

BODS NeTEEx Profile

A NeTEEx profile

for exchanging fares data within the Bus Open Data Service and similar systems

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1 Introduction

1.1 Scope

The Bus Open Data programme, coming from the Bus Services Act 2017, places a requirement on operators to produce NeTEx files containing their fares and tickets as open data. While NeTEx has been around for a few years as a European standard, this is its first implementation in the United Kingdom. In 2019 a UK NeTEx profile was issued covering basic network & timetables and fares.

NeTEx is a highly flexible modularised standard, and this means there can be large variance in the level of detail submitted in a file as well as different ways to express the same information.

As part of the Bus Open Data Service (BODS) programme, the Department for Transport (DfT) has sponsored the creation of a more refined NeTEx profile to support BODS. The aim of this profile is to specify a consistent use of elements and minimum level of data points to create a higher quality and standardised dataset. To achieve this aim, the profile will be notably prescriptive for some areas where NeTEx allows a lot of flexibility.

This document is intended to cover simple and complex fares, as defined under the regulations. Complex fares are generally based on the same elements as simple fares but with some additional elements to model extra complexities such as a pay as you go capping schemes.

The profile set out in this document may have wider applicability than the BODS programme but will be referred to as the BODS profile.

1.2 Relationship to the UK NeTEx profile

The BODS profile is based on NeTEx version 1.10, which is the latest version and will be used by BODS to validate all published files.

It is important to note that the BODS profile is not a new version of the NeTEx standard, or the UK NeTEx profile. There is no new XSD schema definition file, and anyone creating a NeTEx v1.10 file will be able to make full use of the standard. All the elements that are mandatory in the schema will be mandatory in BODS profile.

What the profile does, instead, is to specify how that standard is to be used. It specifies additional mandatory elements that are to be used and it specifies which are optional.

Validation of data against the BODS profile takes place in two stages:

- 1) Is the data schema-compliant? This is a straightforward check that checks that the data as submitted is compliant with the basic requirements of the NeTEx v1.10 general schema. This is an in-built function of XML.
- 2) Is the data BODS compliant? This is a programmatic check to ensure that the data meets the requirements of this profile, carried out by validating the NeTEx file(s) during the publication process on BODS

The UK NeTEx profile website can be found here: <http://netex.uk/netex/> and contains the full specification documentation, XSDs and coded examples for a variety of product types (see section 12.4 of UK Profile part 3, page 178).

This profile is based on the specification documents. The first is an outline of the NeTEx framework, it's concepts and features:

http://netex.uk/fareexchange/doc/uk_profile/DfT-NeTEx-1-Fares-Intro-2019.06.17-v0.09.pdf

The second is the UK profile for NeTEx parts 1 & 2, which defines the basic structure of routes and timetables in NeTEx. The network elements of the BODS profile are derived from this:

http://netex.uk/fareexchange/doc/uk_profile/DfT-NeTEx-2-Base_Spec-2019.06.30-v0.14.pdf

The third is the UK profile for NeTEx part 3, which describes the structure of fares:

http://netex.uk/fareexchange/doc/uk_profile/DfT-NeTEx-3-Fares_Spec-2019.06.17-v0.17.pdf

1.3 Abbreviations

BODS	Bus Open Data Service. The DfT Bus Open Data Service programme emerging from Section 18 of the Bus Services Act 2017.
DfT	The UK Department for Transport.
NeTEx	N etwork T imetable E xchange
NOC	National Operator Code. A unique code, usually four characters, that identifies an operator or operating division of an operator and which should be consistent across all systems. This can be found in the NOC database owned and managed by Traveline.
TXC	T rans X Change. The UK official standard for timetable interchange.
TXC-PTI	The TXC P ublic T ransport I nformation profile, mandated for publishing timetables to BODS
XML	E Xtensible M arkup L anguage. The technology used to encode TXC documents
XSD	X ML S chema D efinition. A framework document that defines the rules and constraints for an XML document. The NeTEx XSD sets out various elements as mandatory and enumerations of allowable values in certain contexts.



This symbol is used to indicate a summary of key points for a particular section

2 General

2.1 General principles

The BODS profile has been established with a specific set of principles in mind. The aim is to create a more simplified profile, which can be used consistently by all data providers and consumers, so data is clear and unambiguous. This will lead to data that is more readily understood by downstream open data users, which in turn will lead to a higher take up, easier diagnosis, and hence better applications.

The main principle is that a minimum level of information is required for each fare, such as what access rights are given by the fare product (e.g. what services can be used), how this relates to the network (represented as services and stops), the number of times a fare product can be used, and what passenger types the product is for (e.g. adult, child, etc).

All information relating to a fare product should be contained within the same NeTEx file. The BODS profile allows a one-file-per-product structure but it is recommended that in some cases, such as for networkwide passes, these be grouped together into larger files for efficiency.

In order to accurately define fares and their access rights, NeTEx requires a level of network data to be included. For publication on BODS, this will be limited to Operator, Line and Stop data.

Another general principle is that unique and persistent ids for lines, stops, and operators, shall all be used within NeTEx but be derived from external data sources. Lines will be referenced using the id structure defined in the TXC-PTI profile. Stops and operators shall be defined using ids derived from NaPTAN and the National Operator Code database respectively.

2.1.1 Structure

This document is structured around the frames each NeTEx file is expected to contain, with each group of elements within those frames defined in order of publication.

Each element grouping is followed by a coded example of the elements. These examples will contain real network data; operators, services, stops, but should not be taken as a representation of a real-world product and are for illustrative purposes only.

Each section contains a table of elements that may be submitted as part of a NeTEx file in anticipated scenarios. Mandatory elements will be listed with 'Yes, must be included' or 'Yes, mandated by the schema' within the *Used in BODS NeTEx* column. Other recommended elements will be described as 'should be included'.

2.2 Frames

The NeTEx standard can be used to exchange many different types of public transport data (stops, timetables, fares, etc.) in the same document. To organise data in a modular fashion within a document, version frames are used. Version frames are container elements that can be used to group related data elements together. There are different content version frames designed for different types of data; site frames, service frames, timetable frames, fare frames, etc, so that a single NeTEx document can contain data from different functional data sets.

For the publication of fares data to BODS, not all frames are required and, to ensure consistency, it is expected that each BODS NeTEx file will contain certain frame types, as outlined below:

As a container, a Composite Frame of type 'UK_PI_LINE_FARE_OFFER' or 'UK_PI_NETWORK_FARE_OFFER' is used to group the other frames, depending on whether the fare products being described are restricted to a line or not. This Composite Frame must always contain a **ValidBetween** element, with **FromDate** and, where known, a **ToDate**

The frames the Composite Frame contains will be:

- A Resource of type 'UK_PI_COMMON' is used to declare general purpose components such as Operator that are used in the other frames.
- A Service Frame of type 'UK_PI_NETWORK' is used to declare which Network elements (Lines, Stops, etc) are to be used in the 'UK_PI_FARE_NETWORK' frame. The same frame may be used in different fare products.
- A Fare Frame of type 'UK_PI_FARE_NETWORK' is used to hold group elements specifying how the network elements may be accessed in the fare products.
- A Fare Frame of type 'UK_PI_FARE_PRODUCT' is used to hold the specification of the fare products.
- A Fare Frame of type 'UK_PI_FARE_PRICE' is used to hold the fare prices for the product

Table 1 – Usage of Frames

Element Name	Data Type	Used in BODS NeTEx
Composite Frame	<i>UK_PI_LINE_FARE_OFFER</i>	Where appropriate (for products specific to a line)
Composite Frame	<i>UK_PI_NETWORK_FARE_OFFER</i>	Where appropriate (for all other products)
Resource Frame	<i>UK_PI_COMMON</i>	Yes. Shall be present. See section 3
Fare Frame	<i>UK_PI_FARE_NETWORK</i>	Yes. Shall be present. See section 5
Fare Frame	<i>UK_PI_FARE_PRODUCT</i>	Yes. Shall be present. See section 6
Fare Frame	<i>UK_PI_FARE_PRICE</i>	Yes. Shall be present. See section 7
Service Frame	<i>UK_PI_NETWORK</i>	Yes. Shall be present. See section 4

2.3 Versions

The use of version frames within NeTEx is a container mechanism that allows data to be modularised into coherent subsets, each of which can be versioned. Individual element classes within the frames can also be versioned.

The flexibility of this approach raises the possibility of different NeTEx files containing different versions of every frame and element class. To avoid this, publication to BODS will require a consistent approach to version control where successive versions of each file are incremented in the same way.

Unlike Services and Line in TransXChange, implementing persistent ids in fare products is very difficult, so it is expected that the main function of versions should be achieved through the timely updating and end-dating of datasets both within the files and at dataset level through publishing.

2.3.1 Versioning for BODS

For NeTEx data published to BODS, it is expected that each NeTEx file will contain two CompositeFrames – one defining the line or network fare offer and the other a frame of metadata.

