Department for Transport

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

Protocol & Schema Guide

HTTP://WWW.DFT.GOV.UK/JOURNEYWEB

HTTP://WWW.JOURNEYWEB.ORG.UK

JourneyWeb v2.5

Version History

Schema	Document	Version	Date	Author	Audience
2.0.0		2.0 Guide	2003.07.07	Richard A Shaw Atkins	Released
2.1.0c		2.2 Guide	2004.12.01	Nick Knowles, Kizoom	Released
3.0b	3.0b -	Consultation draft version2 (Deprecated)	2003.12	Nick Knowles	draft
2.4a	2.4a -	Consultation draft version2	2010.05	Nick Knowles	draft
2.4a	2.4a - V0.05.	Consultation draft version2	2010.05	Nick Knowles	draft
2.4a	2.4a-V0.05-rs	RS & JSC comments	2010.06.25	Roger Slevin	draft
2.4a	2.4a - V0.11.	Corrected with RS & JSC comments and further additions	2010.07.25	Nick Knowles	draft
2.4b	2.4b - V0.14.	Revised with further additions forKIs	2010.10.08	Nick Knowles	review
2.4b	2.4b - V0.17.	Revised with further additions for KIs and other requirements	2010.10.19	Nick Knowles	review
2.4b	2.4b - V0.18.	Revise submodes and accessibility request. Drop chapter 4	2010.12.01	Nick Knowles	review
2.4b	2.4b - V0.19	Tidy up, add submode table	2011.01.05	Nick Knowles	review
2.4b	2.4b - V0.20	Update check constraint values	2011.02.14	Nick Knowles	review
2.4c	2.4c - V0.21	Minor updates. Add routing rules	2011.08.19	Nick Knowles	review
2.4c	2.4c - V0.22	Minor corrections.	2011.11.14	Nick Knowles	review
2.5a	2.5- V0.24	Add accessibility	2013.03.19	Nick Knowles	review
2.5b	2.5- V0.25	Address review points	2013.05.14	Nick Knowles	review
2.5	2.5- V0.26	Address review points	2013.10.02	Nick Knowles	review

This document has been produced by Kizoom for the UK Department for Transport.

Prepared By:

NicholasKnowles

http://www.Trapezegroup.co.uk
Email: schemer@journeyweb.org.uk

Prepared For:

transport direct.info
Connecting People to Places

Transport Direct, Department for Transport
2/17 Great Minster House,
33 Horseferry Road,
London, SW1P 4DR

Contents

List of Tables

List of Figures

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* 2.5 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.
- A revised version of the *JourneyWeb* protocol (v2.4c), developed in 2010, added 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 diag
- A revised version of the *JourneyWeb* protocol (v2.5), developed in 2013, made further small revisions to the accessibility capabilities

1.2 JourneyWeb

1.2.1 JourneyWeb Version v2.5 Enhancements

Version v2.5 of *JourneyWeb* has the following small revisions:

- **Accessibility**: Support additional accessiblity parameters on the Journeys request and on the results.
  - On JOURNEYS Request: Add Mobility Need to ***AccessibilityOptions***, this allows user to specify wheelchair, mobility scooters and guidedogs allowed as parameters on request
  - On JOURNEYS Response: Add values to ***AssistanceService*** in Service,
    i. ***AccessibilityAvailability*** to specify if assistance service needs booking, etc.

- Journeys Response: Add values to ***AccessVehicleEquipment*** in .

- ***SuitableFor*** Add to specify which types of wheelchair suitable for Wheelchair, mobilityScooter, roadMobilityScooter, etc. (as per NeTEx).
- ***Hoist***, If available. (s per NeTEx).
- ***AssistanceNeeded*** Nature of assistance needed to board. (as per NeTEx).
- ***AssistedBoardingLocation***: Whether boarding has to be done at a specific position on the platform (as per NeTEx).. See Table 6 32.
- ***GuideDogsAllowed*** Whether guide dogs are allowed (as per NeTEx).
  - Journeys Response: Accessibility enhancement - add values to ***WheelchairEquipment***.
- ***SuitableFor*** Add to specify which types of wheelchair suitable for Wheelchair, mobilityScooter, roadMobilityScooter, etc.
  - Journeys Response ***PlaceAccessibility***.
- Add ***AccessVehicleEquipment*** element (as per NeTEx). Allows values on a particular visit to be overridden. E.g. if hoist cannot be used, boarding point to platform is different etc. (as per NeTEx).
  - Journeys Response: –***ReturnedSite***
- Add ***Notice*** to allow notices on stops.
- Add ***AssistanceService*** and ***SanitaryFacility*** for individual stop (as per NeTEx).
- **Notice**: Include SIRI-SX report type.
  - Journeys Response: Add values to ***ServiceResponse***.
- Add ***ServiceName*** to specify a special name for the service.
- Add ***Branding*** to specify a brand name for the service.
- Add ***ServiceFacilitySet:*** to specify on board facilities (Subset of NeTEx).

1.2.2 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

The *JourneyWeb* XML schema and documentation is Crown Copyright, managed by the UK Department for Transport. The *JourneyWeb* Schema and documentation may be used without charge under a perpetual, non-exclusive, non-transferable, royalty-free Licence. See the *JourneyWeb* site for Terms & Conditions of use.

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 ***JourneysRequest*** element. XML Attributes are shown in bold, for example **StartDate**.

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 Guide Section 4. For further details see the NaPTAN guide.
- UK **Geocoding** references: *JourneyWeb* uses OS Easting & Northings 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.

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

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.

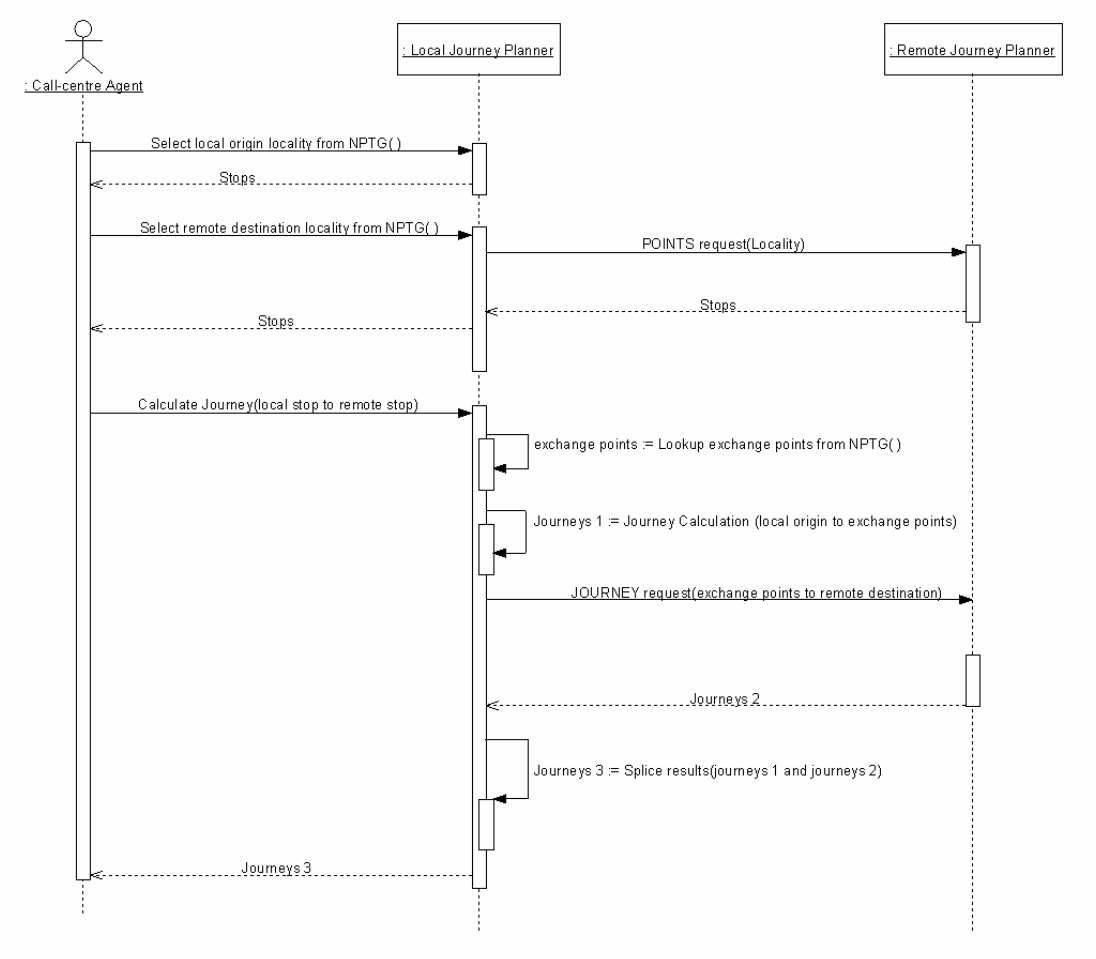


Figure 3-1 – Overview of Journey Request

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.
- S**cenario 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:

Call Centre Agent	Journey Planner Software
Enters Origin of Kings Lynn	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.
Selects a stop from the list	
Enters Destination of Elgin	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.
Selects a stop from the list	
Presses Calculate Journey	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.

Reads the results to the caller	

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.

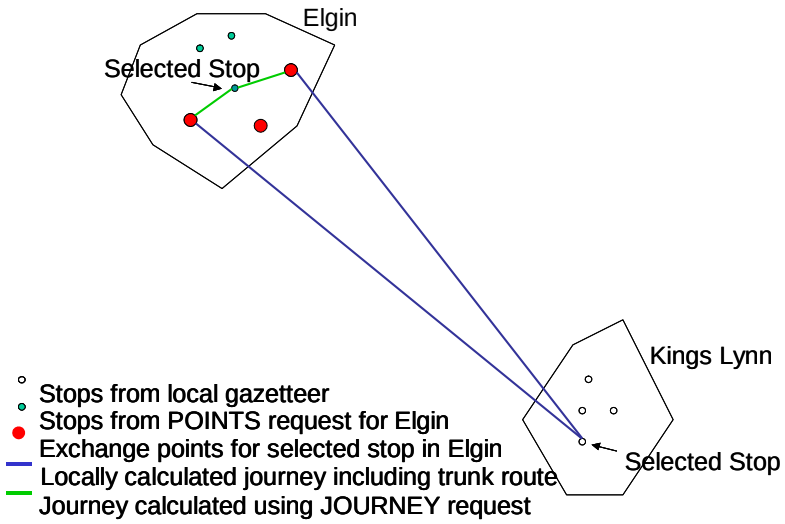


Figure 3-2 – Example Scenario 1: Local Stop to Remote Stop

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:

Call Centre Agent	Journey Planner Software
Enters Origin of Kings Lynn	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.
Selects a stop from the list	
Enters Destination of Elgin	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.
Ignores the stops and selects Elgin	
Presses Calculate Journey	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. Looks up the national exchange points from NPTG for the remote stop. 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.
Reads the results to the caller	

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:

Call Centre Agent	Journey Planner Software
Enters Origin of Tenby	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.
Selects a stop from the list	
Enters Destination of Swansea	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.
Selects a stop from the list	
Presses Calculate Journey	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.
Reads the results to the caller	

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:

Call Centre Agent	Journey Planner Software
Enters Origin of Kings Lynn	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.
Selects a stop from the list	
Enters Destination of Colchester	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.
Selects a stop from the list	
Presses Calculate Journey	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.
Reads the results to the caller	

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:

Call Centre Agent	Journey Planner Software
Enters Origin of Kings Lynn	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.
Selects a stop from the list	
Enters Destination of Colchester	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.
Selects a stop from the list	
Presses Calculate Journey	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.
Reads the results to the caller	

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.

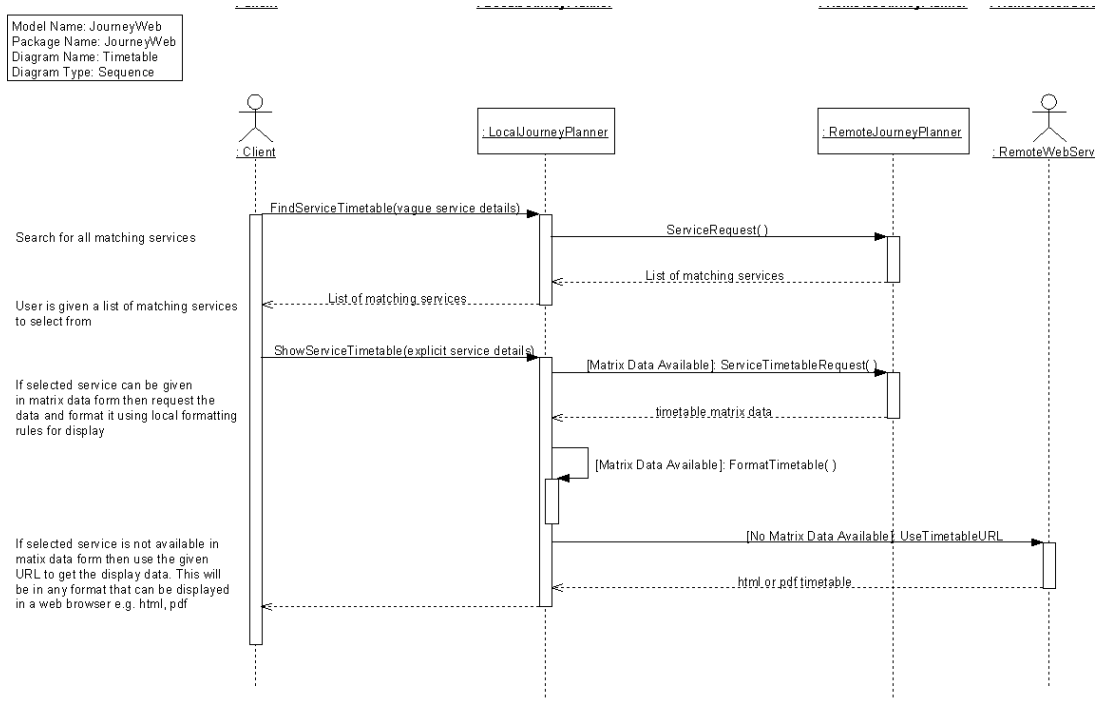


Figure 3-3 – Service Timetable Request

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.

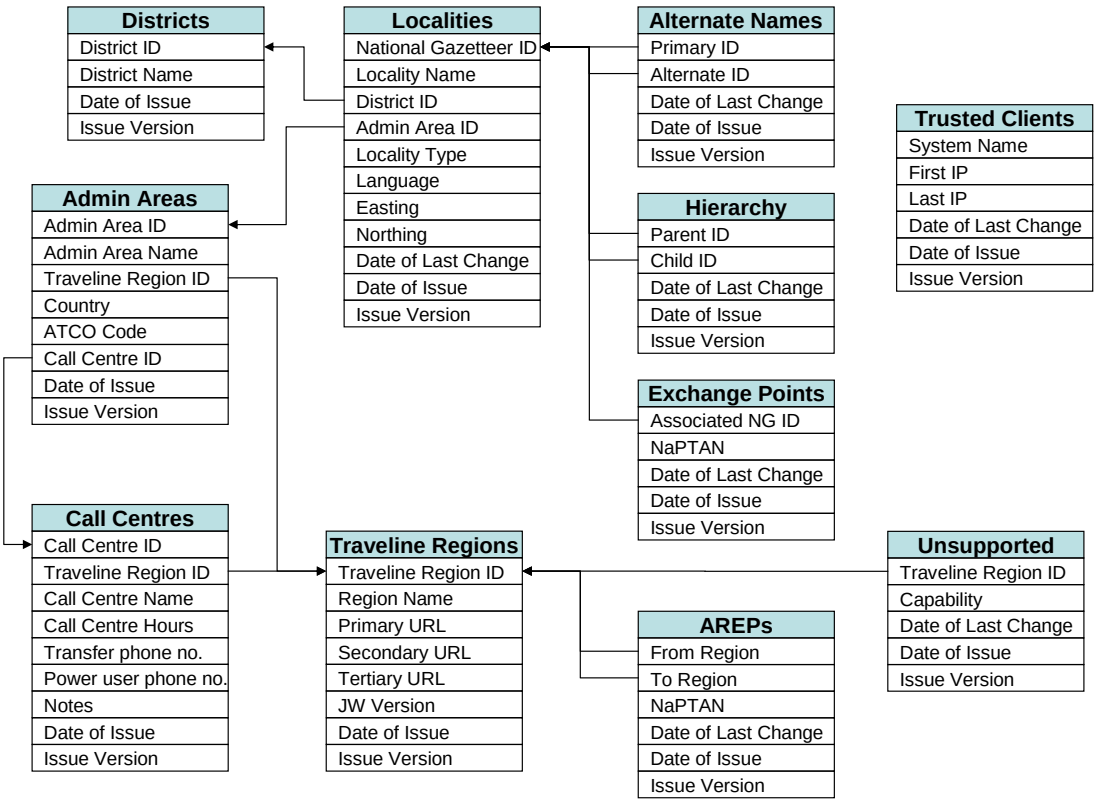


Figure 4-1 – National Gazetteer Tables (2.1)

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.

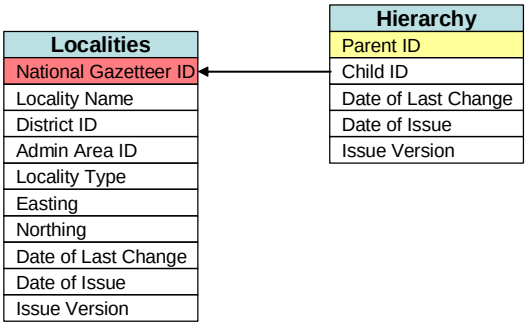


Figure 4-2 – Extracting Locality Parents

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.

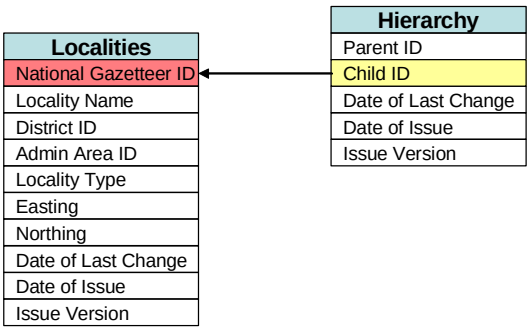


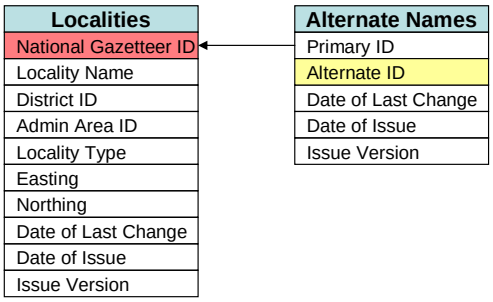
Figure 4-3 – Extracting Locality Children

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.

Figure 4-4 – Extracting Locality Alternate Names



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.

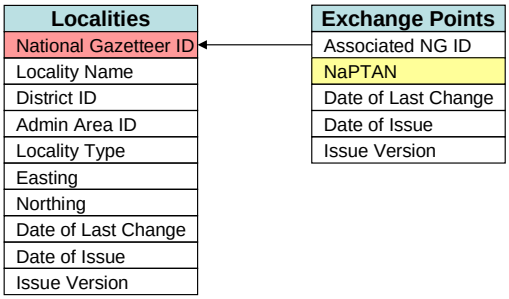


Figure 4-5 – Extracting Exchange Points

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.

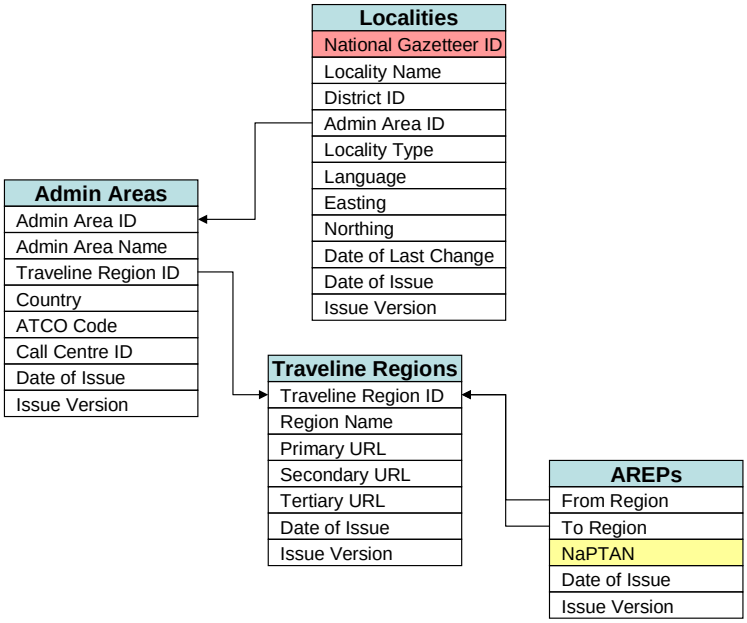


Figure 4-6 – Extracting Adjacent Region Exchange Points

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.

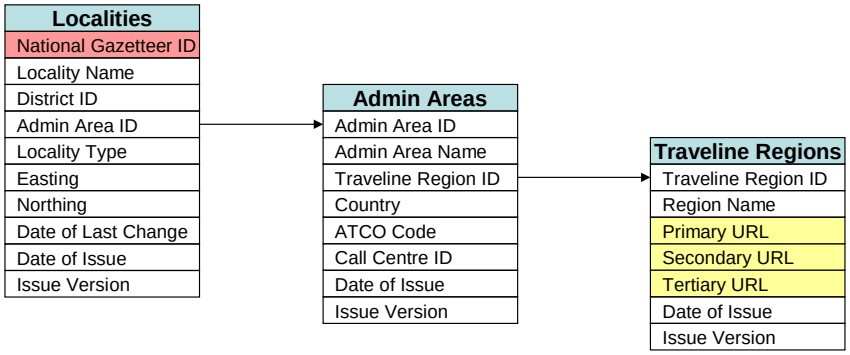


Figure 4-7 – Extracting Remote Journey Planner URL Examples

5. JourneyWeb Schema

5.1 Introduction

This section gives details of how to use the *JourneyWeb* 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.

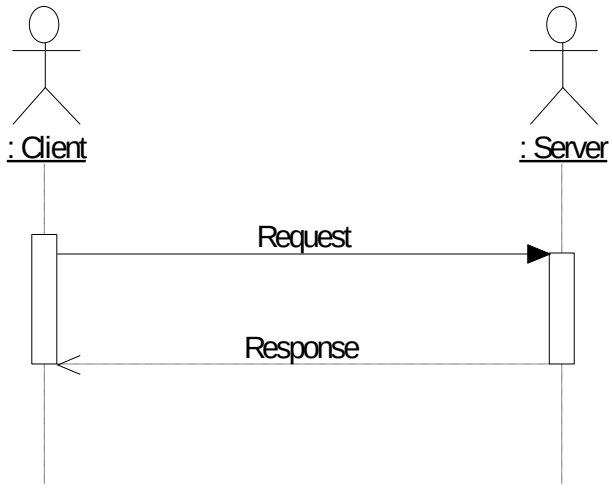


Figure 5-1 – Request / Response

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.

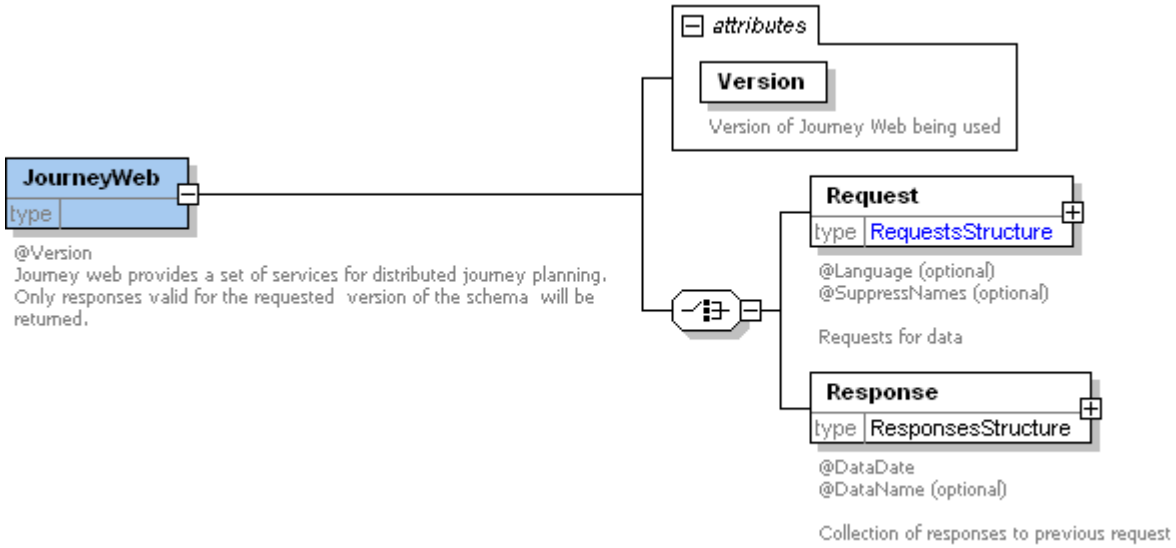


Figure 5-2 – Top Level Schema

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.

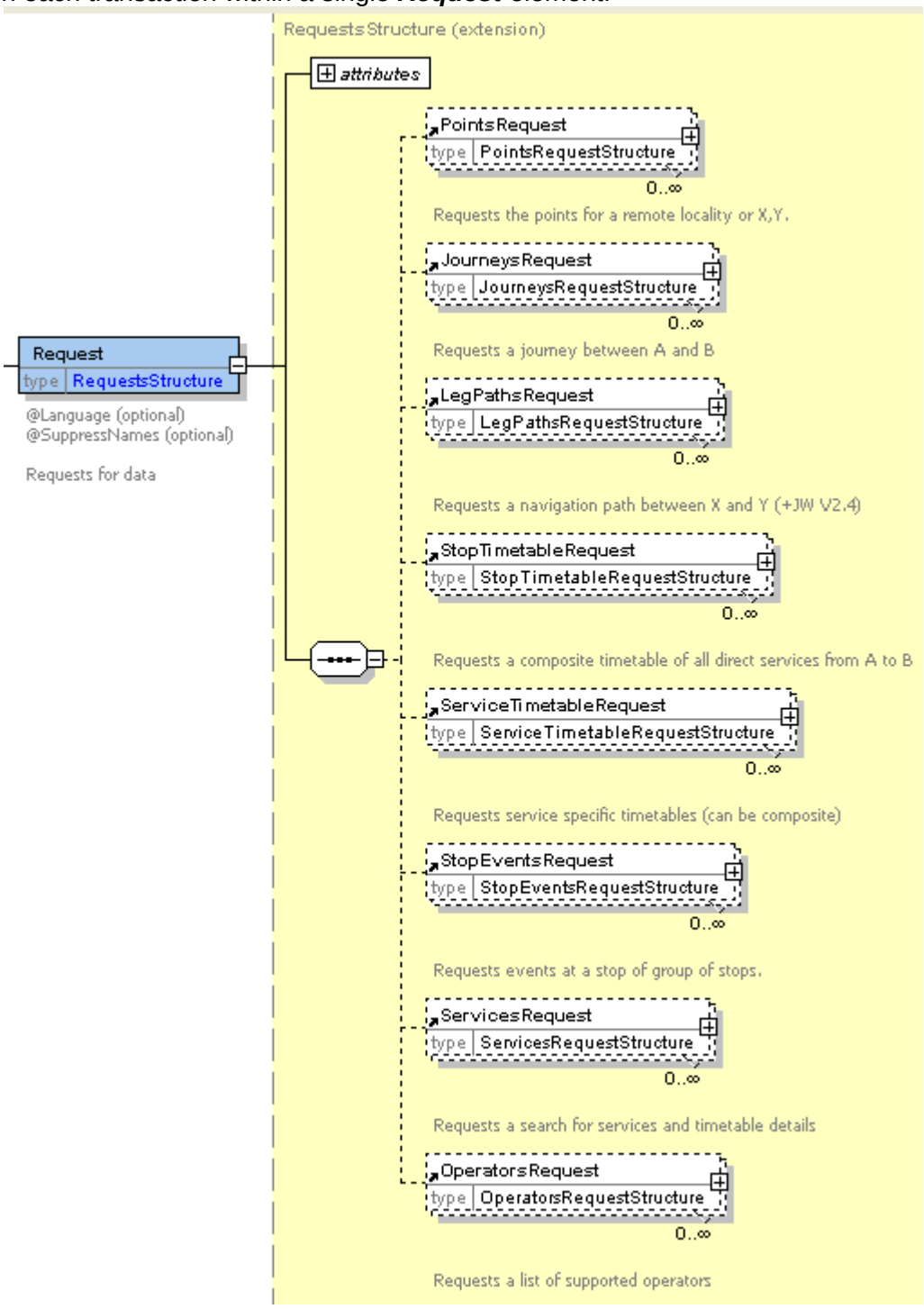


Figure 5-3 – Requests (+JW v2.4)

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)

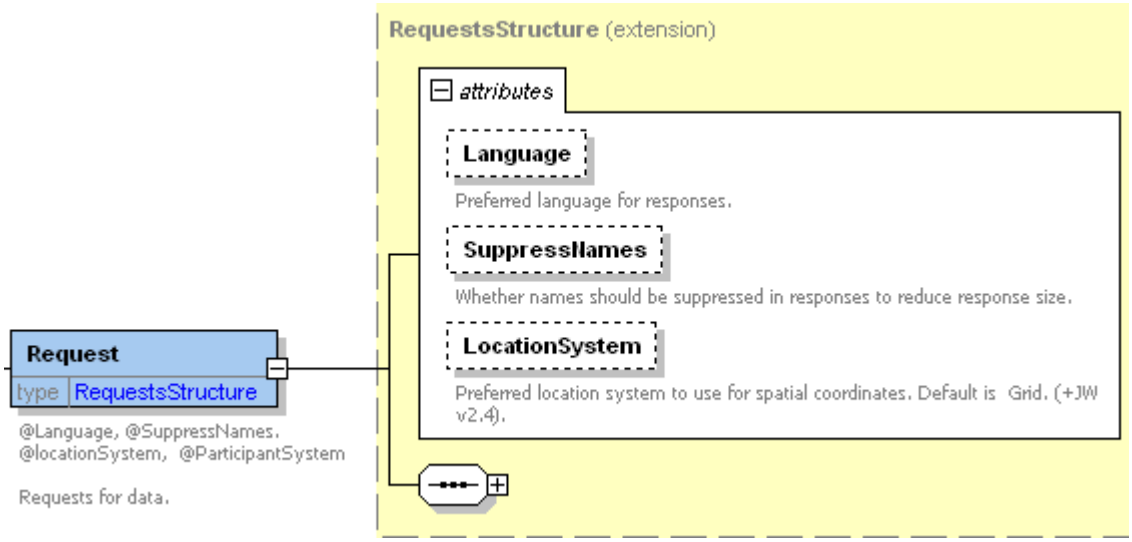


Figure 5-4 – General Request parameters

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).

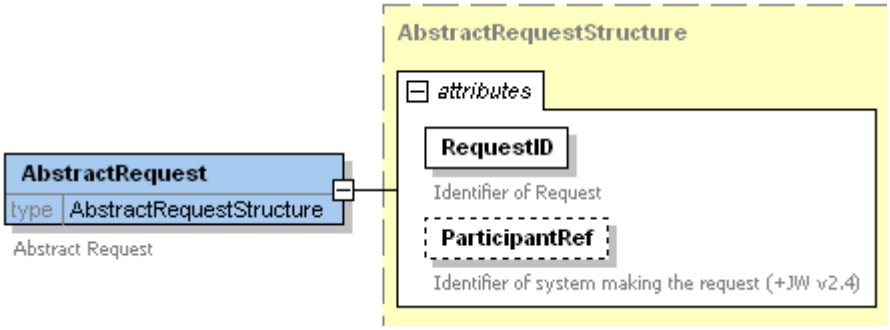


Figure 5-5 – Common Request properties

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.***

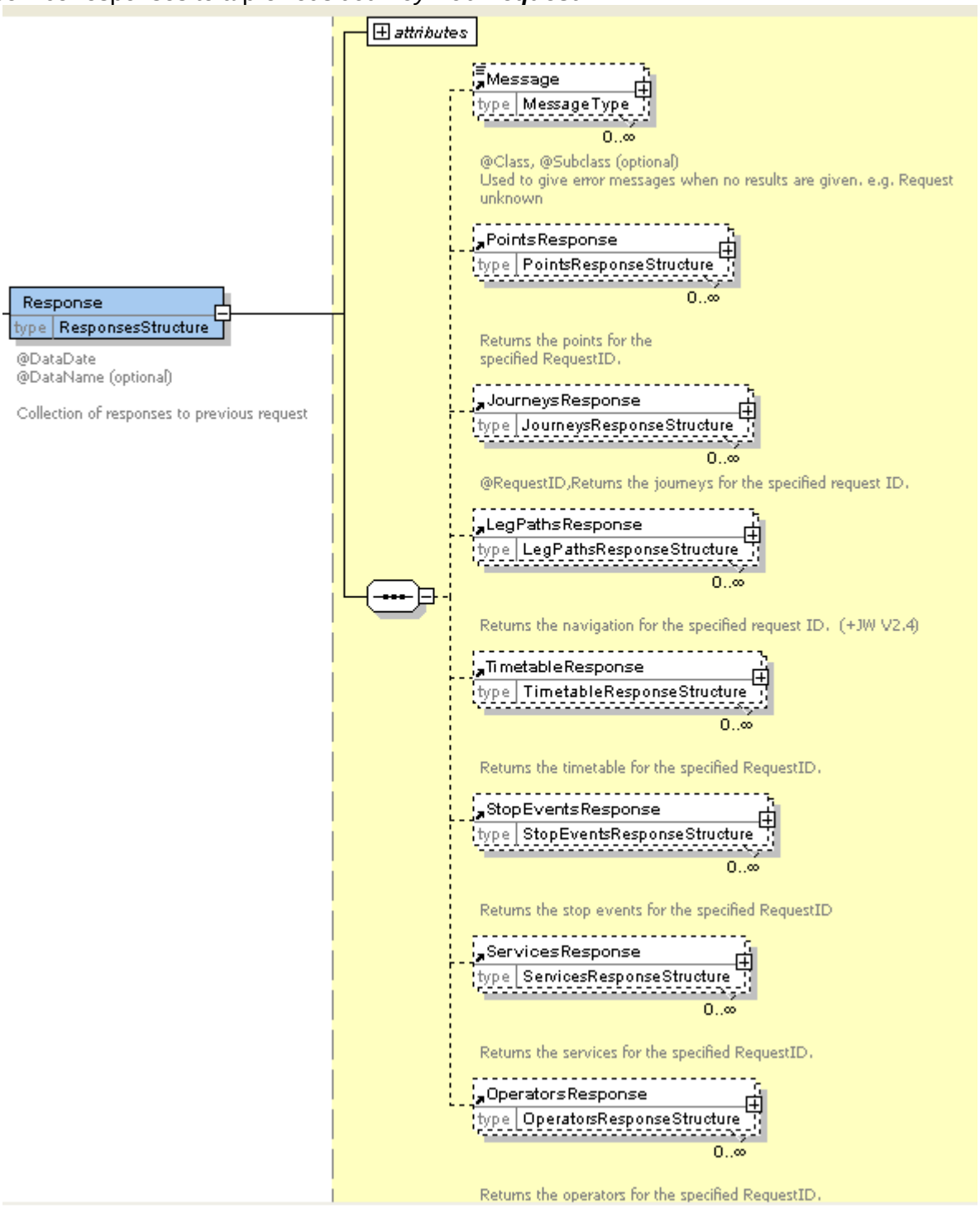


Figure 5-6 – Response

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.

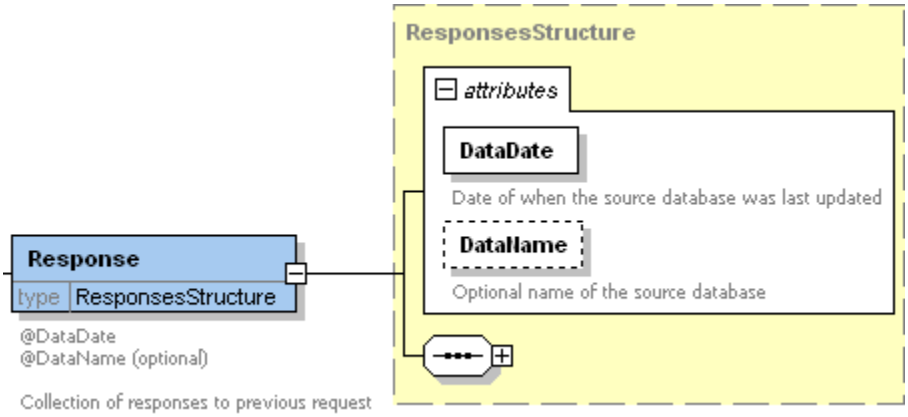


Figure 5-7 – General Response parameters

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).

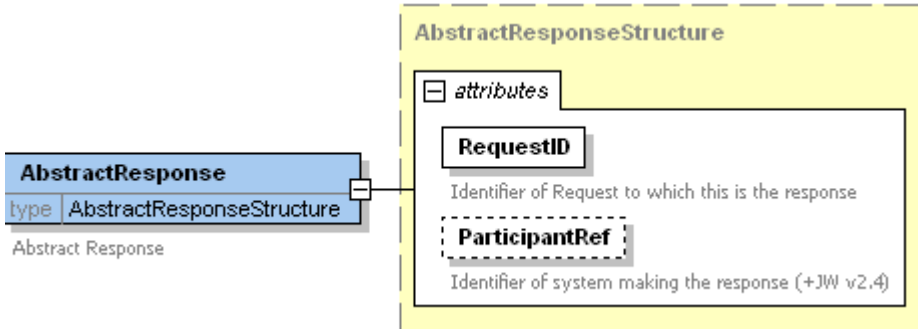


Figure 5-8 – Common Response properties

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 s**ubclass** attribute. See Section 8 for further information on the specific Error messages that may be produced by each request type.

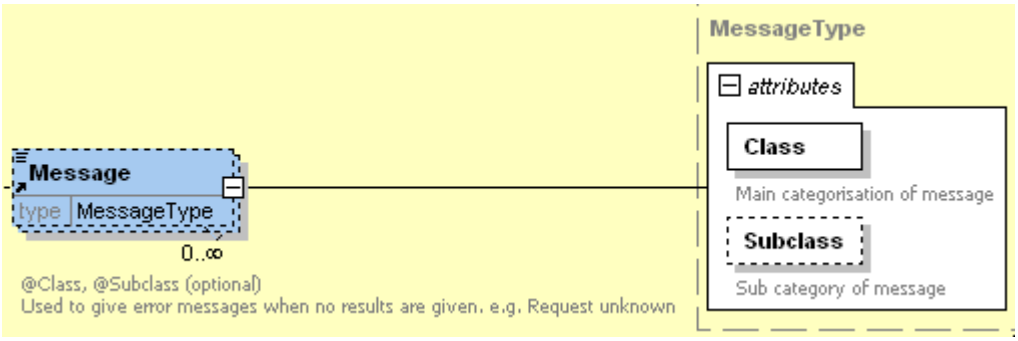


Figure 5-9 – Message Element

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.
    i. ***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.

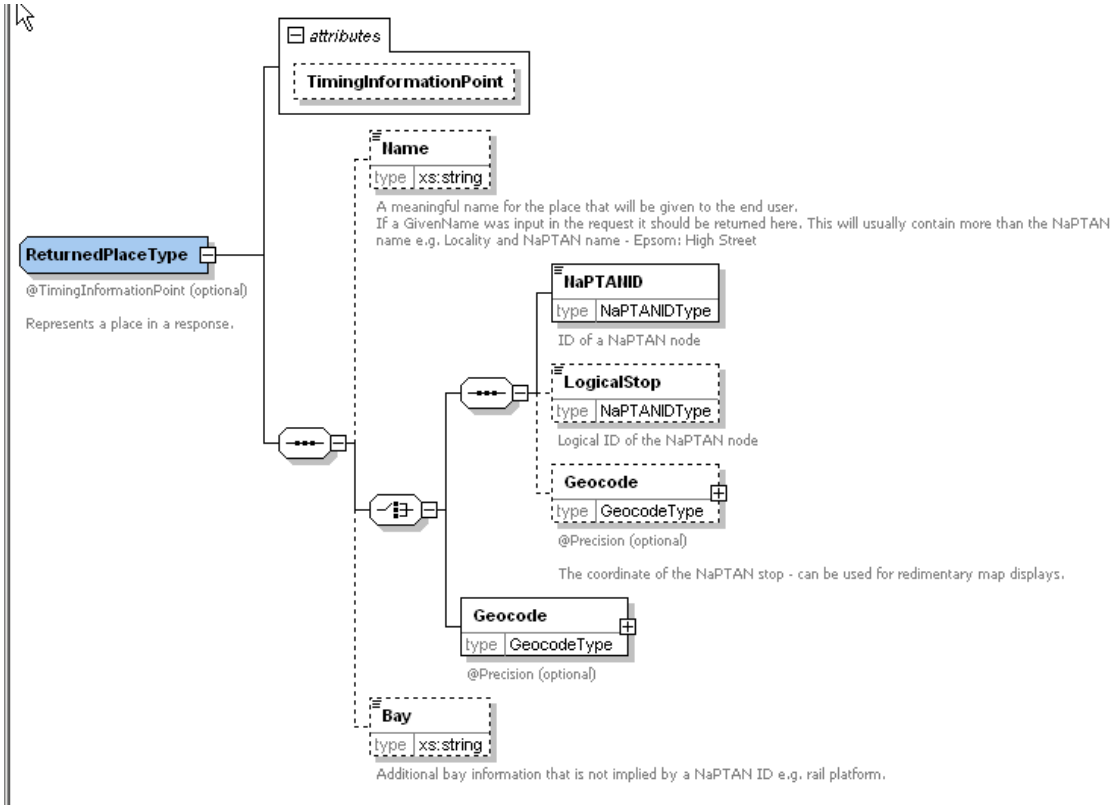


Figure 5-10 – ReturnedPlaceType

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**.**

Value	Description
UKOS	Use the UK grid System, origin off the Scilly isles.
IrishOS	Use the Irish grid System.

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.

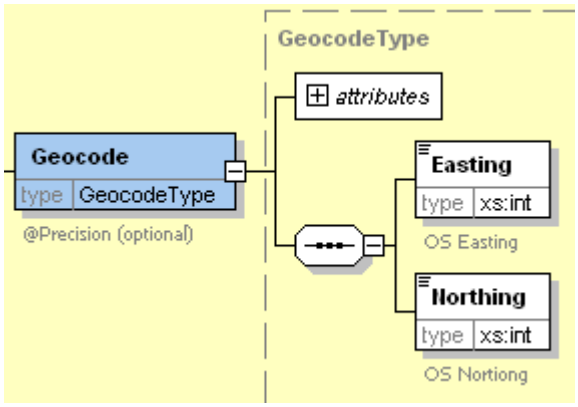


Figure 5-11 – Geocode Element

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 ***JourneysRequest***.

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.

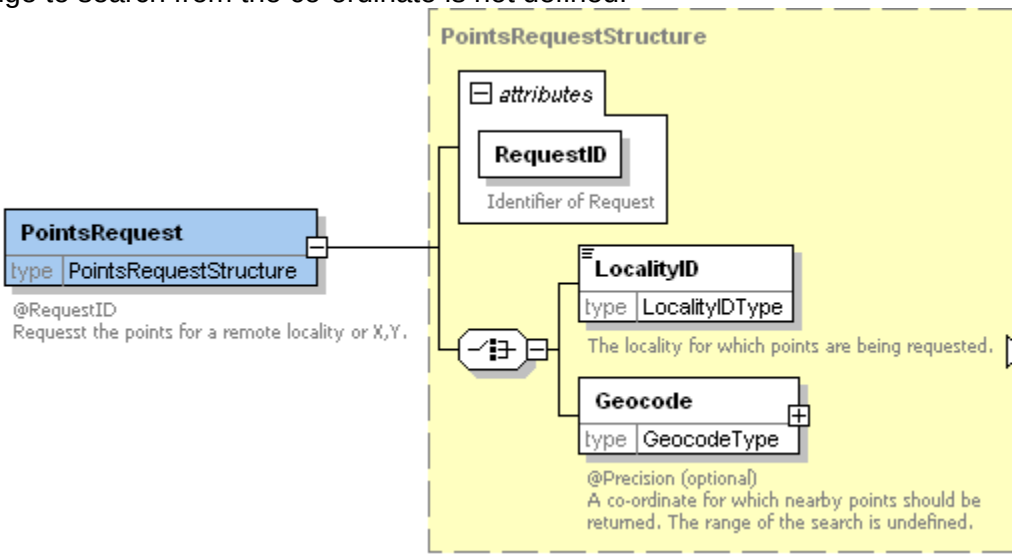


Figure 5-12 – PointsRequest

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.

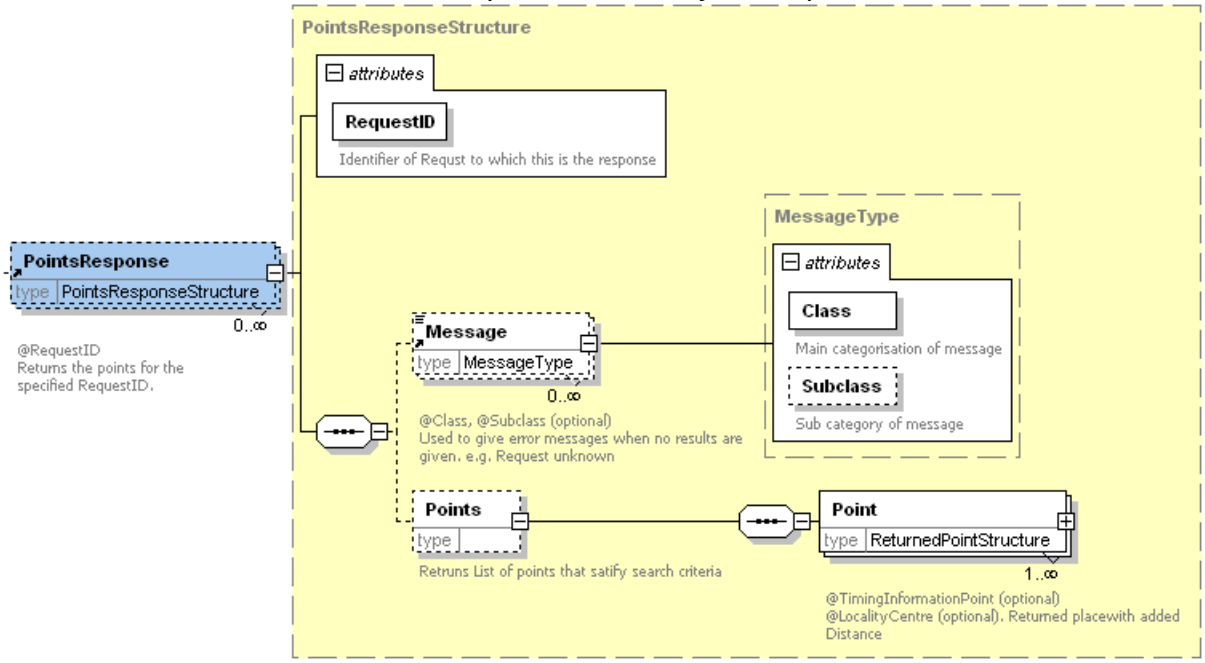


Figure 5-13 – PointsResponse

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:

- A **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.

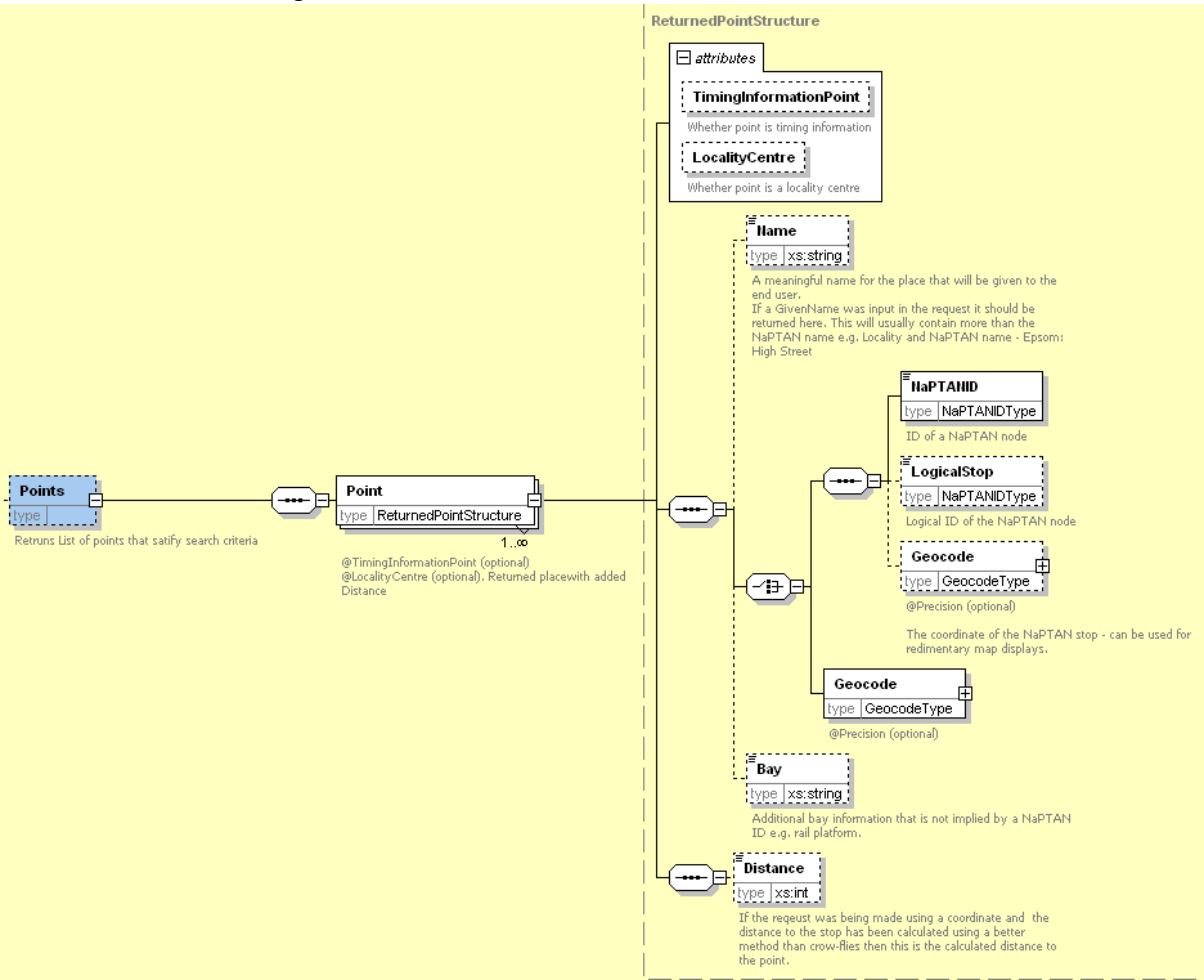


Figure 5-14 – PointsResponse / Point

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. Somme additional considerations for using and combining criteria are discussed in Filtering Criteria later in this section (5.6.19).

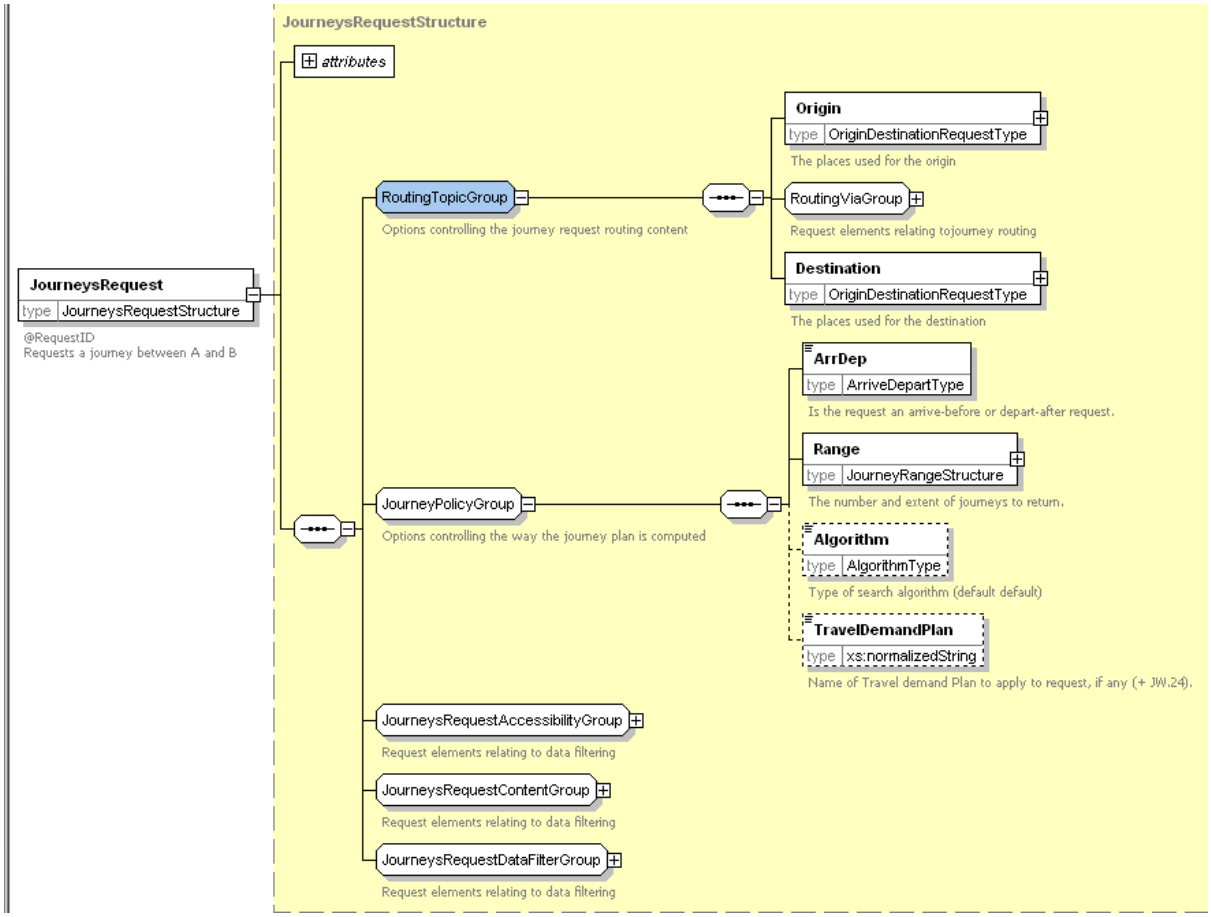


Figure 5-15 – JourneysRequest

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.

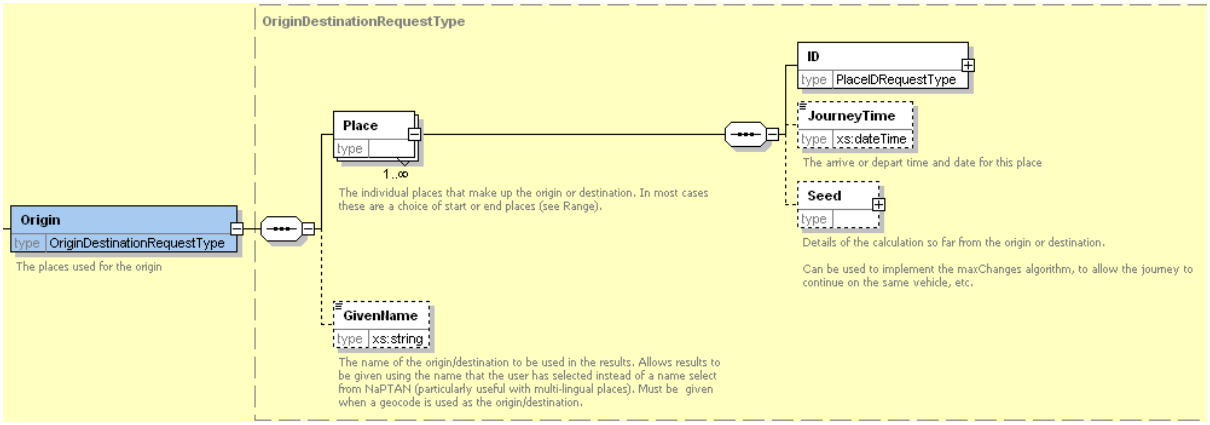


Figure 5-16 – OriginDestinationRequestType

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.

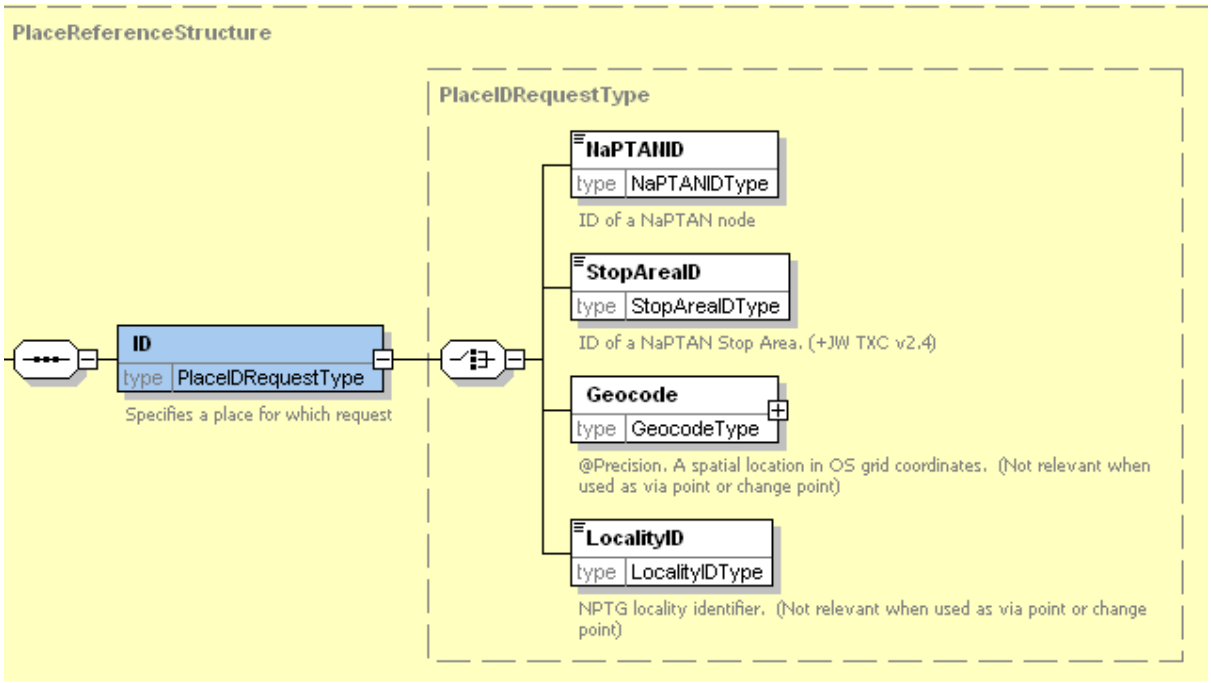


Figure 5-17 – OriginDestinationRequestType / ID Element

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 5-11** 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.

