)

### 5.6.10 FrequencyLeg / FrequencyTimeGroup

A *FrequencyTimeGroup* (Figure 5-63) is a syntactic element to group the elements describing a frequency based service. It is used to specify the *OriginDestinationTimes* and *BoardAlightTimes* of a *FrequencyLeg*. It comprises the following elements:

- **DurationTimeWindowGroup**: Optionally specifying the window of opportunity as lying within absolute time bands. See below.
- **MaxDuration**: The maximum journey time for the leg.
- **FrequencyGroup**: Specifying the actual frequency. See below.

![Figure 5-63 – FrequencyLeg / FrequencyTimeGroup](image2)

**NOTE**: If the window of opportunity is not returned by the remote journey planner then it cannot be derived from the other data for display to the end user for contractual reasons.
5.6.11 FrequencyLeg / DurationWindowGroup

A **DurationWindowGroup** (Figure 5-63) is a syntactic element to group the duration elements of a frequency based service.

- **TimeWindowGroup**: Optionally specifying the window of opportunity as a **WindowStartTime** and a **WindowEndTime** element, the earliest start time and latest end time for the leg (see note).
- **TypicalDuration**: The typical journey time for the Origin destination journey to use in journey planning.
- **InterchangeAllowance**: The extra time to leave to ensure interchange can be made. See Table 5-17 for **InterchangeTimes** earlier.

**WalkTimeAtInterchange**: (+JW v2.4) The recommended time to make the interchange to publish to users, if different from typical duration above. This may be different from the **TypicalDuration** & **InterchangeAllowance** values used by a journey planner.

![Figure 5-64 – FrequencyLeg / DurationWindowGroup](image)

5.6.12 FrequencyLeg / FrequencyGroup

A **FrequencyGroup** (Figure 5-65) groups the frequency elements of a frequency based service:

- **Frequency**: How often the service is meant to be available – this of the built in XML type duration.
- **MinFrequency**: The minimum Frequency interval of the service.
- **MaxFrequency**: The maximum Frequency interval of the service.
Figure 5-65 – FrequencyLeg / FrequencyGroup
5.6.13 Journey / ContinuousLeg

The *ContinuousLeg* element (Figure 5-66) describes a continuous leg within a *JourneysResponse*, for example a walk or cycle leg.

- **Id**: (+JW V2.4) Attribute - leg identifier that can be used for subsequent reference to the leg.
- **Mode**: Attribute - a *ContinuousLeg* can be returned with any of the following modes. See Table 5-10 earlier for allowed values.
  - Underground, Walk, Car, Taxi, Cycle, DRT, Park & Ride.

See discussion of common leg elements above: these can be used on a *ContinuousLeg* as follows:

- A *ContinuousLeg* must have a *LegBoard*, a *LegAlight*, and a *Pass* element if it passed the via point, and a typical *Duration*.
- A full list of origin, destination, and intermediate points are available for use with DRT (Demand Responsive Transport) legs. These points can have real time times attached to them in the same way as frequency legs.
- The properties of *LegBoard* and *LegAlight* points are the same as for a *FrequencyLeg*.

The leg must have specific values as specified by a *ContinuousLegGroup* see below.

- It may have a *DurationWindowGroup*. See under *FrequencyLeg* above.
5.6.14 Common Leg / ContinuousLegGroup

A ContinuousLegGroup (Figure 5-67) is a syntactic element that groups the possible additional properties of journey legs. It is identical to the CommonLegGroup except that the service identifier details are optional.

- **NotesGroup**: Comments attached to journey. See NotesGroup earlier.
- **ServiceIdentifierGroup** Information to identify the service.
  - **OperatorCode**: Describes an individual service.
  - **ServiceNumber**: Line number to identify the service.
  - **Direction**: Direction of the service.
- **ServiceResponseExtrasGroup**: Further information about the service. See SERVICE elements later below.
**LegTrack**: Projection of leg as points on a map. Only present if `IncludeLegTracks` specified on request.

**Figure 5-67 – Common Leg / ContinuousLegGroup**
5.6.15 Journey / Interc hangeLeg (+JW v2.4)

The **InterchangeLeg** (+JW v2.4) element (Figure 5-68) describes an interchange leg within a *JourneysResponse*, for example a walk or leg within a station or airport, and can provide a detailed step by step description. It should be used for a PT-PT transfer in or around an interchange where the end stop of the previous PT or Car leg is different from the start point of the next leg. It contains the following elements:

- **Id**: (+JW v2.4) Attribute - leg identifier that can be used for subsequent reference to the leg.
- **Mode**: Attribute - an *InterchangeLeg* can have any of the following interchange transport modes. See Table 5-10 earlier for allowed values:
  - walk, car, parkAndRide, cycle, drt, taxi, underground
- **LegOrigin**: The starting point of the leg, (a *ReturnedSiteStructure*, as for other Leg Types).
- **LegDestination**: The ending point of the leg. (A *ReturnedSiteStructure*, as for other Leg Types).
- **NavigationPath**: Describes a path between the origin and the destination as a set of nodes and links. See description within LEG PATHS service. The origin of the *NavigationPath* should correspond to the *LegOrigin*. The destination should correspond to the *LegDestination*.
- **CheckConstraints**: Details of any processes associated with the leg. May also be associated with individual path links link on a Leg Path. (+JW v2.4)
- **LegAccessibility**: Describes overall accessibility of leg. See *PlaceAccessibility* above.
- **NotesGroup**: Comments attached to journey Leg. See *NotesGroup* earlier.
- **LegTrack**: Projection of leg as points on a map. Only present if *IncludeLegTracks* specified on request.
- **DurationWindowGroup**: Time for leg See under *FrequencyLeg* above.

Further details about the leg may be fetched using the LEGPATH service using the *LegID*. 
5.6.16 InterchangeLeg / LegAccessibility (+JW v2.4)

A **LegAccessibility** (Figure 5-37) describes the accessibility of an **InterchangeLeg**.
- **MobilityImpairedAccess**: (+JW v2.4) an overall assessment of the accessibility of the Leg as accessible or not accessible, typically to a wheelchair user.
- **Compliant**: (+JW v2.4) Whether this leg is compliant. Default is true. May possibly be false if **Filtering** permissive is specified to indicate a leg that does not meet criteria.
- **MobilityLimitationGroup**: a detailed assessment of the accessibility of the Leg.
  - **WheelchairAccess**: (+JW v2.4): Whether leg is Wheelchair accessible.
  - **StepFreeAccess**: (+JW v2.4): Whether leg can be traversed without the use of steps.
- **EscalatorFreeAccess** (+JW v2.4): Whether leg can be traversed without the use of escalators.
- **TravelatorFreeAccess** (+JW v2.4): Whether leg can be traversed without the use of travelators.
- **LiftFreeAccess** (+JW v2.4): Whether leg can be traversed without the use of lifts.
- **LocalServiceList**: a detailed assessment of the services for the Leg.
- **AssistanceService**: (+JW v2.4) specific details of Assistance Service on services. See above.
- **TicketingService**: (+JW v2.4) specific details of Assistance Service on services. See above.
- **PassengerEquipmentList**: Specific details of passenger equipment. See Equipment / ServiceEquipment for details.

![Figure 5-69 – InterchangeLeg / LegAccessibility](image)
5.7 The LEGPATHS Protocol (+JW v2.4)

The JourneyWeb LEGPATHS service protocol is used to retrieve details of pedestrian navigation paths for a leg. It returns the Paths valid at the time of travel, and that satisfy any specified accessibility criteria.

Support for the LEGPATHS service is an optional capability (266 Journey Leg identifier).

5.7.1 LegPathsRequest (+JW v2.4)

A LegPathsRequest (Figure 5-70) can be used either to fetch path data for a previously retrieved journey leg, as identified by an Id in a returned Leg in a JourneysResponse, or a new pair of points. The leg is identified:

- Either by a LegRef: identifying the journey leg for which additional details are to be fetched, obtained from a previous JourneysResponse that satisfies the parameters of a valid JourneysRequest query.
- Or by the identifiers of two end points:
  - FromPlace: Origin point – see SiteComponentReference structure.
  - ToPlace: Origin point – see SiteComponentReference structure.
  - JourneyTime: time at which leg use starts.
- AccessibilityOptions: Specifies accessibility constraints to be used when computing journeys and interchange paths. These are the same as described earlier for the JourneysRequest.

5.7.2 LegPathsRequest / SiteComponentReferenceStructure (+JW v2.4)

The SiteComponentReferenceStructure (Figure 5-71) is used to identify the start and end point of a LegPathsRequest. It is similar to the OriginDestinationRequestType used on the JourneysRequest with the additional possibility of referring to a point within a site.

- A site component reference has a point identifier, which may be one of the following:
  - NaPTANID: The NaPTAN identifier of the place. Note that additional NaPTAN identifiers may also be allocated to describe sports venues, points of interest and other sites. These will be allotted from different code ranges.
  - Geocode: The spatial co-ordinates of the place.
  - StopAreaID: Not relevant for use in LEGPATHS query.
LocalityID identifying a NPTG Locality – The centre point of the locality will be used.

SitePlaceId: An additional Site component identifier associated with the point. This can be used to identify of a more specific point within a Site or Interchange that isn’t a first class NaPTAN point.

The GivenName should be completed when the name being used cannot be derived from the ID, e.g. when using a co-ordinate or when using the alternate name for a NaPTAN node. This name will be returned in the resulting journey plan (or timetable title, if used in a TimetablesResponse).

**Figure 5-71 – PathLinkInSequence / SiteComponentReferenceStructure (+JW v2.4)**

5.7.3 LegPathsResponse (+JW v2.4)

A LegPathsResponse (Figure 5-72) returns the results of the LegPathsRequest. It comprises:
- **Message**: Any error messages associated with the response.
- **LegDetails**: Details of a Leg that satisfies the request.
  - **ID**: Id of leg details.
  - **NavigationPaths**: One or more navigation paths for the Leg that satisfies the request, including accessibility criteria. See below. Each NavigationPath describes a route between two points that satisfies specified criteria. It is made up of a sequence of references to PathLink instances each of which describes a detailed step of the path. The first point of the first link in the path must correspond to the the LegOrigin. The last point of the last link in the path must correspond to the the LegDestination.
  - **InterchangeSchematic** – Reference to URL’s for schematic maps associated with the NavigationPath.
5.7.4 NavigationPath Element (+JW v2.4)

A NavigationPath (Figure 5-73) describes a pedestrian (that is walk, cycle, wheelchair) path between two points as a sequence of discrete links (all in order of traversal).

- **NavigationPathID**: Attribute: Unique identifier of the path that can be used for subsequent reference to the leg.
- **Name**: A name for the path.
- **Description**: Any text description for the path.
- **Advice**: Any additional comments or advice on use of the path.
- **NavigationPathType**: A classification of the path (see Table 5-18).

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>hallToQuay</td>
<td>Hall to Quay</td>
</tr>
<tr>
<td>hallToStreet</td>
<td>Hall to Street</td>
</tr>
<tr>
<td>quayToHall</td>
<td>Quay to Hall</td>
</tr>
<tr>
<td>quayToQuay</td>
<td>Quay to Quay</td>
</tr>
<tr>
<td>quayToStreet</td>
<td>Quay to Street</td>
</tr>
<tr>
<td>streetToHall</td>
<td>Street to Hall</td>
</tr>
<tr>
<td>streetToQuay</td>
<td>Street to Quay</td>
</tr>
<tr>
<td>streetToSitePlace</td>
<td>Street to a Place within a site</td>
</tr>
<tr>
<td>sitePlaceToStreet</td>
<td>Place within a site to Street</td>
</tr>
<tr>
<td>other</td>
<td>Other</td>
</tr>
</tbody>
</table>

Table 5-18 – Allowed Values for NavigationPathType (+JW v2.4)

- **PathAccessibility**: The overall accessibility of the NavigationPath. This will be the least accessible condition found in any component link. For example if one path link is not wheelchair accessible, then the NavigationPath will not be accessible. See below.
- **Distance**: Any additional comments or advice on use of the NavigationPath.
- **TransferDuration** describes the time to traverse the path. See below.
- **PathLinks**: one or more PathLinkInSequence, each describing the transition between two nodes. See below.
5.7.5 PathAccessibility (+JW v2.4)

A PathAccessibility (Figure 5-74) element describes the overall accessibility of a Path.

- **MobilityImpairedAccess**: an overall assessment of the accessibility of the element as accessible or not accessible.
- **MobilityLimitationGroup**: a detailed assessment of the accessibility of the NavigationPath.
  - **WheelchairAccess** (+JW v2.4): Whether element is Wheelchair accessible.
  - **StepFreeAccess** (+JW v2.4): Whether there is step free access to the element.
  - **EscalatorFreeAccess** (+JW v2.4): Whether there is access to the element without the use of escalators.
  - **TravelatorFreeAccess** (+JW v2.4): Whether there is access to the element without the use of travelators.
  - **LiftFreeAccess** (+JW v2.4): Whether there is access to the element without the use of lifts.
Figure 5-74 – NavigationPath / PathAccessibility (+JW v2.4)

5.7.6 TransferDuration (+JW v2.4)
A TransferDuration element describes the accessibility of a Path.

- Default Duration: Default time for a traveller to make a transfer.
- FrequentTravellerDuration: Time for a Frequent Traveller to make a transfer.
- OccasionalTravellerDuration: Time for an Occasional Traveller to make a transfer.
- MobilityRestrictedTravellerDuration: Time for a Mobility Restricted Traveller to make a transfer.
5.7.7 NavigationPath / PathLinkInSequence Element (+JW v2.4)

The PathLinkInSequence (Figure 5-76) describes a step of a NavigationPath: it provides a view of a PathLink as used in a specific sequence as part of a specific navigation path. Each PathLink can have:

- **StepID**: Attribute - identifier of step.
- **PathLinkInSequenceGroup**: Elements relating to the step. See below.
- **PathLinkPropertiesGroup**: Elements relating to the path link used by this step. See below.
- **Equipment**: Equipment such as steps, lifts etc associated with this step. See EquipmentPlace below.
- **CheckConstraints**: Process delays associated with this step. See CheckConstraint below.
- **PathAccessibility**: Accessibility properties of this specific step. See PathAccessibility above.
Figure 5-76 – NavigationPath / PathLinkInSequence (+JW v2.4)

5.7.8 PathLinkInSequence / PathLinkInSequenceGroup (+JW v2.4)
The **PathLinkInSequenceGroup** describes the properties of a step of a NavigationPath:

Each **PathLink** can have:

- **From**: Point from which use of PathLink starts, including entrance and accessibility – See **SitePlaceStructure** below. NB The **From** Place of first link of a NavigationPath must correspond to the **LegOrigin** of the **InterchangeLeg**

- **To**: Point at which use of PathLink ends, including entrance and accessibility – See **SitePlaceStructure** below. NB The **To** Place of first link of a NavigationPath must correspond to the **LegDestination** of the **InterchangeLeg**

- **Label**: Label on link step.

- **Description**: Description of link.

- **Advice**: Further advice for using link.

- **Heading**: Nature of use of path Link. See Table 5-19 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>left</td>
<td>This link turns left from previous link</td>
</tr>
<tr>
<td>right</td>
<td>This link turns left from previous link</td>
</tr>
<tr>
<td>forward</td>
<td>This link continues forward from previous link</td>
</tr>
<tr>
<td>back</td>
<td>This link turns back from previous link</td>
</tr>
</tbody>
</table>

Table 5-19 – Allowed Values for Heading (+JW v2.4)
StepTransition: Nature of transition of path link See 5-16 later below. If the Step i.e. PathLinkInSequence uses the PathLink in the reverse direction to the Link’s sense, this may be different to the Transition of the PathLink itself.

Figure 5-77 – PathLinkInSequence / PathLinkInSequenceGroup (+JW v2.4)

5.7.9 PathLinkInSequence / SitePlaceStructure (+JW v2.4)
The SitePlaceStructure (Figure 5-78) describes the start or end point of a path link of a NavigationPath. It is similar to the ReturnedSiteStructure I used to return details for each point in a leg. It has a point identifier.

SitePlaceIdentifierGroup: elements that identify the site
- **NaPTANID:** The NaPTAN identifier of the place. This may either be the exact point, used by itself to locate a place, or be further qualified by the use of a SitePlaceId which identifies a subpoint within the given NaPTAN subpoint. Where detailed path links are used there should be first class NaPTAN points at least for every platform, entrance and concourse area used for interchanges.
- **Geocode:** The spatial co-ordinates of the point. This may be provided as well as an identifier.
SitePlaceId: An additional Site component identifier associated with the NaPTAN point. This can be used in a subsequent LegPath request to reference a particular point within an interchange. The Bay element may provide a text label corresponding to this point.

Entrance: Details about an entrance associated with this link end.

PlaceAccessibility: Rating of the point if available and if accessibility details were requested on the request.

Figure 5-78 – PathLinkInSequence / SitePlace (+JW v2.4)

5.7.10 PathLinkInSequence / SitePlaceDescriptionGroup (+JW v2.4)

The SitePlaceDescriptionGroup (Figure 5-78) describes the properties of a SitePlace.

- Bay: Information label about the travel point. Can be used to further identify a boarding position within a Platform represented by a NaPTAN point.
- Name: The name of the place. Where the NaPTAN point is a platform, could be used for a platform number as labelled on signage.
- LevelName: The name of the level, for example “G”, “Ground”, “Arrivals level”, “Mezzanine”, “1”, “2”, “10”, “Parking B2”, etc.
- ParentSitePlaceRef: Reference to any parent site place: can be used to detect nested components such as platforms within platforms.
- AccessSpaceType: Classification of the area as Concourse, WCs, retail area etc.
- SiteSpaceSpaceType: Further description of the element as a component of a venue e.g., Spectator Area, TrackArea, etc.
5.7.11 PathLinkInSequence / Entrance (+JW v2.4)

The **Entrance** (Figure 5-80) describes the entrance used at either end of a PathLink.

- **Name**: Name of Entrance.
- **EntranceGroup**: Detailed Properties of Entrance. See below.
- **Equipment**: Equipment associated with Entrance. See EntranceEquipment below.
- **Accessibility**: Information about the accessibility of the place – see earlier.

![Figure 5-80 -- PathLinkInSequence / Entrance (+JW v2.4)](image_url)
5.7.12  PathLinkInSequence / EntranceGroup (+JW v2.4)

The **EntranceGroup** (Figure 5-81) describes the detailed properties of an **Entrance**:

- **Public code**: Public facing identifying Code of entrance. Where an entrance is given a number, e.g. ‘2A’ this would be the designated code. Where a point corresponds to an existing NaPTAN point it may be appropriate to use the **Indicator** or the **ShortCommonName** in other cases this may be available from a additional IFOPT element.

- **Label**: Label of entrance. Where the entrance corresponds to an existing NaPTAN point can be constructed from NaPTAN **Descriptor** elements, for example **ShortCommonName** & **Indicator**. Or **CommonName** & **Indicator**.

- **Description**: Further description of entrance. Where the entrance corresponds to an existing NaPTAN point, may be taken from NaPTAN **Notes**.

- **EntranceType**: Detailed Properties of entrance. See Table 5-20.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>opening</td>
<td>Opening without Door</td>
</tr>
<tr>
<td>openDoor</td>
<td>Open Door</td>
</tr>
<tr>
<td>door</td>
<td>Door that needs to be opened</td>
</tr>
<tr>
<td>swingDoor</td>
<td>Swing Door</td>
</tr>
<tr>
<td>revolvingDoor</td>
<td>Revolving Door</td>
</tr>
<tr>
<td>automaticDoor</td>
<td>Automatic Door</td>
</tr>
<tr>
<td>ticketBarrier</td>
<td>Ticket Barrier</td>
</tr>
<tr>
<td>gate</td>
<td>Gate</td>
</tr>
<tr>
<td>other</td>
<td>Other</td>
</tr>
</tbody>
</table>

**Table 5-20 – Allowed Values for Entrance Type (+JW v2.4)**

- **IsExternal**: Whether the entrance is internal or external.