Version control for data published to BODS should be addressed through versions of the 'UK_PI_LINE_FARE_OFFER' or 'UK_PI_NETWORK_FARE_OFFER' CompositeFrames. The metadata frame shall remain as unchanged.

```
<dataObjects>
  <CompositeFrame version="1.0"
id="epd:UK:FSYO:CompositeFrame_UK_PI_LINE_FARE_OFFER:Pass@FSYO_products:op"
dataSourceRef="FSYO:src" responsibilitySetRef="FSYO:tariffs">
  <ValidBetween>
    <FromDate>2023-06-30T00:00:00.000Z</FromDate>
  </ValidBetween>
  <Name>Example fares for Fist South Yorkshire</Name>
  <Description>Example single ticket for First South Yorkshire</Description>
  <TypeOfFrameRef version="fxc:v1.0"
ref="fxc:UK:DFT:TypeOfFrame_UK_PI_LINE_FARE_OFFER:FXCP"/>
```

The next published file should increment the CompositeFrame and all its contents by 1.0 version:

```
<dataObjects>
  <CompositeFrame version="2.0"
id="epd:UK:FSYO:CompositeFrame_UK_PI_LINE_FARE_OFFER:Pass@FSYO_products:op"
dataSourceRef="FSYO:src" responsibilitySetRef="FSYO:tariffs">
  <ValidBetween>
    <FromDate>2024-01-01T00:00:00.000Z</FromDate>
  </ValidBetween>
  <Name>Example fares for Fist South Yorkshire</Name>
  <Description>Example updated single ticket for First South
Yorkshire</Description>
  <TypeOfFrameRef version="fxc:v1.0"
ref="fxc:UK:DFT:TypeOfFrame_UK_PI_LINE_FARE_OFFER:FXCP"/>
```

2.4 Codespaces

2.4.1 Introduction

All elements in a NeTEx file are given persistent identifiers from a nominated **Codespace**. For the data published to BODS, these codespaces will be external data sources that are being referenced in the document.

Codespaces are declared at the start of a version frame and apply to the frame and all nested frames within the file.

Within the BODS NeTEx profile, these external codespaces will always include NaPTAN and NPTG for stops and localities, TransXChange from BODS, and National Operator Codes from Traveline's National Operator Code database.

2.4.2 Codespace examples

```
<Codespace id="naptStop_data">
  <Xmlns>naptStop</Xmlns>
  <XmlnsUrl>https://beta-naptan.dft.gov.uk/</XmlnsUrl>
  <Description>NaPTAN Stops</Description>
</Codespace>
```

```
<Codespace id="noc_data">
  <Xmlns>NOC</Xmlns>
  <XmlnsUrl>http://www.traveline.co.uk/noc</XmlnsUrl>
  <Description>National Operator Codes</Description>
</Codespace>
```

2.4.2 Common Code Values

In order to standardise data, the code values used to classify and categorise data are constrained to common code sets wherever possible. NeTEx uses two different mechanisms for such values, both of which allow for automatic validation to ensure only legitimate values are used: enumerated values and open code sets

Enumerated values: For data values with a small list of values for which there is a common consensus for standardisation, XML enumerations are used which will be automatically checked by any XML validator. For example, the type of product can be validated as being one of singleTrip, dayReturnTrip, dayPass, etc.

Open code sets: Some sets of code values depend on national or local requirements or must reflect usage in a specific implementation. It is nonetheless desirable that they be restricted to a limited list of values. Such values can be represented by defining specific "TYPE OF ENTITY" elements, which can then be referenced where a standardised code value is desirable.

Within the BODS NeTEx profile the following applies:

- Enumerated values to be used are indicated in the profile. Tables for all allowable values can be found in Appendix I
- Open code set code values to be used are indicated in the UK NeTEx profile.

- To standardise common UK open code values, common values for UK national use are encoded in a set of “Metadata” resource frames that must be included in all UK XML fare documents. Tariff data should reference these values to ensure that code values are valid. The full Metadata frame can be found in Appendix II

3 Resource Frame

3.1 Introduction

A RESOURCE FRAME of type 'UK_PI_COMMON' is used to declare common components such as the organisations that are used in the other frames. The same frame may be used in many different fare products.

In the BODS NeTEx profile, Organisations will be the only group within the ResourceFrame that must be included.

In practice, these organisations will always include an operator and, where the product is a multioperator product administered by a 3rd party, may include the details of the ticketing scheme or company.

3.2 Organisations

3.2.1 Operators

The organisation entity can be used to represent many different types of organisations involved in public transport, such as operator, ticketing company or local authority.

In practice, this will usually be an operator and each BODS NeTEx document should include at least one entry for an operator.

Mandatory and Expected elements and their values in are as shown in the table below:

Table 2 – Expected elements for an Organisation

Element Name	Data Type	Used in BODS NeTEx
id	<i>OperatorIdType</i>	Yes. Mandated by schema
PublicCode	<i>xsd:normalizedString</i>	Must be included and be the BODS NationalOperatorCode for the operator
Name	<i>xsd:normalizedString</i>	Must be included and be the public facing name of the operator
ShortName	<i>MultilingualString</i>	Optional, may be included
TradingName	<i>MultilingualString</i>	Optional, may be included
ContactDetails	<i>ContactDetails</i>	Optional, may be included
Phone	<i>MultilingualString</i>	Optional, may be included
URL	<i>MultilingualString</i>	Optional, may be included
OrganisationType	<i>OrganisationTypeEnum</i>	Optional, may be included
Address	<i>MultilingualString</i>	Optional, may be included
Street	<i>MultilingualString</i>	Optional, may be included
PrimaryMode	<i>VehicleModeEnum</i>	Optional, may be included
CustomerServiceContactDetails	<i>MultilingualString</i>	Optional, may be included
Email	<i>MultilingualString</i>	Optional, may be included

3.2.2 GroupOfOperators

For multioperator fares, where a product grants access to lines operated by different operators, a **GroupOfOperators** element should be included to group the declared operators into a single entity for more efficient referencing elsewhere in the file.

A **GroupOfOperators** will contain one or more **Members**, each a **OperatorRef** that relates to an operator declared in the operators group

The GroupOfOperators elements shall be used as set out in Table 3.

Table 3 - Expected elements for a GroupOfOperators

Element Name	Data Type	Used in BODS NeTEx
id	<i>GroupOfOperatorsIdType</i>	Mandated by schema
Name	<i>MultilingualString</i>	Optional, if required for readability
Members	<i>OperatorRefs</i>	Must be included
OperatorRef	<i>xsd:normalizedString</i>	Must be included. These should reference Operators declared in the ServiceFrame

3.2.3 Example of GroupOfOperators coding

```
<groupsOfOperators>
  <GroupOfOperators version="1.0" id="operators@bus">
    <Name>TravelMaster Operators</Name>
    <members>
      <OperatorRef version="1.0" ref="noc:FSYO">First South Yorkshire</OperatorRef>
      <OperatorRef version="1.0" ref="noc:AMGR">Flexibus</OperatorRef>
      <OperatorRef version="1.0" ref="noc:HULS">Hulleys of Baslow</OperatorRef>
      <OperatorRef version="1.0" ref="noc:SYRK">Stagecoach Yorkshire</OperatorRef>
      <OperatorRef version="1.0" ref="noc:TMTL">TM Travel</OperatorRef>
      <OperatorRef version="1.0" ref="noc:WRAY">Arriva Yorkshire</OperatorRef>
      <OperatorRef version="1.0" ref="noc:YSYC">Stagecoach Yorkshire</OperatorRef>
    </members>
  </GroupOfOperators>
</groupsOfOperators>
```



Operators should follow the same content and structure as TransXChange, using the same NationalOperatorCode and Name

4 Service Frame

4.1 Introduction

In a NeTEx document for publication on BODS, a ServiceFrame must always be included to model the network elements necessary to define the access rights of a product. The ServiceFrame will always have a **TypeOfFrame** classification of 'UK_PI_NETWORK'.

See section 2.2 for full explanation of frame types.

4.2 Lines group

The **Lines** group in NeTEx is a grouping element that can hold one or multiple line records, classified into different modes through **TransportMode**. For BODS the TransportMode element will not be mandatory – its absence will be assumed to define it as bus. Where a product is being defined that grants access to other modes of transport – e.g. a local tram network – this element must be included for both bus and non-bus lines.

As many products grant access to a network of lines, a NeTEx file will often need to define multiple lines. In cases of multioperator products, multiple lines may belong to separate operators. In conjunction with the **Operators** group, all of these instances can be coded into the same Lines group

4.3 Line elements

4.3.1 Basic structure of a line element

The **Line** element contains all information about a line needed to fully model it in isolation. Within the BODS NeTEx profile, however, the Line element only needs to contain enough to offer basic passenger information and to relate the product to the more detailed TransXChange file for the line. This approach will help reduce the risk of conflicting information about the Line being provided through the different data sources.