Value	Description
AreaExchange	Point is an Area exchange point
Exchange	Point is an exchange point
User	Point is an user specified end point for the journey

Table 5-2 – Allowed Values for SeedType (+JW v2.4)

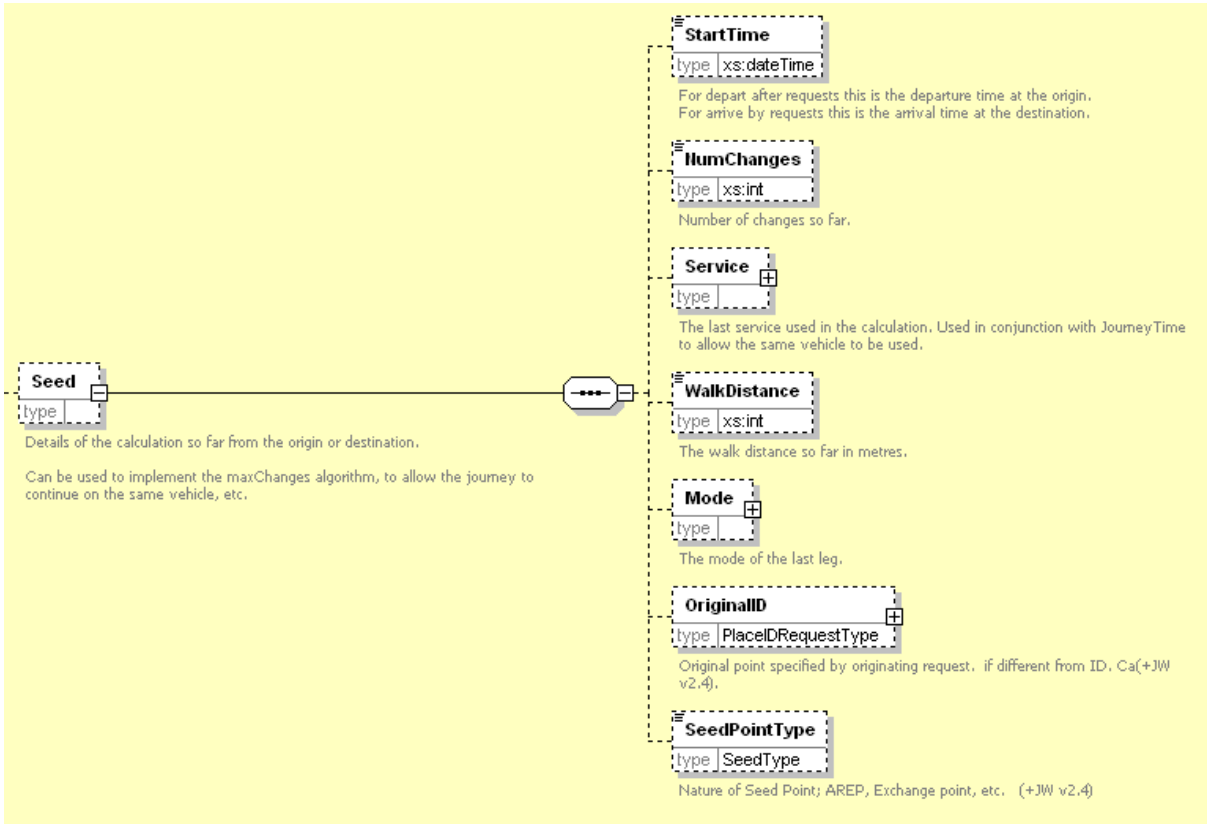


Figure 5-18 – OriginDestinationRequestType / Seed Element

5.6.6 JourneysRequest / RoutingViaGroup – Additional Scoping Parameters

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.

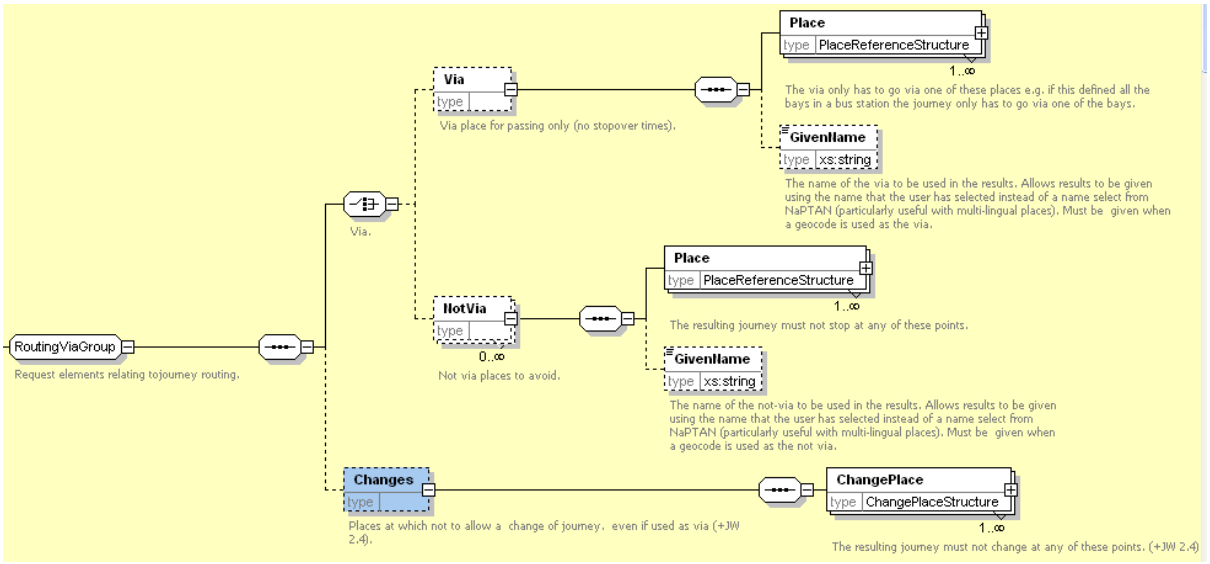


Figure 5-19 – JourneysRequest/ RoutingViaGroup

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***.

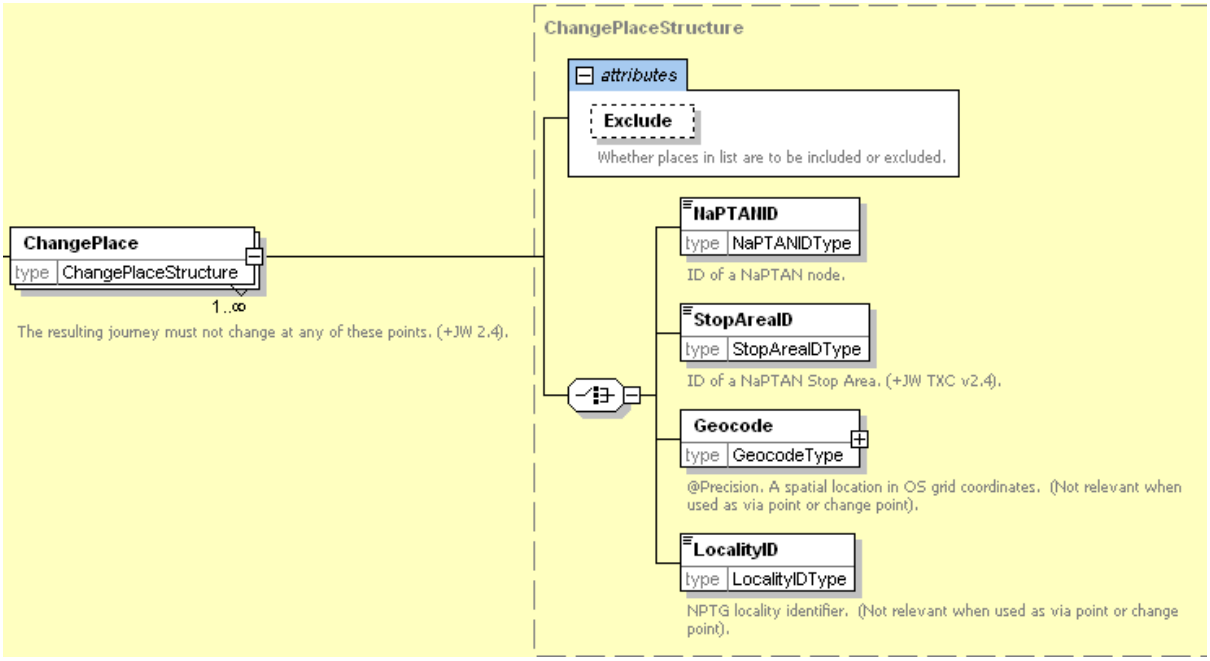


Figure 5-20 – JourneysRequest/ ChangePlace (+JW v2.4)

5.6.8 JourneysRequest / 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**.**

Value	Description
arrive	Constrain to arrive before the arrival time at the Destination
depart	Constrain to leave after the departure time from the origin

Table 5-3 – Allowed Values for JourneysRequest / 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.

Value	Description	
default	Use the remote journey planners default method.	2.1
fastest	Find the fastest journey.	2.1
noChanges	Find journeys with no changes.	2.1
max1Change	Find journeys with at most one change.	2.1
max2Changes	Find journeys with at most two changes.	2.1
minChanges	Find journeys with least number of changes.	+ JW. 2.4

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.

Value	Description
Normal	Normal travel circumstances.
AccessMajorEvent	Recommended plan to access a major even at destination
LeaveMajorEvent	Recommended plan to leave a major even at origin

Table 5-5 – Recommended Values for TimeDemandPlan *(+JW v2.4)*

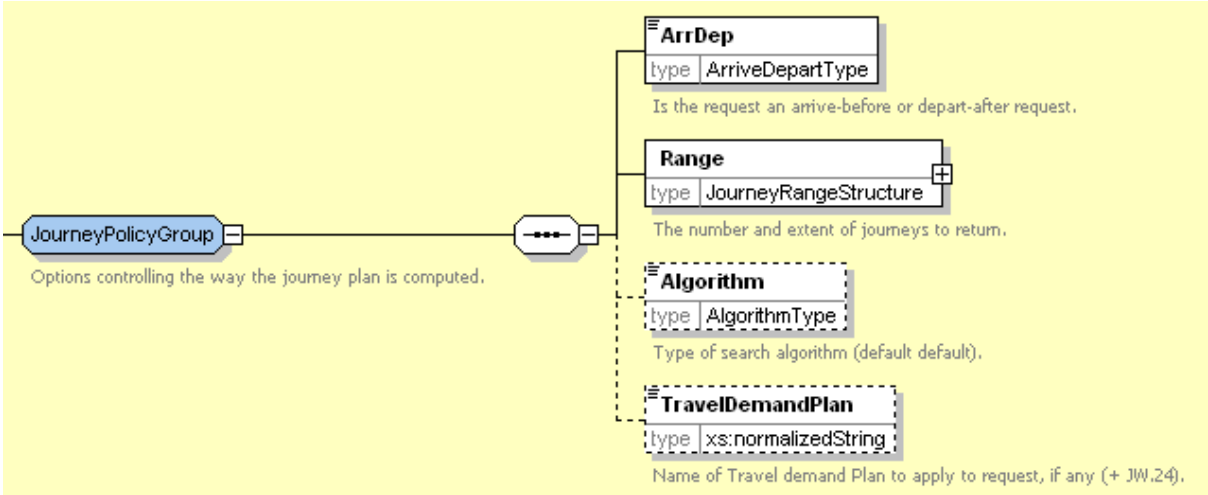


Figure 5-21 – JourneysRequest / JourneyPolicyGroup (+JW v2.4)

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.

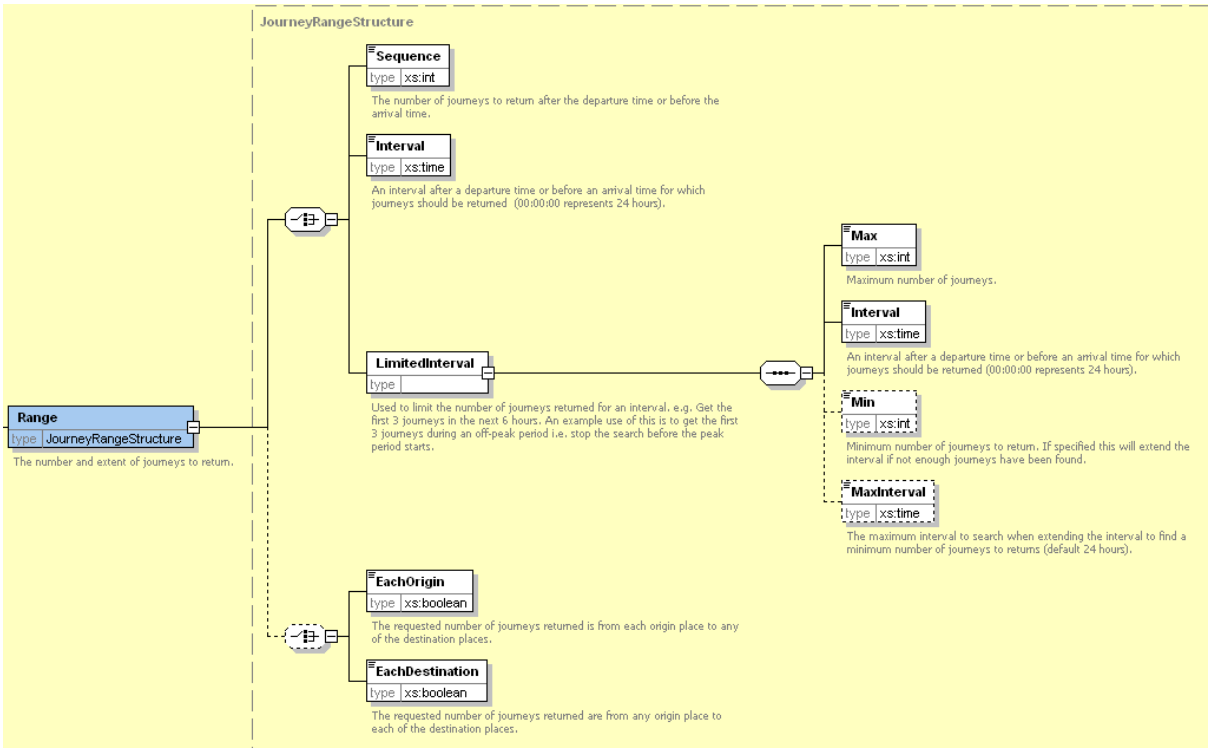


Figure 5-22 – JourneysRequest / Range

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.

Value	Rank	Description	Metres per minute
Slower 3	1	Very slow walking speed	<= 46
Slower 2	2	Slow walking speed	47-60
Slower 1	3	Quite slow walking speed	61-74
Normal	4	Normal walking speed (the Default)	75-88
Faster 1	5	Quite fast walking speed	89-102
Faster 2	6	Fast walking speed	103-116
Faster 3	7	Very fast walking speed	>= 117

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.

: Value	Description
strict	If no journey can be found that matches specified criteria, do not return any results.
permissive	If no journey can be found that exactly match specified criteria, return best alternatives

Table 5-7 – Allowed Values for Filtering (+JW v2.4)

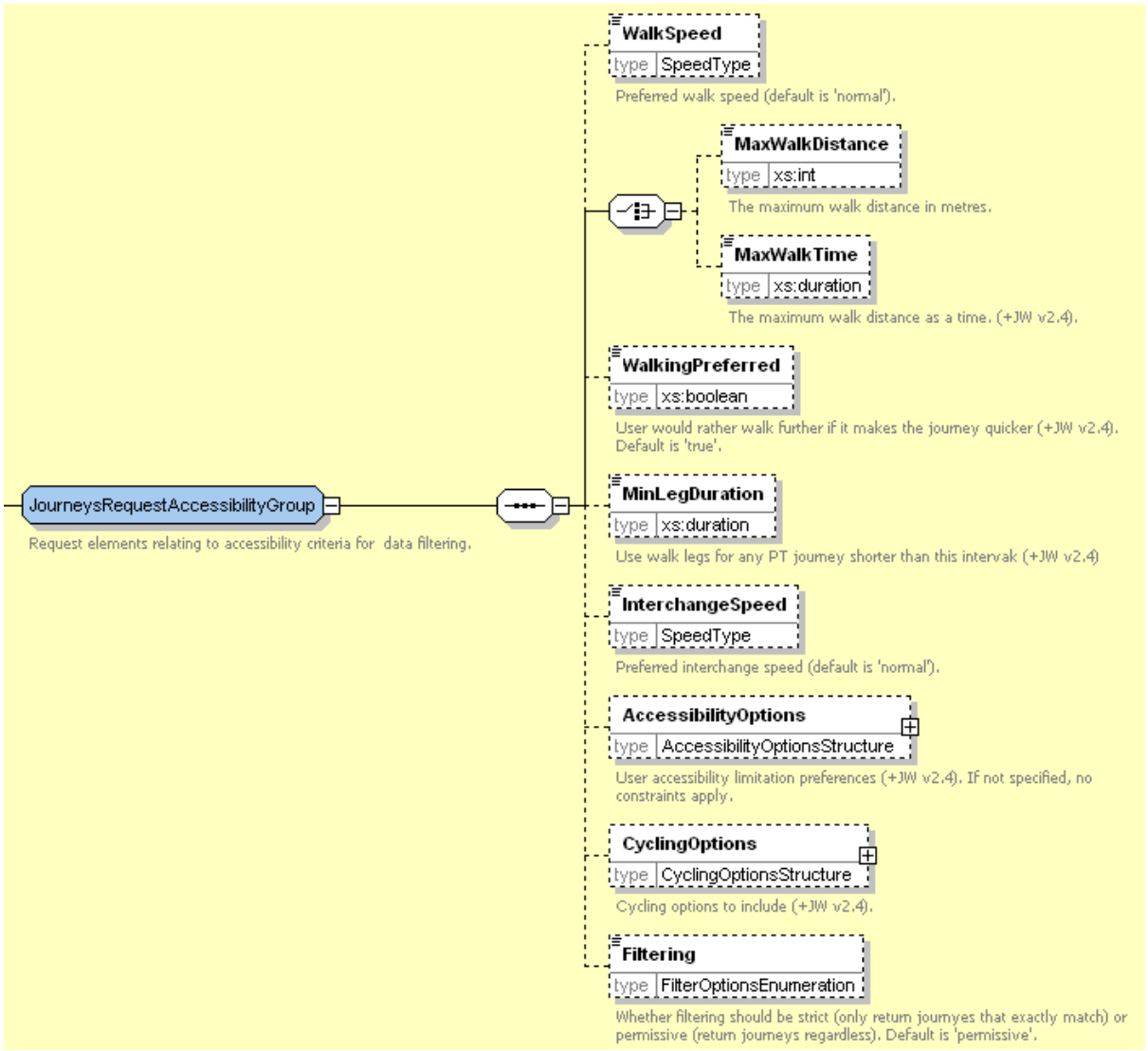


Figure 5-23 – JourneysRequest / JourneysRequestAccessibilityGroup

5.6.11 JourneysRequest / AccessibilityOptions (+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, potentiallypotentiually returning no journeys. Otherwise the journey planner should seek to return journeys that best fit the criteria but may also include suboptimal journeys if there are no accessible services.

- To interpret the *Limitation* parameters a Journey planner will typically check the *Limitation* attributes of each access leg and / or interchange leg needed to make a journey. If the all the legs conform to the limitations then it is accessible.

- To interpret of the ***MobilityNeed*** parameters a Journey planner will typically apply a set of heuristics according to the need. For example; is there both a wheelchair access leg, a means of boarding with a wheelchair, and are wheel chairs allowed in the vehicles? The heuristics may include applying the limitations, as well as additional rules.

Limitations:

- ***WheelchairUse*** (+JW v2.4): Whether user requires Wheelchair accessible journeys.
- ***StepFreeUse*** (+JW v2.4): Whether user requires journeys 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.

Other accessibility needs:

- ***AssistanceService*** (+JW v2.4): Whether user requires assistance to travel through the interchange.

Value	Description
notRequired	Accessibility constraint not needed
1	Accessibility constraint essential
2	Accessibility constraint highly desirable
3	Accessibility constraint preferable
4	Accessibility constraint slightly preferable
5	Accessibility constraint not important

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

- ***MobilityNeed*** (+JW v2.5): Specific mobility needs of user.

Value	Description
notRequired	No specific need
wheelchair	Passenger needs to take wheelchair.
mobilityScooter	Passenger needs to take small (CPT Category 2) off road mobility scooter.
roadMobilityScooter	Passenger needs to take large (CPT Category 3) on road mobility scooter.
restrictedMobility	Passenger has limited walking ability
guideDog	Passenger needs to be able to take guide dog

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

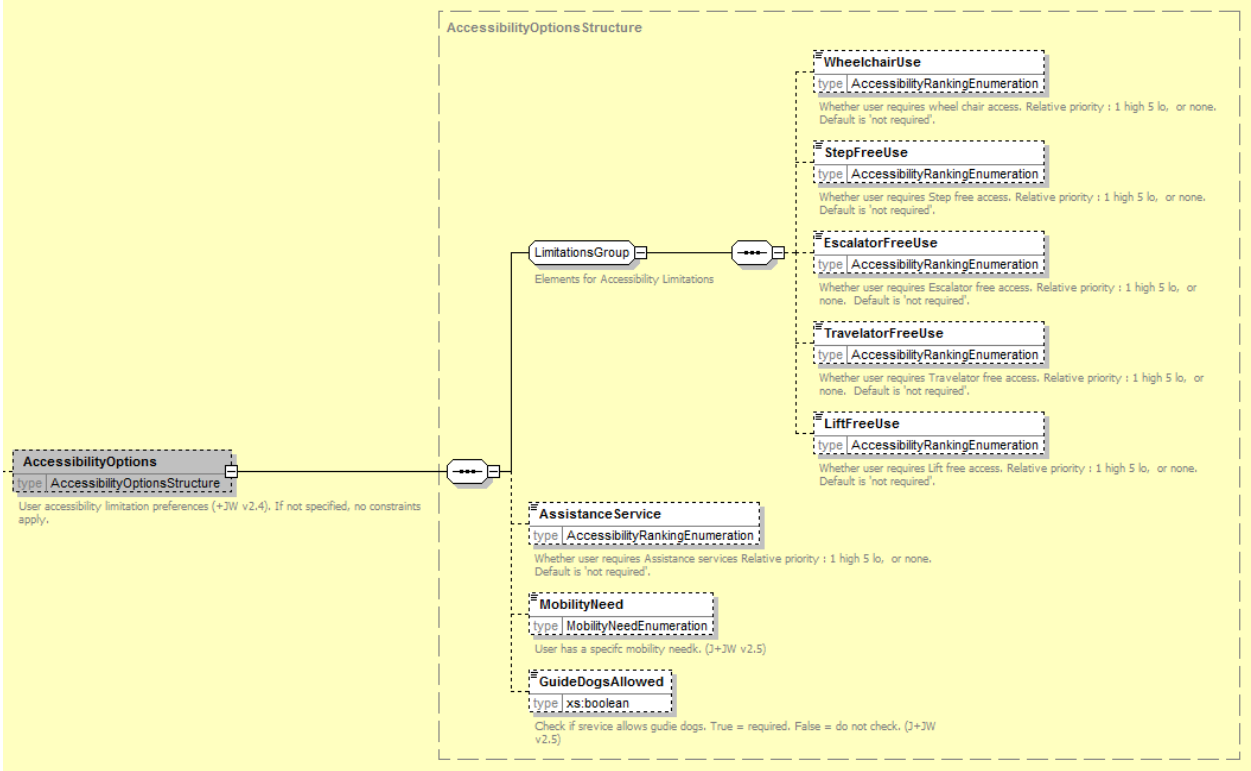


Figure 5-24 – JourneysRequest / AccessibilityOptions (+JW v2.4)

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 5-10** for allowed values. Default is *noCycling*.

Value	Description
noCycling	No cycling.
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 5-10 – Allowed Values for CyclingPreferences (+JW v2.4)

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

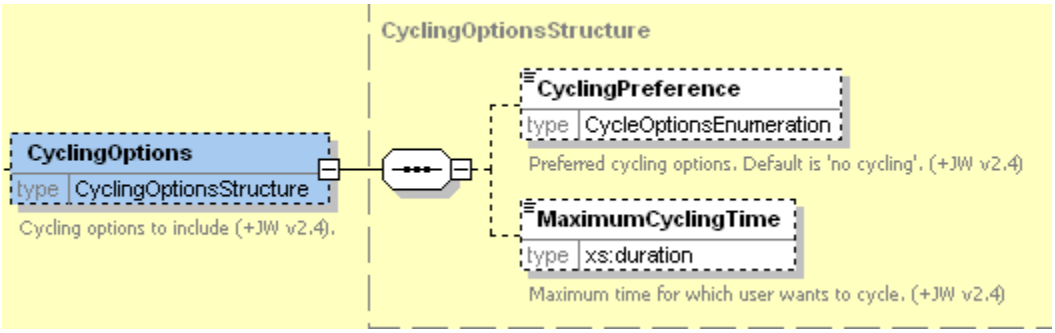


Figure 5-25 – JourneysRequest/ CyclingOptions (+JW v2.4)

5.6.13 JourneysRequest / JourneysRequestContentGroup – Content Details Parameters

The ***JourneysRequestContentGroup*** has options to specify the data to be included in the response.

- ***IncludeIntermediateStops:*** Indicates which intermediate stops and their times should be returned, if any. See **Table 11** for allowed values.

Value	Description
all	Include all stops
before	Include stops before the boarding point
beforeAndLeg	Include stops before the alighting point
leg	Include stops between the board and alighting point
afterAndLeg	Include stops after the boarding point
after	Include stops after the alighting point
none	Include no stops

Table 11 – Allowed Values for IncludeIntermediateStops

- ***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

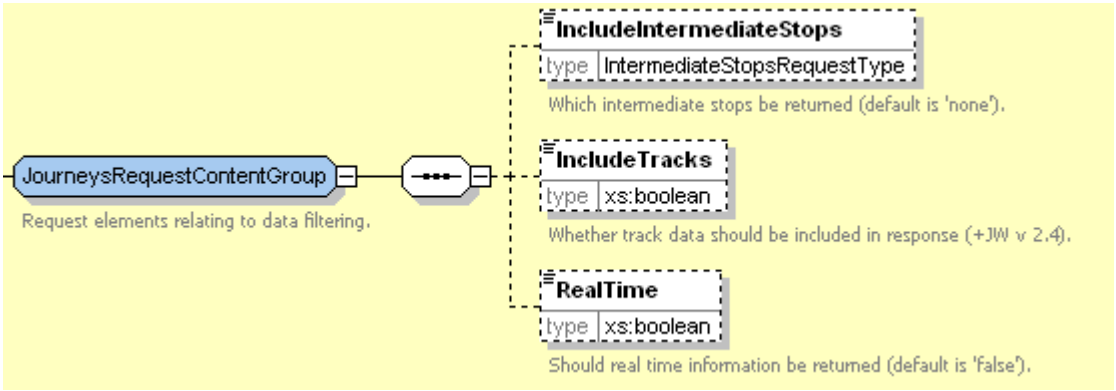


Figure 5-26 – JourneysRequest/ JourneysRequestContentGroup

5.6.14 JourneysRequest / JourneysRequestDataFilterGroup – 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.

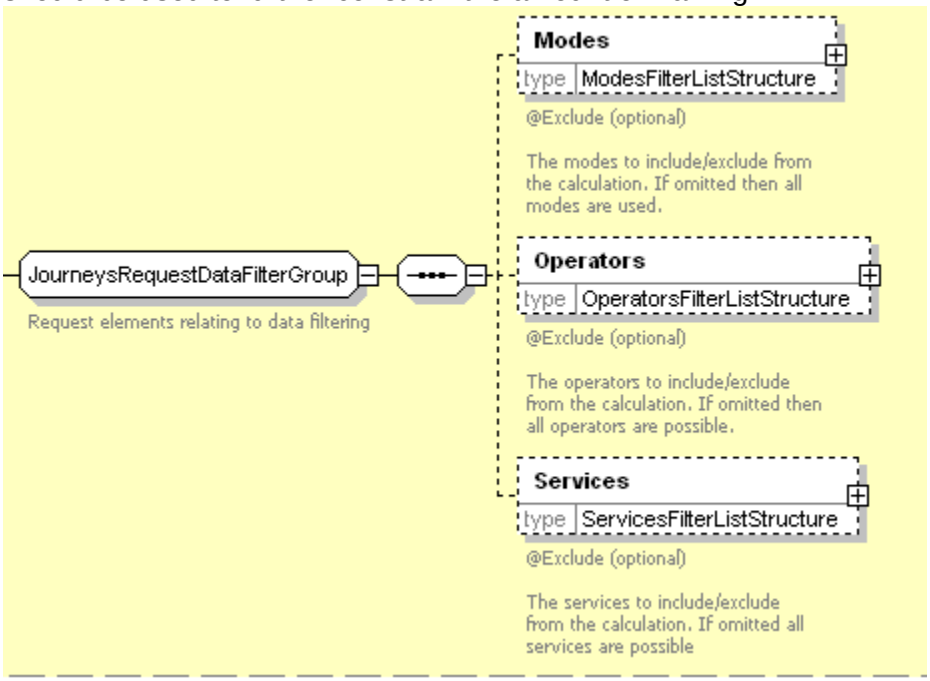


Figure 5-27 – JourneysRequest/ JourneyRequestDataFilterGroup

5.6.15 JourneysRequest / Modes

The ***Modes*** list specifies the transport modes to include or exclude in the results.

- ***Exclude:*** Attribute – specifies whether the mode is to be included or excluded.
- ***Mode:*** One or modes specified by a mode attribute; an enumerated value. See **Table 5-11** 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 5-12** for collation of submodes with modes for use in JourneyWeb. Note that the selected modes predate the harmonisation of therent PT standards and so are not perfectly aligned. With NaPTAN/TransXChange.

PT	JW Mode value	Description	Acc-ess	TPEG Mode / NetEX mode	Submodes Annex E +JW v2.4	Comment
Y	***air***	Air		***air***	**AirSubmode**	
Y	***bus***	Bus		***bus***	**BusSubmode**	

Y	***coach***	Coach		***coach***	**CoachSubmode**	
Y	***drt***	Demand responsive transport	Y	***bus***	**BusSubmode**	TPEG mode would be *Self-drive* and submode *demandAnd-ResponseBus*
Y	***ferry***	Ferry		***water***	**WaterSubmode**	
Y	***metro***	Metro		***metro***	**MetroSubmode**	
Y	***rail***	Railway		***rail***	**RailSubmode**	
Y	***Rail-Replacement Bus***	Replacement bus for rail service		***rail***	**RailSubmode**	TPEG mode would be *rail* and submode is *railReplacementBus*
Y	***parkAndRide***	Drive to a park / or station and ride	Y	***parkAndRide /bus***	**BusSubmode** --	TPEG has parkAndRideMode. NEteX Would treat as bus + submode
Y	***telecabine***	Lift or telecabine		***Telecabine / cableWay***	**Telecabine-Submode**	NeTEx uses cableWay
Y	***tram***	Tram		***tram***	**TramSubmode**	In NaPTAN tram stops are all of type *metro*
Y	***(underg-round)***	Underground	Y	***metro***	**MetroSubmode**	TPEG mode would be *metro* and submode is *tube*
N	***cycle***	Cycle	Y			
N	***cycleHire***		Y	***selfDrive***	**SelfDriveSubmode**	TPEG mode would be *Self driveSelf-drive* and submode is *railReplacementBus*
N	***taxi***	Taxi	Y	***taxi***	**TaxiSubmode**	
N	***walk***	Walking options	Y	***walk***		

Table 5-11 – Allowed Values for Mode

Mode	*VALUE*	*Comment*
air	***internationalFlight***	Flights to or from non-UK airports. *Heathrow to Paris*
	domesticFlight	Flights internal to UK. *Scottish Islands, London to Glasgow.*
	helicopterService	Helicopter flights internal to UK. *Penzance to St, Mary's and Tresco*
ferry	***nationalCarFerry***	Ferries that convey passengers and cars. *Portsmouth to Fishbourne, Oban to Craignure, Woolwich Ferry, Caledonian MacBrayne, Sandbanks Ferry*
	regionalCarFerry	Ferries that convey vehicles, their drivers and passengers but not passengers without vehicles. *Fleetwood to Larne (Stena).*
	localPassengerFerry	Ferries that do not convey any vehicle other than cycles. *London River Services, Isle of Scilly Ferries, Southsea to Ryde Hovercraft.*
	postBoatService	Ferries that convey only passengers. *PS Waverley Cruises, Camden to Regent's Park Waterbus, Cardiff Bay Waterbus.*
rail	***longDistanceTrain***	All National Rail services. *Franchised operations, Open-access operations*
	touristRailway	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	Olympic Javelin
	replacementRail	Bus service as a substitute for rail services because of engineering works or long term closures. Alternatively the Rail Sub Mode ***railReplacementBus*** can be used.
	local	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
metro	***metro***	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 Supertram*
	tube	To be used for London Underground ONLY. Other systems use Metro or Tram/Light Rail q.v.
tram	***localTram***	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. Community or Tourist Railways). METRO 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. Birmingham Airport Shuttle, Croydon Tramlink, Gatwick Airport Shuttle Seaton Tramway, Great Orme Tramway* Includes cliff railways where the angle of ascent is less than 45 degrees. *South Railway* *Lynton & Lynm*
bus	***mobilityBusFor-RegisteredDisabled***	Unregistered service restricted to mobility impaired users. *Olympic rail station to event shuttles*
	bus	Used for all registered bus services including long distance services on which it is not generally necessary to reserve a place. Includes Horse drawn, guided bus way and trolleybus services. *Leeds Trolleybus, Cambridge Guided Bus way*
	shuttleBus	Unregistered service for a specific service e.g. car park to event. *Olympic car park shuttles*
	railReplacementBus	Bus service as a substitute for rail services because of engineering works or long term closures. Alternatively the Rail Sub Mode ***replacementRail*** can be used
	demandAnd-ResponseBus	A bus that runs on demand rather than to a fixed schedule / and or route
coach	***nationalCoach***	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.*
self-Drive	***hireCar***	Used when the only option to complete a journey is car hire
	hireCycle	Used when the leg option to complete a journey is cycle hire
taxi	***licensedTaxi***	Used for all instances of Taxi.
tele-cabin	***telecabin***	Lifts *Middlesbrough Transporter Bridge, Newport Transporter Bridge Thames Cable Car, Heights of Abraham Cable Car, Great Orme Cablecar*

Table 5-12 – JourneyWeb Submodes

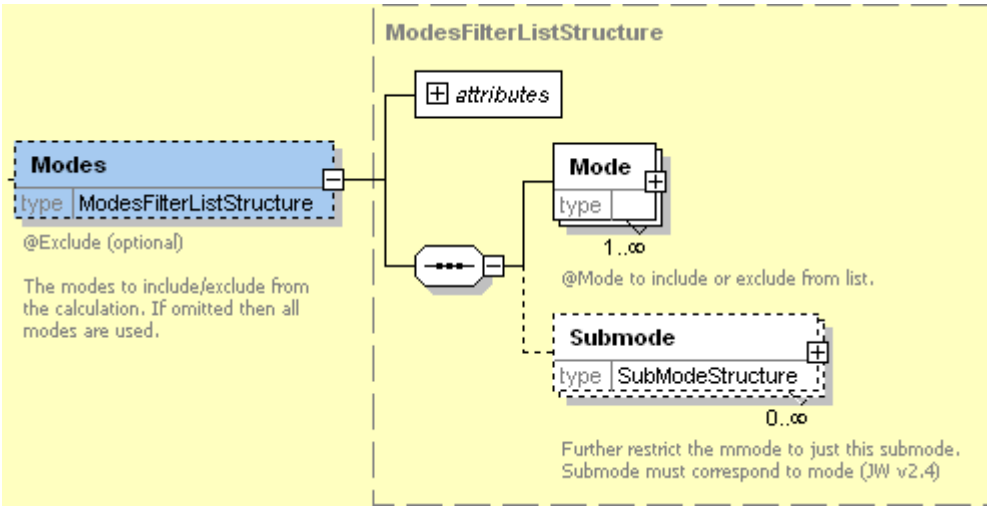


Figure 5-28 – JourneysRequest/ Mode

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*.

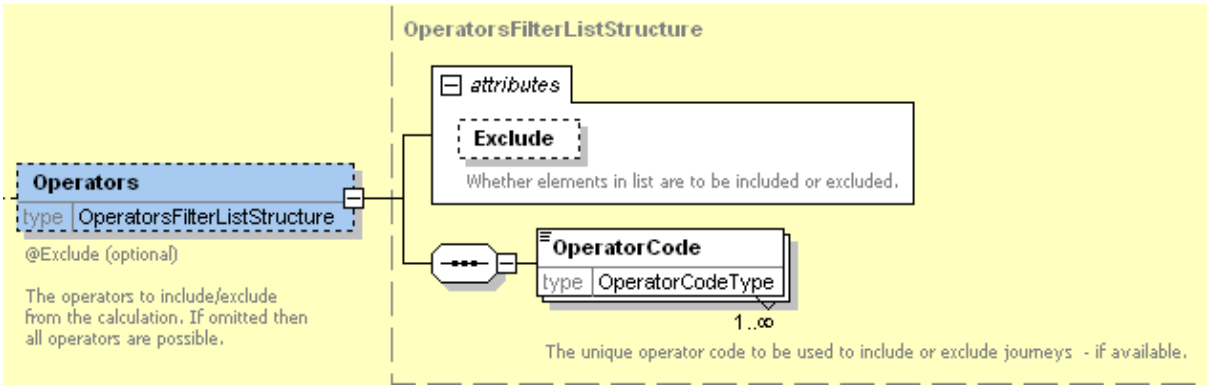


Figure 5-29 – JourneysRequest/ Operators

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):
  - An ***OperatorCode.***
  - A ***ServiceNumber***, and or a code.
  - A ***Direction.***

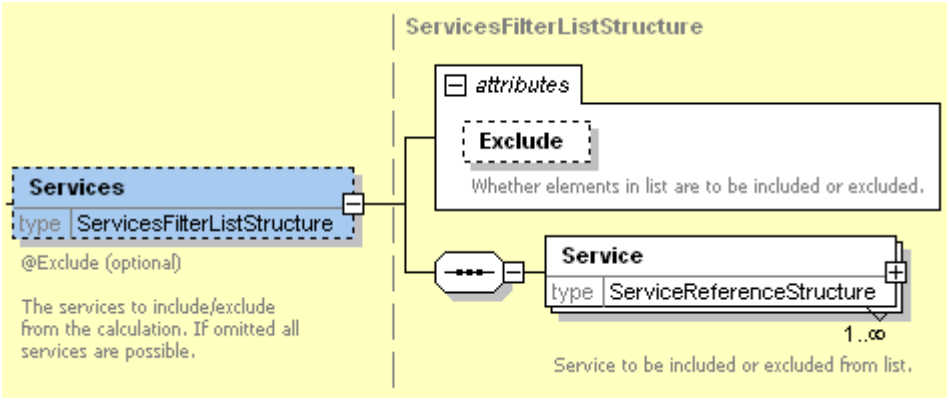


Figure 5-30 – JourneysRequest / Services

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.

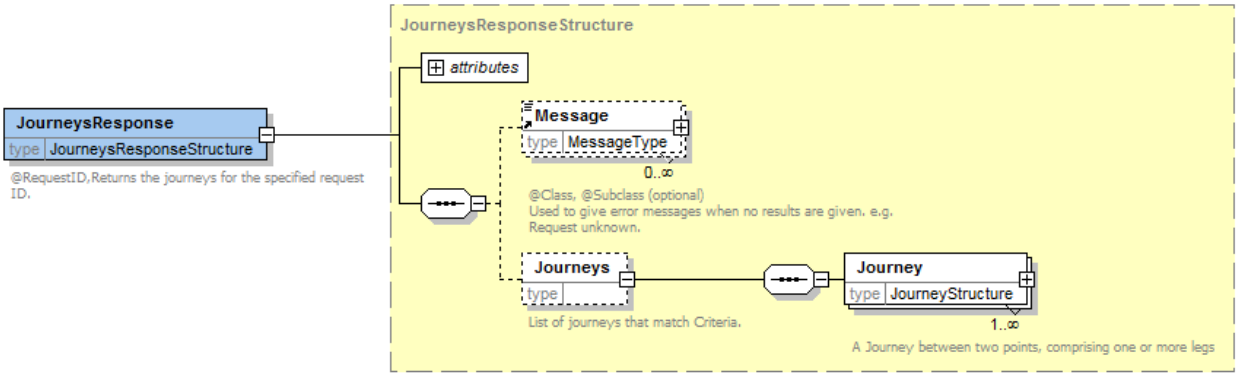


Figure 5-31 – JourneysResponse

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 5-13**.

- **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.

Group	Element	Subelement	Exclude/ Include	Filtering
Between	Origin	(point)		Always Strict
		JourneyTime		Permissive
		Seed	-	--
	Destination	(point)		Always Strict
		JourneyTime		Permissive
		Seed		--
	ArrDep	Arrive | depart		Always Strict
Routing	Via	(point)		Permissive

	NotVia	(point)		Permissive
	Changes	Place	Y	Always Strict
Method	Range	Sequence		--
		Interval		--
		LimitedInterval		--
		EachOrigin/ Destination		
	Algorithm			Permissive
Plan	TravelDemandPlan			Use controlled by Filtering Parameter
Accessibility	WalkSpeed	--		Use controlled by Filtering Parameter
	MaxWalkDistance	--		
	MaxAccessDistance	--		
	WalkingPreferred	--		--
	InterchangeSpeed	--		--
	AccessibilityOptions	WheelchairUse		Values are ANDed together Use Controlled by Filtering Parameter i.e. strict or permissive.
		StepFreeUse		
		EscalatorFreeUse		
		TravelatorFreeUse		
		LiftFreeUse		
		AssistanceService		
	Filtering	--		States if Strict or Permissive
Cycle	CyclingOptions	CyclingPreference		Use controlled by Filtering Parameter
		MaximumCyclingTime		
Details	IncludeIntermediateStops	--		Permissive: include extra data if available
	IncludeTracks	--		
	RealTime	--		
Filters	Modes		Y	Always Strict.
	Operators		Y	Always Strict, NB if operator not available not excluded
	Services		Y	Always Strict

Table 5-13 – 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 place holder 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 place holder for future development. Any content within the Fares element will be ignored.

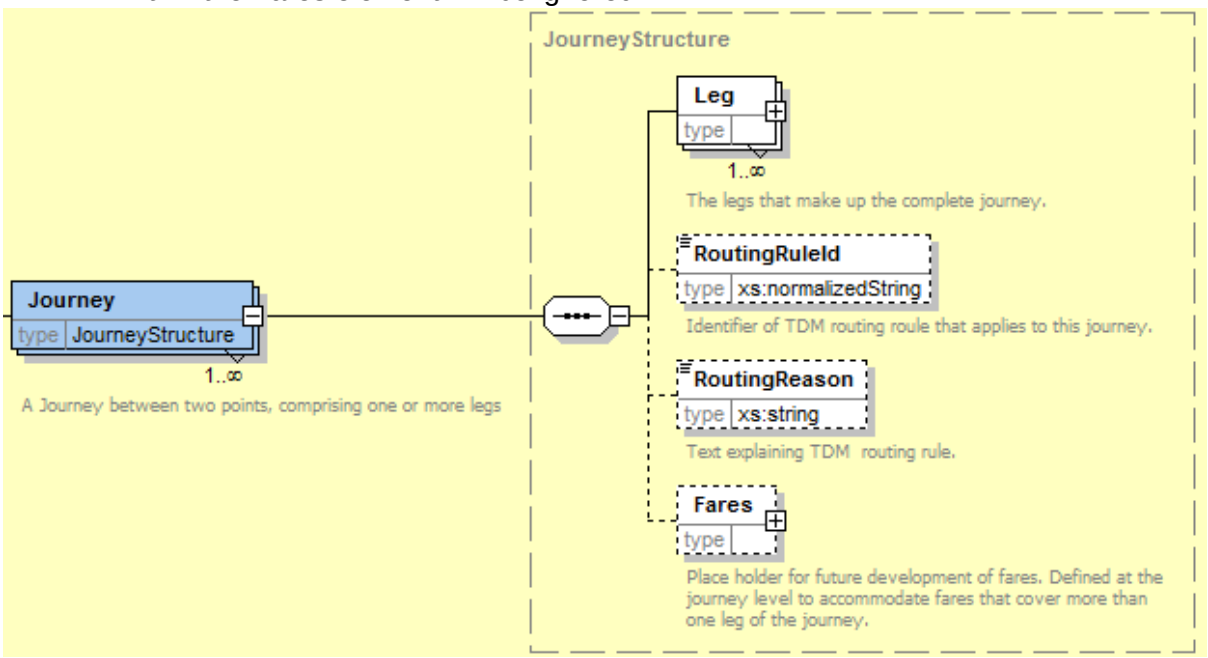


Figure 5-32– Journey

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.

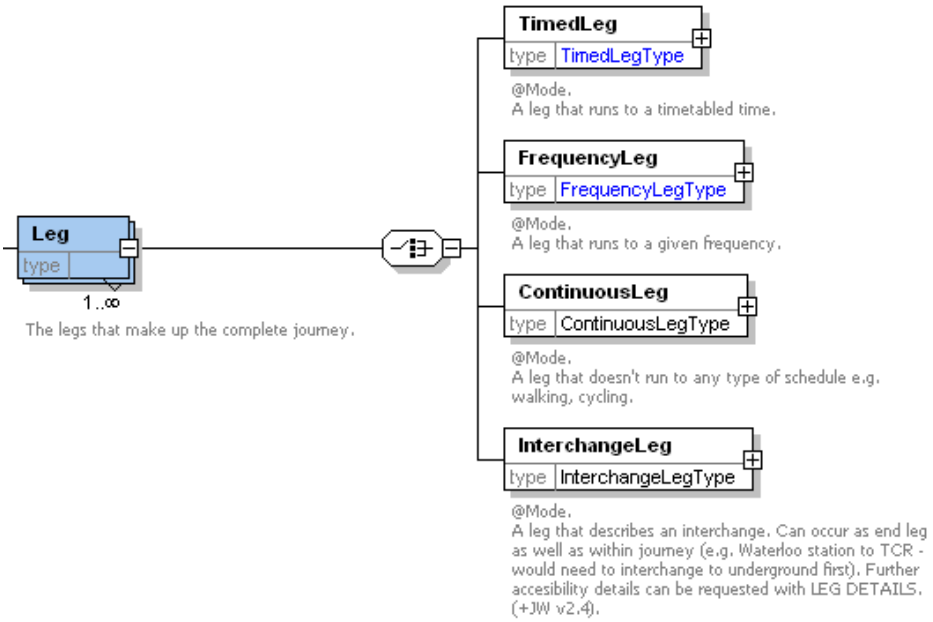


Figure 5-33 – JourneysResponse / Leg

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***.

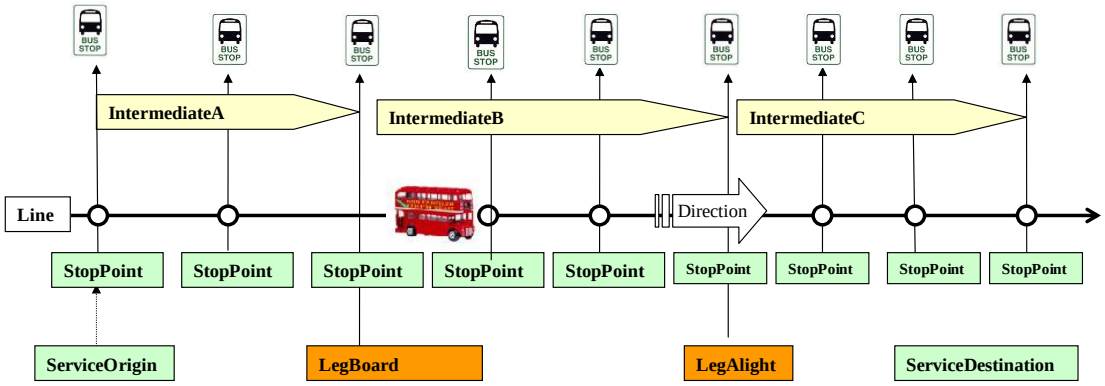


Figure 5-34 – Leg points

Table 5-14 shows the common list of elements. Note however that ***TimedLeg***, ***FrequencyLeg*** and ***ContinuousLeg*** differ as to the properties of certain of these elements.

	TimedLeg	**FrequencyLeg**	**ContinuousLeg**	
Id (+JW v2.4)	LegIdType	LegIdType	LegIdType	O
Mode	Vehicle modes (See **Table 5-11**)	Vehicle modes (See **Table 5-11**)	Access modes	R

ServiceOrigin	***ReturnedSite***	***ReturnedSite***	***ReturnedSite***	O
	OriginTimeGroup	***RTDepartureTimeGroup***	***RTDepartureTimeGroup***	
IntermediateA	***ReturnedSite***	***ReturnedSite***	***ReturnedSite***	O
	IntermediateTime-Group	***RTArrivalTimeGroup***	***RTArrivalTimeGroup***	
	--	***RTDepartureTimeGroup***	***RTDepartureTimeGroup***	
LegBoard	***ReturnedSite***	***ReturnedSite***	***ReturnedSite***	**R**
	Pass	***Pass***	***Pass***	
	InterchangeTime	***RTArrivalTimeGroup***	***RTArrivalTimeGroup***	
	BoardTimeGroup	***RTDepartureTimeGroup***	***RTDepartureTimeGroup***	
IntermediateB	***ReturnedSite***	***ReturnedSite***	***ReturnedSite***	O
	Pass	***Pass***	***Pass***	
	IntermediateTime-Group	***RTArrivalTimeGroup***	***RTArrivalTimeGroup***	
	--	***RTDepartureTimeGroup***	***RTDepartureTimeGroup***	
LegAlight	***ReturnedSite***	***ReturnedSite***	***ReturnedSite***	**R**
	Pass	***Pass***	***Pass***	
	InterchangeTime	***RTArrivalTimeGroup***	***RTArrivalTimeGroup***	
	AlightTimeGroup	***RTDepartureTimeGroup***	***RTDepartureTimeGroup***	
IntermediateC	***ReturnedSite***	***ReturnedSite***	***ReturnedSite***	O
	IntermediateTime-Group	***RTArrivalTimeGroup***	***RTArrivalTimeGroup***	
	--	***RTDepartureTimeGroup***	***RTDepartureTimeGroup***	
Service-Destination	***ReturnedSite***	***ReturnedSite***	***ReturnedSite***	O
	DestinationTime-Group	***RTArrivalTimeGroup***	***RTArrivalTimeGroup***	
LegTrack	Track	Track	Track	O
Notes	**string**	**string**	**string**	O
Service-Response-Group	***ServiceResponse Group***	***ServiceResponseGroup***	***ServiceResponseGroup***	

Table 5-14 – Stop elements for different Journey / Leg types
(O = optional. R= required)

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 5-11** 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.

- If available, ***PlaceAccessibility*** should be specified for the accessibility of the point from the end point of the previous leg.

- ***IntermediateB:*** 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.
- ***IntermediateC***: 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***.***

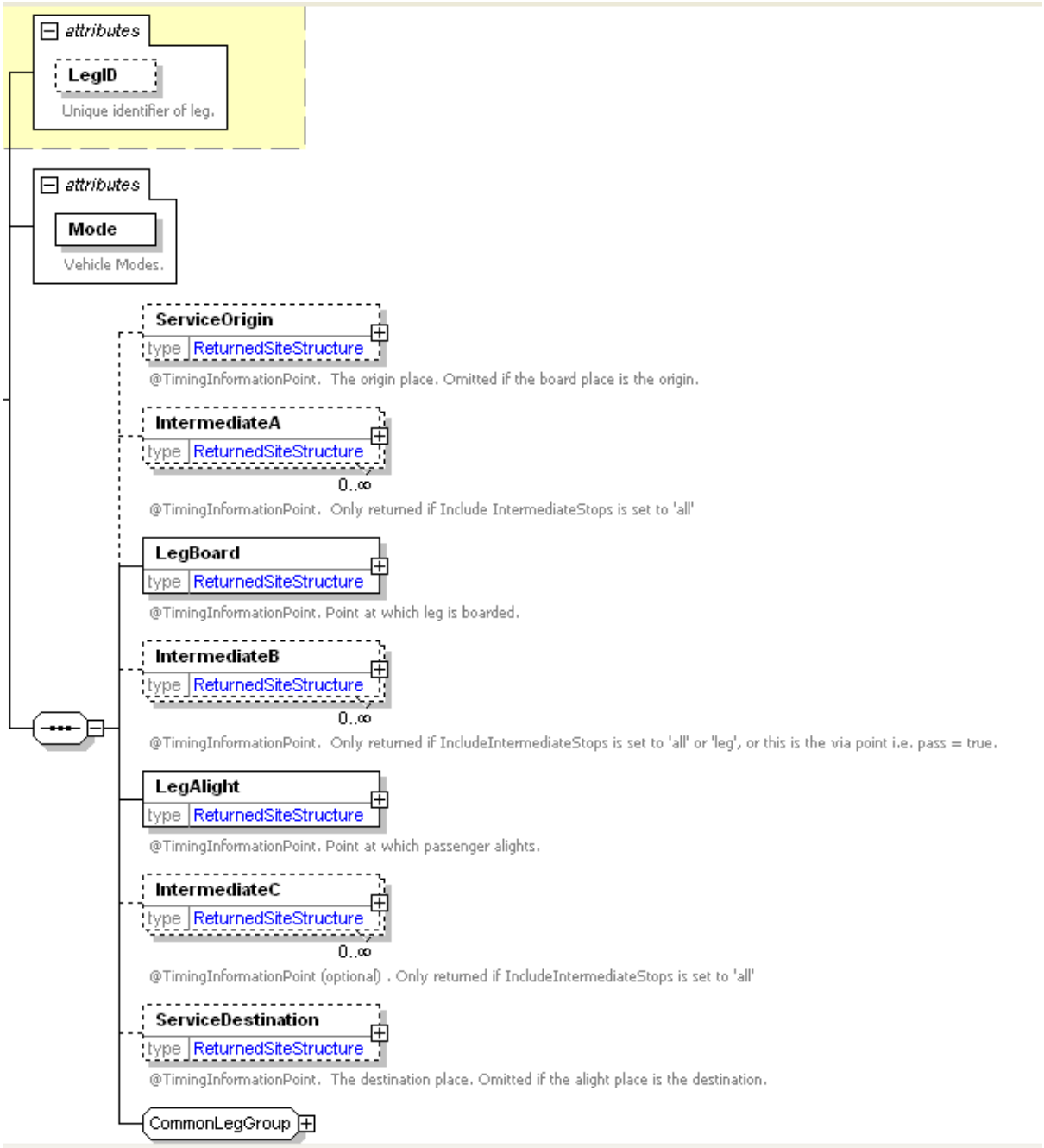


Figure 5-35 – JourneysResponse / Common Leg Elements

5.6.5 ReturnedSite Structure (+JW v2.4).

The ***ReturnedSiteStructure*** is used to return details for each point in a leg (that is ***LegBoard***, ***IntermediateA, IntermediateB***, ***IntermediateC LegAlight***). 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.
- ***SiteEquipment*** (+JW v2.5) Any equipment or local services associated specifically with the stop.
  - ***AssistanceService***: Assistance service available at the stop See Passenger Equipment below (+JW v2.5).
  - ***SanitaryFacility***: Toilets available at the stop. See Passenger Equipment below (+JW v2.5).
- ***Notice*** (+JW v2.5) Any notices associated specifically with the stop. See ***Notice*** element later.