- **IsEntry**: Whether the entrance is an entry (true) or exit only (false).

- **Width**: Width of entrance. Use in particular if less than average wheelchair width.

- **Height**: Height of entrance.

- **Covered**: Whether the entrance is covered. See Table 5-21.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>indoors</td>
<td>indoors</td>
</tr>
<tr>
<td>outdoors</td>
<td>outdoors</td>
</tr>
<tr>
<td>covered</td>
<td>covered</td>
</tr>
<tr>
<td>mixed</td>
<td>mixed</td>
</tr>
<tr>
<td>unknown</td>
<td>unknown</td>
</tr>
</tbody>
</table>

**Table 5-21 – Allowed Values for Covered (+JW v2.4)**
5.7.13 **PathLinkInSequence / PathLinkPropertiesGroup (+JW v2.4)**

The **PathLinkSequenceGroup** (Figure 5-82) describes the properties of a PathLink that is referenced by a step of a NavigationPath:

- **LinkRef**: Identifier of link from which these properties come.
- **Direction**: Direction of link.
- **Distance**: Length of link.
- **NumberOfSteps**: Number of steps on individual link.
- **AllowedUse**: How the link may be used. See **Table 5-22**.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>oneWay</td>
<td>Link may only be used one way in direction of link</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>twoWay</td>
<td>Link may be used in both directions</td>
</tr>
</tbody>
</table>

**Table 5-22 – Allowed Values for AllowedUse (+JW v2.4)**

♦ **Transition**: Transition made by link. See Table 5-23.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>up</td>
<td>Course of link goes up</td>
</tr>
<tr>
<td>down</td>
<td>Course of link goes down</td>
</tr>
<tr>
<td>level</td>
<td>Course of link goes level</td>
</tr>
<tr>
<td>upAndDown</td>
<td>Course of link goes up and down one or more times</td>
</tr>
<tr>
<td>downAndUp</td>
<td>Link goes down and up one or more times</td>
</tr>
</tbody>
</table>

**Table 5-23 – Allowed Values for Transition (+JW v2.4)**

♦ **AccessFeatureType**: Descriptive feature. See Table 5-24.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lift</td>
<td>Element is a lift</td>
</tr>
<tr>
<td>stairs</td>
<td>Element is a flight of stairs</td>
</tr>
<tr>
<td>seriesOfStairs</td>
<td>Element is a flight of stairs with landings</td>
</tr>
<tr>
<td>escalator</td>
<td>Element is an escalator (Normally use multiple links for a sequence of escalators)</td>
</tr>
<tr>
<td>travelator</td>
<td>Element is a Travelator (Normally use multiple links for a sequence of escalators)</td>
</tr>
<tr>
<td>ramp</td>
<td>Element is a ramp</td>
</tr>
<tr>
<td>shuttle</td>
<td>Element is a shuttle</td>
</tr>
<tr>
<td>barrier</td>
<td>Element is a barrier</td>
</tr>
<tr>
<td>narrowEntrance</td>
<td>Element is a Narrow Entrance</td>
</tr>
<tr>
<td>confinedSpace</td>
<td>Element is a Confined Space</td>
</tr>
<tr>
<td>queueManagement</td>
<td>Queue Management area</td>
</tr>
<tr>
<td>none</td>
<td>No descriptive feature specified</td>
</tr>
<tr>
<td>unknown</td>
<td>Nature of element is unknown</td>
</tr>
<tr>
<td>other</td>
<td>Other</td>
</tr>
<tr>
<td>openSpace</td>
<td>Element is an Open Space</td>
</tr>
<tr>
<td>street</td>
<td>Element is a street</td>
</tr>
<tr>
<td>pavement</td>
<td>Element is a pavement</td>
</tr>
<tr>
<td>footpath</td>
<td>Element is a footpath</td>
</tr>
<tr>
<td>passage</td>
<td>Element is a passage</td>
</tr>
</tbody>
</table>

**Table 5-24 – Allowed Values for AccessFeatureType (+JW v2.4)**

♦ **Covered**: Whether the link is covered. See Table 5-21.
5.7.14 **PathLinkInSequence / PathLinkPropertiesGroup (+JW v2.4)**

The *EquipmentPlace* (Figure 5-81) describes the location and type of equipment associated with a *PathLinkInSequence*:

- **Order**: Order for showing equipment.
- **AccessEquipmentChoice**: Type of Access Equipment associated with element. See Equipment Types later below.
- **PassengerEquipmentChoice**: Type of Passenger Equipment associated with element. See Equipment Types later below.
- **Distance**: Distance along link that equipment can be found.
- **LocalServiceChoice**: Type of Local Service associated with element. See *later* below.
5.7.15 **CheckConstraint** (+JW v2.4)

The **CheckConstraint** element describes the nature of a process which may delay a step. It can be associated with a **PathLink** to describe properties of a step of a navigation path.

- **Name**: A name for the process.
- **Description**: Any text description for the process.
- **CheckProcess**: Nature of delay process. See Table 5-25.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>No Process</td>
</tr>
<tr>
<td>unknown</td>
<td>Process is unknown</td>
</tr>
<tr>
<td>ticketPurchase</td>
<td>Process is Ticket Purchase</td>
</tr>
<tr>
<td>ticketCollection</td>
<td>Process is ticket Collection</td>
</tr>
<tr>
<td>ticketValidation</td>
<td>Process is Ticket Validation</td>
</tr>
<tr>
<td>baggageCheckin</td>
<td>Process is Baggage Check In</td>
</tr>
<tr>
<td>oversizeBaggageCheckIn</td>
<td>Process is Oversize Baggage Check In</td>
</tr>
<tr>
<td>oversizeBaggageReclaim</td>
<td>Process is Oversize Baggage Reclaim</td>
</tr>
<tr>
<td>baggageReclaim</td>
<td>Process is Baggage Reclaim</td>
</tr>
<tr>
<td>leftLuggageDeposit</td>
<td>Process is Left Luggage Deposit</td>
</tr>
<tr>
<td>leftLuggageReclaim</td>
<td>Process is Left Luggage Reclaim</td>
</tr>
<tr>
<td>firstclassCheckin</td>
<td>Process is First Class Check in</td>
</tr>
<tr>
<td>specialNeedsCheckin</td>
<td>Process is Special Needs Check in</td>
</tr>
<tr>
<td>baggageSecurityCheck</td>
<td>Process is Baggage Security Check</td>
</tr>
<tr>
<td>securityCheck</td>
<td>Process is Security Check</td>
</tr>
<tr>
<td>outgoingPassportControl</td>
<td>Process is Outgoing Passport Control</td>
</tr>
<tr>
<td>incomingPassportControl</td>
<td>Process is Incoming Passport Control</td>
</tr>
<tr>
<td>fasttrackDepartures</td>
<td>Process is Fasttrack Departures</td>
</tr>
<tr>
<td>fasttrackArrivals</td>
<td>Process is Fasttrack Arrivals</td>
</tr>
<tr>
<td>incomingDutyFree</td>
<td>Process is Incoming Duty-Free</td>
</tr>
<tr>
<td>outgoingDutyFree</td>
<td>Process is Outgoing Duty-Free</td>
</tr>
<tr>
<td>taxRefunds</td>
<td>Process is Tax Refunds</td>
</tr>
<tr>
<td>outgoingCustoms</td>
<td>Process is Outgoing Customs</td>
</tr>
<tr>
<td>incomingCustoms</td>
<td>Process is Incoming Customs</td>
</tr>
<tr>
<td>waitForLift</td>
<td>Process is a Wait For a Lift</td>
</tr>
<tr>
<td>ingress</td>
<td>Process is entering or facility or event.</td>
</tr>
<tr>
<td>egress</td>
<td>Process is leaving a facility or event.</td>
</tr>
<tr>
<td>boarding</td>
<td>Process is boarding a PT vehicle</td>
</tr>
<tr>
<td>alighting</td>
<td>Process is alighting from a a PT vehicle</td>
</tr>
</tbody>
</table>

Table 5-25 – Allowed Values for CheckProcess (+JW v2.4)
- **CheckService**: Nature of Check service. See Table 5-26.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>selfserviceMachine</td>
<td>Service is provided by self service Machine</td>
</tr>
<tr>
<td>counterService</td>
<td>Service is provided at Counter</td>
</tr>
<tr>
<td>other</td>
<td>Other provision of service</td>
</tr>
</tbody>
</table>

Table 5-26 – Allowed Values for CheckService (+JW v2.4)

- **Congestion**: Nature of congestion when CheckConstraint. See Table 5-27.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>noWaiting</td>
<td>There is no waiting</td>
</tr>
<tr>
<td>queue</td>
<td>There is a queue</td>
</tr>
<tr>
<td>crowding</td>
<td>There is crowding</td>
</tr>
<tr>
<td>full</td>
<td>The element is full</td>
</tr>
</tbody>
</table>

Table 5-27 – Allowed Values for Congestion (+JW v2.4)

- **DelayGroup**: Elements describing delay of process:
  - **MinimumLikelyDelay**: Minimum delay to be expected due to process.
  - **AverageDelay**: Average delay to be expected due to due process.
  - **MaximumLikelyDelay**: Maximum delay to be expected to process.

![Figure 5-84 – CheckConstraint (+JW v2.4)](image-url)
5.7.16 Error Handling on LegPathsResponse

The following error cases can arise on Interchange legs:

- If a LegPathsRequest is specified but not supported by the remote journey Planner, a ‘Capability not supported’ error message will be returned at the journey level with error subclass 8 (JOURNEYPATHS).

- If LEGPATHS data is requested but path data is not available by the remote journey planner, a ‘No results found message’ message will be returned at the journey leg level. For example 5,1 ‘No track information available for leg’.

- If accessibility constraints are specified with the AccessibilityOptions parameter but a path cannot be found that satisfies the specified limitations, a ‘No accessible results found message’ message will be included at the journey level. Paths may still be returned but will be flagged as not accessible.
5.8 The TIMETABLES Protocol

The JourneyWeb TIMETABLES service protocol is used to retrieve timetables. Timetables can be requested:

- For a stop, using a `StopTimetableRequest`.
- For a service using a `ServiceTimetableRequest`.

Two different return formats are supported: as a Matrix of data or as pre-rendered columns.

5.8.1 StopTimetableRequest

A `StopTimetableRequest` (Figure 5-85) requests a timetable for a given stop. The request may also specify other given selection criteria. A stop timetable can be requested from a group of origin stops to a group of destination stops, e.g. from all the bays in Gateshead Bus Station to all the stops near The Angel of the North. The resulting timetable will be a composite of all services that go directly between the given stops, whatever the mode (see optional parameters below). The timetable will be pre-sorted ready for display.

- **Origin**: Starting point(s) for timetable. See `NamedPlacesStructure` below.
- **Destination**: End point(s) for timetable. See `NamedPlacesStructure` below.
- **TimetableRequestParameters**: End point(s) for timetable. See `NamedPlacesStructure` below.

The following optional parameters can also be used to filter the services to be included in the full timetable:

- **Modes**: A list of modes to include or exclude. See Table 5-10 earlier for allowed values.
- **Operators**: A list of operators to include or exclude. Filtering is case insensitive.
- **Services**: A list of service to include or exclude. Filtering is case insensitive.

If more than one different filter value is specified they will be logically ANDed together. Values within a filter will be ORed.
5.8.2 StopTimetableRequest / NamedPlacesStructure

The NamedPlacesStructure (Figure 5-86) identifies an origin or destination to group the optional additional parameters that can be used to subset a full timetable:
- **Place**: Place as identified by a PlaceIDRequestType (see earlier).
- The **GivenName** is used to label the group of stops being used for the origin and destination and can be used to construct a description (title) for the resulting timetable.
The **TimetableRequestParametersGroup** (Figure 5-87) is a syntactic element to group the optional additional parameters that can be used to create a sub-set of a full timetable in response to a timetable request. Parameters may include:

- **Date**: Day for which the timetable is to be produced.
- **Generic**: If **Generic** is set to false then the timetable will be for a single day on the date specified. If **Generic** is true, then a timetable is returned that spans the date specified. This will typically be a pre-computed timetable for Monday to Friday, Monday to Saturday, or Sunday.
- **TimingInformationPointsOnly**: Include only the timing points.
- **EarliestDepartTime**: The earliest time for which services will be included.
- **LatestDepartTime**: The latest departure time for which services will be included.
- **FirstColumn**: The first column to include.
- **MaxColumns**: The max number of columns to include.

**Figure 5-86 – StopTimetableRequest / NamedPlacesStructure**
5.8.4 ServiceTimetableRequest

A **ServiceTimetableRequest** *(Figure 5-88)* requests a timetable for a given **Service**:  
- One or more **TimetableDescriptor** elements that identify the service – see below.
- The **TimetableRequestParametersGroup** allows additional filtering values to be specified – see above.

A service timetable can be requested for multiple services at the same time. Each service must be uniquely defined. If a combination of **OperatorCode** and **ServiceNumber** does not uniquely define a service then a ‘Service not unique’ message should be returned (see section 7). Other request parameters are the same as for the **StopTimetableRequest**. The resulting timetable will be a composite of the requested services pre-sorted ready for display.
5.8.5 ServiceTimetableRequest / TimetableDescriptor

A TimetableDescriptor (Figure 5-89) identifies a timetable for a given Service in one of two ways:

- By **OperatorCode** and **ServiceNumber**, with an optional **Direction**.
- By a **PrivateID** and an optional **Direction**. The private ID will typically have been previously returned by a service or stop request.

5.8.6 TimetableResponse

The TimetableResponse element (Figure 5-90) returns matrix timetables.

- **Message**: any error messages associated with the response.
- **Timetable**: A timetable that satisfies the request. See below.
5.8.7 Timetable

The Timetable (Figure 5-91) represents a matrix of timetable data. It comprises a column of stop names (StopColumn) and then an array of columns of times (TimeColumn). The length of all columns must be the same (this cannot be enforced by the schema). The matrix of data is pre-sorted by the remote journey planner and should be displayed as is.

- The timetable must have a Description. If the timetable is the result of a service request if should contain details of the services being shown, if it is the result of a StopTimetableRequest then it should give details of the stops requested (using the given names from the request).
- The timetable must define the date range for which it has been generated, using the FirstDate, Days, and LastDate elements. If the timetable has been generated on the fly then this will most likely be a short date range, however if the timetable had been pre-generated then it will most likely represent a whole season.
- StopColumn contains a collection of Stop elements, each defined as a ReturnedPlaceType element. Each Stop represents a row in the timetable. The following attributes of Stop are used to define the row:
- One or more TimeColumn elements: each contains a Header and a list of times or Label elements. See below.
NOTE: Any stop that has different arrival and departure times will have to split into two rows, one with an activity of arrive, and the other with an activity of depart (see later note about pick up only and set down only).

- The columns are numbered with a Num attribute to aid requesting the timetable with a limited number of columns at a time. The columns should always be numbered with column one being the first column for the day, to enable repeat calls for the columns later in the day.

**NOTE:** The PickupOnly attribute should not be defined for times on departure or arrive only rows. The SetDownOnly attribute should not be defined for times on origin or depart only rows.
5.8.8 Timetable/StopColumn

Each StopColumn (Figure 5-92) contains a collection of Stop elements, each defined as a ReturnedPlaceType element. Each Stop represents a row in the timetable. The following attributes of Stop are used to define the row:

- **Activity**: Used to indicate if the row shows arrival times only, departure times only, or mixed times (see Table 5-28).

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>mixed</td>
<td>Row shows both arrival and depart times.</td>
</tr>
<tr>
<td>arrive</td>
<td>Row shows arrival times only.</td>
</tr>
<tr>
<td>depart</td>
<td>Row shows depart times only.</td>
</tr>
</tbody>
</table>

**Table 5-28 – Allowed Values for Activity**

- **StopType**: Used to indicate if the stop on the row is the origin or destination (see Table 5-29) in any of the columns. This can be used to give a summary timetable by showing only those that are origins or destinations.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>origin</td>
<td>Stop is an origin.</td>
</tr>
<tr>
<td>intermediate</td>
<td>Stop is an intermediate point.</td>
</tr>
<tr>
<td>destination</td>
<td>Stop is a destination.</td>
</tr>
<tr>
<td>originDestination</td>
<td>Stop is both an origin and a destination.</td>
</tr>
</tbody>
</table>

**Table 5-29 – Allowed Values for StopType**

The stops that are shown in the first column of the timetable. The size of this list defines the number of rows. The stops must be in the order that they are to be displayed by. The same stop can be repeated (similar routes), and composite timetables with different stopping patterns.

Figure 5-92 – Timetable/StopColumn
5.8.9 Timetable/ TimeColumn

Each TimeColumn (Figure 5-93) contains a Header, and a list of times or Label elements. Labels are intended to represent repeat services e.g. a column which says ‘then every 15 mins until’ Short words (e.g. the five short words just given) are preferred as these can be output each on a separate row to fit in a narrow column that leaves space for others.

- The Header contains:
  - ServiceRef: a reference number to the service details, The Service details (see Service section on ServiceResponse) are stored at the end of the TimetableResponse.
  - DaysOfOperation: See below.
  - Notes: The notes can be expressed as text or as an abbreviation with the text defined once elsewhere in the response. If abbreviations have been used in the column headers, then a Notes section has to be defined to give a full description to each abbreviation.

- Any Stop in a column that is not used by the service in this column is defined as a null element i.e. NoTime. All other Time elements can have the following attributes:
  - Activity: Used to indicate PickupOnly and SetDownOnly (see note below).
  - TimingInformationPoint: Used to indicate that this is a timing info point.
  - Label: Label for stop. This would be empty for those rows where no text is to be displayed.
5.9 The STOPEVENTS Protocol

The JourneyWeb STOPEVENTS service protocol is used to retrieve information about arrivals and departures at a stop.

5.9.1 StopEventRequest

The StopEventsRequest element (Figure 5-94) is used to request stop events, that is, individual vehicle departures at a specified stop.

- **NaPTANID** identifies the stop.
- A **StartTime** and **Range** (see earlier) can be defined to indicate the departure window and number of responses. If they are not defined then a window of up to 24 hours from now should be used.
- **ArrDep** can be used to control whether all events are returned, just arrivals, or just departures (see Table 5-30).

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>all</td>
<td>Row shows both arrival and departure times.</td>
</tr>
<tr>
<td>arrive</td>
<td>Row shows arrival times only.</td>
</tr>
<tr>
<td>depart</td>
<td>Row shows departure times only.</td>
</tr>
</tbody>
</table>

**Table 5-30 – Allowed Values for StopEvent / ArrDep**

- If **FirstServiceEventOnly** is specified, then the first event of each service after the **StartTime** should be returned. If there is more than one of the same service having different destinations, then they should both be shown.

The following optional filters can also be used on a StopEventsRequest:

- **IntermediateStops**: Include intermediate stops.
- **RealTime**: Whether real time information should be returned if available.
- **Modes**: Different transport modes to include. See Table 5-10 earlier for allowed values.
5.9.2 StopEventRequest / Range Element

The `RangeStructure (Figure 5-95)` defines a general purpose `Range` element that can be used on `Journey` or `StopEvents` requests to specify additional search criteria, and to limit the number of results returned by the remote engine. Three types of range are supported:

**NOTE**: Requesting depart only does not stop arrival times being returned. It stops services that only arrive at the stop being returned, i.e. set down only vehicles and services that terminate here.
- **Sequence**: Return a fixed number of results before or after the specified **StartTime**, according to the **ArrDep** parameter.