Each **Line** shall have an *id* attribute. Unlike most instances within NeTEx this will not be just purely an internal reference only. The id value should be the same value as the *Line id* for the equivalent TransXChange file published to BODS for the line.

Lines shall also contain a **Name** and a **PublicCode**. The PublicCode is the public identifier for a line and should be the same value being used in the LineName element in the equivalent TransXChange file for the line. The Name may be the same value as the line but can also contain additional information if required.

In most NeTEx files there will only be a single operator, but this may not be the case for multioperator products. To ensure a Line is always attributable to the correct operator, each line must contain an **OperatorRef** that relates to an operator declared in the same file.

The Line elements shall be used as set out in Table 4.

Table 4 - Expected elements for a Line

Element Name	Data Type	Used in BODS NeTEx
id	<i>LineIdType</i>	Mandated by schema. Must use the same value as Line id within equivalent TransXChange file published on BODS
Name	<i>MultilingualString</i>	Must be included
Description	<i>MultilingualString</i>	Optional but recommended (either Service Description or combination of Inbound and Outbound)
TransportMode	<i>VehicleModeEnum</i>	Optional but must be used in multimodal fare products
PublicCode	<i>xsd:normalizedString</i>	Must be included. This element is the equivalent of LineName in TransXChange
PrivateCode	<i>xsd:normalizedString</i>	Where appropriate to aid readability / traceability.
OperatorRef	<i>OperatorRef</i>	Must be included and reference an operator declared in the ResourceFrame

4.3.2 Example of Line coding

```
<Line version="1.0" id="FSYO:PB0002307:351:8:">
  <Name>Line 8</Name>
  <Description> Wigginton - Chapelfields </Description>
  <PublicCode>8</PublicCode>
  <PrivateCode type="txc:Line">First South Yorkshire 8</PrivateCode>
  <OperatorRef version="1.0" ref="noc:FSYO"/>
</Line>
</lines>
```



Lines in NeTEx should have an equivalent TransXChange Line published on BODS and use the same id and values

4.4 GroupOfLines

4.4.1 Basic structure of GroupOfLines element

For network fares, where a product grants access to multiple lines, a **GroupOfLines** element should be included to group the lines into a single entity for more efficient referencing elsewhere in the file.

A **GroupOfLines** will contain one or more **Members**, each a LineRef that relates to a Line declared in the Lines group

The GroupOfLines elements shall be used as set out in Table 5.

Table 5 - Expected elements for a GroupOfLines

Element Name	Data Type	Used in BODS NeTEx
id	<i>GroupOfLinesIdType</i>	Yes. Mandated by the schema
Name	<i>MultilingualString</i>	Optional, if required for readability
Members	<i>LineRefs</i>	Must be included
LineRef	<i>xsd:normalizedString</i>	Must be included. These should reference Lines declared in the ServiceFrame

4.4.2 Example of a coded GroupOfLines element

```
<groupsOfLines>
  <GroupOfLines version="1.0" id="FSYO@groupOfLines@1">
    <Name>Lines for the DayRider</Name>
    <members>
      <LineRef version="1.0" ref="FSYO:PB0002307:407:1:"/>
      <LineRef version="1.0" ref="FSYO:PB0002307:349:1a:"/>
      <LineRef version="1.0" ref="FSYO:PB0002307:351:8:"/>
    </members>
  </GroupOfLines>
</groupsOfLines>
```

4.5 ScheduledStopPoints

In a NeTEx file, stop point declarations are required so they can be referenced in the fare network frame and then used to define the access rights of a product.

The BODS NeTEx profile shall, as far as possible, reference an existing NaPTAN stop using the **ScheduledStopPoint** group of elements.

4.5.1 Basic structure of a ScheduledStopPoint

The key elements of a ScheduledStopPoint are **id** and **Name**. Both of these values should be derived from the NaPTAN dataset: the id should be *AtcoCode* and the Name should be *CommonName*. Where possible, NameSuffix should be included for the stop to improve readability.

Additionally, it is desirable for a **TopographicPlaceRef** to be included to give greater context. This would also have a **Name** field and be derived from NPTG Localities.

For flexible services, BCT-FLX stop types can be used to define zone areas within which a flexible service allows passengers to board and alight.

The ScheduledStopPoint elements shall be used as set out in Table 6.

Table 6 - Expected elements for a ScheduledStopPoint

Element Name	Data Type	Used in BODS NeTEx
id	<i>ScheduledStopPointIdType</i>	Yes. Mandated by the schema and must use the same value as the AtcoCode from NaPTAN dataset
Name	<i>xsd:normalizedString</i>	Must be included. Must be the CommonName from NaPTAN dataset
NameSuffix	<i>xsd:normalizedString</i>	Optional but recommended. Indicator from NaPTAN dataset
TopographicPlaceRef	<i>TopographicPlaceRef</i>	Optional. NptgLocalityCode from NPTG and must match the reference used in NaPTAN for the stop being described
Name	<i>xsd:normalizedString</i>	Optional but recommended. LocalityName from NPTG
QualifierName	<i>xsd:normalizedString</i>	Optional. Where included should be the QualifierName from NPTG and must match the reference used in NaPTAN for the stop being described

4.5.2 Example of ScheduledStopPoint coding

```

</scheduledStopPoints>
  <ScheduledStopPoint version="any" id="atco:370045839">
    <Name>Acacia Road/Sycamore Grove</Name>
    <NameSuffix>at</NameSuffix>
    <TopographicPlaceView>
      <TopographicPlaceRef ref="nptgLocality:E0052731"/>
      <Name>Cantley</Name>
    </TopographicPlaceView>
  </ScheduledStopPoint>
</scheduledStopPoints>

```

4.5.3 Inclusion of non-NaPTAN ScheduledStopPoints

There will be scenarios where an operator needs to refer to a stop that is not in the NaPTAN dataset, such temporary stops. In such cases, an additional stop may be declared using the same structure of elements for an ordinary NaPTAN stop. This can then be referenced within FareZones, etc to define product access rights.

It is expected that any non-NaPTAN stop declared will also be present within any TransXChange files published to BODS for services being referenced within the NeTEx file.



ScheduledStopPoints should be a representation of a NaPTAN stop and use the same id and values. In cases where this is not possible, a temporary can be added in the same format as a NaPTAN stop record but this must be one that is present in the BODS TransXChange for the Lines being used.

5 Fare Frame: Fare Network

5.1 Introduction

The Fare Network frame is to support further concepts required for fare rules beyond the basic network elements. Within the BODS NeTEx profile this means the definition of **FareZones** where required.

This FareFrame will always have a **TypeOfFrame** classification of 'UK_PI_FARE_NETWORK'.

5.2 FareZones

A FareZone can represent either a short sequence of stops as one of many fare stages, or as a large single zone. The UK profile of NeTEx allows zones to be defined in multiple ways but within the BODS NeTEx profile a FareZone must always be an explicit declaration of all stops within the zone that a passenger can use to access the public transport network.

A FareZone should always contain a **Name** that offers guidance for passenger facing information, and one or more **ScheduledStopPoints**.

Table 7 - Expected elements for a FareZone

Element Name	Data Type	Used in BODS NeTEx
id	<i>FareZoneIdType</i>	Yes. Mandated by the schema
Name	<i>MultilingualString</i>	Must be included
Members	<i>ScheduledStopPointRef</i>	Must be included
ScheduledStopPointRef	<i>ScheduledStopPointRef</i>	Must be included and reference stop ids declared in the ServiceFrame

5.2.1 Example of FareZone coding

```
<FareZone id="fs@0010" version="1.0">
  <Name>Sheffield Interchange</Name>
  <members>
    <ScheduledStopPointRef ref="atco:370010134" version="any">Station</ScheduledStopPointRef>
    <ScheduledStopPointRef ref="atco:370022831" version="any">FS1</ScheduledStopPointRef>
    <ScheduledStopPointRef ref="atco:370022840" version="any">CG13</ScheduledStopPointRef>
    <ScheduledStopPointRef ref="atco:370022846" version="any">WK1</ScheduledStopPointRef>
    <ScheduledStopPointRef ref="atco:370022856" version="any">CG3</ScheduledStopPointRef>
  </members>
</FareZone>
```

6 Fare Frame: Fare_Product

6.1 Introduction

The Fare Product frame is used to specify the rules and structures of the product being described in the NeTEx file.

This FareFrame will always have a **TypeOfFrame** classification of 'UK_PI_FARE_PRODUCT'.

6.2 Tariff

The Tariff describes all rules that make up a fare structure and relates them to the transport network defined in the Service and Fare Network frames. These are described either individually or within **FareStructureElements**. For the BODS NeTEx profile this will be a combination of both.