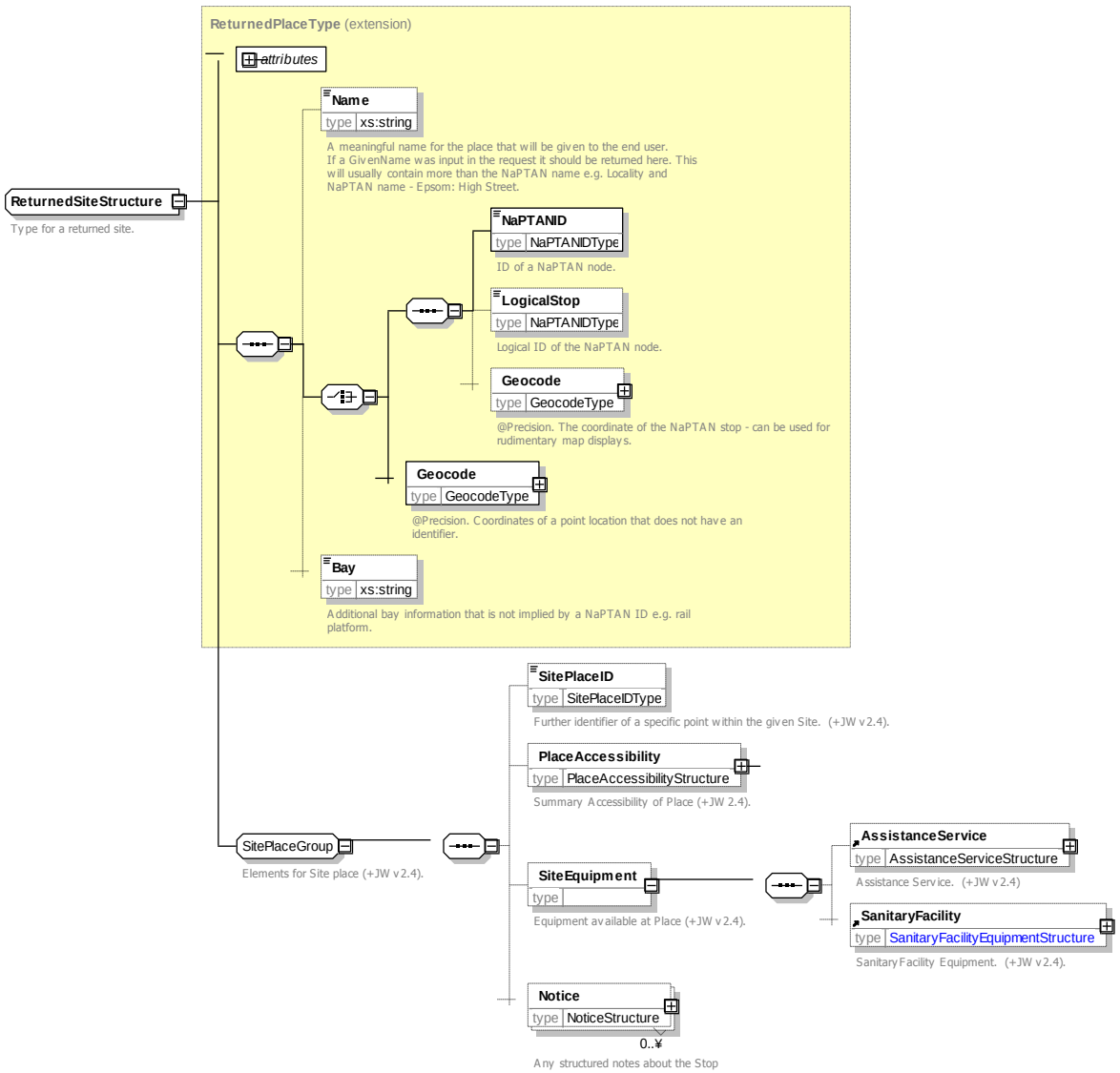


Figure 5-36 – Common Leg / ReturnedSite Structure (+JW v2.4)

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

A ***PlaceAccessibilityStructure*** **()** 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 stop is compliant with accessibility criteria specified on request. Default is true. May possibly be false if ***Filtering*** permissive is specified to indicate a leg that does not meet criteria. Note that it is possible for the accessibility assessment of the stops of a leg to be compliant but the leg itself not to be. See Common Leg /Place.
- ***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.
- ***AccessVehicleEquipment***: (+JW v2.5) Detailed properties relating to access to vehicle from a given platform. May be specific to a particular stop. See under Service.
- ***GapToPlatform***: (+JW v2.4) Normal distance between vehicle and platform at this stop in metres. Deprecated (+JW v2.5) – used value in AccessVehicle Equipment.

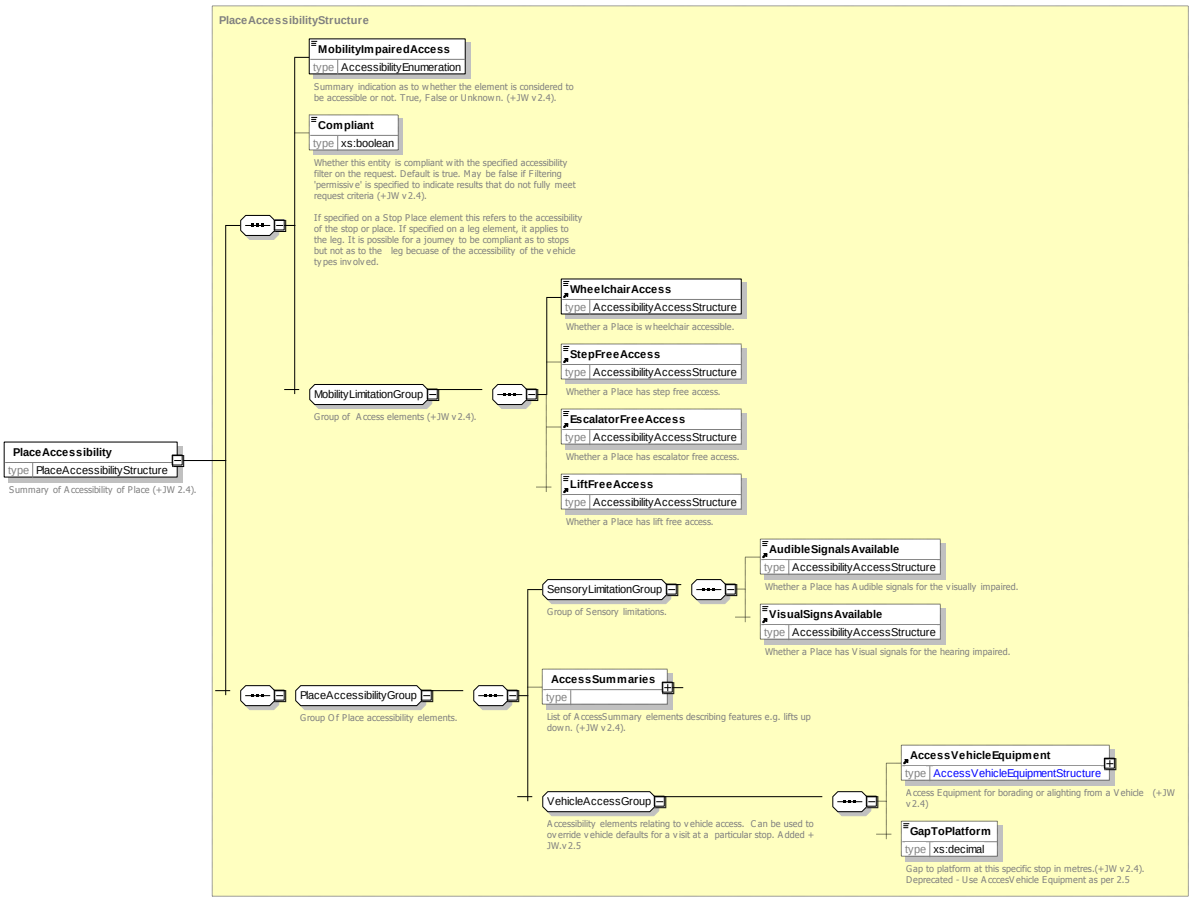


Figure 5-37 – ReturnedPlace / PlaceAccessibility (+JW v2.4)

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 5-26** 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 5-25** later below.

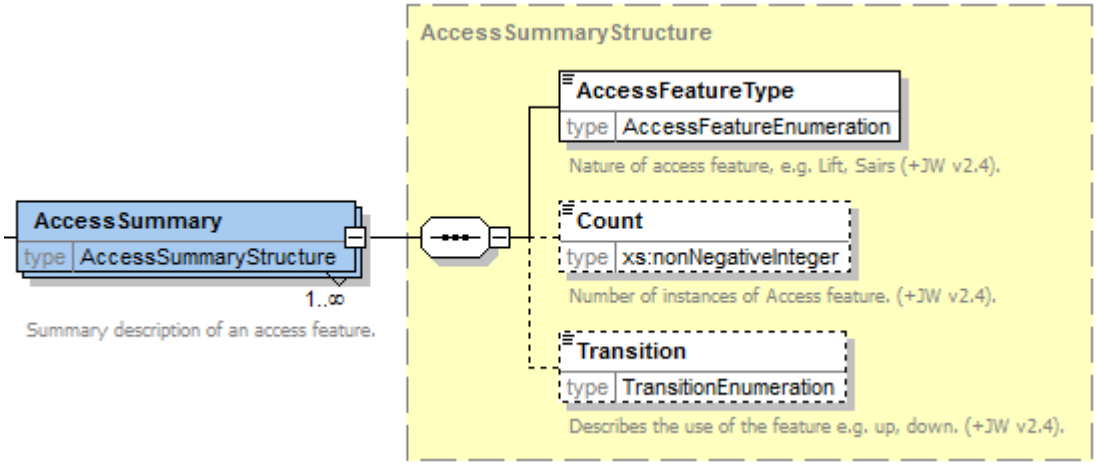


Figure 5-38 – PlaceAccessibility / AccessSummary (+JW v2.4)

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***.***

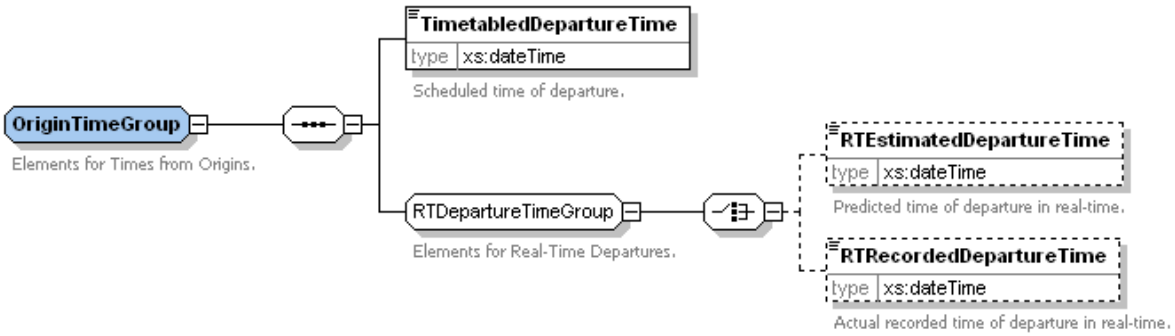


Figure 5-39 – Common Leg / OriginTimeGroup

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***.***

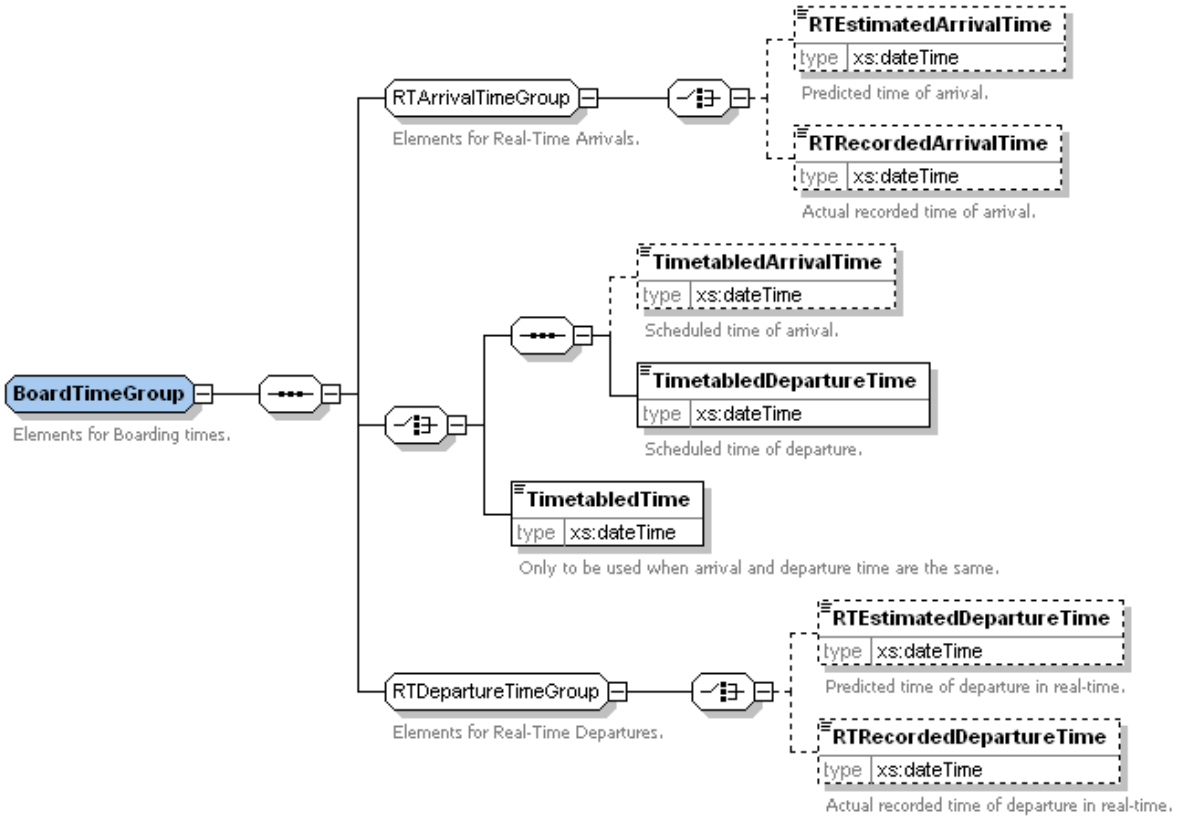


Figure 5-40 – BoardTimeGroup

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 ***Board-TimeGroup*** for descriptions. Note that a ***TImetabledDepartureTime*** is optional.

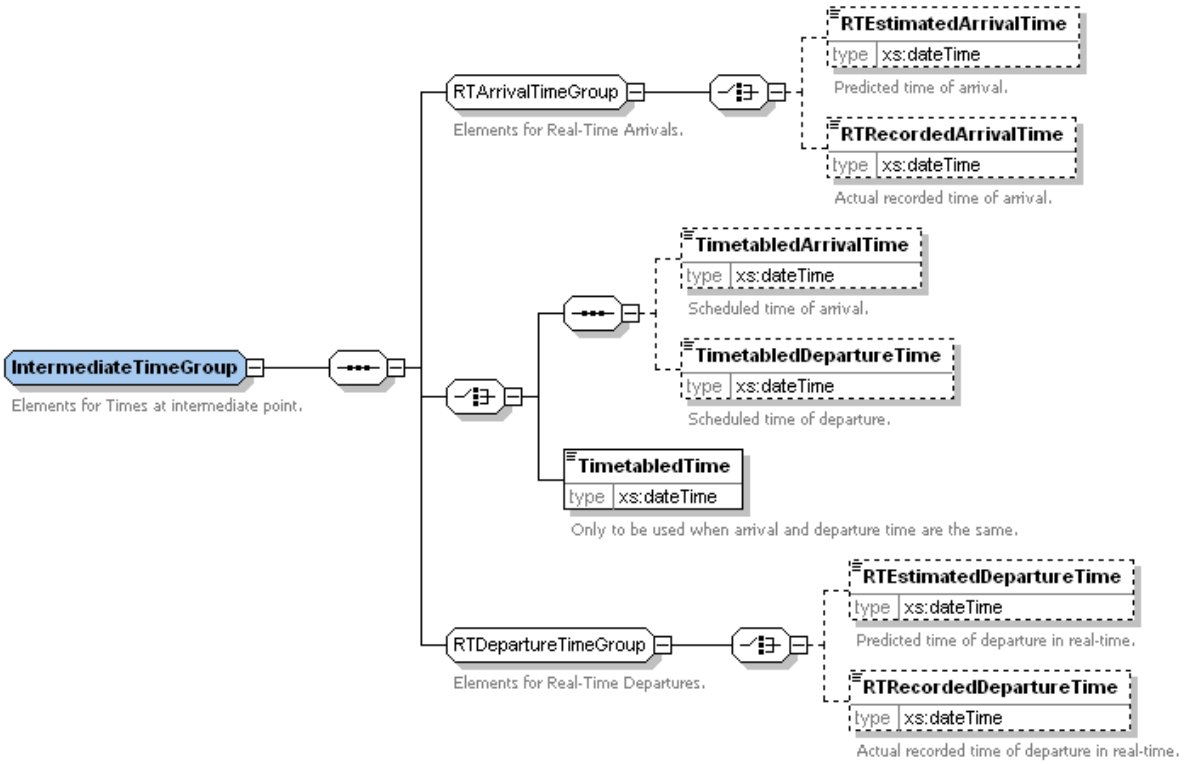


Figure 5-41 – Common Leg / IntermediateTimeGroup

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 is a request stop.

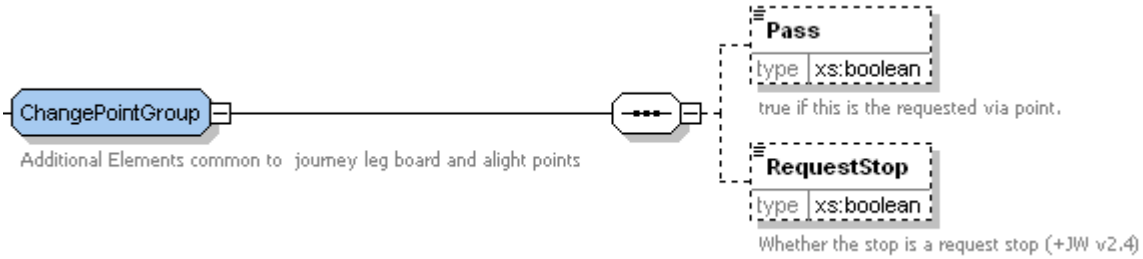


Figure 5-42 – Common Leg / ChangePointGroup

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.

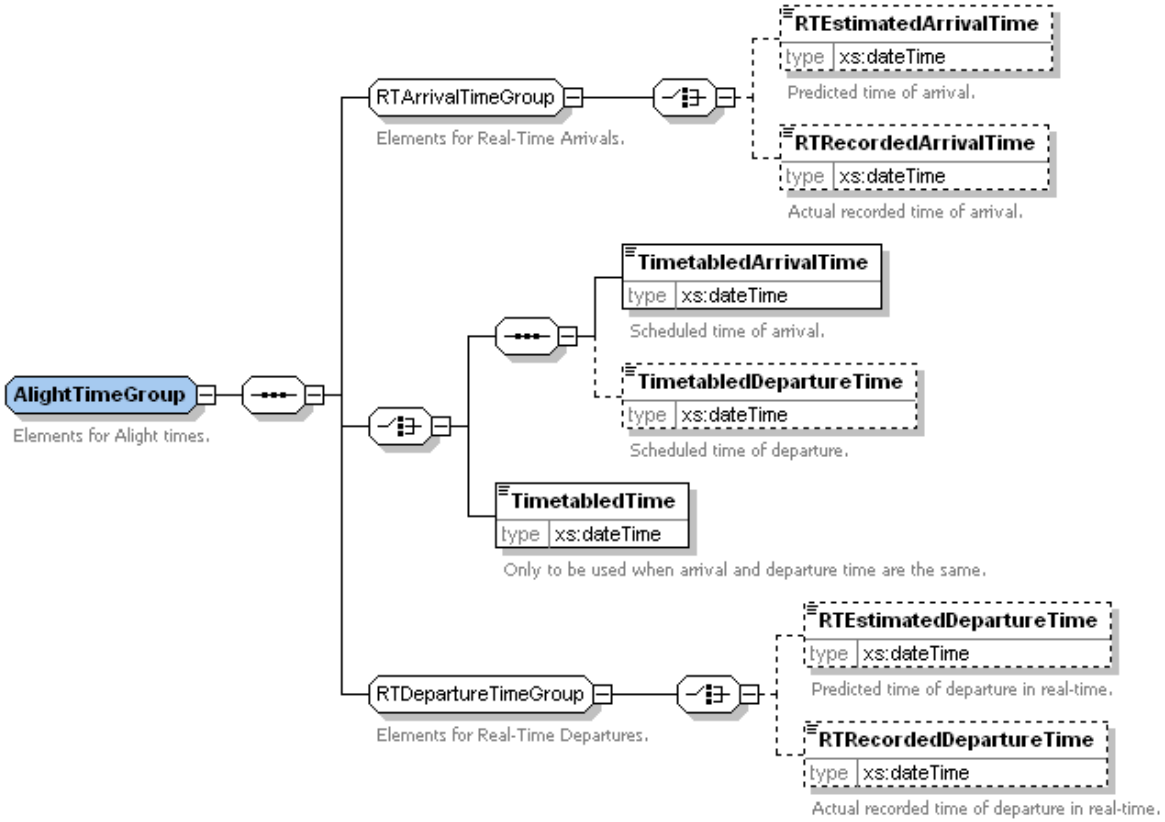


Figure 5-43 – Common Leg / AlightTimeGroup

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.

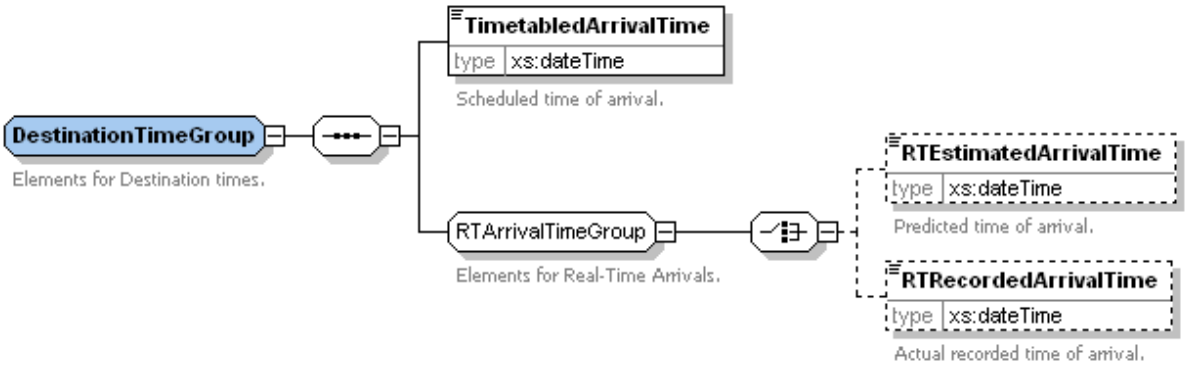


Figure 5-44 – Common Leg / DestinationTimeGroup

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***.***

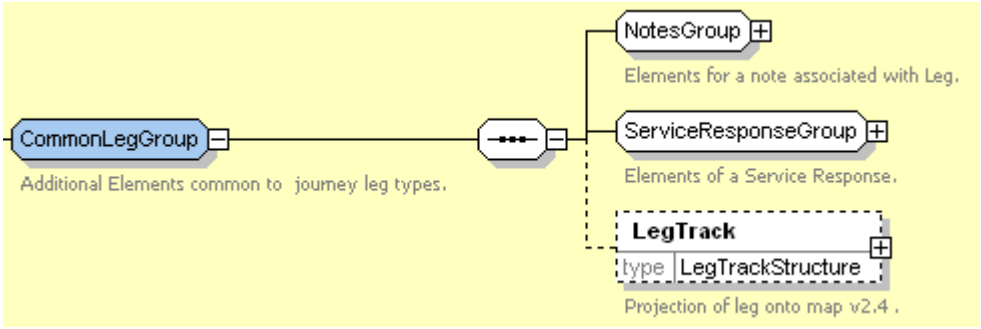


Figure 5-45 – Common Leg / CommonLegGroup

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 **Error! Reference source not found.** 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.

Value	Description
plainText	Text is plain text without mark-up
html	Note text I marked up as HTML embedded in a CDATA tag

Table 5-15 – Allowed Values for Notice / ContentType attribute

- ***Severity:*** The severity of impact of the note on the journey. Based on TPEG pti26 values See **Table 5-16**

Value	Description	TPEG PTI 26
unknown	unknown	**PTI26 0**
undefined	undefined	**PTI26 255**
noImpact	No Impact	**PTI26 6**
verySlight	Very Slight Impact	**pti26 1**
slight	Slight Impact	**PTI26 2**
normal	Some Impact	**PTI26 3**
severe	Severe Impact	**PTI26 4**
verySevere	Very Severe Impact	**PTI26 5**

Table 5-16 – Allowed Values for Notice / Severity

- ***Classification:*** *A* classification of the note type. See **Table 5-17**. Messages may be transferred between systems using this mapping.

Value	Description	SIRI SX Source
accessibility Advisory	Accessibility Advisory	ReasonName(Accessibility Advisory)
bookingAdvisory	Booking Advisory	ReasonName(Booking Advisory)
contactDetails	Contact Details	ReasonName(Contact Details)
disruptionWarning	Disruption Warning	MiscellaneousReason
drtAdvisory	Demand Responsive Transport Advisory	ReasonName(drtAdvisory)
engineeringWorksNotice	Engineering Works Notice	EquipmentReason
holidayServiceAdvisory	Holiday Service Advisory	ReasonName(HolidayServiceAdvisory)
schoolAdvisory	School Advisory	ReasonName(SchoolAdvisory)
ticketAdvisory	Ticket Advisory	ReasonName(TicketAdvisory)
other	otherAdvisory	ReasonName(OtherAdvisory)

Table 5-17 – Allowed Values for Notice / Classification

- ***ReportType:*** The scope of impact of the message. Based on TPEG pti27 values See Table 5-18.

SIRI-SX	Description	Pti27
unknown	Scope of situation is unspecified.	27_1
route	Situation concerns a route	27_2
network	Situation concerns a route	27_3
point	Situation concerns a point	27_4
individualService	Situation concerns an individual service	27_255
undefined	Situation type is undefined	27_1

Table 5-18 – Allowed Values for ReportType (TPEG Pti27)

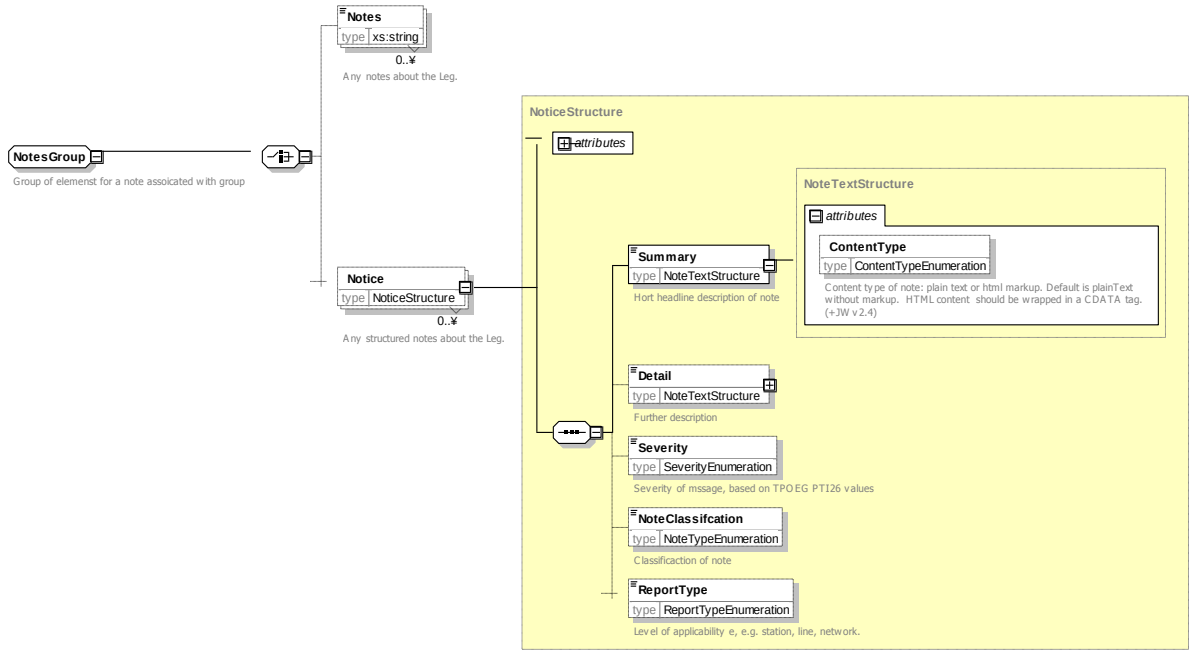


Figure 5-46 – Common Leg / NotesGroup

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.

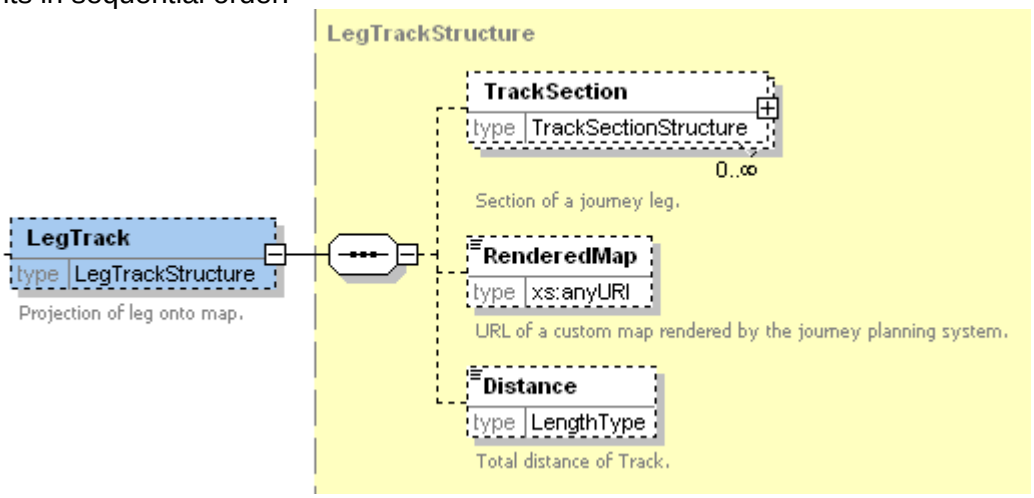


Figure 5-47 – Common Leg / LegTrack Elements (+JW v2.4)

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.

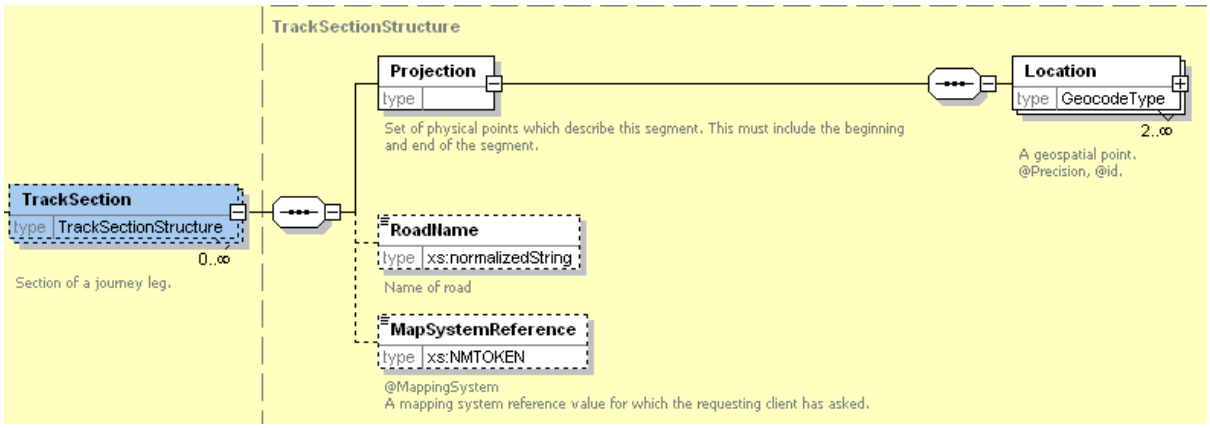


Figure 5-48 – LegTrack / TrackSection Elements (+JW v2.4)

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 5-11**, 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 5-19** indicates the useful values with which to populate the ***InterchangeTime.***

	Time	Usage	Comment
Initial Access Leg	LegBoard / InterchangeTime	Time to reach platform from entrance of station and get onto vehicle	
Intermediate Access when interchanging between subsequent legs	LegAlight / InterchangeTime	Time to get off vehicle and go from platform to reach a common measurement point within a station. This point may be distinct from the main entrance, for example the main concourse.	The interchange time should be stated only once. I.e. not be repeated on the board & alight legs. Where a journey involves subsequent legs and an exact point to point interchange time is known between alight and board points as a single value. It may be specified as the ***InterchangeTime*** on an ***InterchangeLeg*** The ***Service*** number on the ***Seed*** element can be used to avoid adding an interchange time when passenger is remaining on the same service
	LegBoard / InterchangeTime	Time to go from a common measurement point within a station to platform and board vehicle.	
End Access	Leg alight / InterchangeTime	Time to get off vehicle and reach entrance of station from platform	

Table 5-19 – Use of Interchange Times

- 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.***
- ***CommonLegGroup:*** Describes the service properties. See ***ServiceResponse*** above.

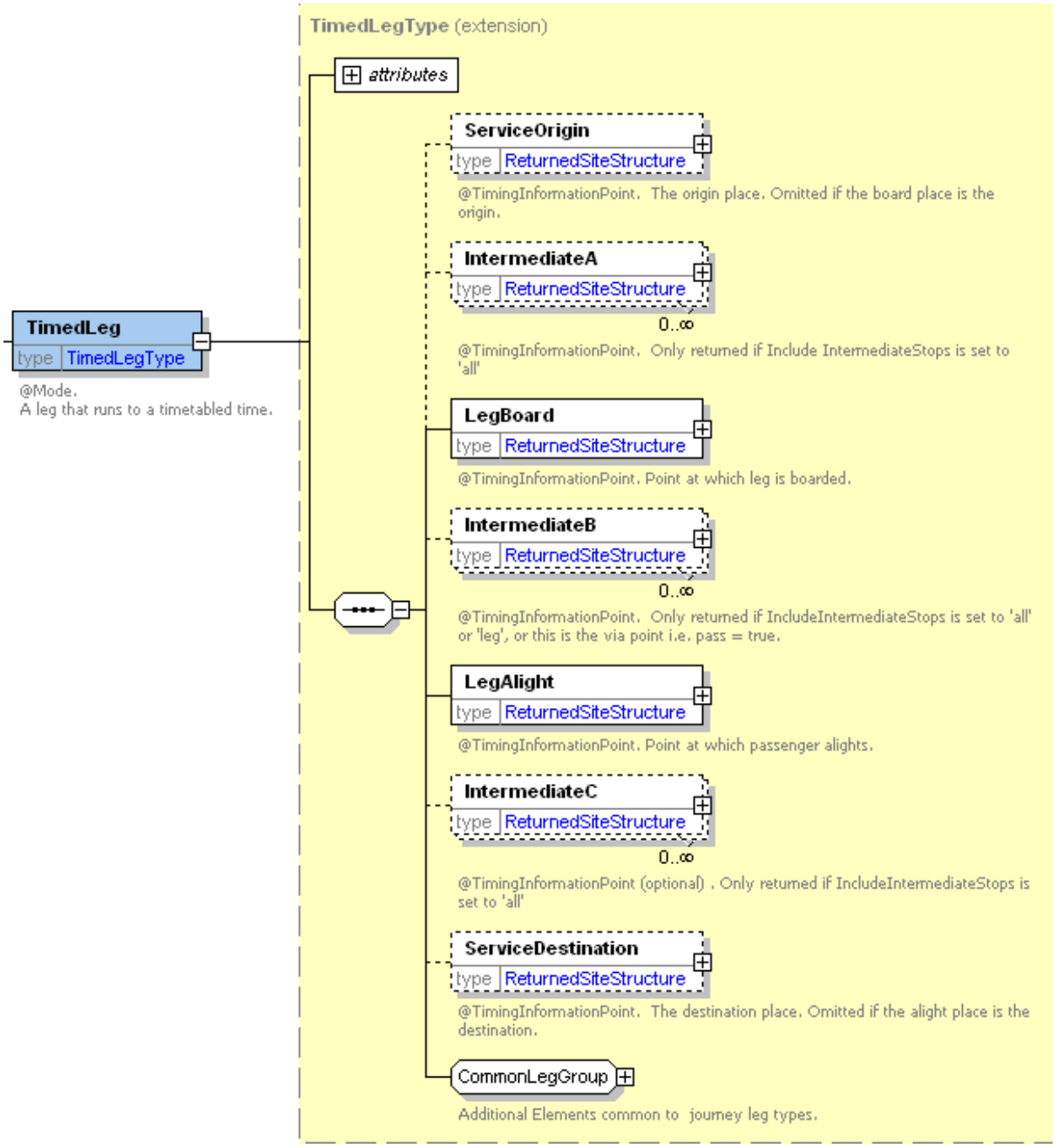


Figure 5-49 – Journey / TimedLeg

5.6.19 TimedLeg / ServiceOrigin

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

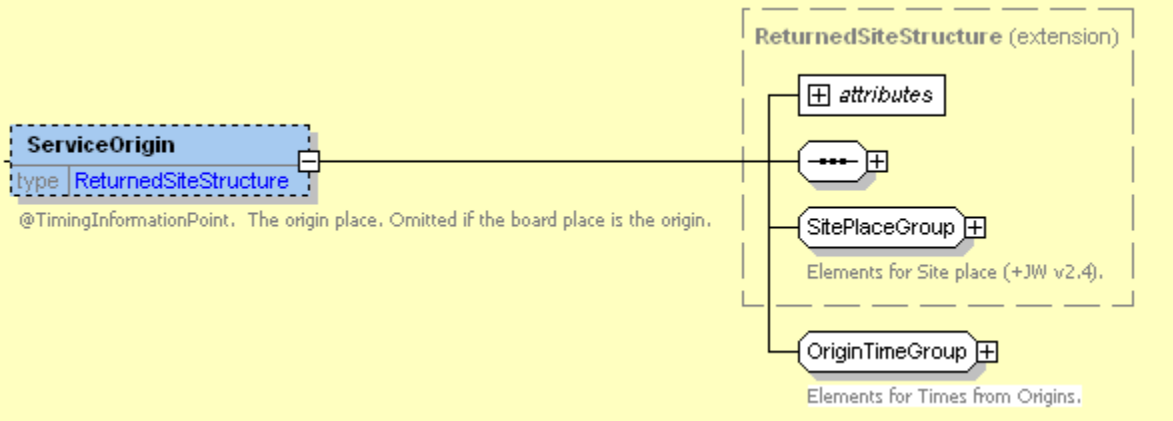


Figure 5-50 – TimedLeg / ServiceOrigin

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.

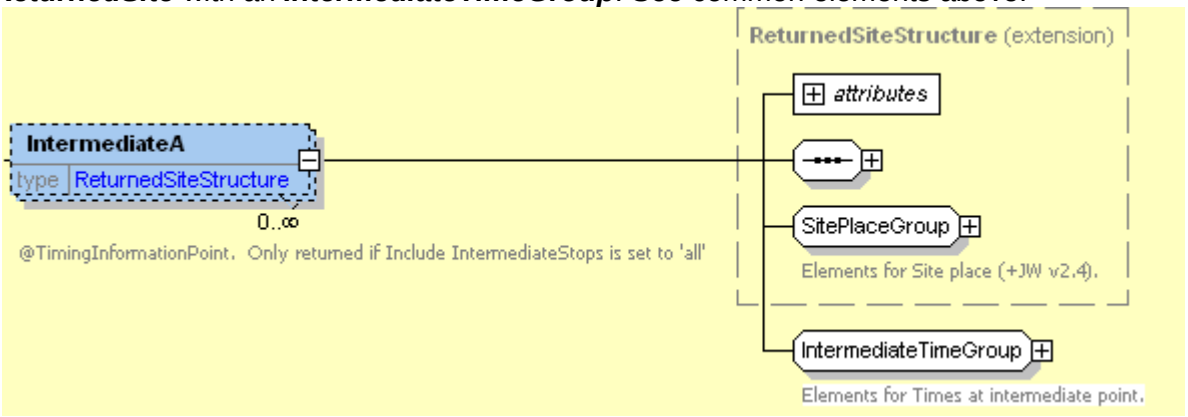


Figure 5-51 – TimedLeg / IntermediateA

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 5-19** earlier.
- ***BoardTimeGroup:*** Times at stop: See above.

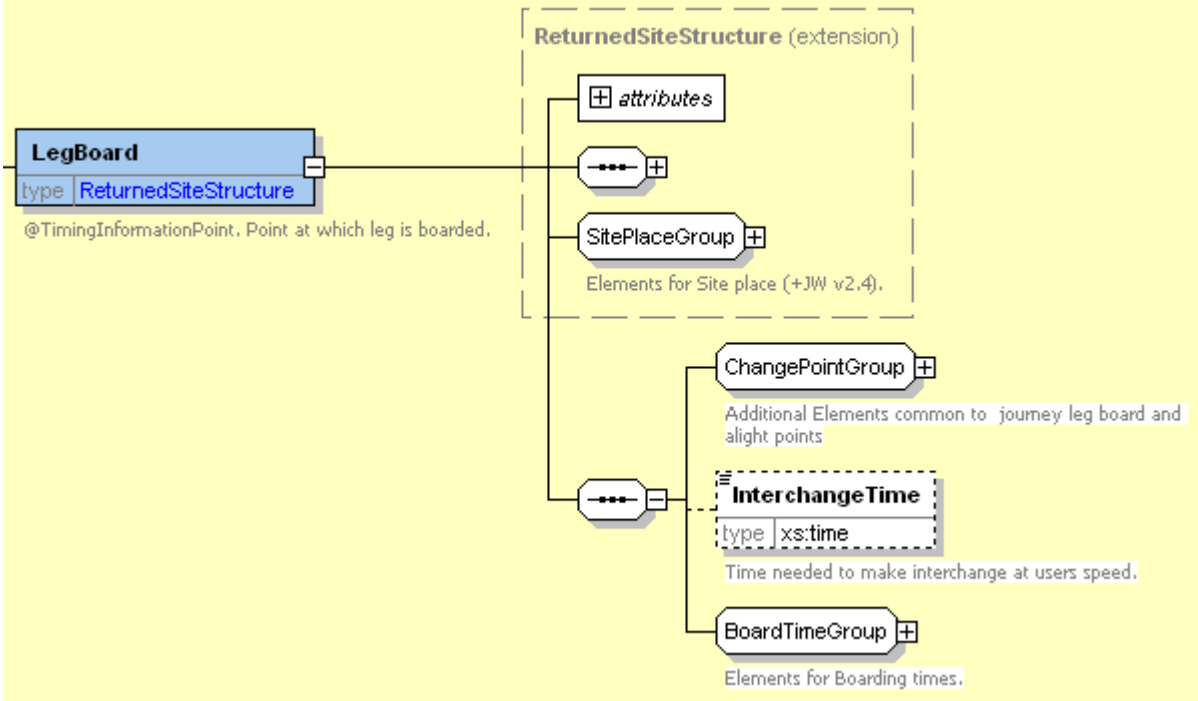


Figure 5-52 – TimedLeg / LegBoard

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.

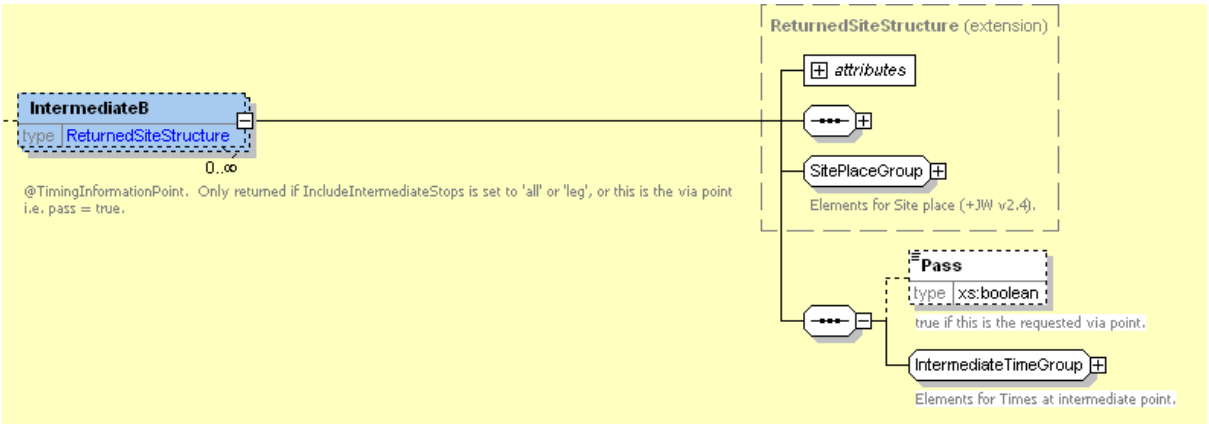


Figure 5-53 – TimedLeg / IntermediateB

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: t***ime to interchange. See also **Table 5-19** earlier.
- ***AlightTimeGroup:*** Times at stop: See above.

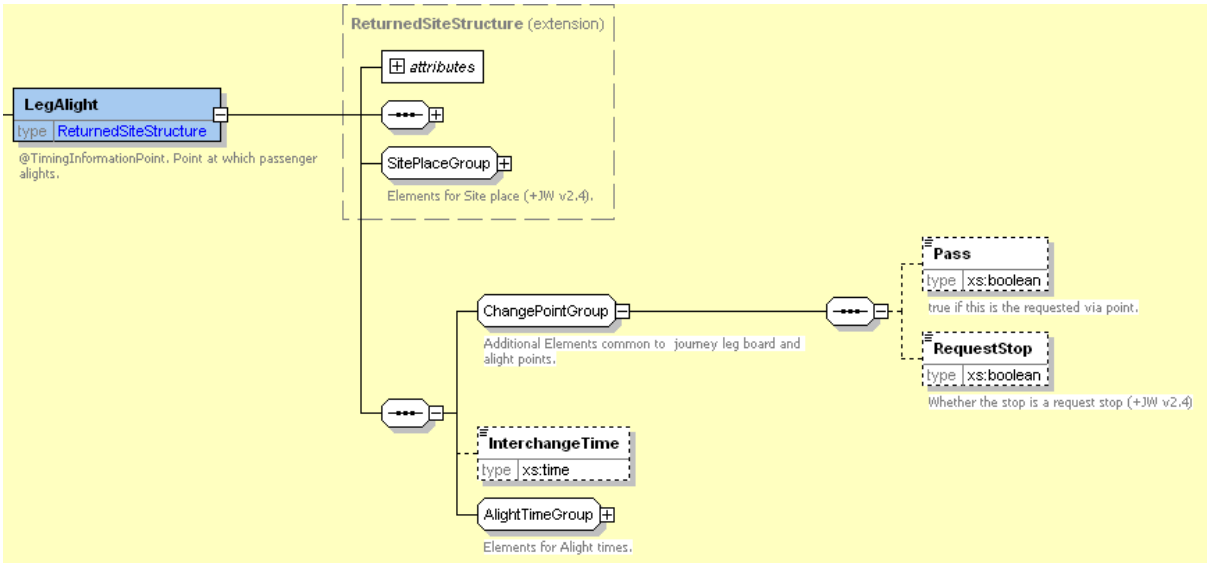


Figure 5-54 – TimedLeg / LegAlight

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.

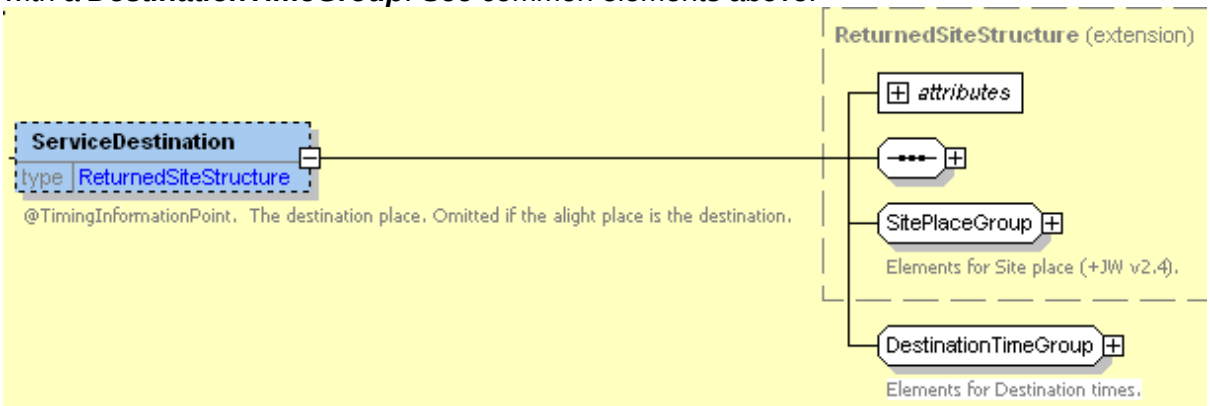


Figure 5-55 – TimedLeg / ServiceDestination

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 5-11** 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.

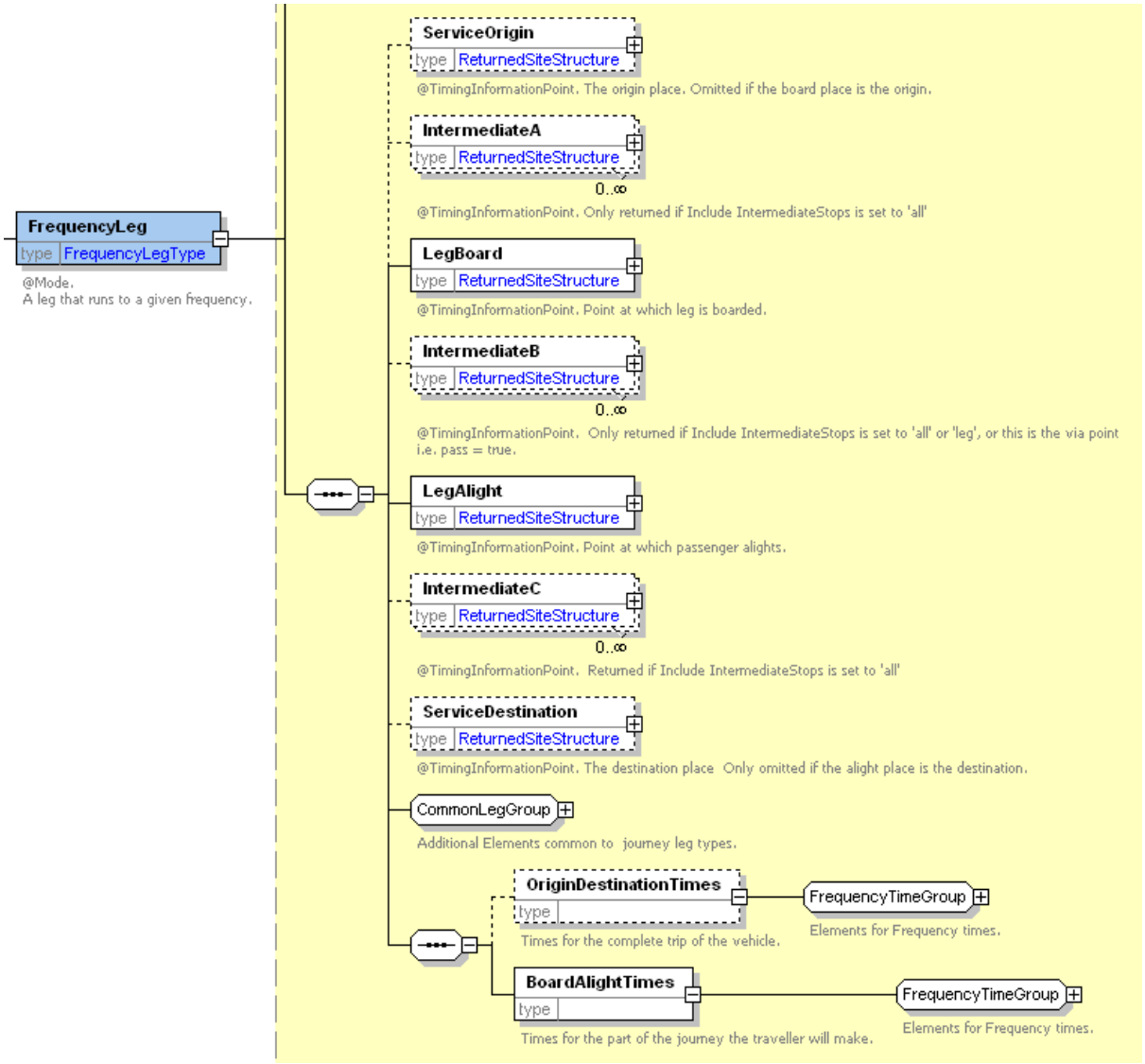


Figure 5-56 – Journey / FrequencyLeg

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.

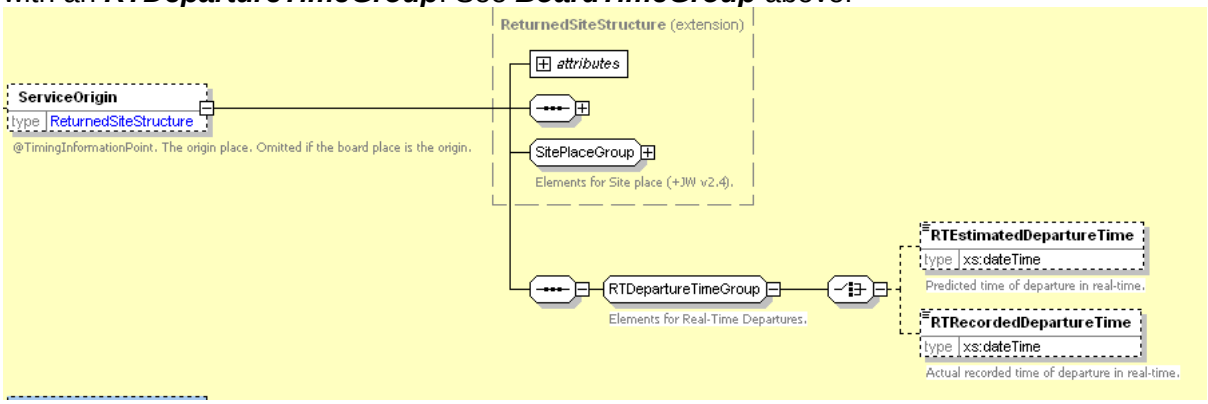


Figure 5-57 – FrequencyLeg / ServiceOrigin

5.6.4 FrequencyLeg / IntermediateA

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

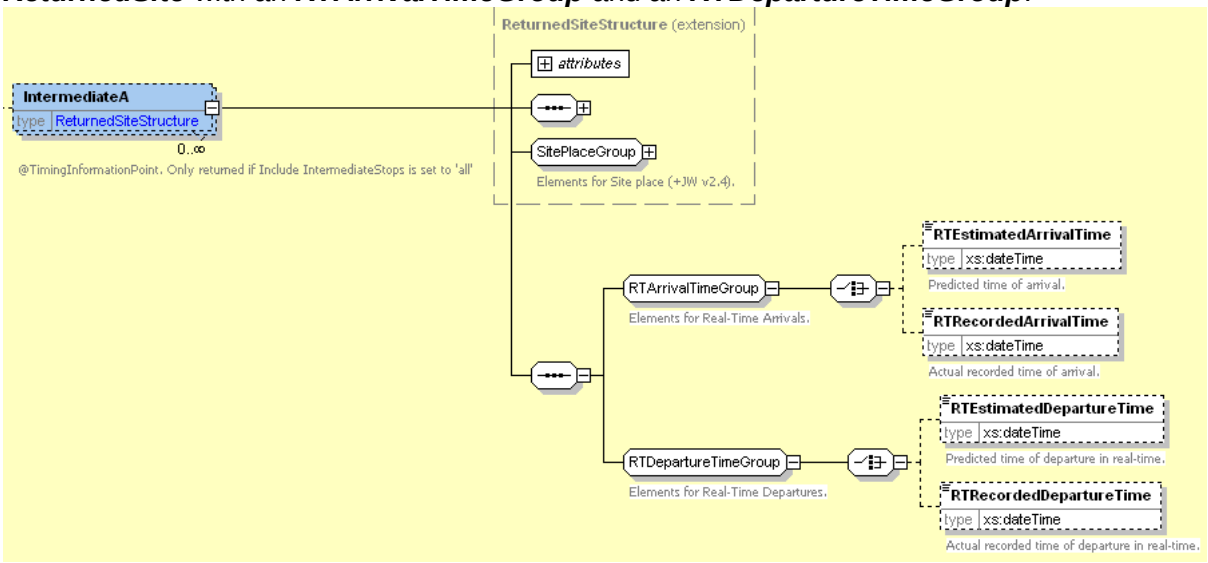


Figure 5-58 – FrequencyLeg / IntermediateA

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.

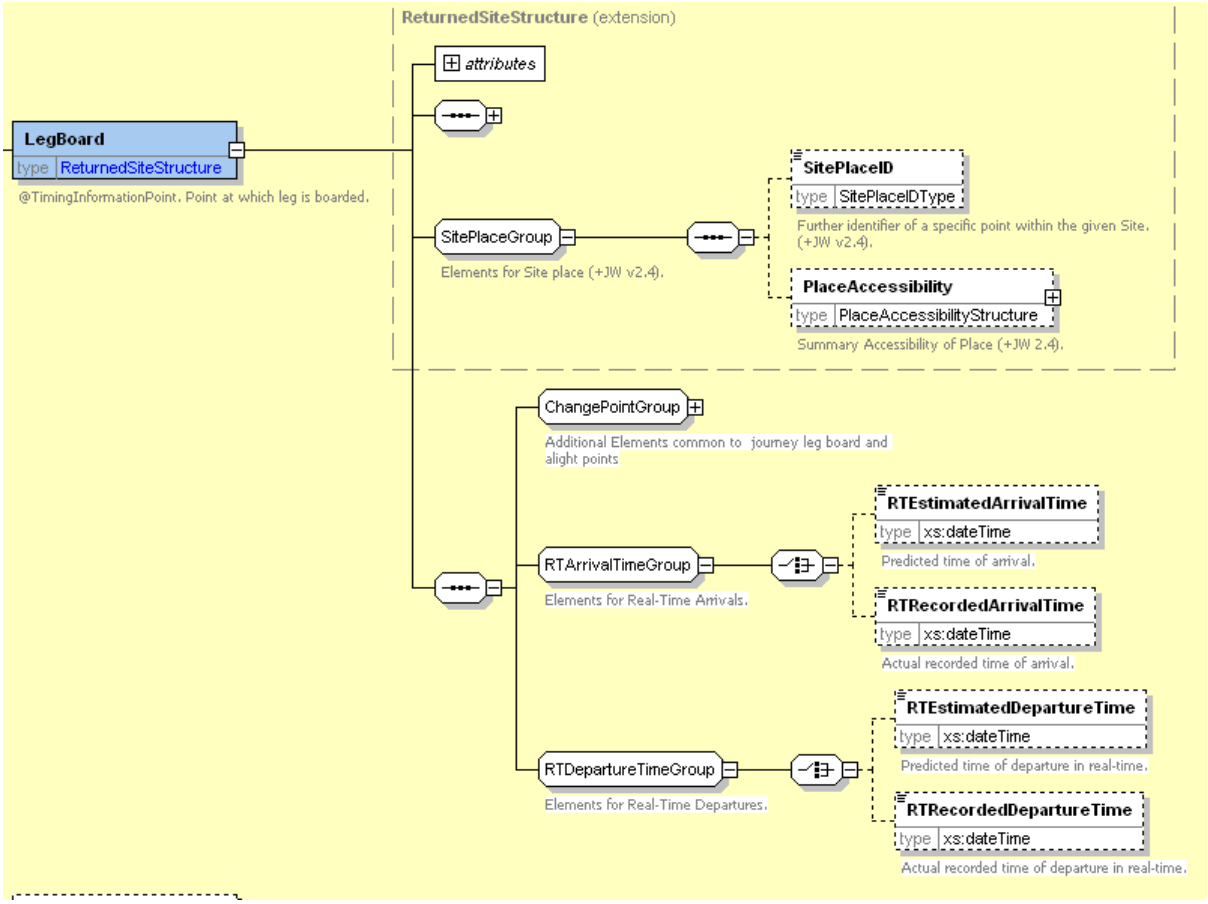


Figure 5-59 – FrequencyLeg / LegBoard

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.