- **Interval**: Return all journeys or events within the specified time interval, before or after the specified time, according to the **ArrDep** parameter.

- **LimitedInterval**: This is used to limit the number of journeys that are returned for a specified **Interval**, and optionally to ensure that at least a minimum number of journeys are returned for an extended **MaxInterval** search period if none are found within the first **Interval**. For example, it can be used to specify to look for a maximum of five journeys in the next hour, and if there are none, to look for a minimum of one journey in following twelve hours.

![Figure 5-95 – StopEvent / RangeStructure](image)

5.9.3 StopEventRequest / Filter

The **StopEventsRequest** / **Filter** element (**Figure 5-96**) is used to filter the stop events, that is, individual vehicle departures at a specified stop.

- **Operators**: Include/Exclude a list of operators. See earlier.

- **Origin**: Only include services that have passed through one of these stops.

- **Destination**: Only include services that will pass through one of these stops.

- **Services**: Include/Exclude a list of services.

- **AccessibilityOptions**: Include/Exclude services that do not match the accessibility options.
5.9.4 StopEventsResponse

The **StopEventsResponse** (Figure 5-97) returns:

- **Message**: any error messages associated with the response.
- **Events**: one or more **Events** that satisfy the request each describing an arrival or departure along with **Service** information, see below.
Figure 5-97 – StopEventResponse

5.9.5 Event

The Event element (Figure 5-98) describes a movement at a Stop, including timing and Service details - see earlier). The Service details should always include both the Service name and number and the Operator name.

- Each Event can optionally have an Origin, Stop, Destination and intermediate stop calls (if requested by use of the IncludeIntermediates parameter), defined by the PreviousIntermediate and OnwardIntermediate elements.
- Each call at a stop is defined using a ReturnedSiteStructure, as summarised by Table 5-31.
  - The times at the Origin are defined by a TimetabledDepartureTime and RTDepartureTimeGroup.
  - The times at the stop are defined as by an EventTimeGroup.
  - The times at the Destination are defined by a TimetabledArrivalTime and RTArrivalTimeGroup.
  - The times at the intermediate points are defined by an IntermediateTimeGroup.
- Real time values can be included if available and if requested by use of the Real-Time parameter.

<table>
<thead>
<tr>
<th>TimedLeg</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode</td>
<td>Vehicle modes (See Table 5-10)</td>
</tr>
<tr>
<td>Origin</td>
<td>ReturnedSite</td>
</tr>
<tr>
<td></td>
<td>TimetabledDepartureTime</td>
</tr>
<tr>
<td></td>
<td>RTDepartureTimeGroup</td>
</tr>
<tr>
<td>PreviousIntermediate</td>
<td>ReturnedSite</td>
</tr>
<tr>
<td></td>
<td>IntermediateTimeGroup</td>
</tr>
<tr>
<td>Stop</td>
<td>EventTimeGroup</td>
</tr>
<tr>
<td>OnwardIntermediate</td>
<td>ReturnedSite</td>
</tr>
<tr>
<td></td>
<td>IntermediateTimeGroup</td>
</tr>
<tr>
<td>Destination</td>
<td>ReturnedSite</td>
</tr>
<tr>
<td></td>
<td>TimetabledArrivalTime</td>
</tr>
<tr>
<td></td>
<td>RTArrivalTimeGroup</td>
</tr>
</tbody>
</table>

Table 5-31 – Event / Stop Call & Time Group elements
Figure 5-98 – Event Element
5.9.6 Event / Origin

The Event / Origin (Figure 5-102) describes the origin of a service described by an Event time of an arrival or departure event at a stop. The EventTimeGroup has at least one of:

- A TimetabledDepartureTime.
- An RTDepartureTimeGroup. (see earlier).

If the service is not a frequency based service then one of the two timetabled times must be provided.

![Event / Origin Diagram]

5.9.7 Event / Intermediate

The Event / Intermediate (Figure 5-100) describes the intermediate stops either between the Origin and Stop (PreviousIntermediate), or the current Stop and the Destination (OnwardIntermediate). Each call may be described with and ReturnedSiteStructure extended with an IntermediateTimeGroup, as on Journey Legs see earlier:

![Event / Intermediate Diagram]

5.9.8 Event / Stop

The Event / Stop (Figure 5-101) describes the call at the stop, using a ReturnedSiteStructure, extended with an EventTimeGroup. See below.
5.9.9 Event / EventTimeGroup

The EventTimeGroup (Figure 5-102) is a syntactic element that groups the elements defining time of an arrival or departure event at a stop. The EventTimeGroup has:

- An RTArrivalTimeGroup (see earlier). Optional.
- At least one of:
  - A TimetabledArrivalTime: Scheduled time of arrival.
  - A TimetabledDepartureTime: Scheduled time of departure.
  - A TimetabledTime (if arrival & departure are the same).
  - A FrequencyGroup: (See JourneysResponse earlier).
  - An RTDepartureTimeGroup. (See JourneysResponse earlier).

If the service is not a frequency based service then one of the two timetabled times must be provided.
5.9.10 Event / Destination

The Event / Destination (Figure 5-103) describes the destination of a service described by an Event time of an arrival or departure event at a stop. It has:

- A TimetabledArrivalTime: scheduled time of arrival at destination
- An RTArrivalTimeGroup (see JourneysResponse earlier). Optional.

Figure 5-102 – EventTimeGroup

Figure 5-103 – Event / Destination
5.10 The SERVICES Protocol

The JourneyWeb SERVICES protocol is used to retrieve information about scheduled transport services.

5.10.1 ServicesRequest

The ServicesRequest element (Figure 5-104) is used to request service details from a remote journey planner. At least one of the following parameters must be used:

- **OperatorCode**: Operator whose services are to be returned.
- **ServiceNumber**: Service to be returned. If the BeginWith attribute is defined for the ServiceNumber then all services that begin with the specified string will be returned. For example, ‘begin with=1’ would return services ‘1, 11, 105, X1, X15’, etc.
- **Direction**: Direction of Service to be returned. Values need to be decided by prior agreement. Recommended values are outbound / inbound / clockwise / anticlockwise
- The request can also be constrained by **Mode** of transport.

![Figure 5-104 – ServicesRequest](image)

5.10.2 ServicesResponse

The ServicesResponse element (Figure 5-105) returns:

- **Message**: any error messages associated with the response.
- **Service**: one or more Service that satisfy the request. See below.
5.10.3 Service Element

The **Service** element (**Figure 5-106**) defines a service within a *ServicesResponse*. It is made up of the following:

- **Information about the service:**
  - **Mode**: Mode of transport of the service.
  - **Ref**: Id with which to reference this service.
- **ServiceResponseGroup**: Description of the service, made up of
  - **UniqueServiceGroup**: Information to identify the service:
    - **OperatorCode**: Describes an individual service.
    - **ServiceNumber**: Line number to identify the service.
    - **Direction**: Direction of the service.
- **ServiceResponseExtrasGroup**: Further information about the service. See below.

5.10.4 Service / ServiceResponseExtrasGroup

The **ServiceResponseExtrasGroup** (**Figure 5-107**) returns further details about the service returned:

- **OperatorName**: The operator name for customer use.
- **Description**: Description of the **Service**.
ServicePeriodGroup: When the Service runs: see below

DestinationBoard: The heading text shown on the front of the vehicle for the service as it passes the stop.

TimetableLink: Alternative way of returning a timetable as a URL to a pre-rendered presentation of the timetable.

ServiceFacilityGroup (+JW v2.4) details on the facilities of the service: See below

The ServiceAccessibility (+JW v2.4) details on the accessibility of the service. See below.

CyclesOnService: (+JW v2.4) Whether a cycle is allowed.

<table>
<thead>
<tr>
<th>TimedLeg</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>notAllowed</td>
<td>Not Allowed at any time</td>
</tr>
<tr>
<td>onlyFoldingAllowed</td>
<td>Only Folding Cycles Allowed</td>
</tr>
<tr>
<td>allowedSubjectToRestrictions</td>
<td>Cycles allowed on certain journeys subject to Restrictions</td>
</tr>
<tr>
<td>mustBook</td>
<td>Cycles allowed on certain journeys but must have Booking</td>
</tr>
<tr>
<td>allowedAtAllTimes</td>
<td>Cycles allowed at all times</td>
</tr>
</tbody>
</table>

Table 5-32 – Allowed values for Service / CyclesOnService (+JW v2.4)

Figure 5-107 – Service / ServiceResponseExtrasGroup

5.10.5 Service / ServicePeriodGroup

The ServicePeriodGroup (Figure 5-108) returns information on when the service runs:
- **FirstDateOfOperation**: Date that *Service* starts.
- **DaysofOperation**: Days that the service runs. See *DaysOfOperationStructure*.
- **ExpiryDate**: If the *ExpiryDate* is not known for a service, then *OpenEnded* should be returned instead.

---

**Figure 5-108 – Service / ServicePeriodGroup**

5.10.6 Service / TimetableLink Element

The *TimetableLink* (**Figure 5-109**) is used to define the following:

- A **URL** from which a pre-computed service timetable can be displayed.
- A **SchematicURL** from which a rendered schematic map of the timetable may be fetched.
- A **PrivateID** and optional **Direction** (only needed if ID is not unique) that can be used in a service timetable request instead of the **OperatorCode**, **ServiceNumber** and **Direction**.
- **MatrixDataAvailable**: Whether matrix data can be requested for the timetable.

---

**Figure 5-109 – Service / Timetable Link**
5.10.7 Service / TransportSubmode (+JW v2.4)

The TransportSubmode (Figure 5-110) (+JW v2.4) returns information on the mode of transport: See Appendix E for allowed values.

- **PtSubmodeChoiceGroup**: (+JW v2.4) Additional information on a Public Transport Submode. See Figure 5-111.
- **PrivateSubmodeChoiceGroup**: (+JW v2.4) Additional information on a non Public Transport submode. See Figure 5-112.

![Figure 5-110 – Service / TransportSubmode](image)

![Figure 5-111 – Service / Public Transport Submodes](image)
5.10.8 Service / ServiceFacilityGroup (+JW v2.4)

The ServiceFacilityGroup (Figure 5-113) returns information on when the service runs:

- **SeatClass:** (+JW v2.4) The class of Seat available. See Table 5-33 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>firstClassOnly</td>
<td>Only first class seats</td>
</tr>
<tr>
<td>secondClassOnly</td>
<td>Only second or standard class seats</td>
</tr>
<tr>
<td>firstAndSecondClass</td>
<td>First &amp; standard class seats</td>
</tr>
</tbody>
</table>

**Table 5-33 – Allowed values for Service / SeatClass (+JW v2.4)**

- **SleeperClass:** (+JW v2.4) The class of sleeper available. See Table 5-33 for allowed values.

- **ReservationRequirements:** (+JW v2.4) Date that Service starts.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>seatReservationsCompulsory</td>
<td>Seat Reservations Compulsory</td>
</tr>
<tr>
<td>cycleReservationsCompulsory</td>
<td>Bicycle Reservations Compulsory</td>
</tr>
<tr>
<td>seatReservationsRecommended</td>
<td>Seat Reservations Recommended</td>
</tr>
<tr>
<td>seatReservationsPossible</td>
<td>Seat Reservations Possible</td>
</tr>
<tr>
<td>wheelchairOnlyReservations</td>
<td>Reservations are required for Wheelchair but not necessarily for others</td>
</tr>
</tbody>
</table>

**Table 5-34 – Allowed values for Service / Reservations (+JW v2.4)**

- **Refreshments:** (+JW v2.4) Details about refreshments available on the service.

- **RefreshmentServiceType:** (+JW v2.4) The types of refreshment service available on service. See Table 5-35 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bar</td>
<td>bar</td>
</tr>
<tr>
<td>beverageVendingMachine</td>
<td>Beverage Vending Machine</td>
</tr>
<tr>
<td>buffet</td>
<td>Buffet</td>
</tr>
<tr>
<td>firstClassRestaurant</td>
<td>Restaurant for First Class only</td>
</tr>
<tr>
<td>foodVendingMachine</td>
<td>Food Vending Machine</td>
</tr>
<tr>
<td>hotFoodService</td>
<td>Hot Food Service</td>
</tr>
<tr>
<td>restaurant</td>
<td>Restaurant</td>
</tr>
<tr>
<td>snacks</td>
<td>Snacks</td>
</tr>
<tr>
<td>trolleyService</td>
<td>Trolley Service</td>
</tr>
<tr>
<td>noBeveragesAvailable</td>
<td>No Beverages Available</td>
</tr>
<tr>
<td>noFoodServiceAvailable</td>
<td>No Food Service Available</td>
</tr>
<tr>
<td>other</td>
<td>other</td>
</tr>
</tbody>
</table>

**Table 5-35 – Allowed values for Service / Refreshment (+JW v2.4)**

- **RefreshmentRights:** (+JW v2.4) The types of Refreshment rights included in tickets for service. See Table 5-36 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TimedLeg</td>
<td></td>
</tr>
</tbody>
</table>
The **ServiceAccessibility** *(Figure 5-114)* is used to define the following:

- **MobilityImpairedAccess**: an overall assessment of the accessibility of the **Service**.
- **ServiceEquipment**: specific details of equipment on the vehicle. See later below.

![Figure 5-114 – Service / ServiceAccessibility (+JW v2.4)](image)

#### 5.10.10 Service / DaysOfOperationStructure

The **DaysOfOperation** element *(Figure 5-115)* describes the days of operation. This is used in the responses that specify days of operation. It allows any combination of day of the week to be specified.

![Figure 5-115 – DaysOfOperationStructure (+JW v2.4)](image)
Figure 5-115 – DaysOfOperation
5.11 The OPERATORS Protocol

The JourneyWeb OPERATORS protocol is used to retrieve basic information about transport operators who provide scheduled transport services.

5.11.1 OperatorsRequest

The **OperatorsRequest** element (Figure 5-116) is used to request a full list of operators supported by a remote journey planner. The list can be constrained by one or more **Mode** Instances.

![Figure 5-116 – OperatorsRequest](image)

5.11.2 OperatorsResponse

The **OperatorsResponse** element (Figure 5-117) returns a list of **Operators** supported by a remote journey planner. Each **Operator** returned must have a **Code** and a **Name**. The name should be recognisable to the end users.

- **Message**: any error messages associated with the response.
- **Operators**: one or more **Operator** that satisfies the request. Each operator is identified by:
  - **Mode**: **Transport** mode of operator. If the operator operates more than one mode, then the operator’s details will be output more than once.
  - **Code**: **Identifier** of **Operator**.
  - **Name**: **Name** of **Operator**.
6. EQUIPMENT

6.1 Equipment Types

Equipment elements provide a standardised way of describing the available facilities - including their accessibility features - available to passengers. Different types of equipment may variously be associated with places, links or vehicles. The equipment model is based on the Transmodel/IFOPT model.

6.1.1 AbstractEquipment (+JW v2.4)

The **AbstractEquipment** element (Figure 6-1) describes the common properties of any piece of equipment:

- **Name**: A label for the equipment.
- **Icon**: URL to an image of the equipment.
- **Image**: URL to an image of the equipment.

![Figure 6-1 – AbstractEquipment (+JW v2.4)](image)
6.1.2 **Access Equipment / AccessEquipmentGroup (+JW v2.4)**

The **AccessEquipmentGroup** equipment group (Figure 6-2) describes the common properties of all access equipment elements.

- **Width**: Width of Equipment to pass through.
- **DirectionOfUse**: Direction of use of equipment. See Table 5-22 earlier.
- **PassengersPerMinute**: Number of passengers per minute that may use equipment.
- **RelativeWeighting**: Relative weighting given to this item of equipment.

![Diagram of AccessEquipmentGroup](Figure 6-2 – AccessEquipmentGroup (+JW v2.4))

6.2 **Equipment / AccessEquipmentChoice (+JW v2.4)**

The **AccessEquipmentChoice** (Figure 6-3) describes the type of equipment associated with an element such as a **PathLinkInSequence**: One of the following:

- **CrossingEquipment**: Description of Crossing properties.
- **EntranceEquipment**: Description of Entrance properties.
- **EscalatorEquipment**: Description of Escalator properties.
- **LiftEquipment**: Description of Lift properties.
- **PlaceLighting**: Description of Lighting properties.
- **QueuingEquipment**: Description of Queuing properties.
- **RampEquipment**: Description of Ramp properties.
- **RoughSurface**: Description of Surface properties.
- **StaircaseEquipment**: Description of Staircase properties.
- **TravelatorEquipment**: Description of Travelator properties.
6.2.1 Access Equipment / StairGroup (+JW v2.4)

The StairGroup (Figure 6-4) describes the common properties of stepped equipment elements such as StaircaseEquipment and EscalatorEquipment.

- **Depth**: Depth of stepped equipment.
- **NumberOfSteps**: Number of steps.
- **StepHeight**: Depth of an individual step of the stairway.
- **TopEnd**: Characteristics of top end of stair:
  - **TactileContrast**: Whether there is a tactile contrast at top of stairs.
  - **VisualContrast**: Whether _there_ is a visual contrast at top of stairs.
- **ContinuousHandrail**: Whether there is a continuous handrail.
- **BottomEnd**: Characteristics of bottom end of stair:

  ![Diagram of StairGroup](image)

  *Figure 6-4 – StairGroup (+JW v2.4)*
6.2.2 Access Equipment / CrossingEquipment (+JW v2.4)

The **CrossingEquipment** element (Figure 6-5) describes the nature of the crossing. It can be associated with a **PathLink** to describe properties of a step of a navigation path.

- **AbstractEquipmentGroup**: Common properties of all equipment – see above.
- **AccessEquipmentGroup**: Common properties of access equipment – see above.

Specific properties of **CrossingEquipment**:

- **ZebraCrossing**: Whether crossing is marked.
- **PedestrianLights**: Whether there are lights to indicate to pedestrians when to cross.
- **AcousticDeviceSensors**: Whether crossing has Acoustic Device sensor.
- **AcousticCrossingAids**: Whether crossing has Acoustic Crossing aids.
- **TactileGuidanceStrips**: Whether crossing has tactile guidance strips.
- **VisualGuidanceBands**: Whether crossing has visual guidance bands.

![Figure 6-5 – Crossing Equipment (+JW v2.4)](image-url)
6.2.3 Access Equipment / EntranceEquipment (+JW v2.4)

The **EntranceEquipment** element (Figure 6-6) describes the properties of an Entrance. It can be associated with a **PathLink** to describe properties of a step of a navigation path.

- **AbstractEquipmentGroup**: Common properties of all equipment – see above.
- **AccessEquipmentGroup**: Common properties of access equipment – see above.

Specific properties of **EntranceEquipment**:

- **Door**: Whether there is a door in the entrance. If false opening does not have door.
- **RevolvingDoor**: Whether door is revolving. Only applies if door specified.
- **Barrier**: Whether there is a physical barrier.
- **KeptOpen**: Whether the door is kept open.
- **NumberOfGates**: Number of gates in barrier or entrance.
- **EntranceRequiresTicket**: Whether passage requires ticket.
- **EntranceRequiresPassport**: Whether passage requires passport.
- **AcousticSensor**: Whether door has acoustic sensors.
- **AutomaticDoor**: Whether doors are automatic.
- **WheelChairPassable**: Can be passed in a wheel chair.
6.2.4 Access Equipment / EscalatorEquipment (+JW v2.4)
The EscalatorEquipment element (Figure 6-7) describes the nature of an Escalator. It can be associated with a PathLink to describe properties of a step of a navigation path.

- **AbstractEquipmentGroup**: Common properties of all equipment – see above.
- **AccessEquipmentGroup**: Common properties of access equipment – see above.
- **StairEquipmentGroup**: Common properties of stepped equipment – see above.