In addition to this, the Tariff should also be used to define the start and end dates for the applicability of the fares data included. This should be done by attaching **ValidityConditions** to the Tariff. At a minimum, the ValidityConditions must define a **FromDate**, and a **ToDate** should also be included for a fare offer that is expiring.

It is expected that **OperatorRef** or **GroupOfOperatorsRef** will be included depending on whether the product is multioperator or covers multiple NOCs within an operator.

LineRef or **GroupOfLinesRef** will be included for products that are specific to one or more lines. These must reference lines defined in the ServiceFrame.

Both **TariffBasis** and **TypeOfTariffRef** must also be included to classify the pricing structure of the tariff.

A **TimeInterval** can be included at the Tariff level for use within the **Durations** FareStructureElement

Table 8 - Expected elements for a Tariff

Element Name	Data Type	Used in BODS NeTEx
id	<i>TariffIdType</i>	Yes. Mandated by the schema
ValidityConditions	<i>ValidityConditions</i>	Must be included
FromDate	<i>xsd:dateTime</i>	Must be included
ToDate	<i>xsd:dateTime</i>	Should be included for any fare offer with a known expiration date
Name	<i>xsd:normalizedString</i>	Optional
OperatorRef	<i>OperatorRef</i>	Must be included for a single operator product and reference an operator in the ResourceFrame
GroupOfOperatorsRef	<i>GroupOfOperatorsRef</i>	Must be included for a multioperator product and reference a group of operators defined in the ResourceFrame
LineRef	<i>LineRef</i>	Must be included for a product specific to a line
GroupOfLinesRef	<i>GroupOfLinesRef</i>	Must be included for a product specific to a number of lines
TariffBasis	<i>TariffBasisEnum</i>	Must be included
TypeOfTariffRef	<i>TypeOfTariffRef</i>	Must be included
FareStructureElements	See 6.3.2	Must be included

6.2.1 Example of Tariff coding

```

<Tariff version="1.0" id="Tariff@single@FSYO:PB0002307:84:71:">
  <validityConditions>
    <ValidBetween>
      <FromDate>2023-11-01T00:00:00.000Z</FromDate>
    </ValidBetween>
  </validityConditions>
  <Name>Tariff for Adult single</Name>
  <OperatorRef version="1.0" ref="noc:FSYO">noc:136362</OperatorRef>
  <LineRef version="1.0" ref="FSYO:PB0002307:84:71:"/>
  <TypeOfTariffRef version="fxc:v1.0" ref="fxc:zone_to_zone"/>
  <TariffBasis>zoneToZone</TariffBasis>
  <fareStructureElements>
    .....
  </fareStructureElements>
</Tariff>

```


6.3 FareStructureElements

6.3.1 FareStructureElement

A FareStructureElement is used to define options that affect the price and use of a fare product. Several elements can be combined within the same Tariff to fully describe the limitations and rights of the product.

The number of FareStructureElements will vary depending on the type of product being described but, for the BODS NeTEx profile, it is expected that the following 3 types of FareStructureElement will always be included as a minimum: **Access**, **Eligibility**, **Travel Conditions**. Other FareStructureElements should be included as required such as **Durations** (for pass type products), **Carnet** and **Groups**.

To simplify the possible variations of validity parameters and their assignments, the BODS profile will be prescriptive in how they are used. For example, FareStructureElements that define the limitation of an access right will contain a parameter assignment as **GenericParameterAssignment** and a **Limitation**.

Table 9 - Expected elements for FareStructureElement

Element Name	Data Type	Used in BODS NeTEx
id	<i>TimeIntervallIdType</i>	Yes. Mandated by the schema
Name	<i>xsd:normalizedString</i>	Must be included
TypeOfFareStructureElementRef	<i>TypeOfFareStructureElementRef</i>	Must be included
CHOICE		
Access	See 6.3.2	Must be included
Eligibility	See 6.3.4	Must be included
Travel conditions	See 6.3.5	Must be included
Duration	See 6.3.6	Must be included for pass-type tickets
Carnet	See 6.3.7	Must be included for carnet bundles
Groups	See 6.3.9	Must be included for group tickets

6.3.2 Access

The FareStructureElement for Access is used to define the network the fare product gives access rights to. This access can be defined simply as one or more lines or geographic zone where appropriate but can also describe more complex structures for fare types where the price increases depending on the boarding and alighting point using **DistanceMatrixElements**.

Table 10 - Expected elements for an Access FareStructureElement

Element Name	Data Type	Used in BODS NeTEx
See Table 9		
TypeOfFareStructureElementRef	<i>TypeOfFareStructureElementRef</i>	Must be included as 'fxc:access'
distanceMatrixElements	<i>See Table 11</i>	Must be included for a point to point or zone to zone
GenericParameterAssignment	<i>GenericParameterAssignmentId Type</i>	Must be included
TypeOfAccessRightAssignmentRef	<i>TypeOfAccessRightAssignment Ref</i>	Must be included. Will usually be 'fxc:can_access' but 'fxc:cannot_access' can be used to define specific exclusion
ValidityParameterAssignmentType	<i>ComparisonOperatorEnum</i>	Must be included.
validityParameters	<i>ValidityParametersGroup</i>	Must be included
GroupOfLinesRef	<i>GroupOfLinesRef</i>	Should be included for a product where access is limited to a group of lines
LineRef	<i>LineRef</i>	Should be included for a product where access is limited to a single line
FareZoneRef	<i>FareZoneRef</i>	Should be included for a product where access is limited to a geographic zone

Using FareZones defined in the Fare Network frame, each DistanceMatrixElement defines a start and end to a journey and assigns a PriceGroup. These PriceGroups reference elements within the Fare Price frame (See section 7).

Each DistanceMatrixElement must contain a reference to a PriceGroup (see section 7 for PriceGroups).

Table 11 - Expected elements for a DistanceMatrixElement

Element Name	Data Type	Used in BODS NeTeX
id	<i>DistanceMatrixElementIdType</i>	Yes. Mandated by the schema
Name	<i>MultilingualString</i>	Optional
PriceGroups	<i>PriceGroup</i>	Must be included
PriceGroupRef	<i>PriceGroupRef</i>	Must be included
StartTariffZoneRef	<i>TariffZoneRef</i>	Must be included
EndTariffZoneRef	<i>TariffZoneRef</i>	Must be included

6.3.3 Example of DistanceMatrixElement coding

```
<FareStructureElement version="1.0" id="Tariff@single@lines">
  <Name>O/D pairs for 50</Name>
  <TypeOfFareStructureElementRef versionRef="fxc:v1.0" ref="fxc:access"/>
  <distanceMatrixElements>
    <DistanceMatrixElement version="1.0" id="Acomb_Green_Lane+Mattison_Way">
      <priceGroups>
        <PriceGroupRef version="1.0" ref="price_band_1.20"/>
      </priceGroups>
      <StartTariffZoneRef version="1.0" ref="fs@Acomb_Green_Lane"/>
      <EndTariffZoneRef version="1.0" ref="fs@Mattison_Way"/>
    </DistanceMatrixElement>
    <DistanceMatrixElement version="1.0" id="Acomb_Green_Lane+Nursery_Drive">
      <priceGroups>
        <PriceGroupRef version="1.0" ref="price_band_1.50"/>
      </priceGroups>
      <StartTariffZoneRef version="1.0" ref="fs@Acomb_Green_Lane"/>
      <EndTariffZoneRef version="1.0" ref="fs@Nursery_Drive"/>
    </DistanceMatrixElement>
  </DistanceMatrixElements>
</FareStructureElement>
```



DistanceMatrixElements must always include a price

6.3.4 Eligibility

The FareStructureElement for Eligibility is used to define the passenger type of the fare product. This is done by including a limitation to a specific **UserProfile**. For the BODS NeTEx profile a UserProfile must include a **Name** and **UserType** value. **MinimumAge** and **MaximumAge** should also be included where appropriate, such as a child ticket.

Table 12 - Expected elements for an Eligibility FareStructureElement

Element Name	Data Type	Used in BODS NeTEx
See Table 9		
TypeOfFareStructureElementRef	<i>TypeOfFareStructureElementRef</i>	Must be included as 'fxc:eligibility'
GenericParameterAssignment	<i>GenericParameterAssignmentIdType</i>	Must be included
TypeOfAccessRightAssignmentRef	<i>TypeOfAccessRightAssignmentRef</i>	Must be included as 'fxc:eligibile'
LimitationGroupingType	<i>BooleanOperatorEnum</i>	Must be included
limitations	<i>UsageParameterRef</i>	Must be included
UserProfile	See Table 13	Must be included

Table 13 - Expected elements for a UserProfile

Element Name	Data Type	Used in BODS NeTEx
id	<i>UserProfileIdType</i>	Yes. Mandated by the schema
Name	<i>xsd:normalizedString</i>	Must be included
UserType	<i>UserTypeEnum</i>	Must be included
MinimumAge	<i>xsd:integer</i>	Should be included where appropriate
MaximumAge	<i>xsd:integer</i>	Should be included where appropriate
ProofRequired	<i>ProofOfIdentityEnum</i>	Should be included where appropriate



The NeTEx enumerations for UserType are not exhaustive. Where there is not an exact UserType value, the most appropriate should be chosen with Name being used to compensate.