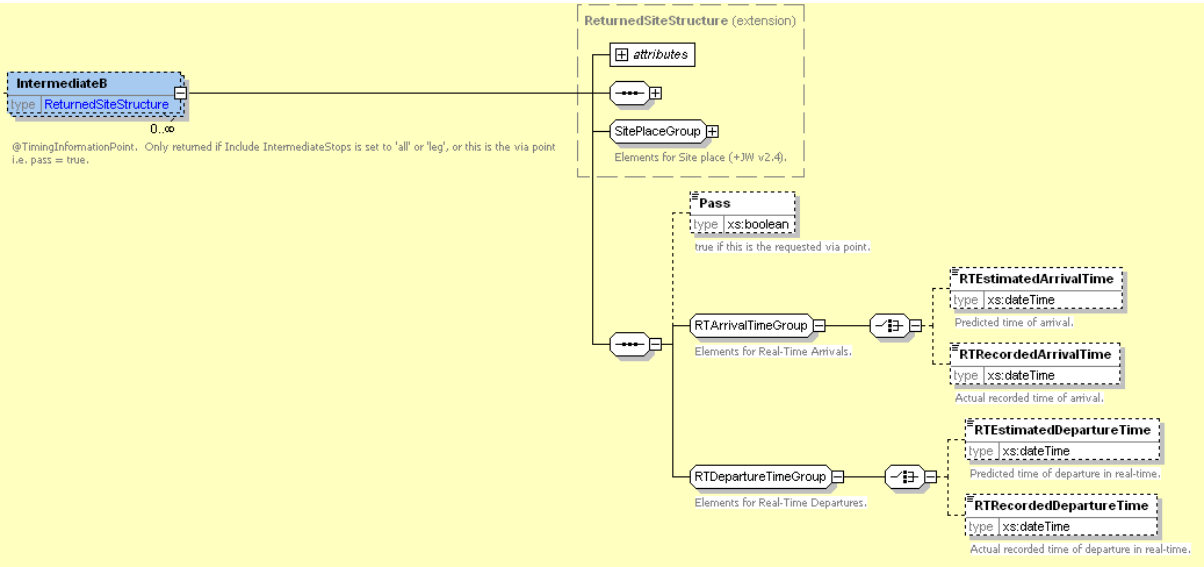


Figure 5-60 – FrequencyLeg / IntermediateB

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.

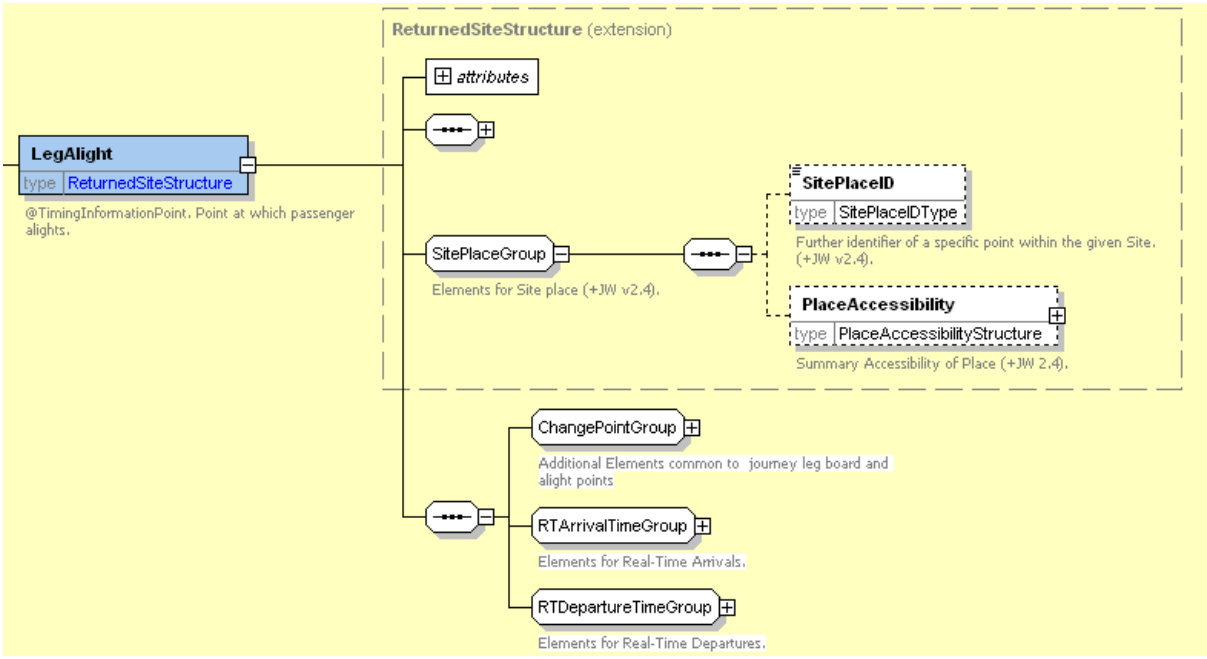


Figure 5-61 – FrequencyLeg / LegAlight

5.6.8 FrequencyLeg / IntermediateB

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.

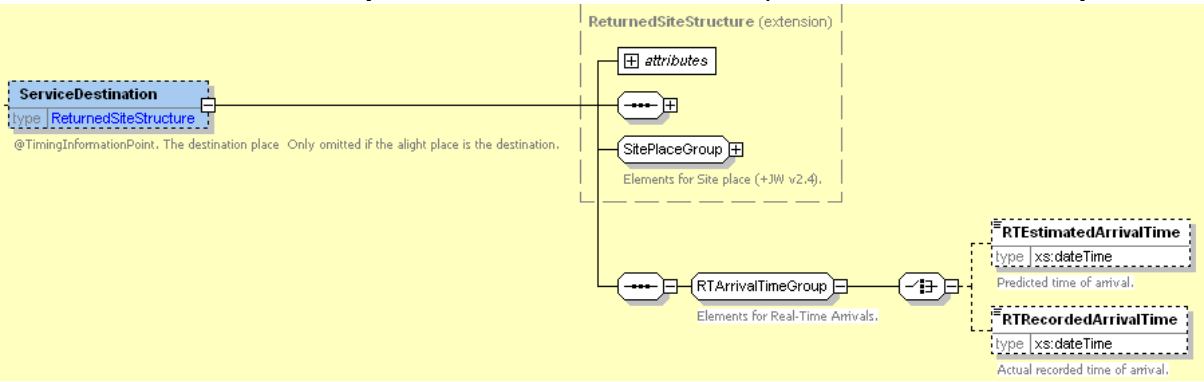


Figure 5-62 – FrequencyLeg / ServiceDestination

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.*

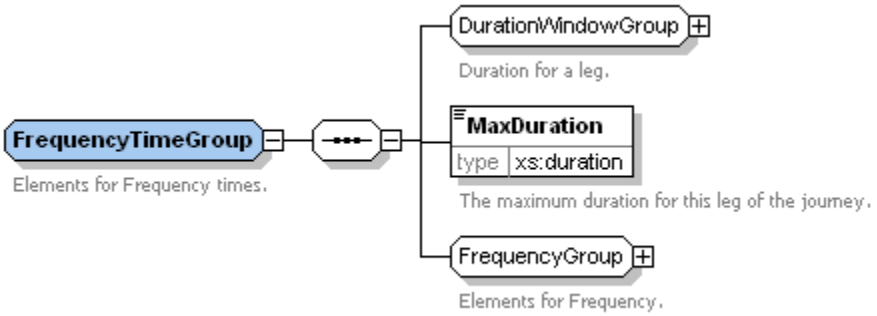


Figure 5-63 – FrequencyLeg / FrequencyTimeGroup

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 5-19** 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.

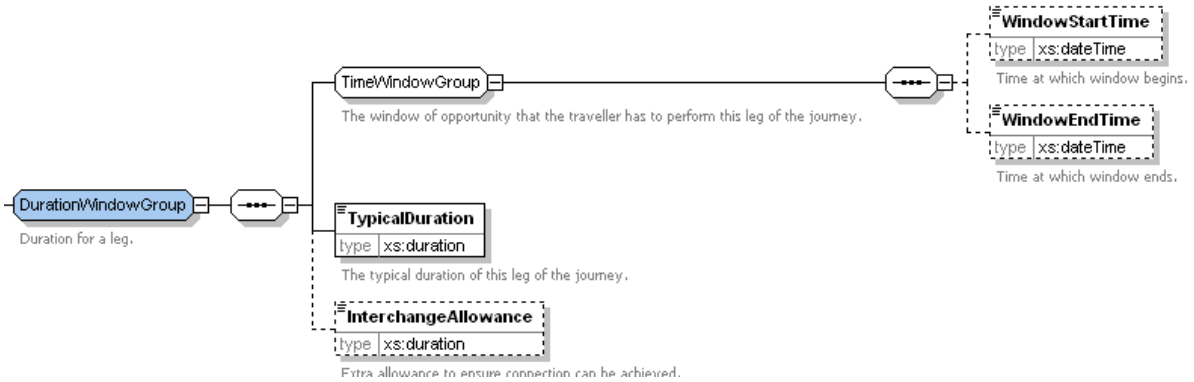


Figure 5-64 – FrequencyLeg / DurationWindowGroup

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.

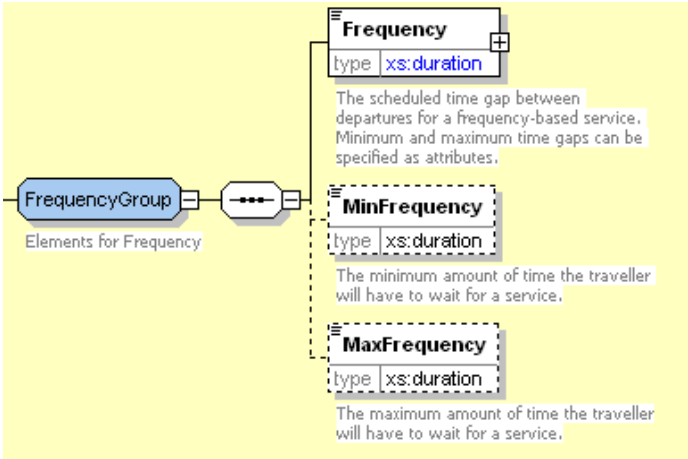


Figure 5-65 – FrequencyLeg / FrequencyGroup

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 5-11** 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.

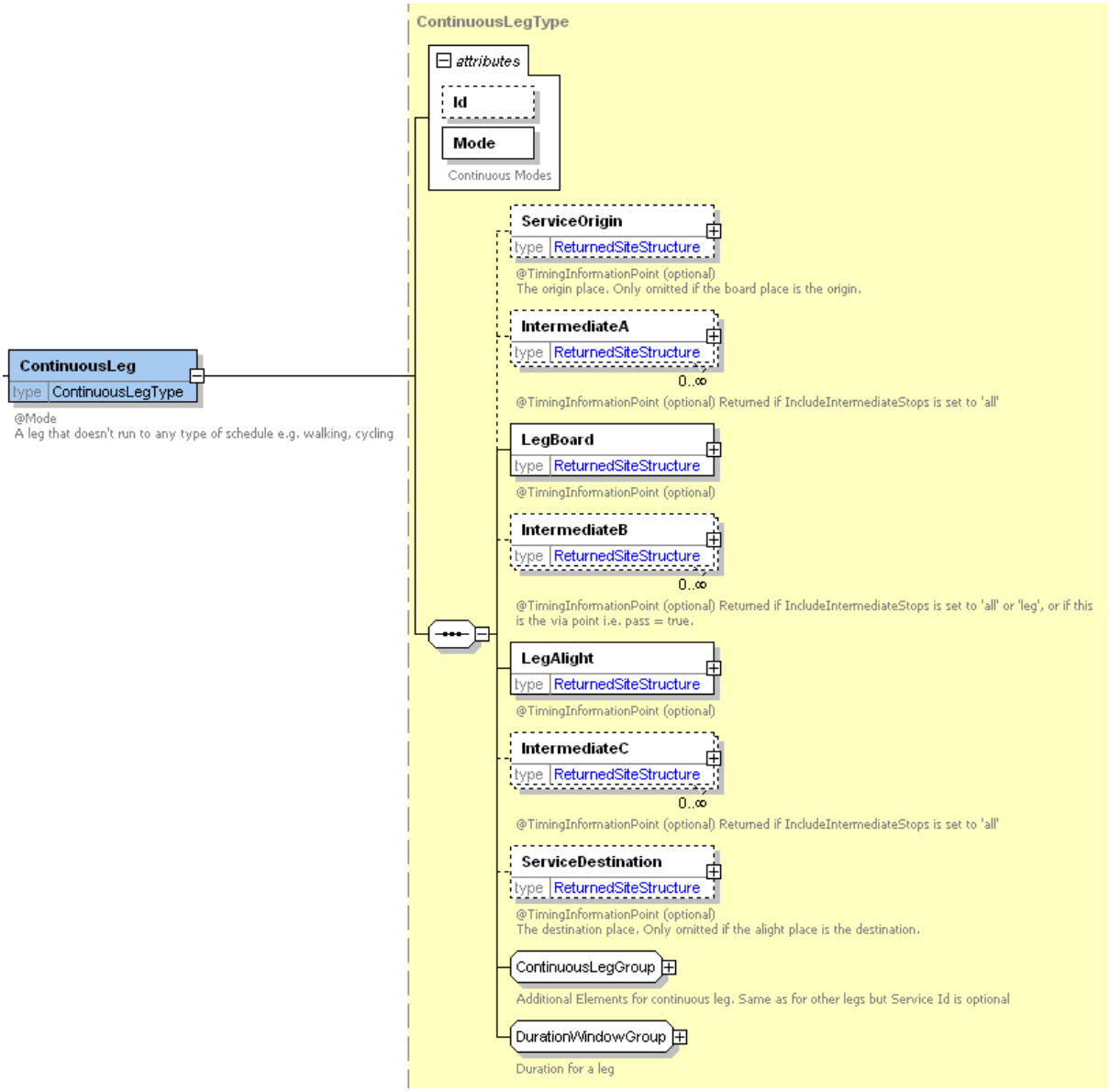


Figure 5-66 – Journey / ContinuousLeg

5.6.14 Common Leg / ContinuousLegGroup

A ***ContinuousLegGroup*** **(Figure 5-67)** is a syntactic element that groups the possible additional common properties of continuous 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.

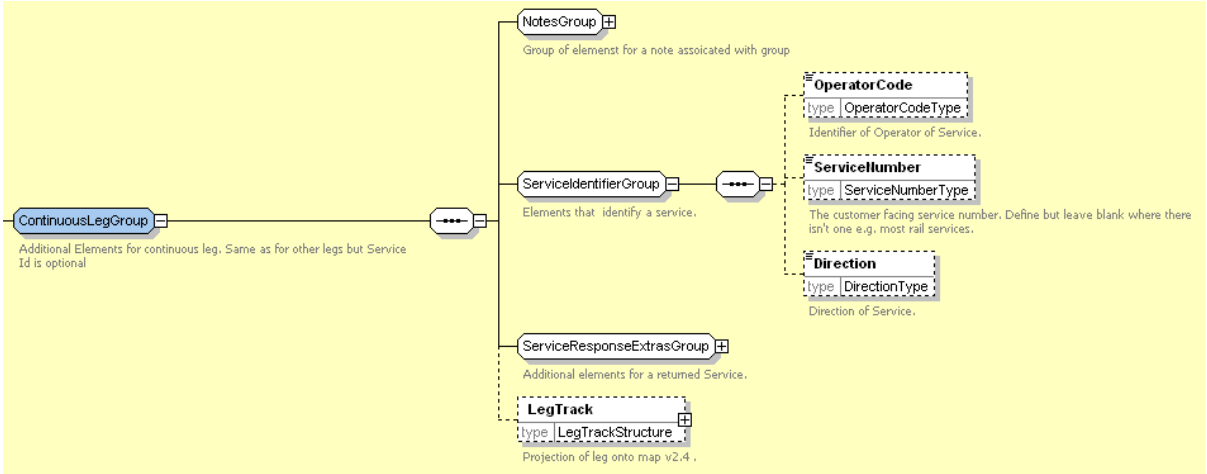


Figure 5-67 – Common Leg / ContinuousLegGroup

5.6.15 Journey / InterchangeLeg (+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 5-11** 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 needed to travel over leg. See under ***FrequencyLeg*** earlier.

Further details about the leg may be fetched using the LEGPATH service using the ***LegID***.

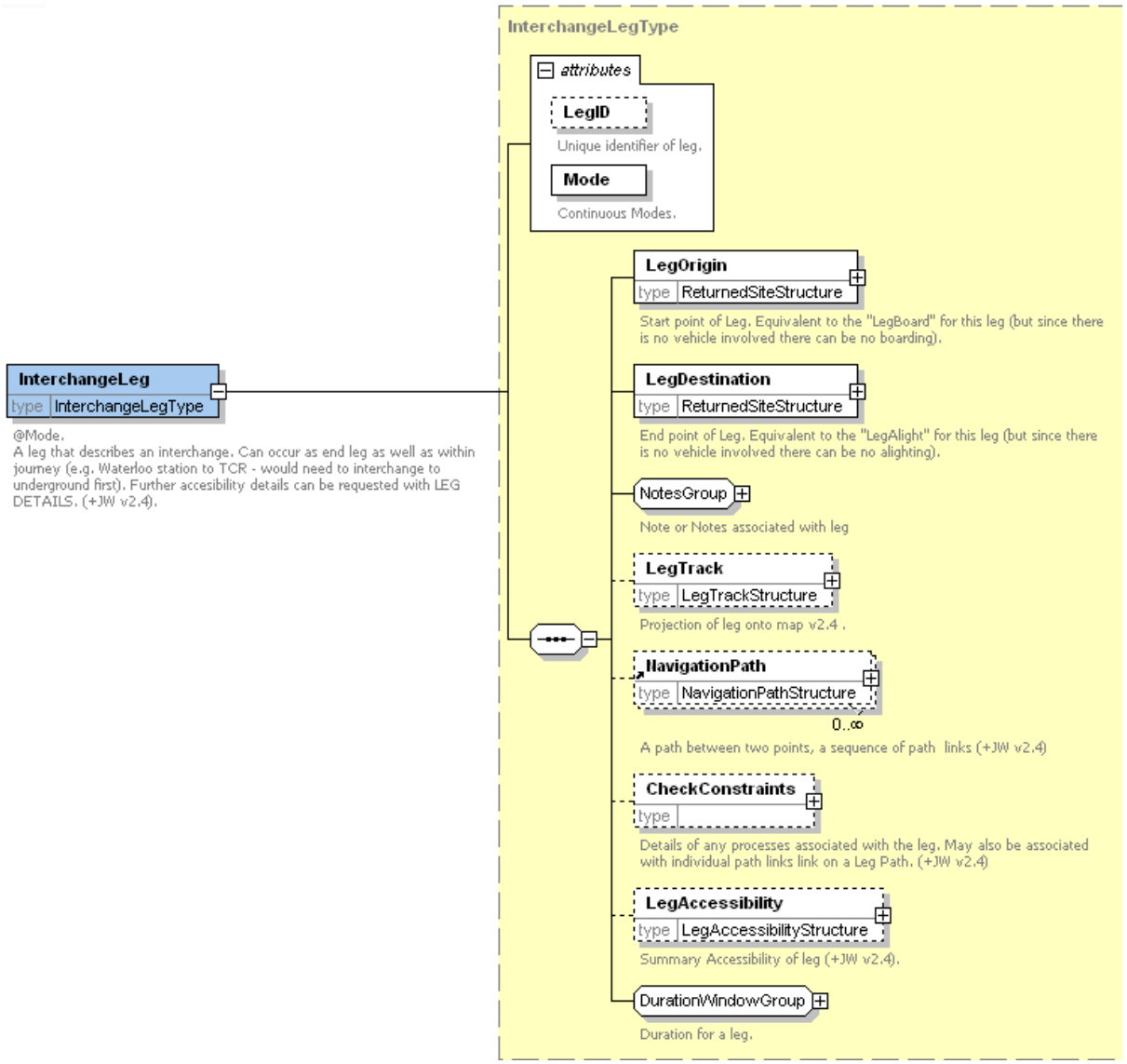


Figure 5-68 – Journey/ InterchangeLeg (+JW v2.4)

5.6.16 InterchangeLeg / LegAccessibility (+JW v2.4)

A ***LegAccessibility*** (**Figure 5-69)** 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 with accessibility criteria specified on request. 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.

- ***SuitableFor*** (+JW v2.5) Types of mobility needs e.g. *mobilityScooter*, *wheelchair* etc for which leg is suitable.
- ***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

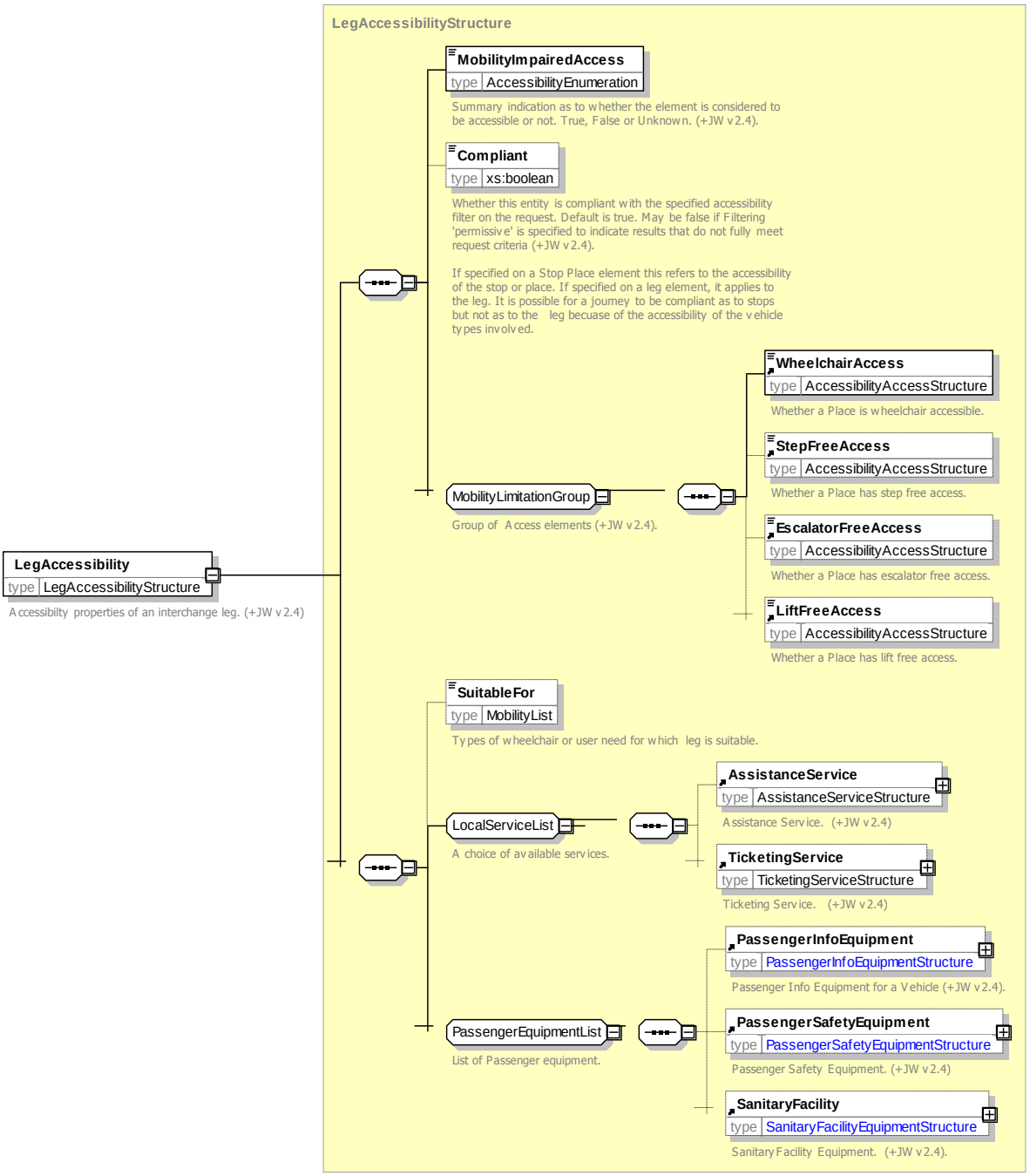


Figure 5-69 – InterchangeLeg / LegAccessibility (+JW v2.4)

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***.

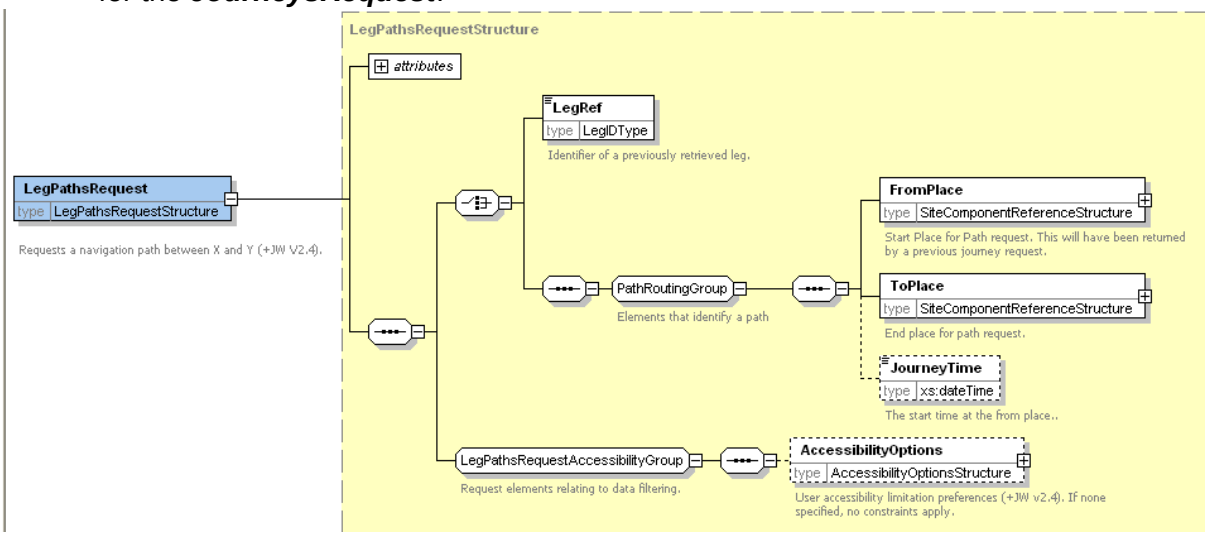


Figure 5-70 – LegPathsRequest (+JW v2.4)

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).

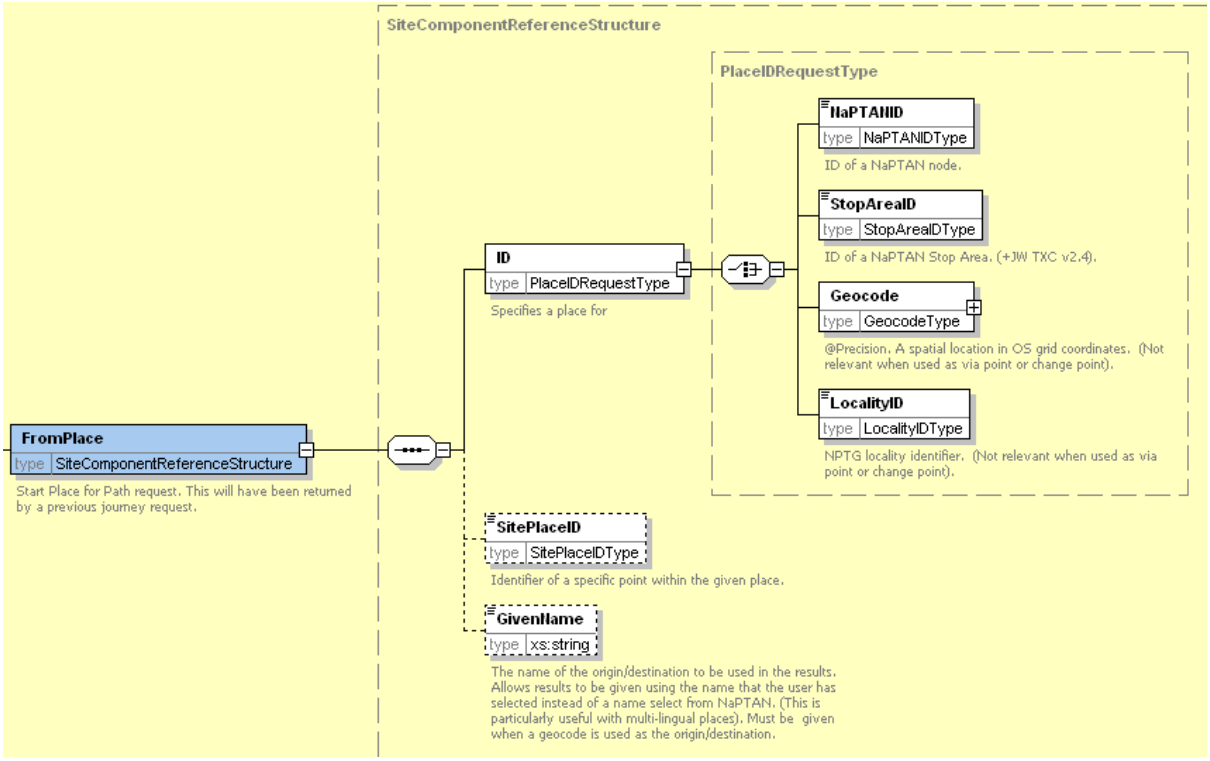


Figure 5-71 – PathLinkInSequence / SiteComponentReferenceStructure (+JW v2.4)

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 ***LegOrigin.*** The last point of the last link in the path must correspond to the ***LegDestination***.
  - ***InterchangeSchematic*** – Reference to URL's for schematic maps associated with the ***NavigationPath***.

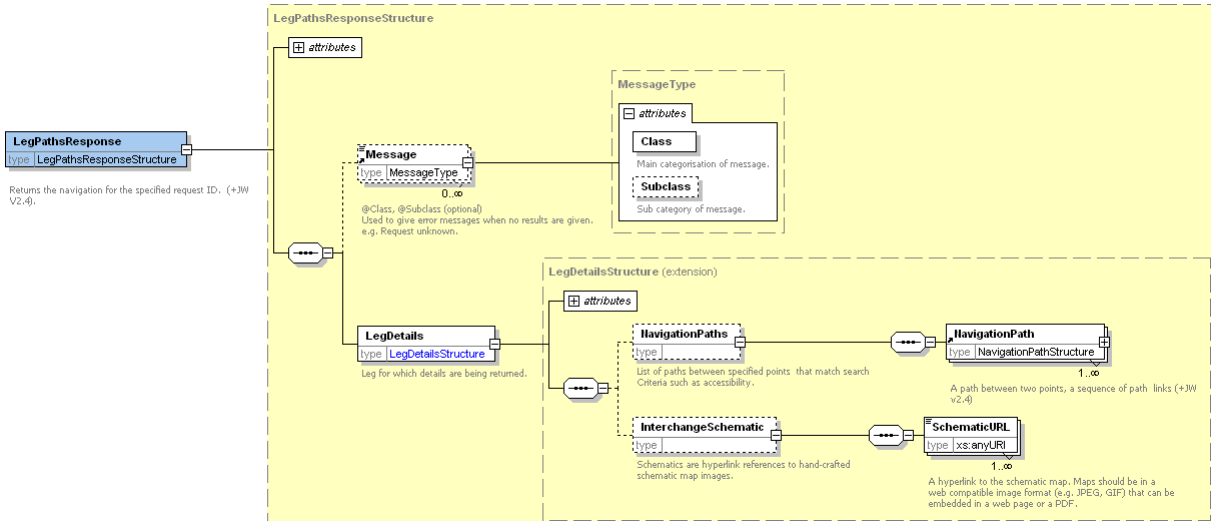


Figure 5-72 – LegPathsResponse (+JW v2.4)

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 5-20).**

Value	Description
hallToQuay	Hall to Quay
hallToStreet	Hall to Street
quayToHall	Quay to Hall
quayToQuay	Quay to Quay
quayToStreet	Quay to Street
streetToHall	Street to Hall
streetToQuay	Street to Quay
streetToSitePlace	Street to a Place within a site
sitePlaceToStreet	Place within a site to Street
other	Other

Table 5-20 – Allowed Values for NavigationPathType (+JW v2.4)

- ***PathAccessibility: T****he* overall the 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.

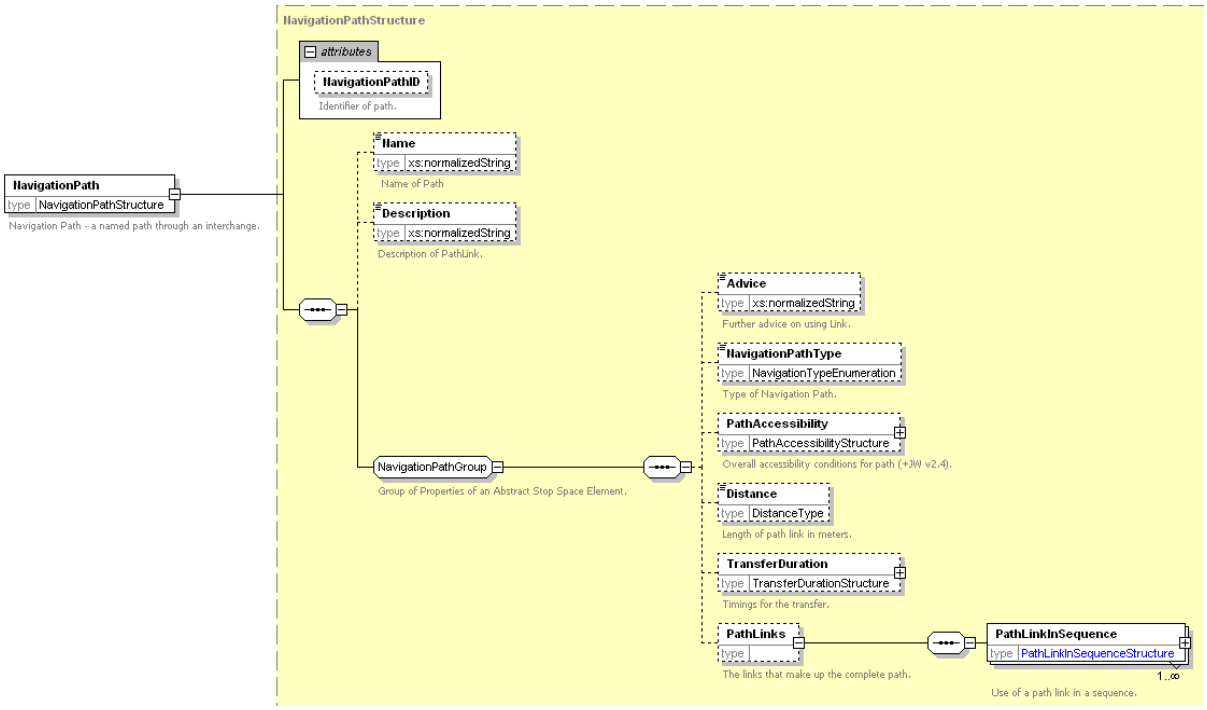


Figure 5-73 – NavigationPath (+JW v2.4)

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.

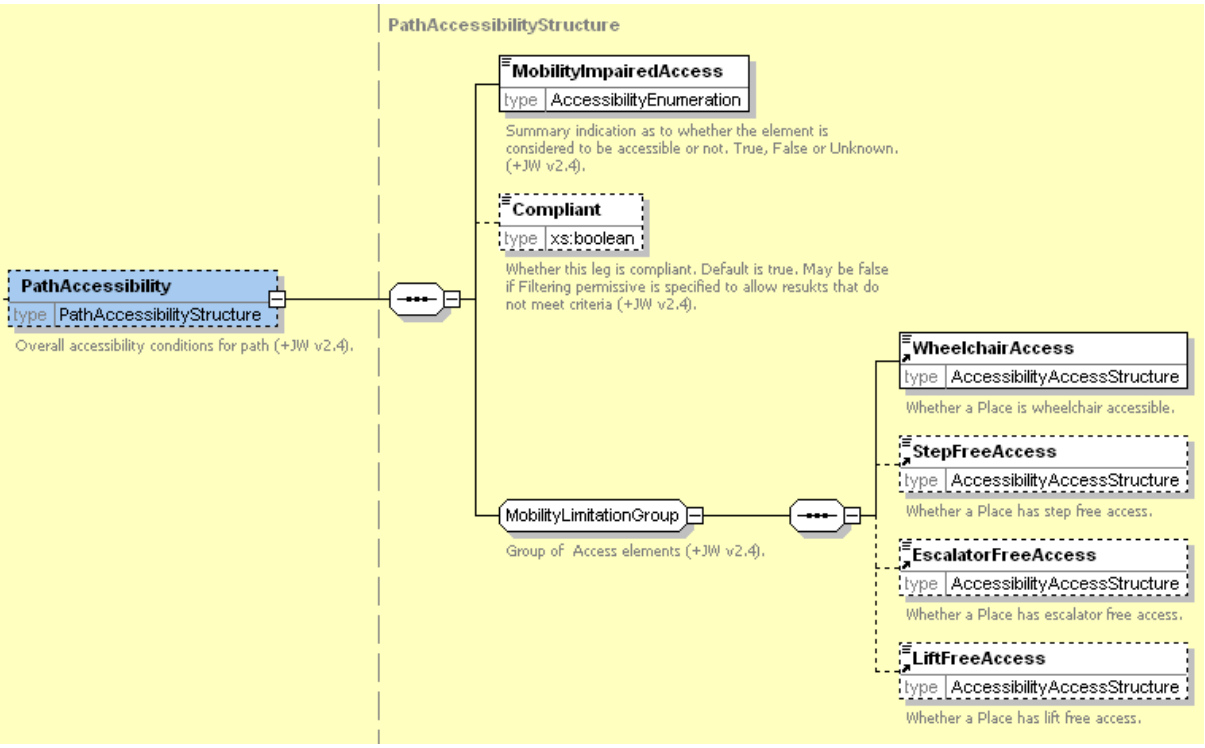
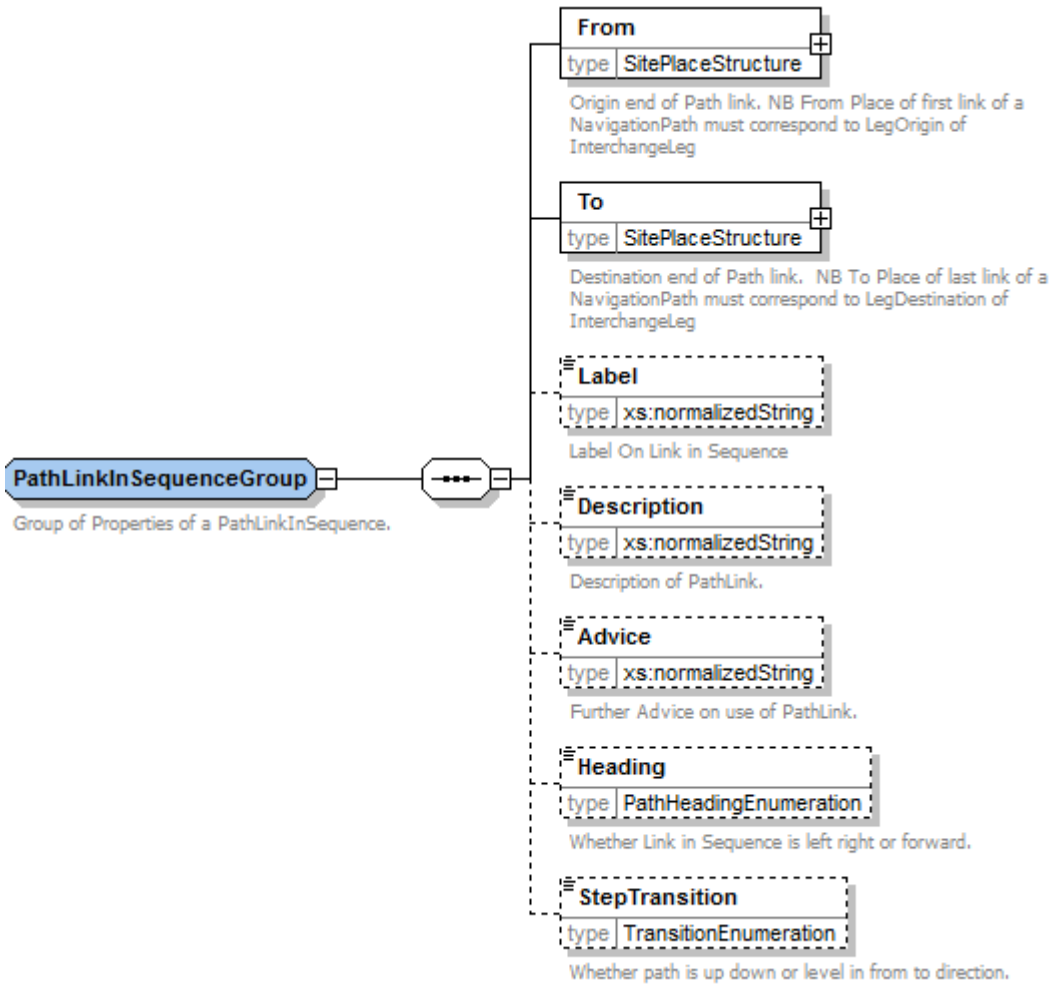


Figure 5-74 – NavigationPath / PathAccessibility (+JW v2.4)

5.7.6 TransferDuration (+JW v2.4)

A ***TransferDuration***



(

Figure 5-77) 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.

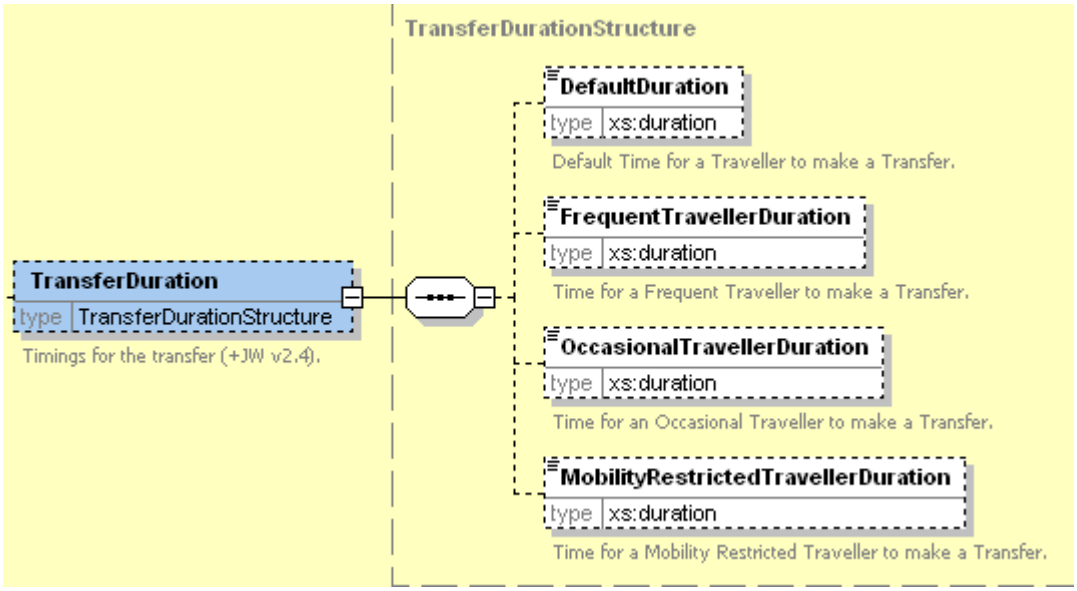


Figure 5-75 – NavigationPath / TransferDuration (+JW v2.4)

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.
- ***PathLinkInSequnceGroup:*** 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 ***Path-Accessibility*** above.

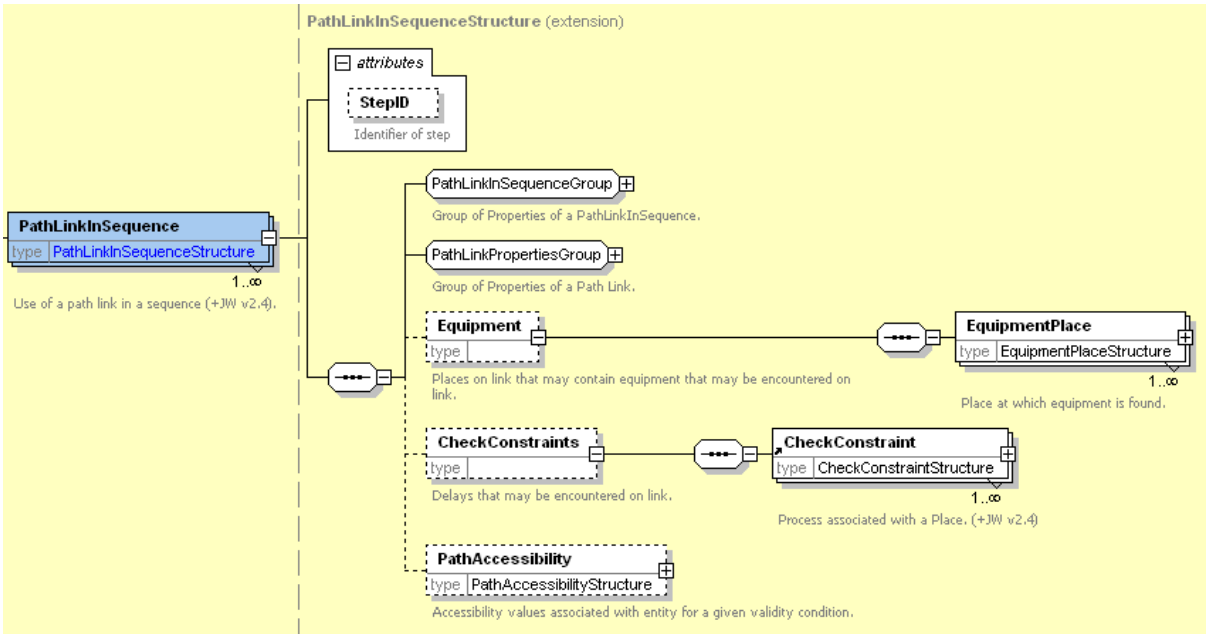
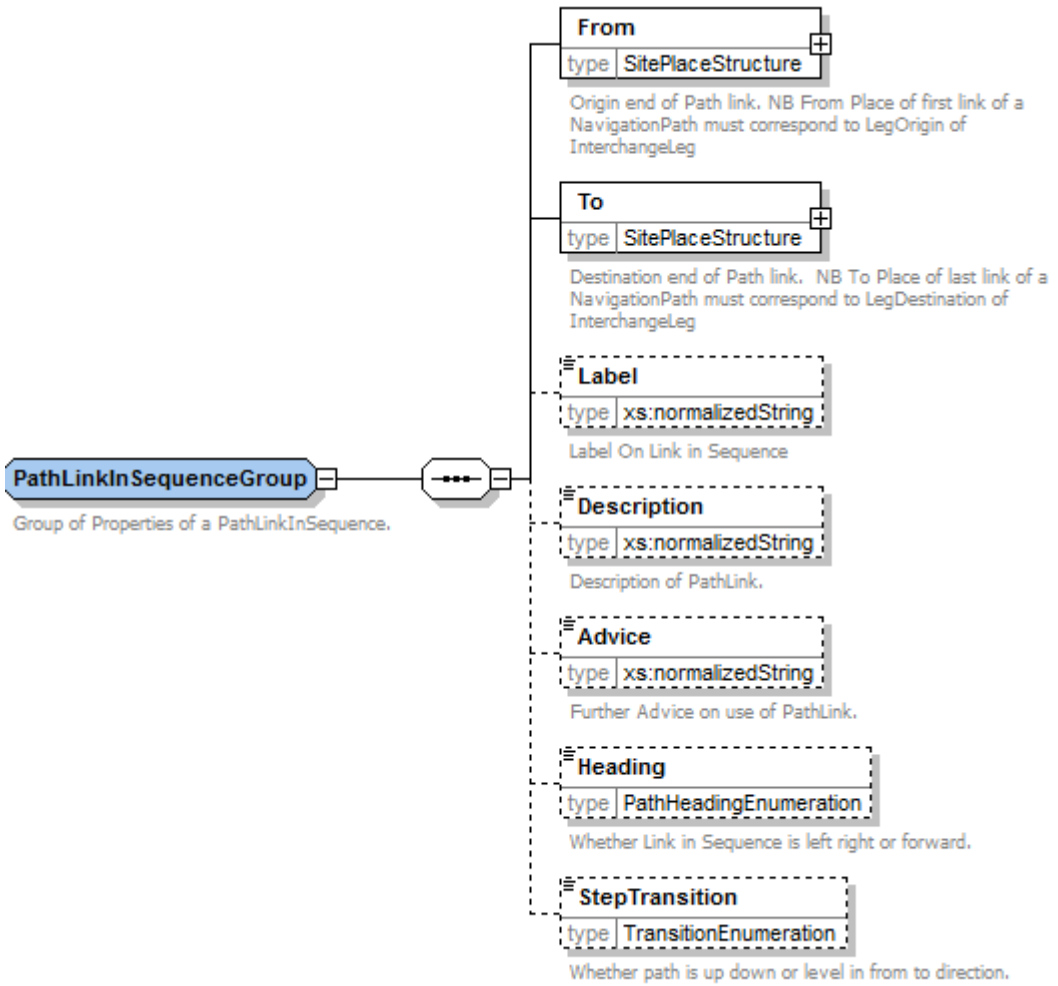


Figure 5-76 – NavigationPath / PathLinkInSequence (+JW v2.4)

5.7.8 PathLinkInSequence / PathLinkInSequenceGroup (+JW v2.4)

The ***PathLinkInSequenceGroup***



(**Figure 5-77**) 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 5-21** for allowed value***s***.

Value	Description
left	This link turns left from previous link
right	This link turns left from previous link
forward	This link continues forward from previous link
back	This link turns back from previous link

Table 5-21 – 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.

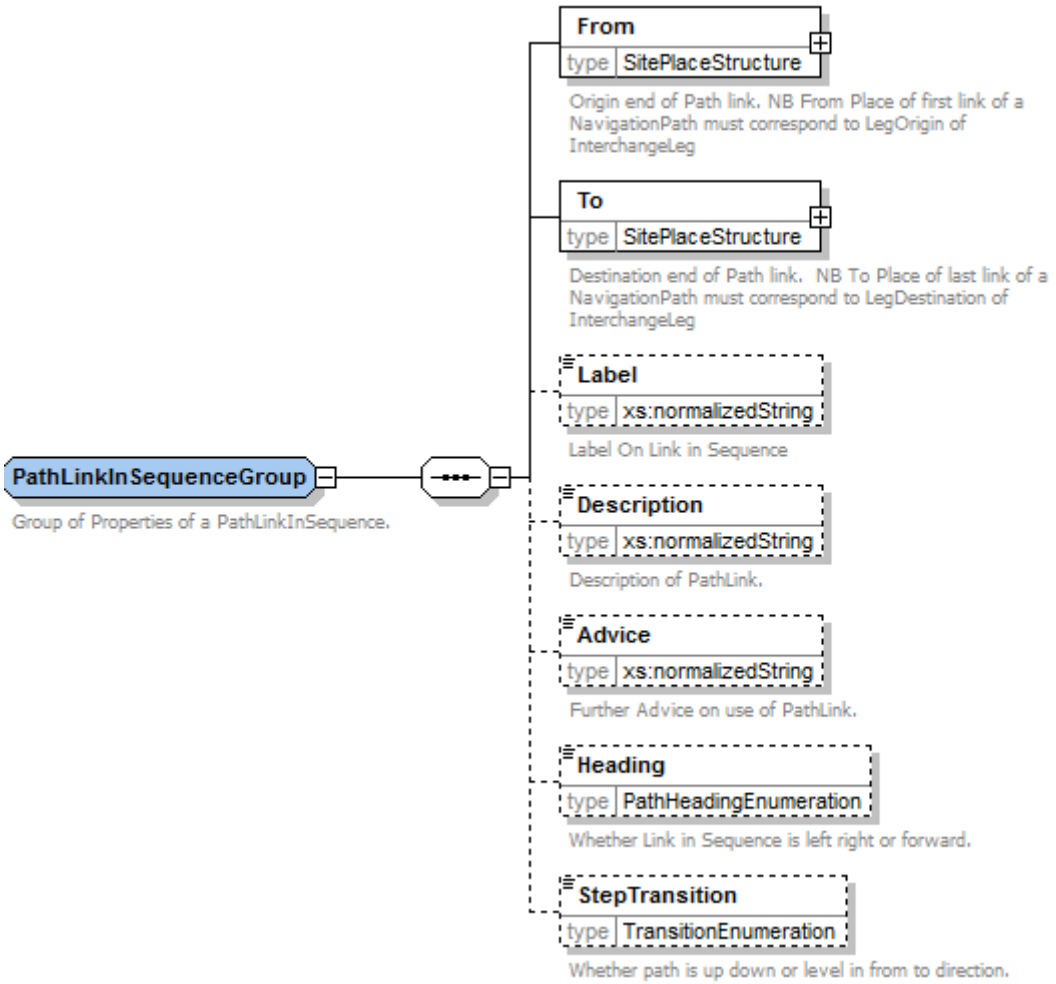


Figure 5-77 – PathLinkInSequence / PathLinkInSequenceGroup (+JW v2.4)

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 R***eturnedSiteStructure*** 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.

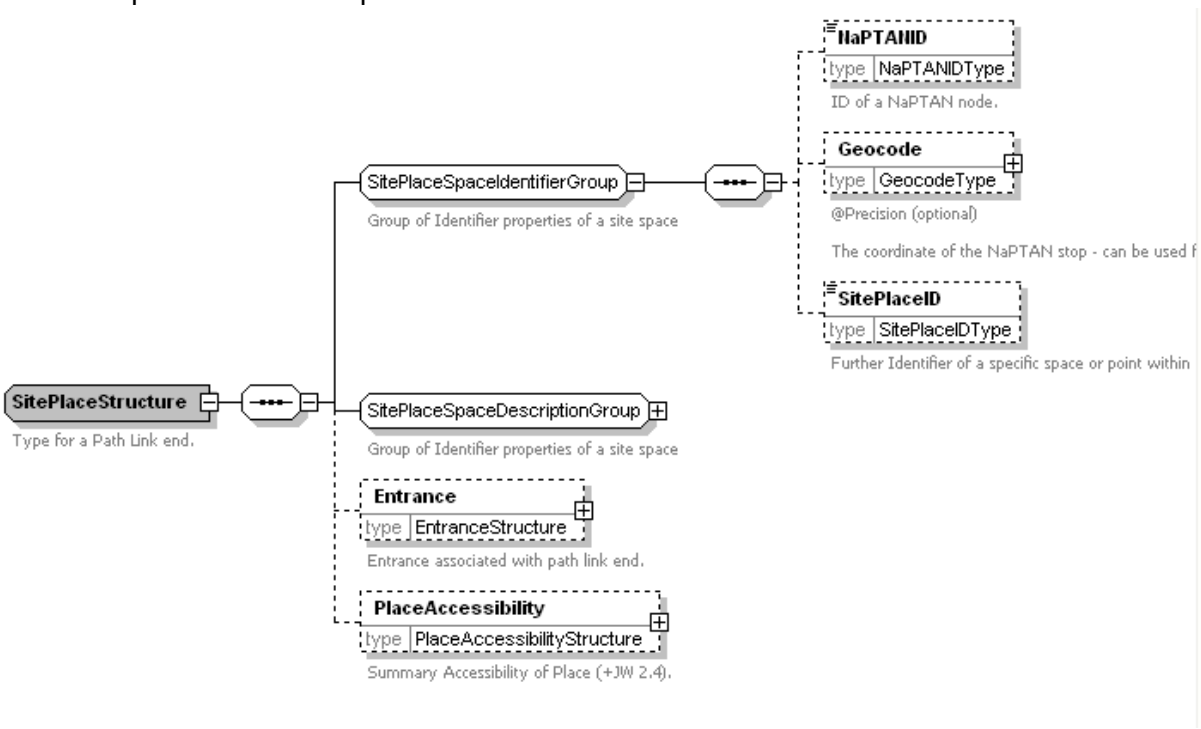


Figure 5-78 – PathLinkInSequence / SitePlace (+JW v2.4)

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

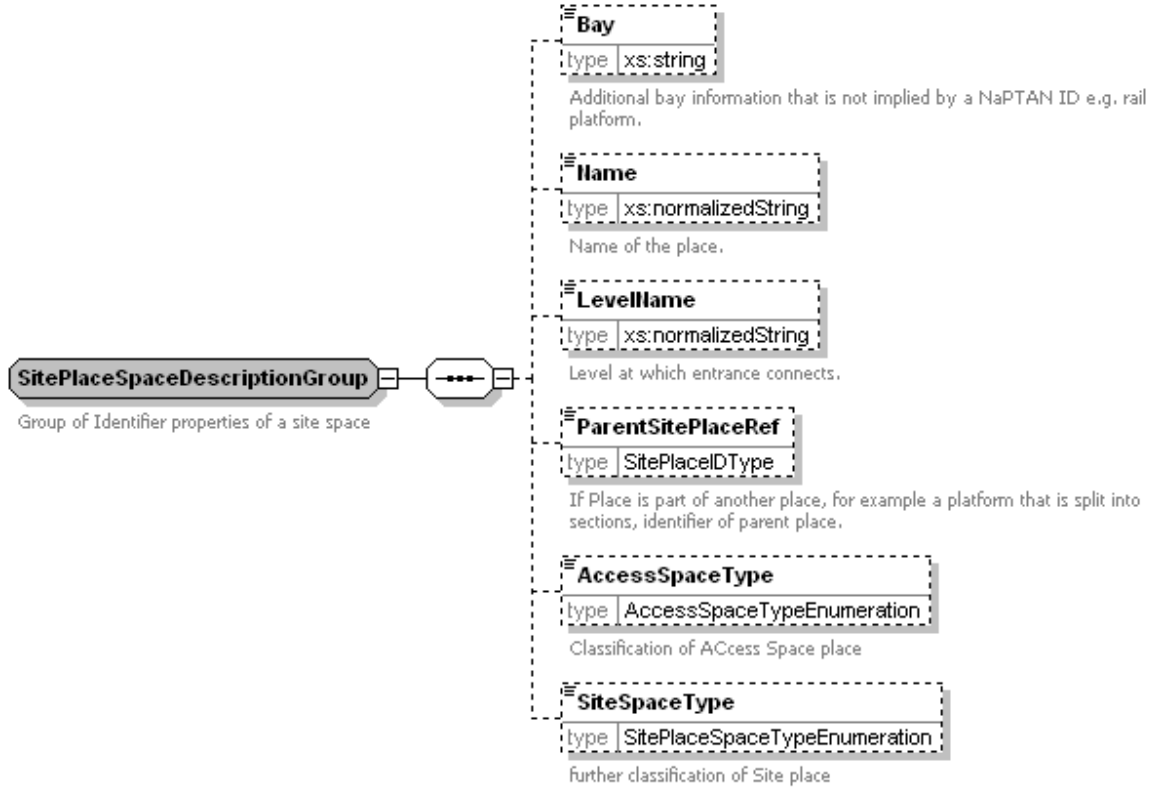


Figure 5-79 – PathLinkInSequence / SitePlaceDescriptionGroup (+JW v2.4)

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.