Specific properties of EscalatorEquipment:
- **TactileActuators**: Whether escalator has a tactile actuator.
- **EnergySaving**: Whether escalator is Energy Saving.

![Figure 6-7 – Escalator Equipment (+JW v2.4)](image-url)
6.2.5 Access Equipment / LiftEquipment (+JW v2.4)

The LiftEquipment element (Figure 6-8) describes the nature of a lift. It can be associated with a PathLink to describe properties of a step of a navigation path.

- AbstractEquipmentGroup: Common properties of all equipment – see above.

Specific properties of LiftEquipment:
- Depth: Depth of lift.
- MaximumLoad: Maximum load of lift in kilos.
- MaximumPassengers: Maximum number of passengers.
- WheelchairTurningCircle: Wheelchair turning circle within lift.
- ThroughLoader: Whether lift is a through loader.
- MirrorOnOppositeSide: Whether lift has a mirror on the opposite side.
- Attendant: Whether lift has an attendant.
- Automatic: Whether lift is automatic.
- TactileActuators: Whether lift has a tactile actuator.
- AcousticAnnouncements: Whether lift has acoustic announcements.

![Figure 6-8 – Lift Equipment (+JW v2.4)](image)
6.2.6 Access Equipment / PlaceLightingEquipment (+JW v2.4)
The *PlaceLightingEquipment* element (Figure 6-9) describes the nature of the lighting in a place. It can be associated with a *PathLink* to describe properties of a step of a navigation path.

- **AbstractEquipmentGroup**: Common properties of all equipment – see above.
- **AccessEquipmentGroup**: Common properties of access equipment – see above.
- **Lighting**: Nature of lighting. See Table 6-1 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>wellLit</td>
<td>Place is well lit</td>
</tr>
<tr>
<td>poorlyLit</td>
<td>Place is poorly lit</td>
</tr>
<tr>
<td>unlit</td>
<td>Place is unlit</td>
</tr>
<tr>
<td>unknown</td>
<td>unknown</td>
</tr>
<tr>
<td>other</td>
<td>other</td>
</tr>
</tbody>
</table>

Table 6-1 – Allowed Values for Lighting (+JW v2.4)

![Figure 6-9 – PlaceLighting (+JW v2.4)]
6.2.7 **Access Equipment** / QueuingEquipment (+JW v2.4)

The QueuingEquipment element (Figure 6-10) describes the nature of a queuing area. It can be associated with a PathLink to describe properties of a step of a navigation path.

- **AbstractEquipmentGroup**: Common properties of all equipment – see above.
- **AccessEquipmentGroup**: Common properties of access equipment – see above.

Specific properties of QueuingEquipment:

- **NumberOfServers**: Number of queue server points.
- **RailedQueue**: Whether queuing area is controlled by rails or cattle bars.
- **TicketedQueue**: Whether queue is controlled by numbered tickets.

![Figure 6-10 – QueuingEquipment (+JW v2.4)](image-url)
6.2.8 **Access Equipment** / **RampEquipment (+JW v2.4)**

The **RampEquipment** element (**Figure 6-11**) describes the nature of a ramp. It can be associated with a **PathLink** to describe properties of a step of a navigation path.

- **AbstractEquipmentGroup**: Common properties of all equipment – see above.
- **AccessEquipmentGroup**: Common properties of access equipment – see above.

Specific properties of **RampEquipment**:

- **Length**: Length of ramp in metres.
- **Gradient**: Gradient of ramp in degrees.
- **GradientType**: Gradient of ramp as enumerated value. See **Table 6-2** for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>level</td>
<td>Level</td>
</tr>
<tr>
<td>shallow</td>
<td>Shallow</td>
</tr>
<tr>
<td>moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>steep</td>
<td>Steep</td>
</tr>
<tr>
<td>verySteep</td>
<td>Very Steep</td>
</tr>
</tbody>
</table>

**Table 6-2 – Allowed Values for Gradient Type (+JW v2.4)**

- **Pedestal**: Whether ramp is on a pedestal.
- **HandrailHeight**: Height of handrail.
- **HandrailType**: Type of handrail. See **Table 6-3** for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>No Handrail</td>
</tr>
<tr>
<td>oneSide</td>
<td>Handrail on one side.</td>
</tr>
<tr>
<td>bothSides</td>
<td>Handrail on both sides.</td>
</tr>
</tbody>
</table>

**Table 6-3 – Allowed Values for HandrailType (+JW v2.4)**

- **TactileGuidanceStrips**: Whether ramp has tactile guidance strips.
- **VisualGuidanceBands**: Whether ramp has visual guidance bands strips.
- **Temporary**: Whether ramp is temporary or permanent.
### 6.2.9 Access Equipment / RoughSurface (+JW v2.4)

The **RoughSurface** equipment element (Figure 6-12) describes the nature of the surface. It can be associated with a PathLink to describe properties of a step of a navigation path.

- **AbstractEquipmentGroup**: Common properties of all equipment – see above.
- **AccessEquipmentGroup**: Common properties of access equipment – see above.

Specific properties of **RoughSurface**:

- **SurfaceType**: Type of Surface. See Table 6-3 for allowed values.

```
<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>asphalt</td>
<td>Surface is asphalt</td>
</tr>
<tr>
<td>bricks</td>
<td>Surface is bricks</td>
</tr>
<tr>
<td>cobbles</td>
<td>Surface is cobbles</td>
</tr>
<tr>
<td>earth</td>
<td>Surface is earth</td>
</tr>
<tr>
<td>grass</td>
<td>Surface is grass</td>
</tr>
<tr>
<td>looseSurface</td>
<td>Surface is loose</td>
</tr>
<tr>
<td>pavingStones</td>
<td>Surface is paving stones</td>
</tr>
<tr>
<td>roughSurface</td>
<td>Surface is rough</td>
</tr>
</tbody>
</table>
```
6.2.10 Access Equipment / StaircaseEquipment (+JW v2.4)

The StaircaseEquipment element (Figure 6-13) describes the nature of a stairs. It can be associated with a PathLink to describe properties of a step of a navigation path.

- **AbstractEquipmentGroup**: Common properties of all equipment – see above.
- **AccessEquipmentGroup**: Common properties of access equipment – see above.
- **StairGroup**: Common properties of stair equipment – see above.

Specific properties of StaircaseEquipment:

- **StairEquipmentGroup**: Common properties of stepped equipment – see above.
- **HandrailType**: Type of handrail. See Table 6-3 above for allowed values.
- **HandrailHeight**: Height of handrail.
- **SpiralStair**: Whether stairs are spiral.

---

Table 6-4 – Allowed Values for Handrail (+JW v2.4)

<table>
<thead>
<tr>
<th>Surface Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>smooth</td>
<td>Surface is smooth</td>
</tr>
<tr>
<td>other</td>
<td>Surface is other</td>
</tr>
</tbody>
</table>

Figure 6-12 – RoughSurface (+JW v2.4)
6.2.11 Access Equipment / TravelatorEquipment (+JW v2.4)

The TravelatorEquipment element (Figure 6-14) describes the nature of a travelator. It can be associated with a PathLink to describe properties of a step of a navigation path.

- **AbstractEquipmentGroup**: Common properties of all equipment – see above.
- **AccessEquipmentGroup**: Common properties of access equipment – see above.

Specific properties of TravelatorEquipment:

- **TactileActuators**: Whether travelator has a tactile actuator.
- **EnergySaving**: Whether travelator is energy saving.
- **Speed**: Speed of travelator.
- **Length**: Length of travelator in metres.
6.3 Equipment / LocalServiceChoice (+JW v2.4)

The LocalServiceChoice (Figure 6-15) describes the type of local service associated with an element such as a PathLinkInSequence: One of the following:

- **AssistanceService**: Description of Assistance Service properties.
- **TicketingService**: Description of Ticketing Service properties.

6.3.1 Local Service / AssistanceService (+JW v2.4)

The AssistanceService element (Figure 6-16) describes the nature of the Assistance services available at the location. It can be associated with a place.

- **AbstractEquipmentGroup**: Common properties of all equipment – see above.
- **LocalServiceGroup**: Common properties of access equipment.

Specific properties of AssistanceService:

- **AssistanceServiceType**: Type of AssistanceService. One or more - See Table 6-5 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>boarding</td>
<td>General boarding assistance for all categories of user available.</td>
</tr>
<tr>
<td>wheelchair</td>
<td>Boarding assistance for wheelchair users available.</td>
</tr>
<tr>
<td>wheelchairPrebooked</td>
<td>Boarding assistance for wheelchair users available if prebooked.</td>
</tr>
</tbody>
</table>
porterage  Portage available.
other  Other service available.

Table 6-5 – Allowed Values for AssistanceServiceType (+JW v2.4)

- **Staffing:** Type of **Staffing** available. See Table 6-6 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>fullTime</td>
<td>Staffed full time during opening hours</td>
</tr>
<tr>
<td>partTime</td>
<td>Only staffed at certain times</td>
</tr>
<tr>
<td>unmanned</td>
<td>Not normally staffed</td>
</tr>
<tr>
<td>unknown</td>
<td>Staffing unknown</td>
</tr>
</tbody>
</table>

Table 6-6 – Allowed Values for Staffing (+JW v2.4)

- **AccessibilityTools:** Devices available for use by passengers. One or more - See Table 6-7 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>wheelchair</td>
<td>Wheelchairs are available for use.</td>
</tr>
<tr>
<td>walkingStick</td>
<td>Walking sticks are available for use.</td>
</tr>
<tr>
<td>audioNavigator</td>
<td>Audio Navigators are available for use.</td>
</tr>
<tr>
<td>visualNavigator</td>
<td>Visual Navigators are available for use.</td>
</tr>
<tr>
<td>passengerCart</td>
<td>Passenger carts are available for use.</td>
</tr>
<tr>
<td>other</td>
<td>Other equipment is available for use.</td>
</tr>
</tbody>
</table>

Table 6-7 – Allowed Values for AccessibilityTools (+JW v2.4)

- **Languages:** Languages spoken for assistance. One or more languages, as specified by XML Language value. (e.g. en, cy, de, fr, etc).

- **AccessibilityTrainedStaff:** Whether staff are trained in providing accessibility support.

- **GuideDogsAllowed:** Whether guide dogs are allowed.

- **EmergencyServices:** List of available emergency service support. One or more - See Table 6-8 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>police</td>
<td>Police are available at location.</td>
</tr>
<tr>
<td>firstAid</td>
<td>First aid is available at location.</td>
</tr>
<tr>
<td>sosPoint</td>
<td>SOS help Points are available at location.</td>
</tr>
<tr>
<td>ccTv</td>
<td>CCTV covers location.</td>
</tr>
<tr>
<td>other</td>
<td>Other services available at location.</td>
</tr>
</tbody>
</table>

Table 6-8 – Allowed Values for EmergencyServices (+JW v2.4)
The *TicketingService* element (Figure 6-17) describes the nature of ticketing services available at a location.

- **AbstractEquipmentGroup**: Common properties of all equipment – see above.
- **LocalServiceGroup**: Common properties of access equipment – see above.

Specific properties of *TicketingService*:
- **VehicleModes**: Modes for which ticketing services apply. See Table 5-10 earlier for allowed values.
- **TicketCounterService**: Whether there is a ticket counter staffed by humans.
- **OnlinePurchaseForCollection**: Whether there is an online purchase for collection.
- **OnlinePurchaseForETicket**: Whether there is an online purchase for electronic ticket (on mobile or card device).
- **OnlinePurchaseForSelfPrintTicket**: Whether there is an online purchase for tickets that the customers may print themselves.
- **OnboardPurchase**: Whether there is an onboard purchase of tickets on the service.
- **PaymentMethod**: Method of payment allowed. One or more - See Table 6-9 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>cash</td>
<td>Cash payment accepted.</td>
</tr>
<tr>
<td>creditCard</td>
<td>Credit Card payment accepted.</td>
</tr>
</tbody>
</table>
Table 6-9 – Allowed Values for PaymentMethod (+JW v2.4)

- **TicketType:** Ticket Types available. One or more - See Table 6-10 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>standard</td>
<td>Standard ticket types available</td>
</tr>
<tr>
<td>promotion</td>
<td>Promotion ticket types available</td>
</tr>
<tr>
<td>concession</td>
<td>Concessionary ticket types available</td>
</tr>
<tr>
<td>group</td>
<td>Group ticket types available</td>
</tr>
<tr>
<td>season</td>
<td>Season ticket types available</td>
</tr>
<tr>
<td>carnet</td>
<td>Carnet ticket types available</td>
</tr>
<tr>
<td>travelCard</td>
<td>Travel Card ticket types available</td>
</tr>
<tr>
<td>other</td>
<td>Other ticket types available</td>
</tr>
<tr>
<td>all</td>
<td>All ticket types available</td>
</tr>
</tbody>
</table>

Table 6-10 – Allowed Values for TicketType (+JW v2.4)

- **TicketingService:** Ticketing services available. One or more - See Table 6-11 for allowed values.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>purchase</td>
<td>Ticket purchase available at location.</td>
</tr>
<tr>
<td>collection</td>
<td>Ticket collection available at location.</td>
</tr>
<tr>
<td>cardTopUp</td>
<td>Card Top Up available at location.</td>
</tr>
<tr>
<td>reservations</td>
<td>Ticket reservations available at location.</td>
</tr>
<tr>
<td>other</td>
<td>Other Ticket service available at location.</td>
</tr>
</tbody>
</table>

Table 6-11 – Allowed Values for TicketingService (+JW v2.4)
6.4 Equipment / ServiceEquipment (+JW v2.4)

The **ServiceEquipment** (Figure 6-15) describes specific details of equipment on the vehicle.

- **VehicleEquipmentList**: Specific details of vehicle equipment.
- **AccessVehicleEquipment**: (+JW v2.4) specific details of vehicle access see later below.
- **WheelchairVehicleEquipment**: (+JW v2.4) specific details of vehicle wheelchair equipment see later below.
- **LocalServiceList**: Specific details of services available on board service.
- **AssistanceService**: (+JW v2.4) specific details of Assistance Service on services. See above.
- **TicketingService**: (+JW v2.4) specific details of Assistance Service on services. See above.
- **PassengerEquipmentList**: Specific details of passenger equipment for service.
- **PassengerInfoEquipment**: (+JW v2.4) specific details of passenger information services.
**PassengerSafetyEquipment**: (+JW v2.4) specific details of safety equipment on service.

**SanitaryFacility**: (+JW v2.4) specific details of vehicle information services.

---

### 6.4.1 VehicleEquipment / AccessVehicleEquipment (+JW v2.4)

The **AccessVehicleEquipment** *(Figure 6-19)* specifies details about wheelchair accessibility to the vehicle.

- **LowFloor**: Whether vehicle used for service has low floor access.
- **Ramp**: Whether vehicle used for service has deployable ramp.
- **RampBearingCapacity**: Ramp bearing capacity in kilos.
- **NumberOfSteps**: Number of steps to board vehicle.
- **BoardingHeight**: Rise from ground needed for access to vehicle.
- **GapToPlatform**: Normal horizontal gap between vehicle and platform (may vary by stop – see ReturnedSite element).
- **WidthOfAccessArea**: Access width for entry/exit to vehicle.
- **HeightOfAccessArea**: Access height for entry/exit to vehicle.
- **AutomatedDoors**: Whether there are automatic doors on vehicle.
6.4.2 VehicleEquipment / WheelchairVehicleEquipment (+JW v2.4)

The **WheelchairVehicleEquipment** (**Figure 6-20**) specifies details about accessibility to the vehicle.

- **NumberOfWheelchairAreas**: total number of wheelchairs that can be carried.
- **WidthOfAccessArea**: Access width for wheelchair area.
- **HeightOfAccessArea**: Access height for entry/exit.
- **WheelchairTurningCircle**: Turning circle for a wheelchair.
- **BookingRequired**: Whether a booking is required wheelchair.
- **BookingTelephoneNumber**: Telephone number for booking a wheelchair place and/or assistance.

![Diagram of WheelchairVehicleEquipment](image)

**Figure 6-20 – Service / WheelchairVehicleEquipment (+JW v2.4)**

### 6.5 Equipment / PassengerEquipmentChoice (+JW v2.4)

The *PassengerEquipmentChoice* (Figure 6-15) describes the type of local service associated with an element such as a *PathLinkInSequence*: One of the following:

- **PassengerInfoEquipment**: Description of passenger information services.
- **PassengerSafetyEquipment**: Description of passenger safety services.
- **SanitaryFacility**: Description of toilets and other sanitary facilities for passengers.
6.5.1 PassengerEquipment / PassengerInfoEquipment (+JW v2.4)

The **PassengerInfoEquipment** (Figure 6-22) specifies details about passenger information services available on the vehicle.

- **PassengerInfo**: Types of passenger information available. See Table 6-12 for allowed values.
  
<table>
<thead>
<tr>
<th>TimedLeg</th>
</tr>
</thead>
<tbody>
<tr>
<td>nextStopIndicator</td>
</tr>
<tr>
<td>stopAnnouncements</td>
</tr>
<tr>
<td>passengerInfoFacility</td>
</tr>
<tr>
<td>other</td>
</tr>
</tbody>
</table>

Table 6-12 – Allowed values for PassengerInfoEquipment / PassengerInfo (+JW v2.4)

- **AccessibilityInfo**: Accessibility information services available (Note this is a standard list – not all may be relevant on a vehicle). See Table 6-13 for allowed values.

<table>
<thead>
<tr>
<th>TimedLeg</th>
</tr>
</thead>
<tbody>
<tr>
<td>audioForHearingImpaired</td>
</tr>
<tr>
<td>visualDisplays</td>
</tr>
<tr>
<td>displaysForVisuallyImpaired</td>
</tr>
<tr>
<td>tactilePlatformEdges</td>
</tr>
<tr>
<td>tactileGuidingStrips</td>
</tr>
<tr>
<td>largePrintTimetables</td>
</tr>
<tr>
<td>other</td>
</tr>
</tbody>
</table>

Table 6-13 – Allowed values for PassengerInfoEquipment / AccessibilityInfo (+JW v2.4)
6.5.2 PassengerEquipment / PassengerInfoEquipment (+JW v2.4)

The **PassengerSafetyEquipment** (Figure 6-23) element specifies details about passenger safety features.

- **Cctv**: Whether there is Close Circuit Television coverage.
- **PanicButton**: Whether there is a panic button with which to summon assistance.
- **MobilePhoneCoverage**: Whether there is Mobile phone coverage.
- **SosPhones**: Whether there are SOS phones.
- **HeightOfSosPanel**: Height from ground of SOS panel.
- **Lighting**: Type of lighting. See Table 6-1 earlier for allowed values.
- **AcousticAnnouncements**: Whether there are voice announcements.
6.5.3 PassengerEquipment / SanitaryFacility (+JW v2.4)

The **SanitaryFacility** (Figure 6-24) element specifies details about toilets and other facilities for passengers. It can be associated with either a place or a service.

- **TypeOfFacility**: Nature of facility. See Table 6-14 for allowed values.

<table>
<thead>
<tr>
<th><strong>TimedLeg</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>No facilities available</td>
</tr>
<tr>
<td>toilet</td>
<td>Toilet</td>
</tr>
<tr>
<td>wheelChairAccessToilet</td>
<td>Wheelchair Accessible Toilet</td>
</tr>
<tr>
<td>shower</td>
<td>Shower</td>
</tr>
<tr>
<td>babyChange</td>
<td>BabyChange</td>
</tr>
<tr>
<td>wheelchairBabyChange</td>
<td>Wheelchair Accessible Baby Change</td>
</tr>
<tr>
<td>other</td>
<td>Other Facility</td>
</tr>
</tbody>
</table>

**Table 6-14 – Allowed values for PassengerEquipment / TypeOfSanitaryFacility (+JW v2.4)**

- **Gender**: Facility can be used by specified gender. See Table 6-15 for allowed values.