6.3.5 Example of coded Eligibility FareStructureElement

```
<FareStructureElement version="1.0" id="op:Tariff@eligibility@adult">
  <Name>Eligible user types</Name>
  <TypeOfFareStructureElementRef version="fxc:v1.0" ref="fxc:eligibility"/>
  <GenericParameterAssignment id="op:Tariff@adult-0" version="1.0" order="0">
    <TypeOfAccessRightAssignmentRef version="fxc:v1.0" ref="fxc:eligible"/>
    <LimitationGroupingType>XOR</LimitationGroupingType>
    <limitations>
      <UserProfile version="1.0" id="op:adult-0">
        <Name>Child</Name>
        <UserType>adult</UserType>
        <MinimumAge>5</MinimumAge>
        <MaximumAge>15</MaximumAge>
      </UserProfile>
    </limitations>
  </GenericParameterAssignment>
</FareStructureElement>
</fareStructureElements>
```

6.3.6 Travel conditions

The FareStructureElement for Travel Conditions can be used to define any rules around the number of trips the product allows, or if it allows a return trip.

In the BODS NeTEx profile, travel conditions must include **FrequencyOfUse** elements, including the **FrequencyOfUseType** enumeration. This value will generally be single or unlimited depending on the ProductType

MinimalFrequency and **MaximalFrequency** are allow greater detail to be included where appropriate and are optional inclusions.

Transferability can be included to determine that a product can be used by someone other than the purchaser (e.g. it's not tied to the method of payment such as a bank card).

For through fares or split registrations, where a fare product is valid for a journey across two or more lines, the **Interchanging** element should be used to describe the right to interchange between any lines described in the Access FareStructureElement.

Table 14 - Expected elements for a Travel Conditions FareStructureElement

Element Name	Data Type	Used in BODS NeTEx
See Table 9		
TypeOfFareStructureElementRef	<i>TypeOfFareStructureElementRef</i>	Must be included as 'fxc:travel_conditions'
GenericParameterAssignment	<i>GenericParameterAssignmentIdType</i>	Must be included
TypeOfAccessRightAssignmentRef	<i>TypeOfAccessRightAssignmentRef</i>	Must be included as 'fxc:condition_of_use'
LimitationGroupingType	<i>BooleanOperatorEnum</i>	Must be included
FrequencyOfUseType	<i>FrequencyOfUseEnum</i>	Must be included
MinimalFrequency	<i>xsd:integer</i>	Optional, can be included where appropriate
MaximalFrequency	<i>xsd:integer</i>	Optional, can be included where appropriate
Transferability	<i>TransferabilityIdType</i>	Optional, can be included where appropriate
CanTransfer	<i>xsd:boolean</i>	Optional, can be included where appropriate
Interchanging	<i>InterchangingIdType</i>	Optional, can be included where appropriate
CanInterchange	<i>xsd:boolean</i>	Optional, can be included where appropriate

6.3.7 Durations

A FareStructureElement for durations must be included for all pass type products with a temporal validity. Durations can be defined as a number of minutes, hours, days or weeks. Fractions of hours should always be described as minutes (e.g. 90 minutes rather than 1.5 hours).

Durations must reference at least one **TimeInterval** as a limitation. The TimeInterval being referenced must be included in the Tariff for the product within the file.

Table 15 - Expected elements for a Durations FareStructureElement

Element Name	Data Type	Used in BODS NeTEx
See Table 9		
TypeOfFareStructureElementRef	TypeOfFareStructureElementRef	Must be included as 'fxc:durations'
Name	xsd:normalizedString	Optional
timeIntervals	timeintervals	Must be included
TimeIntervalRef	xsd:time	Must be included

Table 16 - Expected elements for a TimeInterval

Element Name	Data Type	Used in BODS NeTEx
id	TimeIntervalIdType	Yes. Mandated by the schema
Name	xsd:normalizedString	Must be included
StartTime	xsd:time	Should be included where appropriate
EndTime	xsd:time	Must be included
DayOffset	DayOffsetType	Optional, to be included where EndTime is the day after the StartTime
Duration	xsd:duration	Must be included

6.3.8 Durations

```
<timeIntervals>
  <TimeInterval version="1.0" id="Rider@Pass@1day">
    <Name>1 day</Name>
    <StartTime>00:00:00</StartTime>
    <EndTime>00:03:59</EndTime>
    <DayOffset>1</DayOffset>
    <Duration>P1D</Duration>
  </TimeInterval>
</timeIntervals>
```

6.3.7 Carnet

For carnet products, an additional FareStructureElement is required to define the number of products within the carnet bundle.

This is a simple element grouping and must contain a **QualityStructureFactor** with a **Value** representing the number of products within the carnet bundle.

Table 17 - Expected elements for a Carnet FareStructureElement

Element Name	Data Type	Used in BODS NeTEx
See Table 9		
TypeOfFareStructureElementRef	<i>TypeOfFareStructureElementRef</i>	Must be included as 'fxc:carnet_units'
QualityStructureFactor	<i>QualityStructureFactors</i>	Must be included for a carnet
id	<i>QualityStructureFactorIdType</i>	Must be included for a carnet
Value	<i>xsd:integer</i>	Must be included for a carnet

6.3.8 Example of coded Carnet FareStructureElement

```
<fareStructureElements>
  <FareStructureElement version="1.0" id="op:Tariff@multitrip@units">
    <TypeOfFareStructureElementRef version="fxc:v1.0" ref="fxc:carnet_units"/>
    <qualityStructureFactors>
      <QualityStructureFactor version="1.0" id="op:Tariff@multitrip@10">
        <Value>10</Value>
      </QualityStructureFactor>
    </qualityStructureFactors>
  </FareStructureElement>
```


6.3.9 Groups

For group products, an additional FareStructureElement is required to define the makeup of the group eligible for the ticket.

CompanionProfiles are used to define what passengers are included in a group and each CompanionProfile must reference the UserProfiles defined in the Eligibility FareStructureElement

Table 18 - Expected elements for a Group FareStructureElement

Element Name	Data Type	Used in BODS NeTEx
See table 9		
TypeOfFareStructureElementRef	<i>TypeOfFareStructureElementRef</i>	Must be included as 'fxc:groups'
GenericParameterAssignment	<i>GenericParameterAssignmentIdType</i>	Must be included
TypeOfAccessRightAssignmentRef	<i>TypeOfAccessRightAssignmentRef</i>	Must be included
LimitationGroupingType	<i>BooleanOperatorEnum</i>	Must be included
GroupTicket	See table 19	Must be included

Table 19 - Expected elements for a GroupTicket

Element Name	Data Type	Used in BODS NeTEx
GroupTicket	<i>GroupTicketIdType</i>	Yes. Mandated by the schema
CompanionProfile	<i>GroupTicketUserIdType</i>	Must be included
Name	<i>xsd:normalizedString</i>	Optional, can be included to aid readability
Description	<i>xsd:normalizedString</i>	Optional, can be included to aid readability
UserProfileRef	<i>UserProfileRef</i>	Must be included and reference UserProfiles defined within the same file
MinimumNumberOfPersons	<i>xsd:integer</i>	Must be included
MaximumNumberOfPersons	<i>xsd:integer</i>	Must be included

6.3.10 Example of a coded Group FareStructureElement

```
<FareStructureElement version="1.0" id="Tariff@group">
  <TypeOfFareStructureElementRef version="fxc:v1.0" ref="fxc:groups"/>
  <GenericParameterAssignment id="Tariff@group" version="1.0" order="0">
    <TypeOfAccessRightAssignmentRef version="fxc:v1.0" ref="fxc:eligible"/>
    <LimitationGroupingType>OR</LimitationGroupingType>
    <limitations>
      <GroupTicket id="group" version="1.0">
        <Name>Family group</Name>
        <MaximumNumberOfPersons>6</MaximumNumberOfPersons>
        <companionProfiles>
          <CompanionProfile version="1.0" id="companion@adult-0">
            <UserProfileRef version="1.0" ref="adult-0"/>
            <MinimumNumberOfPersons>1</MinimumNumberOfPersons>
            <MaximumNumberOfPersons>2</MaximumNumberOfPersons>
          </CompanionProfile>
          <CompanionProfile version="1.0" id="companion@child-1">
            <UserProfileRef version="1.0" ref="child-1"/>
            <MinimumNumberOfPersons>1</MinimumNumberOfPersons>
            <MaximumNumberOfPersons>4</MaximumNumberOfPersons>
          </CompanionProfile>
        </companionProfiles>
      </GroupTicket>
    </limitations>
  </GenericParameterAssignment>
</FareStructureElement>
```

6.4 Fare Product

A fare product is used to group together fare structures into a fare type that can be bought by passengers and defines all access rights and limitation. The UK profile of NeTEx allows for many fare types to be created but, for the purposes of BODS, only two of these are expected in the profile.