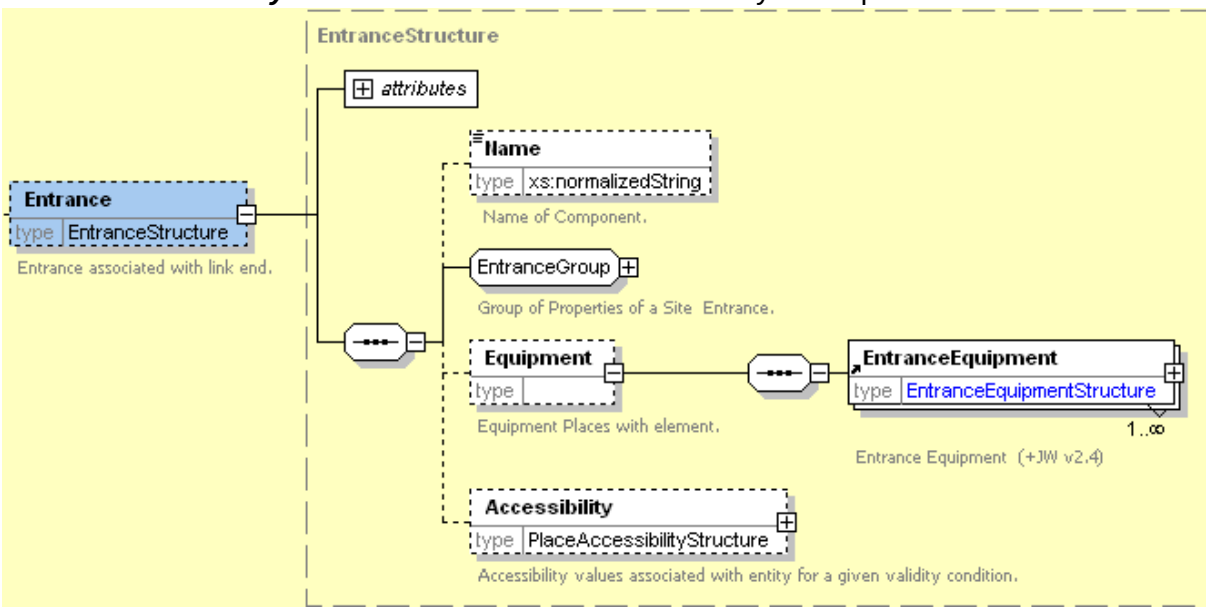


Figure 5-80 – PathLinkInSequence / Entrance (+JW v2.4)

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 an 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 5-22**.

Value	Description
opening	Opening without Door
openDoor	Open Door
door	Door that needs to be opened
swingDoor	Swing Door
revolvingDoor	Revolving Door
automaticDoor	Automatic Door
ticketBarrier	Ticket Barrier
gate	Gate
other	Other

Table 5-22 – 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 5-23**.

Value	Description
indoors	indoors
outdoors	outdoors
covered	covered
mixed	mixed
unknown	unknown

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

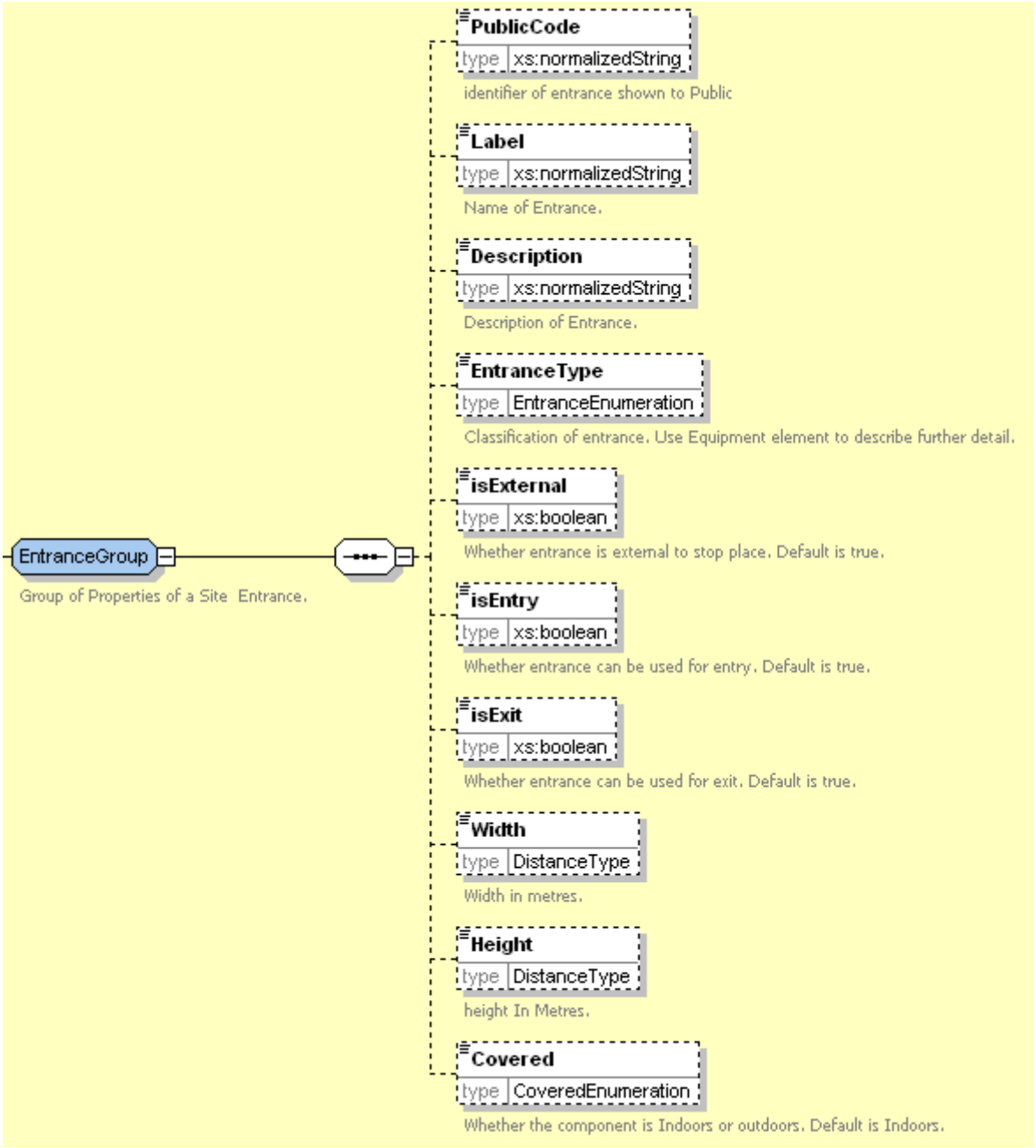


Figure 5-81 – PathLinkInSequence / EntranceGroup (+JW v2.4)

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 5-24**.

Value	Description
oneWay	Link may only be used one way in direction of link

oneWayBack	Link may only be used one way in reverse direction of link
twoWay	Link may be used in both directions

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

- ***Transition:*** Transition made by link***.*** See **Table 5-25**.

Value	Description
up	Course of link goes up
down	Course of link goes down
level	Course of link goes level
upAndDown	Course of link goes up and down one or more times
downAndUp	Link **goes down and Up** one or more times

Table 5-25 – Allowed Values for Transition (+JW v2.4)

- ***AccessFeatureType:*** Descriptive feature***.*** See **Table 5-26**.

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

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

- ***Covered:*** Whether the link is covered. See **Table 5-23**.

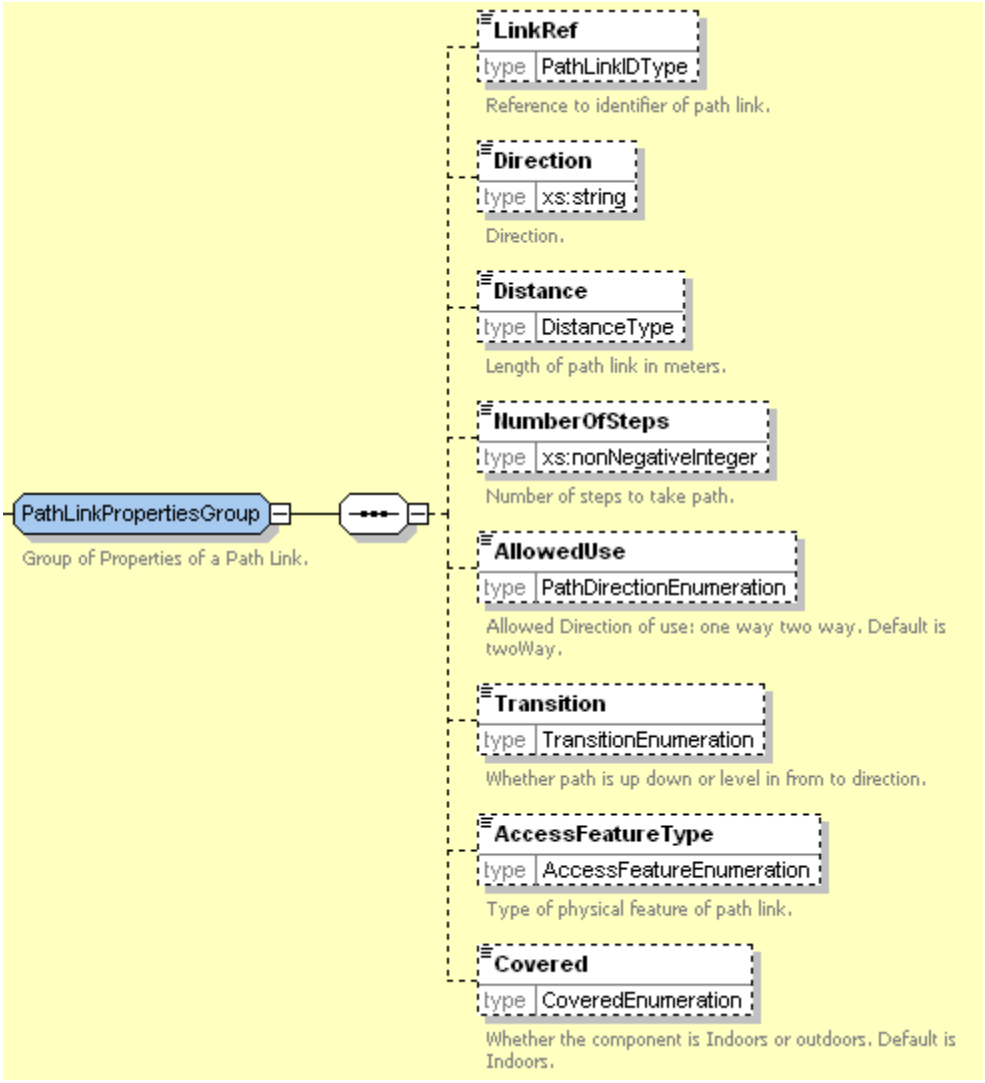


Figure 5-82 – PathLinkInSequence / PathLinkPropertiesGroup (+JW v2.4)

5.7.14 PathLinkInSequence / Equipment / EquipmentPlace (+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.

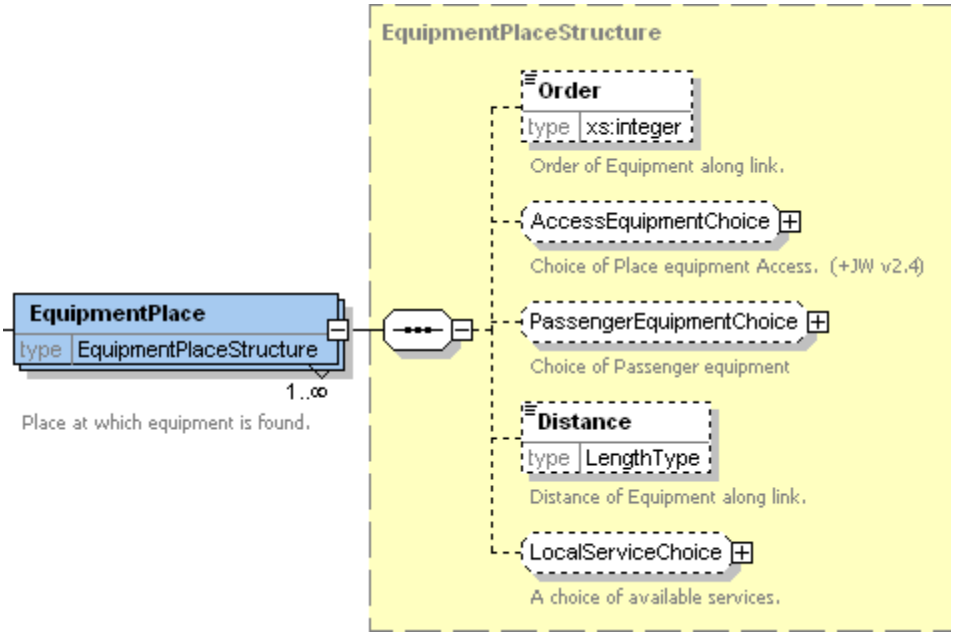


Figure 5-83 – PathLinkInSequence / EquipmentPlace (+JW v2.4)

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 5-27**.

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

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

- ***CheckService:*** Nature of ***Check*** service***.*** See **Table 5-28**.

Value	Description
selfserviceMachine	Service is provided by self-service Machine
counterService	Service is provided at Counter
other	Other provision of service

Table 5-28 – Allowed Values for CheckService (+JW v2.4)

- ***Congestion:*** Nature of congestion when ***CheckConstraint.*** See **Table 5-29**.

Value	Description
noWaiting	There is no waiting
queue	There is a queue
crowding	There is crowding
full	The element is full

Table 5-29 – 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***.***

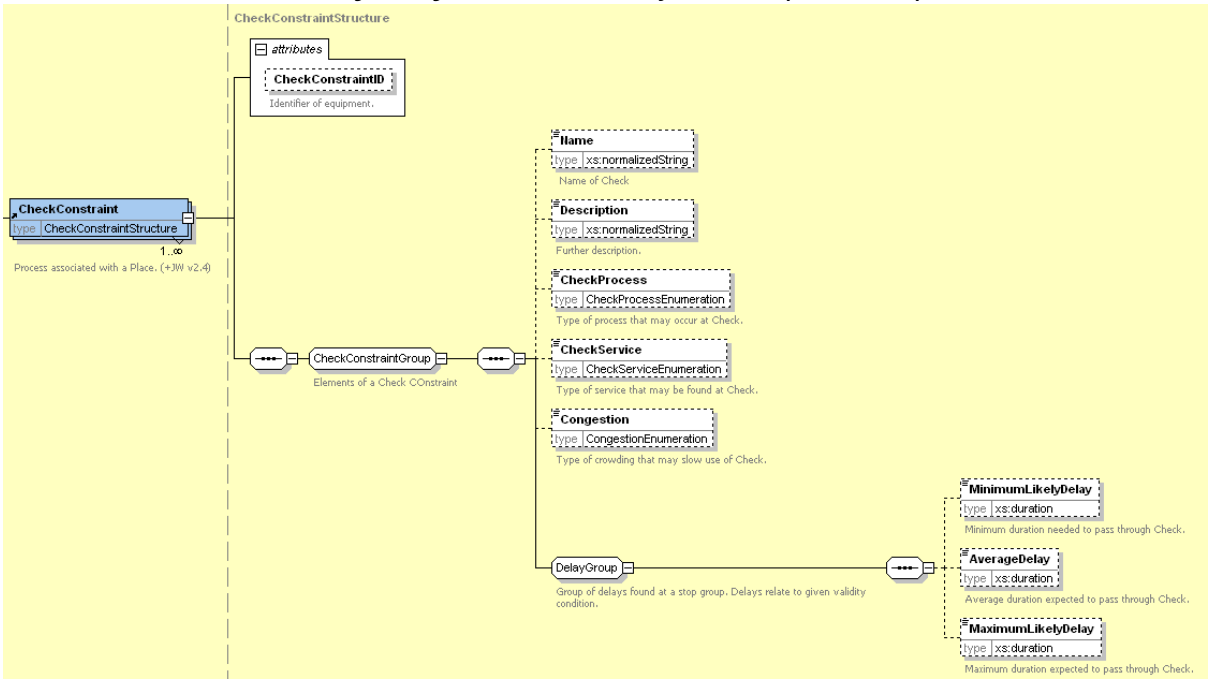


Figure 5-84 – CheckConstraint (+JW v2.4)

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 ***NamedPlaces-Structure*** 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 5-11** 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.

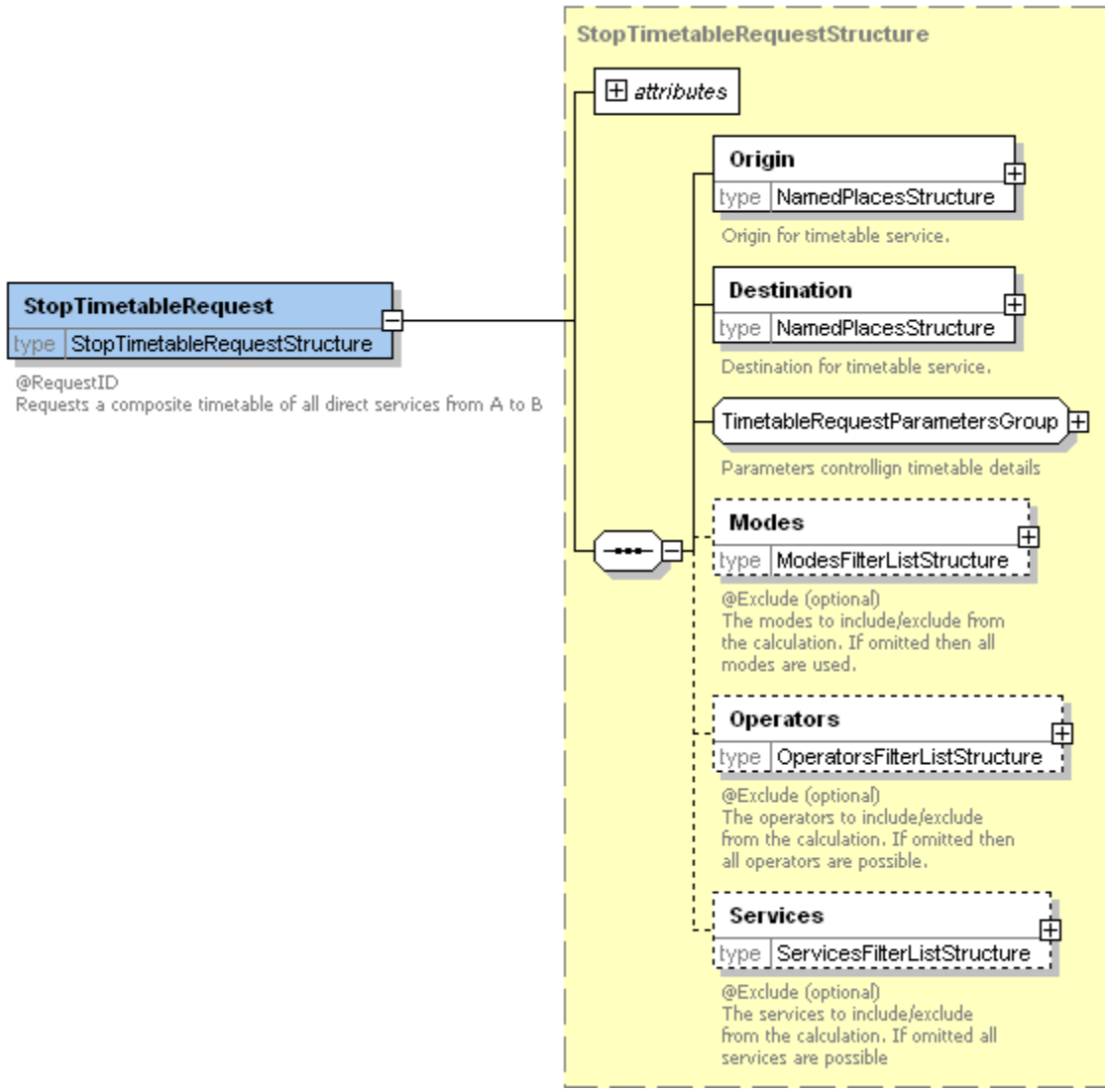


Figure 5-85 – StopTimetableRequest

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.

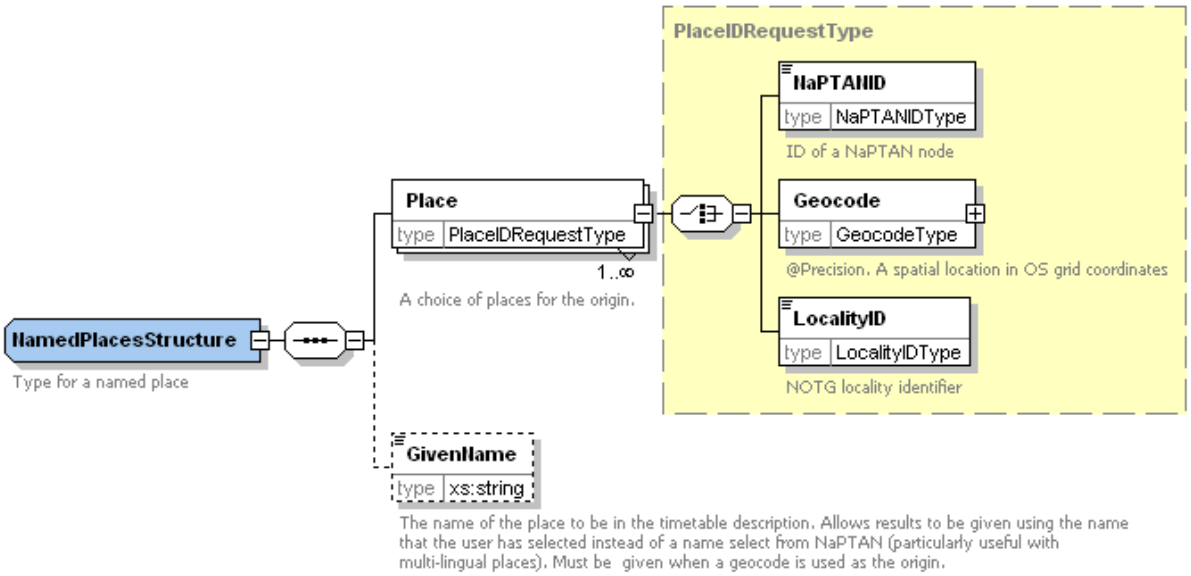


Figure 5-86 – StopTimetableRequest / NamedPlacesStructure

5.8.3 StopTimetableRequest / TimetableRequestParametersGroup

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.

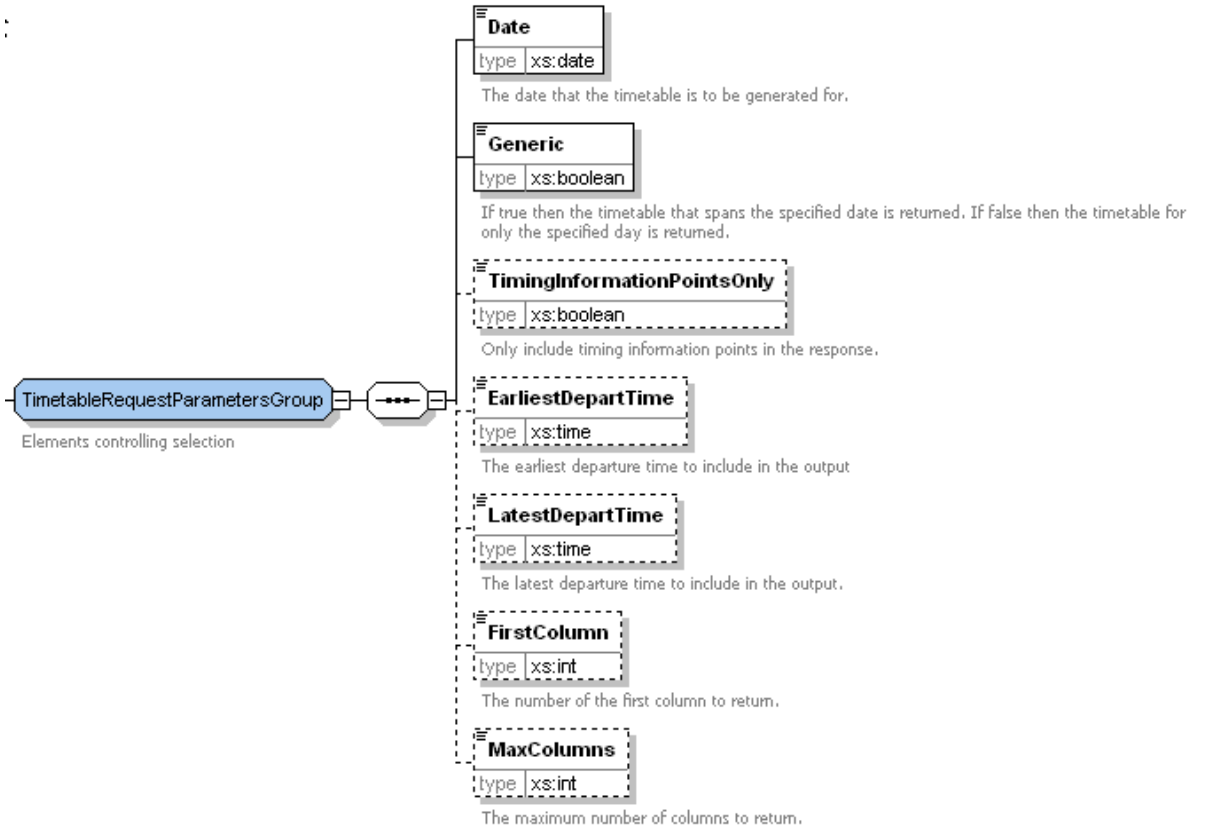


Figure 5-87 – StopTimetableRequest / TimetableRequestParametersGroup

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.

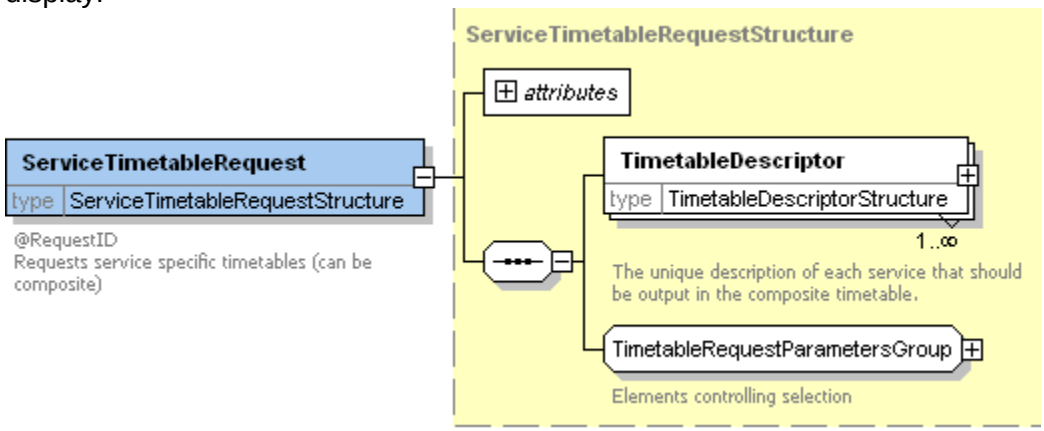


Figure 5-88 – ServiceTimetableRequest

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.

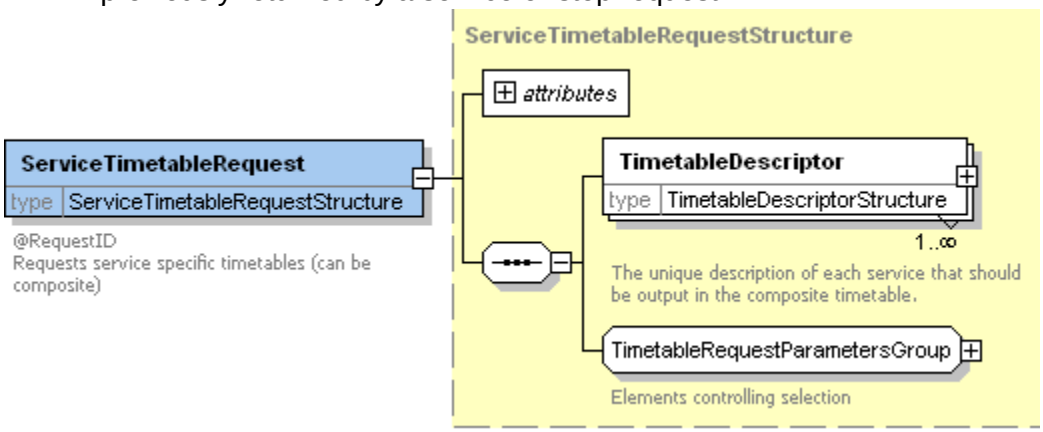


Figure 5-89 – ServiceTimetableRequest / TimetableDescriptor

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.

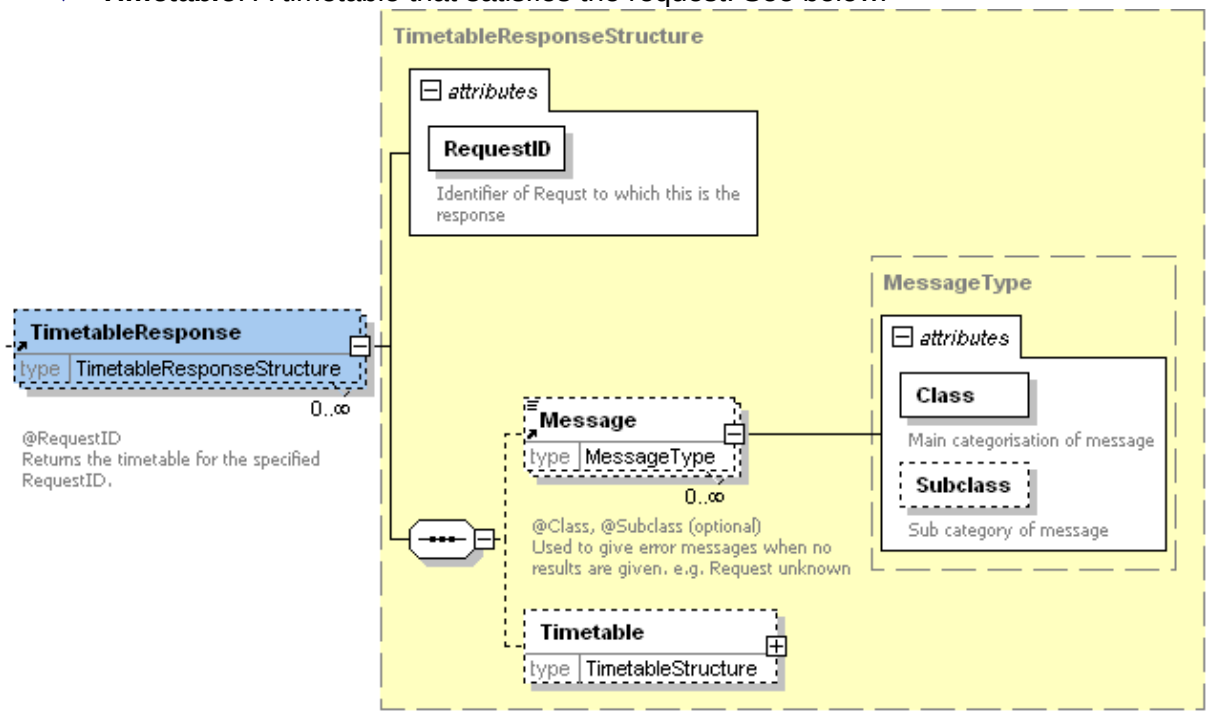


Figure 5-90 – TimetableResponse

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.

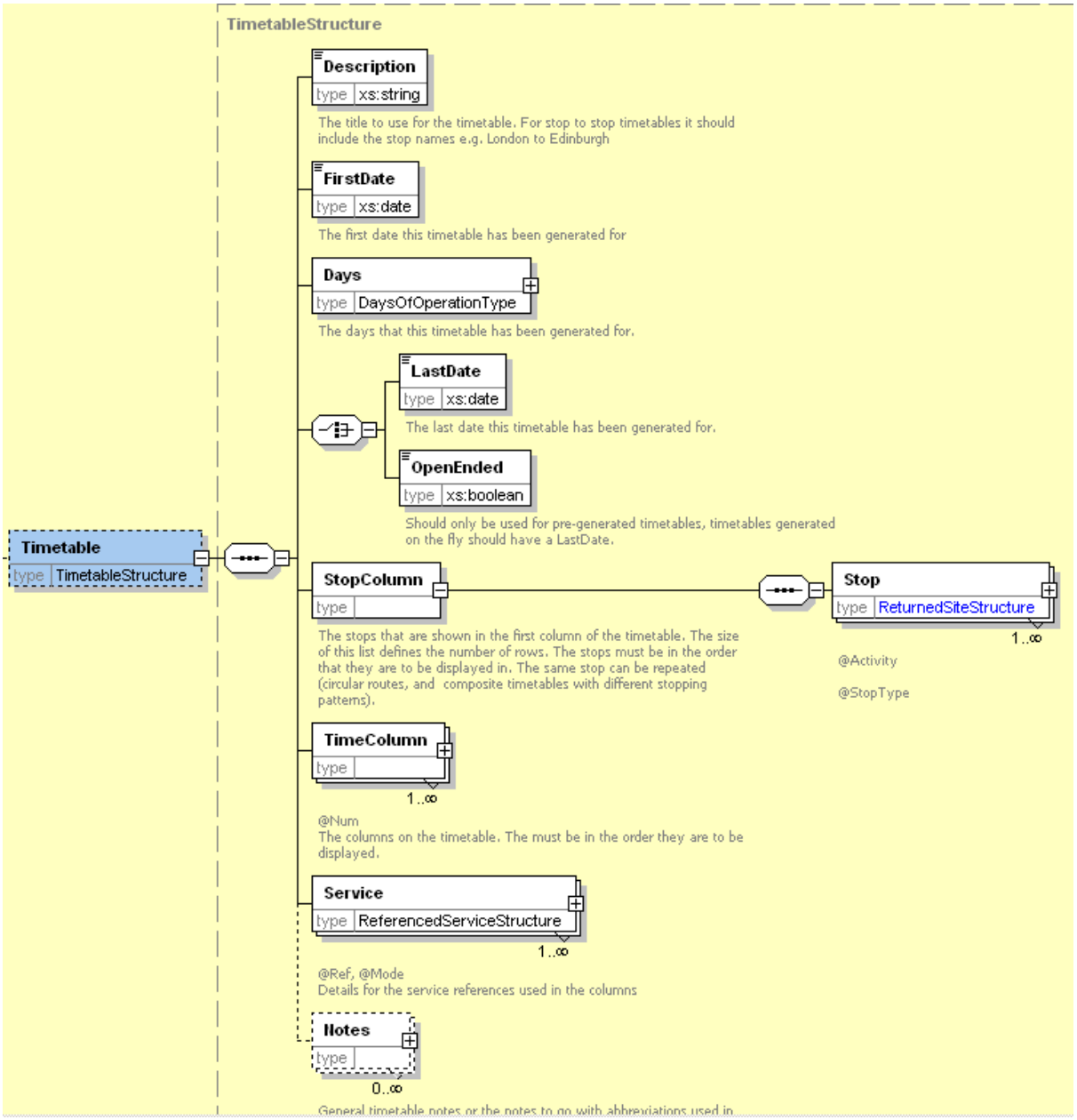


Figure 5-91 – Timetable

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 5-30**).

Value	Description
mixed	Row shows both arrival and depart times.
arrive	Row shows arrival times only.
depart	Row shows depart times only.

Table 5-30 – Allowed Values for Activity

- **StopType*:*** Used to indicate if the stop on the row is the origin or destination (see **Table 5-31)** in any of the columns. This can be used to give a summary timetable by showing only those that are origins or destinations.

Value	Description
origin	Stop is an origin.
intermediate	Stop is an intermediate point.
destination	Stop is a destination.
originDestination	Stop is both an origin and a destination.

Table 5-31 – Allowed Values for StopType

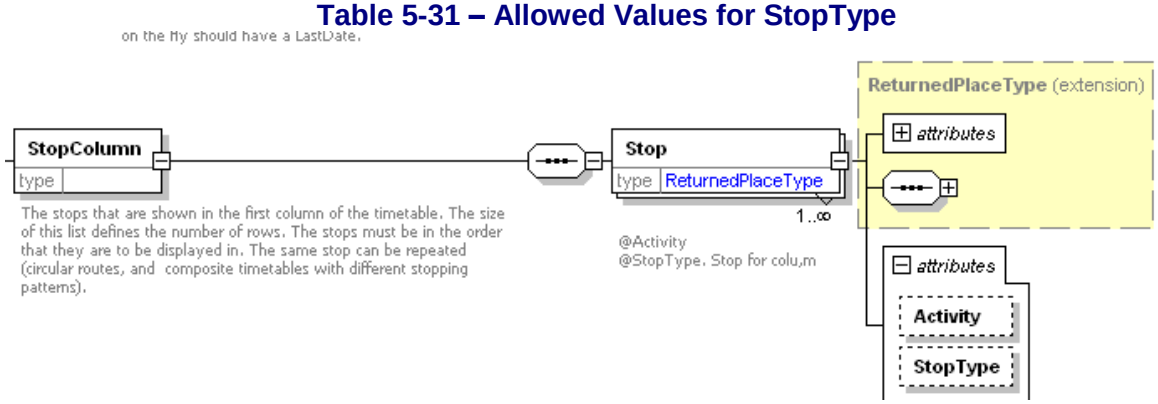


Figure 5-92 – Timetable / StopColumn

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 SeviceResponse) 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.

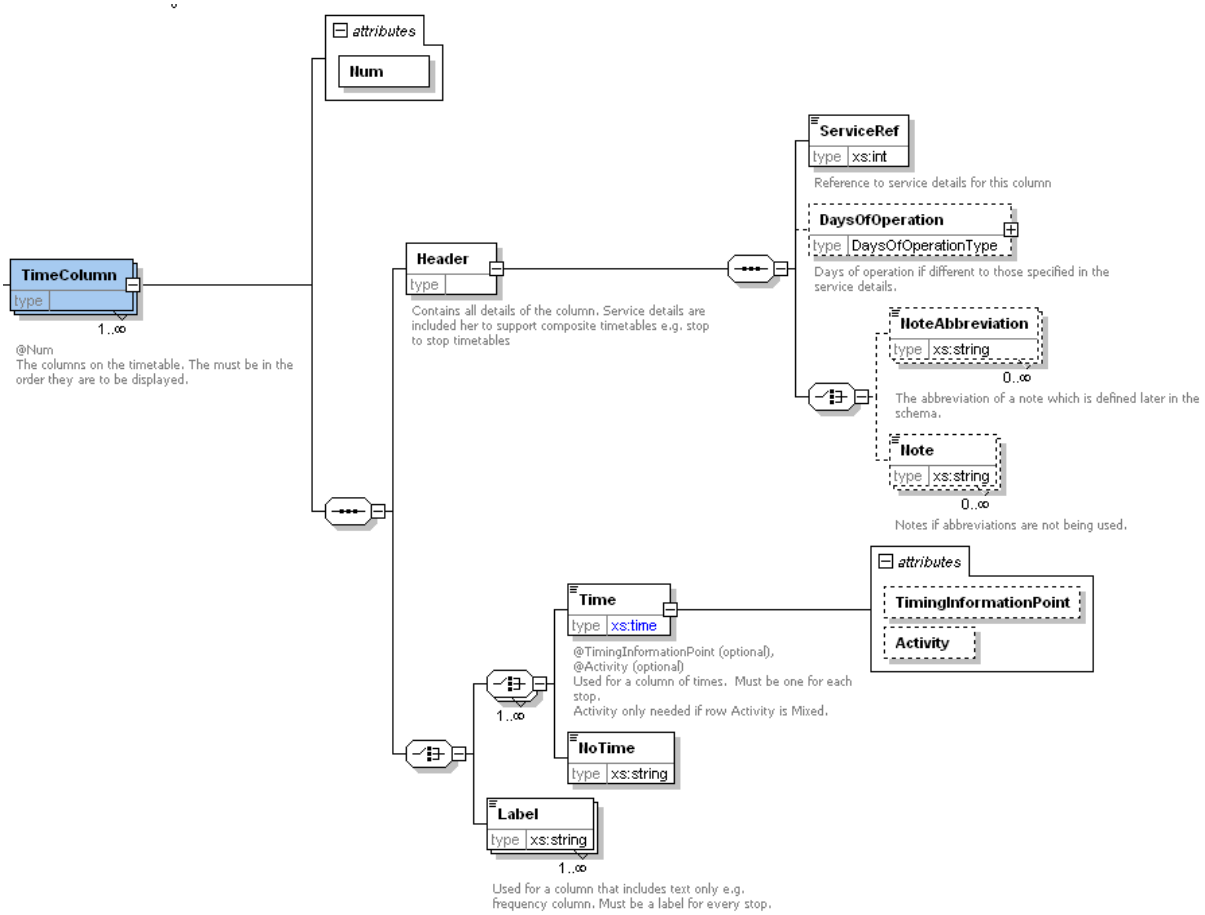


Figure 5-93 – Timetable / TimeColumn

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 5-32**).

Value	Description
all	Row shows both arrival and departure times.
arrive	Row shows arrival times only.
depart	Row shows departure times only.

Table 5-32 – 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 5-11** earlier for allowed values.

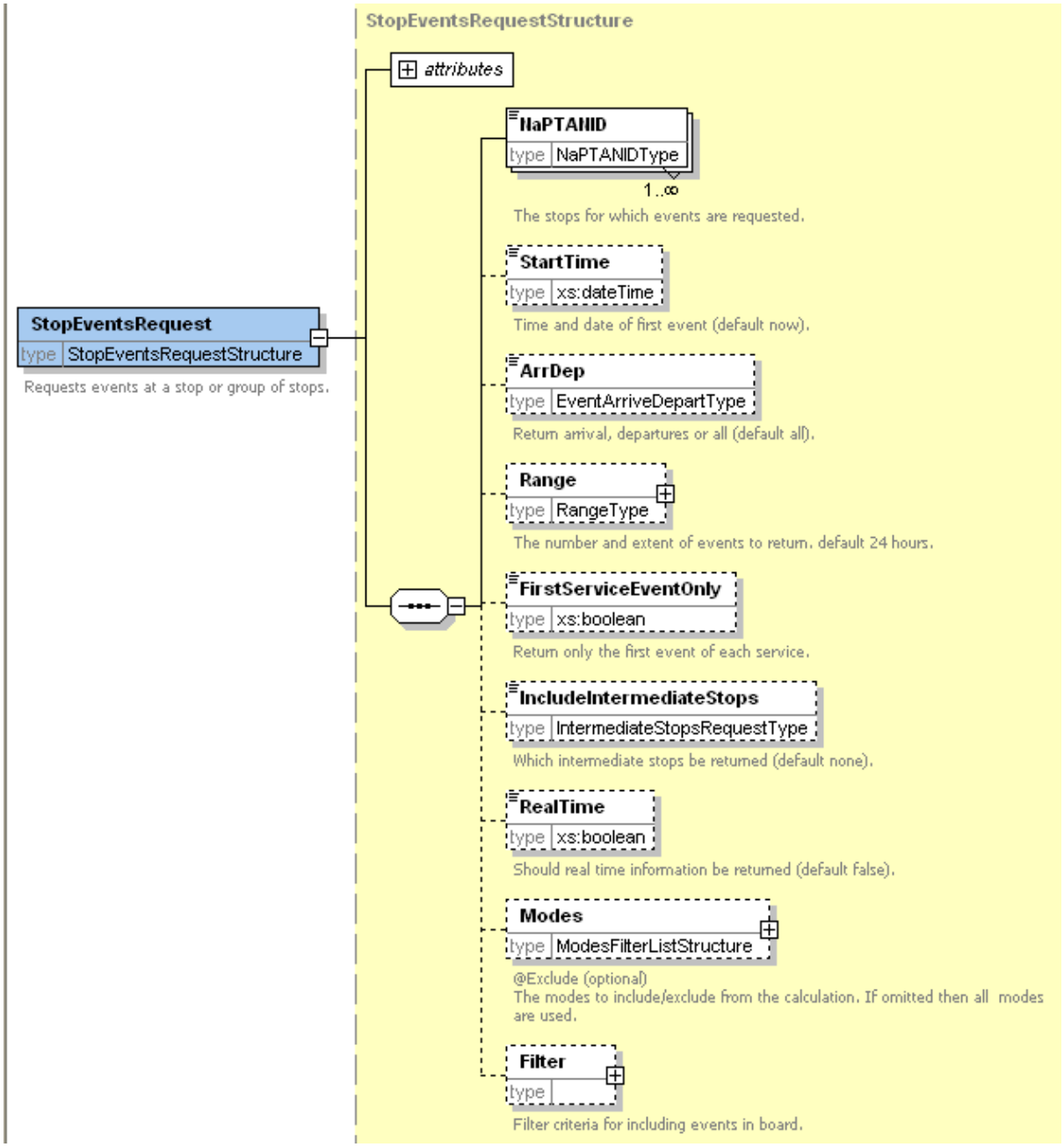


Figure 5-94 – Stop Event Request

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.

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:

- ***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.

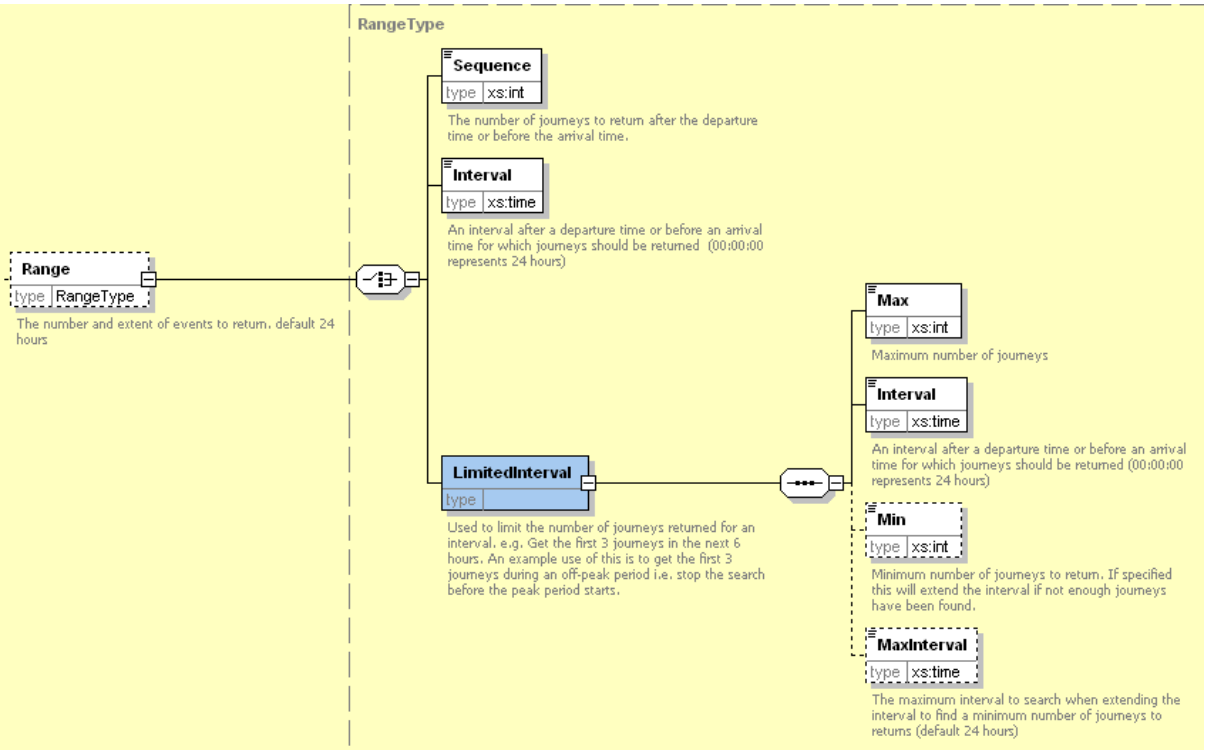


Figure 5-95 – StopEvent / RangeStructure

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 service 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.

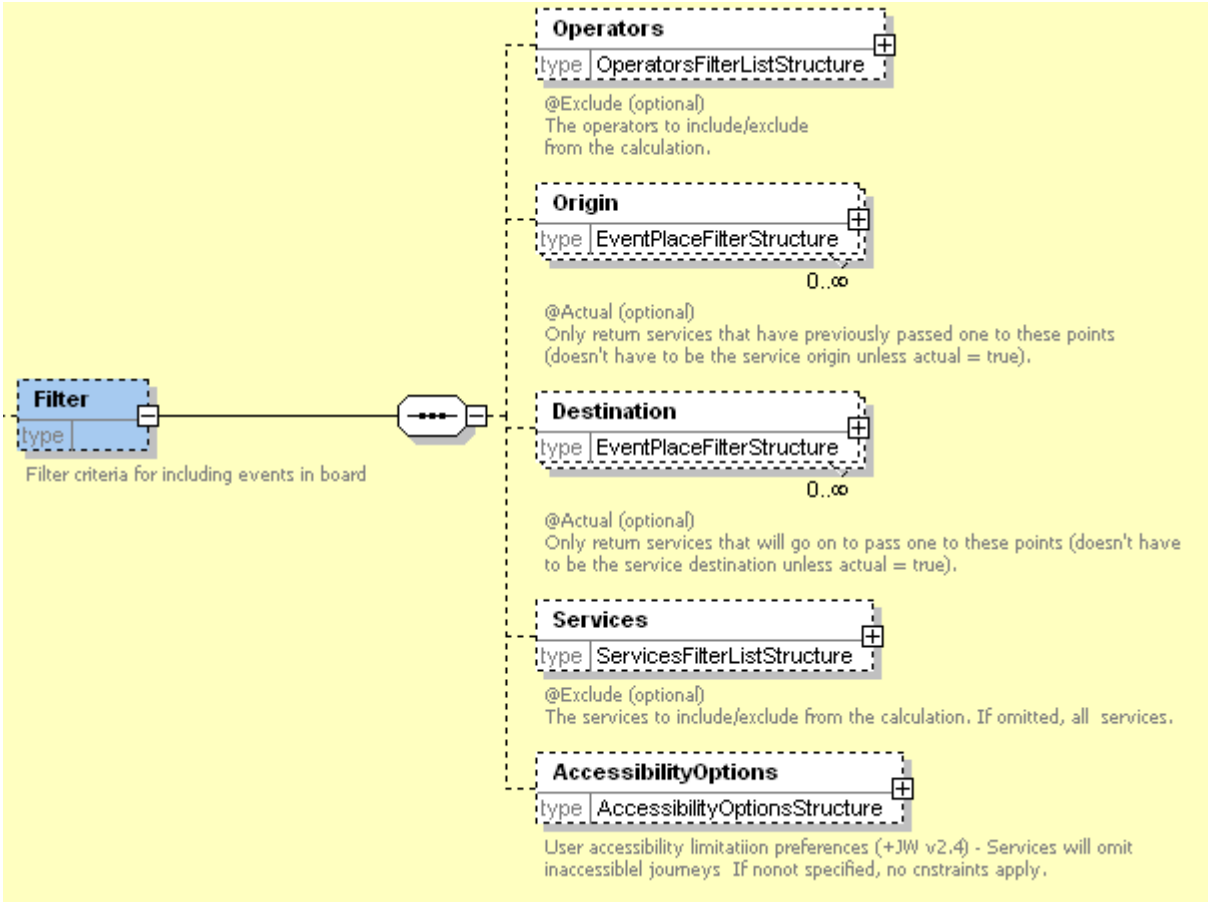


Figure 5-96 – Stop Event Request / Filter

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.

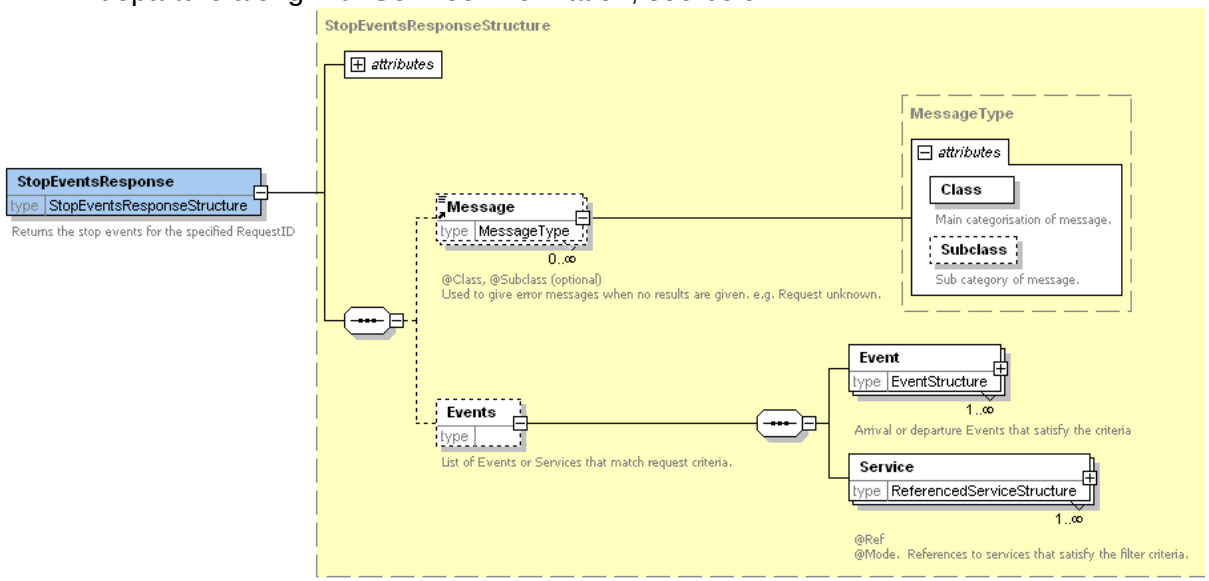


Figure 5-97 – StopEventResponse

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 5-33**.
  - 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.