<table>
<thead>
<tr>
<th><strong>TimedLeg</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>maleOnly</td>
<td>Facility is for men</td>
</tr>
<tr>
<td>femaleOnly</td>
<td>Facility is for women</td>
</tr>
<tr>
<td>both</td>
<td>both</td>
</tr>
</tbody>
</table>

**Table 6-15 – Allowed values for PassengerEquipment / Gender (+JW v2.4)**
- **FreeToUse**: Whether there is Mobile phone coverage.
- **Charge**: Whether there is a charge for using facility.
- **PaymentMethod**: Method of payment allowed. One or more - See Table 6-9 earlier for allowed values.
- **WheelchairTurningCircle**: Turning circle for a wheelchair in metres.

![Diagram of PassengerEquipment / SanitaryFacility (+JW v2.4)](image)

**Figure 6-24 – PassengerEquipment / SanitaryFacility (+JW v2.4)**
7. Capabilities

JourneyWeb functions are grouped into named capabilities; a full JourneyWeb implementation supports all capabilities, however different JourneyWeb engines at different version levels may support a partial set of capabilities for a variety of reasons. If implemented at all a given capability should be fully implemented. Table 7-1 shows the full set of capabilities for JourneyWeb.

A capabilities table is delivered as a CSV file in the National Gazetteer. The capabilities table indicates which features have not been implemented by each regional system.

<table>
<thead>
<tr>
<th>Capability ID</th>
<th>Feature name</th>
<th>Added</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Points request</td>
<td>1.0</td>
</tr>
<tr>
<td>2</td>
<td>Journey request</td>
<td>1.0</td>
</tr>
<tr>
<td>3</td>
<td>Stop timetable request</td>
<td>2.1</td>
</tr>
<tr>
<td>4</td>
<td>Service timetable request</td>
<td>2.1</td>
</tr>
<tr>
<td>5</td>
<td>Stop events request</td>
<td>2.1</td>
</tr>
<tr>
<td>6</td>
<td>Services request</td>
<td>2.1</td>
</tr>
<tr>
<td>7</td>
<td>Operators request</td>
<td>2.1</td>
</tr>
<tr>
<td>8</td>
<td>LegPathsRequest</td>
<td>2.4</td>
</tr>
<tr>
<td>PointsRequest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>Co-ordinate</td>
<td>2.0</td>
</tr>
<tr>
<td>PointsResponse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>151</td>
<td>Locality centre</td>
<td>2.0</td>
</tr>
<tr>
<td>152</td>
<td>Timing information points</td>
<td>2.0</td>
</tr>
<tr>
<td>153</td>
<td>Co-ordinates</td>
<td>2.0</td>
</tr>
<tr>
<td>JourneysRequest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>201</td>
<td>Co-ordinates</td>
<td>1.0</td>
</tr>
<tr>
<td>202</td>
<td>Multiple origin / destination points</td>
<td>1.0</td>
</tr>
<tr>
<td>203</td>
<td>Algorithm</td>
<td>2.0</td>
</tr>
<tr>
<td>204</td>
<td>Walk speed</td>
<td>1.0</td>
</tr>
<tr>
<td>205</td>
<td>Max walk distance</td>
<td>1.0</td>
</tr>
<tr>
<td>206</td>
<td>Interchange speed</td>
<td>1.0</td>
</tr>
<tr>
<td>207</td>
<td>Via</td>
<td>2.0</td>
</tr>
<tr>
<td>208</td>
<td>Not via</td>
<td>2.0</td>
</tr>
<tr>
<td>209</td>
<td>Sequence range</td>
<td>1.0</td>
</tr>
<tr>
<td>210</td>
<td>Interval range</td>
<td>1.0</td>
</tr>
<tr>
<td>211</td>
<td>Limited interval range</td>
<td>1.0</td>
</tr>
<tr>
<td>212</td>
<td>Each origin and destination range</td>
<td>2.1</td>
</tr>
<tr>
<td>213</td>
<td>Mode filtering</td>
<td>2.1</td>
</tr>
<tr>
<td>214</td>
<td>Operator filtering</td>
<td>2.1</td>
</tr>
<tr>
<td>215</td>
<td>Service filtering</td>
<td>2.1</td>
</tr>
<tr>
<td>216</td>
<td>Seeding</td>
<td>2.1</td>
</tr>
<tr>
<td>262</td>
<td>Accessibility constraints</td>
<td>2.4</td>
</tr>
<tr>
<td>263</td>
<td>Cycle Options</td>
<td>2.4</td>
</tr>
<tr>
<td>264</td>
<td>Changes</td>
<td>2.4</td>
</tr>
<tr>
<td>265</td>
<td>Travel demand plan</td>
<td>2.4</td>
</tr>
<tr>
<td>266</td>
<td>Include Leg Track</td>
<td>2.4</td>
</tr>
<tr>
<td>JourneysResponse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>251</td>
<td>Co-ordinates</td>
<td>1.0</td>
</tr>
<tr>
<td>252</td>
<td>Timing information points</td>
<td>1.0</td>
</tr>
<tr>
<td>253</td>
<td>Service origin details</td>
<td>1.0</td>
</tr>
<tr>
<td>254</td>
<td>All Intermediate stops</td>
<td>2.1</td>
</tr>
<tr>
<td>255</td>
<td>Leg intermediate stops</td>
<td>2.1</td>
</tr>
<tr>
<td>256</td>
<td>Service destination details</td>
<td>2.1</td>
</tr>
<tr>
<td>257</td>
<td>Days and Dates of operation</td>
<td>2.0</td>
</tr>
<tr>
<td>258</td>
<td>Destination board details</td>
<td>2.0</td>
</tr>
<tr>
<td>259</td>
<td>Timetable link details</td>
<td>2.1</td>
</tr>
<tr>
<td>260</td>
<td>Real time times</td>
<td>2.1</td>
</tr>
<tr>
<td>261</td>
<td>Interchange Leg</td>
<td>2.4</td>
</tr>
<tr>
<td>262</td>
<td>Place Accessibility</td>
<td>2.4</td>
</tr>
<tr>
<td>263</td>
<td>Cycles On Service</td>
<td>2.4</td>
</tr>
<tr>
<td>Number</td>
<td>Function</td>
<td>Page</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>266</td>
<td>Leg Tracks</td>
<td>2.4</td>
</tr>
<tr>
<td>267</td>
<td>Service Accessibility</td>
<td>2.4</td>
</tr>
<tr>
<td>268</td>
<td>Service Facility</td>
<td>2.4</td>
</tr>
<tr>
<td>269</td>
<td>Journey Leg Identifiers</td>
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</tr>
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<td>StopTimetableRequest</td>
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<td>301</td>
<td>Co-ordinates</td>
<td>2.1</td>
</tr>
<tr>
<td>302</td>
<td>Multiple origin / destination points</td>
<td>2.1</td>
</tr>
<tr>
<td>303</td>
<td>Mode filtering</td>
<td>2.1</td>
</tr>
<tr>
<td>304</td>
<td>Operator filtering</td>
<td>2.1</td>
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<tr>
<td>305</td>
<td>Service filtering</td>
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</tr>
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<td>ServiceTimetableRequest</td>
<td>2.1</td>
</tr>
<tr>
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<td>Multiple services</td>
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<td>TimetableResponse</td>
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<td>451</td>
<td>Co-ordinates</td>
<td>2.1</td>
</tr>
<tr>
<td>452</td>
<td>Timing information points</td>
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</tr>
<tr>
<td>453</td>
<td>Stop type indication</td>
<td>2.1</td>
</tr>
<tr>
<td>454</td>
<td>Days and Dates of operation</td>
<td>2.1</td>
</tr>
<tr>
<td>455</td>
<td>Destination board details</td>
<td>2.1</td>
</tr>
<tr>
<td>456</td>
<td>Timetable link details</td>
<td>2.1</td>
</tr>
<tr>
<td>308</td>
<td>StopEventRequest</td>
<td>2.1</td>
</tr>
<tr>
<td>501</td>
<td>Co-ordinates</td>
<td>2.1</td>
</tr>
<tr>
<td>502</td>
<td>Multiple points</td>
<td>2.1</td>
</tr>
<tr>
<td>503</td>
<td>Sequence range</td>
<td>2.1</td>
</tr>
<tr>
<td>504</td>
<td>Interval range</td>
<td>2.1</td>
</tr>
<tr>
<td>505</td>
<td>Limited interval range</td>
<td>2.1</td>
</tr>
<tr>
<td>506</td>
<td>First service only</td>
<td>2.1</td>
</tr>
<tr>
<td>507</td>
<td>Arrive / Depart</td>
<td>2.1</td>
</tr>
<tr>
<td>508</td>
<td>Origin filtering</td>
<td>2.1</td>
</tr>
<tr>
<td>509</td>
<td>Actual origin filtering</td>
<td>2.1</td>
</tr>
<tr>
<td>510</td>
<td>Destination filtering</td>
<td>2.1</td>
</tr>
<tr>
<td>511</td>
<td>Actual destination filtering</td>
<td>2.1</td>
</tr>
<tr>
<td>512</td>
<td>Operator filtering</td>
<td>2.1</td>
</tr>
<tr>
<td>513</td>
<td>Service filtering</td>
<td>2.1</td>
</tr>
<tr>
<td>514</td>
<td>Accessibility constraints.</td>
<td>2.4</td>
</tr>
<tr>
<td>309</td>
<td>StopEventsResponse</td>
<td>2.1</td>
</tr>
<tr>
<td>551</td>
<td>Co-ordinates</td>
<td>2.1</td>
</tr>
<tr>
<td>552</td>
<td>Timing information points</td>
<td>2.1</td>
</tr>
<tr>
<td>553</td>
<td>Service origin details</td>
<td>2.1</td>
</tr>
<tr>
<td>554</td>
<td>Intermediate stops</td>
<td>2.1</td>
</tr>
<tr>
<td>555</td>
<td>Service destination details</td>
<td>2.1</td>
</tr>
<tr>
<td>556</td>
<td>Days and Dates of operation</td>
<td>2.1</td>
</tr>
<tr>
<td>557</td>
<td>Destination board details</td>
<td>2.1</td>
</tr>
<tr>
<td>558</td>
<td>Timetable link details</td>
<td>2.1</td>
</tr>
<tr>
<td>559</td>
<td>Real time times</td>
<td>2.1</td>
</tr>
<tr>
<td>560</td>
<td>Service Accessibility info</td>
<td>2.4</td>
</tr>
<tr>
<td>561</td>
<td>Service Accessibility Filtering</td>
<td>2.4</td>
</tr>
<tr>
<td>310</td>
<td>ServicesRequest</td>
<td>2.1</td>
</tr>
<tr>
<td>601</td>
<td>Begins with</td>
<td>2.1</td>
</tr>
<tr>
<td>602</td>
<td>Mode filtering</td>
<td>2.1</td>
</tr>
<tr>
<td>311</td>
<td>ServicesResponse</td>
<td>2.1</td>
</tr>
<tr>
<td>651</td>
<td>Days and Dates of operation</td>
<td>2.1</td>
</tr>
<tr>
<td>652</td>
<td>Destination board details</td>
<td>2.1</td>
</tr>
<tr>
<td>653</td>
<td>Timetable link details</td>
<td>2.1</td>
</tr>
<tr>
<td>654</td>
<td>Service Accessibility</td>
<td>2.4</td>
</tr>
<tr>
<td>655</td>
<td>Service Facility</td>
<td>2.4</td>
</tr>
<tr>
<td>656</td>
<td>Cycles on Service</td>
<td>2.4</td>
</tr>
<tr>
<td>312</td>
<td>OperatorsRequest</td>
<td>2.1</td>
</tr>
<tr>
<td>701</td>
<td>Mode filtering</td>
<td>2.1</td>
</tr>
<tr>
<td>313</td>
<td>OperatorsResponse</td>
<td>2.1</td>
</tr>
<tr>
<td>751</td>
<td>Mode</td>
<td>2.1</td>
</tr>
<tr>
<td>314</td>
<td>LegPathsRequest</td>
<td>2.4</td>
</tr>
<tr>
<td>801</td>
<td>Points</td>
<td>2.4</td>
</tr>
<tr>
<td>802</td>
<td>Leg Id</td>
<td>2.4</td>
</tr>
<tr>
<td>804</td>
<td>Accessibility Information</td>
<td>2.4</td>
</tr>
<tr>
<td>315</td>
<td>LegPathsResponse</td>
<td>2.4</td>
</tr>
<tr>
<td>851</td>
<td>NavigationPaths</td>
<td>2.4</td>
</tr>
</tbody>
</table>
### Table 7-1 – Capability IDs

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>2.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>852</td>
<td>Equipment</td>
<td></td>
</tr>
<tr>
<td>853</td>
<td>Interchange paths</td>
<td>2.4</td>
</tr>
</tbody>
</table>
8. Error Messages

Table 8-1 shows the JourneyWeb error classifications that are supported:

### 8.1 Error Numbers

<table>
<thead>
<tr>
<th>Class</th>
<th>Subclass</th>
<th>Message</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td>0</td>
<td>OK</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>OK – No results found</td>
<td>2.0</td>
</tr>
<tr>
<td>out of Scope</td>
<td>1</td>
<td>Unsupported schema version</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Requests too far in the past</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Request too far in the future</td>
<td>2.0</td>
</tr>
<tr>
<td>Invalid Request</td>
<td>2</td>
<td>Unable to completely parse the request</td>
<td>2.0</td>
</tr>
<tr>
<td>Invalid Request Data</td>
<td>3</td>
<td>Origin place not recognised or not in region</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Destination place not recognised or not in region</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Via place not recognised or not in region</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Not via place not recognised or not in region</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>No places found at (or bad) origin co-ordinate</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>No places found at (or bad) destination co-ordinate</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>No places found at (or bad) via co-ordinate</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>No places found at (or bad) not via co-ordinate</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Service number not unique</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Operator not recognised</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Service number not recognised</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>Direction not recognised</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>Private timetable ID not recognised</td>
<td>2.0</td>
</tr>
<tr>
<td>Unsupported Capability</td>
<td>4</td>
<td>Capability not supported (n is capability ID)</td>
<td>2.0</td>
</tr>
<tr>
<td>Data Unavailable</td>
<td>5</td>
<td>No track information available for leg</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>No accessibility information available for leg</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>No interchange information available for leg</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Mapping references not available in requested format</td>
<td>2.4</td>
</tr>
<tr>
<td>General</td>
<td>9</td>
<td>General Message – System testing</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>General Message – Display in call-centres</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>General Message – Display to users (including internet users)</td>
<td>2.0</td>
</tr>
</tbody>
</table>
9. Versioning

JourneyWeb schemas and documents must be versioned so as manage change in a disciplined fashion within a distributed operating environment, and in particular to allow interoperability of concurrent versions at different levels.

9.1 Version Numbering Convention

JourneyWeb follows the e-Gif convention for version numbering.

- Released Version numbers have the form $n.m$, (e.g. 3.1).
- Drafts have the form $n.mx$ (e.g. 3.1a).
- The main version number ($n$) will be incremented when the change from the previous version of the schema will cause existing documents to fail to validate. For example if a new mandatory element is added.
- The minor version number ($m$) will be incremented when the change to the schema will allow existing documents to continue to validate. However some new documents may fail to validate against the old version (for example, if a new optional element is added).
- The draft version number ($x$) indicates that the version is still under discussion and may be subject to further changes. Generally it will be incremented to indicate a material change to a previous release or previous draft. Intermediate drafts will usually be withdrawn once they are superseded.

9.2 Resource Versions

9.2.1 Schema URI Version

In line with W3C practice, a separate directory and URL will be used for each version of the schema; the schema name will remain the same.

For example:
http://www.journeyweb.org.uk/schemas/2.1.0.c/JourneyWeb.xsd
And
http://www.journeyweb.org.uk/schemas/2.4/JourneyWeb.xsd

Different versions of JourneyWeb will coexist at the same time.

9.2.2 Namespace URI Version

The following unversioned URI will be used for the JourneyWeb namespace. This is in line with the e-GIF mandate that Namespace URI must not be versioned.

http://www.journeyweb.org.uk/schemas/

9.2.3 Schema Version Id

The JourneyWeb schema has an explicit Version attribute on it.

9.2.4 Indicating Versions on Data
The *JourneyWeb* element has a version id attribute that is populated to indicate the **version** on data messages, as recommended by e-Gif.
10. Accreditation of JourneyWeb Servers

10.1 Introduction

This section shows the JourneyWeb accreditation process that was used for v2.1. A validator software application was developed to assist the accreditation process for 2.1. The validators could also be used as a test harness while developing a passive JourneyWeb server and for regression testing. The process which this software followed is shown in Figure 10-1.

10.2 What is Checked?

The following items were checked in the process:

1. That all requests were accepted by the system.
2. That all replies were of the correct XML format including all mandatory elements.
3. That the results matched a pre-determined answer.
4. That the results were returned in a timely fashion.

The following was NOT checked:

- That the results represent a ‘correct’ answer. E.g. Bradford to Halifax journey does not go via London.

Checking that a journey planner is returning ‘correct’ journeys was beyond the scope of the accreditation process. As will be seen below it is assumed that a PTI call-centre or internet site will be contacted to obtain a result which is then compared to the JourneyWeb result manually.

10.3 The Process

The JourneyWeb Co-ordinator was responsible for performing the accreditation process. For each function supported by the schema the following steps were performed.

1. Enter parameters for the test.
2. Make the call to the validator service.
3. The validator automatically checked the format of the returned XML.
4. Manually check that the contents of the response match the pre-determined answer.
5. Tick pass / fail.
6. Repeat the test if required.

Figure 10-1 summarises this process –
All of the requests, replies and pass/fail ticks for the tests will be recorded into a log file.

10.4 The Log / Replays

The complete accreditation process is written to a log file. This includes:
- Complete text of each XML request.
- Complete text of each XML response.
- The time it took to do the request.
- The answers given to the manual checks.

The log file as a whole will be a valid XML file. As the log file contains a complete list of all the XML requests that were made a log file can be replayed i.e. all the requests made again. This can be useful for regression testing of passive JourneyWeb servers.

The log file can be replayed in two modes. The first will display the results and ask for manual confirmation that the content of the reply is acceptable in the same way that it does in non-replay mode. The second will ‘blindly’ repeat all the requests. Each replay will generate a new log file.

10.5 Manual Checks

Although it has been decided that the accreditation process should not check that the responses contain ‘correct’ journeys some checks have to be made to ensure that the results are consistent.
The best way to make this consistency check is to call the appropriate PTI call-centre or use the appropriate Internet site.
To prevent disruption in the call-centre it may be more appropriate to request a sample set of journey printouts from the region being tested. These can then be compared with the results given in the tests and archived along with the log file produced.

11.1 Introduction
This section details the suggested approach to controlling access to JourneyWeb servers.

JourneyWeb does not at present include any explicit protocol governing access control, (such as passwords or signatures), capability control (for example permission to use particular data sets) or other in built.

Instead it is suggested that a simple external mechanism – IP authentication is used. Networks should be configured such that only requests from known IP numbers are accepted.

11.2 List of Trusted Clients
A list will be maintained by the JourneyWeb Co-ordinator of all IP number ranges that are allowed to make JourneyWeb requests.
- Ranges of IP numbers are required in order that a collection of call-centre machines can be defined in one go –
  - e.g. 10.50.126.70 to 80 defines 11 machines.
- Each range of numbers will be given a name in the database. This will allow systems to log requests against named call-centres, systems, etc.
- The list will be distributed on the JourneyWeb server as a CSV table in the National Gazetteer.