A **PreassignedFareProduct** is used for most basic fare types and an **AmountOfPriceUnitProduct** is for carnet fares.

6.4.1 PreassignedFareProduct

At least one PreassignedFareProduct is expected in each NeTEx file except those published for those that only contain carnet products. The **Name** element within the PreassignedFareProduct should be the customer facing name of the fare.

The fare product will include elements to define when the product is charged; **ChargingMomentRef** and **ChargingMomentType**. These are important elements to distinguish between the more traditional fare products, paid for before or at the moment of travel, and the increasingly widespread ‘tap & go’ style products where charges are paid post-travel. A single ticket fare offer that is available via tap in and tap out – so the final price is only determined at the end of the journey – is described the same way as a single ticket paid for at the start of the journey, but with ChargingMoments used to differentiate.

The PreassignedFareProduct must also include **AccessRightsInProduct** which references the FareStructureElements included within the Tariff. A **ProductType** must always be defined.

Table 20 - Expected elements for a *PreassignedFareProduct*

Element Name	Data Type	Used in BODS NeTEx
id	<i>FareProductIdType</i>	Yes. Mandated by the schema
Name	<i>xsd:normalizedString</i>	Must be included and be the public facing name of the product being described
ChargingMomentRef	<i>ChargingMomentRef</i>	Must be included
ChargingMomentType	<i>ChargingMomentTypeEnum</i>	Must be included
TypeOfFareProductRef	<i>TypeOfFareProductRef</i>	Must be included
OperatorRef	<i>OperatorRef</i>	Must be included for single operator products
GroupOfOperatorsRef	<i>GroupofOperatorsRef</i>	Must be included where product applies to multiple operators
ValidableElements	<i>ValidableElements</i>	Must be included
AccessRightsInProduct	<i>AccessRightInProduct</i>	Must be included
ProductType	<i>ProductTypeEnum</i>	Must be included

6.4.2 Example of a coded PreassignedFareProduct

```

<fareProducts>
  <PreassignedFareProduct id="Trip@Adult_single" version="1.0">
    <Name>Adult single</Name>
    <ChargingMomentRef versionRef="fxc:v1.0" ref="fxc:prepayment"/>
    <ChargingMomentType>beforeTravel</ChargingMomentType>
    <TypeOfFareProductRef version="1.0" ref="fxc:standard_product@trip@single"/>
    <validableElements>
      <ValidableElement id="Trip@Adult_single@travel" version="1.0">
        <Name>single Ride</Name>
        <fareStructureElements>
          <FareStructureElementRef version="1.0" ref="Tariff@single@lines"/>
          <FareStructureElementRef version="1.0" ref="Tariff@single@eligibility"/>
          <FareStructureElementRef version="1.0" ref="Tariff@single@conditions_of_travel"/>
        </fareStructureElements>
      </ValidableElement>
    </validableElements>
    <accessRightsInProduct>
      <AccessRightInProduct id="Trip@Adult_single" version="1.0" order="1">
        <ValidableElementRef version="1.0" ref="Trip@Adult_single@travel"/>
      </AccessRightInProduct>
    </accessRightsInProduct>
    <ProductType>singleTrip</ProductType>
  </PreassignedFareProduct>
</fareProducts>

```

6.4.3 AmountOfPriceUnitProduct

Amount of Price Unit is used for fare products specified by a number of units. In the BODS NeTEx profile this is how all carnet bundles must be submitted. AmountOfPriceUnitProduct contains the same elements as a PreassignedFareProduct but with an additional ValidableElement referencing the carnet FareStructureElement.

As with a PreassignedFareProduct, the ChargingMoment elements must be used to define whether the carnet bundle is available as a prepaid offer or post travel. For products that are available as both, two AmountOfPriceUnitProduct groups should be used to describe each separately.

Table 21 - Expected elements for an AmountOfPriceUnitProduct

Element Name	Data Type	Used in BODS NeTEx
id	<i>AmountOfPriceUnitIdType</i>	Yes. Mandated by the schema
Name	<i>xsd:normalizedString</i>	Must be included and be the public facing name of the product being described
ChargingMomentRef	<i>ChargingMomentRef</i>	Must be included
ChargingMomentType	<i>ChargingMomentTypeEnum</i>	Must be included
TypeOfFareProductRef	<i>TypeOfFareProductRef</i>	Must be included
OperatorRef	<i>OperatorRef</i>	Must be included for single operator products
GroupOfOperatorsRef	<i>GroupofOperatorsRef</i>	Must be included where product applies to multiple operators

ValidableElements	<i>ValidableElements</i>	Must be included
AccessRightsInProduct	<i>AccessRightInProduct</i>	Must be included
ProductType	<i>ProductTypeEnum</i>	Must be included

6.4.4 Example of a coded AmountOfPriceUnitProduct

```

<fareProducts>
  <PreassignedFareProduct id="pass@carnet" version="1.0">
    <Name>Example carnet</Name>
    <ChargingMomentRef versionRef="fxc:v1.0" ref="fxc:prepayment@bundled"/>
    <ChargingMomentType>beforeTravel</ChargingMomentType>
    <TypeOfFareProductRef version="1.0" ref="fxc:standard_product@carnet@days"/>
    <validableElements>
      <ValidableElement id="pass@carnet@travel" version="1.0">
        <Name>Day ticket carnet</Name>
        <fareStructureElements>
          <FareStructureElementRef version="1.0" ref="Tariff@pass@lines"/>
          <FareStructureElementRef version="1.0" ref="Tariff@pass@eligibility"/>
          <FareStructureElementRef version="1.0" ref="Tariff@pass@conditions_of_travel"/>
          <FareStructureElementRef version="1.0" ref="Tariff@pass@units"/>
        </fareStructureElements>
      </ValidableElement>
    </validableElements>
    <accessRightsInProduct>
      <AccessRightInProduct id="pass@carnet" version="1.0" order="1">
        <ValidableElementRef version="1.0" ref="pass@carnet@travel"/>
      </AccessRightInProduct>
    </accessRightsInProduct>
    <ProductType>passCarnet</ProductType>
  </PreassignedFareProduct>
</fareProducts>

```

6.4.5 CappedDiscountRight

CappedDiscountRight is to be used to define pay as you go fare products which are charged until a cap is applied for a given time period. For example, limiting the daily use to no more than the cost of a day pass, or weekly use to no more than the cost of a week pass.

The CappedDiscountRight itself is not a product, but the right to benefit from a discount when purchasing over a certain value of products. As such, any cap should be included in the same file as any product that qualifies for the cap (e.g a PreassignedFareProduct).

CappingRules must be defined, including a **CappingPeriod** and whatever product(s) being capped as a **PreassignedFareProductRef**. Each CappingRule should also include a **Name** to be easily presented as passenger facing information.

Multiple CappedDiscountRights should be added for each capping offer (e.g. one for day cap, one for a week pass, etc).

Table 22 – expected elements for a CappedDiscountRight FareStructureElement

Element Name	Data Type	Used in BODS NeTEx
id	<i>CappedDiscountRight-IdType</i>	Yes. Mandated by the schema
Name	<i>xsd:normalizedString</i>	Optional
Description	<i>xsd:normalizedString</i>	Optional
URL	<i>MultilingualString</i>	Optional, can be used to direct to webpage for capping offer
CappingRules	<i>CappingRules</i>	Must be included

Table 23 – expected elements for CappingRules

Element Name	Data Type	Used in BODS NeTEx
id	<i>CappingRuleIdType</i>	Yes. Mandated by the schema
Name	<i>xsd:normalizedString</i>	Must be included
CappingPeriod	<i>CappingPeriodEnum</i>	Must be included
PreassignedFareProductRef	<i>PreassignedFareProductRef</i>	Must be included and reference the product included in the cap
ValidableElementRef	<i>ValidableElementRef</i>	Must be included
TimeIntervalRef	<i>TimeIntervalRef</i>	Must be included

6.4.5 Example of a coded CappedDiscountRight

```
<CappedDiscountRight version="1.0" id="Tap_and_cap@trip">
  <Name>Tap & Go</Name>
  <Description>Single fares are capped to day pass price</Description>
  <Url>https://www.firstbus.co.uk/sheffield/tickets/tap-tap</Url>
  <cappingRules>
    <CappingRule version="1.0" id="Tap_and_cap@single_trip@daily_limit">
      <Name> Tap & Go Day Pass</Name>
      <Description>Caps trips to First Sheffield day pass</Description>
      <CappingPeriod>day</CappingPeriod>
      <PreassignedFareProductRef version="1.0" ref="FYSO@pass"/>
      <ValidableElementRef version="1.0" ref="FSYO@single_trip@travel"/>
      <GenericParameterAssignment version="1.0" id="Tap_and_cap@single_trip@daily_limit">
        <Name>Limit a single trip adult to one day</Name>
        <PreassignedFareProductRef version="1.0" ref="FSYO@single_trip"/>
        <limitations>
          <UserProfileRef version="1.0" ref="adult"/>
        </limitations>
        <TimeIntervalRef version="1.0" ref="FSYO@pass@1D"/>
      </GenericParameterAssignment>
    </CappingRule>
  </cappingRules>
</CappedDiscountRight>
```


6.5 SalesOfferPackage

A **SalesOfferPackage** is used to package a fare product as an offering which may be purchased by a customer; it adds information of the types of ticket, distribution channels and other commercial conditions. It also specifies the type of travel document (i.e. how the product is materialised as a ticket).