	TimedLeg	
Mode	Vehicle modes (See **Table 5-11**)	R
Origin	***ReturnedSite***	O
	TimetabledDepartureTime	
	RTDepartureTimeGroup	
PreviousIntermediate	***ReturnedSite***	O
	IntermediateTimeGroup	
Stop	***EventTimeGroup***	R
OnwardIntermediate	***ReturnedSite***	O
	IntermediateTimeGroup	
Destination	***ReturnedSite***	R
	TimetabledArrivalTime	
	RTArrivalTimeGroup	

Table 5-33 – Event / Stop Call & Time Group elements

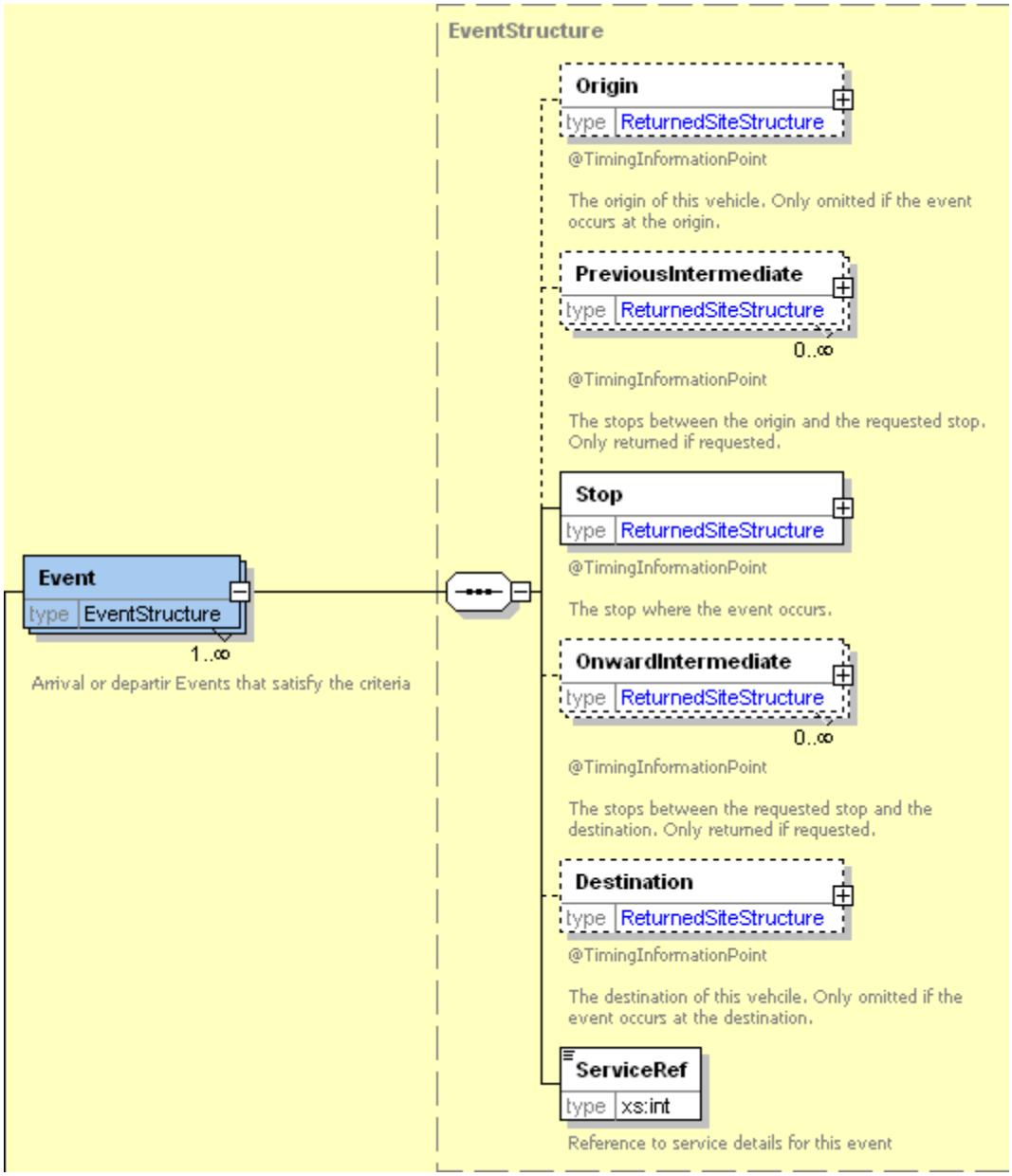


Figure 5-98 – Event Element

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 ***RTDepartureTime***Group. (see earlier)***.***

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

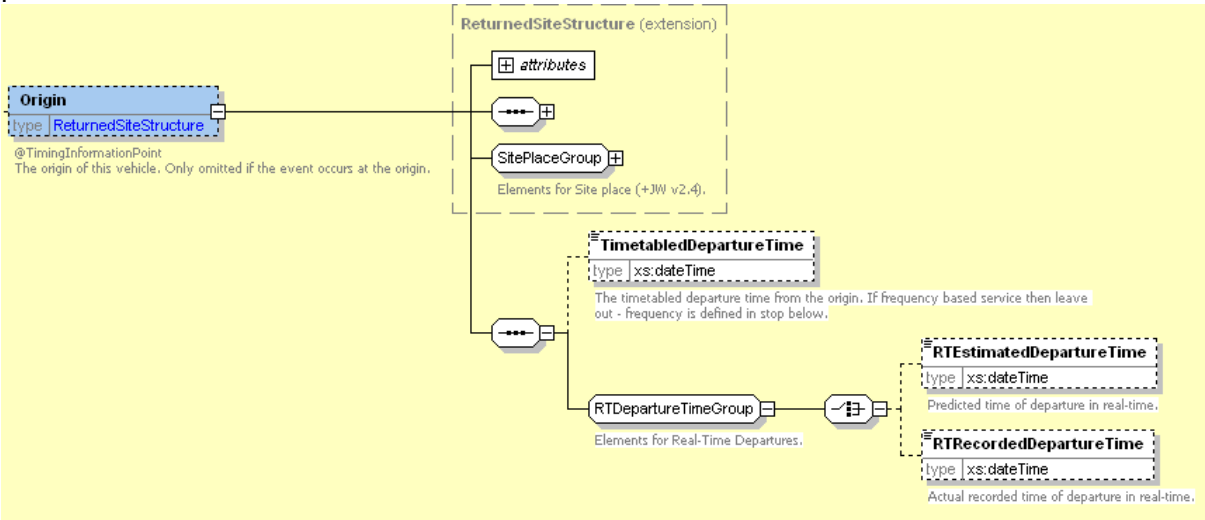


Figure 5-99 – Event / Origin

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:

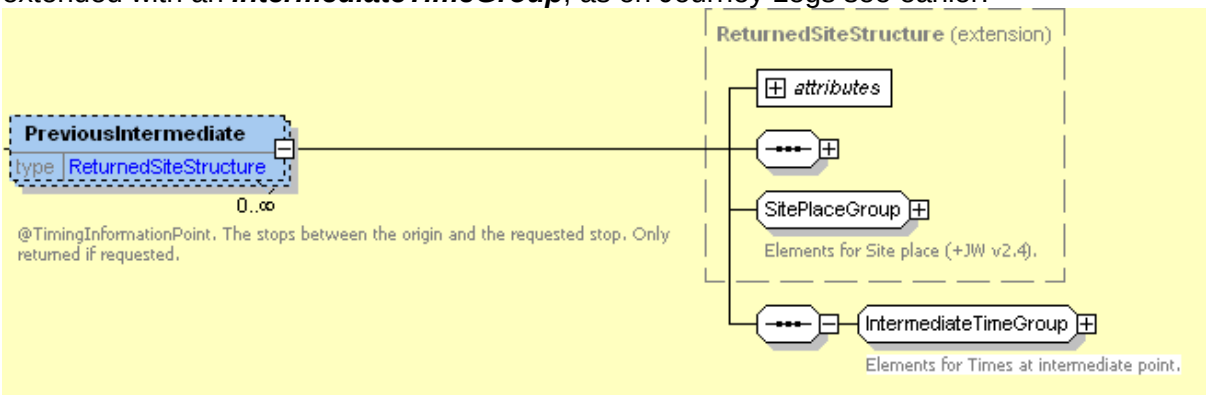


Figure 5-100 – Event / Intermediate

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.

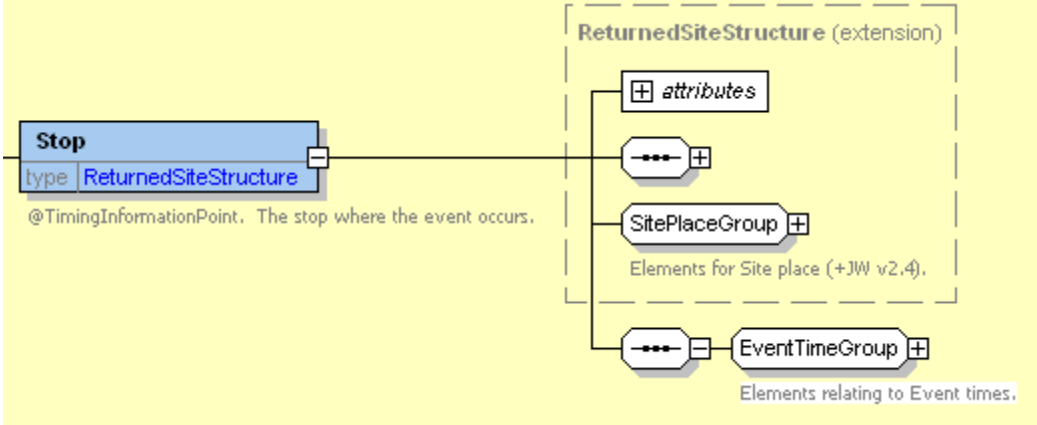


Figure 5-101 – Event / Stop

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 ***RTArrivalTime***Group (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.

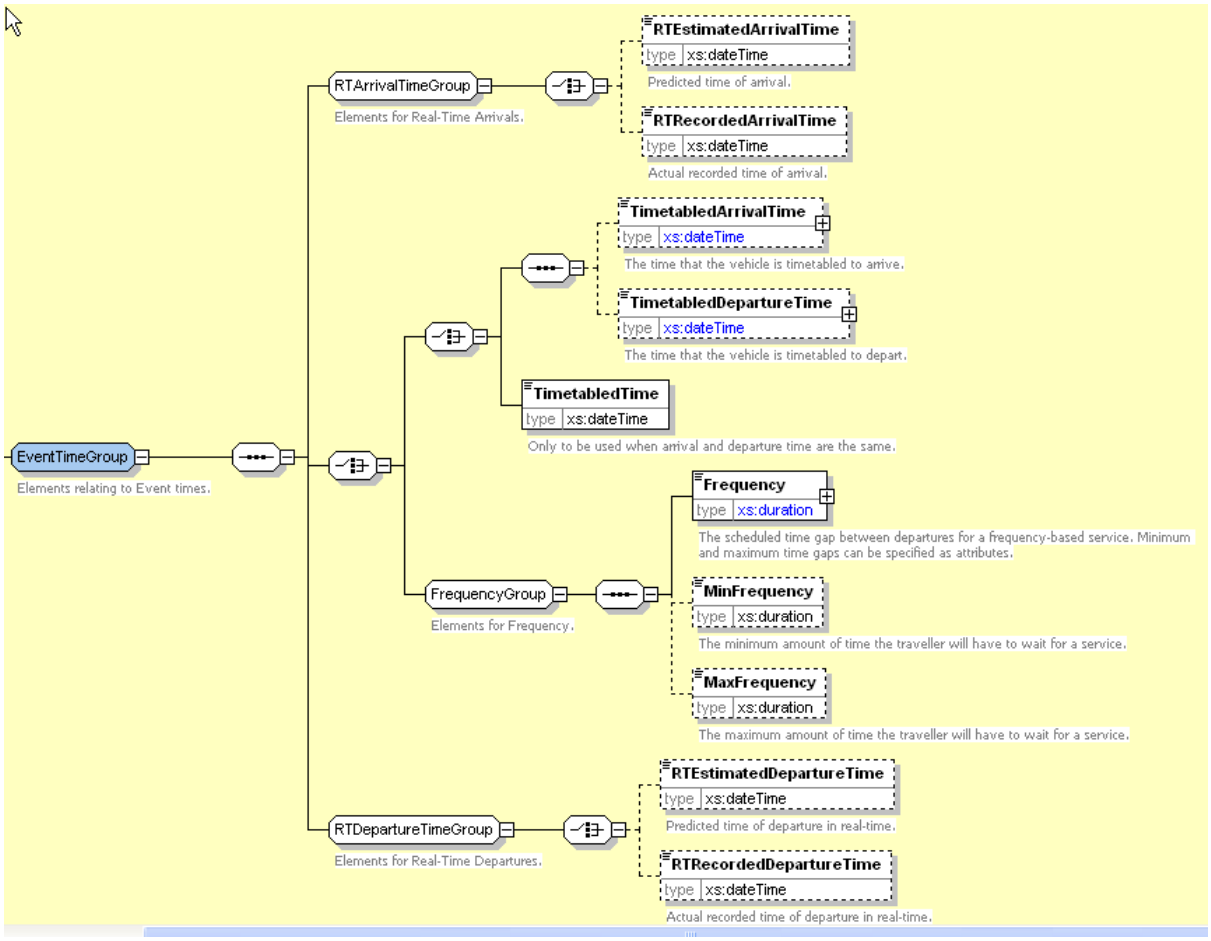


Figure 5-102 – EventTimeGroup

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 ***RTArrivalTime*Group** (see ***JourneysResponse*** earlier). Optional.

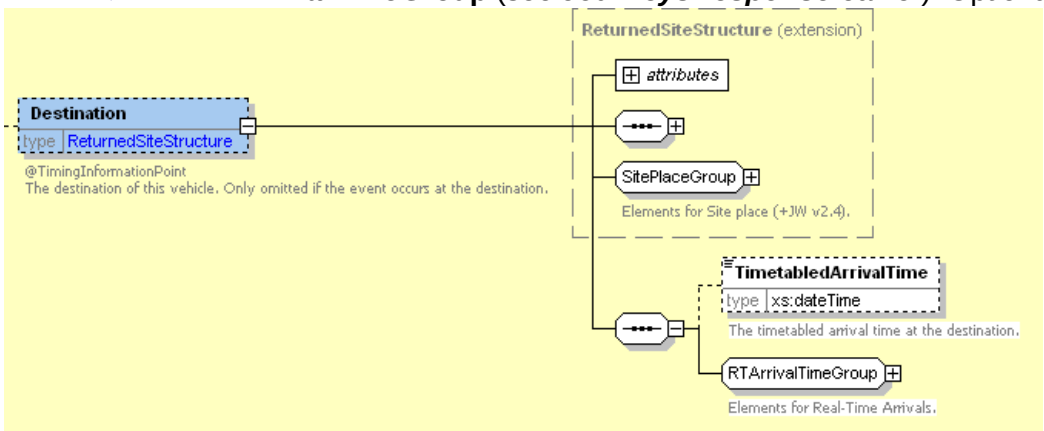


Figure 5-103 – Event / Destination

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.

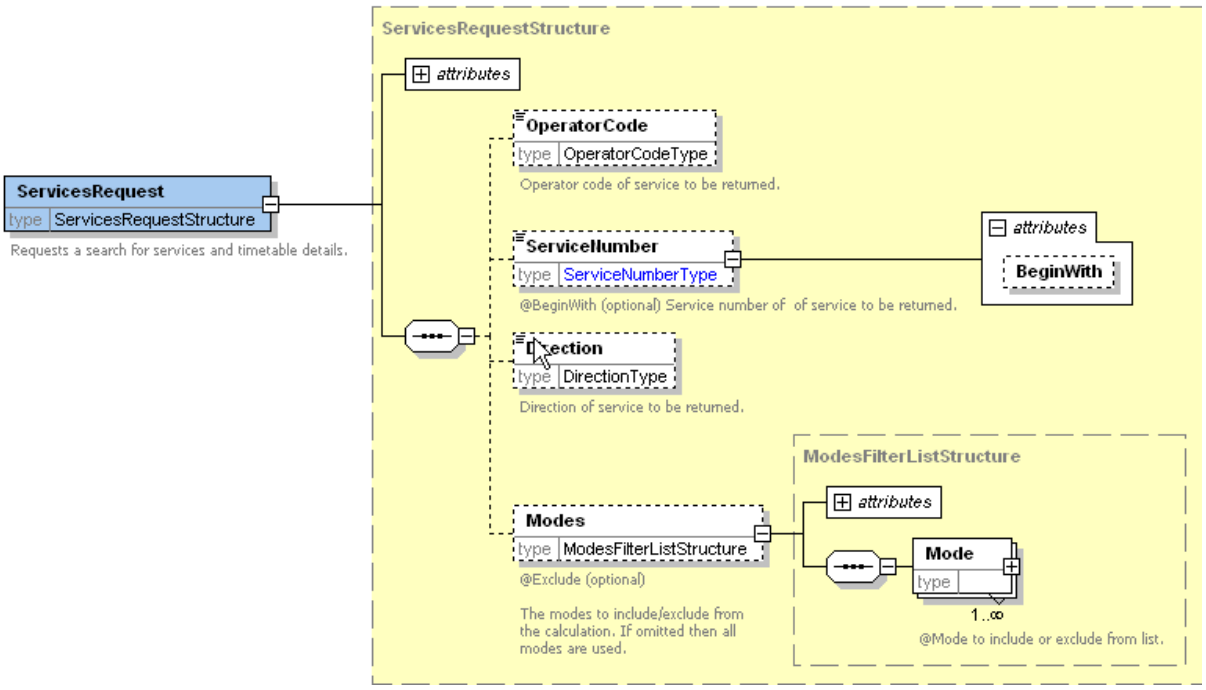


Figure 5-104 – ServicesRequest

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.

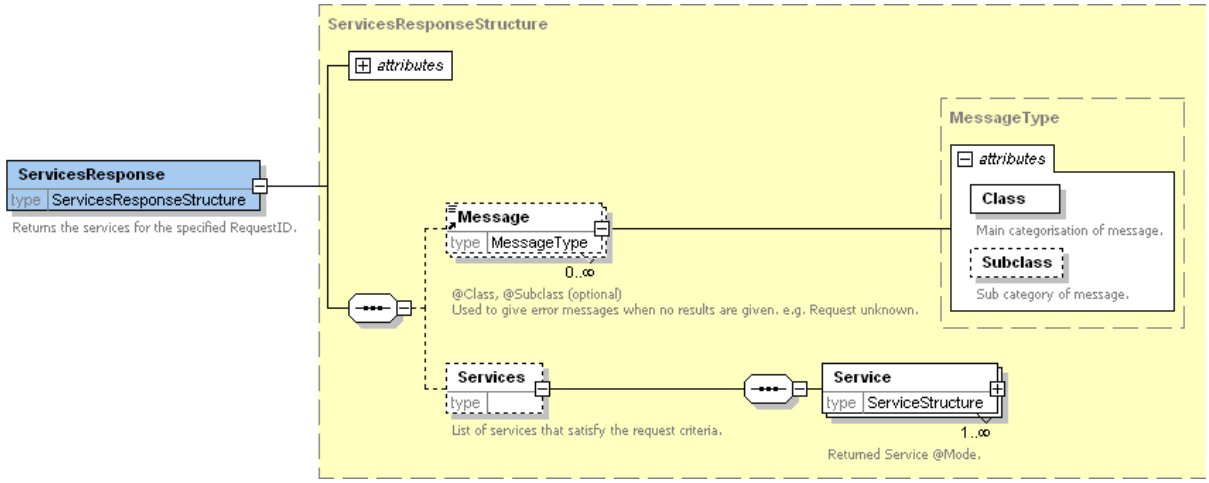


Figure 5-105 – ServicesResponse

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.

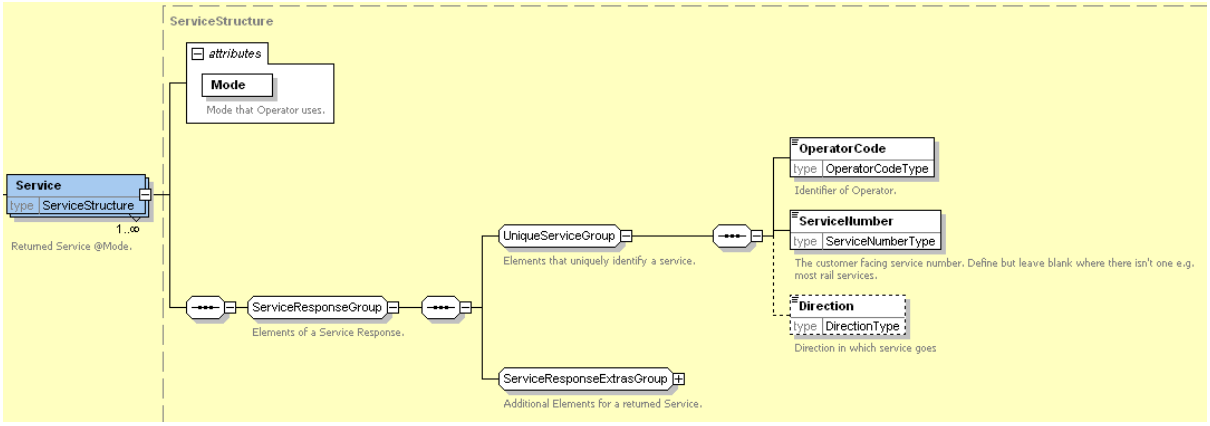


Figure 5-106 – Service Element

5.10.4 Service / ServiceResponseExtrasGroup

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

- **ServiceDescriptionGroup*:*** Elements describing the ***Service*** further**.** See below.
- **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.

	TimedLeg
notAllowed	Not Allowed at any time
onlyFoldingAllowed	Only Folding Cycles Allowed
allowedSubjectToRestrictions	Cycles allowed on certain journeys subject to Restrictions
mustBook	Cycles allowed on certain journeys but must have Booking
allowedAtAllTimes	Cycles allowed at all times

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

Figure 5-107 – Service / ServiceResponseExtrasGroup

5.10.5 Service / ServiceDescriptionGroup

The **ServiceDescriptionGroup** (**Figure 5-108**) returns information that further describes the service

- ***OperatorName:*** The operator name for customer use.
- ***ServiceName*** (+JW v2.5)**:** Any specific name of the service e.g. “Brighton Bluebell”.

- ***Branding*** (+JW v2.5)**:** Brand name of the service. E.g. “Megabus”.
- ***Description:*** Description of the ***Service.***

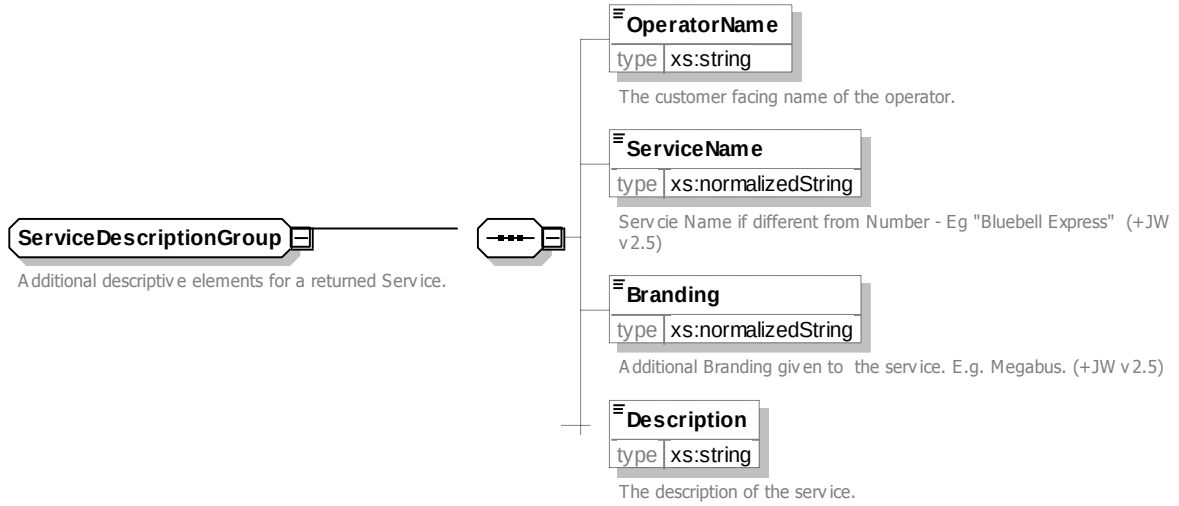


Figure 5-108 – Service / ServiceDescriptionGroup

5.10.6 Service / ServicePeriodGroup

The **ServicePeriodGroup** (**Figure 5-109**) 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.

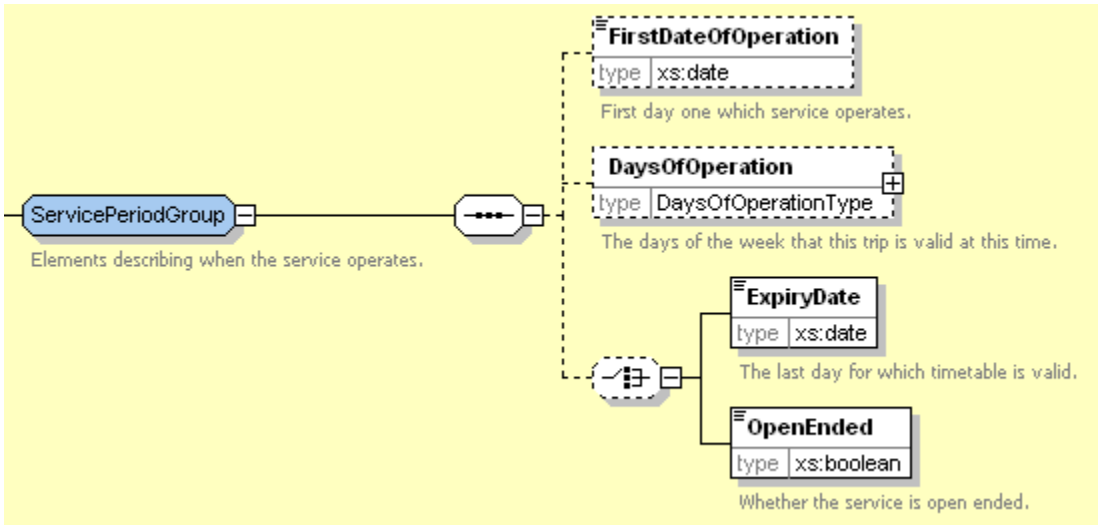


Figure 5-109 – Service / ServicePeriodGroup

5.10.7 Service / TimetableLink Element

The ***TimetableLink*** (**Figure 5-110**) 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.

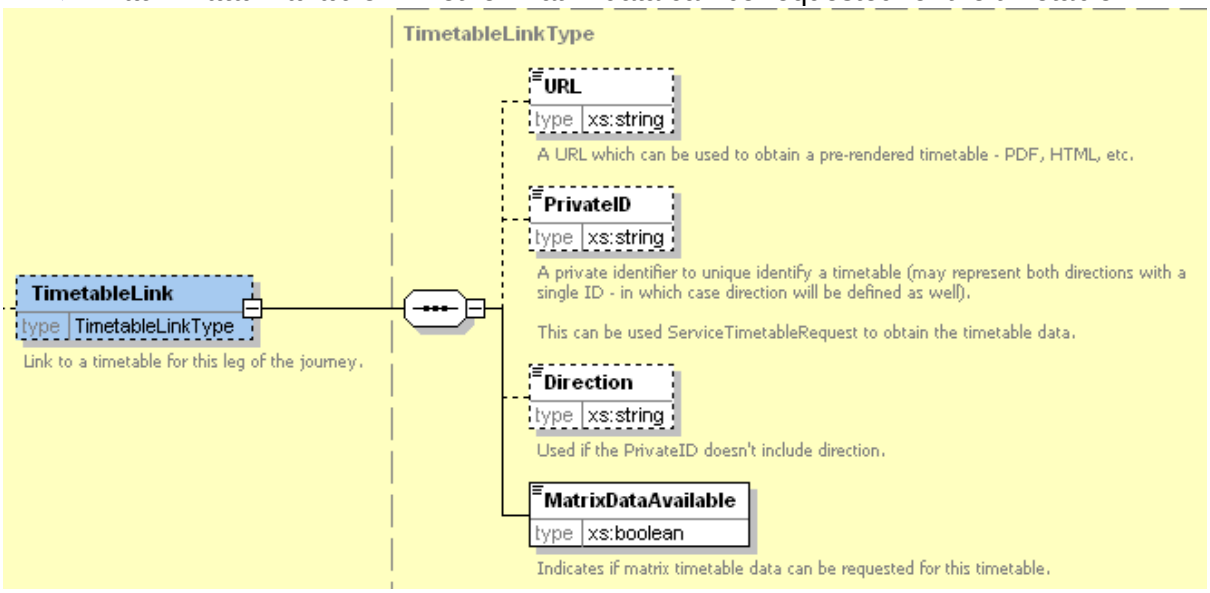


Figure 5-110 – Service / Timetable Link

5.10.8 Service / TransportSubmode (+JW v2.4)

The **TransportSubmode** (**Figure 5-111**) (+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 5-112**.
- ***PrivateSubmodeChoiceGroup:*** (+JW v2.4) Additional information on a non-Public Transport submode. See **Figure 5-113**.

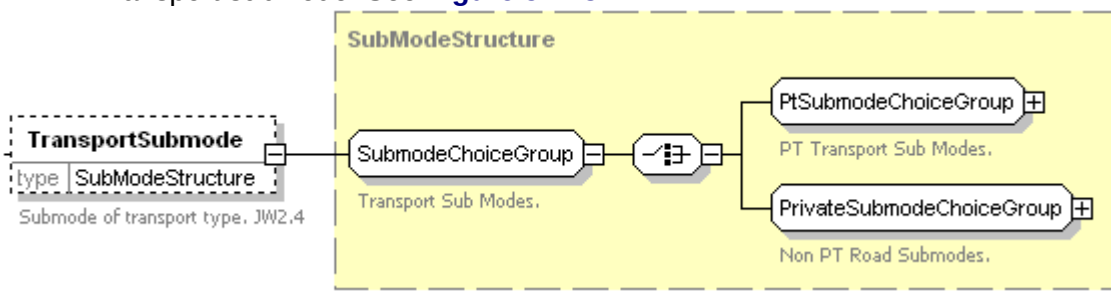


Figure 5-111 – Service / TransportSubmode

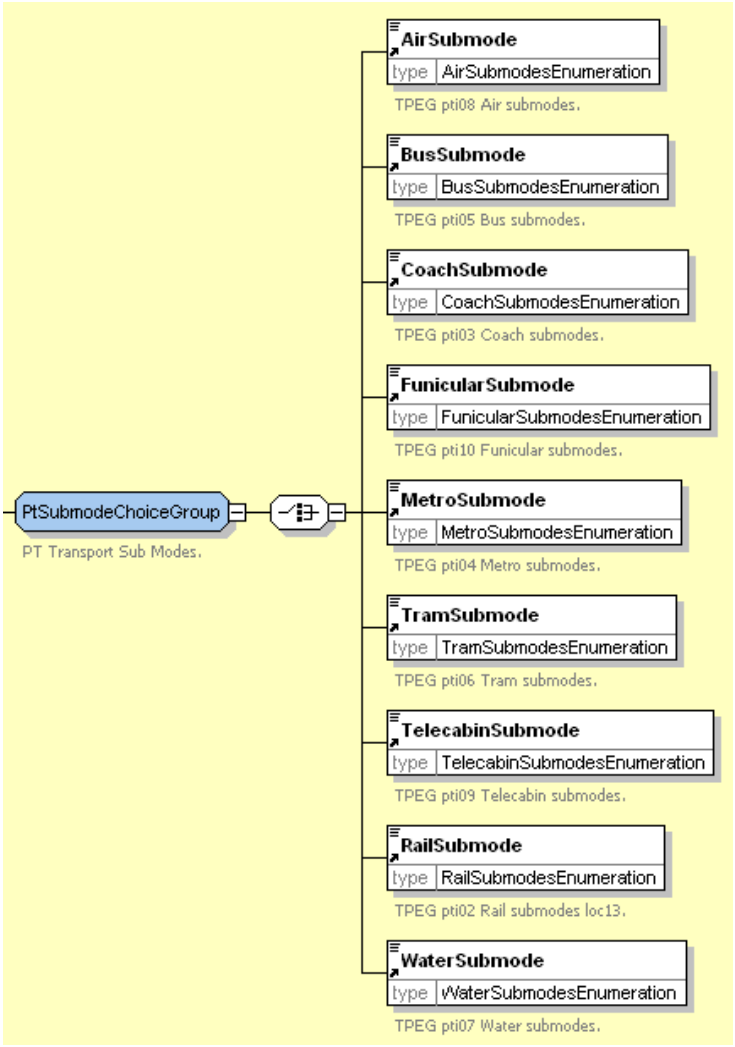


Figure 5-112 – Service / Public Transport Submodes

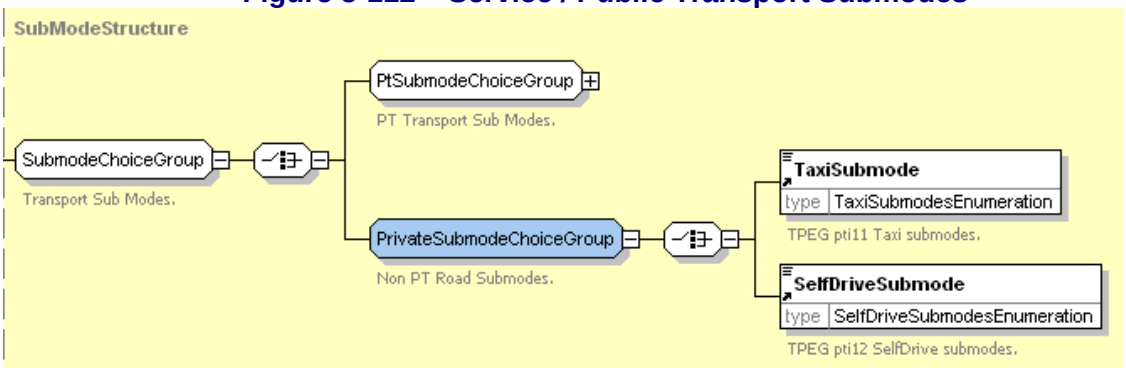


Figure 5-113 – Service / Private Transport Submodes

5.10.9 Service / ServiceFacilitiesGroup (+JW v2.4)

The **ServiceFacilitiesGroup** (**Figure 5-114**) provides information about the facilities available on the service:

- ***AccommodationFacilityList:*** (+JW v2.5) The type of accomodation available. See **Table 5-35** for allowed values.

Value	Description
seating	Seating.
sleeper	Sleeper accommodation.
doubleSleeper	Double Sleeper accommodation.
singleSleeper	Single Sleeper accommodation.
specialSleeper	Special Sleeper accommodation.
couchette	Couchette.
recliningSeat	Reclining seat.
babyCompartment	Baby Compartment.
familyCompartment	Family Compartment.
panoramaCoach	Panorama coach.
pullmanCoach	Pullman coach.
standing	Standing accommodation.

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

- ***LuggageCarriageFacilityList:*** (+JW v2.5) describes the type of luggage carriage available. See **Table 5-36** for allowed values.

Value	Description
noBaggageStorage	No baggage storage.
luggageRacks	Luggage racks.
extraLargeLuggageRacks	Extra large luggage storage.
baggageVan	Baggage van.
cyclesAllowed	Cycles allowed.
cyclesAllowedInVan	Cycles allowed in van.
cyclesAllowedInCarriage	Cycles allowed in carriage.
cyclesAllowedWithReservation	Cycles allowed with reservation.
noCycles	No cycles allowed.
noBaggageStorage	No baggage storage.
luggageRacks	Luggage racks.
extraLargeLuggageRacks	Extra large luggage storage.

Table 5-36 – Allowed values for Service / *LuggageCarriage* (+JW v2.5)

- ***SeatClass:*** (+JW v2.4) specifes the classes of seat available. See **Table 5-37** for allowed values.

Value	Description
firstClassOnly	Only first class seats
secondClassOnly	Only second or standard class seats
firstAndSecondClass	First & standard class seats

Table 5-37 – Allowed values for Service / SeatClass (+JW v2.4)

- ***SleeperClass:*** (+JW v2.4) specifes the classes of sleeper available. See **Table 5-37** for allowed values.
- ***ReservationRequirements:*** (+JW v2.4) Whether reservations are required for ***Service***.

Value	Description
seatReservationsCompulsory	Seat Reservations Compulsory
cycleReservationsCompulsory	Bicycle Reservations Compulsory
seatReservationsRecommended	Seat Reservations Recommended
seatReservationsPossible	Seat Reservations Possible
wheelchairOnlyReservations	Reservations are required for Wheelchair but not necessarily for others

Table 5-38 – Allowed values for Service / Reservations (+JW v2.4)

- ***Refreshments:*** (+JW v2.4) provides details about catering available on the service.
- ***RefreshmentServiceType:*** (+JW v2.4) The types of catering service available on service. See **Table 5-39** for allowed values.

Value	Description

bar	bar
beverageVendingMachine	Beverage Vending Machine
buffet	Buffet
firstClassRestaurant	Restaurant for First Class only
foodVendingMachine	Food Vending Machine
hotFoodService	Hot Food Service
restaurant	Restaurant
snacks	Snacks
trolleyService	Trolley Service
noBeveragesAvailable	No Beverages Available
noFoodServiceAvailable	No Food Service Available
other	other

Table 5-39 – Allowed values for Service / Refreshment (+JW v2.4)

- ***RefreshmentRights:*** (+JW v2.4) The types of rights to consume refreshments included in tickets for service. See **Table 5-40** for allowed values.

	TimedLeg
mealIncluded	Meal Included
mealIncludedForFirstClassPassengers	Meal Included for First Class Passengers
noMealIncluded	No Meal Included

Table 5-40 – Allowed values for Service / RefreshmentRights (+JW v2.4)

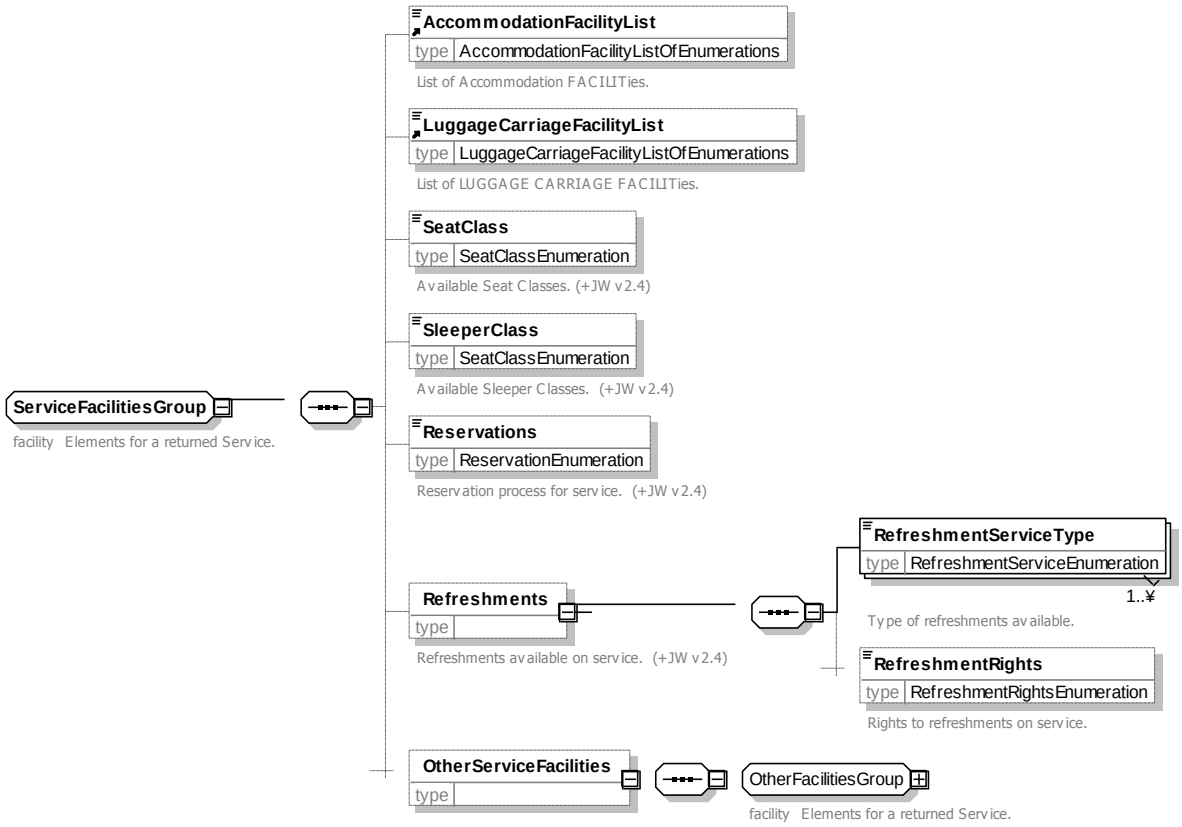


Figure 5-114 – Service / ServiceFacilitiesGroup (+JW v2.4)

5.10.10 Service / OtherServiceFacilities (+JW v2.4)

The *OtherServiceFacilities* (**Figure 5-115**) returns information on additional facilities:

- ***NuisanceFacilityList:*** (+JW v2.5) The type of accomodation available. See **Table 5-41** for allowed values.

Value	**Description**
smoking	Smoking zone.

noSmoking	No smoking. zone.
mobilePhoneUseZone	Mobile phone zone.
mobilePhoneFreeZone	Quiet area.
familyArea	Family area
childfreeArea	Child free area.
other	Other area.
smoking	Smoking zone.
noSmoking	No Smoking. zone.
lmobilePhoneUseZone	Mobile phone zone.
mobilePhoneFreeZone	Quiet area.
familyArea	Family area

Table 5-41 – Allowed values for OtherFacility / NuisanceFacility (+JW v2.5)

- ***PassengerCommsFacilityList:*** (+JW v2.5) The types of on-board passenger communications and entertainment facilities. See **Table 5-42** for allowed values.

Value	Description
freeWifi	Free wifi.
publicWifi	Public wifi, may be charged.
telephone	Telephone.
internet	Internet access.
mobileCoverage	Mobile phone coverage.
videoEntertainment	Video entertainment.
audioEntertainment	Audio entertainment.
powerSupplySockets	Power supply sockets.

Table 5-42 – Allowed values for PassengerCommsFacilityList (+JW v2.5)

- ***PassengerInformationFacilityList:*** (+JW v2.5) The type of passenger information facilities available on-board. See **Table 5-43** for allowed values.

Value	Description
audioInformation	Audio information.
audioForHearingImpaired	Special Audio information for those who are hearing impaired.
visualDisplays	Visual displays of information.
displaysForVisuallyImpaired	Specially enhanced visual information for those who are visually impaired.
largePrintTimetables	Large print timetables.
other	Other INFO FACILITY.

Table 5-43 – Allowed values for *PassengerInformationFacility* (+JW v2.5)

- ***SafetyFacilityList:*** (+JW v2.5) Some on-board capabalities that enhance to passenger safety. See **Table 5-44** for allowed values.

Value	Description
mobileCoverage	There is mobile hone coverage.
ccTv	There is close circuit television camera surveillance.
sosPoint	There is an SOS point.
staffed	There are staff.

Table 5-44 – Allowed values for OtherFacility / SafetyFacility (+JW v2.5)

- ***SanitaryFacilityList:*** (+JW v2.5) The types of lavatory and washing facilities available on service. See **Table 5-45** for allowed values.

Value	Description
toilet	Lavatories.
wheelchairAccessToilet	Toilet for wheelchair access.
shower	Shower.
wheelchairBabyChange	Baby change facility for wheelchair users.
babyChange	Baby change facility.
washingAndChangeFacilities	Wash and Change facilities.
other	Other sanitary facility.

Table 5-45 – Allowed values for OtherFacility / SanitaryFacility (+JW v2.5)

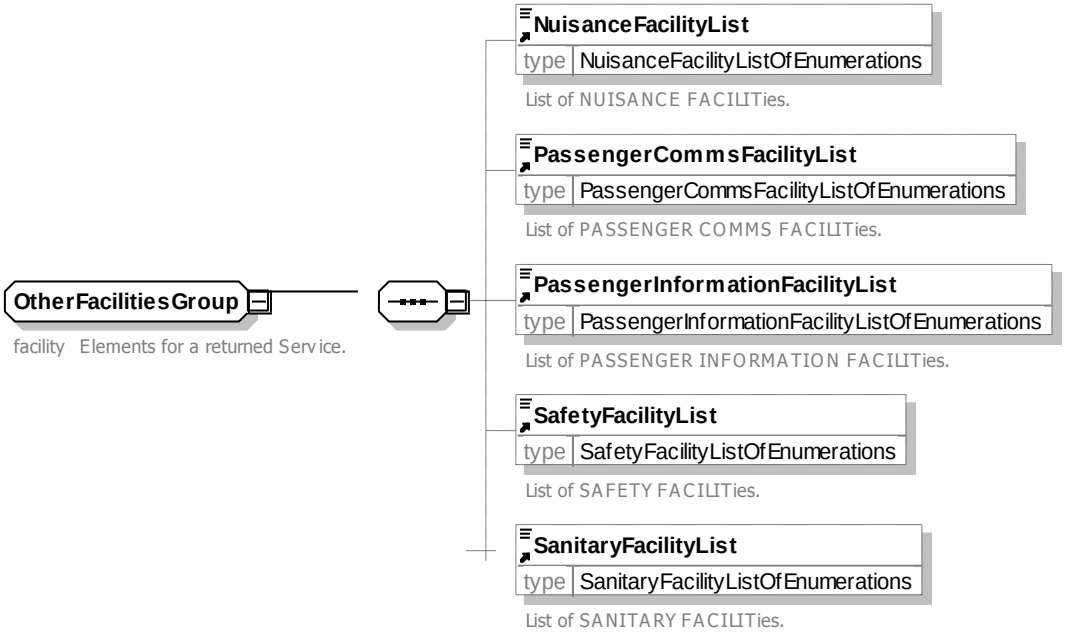


Figure 5-115 – Service / OtherServiceFacilitiesGroup (+JW v2.5)

5.10.11 Service / ServiceAccessibility (+JW v2.4)

The ***ServiceAccessibility*** (**Figure 5-116**) is used to define the following:

- ***MobilityImpairedAccess***: an overall assessment of the accessibility of the ***Service***.
- ***Compliant***: (+JW v2.5) Whether this leg is compliant with the accessibility criteria specified on request. Default is true. May possibly be false if ***Filtering*** permissive is specified to indicate a leg that does not meet criteria. Note that it is possible for the accessibility assessment of the stops of a leg to be compliant but the leg itself not to be.
- ***ServiceEquipment***: specific details of equipment on the vehicle. See later below.

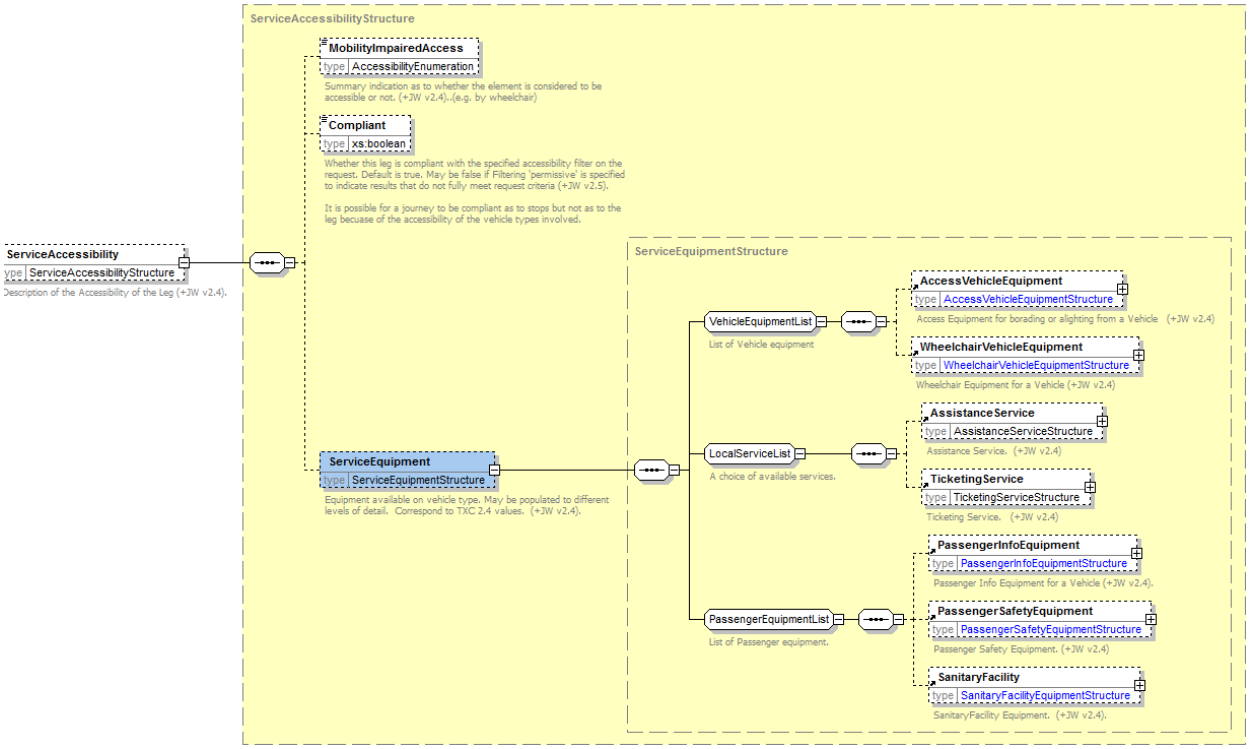


Figure 5-116 – Service / ServiceAccessibility (+JW v2.4)

5.10.12 Service / DaysOfOperationStructure

The ***DaysOfOperation*** element (**Figure 5-117)** 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.

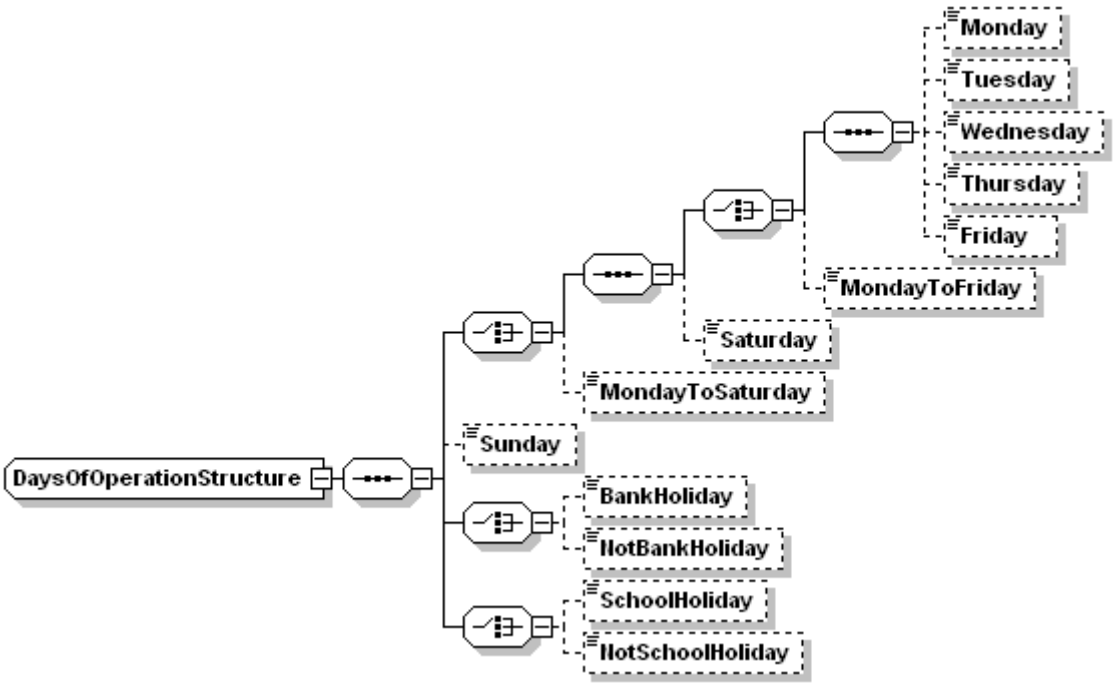


Figure 5-117 – DaysOfOperation

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 5-118**) 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.

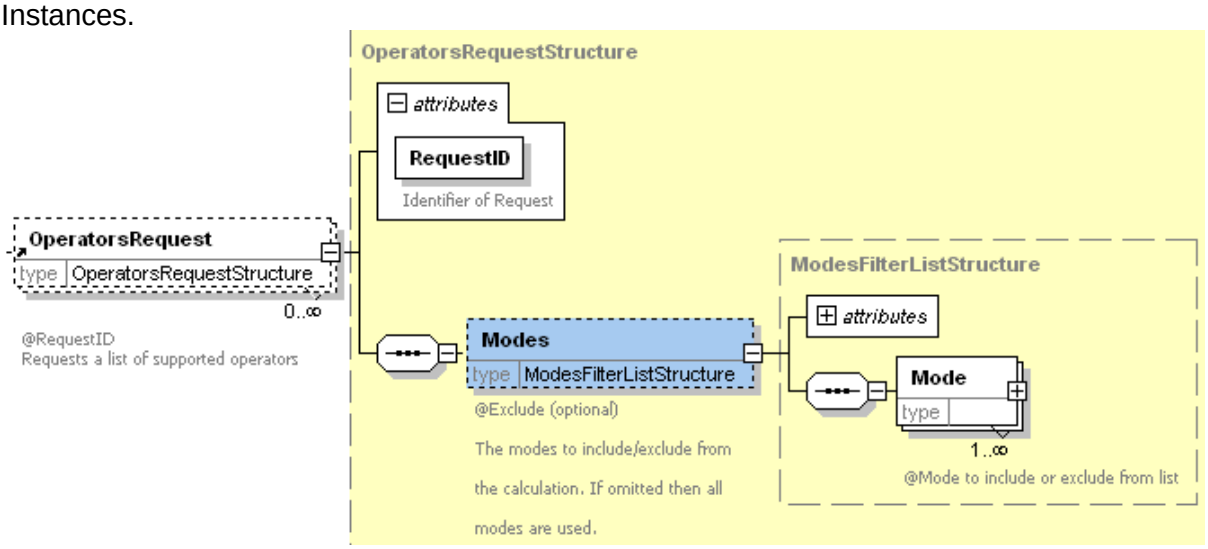


Figure 5-118 – OperatorsRequest

5.11.2 OperatorsResponse

The ***OperatorsResponse*** element (**Figure 5-119)** 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.***

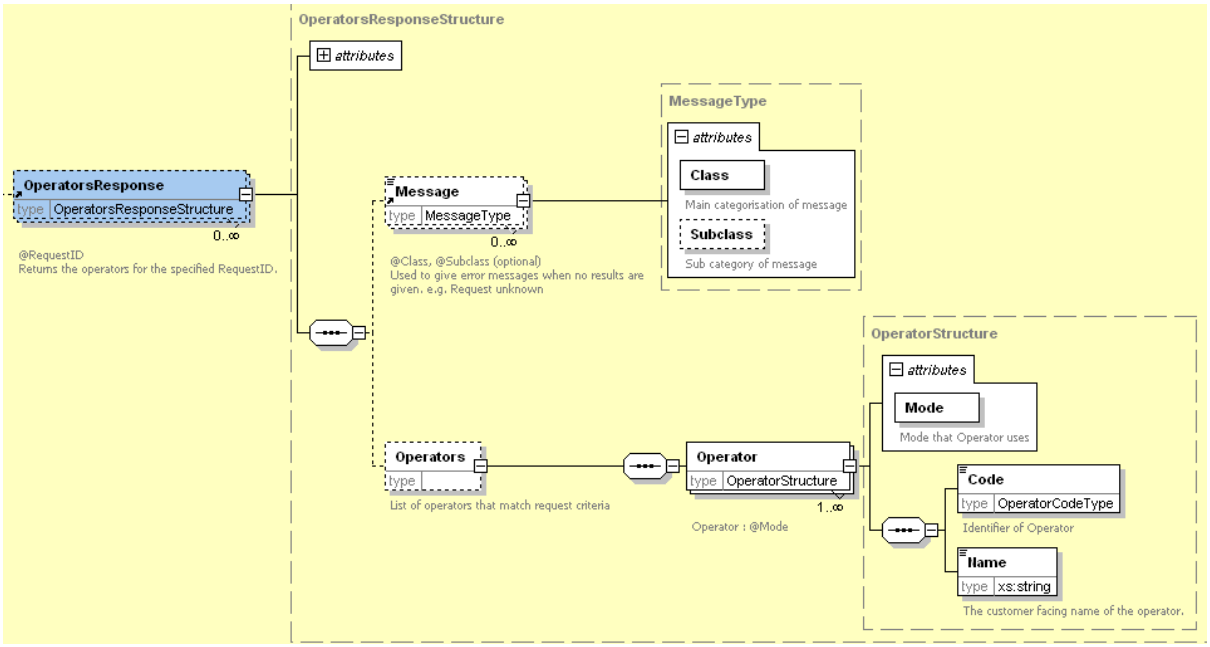


Figure 5-119 – OperatorsResponse

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.

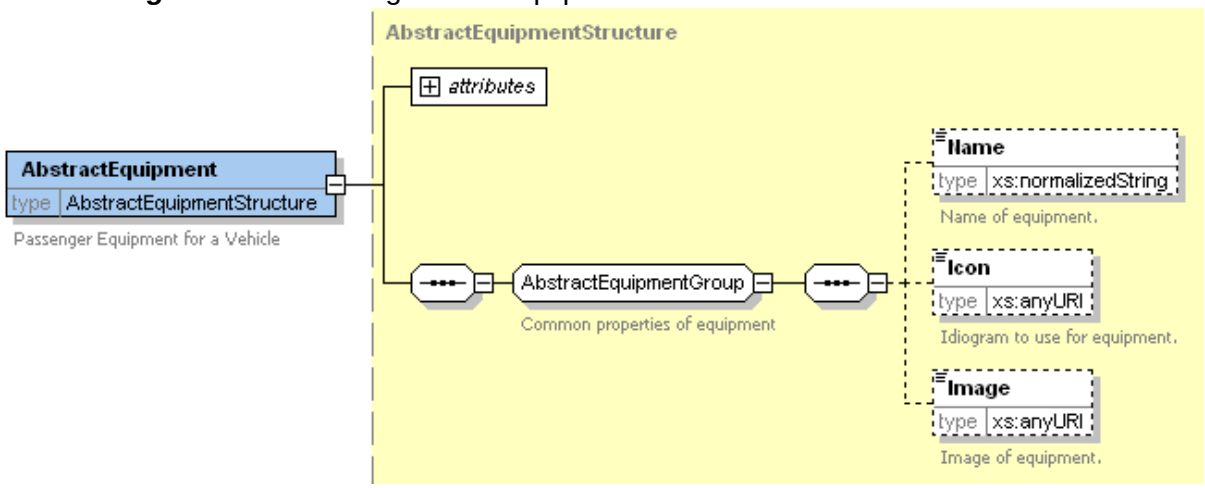


Figure 6-1 – AbstractEquipment (+JW v2.4)

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 5-24** earlier.
- ***PassengersPerMinute***: Number of passengers per minute that may use equipment
- ***RelativeWeighting***: Relative weighting given to this item of equipment

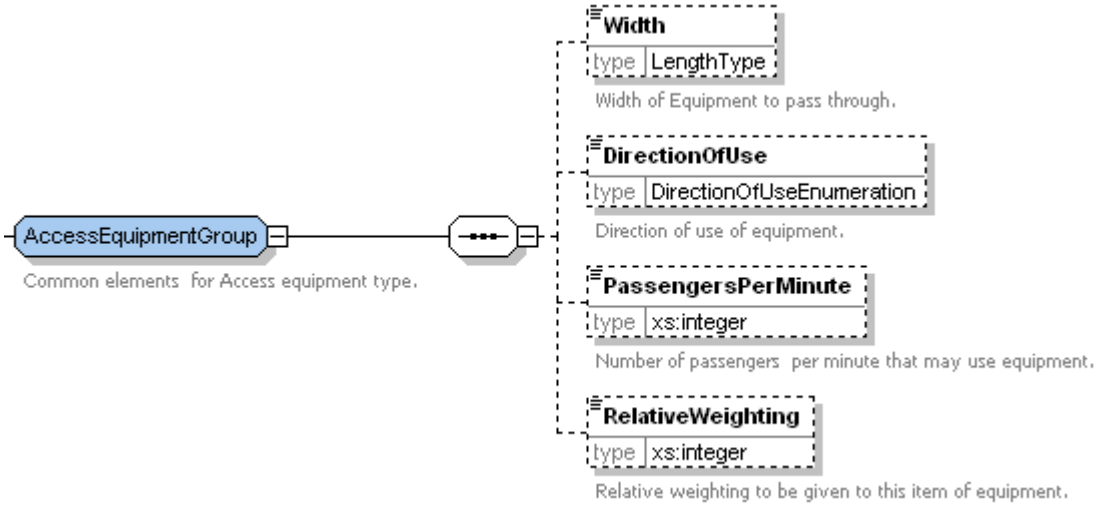


Figure 6-2 – AccessEquipmentGroup (+JW v2.4)

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.