11.3 Barring Access
A JourneyWeb server must reply to any JourneyWeb request made from one of the trusted clients IP numbers.
- It is up to the system supplier to decide whether it replies to other IP numbers.
- It is suggested that unknown IP numbers are rejected to minimise response times to known IP numbers.

11.4 Data Updates
To ensure that a newly added IP number can make requests the JourneyWeb servers must update their list of known IP numbers frequently e.g. daily.
12. Client testing

12.1 Introduction
This section shows the recommended tests that a client using JourneyWeb should perform to ensure that it conforms.

12.2 Process Summary
As detailed in section 11 only clients that appear in the known IP list will receive JourneyWeb replies.
A supplier must contact the JourneyWeb Co-ordinator to be put on the known IP list. Once they are on the list it is recommended that they perform the following tests.

12.3 Viewing the XML
The key to being able to test a client is the ability to view the XML request that the client is making, the XML that the client is receiving back, and the results that it displays on the screen.
Reading the results will not be a problem – they will be displayed to the user, the problem is how to see the XML. It is suggested that all suppliers of client software provide a debug/test mode which will log the XML request and the reply that comes back from the server.

12.4 The Process – Journeys
Numerous journey requests should be made using the client to test the following scenarios which are represented in Figure 12-1:

- Journey solely within a remote region.
- Journey between remote regions (not adjoining).
- Journey between adjoining remote regions.
- Journey between local region and a remote region (not adjacent).
- Journey between local region and an adjacent region.

NOTE: Not all clients will have a local region.
The following checks should be made when the complete journey results are obtained from a single region:
All place names, service numbers, vehicle types, journey times, and notes are displayed as they appear in the XML reply.
The following checks will be made when the journey results are constructed from multiple regions (whether they be both remote, or a combination of local and remote) –
All place names, service numbers, vehicle types, journey times, and notes are displayed as they appear in the XML reply for the JourneyWeb portion of the results.
Sufficient time has been allowed between the parts of the journey from different regions for transferring between services.
Checks should also be made when a cross border service is being used to ensure:
That the traveller is not advised to alight from the service and wait for the next vehicle of the same service.
That the traveller is not advised to re-trace their steps to use a previous point as an interchange.

12.5 The Process – Timetables
Numerous timetable requests should be made for remote services. The following checks should be made when the results are displayed to the user:
- All place names, service numbers, vehicle types, times, and notes are displayed as they appear in the XML reply.
- Timetables are displayed in the same order as the source system displays them.
- All timetable notes received in the XML have been displayed.

12.6 The Process – Stop Events
Numerous stop event requests should be made for remote stops. The following checks should be made when the results are displayed to the user:
All place names, service numbers, vehicle types, times, and notes are displayed as they appear in the XML reply.
ANNEX A Changes from JourneyWeb v2.1 to v2.4

The following is a summary of changes to the JourneyWeb schema in 2.4. Elements are marked in the schema with “+JW v2.4”.

A.1 Functional Enhancements

♦ JOURNEYS

• JOURNEYS REQUEST
  i. Add optional AccessibilityOptions to JourneysRequest.
  ii. Add optional Filtering to JourneysRequest: strict or permissive
  iii. Allow MaxWalkTime as alternative to MaxWalkDistance
  iv. Add MaxAccessDistance to JourneysRequest.
  v. Add minChanges value to AlgorithmType on JourneysRequest.
  vi. Add optional CyclingOptions to JourneysRequest.
  vii. Add minChanges value to AlgorithmType on JourneysRequest.
  viii. Add optional SelectDemandPlan to JourneysRequest.
  ix. Add StopAreaID as an alternative on PlaceRequestType used on Vias & Change points
  x. Add optional IncludeTracks to JourneysRequest.
  xi. Add OriginalID and SeedType to Seed element of JourneysRequest.

• JOURNEYS RESPONSE
  i. Add optional Id to all Legs of JourneysResponse.
  ii. Add optional InterchangeLeg to JourneysResponse. Includes LegAccessibility.
  iii. Add optional WalkTimeAtInterchange element to JourneysResponse. Includes LegAccessibility.
  iv. Add optional SitePlaceId and PlaceAccessibility to all returned points in all Legs of JourneysResponse.
  v. Add optional LegTrack to all Legs of JourneysResponse, with Projection elements.
  vi. Add optional RequestStop to all LegBoard and LegAlight elements of TimedLeg, FrequencyLeg & ContinuousLeg of JourneysResponse, with Projection elements.
  vii. Add optional Notice as alternative to simple text note. Can include ID, contentType, NoteClassification, Severity, Summary and Detail.

♦ STOP EVENTS

• Add optional AccessibilityOptions to StopEventsRequest.

♦ SERVICE DETAILS

• Add optional service information elements to ServiceResponseExtrasGroup – available in JourneysResponse, ServicesResponse, StopEventsResponse.
  • Add ServiceAccessibility.
  • Add ServiceFacilityGroup with SeatClass, SleeperClass, Reservations, and Refreshments.
  • Add CyclesOnService.
  • Add Submode
LEGPATHS

- Add new protocol `LegPathsRequest` & `LegPathsResponse`, containing `NavigationPath` elements.

GENERAL

- Add optional `ParticipantRef` to all requests so that source system can be identifier on requests & responses.

A.2 Internal Technical Changes for e-gif XML Best Practice

These changes are to increase the maintainability & documentation of the code. They should not affect existing behaviour.

- Introduce `AbstractRequest` for all service request types.
- Introduce `AbstractResponse` for all service request types.
- Introduce `AbstractLeg` for Timed, Frequency, Continuous and Interchange response leg types.
- Add `CommonLegGroup` to `JourneysResponse` with `Notes`, `ServiceResponseGroup` and `LegTrack`.
- Add complex types for all major elements.
- Add namespaces to schema.
- Add metadata to schema.
- Add comments to all elements.
- Add Enumeration simple types for `VehicleMode` & `Continuous Mode`.

A.3 Corrections and Improvements that Impact Existing Implementations

- Corrected Typing on `RangeStructure` Interval elements.
- Removed extraneous min and max frequency attributes.
- Add a `DistanceType`.
- Add `GridType` to `Geocode`.
- Corrected typing on `Easting` and `Northing`.
  - Add `ParticipantRef` to all requests & responses to hold requesting / responding System Id.

A.4 Documentation

- Reorganize and update and revise documentation.
- Add new Capability type.
ANNEX B Sample XML Documents

B0 Common Wrapper Example
All examples assume a common request or response wrapper.

B0.1 Service Request
All examples assume a common request or response wrapper.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<JourneyWeb Version="2.4"
xsi:schemaLocation="http://www.journeyweb.org.uk/JourneyWeb-v2.4.xsd"
xmlns="http://www.journeyweb.org.uk/JourneyWeb"
xmlns:xsi=http://www.w3.org/2001/XMLSchema-instance">
  <Request>
    ... service request – see below
  </Request>
</JourneyWeb>
```

B0.2 Service Response
All examples assume a common response wrapper.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<JourneyWeb Version="2.4"
xsi:schemaLocation="http://www.journeyweb.org.uk/JourneyWeb-v2.4.xsd"
xmlns="http://www.journeyweb.org.uk/JourneyWeb"
xmlns:xsi=http://www.w3.org/2001/XMLSchema-instance">
  <Response DataDate="2003-06-26" DataName="EAPTIS">
    ... service response – see below
  </Response>
</JourneyWeb>
```

B1.1 JourneyRequest
A journey between two points to depart after a specified time, including intermediate leg stops, wheelchair accessibility.

```xml
<JourneysRequest RequestID="1">
  <Origin>
    <Place>
      <ID>
        <NaPTANID>2900L1522</NaPTANID>
        </ID>
        <JourneyTime>2003-06-26T07:00:00</JourneyTime>
      </Place>
      <GivenName>Long Stratton: A140/Brands Lane</GivenName>
    </Origin>
    <Destination>
      <Place>
        <ID>
          <NaPTANID>2900S631</NaPTANID>
          </ID>
          <Place>
            <GivenName>Swainsthorpe: Dun Cow</GivenName>
          </Place>
        <ArrDep>depart</ArrDep>
        <Range>
          <Sequence>3</Sequence>
          <Algorithm>default</Algorithm>
          <AccessibilityOptions>
            <WheelchairUse>1</WheelchairUse>
          </AccessibilityOptions>
        </Range>
      </Destination>
</JourneysRequest>
```
B1.2 JourneyResponse

Only found a single journey.

<JourneysResponse RequestID="1">
  <Journeys>
    <Journey>
      <Leg LegID="2900L1522">
        <TimedLeg Mode="bus">
          <ServiceOrigin>
            <Name>Roydon: Copeman Road</Name>
            <NaPTANID>2900R169</NaPTANID>
            <TimetabledDepartureTime>2003-06-26T07:10:00</TimetabledDepartureTime>
          </ServiceOrigin>
          <LegBoard>
            <Name>Long Stratton: A140/Brands Lane</Name>
            <NaPTANID>2900L1522</NaPTANID>
            <PlaceAccessibility>
              <MobilityImpairedAccess>true</MobilityImpairedAccess>
              <WheelchairAccess>true</WheelchairAccess>
              <StepFreeAccess>true</StepFreeAccess>
              <EscalatorFreeAccess>true</EscalatorFreeAccess>
              <LiftFreeAccess>false</LiftFreeAccess>
            </PlaceAccessibility>
            <TimetabledArrivalTime>2003-06-26T07:45:00</TimetabledArrivalTime>
            <TimetabledDepartureTime>2003-06-26T07:45:00</TimetabledDepartureTime>
          </LegBoard>
          <IntermediateB>
            <Name>Upper Tasburgh: A140/Little Chef</Name>
            <NaPTANID>2900T021</NaPTANID>
            <TimetabledArrivalTime>2003-06-26T07:47:00</TimetabledArrivalTime>
            <TimetabledDepartureTime>2003-06-26T07:47:00</TimetabledDepartureTime>
          </IntermediateB>
          <IntermediateB>
            <Name>Saxlingham Thorpe: A140 opp West End PH</Name>
            <NaPTANID>2900S066</NaPTANID>
            <TimetabledArrivalTime>2003-06-26T07:48:00</TimetabledArrivalTime>
            <TimetabledDepartureTime>2003-06-26T07:48:00</TimetabledDepartureTime>
          </IntermediateB>
          <IntermediateB>
            <Name>Newton Flotman: Bus Shelter</Name>
            <NaPTANID>2900N072</NaPTANID>
            <TimetabledArrivalTime>2003-06-26T07:50:00</TimetabledArrivalTime>
            <TimetabledDepartureTime>2003-06-26T07:50:00</TimetabledDepartureTime>
          </IntermediateB>
          <LegAlight>
            <Name>Swainsthorpe: Dun Cow</Name>
            <NaPTANID>2900S631</NaPTANID>
            <PlaceAccessibility>
              <MobilityImpairedAccess>true</MobilityImpairedAccess>
              <WheelchairAccess>true</WheelchairAccess>
              <StepFreeAccess>true</StepFreeAccess>
              <EscalatorFreeAccess>true</EscalatorFreeAccess>
              <LiftFreeAccess>false</LiftFreeAccess>
            </PlaceAccessibility>
            <TimetabledArrivalTime>2003-06-26T07:53:00</TimetabledArrivalTime>
            <TimetabledDepartureTime>2003-06-26T07:53:00</TimetabledDepartureTime>
          </LegAlight>
        </TimedLeg>
      </Leg>
    </Journey>
  </Journeys>
</JourneysResponse>
<NaPTANID>2900N1233</NaPTANID>
<TimetabledArrivalTime>2003-06-26T08:10:00</TimetableArrivalTime>
<OperatorCode>SIM</OperatorCode>
<ServiceNumber>2</ServiceNumber>
<OperatorName>Simonds Coach Travel</OperatorName>
>Description>Roydon – Diss – Long Stratton – Norwich</Description>
<FirstDateOfOperation>2003-05-06</FirstDateOfOperation>
<DaysOfOperation>MondayToSaturday</DaysOfOperation>
<NotSchoolHoliday>true</NotSchoolHoliday>
<ServiceDestination>
<OperatorCode>SIM</OperatorCode>
<ServiceNumber>2</ServiceNumber>
<OperatorName>Simonds Coach Travel</OperatorName>
<Description>Roydon – Diss – Long Stratton – Norwich</Description>
<FirstDateOfOperation>2003-05-06</FirstDateOfOperation>
<DaysOfOperation>MondayToSaturday</DaysOfOperation>
<NotSchoolHoliday>true</NotSchoolHoliday>
<DestinationBoard>Roydon to Norwich</DestinationBoard>
<TimetableLink>
<PrivateID>665</PrivateID>
</TimetableLink>
<ServiceAccessibility>
<MobilityImpairedAccess>unknown</MobilityImpairedAccess>
</VehicleEquipment>
<WheelchairVehicleEquipment Id="NMTOKEN">
<NumberOfWheelChairAreas>3</NumberOfWheelChairAreas>
</WheelchairVehicleEquipment>
<BookingRequired>true</BookingRequired>
</WheelchairVehicleEquipment>
</VehicleEquipment>
</ServiceAccessibility>
</LegPathsRequest>

B2 LegPaths Example

B2.1 LegPathsRequest

Fetch the track details for a previous journey leg request.

<LegPathsRequest RequestID="1234">
<FromPlace>
<ID>
<NaPTANID>4900342561</NaPTANID>
</ID>
<SitePlaceID>NTE345</SitePlaceID>
</FromPlace>
<ToPlace>
<ID>
<NaPTANID>4900342250</NaPTANID>
</ID>
</ToPlace>
<JourneyTime>2010-05-02T16:20:00Z</JourneyTime>
<AccessibilityOptions>
<WheelchairUse>notRequired</WheelchairUse>
<StepFreeUse>notRequired</StepFreeUse>
</AccessibilityOptions>
</LegPathsRequest>
<EscalatorFreeUse>notRequired</EscalatorFreeUse>
<TravelatorFreeUse>notRequired</TravelatorFreeUse>
<LiftFreeUse>notRequired</LiftFreeUse>
</AccessibilityOptions>
</LegPathsRequest>

**B2.2 LegPathsResponse**

Return the details for a previous LegPaths request.

```xml
<LegPathsResponse RequestID="String"
 LucasDetailsId="Lucas1234"
 NavigationPaths=""
 NavigationPath id="001"
 Name(normalizedString)
 Description(Path from platform 1 to entrance to hall)
 Advice(normalizedString)
 NavigationPathTypes=quayToHall
 PathAccessibility=
 MobilityImpairedAccess=true
 WheelchairAccess=true
 StepFreeAccess=true
 EscalatorFreeAccess=true
 LiftFreeAccess=false
 PathAccessibility=
 Distance=24.50
 TransferDuration=
 MobilityRestrictedTravellerDuration=PT5M
 TransferDuration=
 PathLinks=
 PathLinkInSequence id="001"
 From=
 NaPTANID=4900342561
 SitePlaceID=NTE345
 Bay=1
 Name=Platform 1
 LevelName=Lower ground
 ParentSitePlaceRef=4900342250
 PlaceAccessibility=
 MobilityImpairedAccess=true
 WheelchairAccess=true
 StepFreeAccess=true
 EscalatorFreeAccess=true
 LiftFreeAccess=false
 PlaceAccessibility=
 From=
 NaPTANID=4900342561
 SitePlaceID=4900342561-1
 Bay=1
 Name=Lower Lift Entrance for Platform 1
 LevelName=Lower ground
 Entrance id="NMTOKEN"
 Name=Entrance to Lift
 Label=L1
 EntranceType=liftDoor
 isEntry=true
 isExit=true
 Width=2.0
 Height=2.5
 Covered=indoors
 Equipment=
 EntranceEquipment id="Lift01"
 Name(normalizedString)
 Door=true
 AcousticSensor=true
 AutomaticDoor=false
 WheelChairPassable=true
```

<EntranceEquipment>
</EntranceEquipment>
</Equipment>
</Entrance>
</To>
<Description>Walk to Lift</Description>
<Heading>forward</Heading>
<Distance>2.5</Distance>
<NumberOfSteps>0</NumberOfSteps>
<AccessFeatureType>confinedSpace</AccessFeatureType>
<AccessFeatureType>doors</AccessFeatureType>
<Equipment>
  <MobilityImpairedAccess>true</MobilityImpairedAccess>
  <WheelchairAccess>true</WheelchairAccess>
  <StepFreeAccess>true</StepFreeAccess>
  <EscalatorFreeAccess>true</EscalatorFreeAccess>
  <LiftFreeAccess>false</LiftFreeAccess>
</Equipment>
</PathAccessibility>
</PathLinkInSequence>
<PathLinkInSequence id="002">
  <From>
    <NaPTANID>4900342561</NaPTANID>
    <SitePlaceID>4900342561-1</SitePlaceID>
  </From>
  <To>
    <NaPTANID>4900342561</NaPTANID>
    <SitePlaceID>4900342561-2</SitePlaceID>
    <Name>Upper Lift Entrance to Platform 1</Name>
    <LevelName>Upper ground</LevelName>
    <EntranceId>NMTOKEN</EntranceId>
    <Name>Upper Entrance to Lift</Name>
    <Label>L1</Label>
    <EntranceType.liftDoor</EntranceType>
    <isEntry>true</isEntry>
    <isExit>true</isExit>
    <Width>2.0</Width>
    <Height>2.5</Height>
    <Covered>indoors</Covered>
  </From>
  <To>
    <Description>Lift</Description>
    <Heading>forward</Heading>
    <Distance>0</Distance>
    <NumberOfSteps>0</NumberOfSteps>
    <Transition>up</Transition>
    <AccessFeatureType>lift</AccessFeatureType>
  </To>
  <EquipmentPlace>
    <Order>0</Order>
    <LiftEquipment>
      <Name>Lift 1</Name>
      <WheelchairTurningCircle>1.5</WheelchairTurningCircle>
      <ThroughLoader>false</ThroughLoader>
      <Automatic>true</Automatic>
    </LiftEquipment>
    <Distance>0.0</Distance>
  </EquipmentPlace>
</Equipment>
</Checks>
</Check Id="NMTOKEN">
<CheckProcess waitForLift />

<MinimumLikelyDelay>PT1M</MinimumLikelyDelay>
<AverageDelay>PT3M</AverageDelay>
<MaximumLikelyDelay>PT5M</MaximumLikelyDelay>

<PathAccessibility>
  <MobilityImpairedAccess>true</MobilityImpairedAccess>
  <WheelchairAccess>true</WheelchairAccess>
  <StepFreeAccess>false</StepFreeAccess>
  <EscalatorFreeAccess>true</EscalatorFreeAccess>
  <LiftFreeAccess>true</LiftFreeAccess>
</PathAccessibility>

<PathLinkInSequence id="003">
  <From>
    <NaPTANID>4900342250</NaPTANID>
    <SitePlaceID>4900342561-2</SitePlaceID>
  </From>
  <To>
    <NaPTANID>4900342250</NaPTANID>
    <Name>Main Entrance</Name>
    <LevelName>Upper ground</LevelName>
    <Entrance Id="NMTOKEN">
      <Name>Upper Entrance to Lift</Name>
      <Label>Entrance</Label>
      <EntranceType>swingDoor</EntranceType>
      <isEntry>true</isEntry>
      <isExit>true</isExit>
      <Width>3.0</Width>
      <Height>2.5</Height>
      <Covered>indoors</Covered>
      <Equipment>
        <EntranceEquipment Id="Door">
          <Name>Door for main Entrance</Name>
          <Door>true</Door>
          <keptOpen>true</keptOpen>
          <AutomaticDoor>false</AutomaticDoor>
          <WheelChairPassable>true</WheelChairPassable>
        </EntranceEquipment>
      </Equipment>
    </Entrance>
  </To>
  <Description>Lift</Description>
  <Headings>forward</Headings>
  <Distance>12</Distance>
  <NumberOfSteps>0</NumberOfSteps>
  <Transition>up</Transition>
  <AccessFeatureType>lift</AccessFeatureType>
  <PathAccessibility>
    <MobilityImpairedAccess>true</MobilityImpairedAccess>
    <WheelchairAccess>true</WheelchairAccess>
    <StepFreeAccess>false</StepFreeAccess>
    <EscalatorFreeAccess>true</EscalatorFreeAccess>
    <LiftFreeAccess>true</LiftFreeAccess>
  </PathAccessibility>
</PathLinkInSequence>
B3  TimeTable Example