For some products, the price can vary depending on where and how it's purchased. For example, a week pass that is more expensive to buy with cash on vehicle than via an app. In these cases, multiple SalesOfferPackages can be added to a file with a single product and be priced separately within the Fare Price frame.

Table 24 - Expected elements for a SalesOfferPackage

Element Name	Data Type	Used in BODS NeTEx
id	<i>SalesOfferPackageIdType</i>	Mandated by schema
Name	<i>xsd:normalizedString</i>	Optional
TypeOfSalesOfferPackageRef	<i>TypeOfSalesOfferPackageRef</i>	Must be included
DistributionAssignments	<i>DistributionAssignments</i>	Must be included. See section 6.5.2 for contents
SalesOfferPackageElements	<i>SalesOfferPackageElements</i>	Must be included. See section 6.5.1 for contents

6.5.1 SalesOfferPackageElement

A **SaleOfferPackageElement** is where a **TypeOfTravelDocument** is combined with a Fare Product to create a package purchasable by a passenger.

In the BODS NeTEx profile this means it must include a TypeOfTravelDocumentRef and either a PreassignedFareProduct or AmountOfPriceUnitProduct, depending on the type of product.

Table 25 - Expected elements for a SalesOfferPackageElement

Element Name	Data Type	Used in BODS NeTEx
id	<i>SalesOfferPackageIdType</i>	Mandated by schema
TypeOfTravelDocumentRef	<i>xsd:normalizedString</i>	Must be included
FareProductRef	<i>TypeOfSalesOfferPackageRef</i>	Must be included

6.5.2 DistributionAssignments

DistributionAssignment is used within the SaleOfferPackage to define where a product can be purchased and how it can be paid for.

Both **DistributionChannelRef** and **DistributionChannelType** must be included, as well as **PaymentMethod** and **FulfilmentMethodRef**.

Table 26 - Expected elements for a DistributionAssignment

Element Name	Data Type	Used in BODS NeTEx
id	<i>SalesOfferPackageIdType</i>	Mandated by schema
Name	<i>xsd:normalizedString</i>	Optional
Description	<i>TypeOfSalesOfferPackageRef</i>	Optional
DistributionChannelRef	<i>DistributionChannelRef</i>	Must be included
DistributionChannelType	<i>DistributionChannelTypeEnum</i>	Must be included
PaymentMethods	<i>PaymentMethodEnum</i>	Must be included
FulfilmentMethodRef	<i>FulfilmentMethodRef</i>	Must be included

6.5.3 Example of a coded SalesOfferPackage

```
<SalesOfferPackage version="1.0" id="Trip@single-SOP@p-ticket">
  <Name>Metrobus Cash</Name>
  <TypeOfSalesOfferPackageRef version="fxc:v1.0" ref="fxc:standard_product@operator"/>
  <distributionAssignments>
    <DistributionAssignment version="10" id="Trip@single-SOP@p-ticket@atStop" order="1">
      <Name>Onboard</Name>
      <Description>Pay for ticket onboard</Description>
      <DistributionChannelRef version="fxc:v1.0" ref="fxc:on_board"/>
      <DistributionChannelType>atStop</DistributionChannelType>
      <TicketingServiceFacilityList>purchase</TicketingServiceFacilityList>
      <PaymentMethods>cashAndCard</PaymentMethods>
      <FulfilmentMethodRef ref="fxc:collect_on_board" version="fxc:v1.0"/>
    </DistributionAssignment>
  </distributionAssignments>
  <salesOfferPackageElements>
    <SalesOfferPackageElement version="1.0" id="Trip@single-SOP@p-ticket" order="1">
      <TypeOfTravelDocumentRef version="fxc:v1.0" ref="fxc:printed_ticket"/>
      <PreassignedFareProductRef version="1.0" ref="Trip@single"/>
    </SalesOfferPackageElement>
  </salesOfferPackageElements>
</SalesOfferPackage>
```

7 Fare Frame: Fare_Price

7.1 Introduction

This FareFrame is used to hold the prices for a product and will always have a **TypeOfFrame** classification of 'UK_PI_FARE_PRICE'.

The UK profile of NeTEx allows a lot of flexibility for pricing elements within a file. In order to make the data published to BODS simple and unambiguous, only PreassignedFareProduct or AmountOfPriceUnitProduct, SalesOfferPackage, CappedDiscount elements will be priced.

Prices must be defined as an absolute value (e.g. £1.50) rather than as a price derived from another (e.g. a child is 50% of an adult).

Where there are differing prices for the same product depending on purchase methods or number and type of passengers, this requires multiple prices referencing the different combinations of product and/or cap and SalesOfferPackage.

7.2 PriceGroups

PriceGroups is a grouping of prices for efficient reuse within fares where there are many price bands, such as point-to-point or zone-to-zone fares. These must include one **Members** value which references a Fare Price.

Table 27 - Expected elements for a PriceGroup

Element Name	Data Type	Used in BODS NeTEx
id	<i>PriceGroupIdType</i>	Mandated by schema
members	<i>FarePriceRef</i>	Must be included
FarePriceRef	<i>FarePriceRef+</i>	Must be included

7.3 FareTables

A FareTable must be included to group together prices and are to be used to represent a fare triangle. While these are best used for fares with many potential prices, such as zone-to-zone, they can also be used for products with a single price.

A FareTable must always include **PricesFor** to define what fare product is being priced. For products where the price can vary depending on purchase method, the PricesFor should reference a combination of both the product or CappedDiscountRight and the SalesOfferPackage.

Table 28 - Expected elements for a FareTable

Element Name	Data Type	Used in BODS NeTEx
id	<i>FarePriceIdType</i>	Mandated by schema
Name	<i>xsd:normalizedString</i>	Optional
Description	<i>xsd:normalizedString</i>	Optional
PricesFor	<i>PriceableObjectRef</i>	Must be included and relate to a PreassignedFareProduct, CappedDiscountRight or AmountOfPriceUnitProduct
usedIn	<i>TariffRef</i>	Optional. For presentation of a table
specifics	<i>As for cell</i>	Optional. For presentation of a table
Columns	<i>FareTableColumnHeading</i>	Optional. For presentation of a table
Rows	<i>FareTableRowHeading</i>	Optional. For presentation of a table
Includes	<i>FareTable</i>	Must be included

Appendices

Appendix I

All enumerated values for elements listed in this document can be found below:

Enumeration type	Allowable values
VehicleModeEnum	air
	bus
	trolleyBus
	coach
	funicular
	metro
	tram
	cableway
	rail
	water
	ferry
	lift
	taxi
	other

Enumeration type	Allowable values
TariffBasisEnum	flat
	distance
	unitSection
	zone
	zoneToZone
	pointToPoint
	route
	tour
	group
	discount
	period
	free
	other

Enumeration type	Allowable values
UserTypeEnum	anyone
	adult
	child
	infant
	senior
	schoolPupil
	student
	youngPerson
	disabled
	disabledCompanion
	employee
	military
	jobSeeker
	guideDog
	animal

Enumeration type	Allowable values
ProofOfIdentityEnum	noneRequired
	passport
	drivingLicence
	birthCertificate
	membershipCard
	studentCard
	identityDocument
	creditCard
	medicalDocument
	letterWithAddress
	measurement
	emailAccount
	mobileDevice
	other

Enumeration type	Allowable values
FrequencyofUseEnum	none
	single
	limited
	unlimited
	twiceADay

Enumeration type	Allowable values
BooleanOperatorEnum	AND
	OR
	XOR
	NOT

Enumeration type	Allowable values
ChargingMomentTypeEnum	beforeTravel
	onStartOfTravel
	beforeEndOfTravel
	onStartThenAdjustAtEndOfTravel
	onStartThenAdjustAtEndOfFareDay
	onStartThenAdjustAtEndOfChargePeriod
	atEndOfTravel
	atEndOfFareDay
	atEndOfChargePeriod
	free
	anyTime
	other