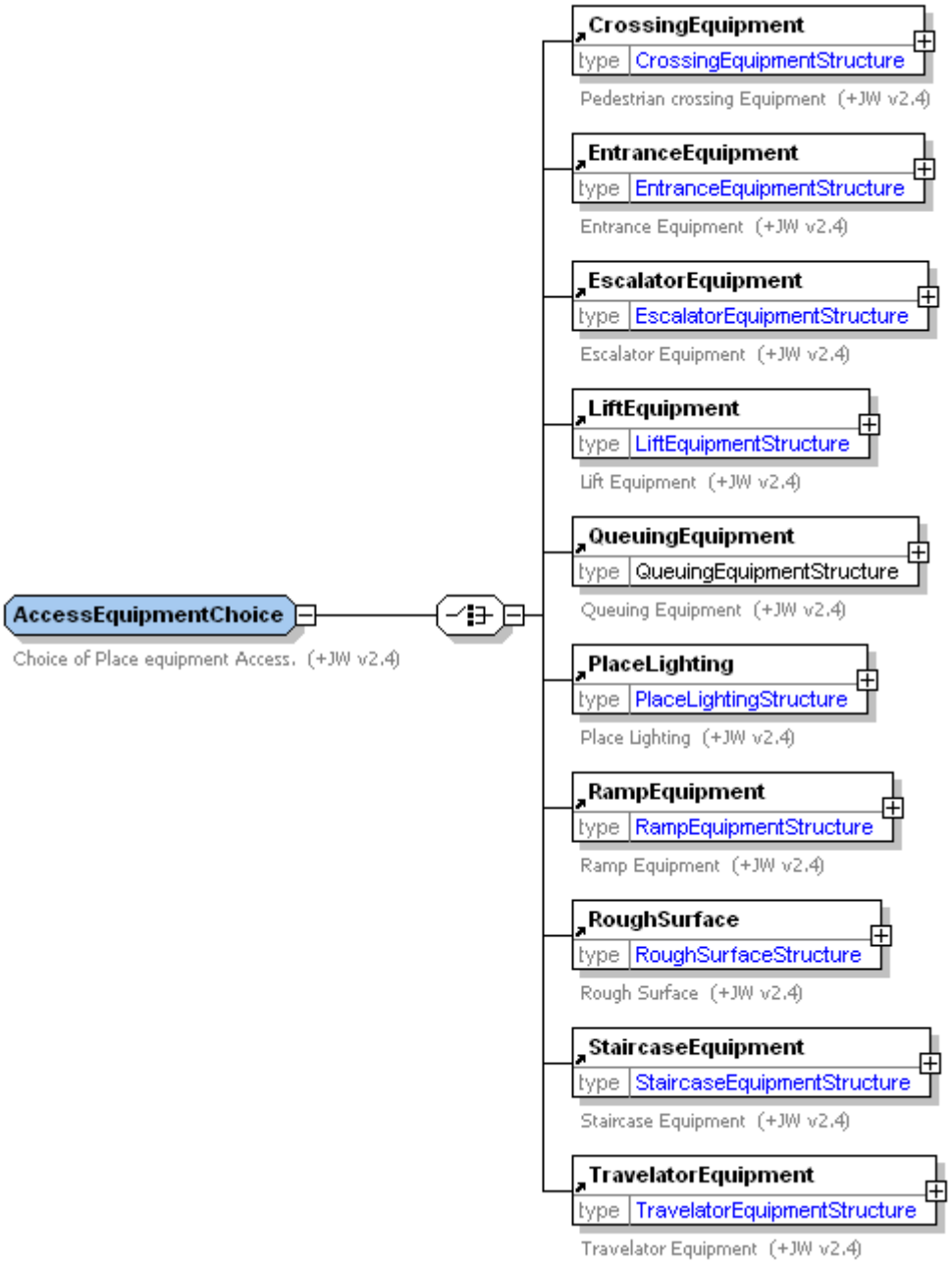


Figure 6-3 – Access Equipment / AccessEquipmentChoice (+JW v2.4)

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:

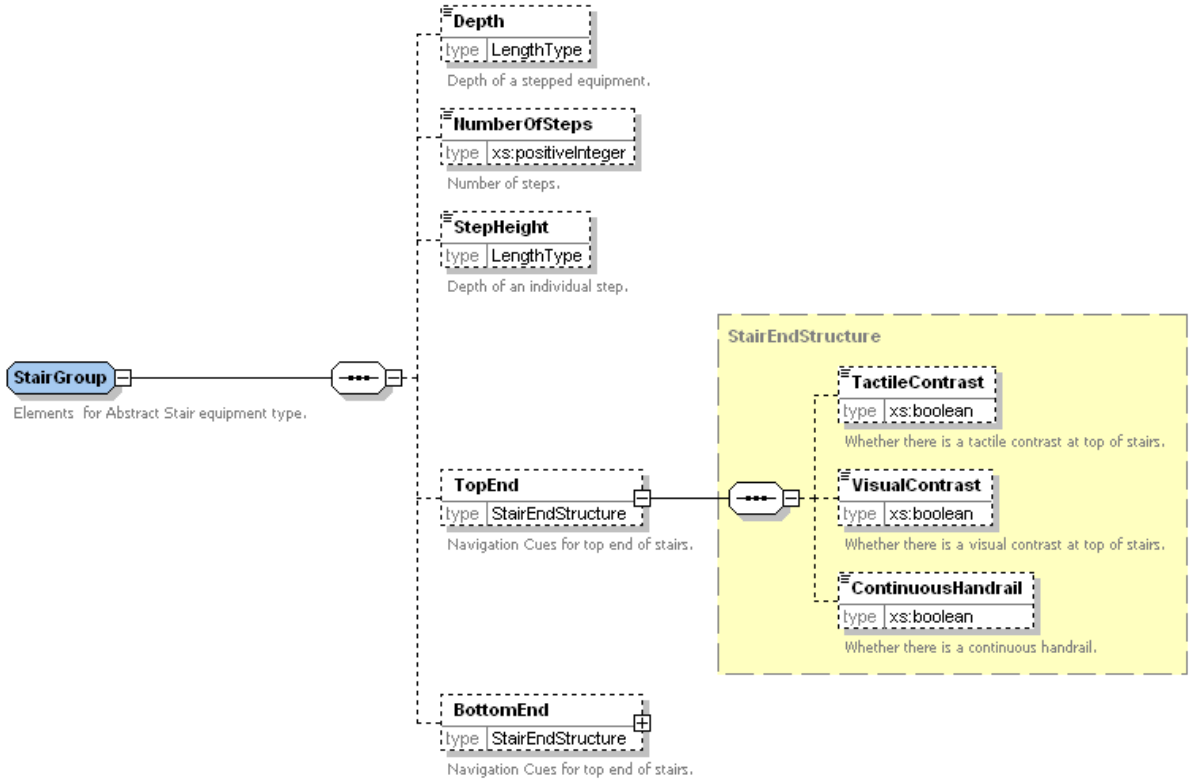


Figure 6-4 – StairGroup (+JW v2.4)

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.

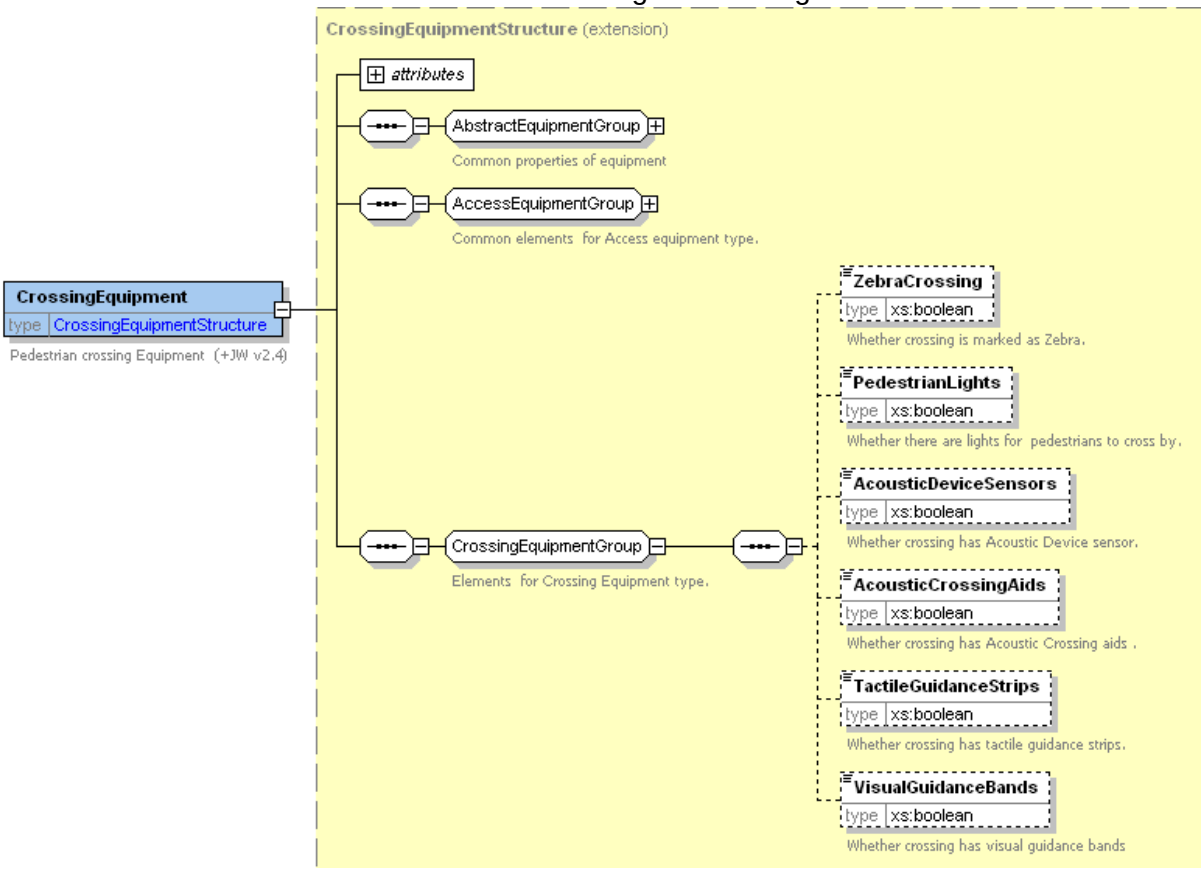


Figure 6-5 – Crossing Equipment (+JW v2.4)

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.

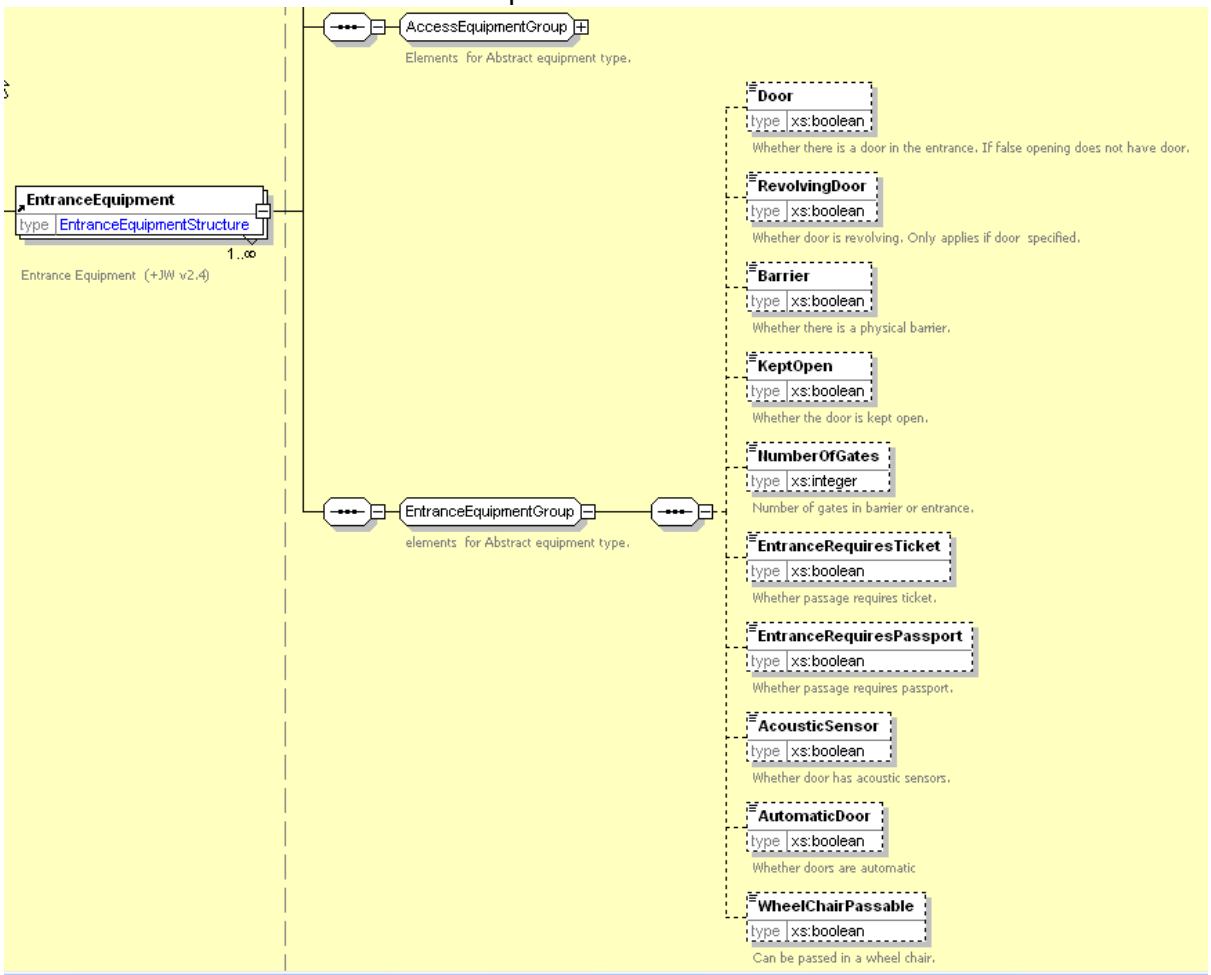


Figure 6-6 – EntranceEquipment (+JW v2.4)

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.

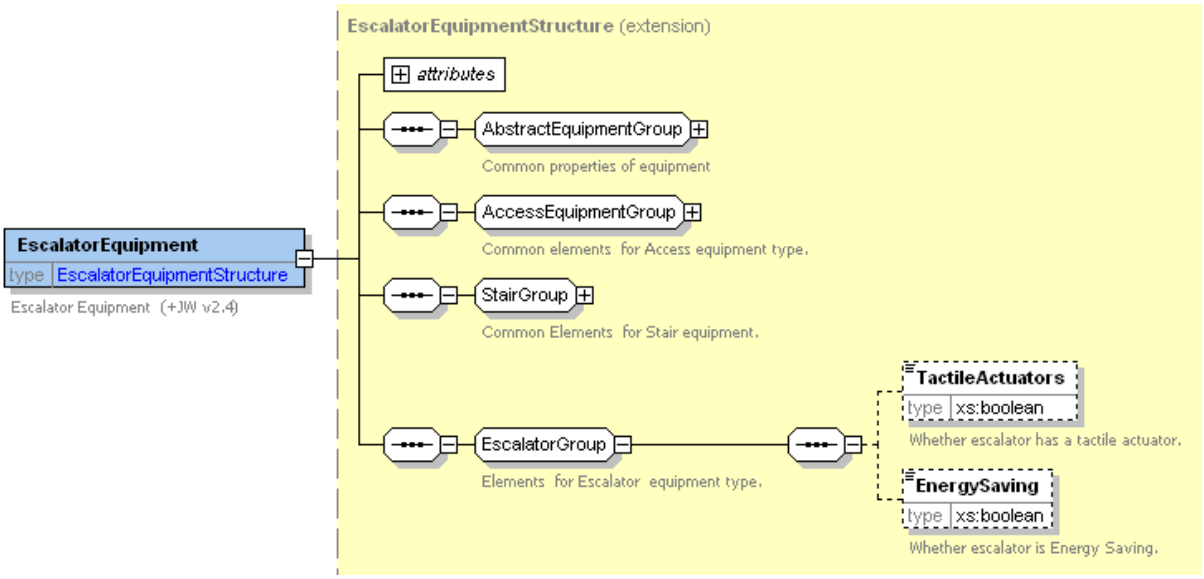


Figure 6-7 – Escalator Equipment (+JW v2.4)

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.
- ***AccousticAnnouncements***: Whether lift has acoustic announcements.

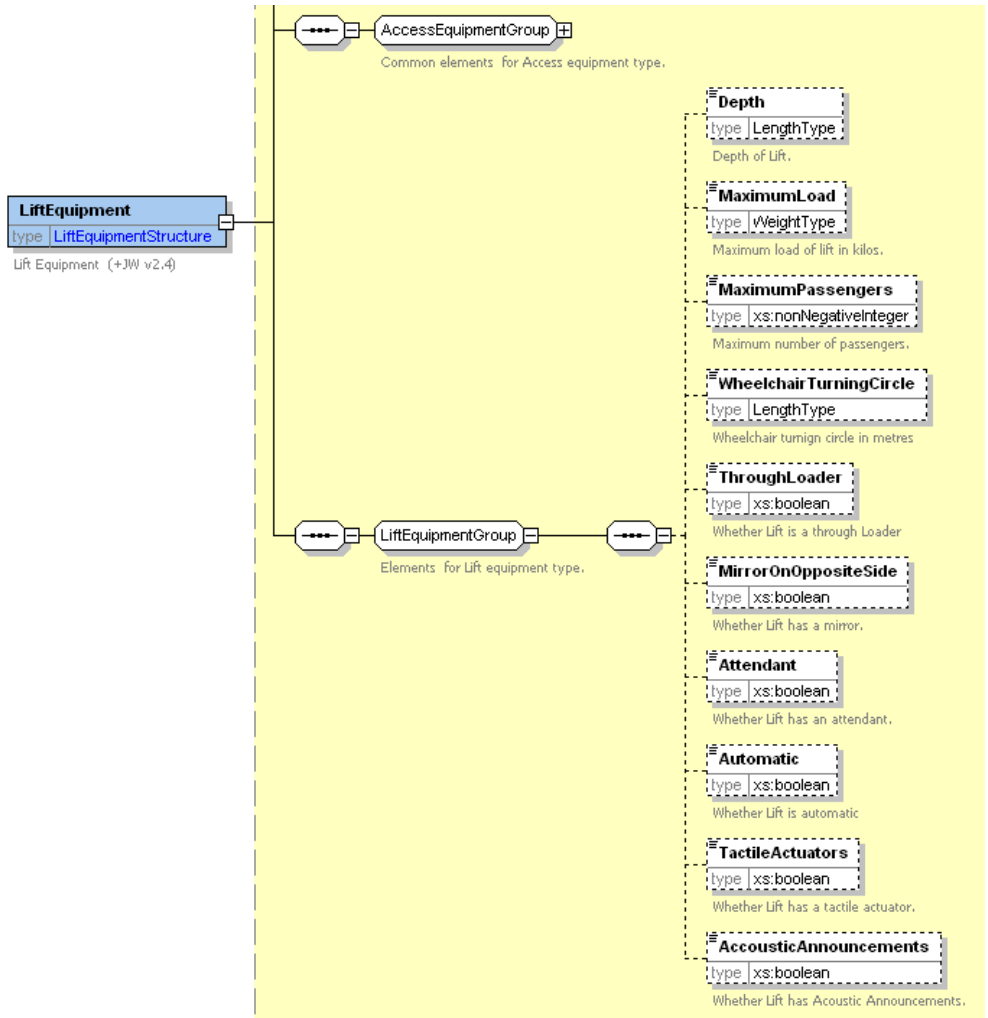


Figure 6-8 – Lift Equipment (+JW v2.4)

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.

Value	Description
wellLit	Place is well lit
poorlyLit	Place is poorly lit
unlit	Place is unlit
unknown	unknown
other	other

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

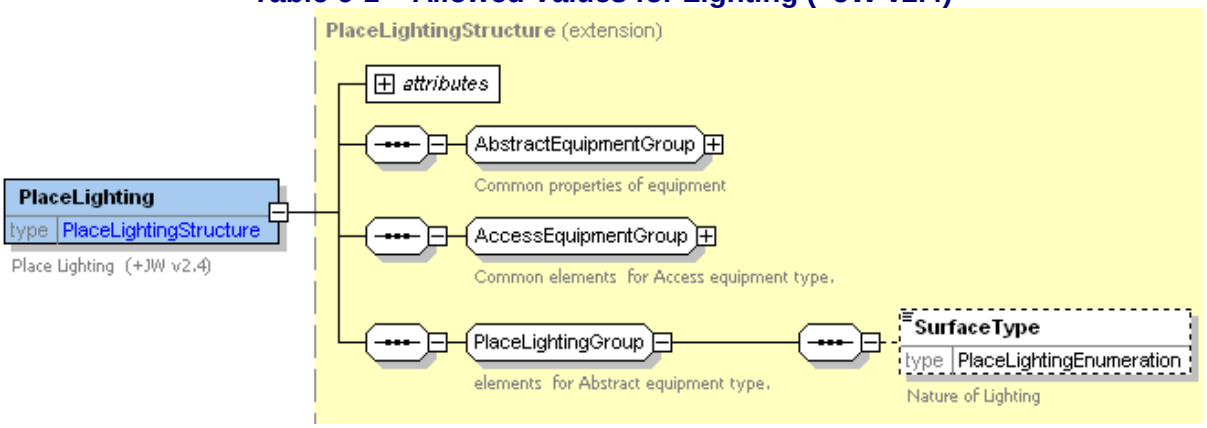


Figure 6-9 – PlaceLighting (+JW v2.4)

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 ticket***s***.

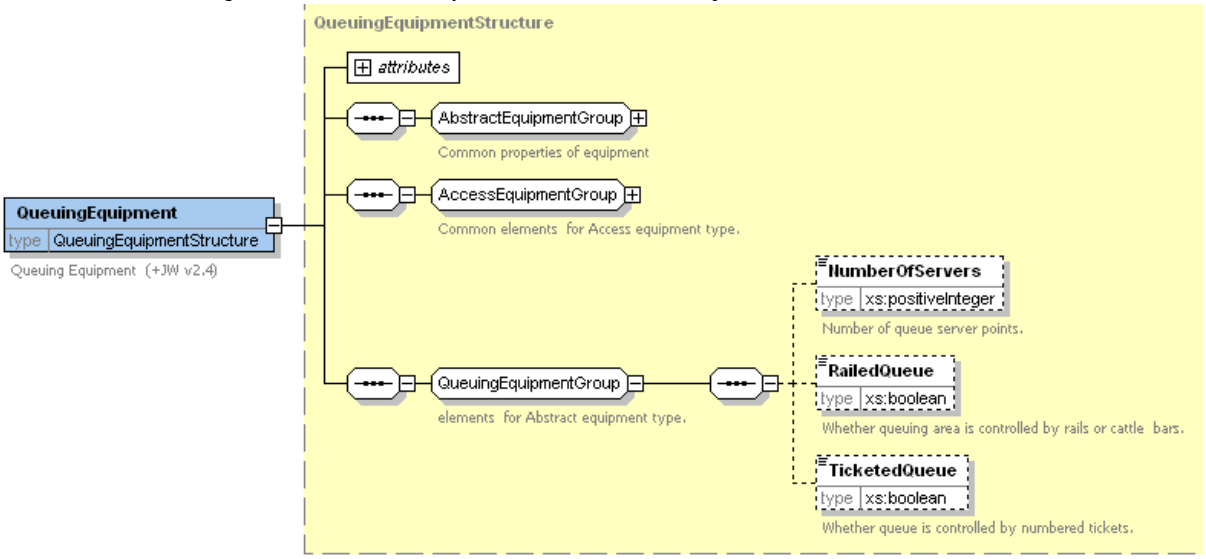


Figure 6-10 – QueuingEquipment (+JW v2.4)

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.

Value	Description
level.	Level.
shallow.	Shallow.
moderate.	Moderate.
steep.	Steep.
verySteep	Very Steep

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.

Value	Description
none.	No Handrail
oneSide.	Handrail on one side.
bothSides	Handrail on both sides

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.

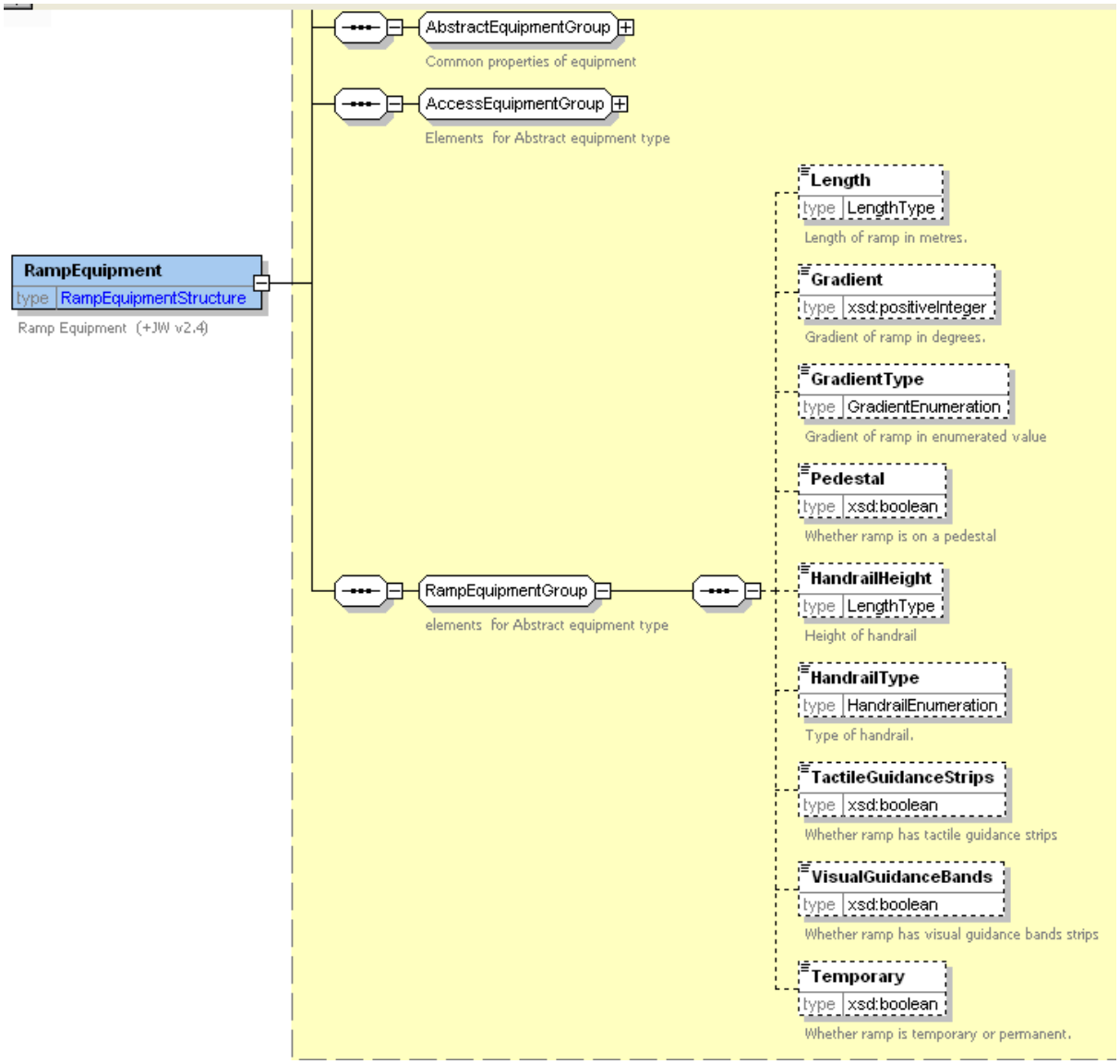


Figure 6-11 – RampEquipment (+JW v2.4)

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.

Value	Description
asphalt	Surface is asphalt
bricks	Surface is bricks
cobbles	Surface is cobbles
earth	Surface is earth
grass	Surface is grass
looseSurface	Surface is loose
pavingStones	Surface is paving stones
roughSurface	Surface is rough

smooth	Surface is smooth
other	Surface is other

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

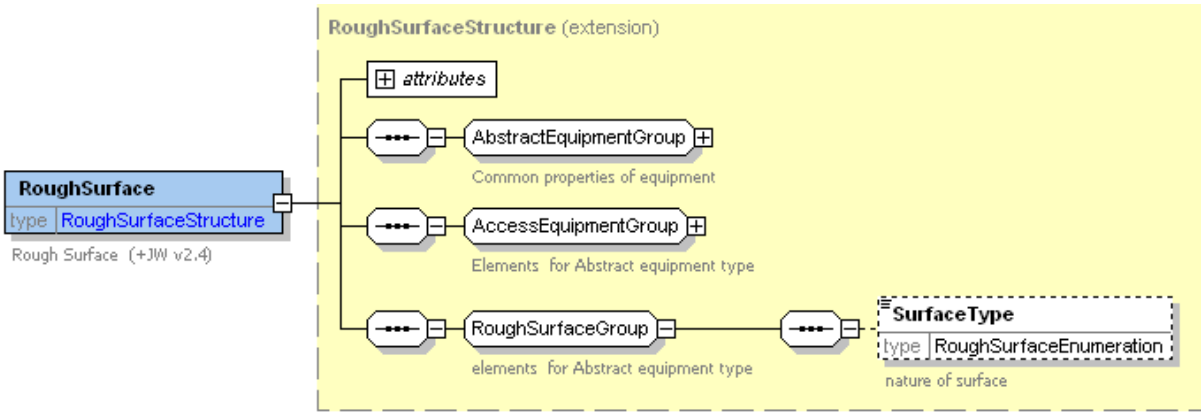


Figure 6-12 – RoughSurface (+JW v2.4)

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.

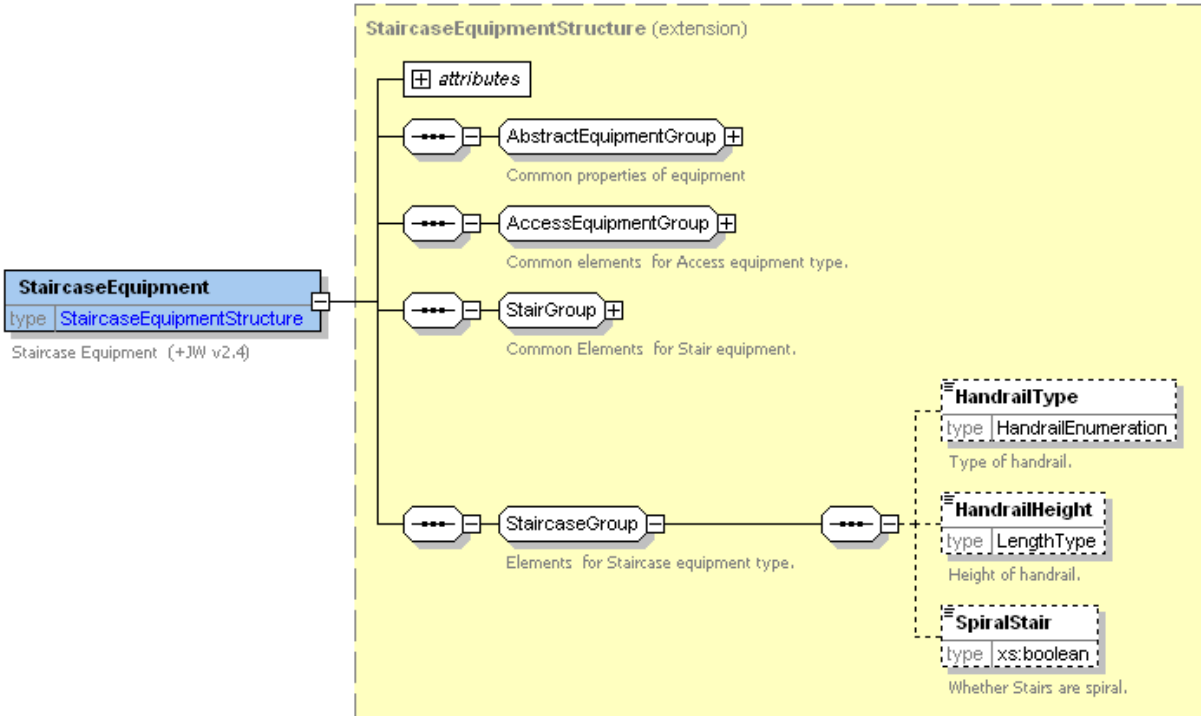


Figure 6-13 – StaircaseEquipment (+JW v2.4)

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.

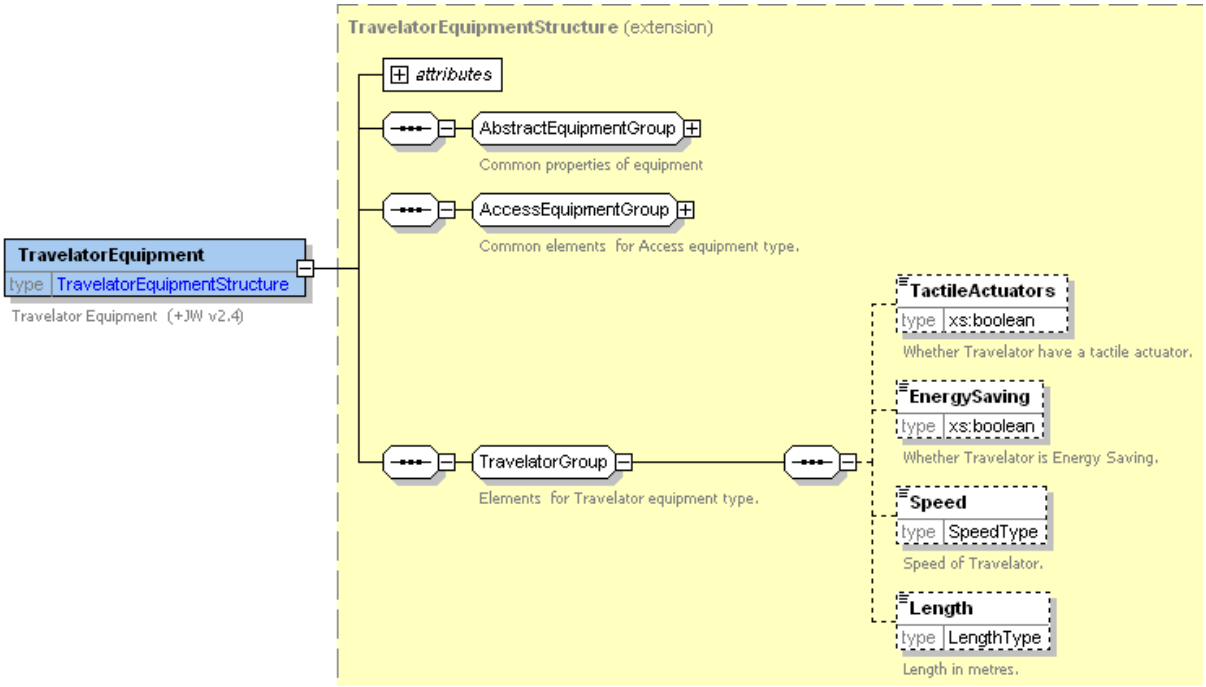


Figure 6-14 – TravelatorEquipment (+JW v2.4)

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. See below
- ***TicketingService***: Description of Ticketing Service properties. See below

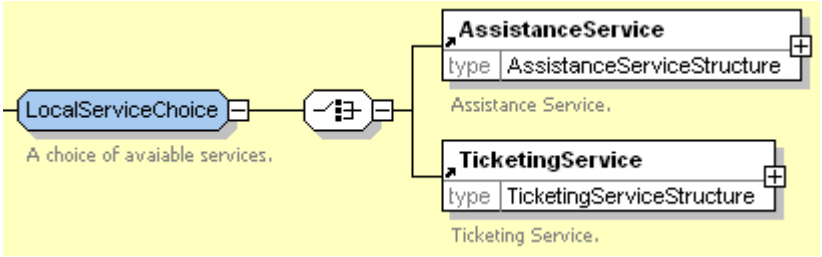


Figure 6-15 – Equipment / LocalServiceChoice (+JW v2.4)

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 or on-board. 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.

Value	Description
boarding	General boarding assistance for all categories of user available.
wheelchair	Boarding assistance for wheel chair users available
wheelchairPrebooked	Boarding assistance for wheelchair users available if prebooked.

porterage	Porterage available.
other	Other service available.

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

- ***AssistanceAvailability: Availab***ility of services *for wheelchair users* (Table 6-6).shows the allowed values for assistance availability.

Value	Description
none	Assistance service is not available from Operator.
available	Assistance is available from Operator.
availableIfBooked	Assistance is available if booked.
availableAtCertainTimes	Assistance is available at certain times.
unknown	Not known if available.

Table 6-6 – Allowed Values for AssistanceAvailability

- ***Staffing***: Type of ***Staffing*** available. See **Table 6-7** for allowed values.

Value	Description
fullTime	Staffed full time during opening hours
partTime	Only staffed at certain times
unmanned	Not normally staffed
unknown	Staffing unknown

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

- ***AccessibilityTools***: Devices available for use by passengers. One or more - See **Table 6-8** for allowed values.

Value	Description
wheelchair	Wheelchairs are available for use.
walkingStick	Walking sticks are available for use.
audioNavigator	Audio Navigators are available for use.
visualNavigator	Visual Navigator aids are available for use, e.g. floor strips.
passengerCart	Passenger carts are available for use.
other	Other equipment is available for use.

Table 6-8 – 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.
- ***EmergencyServices:*** List of available emergency service support. One or more - See **Table 6-9** for allowed values.

Value	Description
police	Police are available at location.
firstAid	First aid is available at location.
sosPoint	SOS help Points are available at location.
ccTv	CCTV covers location.
other	Other services available at location.

Table 6-9 – Allowed Values for EmergencyServices (+JW v2.4)

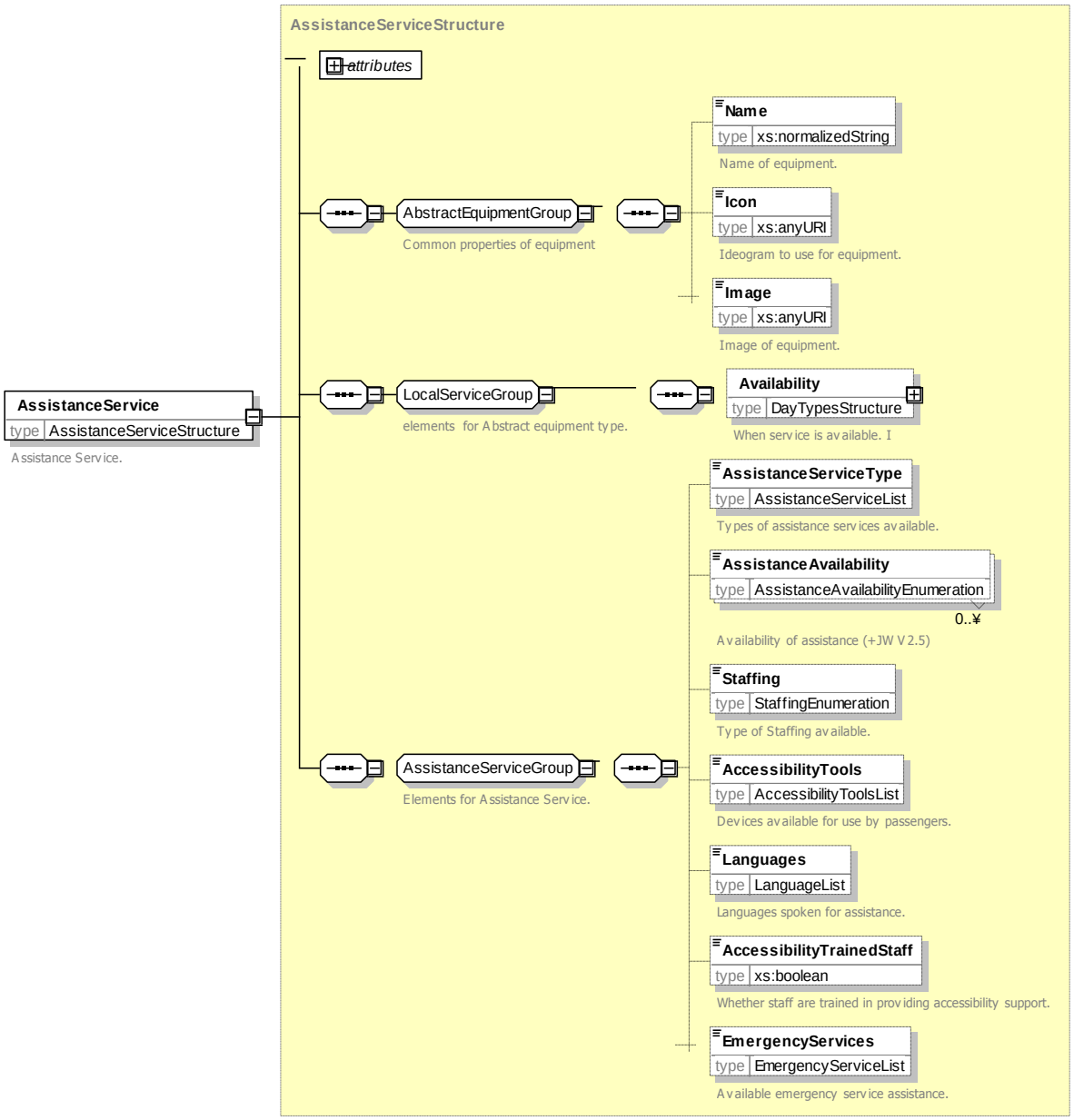


Figure 6-16 – Local Service / AssistanceService (+JW v2.4)

6.3.2 Local Service / TicketingService (+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 5-11** 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 6-10** for allowed values.

Value	Description
cash	Cash payment accepted.
creditCard	Credit Card payment accepted.
debitCard	Debit Card payment accepted.
travelCard	Travel Card payment accepted.
contactlessCreditCard	Contactless Credit Card payment accepted.
mobilePhone	Mobile Phone payment accepted.
token	Payment with preissued Token accepted.
other	Other payment accepted.

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

- ***TicketType:*** Ticket Types available. One or more - See **Table 6-11** for allowed values.

Value	Description
standard	Standard ticket types available
promotion	Promotion ticket types available
concession	Concessionary ticket types available
group	Group ticket types available
season	Season ticket types available
carnet	Carnet ticket types available
travelCard	Travel Card ticket types available
other	Other ticket types available
all	All ticket types available

Table 6-11 – Allowed Values for TicketType (+JW v2.4)

- ***TicketingService:*** Ticketing services available. One or more - See **Table 6-12** for allowed values.

Value	Description
purchase	Ticket purchase available at location.
collection	Ticket collection available at location.
cardTopUp	Card Top Up available at location.
reservations	Ticket reservations available at location.
other	Other Ticket service available at location.

Table 6-12 – Allowed Values for TicketingService (+JW v2.4)

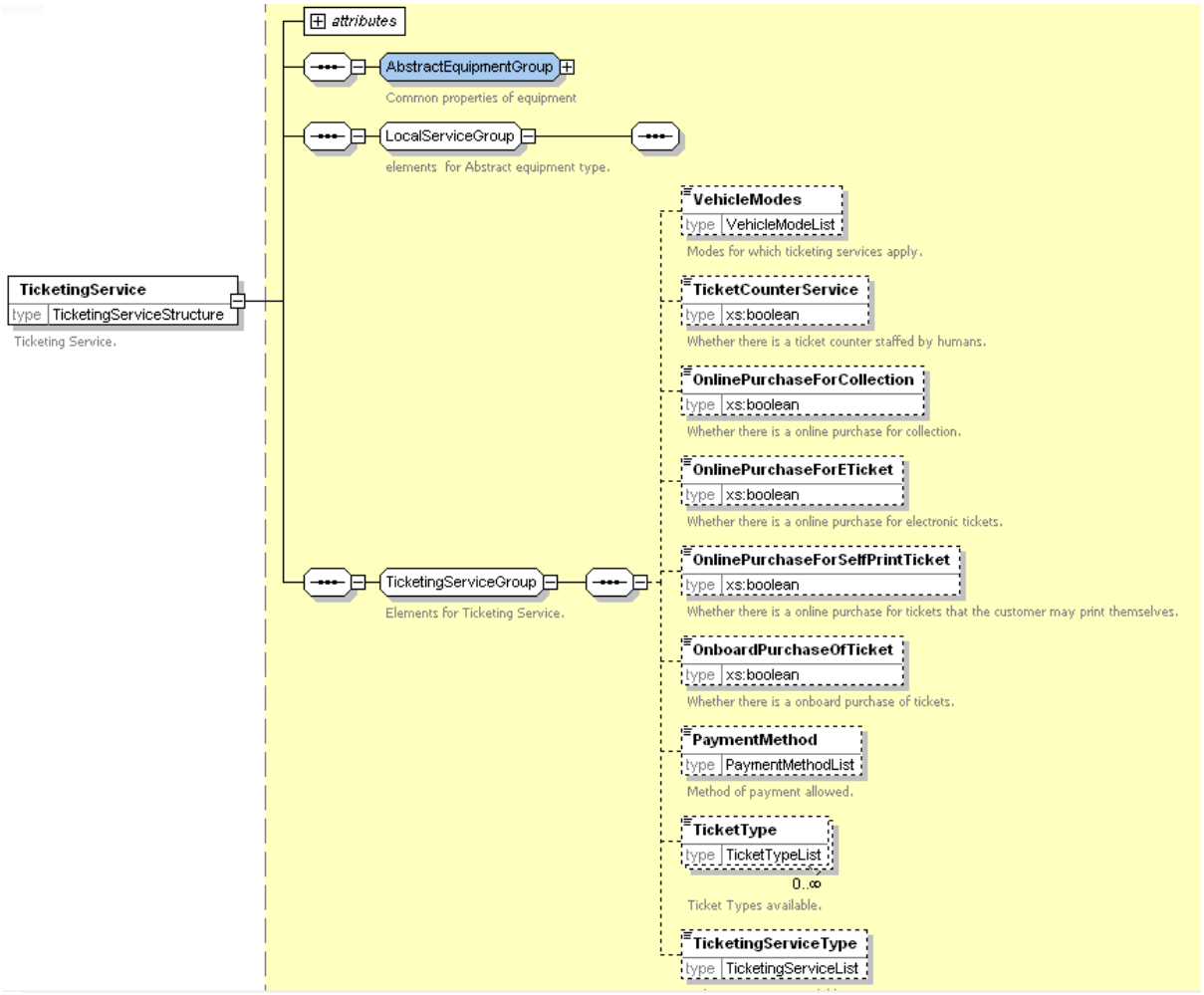


Figure 6-17 – LocalService / TicketingService (+JW v2.4)

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.
- ***SanitaryFacilityEquipment***: (+JW v2.5) specific details of toilets available on the service.
- ***(SanitaryFacility***: (+JW v2.4) DEPRECATED: element names has been renamed to ***SanitaryFacilityEquipment*** to avoid clash Will be dropped in next release.)

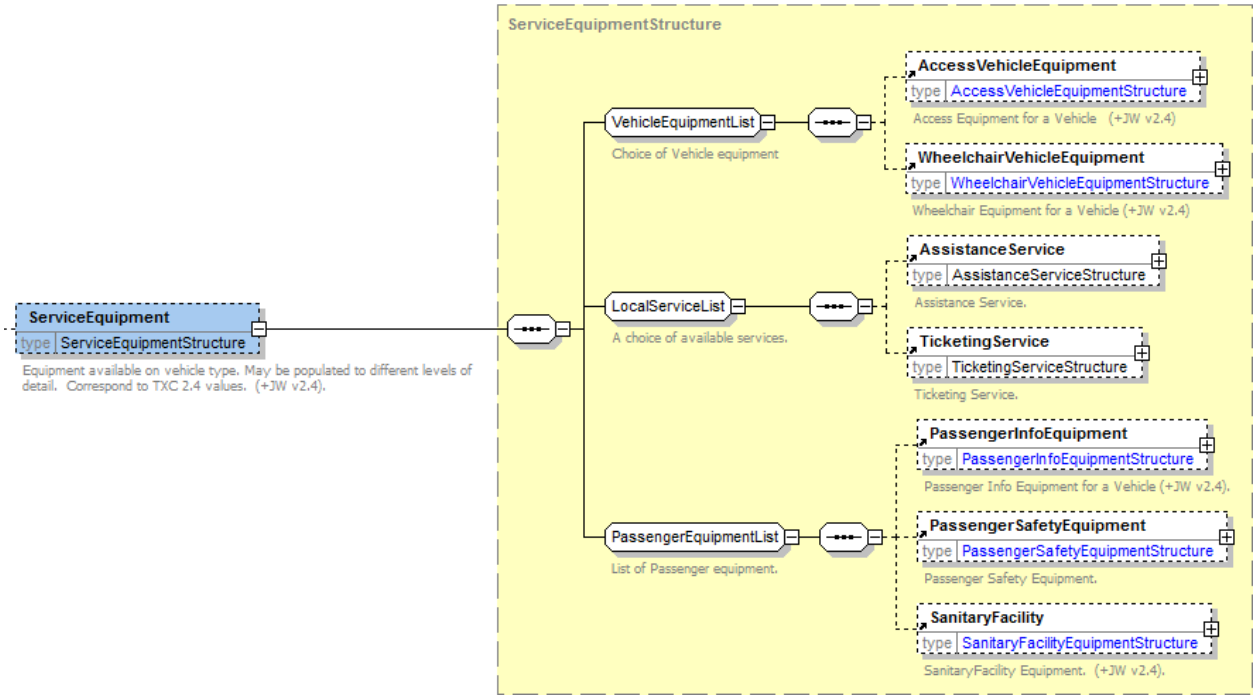


Figure 6-18 – Service / ServiceEquipment (+JW v2.4)

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.
- ***HighFloor***: Whether vehicle used for service has high floor access. . (+JW v2.5)
- ***Hoist***: Whether vehicle used for service has hoist. (+JW v2.5)
- ***HoistOperatingRadius***: Radius needed to Operate Hoist (+JW v2.5)
- ***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.
- ***SuitableFor JW*** Mobility need for which access is suitable. See Table 6-13 below. (+TXC v2.5)

Value	Description
wheelchair	Wheelchair.
assistedWheelchair	Wheelchair pushed by companion.
motorizedWheelchair	Motorized Wheelchair.
mobilityScooter	Small mobility Scooter: A Class 2 scooter under the CPT classification with 3 or 4 wheels, not more than 600mm wide and 1000 mm long and with a turning radius not exceeding 1200mm. Normally weigh about 65 kg.
roadMobilityScooter	Large Mobility Scooter: A Class 3 scooter under the CPT classification. Class 3 scooters are bigger and have light for road use. They are not normally allowed on buses.
walkingFrame	Walking Frame.
restrictedMobility	Restricted Mobility.
normal	Normal mobility.

Table 6-13 – Allowed Values for *MobilityNeed*

- ***AssistanceNeeded*** Nature of assistance needed to board See (Table 6-14). (+JW v2.5)

Value	Description
levelAccess	Level access – passenger can propel themselves
rampRequired	Assistance with ramp needed.
hoistRequired	Assistance with hoist needed.
unknown	Not known.

Table 6-14 – Allowed Values for *AssistanceNeeded*

- ***AssistedBoardingLocation:*** Whether boarding has to be done at a specific position on the platform. See Table 6-15). (+JW v2.5)

Value	Description
boardAtAnyDoor	Boarding can be at any location.
boardOnlyAtSpecifiedPositions	Boarding must be at specific positions on platform.
unknown	Not known.

Table 6-15 – Allowed Values for *AssistedBoardingLocation*

- ***GuideDogsAllowed*** Whether guide dogs are allowed. (+JW v2.5).

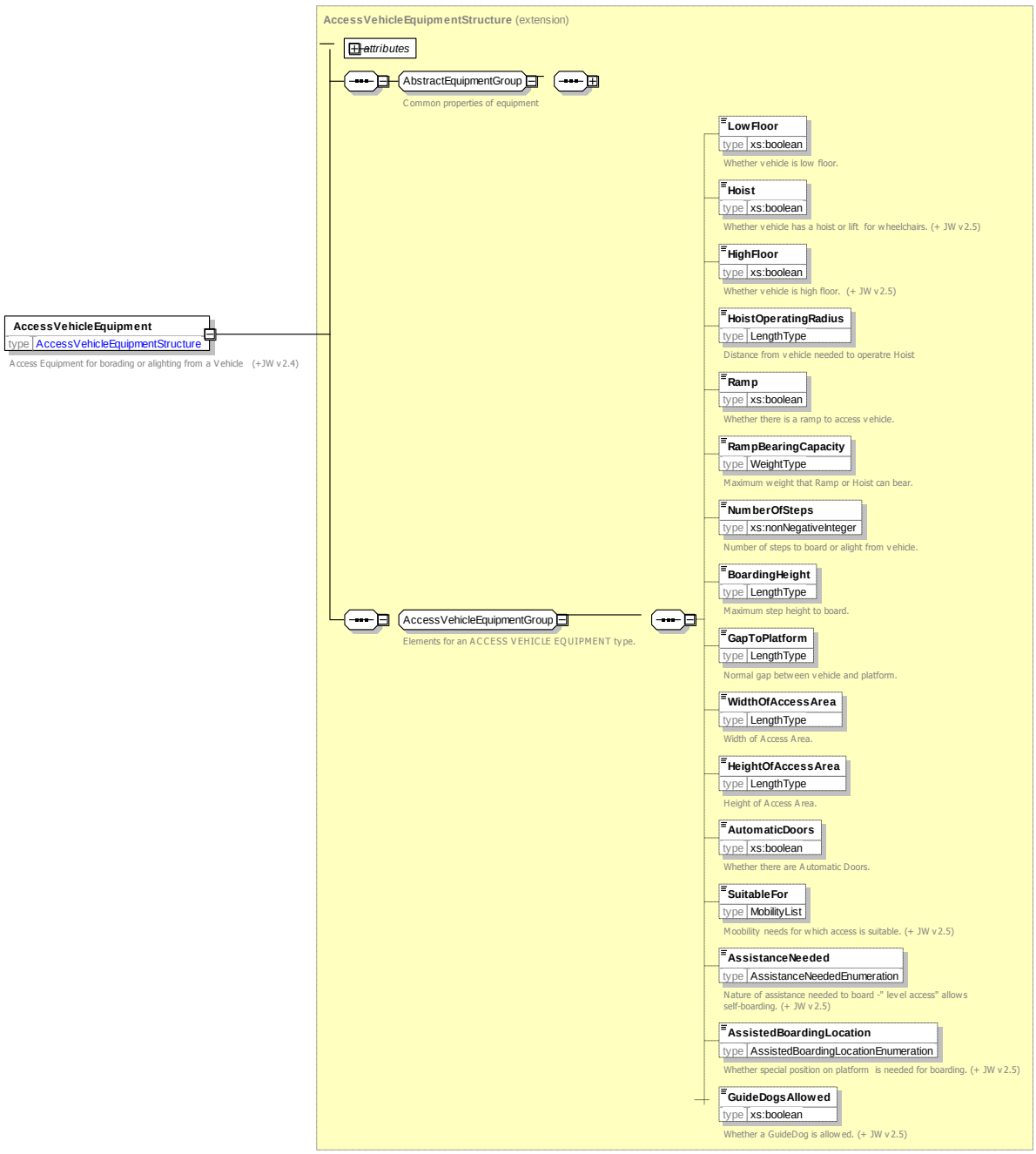


Figure 6-19 – Service / AccessVehicleEquipment (+JW v2.4)

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.