B3.1  ServiceTimetable Request (Example 2)
Request Service two operator SIM direction outbound using a private ID.

```xml
<ServiceTimetableRequest RequestID="1">
  <TimetableDescriptor>
    <PrivateID>665</PrivateID>
  </TimetableDescriptor>
  <Date>2003-06-23</Date>
  <Generic>false</Generic>
</ServiceTimetableRequest>
```

B3.2  StopTimetable Request

A five day timetable request from A to B with bus and coach only.

```xml
<StopTimetableRequest RequestID="1">
  <Origin>
    <Place>
      <NaPTANID>2900L1522</NaPTANID>
    </Place>
  </Origin>
  <Destination>
    <Place>
      <NaPTANID>2900S631</NaPTANID>
    </Place>
  </Destination>
  <Date>2003-06-23</Date>
  <Generic>false</Generic>
  <Modes Exclude="false">
    <Mode Mode="bus"/>
    <Mode Mode="coach"/>
  </Modes>
</StopTimetableRequest>
```

B.3  Timetable Response

This is the response for the stop timetable request above. The only difference that would be evident if this was a response to a service timetable is the description. For brevity only the first four columns of the service have been shown.

```xml
<TimetableResponse RequestID="1">
  <Timetable>
    <Description>Long Stratton: A140/Brands Lane to Swainsthorpe: Dun Cow</Description>
    <FirstDate>2003-06-23</FirstDate>
    <Days>true</Days>
    <LastDate>2003-06-23</LastDate>
    <StopColumn>
      <Stop StopType="origin">
        <Name>Long Stratton: A140/Brands Lane</Name>
        <NaPTANID>2900L1522</NaPTANID>
      </Stop>
      <Stop>
        <Name>Upper Tasburgh: A140/Little Chef</Name>
        <NaPTANID>2900T021</NaPTANID>
      </Stop>
      <Stop>
        <Name>Saxlingham Thorpe: A140 opp West End PH</Name>
        <NaPTANID>2900S066</NaPTANID>
      </Stop>
      <Stop>
        <Name>Lower Tasburgh: Garage</Name>
      </Stop>
    </StopColumn>
  </Timetable>
</TimetableResponse>
```
<NaPTANID>2900T022</NaPTANID>
</Stop>
<Stop>
   <Name>Flordon: opp Tasburgh Turn</Name>
   <NaPTANID>2900F113</NaPTANID>
</Stop>
<Stop>
   <Name>Newton Flotman: Flordon Road opp Joy Ave</Name>
   <NaPTANID>2900N078</NaPTANID>
</Stop>
<Stop>
   <Name>Newton Flotman: Bus Shelter</Name>
   <NaPTANID>2900N072</NaPTANID>
</Stop>
<Stop
   <Stop StopType="destination">
   <Name>Swainsthorpe: Dun Cow</Name>
   <NaPTANID>2900S631</NaPTANID>
</Stop>
</StopColumn>
<TimeColumn Num="1">
   <Header>
      <ServiceRef>1</ServiceRef>
   </Header>
   <Time TimingInformationPoint="true">06:58:00</Time>
   <NoTime/>
   <NoTime/>
   <NoTime/>
   <Time TimingInformationPoint="true">07:02:00</Time>
   <NoTime/>
   <NoTime/>
   <Time TimingInformationPoint="true">07:04:00</Time>
   <NoTime/>
   <NoTime/>
   <Time TimingInformationPoint="true">07:07:00</Time>
   <NoTime/>
   <NoTime/>
   <Time TimingInformationPoint="true">07:11:00</Time>
   <NoTime/>
   <NoTime/>
   <Time TimingInformationPoint="true">07:13:00</Time>
   <NoTime/>
   <NoTime/>
   <Time TimingInformationPoint="true">07:15:00</Time>
   <NoTime/>
   <NoTime/>
   <Time TimingInformationPoint="true">07:17:00</Time>
</TimeColumn>
<TimeColumn Num="2">
   <Header>
      <ServiceRef>1</ServiceRef>
   </Header>
   <Time TimingInformationPoint="true">07:04:00</Time>
   <NoTime/>
   <NoTime/>
   <NoTime/>
   <Time TimingInformationPoint="true">07:09:00</Time>
   <NoTime/>
   <NoTime/>
   <Time TimingInformationPoint="true">07:10:00</Time>
   <NoTime/>
   <NoTime/>
   <Time TimingInformationPoint="true">07:13:00</Time>
   <NoTime/>
   <NoTime/>
   <Time TimingInformationPoint="true">07:15:00</Time>
   <NoTime/>
   <NoTime/>
   <Time TimingInformationPoint="true">07:17:00</Time>
</TimeColumn>
<TimeColumn Num="3">
   <Header>
      <ServiceRef>1</ServiceRef>
   </Header>
   <Time TimingInformationPoint="true">07:24:00</Time>
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   <NoTime/>
   <Time TimingInformationPoint="true">07:25:00</Time>
   <NoTime/>
   <NoTime/>
   <Time TimingInformationPoint="true">07:28:00</Time>
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   <Time TimingInformationPoint="true">07:36:00</Time>
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<ServiceRef="1" Mode="bus">
  <OperatorCode>EC</OperatorCode>
  <ServiceNumber>18</ServiceNumber>
  <OperatorName>First</OperatorName>
  <Description>Long Stratton – Norwich – Hellesdon – Horsford</Description>
  <FirstDateOfOperation>2003-05-06</FirstDateOfOperation>
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  </DaysOfOperation>
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  <OperatorCode>SIM</OperatorCode>
  <ServiceNumber>1</ServiceNumber>
  <OperatorName>Simonds Coach Travel</OperatorName>
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<ServiceRef="3" Mode="bus">
  <OperatorCode>SIM</OperatorCode>
  <ServiceNumber>2</ServiceNumber>
  <OperatorName>Simonds Coach Travel</OperatorName>
  <Description> Roydon – Diss – Long Stratton – Norwich</Description>
  <FirstDateOfOperation>2003-05-06</FirstDateOfOperation>
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    <NotSchoolHoliday>true</NotSchoolHoliday>
  </DaysOfOperation>
  <DestinationBoard>Roydon to Norwich</DestinationBoard>
  <TimetableLink>
    <PrivateID>665</PrivateID>
    <MatrixDataAvailable>true</MatrixDataAvailable>
  </TimetableLink>
</Service>

B3.4 ServiceTimetable Request (Example 1)
Request ‘Service 2’ operator by SIM direction ‘outbound’.
<ServiceTimetableRequest RequestID="1">
  <TimetableDescriptor>
    <OperatorCode>SIM</OperatorCode>
    <ServiceNumber>2</ServiceNumber>
    <Direction>outbound</Direction>
  </TimetableDescriptor>
</ServiceTimetableRequest>
B4 Stop Event Example

B4.1 StopEventRequest

Request for first five events with different service details.

```xml
<StopEventRequest RequestID="1">
  <NaPTANID>2900L1522</NaPTANID>
  <StartTime>2003-06-26T07:42:00</StartTime>
  <ArrDep>depart</ArrDep>
  <Range>
    <Sequence>5</Sequence>
  </Range>
  <FirstServiceEventOnly>true</FirstServiceEventOnly>
</StopEventRequest>
```

B4.2 StopEventResponse

```xml
<StopEventResponse RequestID="1">
  <Events>
    <Event>
      <Origin TimingInformationPoint="true">
        <Name>Bungay: Earsham Street, North Side</Name>
        <NaPTANID>390062980</NaPTANID>
        <TimetabledDepartureTime>2003-06-26T07:15:00</TimetabledDepartureTime>
      </Origin>
      <Stop TimingInformationPoint="true">
        <Name>Long Stratton: A140/Brands Lane</Name>
        <NaPTANID>2900L1522</NaPTANID>
        <TimetabledArrivalTime>2003-06-26T07:43:00</TimetabledArrivalTime>
        <TimetabledDepartureTime>2003-06-26T07:43:00</TimetabledDepartureTime>
      </Stop>
      <Destination TimingInformationPoint="true">
        <Name>Norwich: Ber Street John Lewis</Name>
        <NaPTANID>2900N1294</NaPTANID>
        <TimetabledArrivalTime>2003-06-26T08:10:00</TimetabledArrivalTime>
      </Destination>
      <ServiceRef>1</ServiceRef>
    </Event>
    <Event>
      <Origin TimingInformationPoint="true">
        <Name>Roydon: Copeman Road</Name>
        <NaPTANID>2900R169</NaPTANID>
        <TimetabledDepartureTime>2003-06-26T07:10:00</TimetabledDepartureTime>
      </Origin>
      <Stop TimingInformationPoint="true">
        <Name>Long Stratton: Manor Road Bus Shelter</Name>
        <NaPTANID>2900L158</NaPTANID>
        <TimetabledDepartureTime>2003-06-26T07:35:00</TimetabledDepartureTime>
      </Stop>
      <Destination TimingInformationPoint="true">
        <Name>Norwich: All Saints Green John Lewis Layby</Name>
        <NaPTANID>2900N1233</NaPTANID>
        <TimetabledArrivalTime>2003-06-26T08:10:00</TimetabledArrivalTime>
      </Destination>
      <ServiceRef>2</ServiceRef>
    </Event>
    <Event>
      <Origin TimingInformationPoint="true">
        <Name>Long Stratton: Manor Road Bus Shelter</Name>
        <NaPTANID>2900L158</NaPTANID>
        <TimetabledDepartureTime>2003-06-26T07:35:00</TimetabledDepartureTime>
      </Origin>
```

```xml
</Events>
</StopEventResponse>
```
<Stop TimingInformationPoint="true">
  <Name>Long Stratton: A140/Brands Lane</Name>
  <NaPTANID>2900L1522</NaPTANID>
  <TimetabledArrivalTime>2003-06-26T07:49:00</TimetabledArrivalTime>
  <TimetabledDepartureTime>2003-06-26T07:49:00</TimetabledDepartureTime>
</Stop>

<Stop TimingInformationPoint="true">
  <Name>Horsford: Olive Crescent</Name>
  <NaPTANID>2900H465</NaPTANID>
  <TimetabledArrivalTime>2003-06-26T09:00:00</TimetabledArrivalTime>
</Stop>

<Event>
  <ServiceRef>3</ServiceRef>
</Event>

<Event>
  <ServiceRef>4</ServiceRef>
</Event>

<Event>
  <ServiceRef>5</ServiceRef>
</Event>

<Event Mode="bus" Ref="1">
  <OperatorCode>AN</OperatorCode>
  <ServiceNumber>003</ServiceNumber>
  <OperatorName>Anglian Coaches</OperatorName>
  <Description>Bungay/Harleston – Pulhams – Norwich</Description>
  <FirstDateOfOperation>2003-05-06</FirstDateOfOperation>
  <DaysOfOperation>MondayToSaturday</DaysOfOperation>
</Event>

<DestinationBoard>Nowich</DestinationBoard>

<TimetableLink>
  <URL>http://www.travelineeastanglia.com/timetables.exe?route=1083</URL>
  <MatrixDataAvailable>true</MatrixDataAvailable>
</TimetableLink>

JourneyWeb-2.4c-draft-23.doc © 2002-2011 Crown Copyright Page 190 of 205
<Service Mode="bus" Ref="2">
  <OperatorCode>Simonds Coach Travel</OperatorCode>
  <ServiceNumber>2</ServiceNumber>
  <OperatorName>Simonds Coach Travel</OperatorName>
  <Description>Roydon – Dissingworth – Long Stratton – Norwich</Description>
  <FirstDateOfOperation>2003-05-06</FirstDateOfOperation>
  <DaysOfOperation>
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  <TimetableLink>
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    <MatrixDataAvailable>true</MatrixDataAvailable>
  </TimetableLink>
</Service>

<Service Mode="bus" Ref="3">
  <OperatorCode>EC Coach Travel</OperatorCode>
  <ServiceNumber>18</ServiceNumber>
  <OperatorName>First</OperatorName>
  <Description>Long Stratton – Norwich – Horsford</Description>
  <FirstDateOfOperation>2003-05-06</FirstDateOfOperation>
  <DaysOfOperation>
    <MondayToSaturday>true</MondayToSaturday>
    <NotSchoolHoliday>true</NotSchoolHoliday>
  </DaysOfOperation>
  <DestinationBoard>Horsford via Norwich</DestinationBoard>
  <TimetableLink>
    <PrivateID>818</PrivateID>
    <MatrixDataAvailable>true</MatrixDataAvailable>
  </TimetableLink>
</Service>

<Service Mode="bus" Ref="4">
  <OperatorCode>Simonds Coach Travel</OperatorCode>
  <ServiceNumber>1</ServiceNumber>
  <OperatorName>Simonds Coach Travel</OperatorName>
  <Description>Dissingworth – Long Stratton – Norwich</Description>
  <FirstDateOfOperation>2003-05-06</FirstDateOfOperation>
  <DaysOfOperation>
    <MondayToSaturday>true</MondayToSaturday>
    <NotSchoolHoliday>true</NotSchoolHoliday>
  </DaysOfOperation>
  <DestinationBoard>Diss to Norwich</DestinationBoard>
  <TimetableLink>
    <PrivateID>658</PrivateID>
    <MatrixDataAvailable>true</MatrixDataAvailable>
  </TimetableLink>
</Service>

<Service Mode="bus" Ref="5">
  <OperatorCode>Simonds Coach Travel</OperatorCode>
  <ServiceNumber>802</ServiceNumber>
  <OperatorName>Simonds Coach Travel</OperatorName>
  <Description>Long Stratton – Wymondham</Description>
  <FirstDateOfOperation>2003-05-06</FirstDateOfOperation>
  <DaysOfOperation>
    <MondayToSaturday>true</MondayToSaturday>
    <NotSchoolHoliday>true</NotSchoolHoliday>
  </DaysOfOperation>
  <DestinationBoard>Wymondham</DestinationBoard>
  <TimetableLink>
    <PrivateID>1139</PrivateID>
    <MatrixDataAvailable>true</MatrixDataAvailable>
  </TimetableLink>
</Service>
B5. Services Example

B5.1 ServicesRequest

Ask for all service which exactly match X95

```xml
<ServicesRequest RequestID="1">
  <ServiceNumber BeginWith="false">X95</ServiceNumber>
</ServicesRequest>

B5.2 ServicesResponse

```xml
<Service Mode="bus">
  <OperatorCode>EC</OperatorCode>
  <ServiceNumber>X95</ServiceNumber>
</Service>
```

B6. Operator Example

B6.1 OperatorRequest

Get all supported ferry operators.

```xml
<OperatorsRequest RequestID="1">
  <Modes Exclude="false">
    <Mode Mode="ferry"/>
  </Modes>
</OperatorsRequest>

B6.2 OperatorsResponse
<OperatorsResponse RequestID="1">
  <Operators>
    <Operator Mode="ferry">
      <Code>SL</Code>
      <Name>Shipping Link</Name>
    </Operator>
    <Operator Mode="ferry">
      <Code>WB</Code>
      <Name>Wales and Borders</Name>
    </Operator>
  </Operators>
</OperatorsResponse>
### ANNEX C Glossary

<table>
<thead>
<tr>
<th><strong>Local Journey Planner</strong></th>
<th>An instance of a journey planning engine with knowledge of its own region that is serving journey planning enquiries made by an end-user. The local journey planner can send <em>JourneyWeb</em> requests to other remote journey planners to service enquiries about journeys to regions not within its own coverage.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Remote Journey Planner</strong></td>
<td>A journey planning system and software that is responding to <em>JourneyWeb</em> requests from a local Journey planner.</td>
</tr>
<tr>
<td><strong>National Gazetteer (NPTG)</strong></td>
<td>A UK national gazetteer of topographical localities (cities through to hamlets). It contains a list of localities with national IDs and a list of exchange points (see below) for each of the localities.</td>
</tr>
<tr>
<td><strong>National Gazetteer Locality</strong></td>
<td>A locality in the national gazetteer represented by a national ID.</td>
</tr>
<tr>
<td><strong>National Public Transport Access Nodes (NaPTAN)</strong></td>
<td>A national database of all public transport access points in the country. Each node in the database has a unique ID.</td>
</tr>
<tr>
<td><strong>Local Locality</strong></td>
<td>A locality selected from the national gazetteer that is known to the local journey planner and can be routed to/from without using <em>JourneyWeb</em>.</td>
</tr>
<tr>
<td><strong>Remote Locality</strong></td>
<td>A locality lying in the principal area served by a remote journey planner.</td>
</tr>
<tr>
<td><strong>Local Stop</strong></td>
<td>A physical stop in the Local Journey Planner represented by an ID that only has a meaning with the Local Journey Planner.</td>
</tr>
<tr>
<td><strong>Remote Stop</strong></td>
<td>A physical stop that is not in the Local Journey Planner represented by an ID that has no meaning to the Local Journey Planner.</td>
</tr>
<tr>
<td><strong>National Exchange Point</strong></td>
<td>A physical stop on the trunk network (currently a rail station or a coach stop) represented by a National Gazetteer ID.</td>
</tr>
<tr>
<td><strong>Adjacent-Region Exchange Point (AREP)</strong></td>
<td>A physical stop on the local public transport network that lies close to the border between adjacent regions, on one side or other of the boundary, that the neighbouring regions have agreed shall be used as an Exchange Point for planning inter-regional journeys.</td>
</tr>
<tr>
<td><strong>Schema</strong></td>
<td>An XML Schema describes the precise structural rules for XML documents containing content tagged as structured messages, thus allowing content to be readily exchanged between computer systems. Specifically a Schema defines the allowed data types and constraints on their combination. Constraints include the acceptable hierarchy, order, participation condition and cardinality of data elements, attributes and entities.</td>
</tr>
<tr>
<td><strong>Protocol</strong></td>
<td>An agreement for the conduct of an interaction between two parties, in the case of <em>JourneyWeb</em>; the rules for two servers to exchange journey planning travel information as http messages that exchange XML documents.</td>
</tr>
<tr>
<td><strong>Journey Planning Engine</strong></td>
<td>A software program which uses an algorithm (or other processes) to calculate journeys from a database of timetabled services to meet the specified criteria of a journey plan enquiry from an end-user.</td>
</tr>
</tbody>
</table>
ANNEX D REFERENCES

D.1 Transport Domain

D.1.1 TransXChange

TransXChange is a UK Department for Transport sponsored protocol which defines a national data standard for the interchange of bus route registration, route and timetable information between operators, the Traffic Area Offices, Local Authorities and Passenger Transport Executives, and Traveline – the National Passenger Transport Information System.

http://www.transxchange.dft.gov.uk/

<table>
<thead>
<tr>
<th>Version</th>
<th>Document Title</th>
<th>Date</th>
<th>Authors</th>
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<tbody>
<tr>
<td>V2.4</td>
<td>TransXChange Schema Guide v2.4</td>
<td>2010 April</td>
<td>Kizoom &amp; Centaur</td>
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<td>V1</td>
<td>TRANSXCHANGE STYLESHEET PROJECT. Schemas</td>
<td>2001 Jun 5</td>
<td>Ross Dixon, CGEY</td>
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<td></td>
<td>SCHEMA (V 1.2) USER GUIDE</td>
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D.1.2 NPTG NaPTAN

National Public Transport Gazetteer (NPTG) seeks to assemble and maintain a single source of information on the settlements in Great Britain relevant for public transport information services.

National Public Transport Access Nodes (NaPTAN) Database. NaPTAN seeks to assemble and maintain a single source of information on the location and naming of bus stops and other public transport access nodes in England, Wales and Scotland.

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<td>NPTG &amp; NaPTAN Schema Guide v2.0</td>
<td>2004 Dec</td>
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[Links to related documents and websites provided for reference]
D.2 Software & General

D.2.1 XML Schema

http://www.w3.org/XML/Schema

<table>
<thead>
<tr>
<th>XML Schema Part 0: Primer</th>
<th>2001 May 2</th>
<th>David C. Fallside</th>
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<td><a href="http://www.w3.org/TR/2001/REC-xmlschema-0-20010502/">http://www.w3.org/TR/2001/REC-xmlschema-0-20010502/</a></td>
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<th>XML Schema Part 2: Datatypes</th>
<th>2001 May 2</th>
<th>Paul V. Biron and Ashok Malhotra</th>
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<td><a href="http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/">http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/</a></td>
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D.2.2 ISO Time Formats

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<th>2001 May 2</th>
<th>W3C Various</th>
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| ISO8601:2000(E) | 2000 Dec 15 | Louis Visser |

D.2.3 WGS 1984 Location Referencing

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<th>World Geodetic Standard 1984</th>
<th>W3C Various</th>
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<td><a href="http://www.wgs84.com/">http://www.wgs84.com/</a></td>
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D.2.4 ISO 639-1 Names of Languages

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<td><a href="http://www.oasis-open.org/cover/iso639a.html">http://www.oasis-open.org/cover/iso639a.html</a></td>
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D.2.5 Rfc 1766 Tags for the Identification of Languages

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D.2.6 GovTalk XML Coding Standards

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<th>V2</th>
<th>2003 Dec 08</th>
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<td>e-Government Metadata Standard e-GMS Version 2.0: with XML syntax</td>
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<th>Paul Spencer</th>
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<td>Office of the e-Envoy Schema Guidelines Best Practice Advice Version 2</td>
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D.2.7 Rfc 1766 Tags for the Identification of Languages

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ANNEX E Transport Submodes

E1 Transport Submodes

The Submode can specify an additional classification of the service within a mode.

The submodes are based on the values from the CEN TPEG Tables for TPEG-LOC & TPEG-PTI, as also used in SIRI-SX. Only a subset of values is used. Values shown in bold are relevant for JourneyWeb

E.1 AirSubmode (TPEG Pti08 air_type, Loc15/air link)

<table>
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<th>Value</th>
<th>Description</th>
<th>Pti 8</th>
<th>Loc 15</th>
<th>Comment</th>
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<td>unknown</td>
<td>unknown</td>
<td>0</td>
<td>0</td>
<td>Not used</td>
</tr>
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<td>undefined</td>
<td>undefined</td>
<td>255</td>
<td>255</td>
<td>Not used</td>
</tr>
<tr>
<td>internationalFlight</td>
<td>internationalFlight</td>
<td>1</td>
<td>2</td>
<td>Flights to or from non-UK airports. Heathrow to Paris</td>
</tr>
<tr>
<td>domesticFlight</td>
<td>domesticFlight</td>
<td>2</td>
<td>(4)</td>
<td>Flights internal to UK. Scottish Islands, London to Glasgow.</td>
</tr>
<tr>
<td>intercontinentalFlight</td>
<td>intercontinentalFligh</td>
<td>3</td>
<td>1</td>
<td>Not used</td>
</tr>
<tr>
<td>domesticScheduledFlight</td>
<td>domesticScheduledFlight</td>
<td>4</td>
<td>4</td>
<td>Not used</td>
</tr>
<tr>
<td>shuttleFlight</td>
<td>shuttleFlight</td>
<td>5</td>
<td>9</td>
<td>Not used</td>
</tr>
<tr>
<td>internationalCharterFlight</td>
<td>internationalCharterFlight</td>
<td>6</td>
<td>5</td>
<td>Not used</td>
</tr>
<tr>
<td>round-tripCharterFlight</td>
<td>round-tripCharterFlight</td>
<td>8</td>
<td>(6)</td>
<td>Not used</td>
</tr>
<tr>
<td>sightseeingFlight</td>
<td>sightseeingFlight</td>
<td>9</td>
<td>8</td>
<td>Not used</td>
</tr>
<tr>
<td>helicopterService</td>
<td>helicopterService</td>
<td>10</td>
<td>10</td>
<td>Helicopter flights internal to UK. Penzance to St, Mary’s and Tresco</td>
</tr>
<tr>
<td>domesticCharterFlight</td>
<td>domesticCharterFlight</td>
<td>11</td>
<td>7</td>
<td>Not used</td>
</tr>
<tr>
<td>SchengenAreaFlight</td>
<td>SchengenAreaFlight</td>
<td>12</td>
<td>(2)</td>
<td>Not used</td>
</tr>
<tr>
<td>airshipService</td>
<td>airshipService</td>
<td>13</td>
<td>(255)</td>
<td>Not used</td>
</tr>
<tr>
<td>allAirServices</td>
<td>allAirServices</td>
<td>14</td>
<td></td>
<td>Not used</td>
</tr>
<tr>
<td>shortHaulInternationalFlight</td>
<td>shortHaulInternationalFlight</td>
<td>1</td>
<td>3</td>
<td>Not used</td>
</tr>
</tbody>
</table>

Table 0-1 – Allowed Values for AirSubmode (TPEG Pti08)

E.7 WaterSubmode (TPEG Pti07 WaterTransportType)

<table>
<thead>
<tr>
<th>VALUE</th>
<th>Description</th>
<th>Pti7</th>
<th>Loc 15</th>
<th>Datex2</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>Unknown</td>
<td>0</td>
<td>0</td>
<td></td>
<td>Not used</td>
</tr>
<tr>
<td>Undefined</td>
<td>Undefined</td>
<td>255</td>
<td>255</td>
<td></td>
<td>Not used</td>
</tr>
<tr>
<td>internationalCarFerry</td>
<td>International Car Ferry</td>
<td>1</td>
<td>8</td>
<td>ferry</td>
<td>Not used. Irish ferries (for example) will be CAR &amp; PASSENGER FERRY.</td>
</tr>
<tr>
<td>nationalCarFerry</td>
<td>National Car Ferry</td>
<td>2</td>
<td>7</td>
<td>ferry</td>
<td>CAR &amp; PASSENGER FERRY Ferries that convey passengers and cars.</td>
</tr>
</tbody>
</table>
### Table 0-2 – Allowed Values for WaterSubmode (TPEG Pti07)

#### E.5 RailSubmode (TPEG Pti02 railway_type)

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Pti 02</th>
<th>Loc 13</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>undefined</td>
<td>Undefined</td>
<td>255</td>
<td>255</td>
<td>Not used</td>
</tr>
<tr>
<td>unknown</td>
<td>Unknown</td>
<td>0</td>
<td>00</td>
<td>Not used</td>
</tr>
<tr>
<td>highSpeedRail</td>
<td>High Speed Rail</td>
<td>1</td>
<td>--</td>
<td>Not used</td>
</tr>
<tr>
<td>longDistanceTrain</td>
<td>Long Distance Train</td>
<td>2</td>
<td>03</td>
<td>All National Rail services. Franchised operations, Open-access operations</td>
</tr>
<tr>
<td>interRegionalRail</td>
<td>Inter Regional Rail</td>
<td>3</td>
<td>02</td>
<td>Not used</td>
</tr>
<tr>
<td>carTransportRail</td>
<td>Car Transport Rail</td>
<td>4</td>
<td>--</td>
<td>Not used; JW note will cover car carrying facilities available on board.</td>
</tr>
<tr>
<td>sleeperRail</td>
<td>Sleeper Rail</td>
<td>5</td>
<td>--</td>
<td>Not used; JW note will cover sleeper facilities available on board.</td>
</tr>
<tr>
<td>regionalRail</td>
<td>Regional Rail</td>
<td>6</td>
<td>04</td>
<td>Not used</td>
</tr>
</tbody>
</table>
### touristRailway
Tourist Railway 7 07
- HERITAGE RAILWAY
  - Services that are not National Services.
  - Bluebell Railway, Talyllyn Railway, Snowdon Mountain Railway.
  - Local Sub Mode may be used for railways that are set up as Community Railways
  - Weardale Railway, Wensleydale Railway

### railShuttle
Rail Shuttle 8 -- Not used

### suburbanRailway
Suburban Railway 9 05 Not used

### replacementRail
Replacement Rail 10 -- Bus service as a substitute for rail services because of engineering works or long term closures.
  - Alternatively the Rail Sub Mode replacementBus can be used.

### specialTrainService
Special Train Service 11 -- Not used

### lorryTransportRail
Lorry Transport Rail 12 -- Not used

### crossCountryRail
Cross Country Rail 14 -- Not used

### vehicleRailTransport
Vehicle Rail Transport 15 -- Not used

### rackAndPinionRailway
Rack and Pinion Railway 16 08 Not used. The Snowdon Mountain Railway will be HERITAGE RAILWAY (q.v.)

### additionalTrain
Additional Train 17 Not used

### local
Local (3) 06
- Services that are not National Services and that are set up as Community rather than Heritage Railways. Alternatively touristRailway Sub Mode may be used
  - Weardale Railway, Wensleydale Railway, Dartmoor Railway

### international
International (9) 01 Not used. Eurostar services will be RAIL.

### allRailServices
All Rail Services 13 -- Not used

---

**Table 0-3 – Allowed Values for RailSubmode (TPEG Pti02)**

E.4 MetroSubmode (TPEG Pti04 urban_railway_type / Loc11 metro rail link)

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Pti04</th>
<th>Loc11</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>unknown</td>
<td>Unknown</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>undefined</td>
<td>Undefined</td>
<td>255</td>
<td>255</td>
<td></td>
</tr>
</tbody>
</table>
| metro        | metro                                | 1     | 3     | Any tram, metro or light rail service. Must be a service other than National Rail. Does not include any heavy rail services (such as Heritage or Tourist Railways). TRAM/LIGHT RAIL is an alternative and the decision as to which should be used may be driven by the system name.
  - Blackpool Tramway, Tyne & Wear Metro, Docklands Light Railway, Croydon Tramlink, Gatwick Airport Shuttle, Manchester Metrolink, Midland Metro, Nottingham Express Transit, Birmingham Airport Shuttle, Sheffield SupertramMETRO

Any tram, metro or light rail service. Must be a service other than National Rail. Does not include any heavy rail services.
(such as Heritage or Tourist Railways). TRAM/LIGHT RAIL is an alternative and the decision as to which should be used may be driven by the system name (e.g. Blackpool Tramway, Tyne & Wear Metro, Docklands Light Railway).

**Table 0-4 – Allowed Values for MetroSubmode (TPEG Pti04)**

<table>
<thead>
<tr>
<th>E.6 TramSubmodel (TPEG Pti06)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VALUE</td>
</tr>
<tr>
<td>unknown</td>
</tr>
<tr>
<td>Undefined</td>
</tr>
<tr>
<td>cityTram</td>
</tr>
<tr>
<td>localTram</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>regionalTram</td>
</tr>
<tr>
<td>sightseeingTram</td>
</tr>
<tr>
<td>shuttleTram</td>
</tr>
<tr>
<td>allTramServices</td>
</tr>
</tbody>
</table>

**Table 0-5 – Allowed Values for BusSubmode (TPEG Pti05)**

<table>
<thead>
<tr>
<th>E.2 BusSubmode (TPEG Pti05 bus_type, Loc10/bus type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VALUE</td>
</tr>
<tr>
<td>unknown</td>
</tr>
<tr>
<td>Undefined</td>
</tr>
<tr>
<td>shuttleTram</td>
</tr>
<tr>
<td>allBusServices</td>
</tr>
<tr>
<td>Value</td>
</tr>
<tr>
<td>------------------------------</td>
</tr>
<tr>
<td>unknown</td>
</tr>
<tr>
<td>undefined</td>
</tr>
<tr>
<td>regionalBus</td>
</tr>
<tr>
<td>expressBus</td>
</tr>
<tr>
<td><strong>bus</strong></td>
</tr>
<tr>
<td>localBus</td>
</tr>
<tr>
<td>nightBus</td>
</tr>
<tr>
<td>postBus</td>
</tr>
<tr>
<td>specialNeedsBus</td>
</tr>
<tr>
<td>mobilityBus</td>
</tr>
<tr>
<td><strong>mobilityBusForRegistered Disabled</strong></td>
</tr>
<tr>
<td>sightseeingBus</td>
</tr>
<tr>
<td>shuttleBus</td>
</tr>
<tr>
<td>schoolBus</td>
</tr>
<tr>
<td>schoolAndPublicBus</td>
</tr>
<tr>
<td>railReplacementBus</td>
</tr>
<tr>
<td>demandAndResponseBus</td>
</tr>
<tr>
<td>allBusServices</td>
</tr>
<tr>
<td>airportLinkBus</td>
</tr>
</tbody>
</table>

Table 0-6 – Allowed Values for BusSubmode (TPEG Pti05)

E.3 CoachSubmode (TPEG Pti03 coach_type)

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Pti 03</th>
<th>Loc</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>unknown</td>
<td>Unknown Coach Type</td>
<td>0</td>
<td></td>
<td>Not used</td>
</tr>
<tr>
<td>undefined</td>
<td>Undefined Coach</td>
<td>255</td>
<td></td>
<td>Not used</td>
</tr>
<tr>
<td>internationalCoach</td>
<td>International Coach</td>
<td>1</td>
<td></td>
<td>Not used</td>
</tr>
<tr>
<td>nationalCoach</td>
<td>National Coach</td>
<td>2</td>
<td></td>
<td><strong>COACH</strong> Coach services i.e. service on which a place must be reserved although other long distance services that operate as a local bus service for part of the route may be included. National Express, Megabus, Scottish Citylink.</td>
</tr>
<tr>
<td>shuttleCoach</td>
<td>Shuttle Coach</td>
<td>3</td>
<td></td>
<td>Not used</td>
</tr>
<tr>
<td>regionalCoach</td>
<td>Regional Coach</td>
<td>4</td>
<td></td>
<td>Not used</td>
</tr>
<tr>
<td>specialCoach</td>
<td>Special Coach</td>
<td>5</td>
<td></td>
<td>Not used</td>
</tr>
<tr>
<td>sightseeingCoach</td>
<td>Sightseeing Coach</td>
<td>6</td>
<td></td>
<td>Not used</td>
</tr>
<tr>
<td>touristCoach</td>
<td>Tourist Coach</td>
<td>7</td>
<td></td>
<td>Not used</td>
</tr>
<tr>
<td>commuterCoach</td>
<td>Commuter Coach</td>
<td>8</td>
<td></td>
<td>Not used</td>
</tr>
</tbody>
</table>
### Table 0-7 – Allowed Values for CoachSubmode (TPEG Pti03)

<table>
<thead>
<tr>
<th>VALUE</th>
<th>Description</th>
<th>Pti 9</th>
<th>Pti 10</th>
<th>Loc 14</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>unknown</td>
<td>Unknown</td>
<td>0</td>
<td>0</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>undefined</td>
<td>Undefined Telecabin Type</td>
<td>255</td>
<td>255</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>telecabin</td>
<td>Telecabin Service</td>
<td>1</td>
<td>1</td>
<td></td>
<td>Middlesbrough Transporter Bridge</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Newport Transporter Bridge Thames Cable Car,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Heights of Abraham Cable Car, Great Orme Cable</td>
</tr>
<tr>
<td>cableCar</td>
<td>Cable Car Service</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>elevator</td>
<td>Elevator Service</td>
<td>3</td>
<td>4</td>
<td>Not used</td>
<td>Not used; cliff lifts will be mode TRAM</td>
</tr>
<tr>
<td>chairLift</td>
<td>Chair lift Service</td>
<td>4</td>
<td>5</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>dragLift</td>
<td>Drag Lift Service</td>
<td>5</td>
<td>6</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>smallTelecabin</td>
<td>Small Telecabin Service</td>
<td>6</td>
<td>Not used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>funicular</td>
<td>funicular</td>
<td>2</td>
<td>2</td>
<td>Not used</td>
<td>Use TRAM.</td>
</tr>
<tr>
<td>eggLift</td>
<td>Egg Lift</td>
<td>7</td>
<td>Not used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MineralBuckets</td>
<td>Mineral Buckets</td>
<td>8</td>
<td>Not used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>transporterBridge</td>
<td>Transporter Bridge</td>
<td>--</td>
<td>--</td>
<td>transporterBridge</td>
<td></td>
</tr>
<tr>
<td>allTelecabinServices</td>
<td>All Telecabin Services</td>
<td>7</td>
<td>Not used</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 0-8 – Allowed Values for TeleCabinSubmode (TPEG Pti11)

<table>
<thead>
<tr>
<th>VALUE</th>
<th>Description</th>
<th>Pti 11</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>unknown</td>
<td>Unknown</td>
<td>0</td>
<td>Not used</td>
</tr>
<tr>
<td>undefined</td>
<td>Undefined Taxi Service</td>
<td>255</td>
<td>Not used</td>
</tr>
<tr>
<td>communalTaxi</td>
<td>Communal Taxi Service</td>
<td>1</td>
<td>Not used</td>
</tr>
<tr>
<td>waterTaxi</td>
<td>Water Taxi Service</td>
<td>2</td>
<td>Not used</td>
</tr>
<tr>
<td>railTaxi</td>
<td>Rail Taxi Service</td>
<td>3</td>
<td>Not used</td>
</tr>
<tr>
<td>bikeTaxi</td>
<td>Bike Taxi Service</td>
<td>4</td>
<td>Rickshaw taxis</td>
</tr>
<tr>
<td>licensedTaxi</td>
<td>Licensed Taxi Service</td>
<td>5</td>
<td>TAXI Used for all instances of Taxi.</td>
</tr>
<tr>
<td>privateHireVehicle</td>
<td>Private Hire Vehicle Service</td>
<td>6</td>
<td>Not used</td>
</tr>
<tr>
<td>allTaxis</td>
<td>All Taxi Services</td>
<td>7</td>
<td>Not used</td>
</tr>
</tbody>
</table>

### Table 0-9 – Allowed Values for TaxiSubmode (TPEG Pti08)

<table>
<thead>
<tr>
<th>VALUE</th>
<th>Description</th>
<th>Pti 12</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>unknown</td>
<td>Unknown</td>
<td>0</td>
<td>Not used</td>
</tr>
<tr>
<td>undefined</td>
<td>Undefined Self Drive Service</td>
<td>255</td>
<td>Not used</td>
</tr>
<tr>
<td>hireCar</td>
<td>Hire Car</td>
<td>1</td>
<td>HIRE CAR Used when the only option to complete a journey is car hire</td>
</tr>
<tr>
<td>hireVan</td>
<td>Hire Van</td>
<td>2</td>
<td>Not used</td>
</tr>
<tr>
<td>hireMotorbike</td>
<td>Hire Motorbike</td>
<td>3</td>
<td>Not used</td>
</tr>
<tr>
<td>hireCycle</td>
<td>Hire Cycle</td>
<td>4</td>
<td>HIRE CYCLE Used when the only option to complete a journey is cycle hire</td>
</tr>
<tr>
<td>allSelfDriveVehicles</td>
<td>All Self Drive Vehicles</td>
<td>5</td>
<td>Not used</td>
</tr>
</tbody>
</table>

### Table 0-10 – Allowed Values for SelfDriveSubmode (TPEG Pti12)