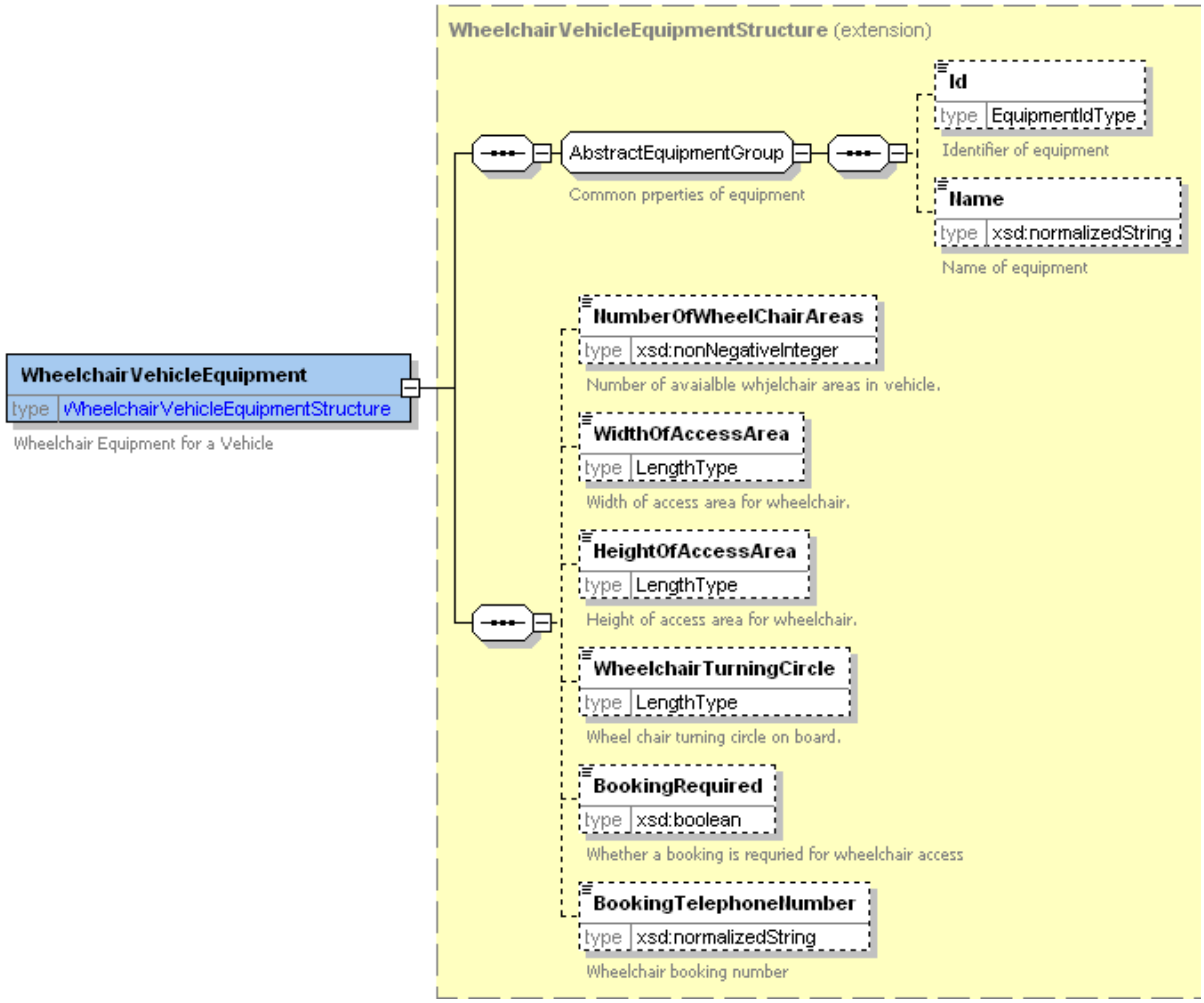


Figure 6-20 – Service / WheelchairVehicleEquipment (+JW v2.4)

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.

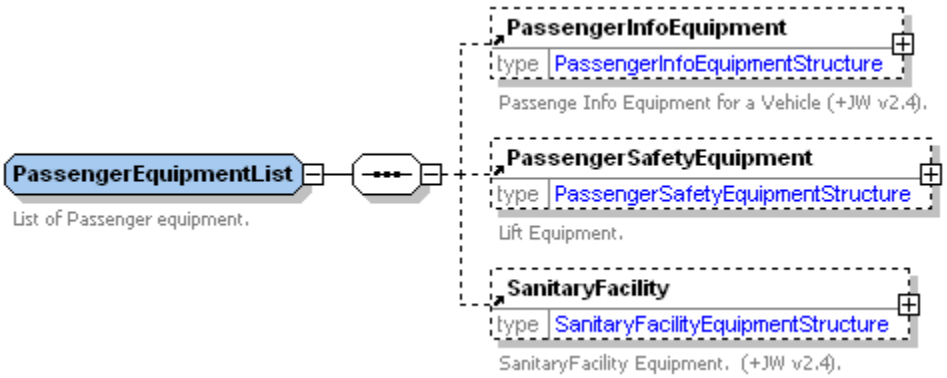


Figure 6-21 – Equipment / PassengerEquipmentChoice (+JW v2.4)

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 6-16** for allowed values.

	TimedLeg
nextStopIndicator	Next Stop Indicator in vehicle
stopAnnouncements	Stop Announcements are made on service
passengerInfoFacility	Other passenger Info Facility available such as an onboard display
other	Other information facility

Table 6-16 – Allowed values for PassengerInfoEquipment / PassengerInfo (+JW v2.4)

- ***AccessibilityInfo***: Accessibility information services available (Note this is a standard list – not all may be relevant ion vehicle). See **Table 6-17** for allowed values.

	TimedLeg
audioForHearingImpaired	Hearing impaired Audio
visualDisplays	Visual displays
displaysForVisuallyImpaired	Special displays for visually impaired
tactilePlatformEdges	Tactile edges on platforms
tactileGuidingStrips	Tactile guiding strips
largePrintTimetables	Special timetable formats
other	Other information facility

Table 6-17 – Allowed values for PassengerInfoEquipment / AccessibilityInfo (+JW v2.4)

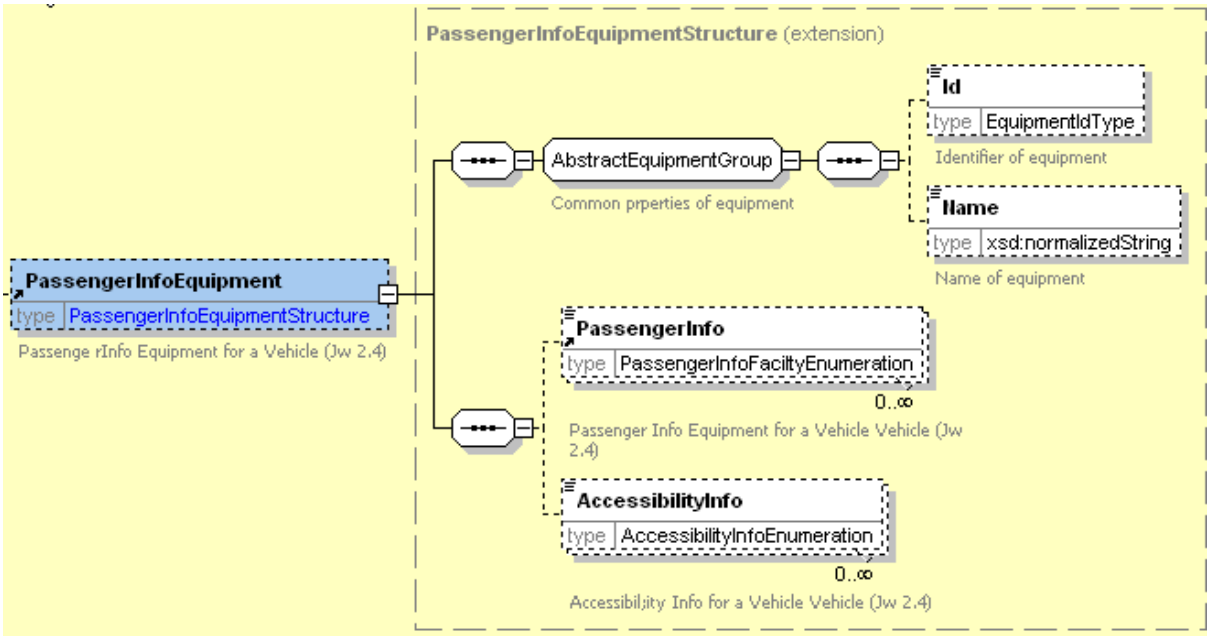


Figure 6-22 – PassengerEquipment / PassengerInfoEquipment (+JW v2.4)

6.5.2 PassengerEquipment / PassengerSafetyEquipment (+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.

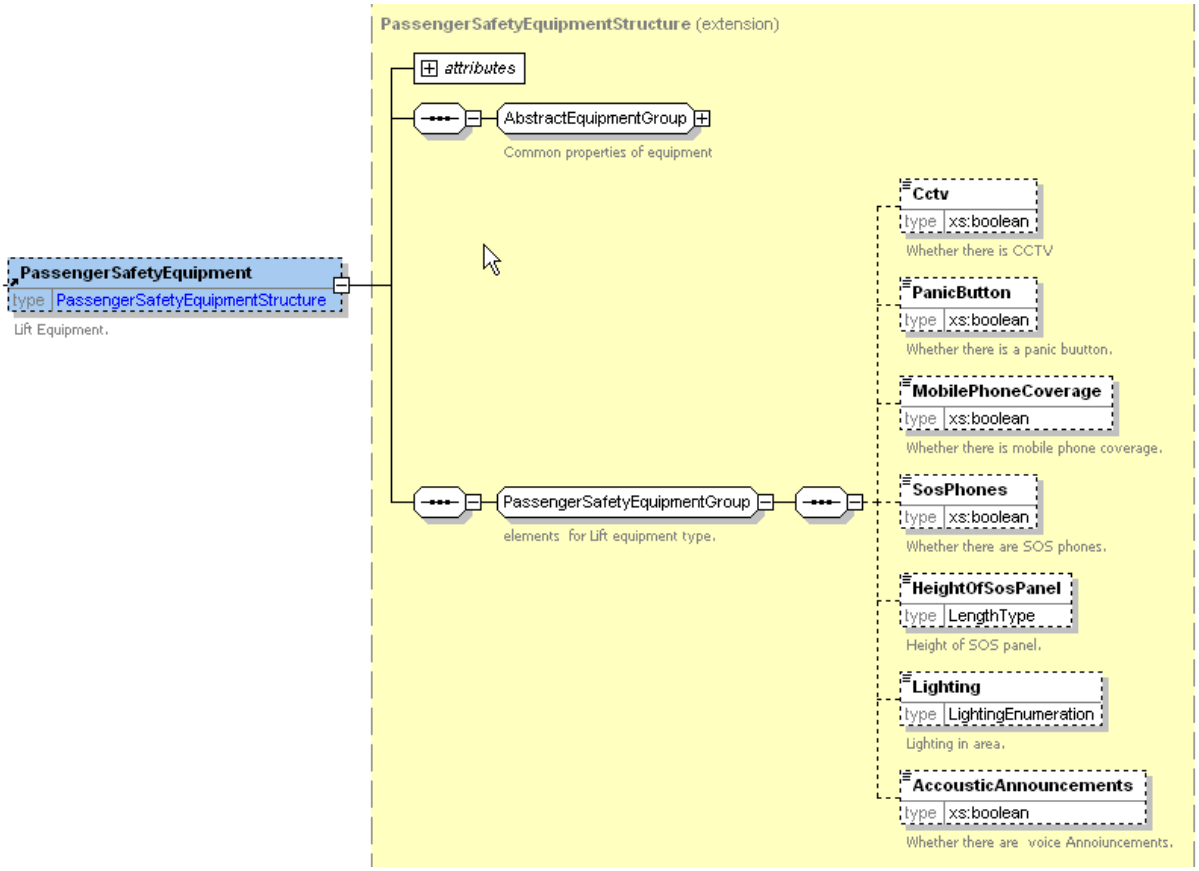


Figure 6-23 – PassengerEquipment / PassengerSafetyEquipment (+JW v2.4)

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 wither with a place or a service.

- ***TypeOfFacility***: Nature of facility. See **Table 6-18** for allowed values.

	TimedLeg
none	No facilities available
toilet	Toilet
wheelChairAccessToilet	Wheelchair Accessible Toilet
shower	Shower
babyChange	BabyChange
wheelchairBabyChange	Wheelchair Accessible Baby Change
other	Other Facility

Table 6-18 – Allowed values for PassengerEquipment / TypeOfSanitaryFacility (+JW v2.4)

- ***Gender***: Facility can be used by specified gender. See **Table 6-19** for allowed values.

	TimedLeg
maleOnly	Facility is for men
femaleOnly	Facility is for women
both	both

Table 6-19 – 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 6-10** earlier for allowed values.
- ***WheelchairTurningCircle***: Turning circle for a wheelchair in metres.

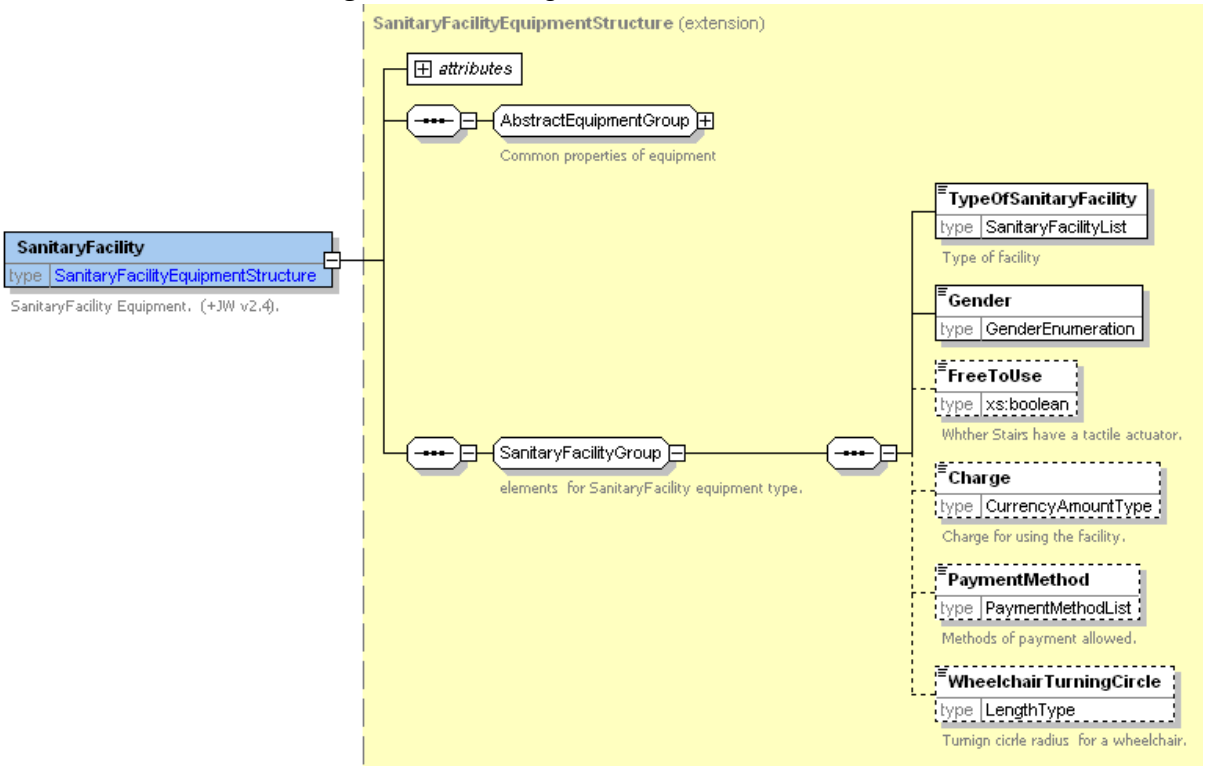


Figure 6-24 – PassengerEquipment / SanitaryFacility (+JW v2.4)

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.

Capability ID	Feature name	Added
Requests		
1	Points request	1.0
2	Journey request	1.0
3	Stop timetable request	2.1
4	Service timetable request	2.1
5	Stop events request	2.1
6	Services request	2.1
7	Operators request	2.1
8	LegPathsRequest	**2.4**
PointsRequest		
101	Co-ordinate	2.0
PointsResponse		
151	Locality centre	2.0
152	Timing information points	2.0
153	Co-ordinates	2.0
JourneysRequest		
201	Co-ordinates	1.0
202	Multiple origin / destination points	1.0
203	Algorithm	2.0
204	Walk speed	1.0
205	Max walk distance	1.0
206	Interchange speed	1.0
207	Via	2.0
208	Not via	2.0
209	Sequence range	1.0
210	Interval range	1.0
211	Limited interval range	1.0
212	Each origin and destination range	2.1
213	Mode filtering	2.1
214	Operator filtering	2.1
215	Service filtering	2.1
216	Seeding	2.1
262	Accessibility constraints.	**2.4**
263	Cycle Options	**2.4**
264	Changes	**2.4**
265	Travel demand plan	**2.4**
266	Include Leg Track	**2.4**
JourneysResponse		
251	Co-ordinates	1.0
252	Timing information points	1.0
253	Service origin details	1.0
254	All Intermediate stops	2.1
255	Leg intermediate stops	2.1
256	Service destination details	2.1
257	Days and Dates of operation	2.0
258	Destination board details	2.0
259	Timetable link details	2.1
260	Real time times	2.1
261	Interchange Leg	**2.4**
262	Place Accessibility	**2.4**
263	Cycles On Service	**2.4**

266	Leg Tracks	**2.4**
267	Service Accessibility	**2.4**
268	Service Facility	**2.4**
269	Journey Leg Identifiers	**2.4**
StopTimetableRequest		
301	Co-ordinates	2.1
302	Multiple origin / destination points	2.1
303	Mode filtering	2.1
304	Operator filtering	2.1
305	Service filtering	2.1
ServiceTimetableRequest		
401	Multiple services	2.1
TimetableResponse		
451	Co-ordinates	2.1
452	Timing information points	2.1
453	Stop type indication	2.1
454	Days and Dates of operation	2.1
455	Destination board details	2.1
456	Timetable link details	2.1
StopEventRequest		
501	Co-ordinates	2.1
502	Multiple points	2.1
503	Sequence range	2.1
504	Interval range	2.1
505	Limited interval range	2.1
506	First service only	2.1
507	Arrive / Depart	2.1
508	Origin filtering	2.1
509	Actual origin filtering	2.1
510	Destination filtering	2.1
511	Actual destination filtering	2.1
512	Operator filtering	2.1
513	Service filtering	2.1
514	Accessibility constraints.	**2.4**
StopEventsResponse		
551	Co-ordinates	2.1
552	Timing information points	2.1
553	Service origin details	2.1
554	Intermediate stops	2.1
555	Service destination details	2.1
556	Days and Dates of operation	2.1
557	Destination board details	2.1
558	Timetable link details	2.1
559	Real time times	2.1
560	Service Accessibility info	**2.4**
561	Service Accessibility Filtering	**2.4**
ServicesRequest		**2.4**
601	Begins with	2.1
602	Mode filtering	2.1
ServicesResponse		
651	Days and Dates of operation	2.1
652	Destination board details	2.1
653	Timetable link details	2.1
654	Service Accessibility	**2.4**
655	Service Facility	**2.4**
656	Cycles on Service	
OperatorsRequest		
701	Mode filtering	2.1
OperatorsResponse		
751	Mode	2.1
LegPathsRequest		
801	Points	**2.4**
802	Leg Id	**2.4**
804	Accessibility Information	**2.4**
LegPathsResponse		

851	NavigationPaths	**2.4**
852	Equipment	**2.4**
853	Interchange paths	**2.4**

Table 7-1 – Capability IDs

8. Error Messages

Travel Demand Plan	10	1	No Travel Demand Plan results	2.4

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

8.1 Error Numbers

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

Table 8-1 – Error Numbers

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 –

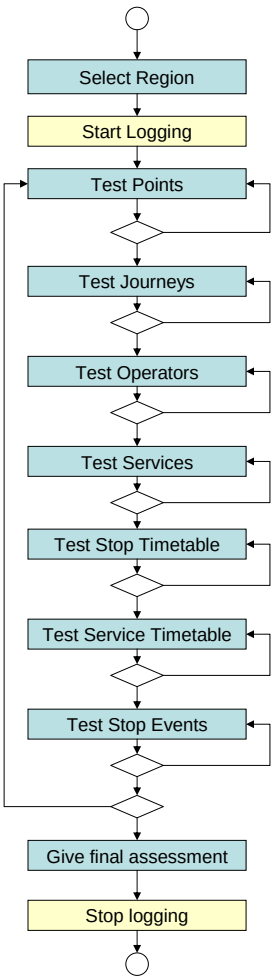


Figure 10-1 – The Accreditation Process

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. JourneyWeb Access Control & Network Security

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 suggest 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.

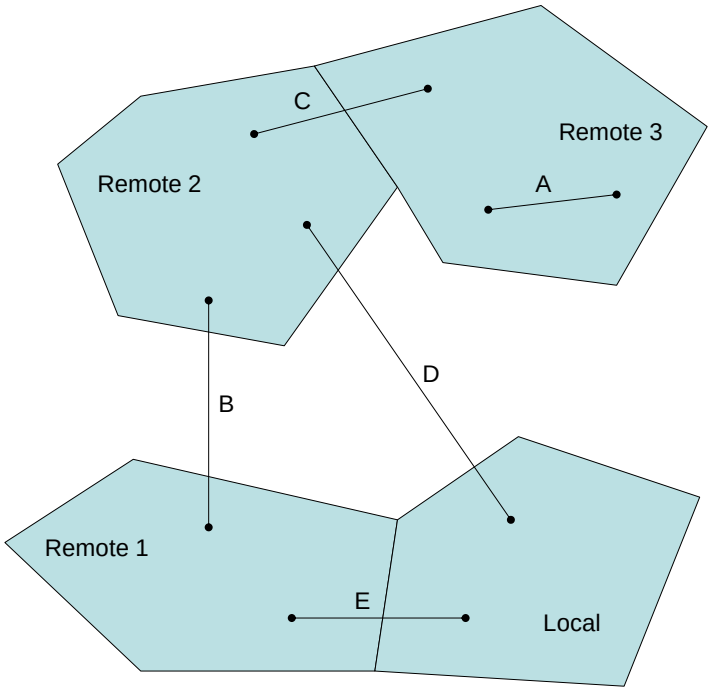


Figure 12-1 – Client Testing Scenario

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 optional ***Changes*** to ***JourneysRequest.***
    viii. Add optional ***TravelDemandPlan*** 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
- Modes: Add ***parkAndRideMode***. Document existing use of ***railReplacementBusMode***

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, ServiceResponse-Group*** 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 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 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.

```
<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>
    </Destination>
    <ArrDep>depart</ArrDep>
    <Range>
        <Sequence>3</Sequence>
    </Range>
    <Algorithm>default</Algorithm>
     <AccessibilityOptions>
                <WheelchairUse>1</WheelchairUse>
```



```
                <StepFreeUse>2</StepFreeUse>
                <EscalatorFreeUse>1</EscalatorFreeUse>
                <TravelatorFreeUse>4</TravelatorFreeUse>
                <LiftFreeUse>notRequired</LiftFreeUse>
</AccessibilityOptions>
   </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>
                  <ServiceDestination>
                     <Name>Norwich: All Saints Green John Lewis Layby</Name>
```



```
                    <NaPTANID>2900N1233</NaPTANID>
                    <TimetabledArrivalTime>2003-06-26T08:10:00</TimetabledArrivalTime>
                </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>true</MondayToSaturday>
                    <NotSchoolHoliday>true</NotSchoolHoliday>
                </DaysOfOperation>
                <DestinationBoard>Roydon to Nowrich</DestinationBoard>
                <TimetableLink>
                    <URL>http://www.travelineeastanglia.com/timetables.exe?route=665</URL>
                    <PrivateID>665</PrivateID>
                    <MatrixDataAvailable>true</MatrixDataAvailable>
                </TimetableLink>
            <ServiceAccessiblity>
                <MobilityImpairedAccess>unknown</MobilityImpairedAccess>
                <VehicleEquipment>
                    <AccessVehicleEquipment>
                        <LowFloor>true</LowFloor>
                        <BoardingHeight>0.20</BoardingHeight>
                    </AccessVehicleEquipment>
                    <WheelchairVehicleEquipment Id="NMTOKEN">
                        <NumberOfWheelChairAreas>3</NumberOfWheelChairAreas>
                        <WheelchairTurningCircle>1.0</WheelchairTurningCircle>
                        <BookingRequired>true</BookingRequired>
                        <BookingTelephoneNumber>01786745234</BookingTelephoneNumber>
                    </WheelchairVehicleEquipment>
                    <PassengerInfoEquipment>
                        <PassengerInfo>nextStopIndicator</PassengerInfo>
                        <AccessibilityInfo>audioInformation</AccessibilityInfo>
                    </PassengerInfoEquipment>
                </VehicleEquipment>
            </ServiceAccessiblity>
            <CyclesOnService>notAllowed</CyclesOnService>
                </TimedLeg>
            </Leg>
        </Journey>
    </Journeys>
</JourneysResponse>
```

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>
```



```
        <EscalatorFreeUse>notRequired</EscalatorFreeUse>
        <TravelatorFreeUse>notRequired</TravelatorFreeUse>
        <LiftFreeUse>notRequired</LiftFreeUse>
    </AccessibilityOptions>
</LegPathsRequest>
```

B2.2 LegPathsResponse

Return the details for a previous LegPaths request.

```
<LegPathsResponse RequestID="String"
    <LegDetails Id="Leg1234">
        <NavigationPaths>
            <NavigationPath id="001">
                <Name>normalizedString</Name>
                <Description>Path from platfrom 1 to entrance to hall </Description>
                <Advice>normalizedString</Advice>
                <NavigationPathType>quayToHall</NavigationPathType>
                <PathAccessibility>
                    <MobilityImpairedAccess>true</MobilityImpairedAccess>
                    <WheelchairAccess>true</WheelchairAccess>
                    <StepFreeAccess>true</StepFreeAccess>
                    <EscalatorFreeAccess>true</EscalatorFreeAccess>
                    <LiftFreeAccess>false</LiftFreeAccess>
                </PathAccessibility>
                <Distance>24.50</Distance>
                <TransferDuration>
                    <MobilityRestrictedTravellerDuration>PT5M</MobilityRestrictedTravellerDuration>
                </TransferDuration>
                <PathLinks>
                    <PathLinkInSequence id="001">
                        <From>
                            <NaPTANID>4900342561</NaPTANID>
                            <SitePlaceID>NTE345</SitePlaceID>
                            <Bay>1</Bay>
                            <Name>Platform 1</Name>
                            <LevelName>Lower ground</LevelName>
                            <ParentSitePlaceRef>4900342250</ParentSitePlaceRef>
                            <PlaceAccessibility>
                                <MobilityImpairedAccess>true</MobilityImpairedAccess>
                                <WheelchairAccess>true</WheelchairAccess>
                                <StepFreeAccess>true</StepFreeAccess>
                                <EscalatorFreeAccess>true</EscalatorFreeAccess>
                                <LiftFreeAccess>false</LiftFreeAccess>
                            </PlaceAccessibility>
                        </From>
                        <To>
                            <NaPTANID>4900342561</NaPTANID>
                            <SitePlaceID>4900342561-1</SitePlaceID>
                            <Bay>1</Bay>
                            <Name>Lower Lift Entrance for Platfrom 1</Name>
                            <LevelName>Lower ground</LevelName>
                            <Entrance Id="NMTOKEN">
                                <Name>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>
                                <Equipment>
                                    <EntranceEquipment Id="Lift01">
                                        <Name>normalizedString</Name>
                                        <Door>true</Door>
                                        <AcousticSensor>true</AcousticSensor>
                                        <AutomaticDoor>false</AutomaticDoor>
                                        <WheelChairPassable>true</WheelChairPassable>
```



```
                    </EntranceEquipment>
                </Equipment>
            </Entrance>
        </To>
        <Description>Walk to Lift</Description>
        <Heading>forward</Heading>
        <Distance>2.5</Distance>
        <NumberOfSteps>0</NumberOfSteps>
        <AccessFeatureType>confinedSpace</AccessFeatureType>
        <Covered>indoors</Covered>
        <Equipment>
            <MobilityImpairedAccess>true</MobilityImpairedAccess>
                <WheelchairAccess>true</WheelchairAccess>
                <StepFreeAccess>true</StepFreeAccess>
                <EscalatorFreeAccess>true</EscalatorFreeAccess>
                <LiftFreeAccess>false</LiftFreeAccess>
            </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 Platfrom 1</Name>
            <LevelName>Upper ground</LevelName>
            <Entrance Id="NMTOKEN">
                <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>
                <Equipment>
                    <EntranceEquipment Id="Lift01">
                    <Name>normalizedString</Name>
                    <Door>true</Door>
                    <AcousticSensor>true</AcousticSensor>
                    <AutomaticDoor>false</AutomaticDoor>
                    <WheelChairPassable>true</WheelChairPassable>
                </EntranceEquipment>
                </Equipment>
            </Entrance>
        </To>
        <Description>Lift</Description>
        <Heading>forward</Heading>
        <Distance>0</Distance>
        <NumberOfSteps>0</NumberOfSteps>
        <Transition>up</Transition>
        <AccessFeatureType>lift</AccessFeatureType>
        <Equipment>
            <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">
```



```
                        <Name>normalizedString</Name>
                        <Description>normalizedString</Description>
                        <CheckProcess>waitForLift</CheckProcess>
                        <MinimumLikelyDelay>PT1M</MinimumLikelyDelay>
                        <AverageDelay>PT3M</AverageDelay>
                    <MaximumLikelyDelay>PT5M</MaximumLikelyDelay>
                </Check>
                </Checks>
                <PathAccessibility>
                    <MobilityImpairedAccess>true</MobilityImpairedAccess>
                    <WheelchairAccess>true</WheelchairAccess>
                    <StepFreeAccess>true</StepFreeAccess>
                    <EscalatorFreeAccess>true</EscalatorFreeAccess>
                    <LiftFreeAccess>false</LiftFreeAccess>
                </PathAccessibility>
            </PathLinkInSequence>
            <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 sfor main Entrance</Name>
                                <Door>true</Door>
                                <keptOpen>true</keptOpen>
                                <AutomaticDoor>false</AutomaticDoor>
                                <WheelChairPassable>true</WheelChairPassable>
                            </EntranceEquipment>
                        </Equipment>
                    </Entrance>
                </To>
                <Description>Lift</Description>
                <Heading>forward</Heading>
                <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>
        </PathLinks>
    </NavigationPath>
</NavigationPaths>
<InterchangeSchematic>
    <SchematicURL>http:/mayoftstaion.com/map123</SchematicURL>
</InterchangeSchematic>
</LegDetails>
</LegPathsResponse>
```


B3 TimeTable Example

B3.1 ServiceTimetable Request (Example 2)

Request Service two operator SIM direction outbound using a private ID.

```
<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.

```
<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.

```
<TimetableResponse RequestID="1">
    <Timetable>
        <Description>Long Stratton: A140/Brands Lane to Swainsthorpe: Dun Cow</Description>
        <FirstDate>2003-06-23</FirstDate>
        <Days>
            <Monday>true</Monday>
        </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>
               <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 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>
            <Time TimingInformationPoint="true">06:59:00</Time>
            <Time TimingInformationPoint="true">07:02:00</Time>
            <NoTime/>
            <NoTime/>
            <NoTime/>
            <Time TimingInformationPoint="true">07:04:00</Time>
            <Time TimingInformationPoint="true">07:07:00</Time>
         </TimeColumn>
         <TimeColumn Num="2">
            <Header>
               <ServiceRef>1</ServiceRef>
            </Header>
            <Time TimingInformationPoint="true">07:04:00</Time>
            <NoTime/>
            <NoTime/>
            <Time TimingInformationPoint="true">07:09:00</Time>
            <Time TimingInformationPoint="true">07:11:00</Time>
            <Time TimingInformationPoint="true">07:13:00</Time>
            <Time TimingInformationPoint="true">07:15:00</Time>
            <Time TimingInformationPoint="true">07:17:00</Time>
         </TimeColumn>
         <TimeColumn Num="3">
            <Header>
               <ServiceRef>1</ServiceRef>
            </Header>
            <Time TimingInformationPoint="true">07:24:00</Time>
            <Time TimingInformationPoint="true">07:25:00</Time>
            <Time TimingInformationPoint="true">07:28:00</Time>
            <NoTime/>
            <NoTime/>
            <NoTime/>
            <Time TimingInformationPoint="true">07:33:00</Time>
            <Time TimingInformationPoint="true">07:36:00</Time>
         </TimeColumn>
         <TimeColumn Num="4">
            <Header>
               <ServiceRef>1</ServiceRef>
            </Header>
            <Time TimingInformationPoint="true">07:29:00</Time>
            <Time TimingInformationPoint="true">07:31:00</Time>
            <Time TimingInformationPoint="true">07:33:00</Time>
```



```
            <NoTime/>
            <NoTime/>
            <NoTime/>
            <Time TimingInformationPoint="true">07:34:00</Time>
            <Time TimingInformationPoint="true">07:37:00</Time>
         </TimeColumn>
         <Service Ref="1" Mode="bus">
            <OperatorCode>EC</OperatorCode>
            <ServiceNumber>18</ServiceNumber>
            <OperatorName>First</OperatorName>
            <Description>Long Stratton – Norwich – Hellesdon – Horsford</Description>
            <FirstDateOfOperation>2003-05-06</FirstDateOfOperation>
            <DaysOfOperation>
               <MondayToSaturday>true</MondayToSaturday>
               <NotSchoolHoliday>true</NotSchoolHoliday>
            </DaysOfOperation>
            <DestinationBoard>Horsford via Norwich</DestinationBoard>
            <TimetableLink>
               <URL>http://www.travelineeastanglia.com/timetables.exe?route=818</URL>
               <PrivateID>818</PrivateID>
               <MatrixDataAvailable>true</MatrixDataAvailable>
            </TimetableLink>
         </Service>
         <Service Ref="2" Mode="bus">
            <OperatorCode>SIM</OperatorCode>
            <ServiceNumber>1</ServiceNumber>
            <OperatorName>Simonds Coach Travel</OperatorName>
            <Description>Diss – Burston – Long Stratton – Norwich</Description>
            <FirstDateOfOperation>2003-05-06</FirstDateOfOperation>
            <DaysOfOperation>
               <MondayToSaturday>true</MondayToSaturday>
               <NotSchoolHoliday>true</NotSchoolHoliday>
            </DaysOfOperation>
            <DestinationBoard>Diss to Norwich</DestinationBoard>
            <TimetableLink>
               <URL>http://www.travelineeastanglia.com/timetables.exe?route=658</URL>
               <PrivateID>658</PrivateID>
               <MatrixDataAvailable>true</MatrixDataAvailable>
            </TimetableLink>
         </Service>
         <Service Ref="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>
            <DaysOfOperation>
               <MondayToSaturday>true</MondayToSaturday>
               <NotSchoolHoliday>true</NotSchoolHoliday>
            </DaysOfOperation>
            <DestinationBoard>Roydon to Nowrich</DestinationBoard>
            <TimetableLink>
               <URL>http://www.travelineeastanglia.com/timetables.exe?route=665</URL>
               <PrivateID>665</PrivateID>
               <MatrixDataAvailable>true</MatrixDataAvailable>
            </TimetableLink>
         </Service>
      </Timetable>
   </TimetableResponse>
```

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>
    <Date>2003-06-23</Date>
    <Generic>false</Generic>
</ServiceTimetableRequest>
```

B4 Stop Event Example

B4.1 StopEventRequest

Request for first five events with different service details.

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

B4.2 StopEventResponse

```
<StopEventsResponse 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: A140/Brands Lane</Name>
                <NaPTANID>2900L1522</NaPTANID>
                <TimetabledArrivalTime>2003-06-26T07:45:00</TimetabledArrivalTime>
                <TimetabledDepartureTime>2003-06-26T07:45:00</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>
        <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>
        <Destination TimingInformationPoint="true">
            <Name>Horsford: Olive Crescent</Name>
            <NaPTANID>2900H465</NaPTANID>
            <TimetabledArrivalTime>2003-06-26T09:00:00</TimetabledArrivalTime>
        </Destination>
        <ServiceRef>3</ServiceRef>
    </Event>
    <Event>
        <Origin TimingInformationPoint="true">
            <Name>Diss: Sawmills Industrial Estate</Name>
            <NaPTANID>2900D1625</NaPTANID>
            <TimetabledDepartureTime>2003-06-26T07:20:00</TimetabledDepartureTime>
        </Origin>
        <Stop TimingInformationPoint="true">
            <Name>Long Stratton: A140/Brands Lane</Name>
            <NaPTANID>2900L1522</NaPTANID>
            <TimetabledArrivalTime>2003-06-26T07:59:00</TimetabledArrivalTime>
            <TimetabledDepartureTime>2003-06-26T07:59:00</TimetabledDepartureTime>
        </Stop>
        <Destination TimingInformationPoint="true">
            <Name>Norwich: All Saints Green John Lewis Layby</Name>
            <NaPTANID>2900N1233</NaPTANID>
            <TimetabledArrivalTime>2003-06-26T08:40:00</TimetabledArrivalTime>
        </Destination>
        <ServiceRef>4</ServiceRef>
    </Event>
    <Event>
        <Origin TimingInformationPoint="true">
            <Name>Long Stratton: Swan Lane Car Park</Name>
            <NaPTANID>2900L157</NaPTANID>
            <TimetabledDepartureTime>2003-06-26T12:10:00</TimetabledDepartureTime>
        </Origin>
        <Stop TimingInformationPoint="true">
            <Name>Long Stratton: A140/Brands Lane</Name>
            <NaPTANID>2900L1522</NaPTANID>
            <TimetabledArrivalTime>2003-06-26T12:13:00</TimetabledArrivalTime>
            <TimetabledDepartureTime>2003-06-26T12:13:00</TimetabledDepartureTime>
        </Stop>
        <Destination TimingInformationPoint="true">
            <Name>Wymondham: Cross Woolworths</Name>
            <NaPTANID>2900W581</NaPTANID>
            <TimetabledArrivalTime>2003-06-26T12:40:00</TimetabledArrivalTime>
        </Destination>
        <ServiceRef>5</ServiceRef>
    </Event>
    <Service 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>true</MondayToSaturday>
        </DaysOfOperation>
        <DestinationBoard>Nowrich</DestinationBoard>
        <TimetableLink>
            <URL>http://www.travelineeastanglia.com/timetables.exe?route=1083</URL>
            <PrivateID>1083</PrivateID>
            <MatrixDataAvailable>true</MatrixDataAvailable>
```



```
    </TimetableLink>
  </Service>
  <Service Mode="bus" Ref="2">
    <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>true</MondayToSaturday>
      <NotSchoolHoliday>true</NotSchoolHoliday>
    </DaysOfOperation>
    <DestinationBoard>Roydon to Nowrich</DestinationBoard>
    <TimetableLink>
      <URL>http://www.travelineeastanglia.com/timetables.exe?route=665</URL>
      <PrivateID>665</PrivateID>
      <MatrixDataAvailable>true</MatrixDataAvailable>
    </TimetableLink>
  </Service>
  <Service Mode="bus" Ref="3">
    <OperatorCode>EC</OperatorCode>
    <ServiceNumber>18</ServiceNumber>
    <OperatorName>First</OperatorName>
    <Description>Long Stratton – Norwich – Hellesdon – Horsford</Description>
    <FirstDateOfOperation>2003-05-06</FirstDateOfOperation>
    <DaysOfOperation>
      <MondayToSaturday>true</MondayToSaturday>
      <NotSchoolHoliday>true</NotSchoolHoliday>
    </DaysOfOperation>
    <DestinationBoard>Horsford via Norwich</DestinationBoard>
    <TimetableLink>
      <URL>http://www.travelineeastanglia.com/timetables.exe?route=818</URL>
      <PrivateID>818</PrivateID>
      <MatrixDataAvailable>true</MatrixDataAvailable>
    </TimetableLink>
  </Service>
  <Service Mode="bus" Ref="4">
    <OperatorCode>SIM</OperatorCode>
    <ServiceNumber>1</ServiceNumber>
    <OperatorName>Simonds Coach Travel</OperatorName>
    <Description>Diss – Burston – Long Stratton – Norwich</Description>
    <FirstDateOfOperation>2003-05-06</FirstDateOfOperation>
    <DaysOfOperation>
      <MondayToSaturday>true</MondayToSaturday>
      <NotSchoolHoliday>true</NotSchoolHoliday>
    </DaysOfOperation>
    <DestinationBoard>Diss to Norwich</DestinationBoard>
    <TimetableLink>
      <URL>http://www.travelineeastanglia.com/timetables.exe?route=658</URL>
      <PrivateID>658</PrivateID>
      <MatrixDataAvailable>true</MatrixDataAvailable>
    </TimetableLink>
  </Service>
  <Service Mode="bus" Ref="5">
    <OperatorCode>SIM</OperatorCode>
    <ServiceNumber>802</ServiceNumber>
    <OperatorName>Simonds Coach Travel</OperatorName>
    <Description>Long Stratton – Wymondham</Description>
    <FirstDateOfOperation>2003-05-06</FirstDateOfOperation>
    <DaysOfOperation>
      <MondayToSaturday>true</MondayToSaturday>
    </DaysOfOperation>
    <DestinationBoard>Wymondham</DestinationBoard>
    <TimetableLink>
      <URL>http://www.travelineeastanglia.com/timetables.exe?route=1139</URL>
      <PrivateID>1139</PrivateID>
      <MatrixDataAvailable>true</MatrixDataAvailable>
```



```
            </TimetableLink>
         </Service>
      </Events>
   </StopEventsResponse>
```

B5 Services Example

B5.1 ServicesRequest

Ask for all service which exactly match X95

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

B5.2 ServicesResponse

```
<ServicesResponse RequestID="1">
   <Services>
      <Service Mode="bus">
         <OperatorCode>EC</OperatorCode>
         <ServiceNumber>X95</ServiceNumber>
         <Direction>outbound</Direction>
         <OperatorName>First</OperatorName>
         <Description>Lowestoft – Yarmouth – Norwich – Dereham – Watton</Description>
         <FirstDateOfOperation>2003-05-06</FirstDateOfOperation>
         <DaysOfOperation>
            <MondayToSaturday>true</MondayToSaturday>
         </DaysOfOperation>
         <DestinationBoard>Watton</DestinationBoard>
         <TimetableLink>
            <URL>http://www.travelineeastanglia.com/timetables.exe?route=985</URL>
            <PrivateID>985</PrivateID>
            <MatrixDataAvailable>true</MatrixDataAvailable>
         </TimetableLink>
      </Service>
      <Service Mode="bus">
         <OperatorCode>EC</OperatorCode>
         <ServiceNumber>X95</ServiceNumber>
         <Direction>inbound</Direction>
         <OperatorName>First</OperatorName>
         <Description>Watton – Dereham – Norwich – Yarmouth – Lowestoft</Description>
         <FirstDateOfOperation>2003-05-06</FirstDateOfOperation>
         <DaysOfOperation>
            <MondayToSaturday>true</MondayToSaturday>
         </DaysOfOperation>
         <DestinationBoard>Watton</DestinationBoard>
         <TimetableLink>
            <URL>http://www.travelineeastanglia.com/timetables.exe?route=984</URL>
            <PrivateID>984</PrivateID>
            <MatrixDataAvailable>true</MatrixDataAvailable>
         </TimetableLink>
      </Service>
   </Services>
</ServicesResponse>
```

B6. Operator Example

B6.1 OperatorRequest

Get all supported ferry operators.

```
<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

Local Journey Planner	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 *JourneyWeb* requests to other remote journey planners to service enquiries about journeys to regions not within its own coverage.
Remote Journey Planner	A journey planning system and software that is responding to *JourneyWeb* requests from a local Journey planner.
National Gazetteer (NPTG)	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.
National Gazetteer Locality	A locality in the national gazetteer represented by a national ID.
National Public Transport Access Nodes (NaPTAN)	A national database of all public transport access points in the country. Each node in the database has a unique ID.
Local Locality	A locality selected from the national gazetteer that is known to the local journey planner and can be routed to/from without using *JourneyWeb*.
Remote Locality	A locality lying in the principal area served by a remote journey planner.
Local Stop	A physical stop in the Local Journey Planner represented by an ID that only has a meaning with the Local Journey Planner.
Remote Stop	A physical stop that is not in the Local Journey Planner represented by an ID that has no meaning to the Local Journey Planner.
National Exchange Point	A physical stop on the trunk network (currently a rail station or a coach stop) represented by a National Gazetteer ID.
Adjacent-Region Exchange Point (AREP)	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.
Schema	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.
Protocol	An agreement for the conduct of an interaction between two parties, in the case of *JourneyWeb*; the rules for two servers to exchange journey planning travel information as http messages that exchange XML documents.
Journey Planning Engine	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.

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/

V2.4	TransXChange Schema Guide v2.4 UK Department for Transport. http://www.transxchange.org.uk/	2010 April	Kizoom & Centaur
V2	TransXChange Schema Guide v2.0 UK Department for Transport. http://www.transxchange.org.uk/	2004 Dec	Carlbro & Kizoom
	TransXchange r2.0 schemas http://www.transxchange.org.uk/schema/2.0/transXChange_regsitration.xsd http://www.transxchange.org.uk/schema/2.0/transXChange_general.xsd	2004 Dec	Kizoom
V1	TRANSXCHANGE STYLESHEET PROJECT. SCHEMA (V 1.2) USER GUIDE http://www.transxchange.dft.gov.uk/pdf/txcv1_2_schema_user_guide.pdf	2001 Jun 5	Ross Dixon, CGEY
	XML Schema Part 1: Structures TransXChange: Schema v1.2.1 (general) (TXC-201v1_2_1) http://www.transxchange.dft.gov.uk/download/txc-201v1_2_1.xsd	2001 May 2	Various

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. .

V2.4	NPTG & NaPTAN Schema Guide v2.4 UK Department for Transport. http://www.naptan.org.uk/	2010 April	Kizoom & Centaur
V2.0	NPTG & NaPTAN Schema Guide v2.0 UK Department for Transport. http://www.naptan.org.uk/	2004 Dec	Carlbro & Kizoom
	NPTG & NaPTAN r2.0 schemas. http://www.naptan.org.uk/schema/2.0/NaPTAN.xsd http://www.naptan.org.uk/schema/2.0/NPTG.xsd http://www.naptan.org.uk/schema/2.0/NPTG_Discovery.xsd	2004 Dec	Kizoom
V1	UK Department for Transport. Integrated Transport CREATING THE JOURNEYWEB NETWORK. Deliverable Number 04-5 NaPTAN Specification v1.0 National Public Transport Access Nodes (NaPTAN) Database http://www.traveline.org.uk/naptan/ http://www.traveline.org.uk/naptan/naptan-4.5-Specification-v1.0b97.doc	2002 Nov	WS Atkins

D.2 Software & General

D.2.1 XML Schema

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

	XML Schema Part 0: Primer http://www.w3.org/TR/2001/REC-xmlschema-0-20010502/	2001 May 2	David C. Fallside
	XML Schema Part 1: Structures http://www.w3.org/TR/2001/REC-xmlschema-1-20010502/	2001 May 2	Various
	XML Schema Part 2: Datatypes http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/	2001 May 2	Paul V. Biron and Ashok Malhotra

D.2.2 ISO Time Formats

	D ISO 8601 Date and Time Formats. http://www.w3.org/TR/xmlschema-2/ – isoformats	2001 May 2	W3C Various
	ISO8601:2000(E) Data elements and interchange formats – Information interchange – Representation of dates and times Second edition 2000-12-15 http://lists.ebxml.org/archives/ebxml-core/200104/pdf00005.pdf	2000 Dec 15	Louis Visser

D.2.3 WGS 1984 Location Referencing

	World Geodetic Standard 1984 http://www.wgs84.com/		W3C Various

D.2.4 ISO 639-1 Names of Languages

	ISO 639-1:2001. Code for the representation of the names of languages http://www.oasis-open.org/cover/iso639a.html		Infoterm

D.2.5 Rfc 1766 Tags for the Identification of Languages

	rfc1766 – Tags for the Identification of Languages http://www.ietf.org/rfc/rfc1766.txt		Infoterm

D.2.6 GovTalk XML Coding Standards

V2	e-Government Metadata Standard e-GMS Version 2.0: with XML syntax http://www.govtalk.gov.uk/documents/metadataV2.pdf	2003 Dec 08	Office of e-Envoy
V1	Office of the e-Envoy Schema Guidelines Best Practice Advice Version 2 http://www.govtalk.gov.uk/documents/Schema Guidelines 2.doc	2002 Oct 12	Paul Spencer

D.2.7 Rfc 1766 Tags for the Identification of Languages

	rfc1766 – Tags for the Identification of Languages http://www.ietf.org/rfc/rfc1766.txt		Infoterm

D.2.

ANNEX E Transport Submodes

E1 Transport Submodes

The Submode can specifies 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 areare relevant for JourneyWeb

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

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

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

E.7 WaterSubmode (TPEG Pti07 WaterTransportType)

VALUE	Description	Pti7	Loc 15	Datex2	*Comment*
Unknown	Unknown	0	0		Not used
Undefined	Undefined	255	255		Not used
internationalCarFerry	International Car Ferry	1	8	ferry	Not used. Irish ferries (for example) will be CAR & PASSENGER FERRY.
nationalCarFerry	National Car Ferry	2	7	ferry	CAR & PASSENGER FERRY Ferries that convey passengers and cars. *Portsmouth to Fishbourne, Oban to Craignure, Woolwich Ferry, Caledonian*

					MacBrayne, Sandbanks Ferry
regionalCarFerry	Regional Car Ferry	3	6	ferry	CAR FERRY Ferries that convey vehicles, their drivers and passengers but not passengers without vehicles. *Fleetwood to Larne (Stena).*
localCarFerry	Local Car Ferry	4	5	ferry	Not used
internationalPassengerFerry	International Passenger Ferry	5	4	ferry	Not used
nationalPassengerFerry	National Passenger Ferry	6	3	ferry	Not used
regionalPassengerFerry	Regional Passenger Ferry	7	2	ferry	Not used
localPassengerFerry	Local Passenger Ferry	8	1	ferry	PASSENGER & CYCLE FERRY Ferries that do not convey any vehicle other than cycles. *London River Services, Isle of Scilly Ferries, Southsea to Ryde Hovercraft.*
postBoatService	Post Boat Service	9	9	ferry	PASSENGER FERRY Ferries that convey only passengers. *PS Waverley Cruises, Camden to Regent's Park Waterbus, Cardiff Bay Waterbus.*
trainFerry	Train Ferry	10	10	ferry	Not used
roadLinkFerry	Road Link Ferry	11	12	ferry	Not used
airportLinkBoatService	Airport Link Boat Service	12	13	ferry	Not used
carHighSpeedFerry	Car High Speed Ferry	13		hydrofoil	Not used
passengerHighSpeedFerry	Passenger High Speed Ferry	14		hydrofoil	Not used
sightseeingBoat	Sightseeing Boat	15	14	ferry	Not used
schoolBoat	School Boat	16	15	ferry	Not used
cableDrawnBoat	Cable Drawn Boat	17		ferry	Not used
riverBusService	River Bus Service	18		ferry	Not used
scheduledFerry	Scheduled Ferry	19		ferry	Not used
shuttleFerry	Shuttle Ferry	20		ferry	Not used
allWaterTransportServices	All Water Transport Services	21		ferry	Not used

Table 0-2 – Allowed Values for WaterSubmode (TPEG Pti07)

E.5 RailSubmode (TPEG Pti02 railway_type)

Value	**Description**	**Pti 02**	***Loc 13***	***Comment***
undefined	Undefined	255	*255*	Not used
unknown	Unknown	0	*00*	Not used
highSpeedRail	High Speed Rail	1	--	Not used
longDistanceTrain	Long Distance Train	2	*03*	All National Rail services. *Franchised operations, Open-access operations*
interRegionalRail	Inter Regional Rail	3	*02*	Not used
carTransportRail	Car Transport Rail	4	--	Not used; JW note will cover car carrying facilities available on board.
sleeperRail	Sleeper Rail	5	--	Not used; JW note will cover sleeper facilities available on board.
regionalRail	Regional Rail	6	*04*	Not used

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 ***railReplacementBus*** 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)

Value	Description	*Pti04*	*Loc11*	*Comment*
unknown	Unknown	0	*0*	
undefined	Undefined	255	*255*	
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 Supertram*METRO 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 Rail**way)
tube	tube	2	*1*	UNDERGROUND To be used for London Underground ONLY. Other systems use Metro or Tram/Light Rail q.v
urbanRailway	Urban Railway	3	*2*	Not used
airportRailLink	Airport Rail Link	(3)	*4*	Not used
monoRailLink	Mono Rail Link	(255)	*5*	Not used
allUrbanRailwayServices	All Urban Railway Services	4	--	Not used

Table 0-4 – Allowed Values for MetroSubmode (TPEG Pti04)

E.6 TramSubmodel (TPEG Pti06)

VALUE	VALUE	Pti6	Loc12	Comment
unknown	Unknown	0	--	Not used
Undefined	Undefined Tram	255	255	Not used
cityTram	City Tram	1	1	Not used
localTram	Local Tram	2	(1)	TRAM/LIGHT RAIL 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. Community or Tourist Railways). METRO is an alternative and the decision as to which should be used may be driven by the system name. 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. Community or Tourist Railways). METRO 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 Rail**way)*Blackpool Tramway, Tyne & Wear Metro, Docklands Light Railway. Birmingham Airport Shuttle, Croydon Tramlink, Gatwick Airport Shuttle Seaton Tramway, Great Orme Tramway* Includes cliff railways where the angle of ascent is less than 45 degrees. *Lynton & Lynmouth Railway*
regionalTram	Regional Tram	3	(1)	Not used
sightseeingTram	Sightseeing Tram	4	2	Not used. If these services carry ordinary passengers then they will be mode TRAM/LIGHT RAIL.
shuttleTram	Shuttle Tram	5	(1)	Not used
allTramServices	**All Tram Services**	6	--	Not used

Table 0-5 – Allowed Values for TramSubmode (TPEG Pti06)

E.2 BusSubmode (TPEG Pti05 bus_type, Loc10/bus type)

Value	Description	Pti 05	*Loc 10*	*Comment*
unknown	unknown	0	*0*	Not used
undefined	undefined	255	*255*	Not used
regionalBus	Regional Bus	1	*06*	Not used
expressBus	Express Bus	2	*01*	Not used
bus	Bus	3	--	Used for all registered bus services including long distance services on which it is not generally necessary to reserve a place. Includes Horse drawn, guided busway and trolleybus services. *Leeds Trolleybus, Cambridge Guided Busway*
localBus	Local Bus	4	*05*	Not used
nightBus	Night Bus	5	*02*	Not used
postBus	Post Bus	6	*04*	Not used
specialNeedsBus	Special NeedsBus	7	*08*	Not used
mobilityBus	Mobility Bus	8	*(08)*	Not used
mobilityBusFor-RegisteredDisabled	Mobility Bus For-Registered Disabled	9	*(08)*	Unregistered service restricted to mobility impaired users. *Olympic rail station to event shuttles*
sightseeingBus	Sightseeing Bus	10	*09*	Not used
shuttleBus	Shuttle Bus	11		Unregistered service for a specific service e.g. car park to event. *Olympic car park shuttles*
schoolBus	School Bus	12	*07*	Not used
schoolAndPublicBus	School and PublicBus	13	*03*	Not used
railReplacementBus	railReplacementBus	14	--	Bus service as a substitute for rail services because of engineering works or long term closures. Alternatively the Rail Sub Mode ***replacementRail*** can be used
demandAndResponseBus	Demand and Response Bus	15	--	
allBusServices	All Bus Services	16	--	Not used
airportLinkBus	Airport Link Bus	(11)	*10*	Not used

Table 0-6 – Allowed Values for BusSubmode (TPEG Pti05)

E.3 CoachSubmode (TPEG Pti03 coach_type)

Value	Description	Pti 03	*Loc*	*Comment*
unknown	Unknown Coach Type	0		Not used
undefined	Undefined Coach	255		Not used
internationalCoach	International Coach	1		Not used
nationalCoach	National Coach	2		COACH 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.*
shuttleCoach	Shuttle Coach	3		Not used
regionalCoach	Regional Coach	4		Not used
specialCoach	Special Coach	5		Not used
sightseeingCoach	Sightseeing Coach	6		Not used
touristCoach	Tourist Coach	7		Not used
commuterCoach	Commuter Coach	8		Not used

allCoachs	allCoachs	9		Not used

Table 0-7 – Allowed Values for CoachSubmode (TPEG Pti03)

E.8 TelecabinSubmode (TPEG Pti09 TelecabinType

VALUE	Description	Pti 9	Pti 10	Loc 14	*Comment*
unknown	Unknown	0		0	Not used
undefined	Undefined Telecabin Type	255		255	Not used
telecabin	Telecabin Service	1		1	*Middlesbrough Transporter Bridge* *Newport Transporter Bridge Thames Cable Car, Heights of Abraham Cable Car, Great Orme Cablecar*
cableCar	Cable Car Service	2		3	
elevator	Elevator Service	3		4	Not used; cliff lifts will be mode TRAM
chairLift	Chair lift Service	4		5	Not used
dragLift	Drag Lift Service	5		6	Not used
smallTelecabin	Small Telecabin Service	6			Not used
funicular	funicular		2	2	Not used. Use TRAM.
eggLift	Egg Lift			7	Not used
MineralBuckets	Mineral Buckets			8	Not used
transporterBridge	Transporter Bridge		--	---	*transporterBridge*
allTelecabinServices	All Telecabin Services	7			Not used

Table 0-8 – Allowed Values for TeleCabineSubmode (TPEG Pti11)

E.10 TaxiSubmode (TPEG Pti11 TaxiType)

VALUE	Description	Pti 11	*Comment*
unknown	Unknown	0	Not used
undefined	Undefined Taxi Service	255	Not used
communalTaxi	Communal Taxi Service	1	Not used
waterTaxi	Water Taxi Service	2	Not used
railTaxi	Rail Taxi Service	3	Not used
bikeTaxi	Bike Taxi Service	4	*Rickshaw taxis*
licensedTaxi	Licensed Taxi Service	5	TAXI Used for all instances of Taxi.
privateHireVehicle	Private Hire Vehicle Service	6	Not used
allTaxis	All Taxi Services	7	Not used

Table 0-9 – Allowed Values for TaxiSubmode (TPEG Pti08)

E.11 SelfDriveSubmode (TPEG Pti12 Self-Drive Vehicle)

VALUE	Description	Pti 12	*Comment*
unknown	Unknown	0	Not used
undefined	Undefined Self Drive Service	255	Not used
hireCar	Hire Car	1	HIRE CAR Used when the only option to complete a journey is car hire
hireVan	Hire Van	2	Not used
hireMotorbike	Hire Motorbike	3	Not used
hireCycle	Hire Cycle	4	HIRE CYCLE Used when the only option to complete a journey is cycle hire
allSelfDriveVehicles	All Self Drive Vehicles	5	Not used

Table 0-10 – Allowed Values for SelfDriverSubmode (TPEG Pti12)