ProductTypeEnum allowable values will depend on whether PreassignedFareProduct or AmountOfPriceUnitProduct is being used:

Enumeration type	Allowable values
PreassignedFareProductEnum	singleTrip
	ShortTrip
	timeLimitedSingleTrip
	dayReturnTrip
	periodReturnTrip
	multistepTrip
	dayPass
	periodPass
	supplement
	other

Enumeration type	Allowable values
AmountOfPriceUnitEnum	tripCarnet
	passCarnet

Enumeration type	Allowable values
DistributionChannelTypeEnum	onBoard
	online
	onlineAccount
	telephone
	electronicPass
	mobileDevice
	agency
	tourOperator
	other

Enumeration type	Allowable values
CappingPeriodEnum	Day
	Week
	Month

Enumeration type	Allowable values
OrganisationTypeEnum	authority
	operator
	railOperator
	railFreightOperator
	statutoryBody
	facilityOperator
	travelAgent
	servicedOrganisation
	retailConsortium
	other

Appendix II

A fully coded example of an adult single fare ticket. This is restricted to a single line and has a zone-to-zone pricing structure. FareStructureElements for access, eligibility and travel conditions define the limitations of the product to a line, a passenger type, and a specific number of trips (one).

```
<CompositeFrameversion="1.0" id="epd:UK:FSYO:CompositeFrame_UK_PI_LINE_FARE_OFFER:Trip@FSYO:PB002307:49:50::op" dataSourceRef="op:operator" responsibilitySetRef="tariffs">
  <ValidBetween>
    <FromDate>2023-01-01T00:00:00.000Z</FromDate>
  </ValidBetween>
  <Name>FaresforFSYO:PB002307:49:50:</Name>
  <Description>A single trip fare for FSYO 50.Prices
    are given zone to zone,where each zone is a linear group of stops, i.e.
    farestage.</Description>
  <TypeOfFrameRefref="fxc:UK:DFT:TypeOfFrame_UK_PI_LINE_FARE_OFFER:FXCP" version="fxc:v1.0"/>
  <codespaces>
    <CodespaceRefref="fxc_metadata"/>
    <CodespaceRefref="naptStop_data"/>
    <CodespaceRefref="nptgLocality_data"/>
    <CodespaceRefref="noc_data"/>
  </codespaces>
  <prerequisites>
<CompositeFrameRefversion="fxc:v1.0" ref="fxc:UK:DFT:
  TypeOfFrame_UK_PI_METADATA_OFFER:FXCP:fxc"/>
  </prerequisites>
  <frames>
    <ResourceFrameversion="1.0" id="epd:UK:FSYO:ResourceFrame_UK_PI_COMMON:op"
      dataSourceRef="op:src" responsibilitySetRef="network_data">
      <Name>Operatorspecificcommonresources</Name>
      <TypeOfFrameRefref="fxc:UK:DFT:TypeOfFrame_UK_PI_COMMON:FXCP" version="fxc:v1.0"/>
      <codespaces>
        <Codespace id="op_data">
          <Xmlns>op</Xmlns>
          <XmlnsUrl>https://www.firstbus.co.uk/south-yorkshire</XmlnsUrl>
          <Description>Operator data</Description>
        </Codespace>
      </codespaces>
      <typesOfValue>
        <ValueSetversion="1.0" id="Branding" classOfValues="Branding">
          <Name>Operator Branding</Name>
          <values>
            <Brandingversion="1.0" id="op:FSYO@brand">
              <Name>FirstSouthYorkshire</Name>
              <Url>https://www.firstbus.co.uk/south-yorkshire</Url>
            </Branding>
          </values>
        </ValueSet>
      </typesOfValue>
      <organisations>
        <Operatorversion="1.0" id="noc:FSYO">
          <PublicCode>FSYO</PublicCode>
          <Name>First South Yorkshire</Name>
          <ShortName>First South Yorkshire</ShortName>
          <TradingName>First South YorkshireLtd</TradingName>
          <ContactDetails>
            <Phone>03456460707</Phone>
            <Url>https://www.firstbus.co.uk/south-yorkshire</Url>
          </ContactDetails>
          <OrganisationType>operator</OrganisationType>
          <Address>
            <Street>First South Yorkshire, Ceres Building,9
              Effingham Square, RotherhamS 651AP</Street>
          </Address>
          <PrimaryMode>bus</PrimaryMode>
          <CustomerServiceContactDetails/>
        </Operator>
      </organisations>
    </ResourceFrame>
  </frames>
</ServiceFrameversion="1.0" id="epd:UK:FSYO:ServiceFrame_UK_PI_NETWORK:FSYO:
  PB002307:49:50::op" dataSourceRef="op:operator" responsibilitySetRef="op:tariffs">
```

```

<Description>This frame contains the stop and line definitions for the service. It could
also be exchanged separately.</Description>
<TypeOfFrameRefref="fxc:UK:DFT:TypeOfFrame_UK_PI_NETWORK:FXCP"version="fxc:v1.0"/>
<lines>
  <Lineversion="1.0" id="FSYO:PB0002307:49:50:">
    <Name>FirstSouthYorkshire50</Name>
    <PublicCode>50</PublicCode>
    <PrivateCodetype="txc:Line@id">FSYO:PB0002307:49:50:
    </PrivateCode>
    <OperatorRefversion="1.0"ref="noc:FSYO">noc:136362
    </OperatorRef>
  </Line>
</lines>
<scheduledStopPoints>
  <ScheduledStopPointversion="any" id="atco:370010246">
    <Name>DoncasterFrenchgateInterchange/A9</Name>
    <NameSuffix>A9</NameSuffix>
    <TopographicPlaceView>
      <TopographicPlaceRefref="nptgLocality:E0057875"/>
      <Name>Doncaster Town Centre</Name>
    </TopographicPlaceView>
  </ScheduledStopPoint>
  <ScheduledStopPointversion="any" id="atco:370046407">
    <Name>NorthBridgeRoad/ElwisStreet</Name>
    <NameSuffix>adj</NameSuffix>
    <TopographicPlaceView>
      <TopographicPlaceRefref="nptgLocality:E0057875"/>
      <Name>DoncasterTownCentre</Name>
    </TopographicPlaceView>
  </ScheduledStopPoint>
  <ScheduledStopPointversion="any" id="atco:370045336">
    <Name>GreatNorthRoad/CoppiceRoad</Name>
    <NameSuffix>nr</NameSuffix>
    <TopographicPlaceView>
      <TopographicPlaceRefref="nptgLocality:E0030253"/>
      <Name>Highfields</Name>
    </TopographicPlaceView>
  </ScheduledStopPoint>
  <ScheduledStopPointversion="any" id="atco:370045539">
    <Name>GreatNorthRoad/DoncasterLane</Name>
    <NameSuffix>nr</NameSuffix>
    <TopographicPlaceView>
      <TopographicPlaceRefref="nptgLocality:E0030713"/>
      <Name>Woodlands</Name>
    </TopographicPlaceView>
  </ScheduledStopPoint>
  <ScheduledStopPointversion="any" id="atco:370045534">
    <Name>GreatNorthRoad/WelfareRoad</Name>
    <NameSuffix>at</NameSuffix>
    <TopographicPlaceView>
      <TopographicPlaceRefref="nptgLocality:E0030713"/>
      <Name>Woodlands</Name>
    </TopographicPlaceView>
  </ScheduledStopPoint>
  <ScheduledStopPointversion="any" id="atco:370045532">
    <Name>GreatNorthRoad/ThePark</Name>
    <NameSuffix>adj</NameSuffix>
    <TopographicPlaceView>
      <TopographicPlaceRefref="nptgLocality:E0030713"/>
      <Name>Woodlands</Name>
    </TopographicPlaceView>
  </ScheduledStopPoint>
  <ScheduledStopPointversion="any" id="atco:370045001">
    <Name>GreatNorthRoad/ChadwickRoad</Name>
    <NameSuffix>adj</NameSuffix>
    <TopographicPlaceView>
      <TopographicPlaceRefref="nptgLocality:E0030713"/>
      <Name>Woodlands</Name>
    </TopographicPlaceView>
  </ScheduledStopPoint>
  <ScheduledStopPointversion="any" id="atco:370045242">
    <Name>LodgeRoad/ChestnutAvenue</Name>
    <NameSuffix>adj</NameSuffix>
    <TopographicPlaceView>
      <TopographicPlaceRefref="nptgLocality:E0030065"/>

```

```

    <Name>Carcroft</Name>
  </TopographicPlaceView>
</ScheduledStopPoint>
<ScheduledStopPointversion="any" id="atco:370041223">
  <Name>LodgeRoad/PoplarRoad</Name>
  <NameSuffix>at</NameSuffix>
  <TopographicPlaceView>
    <TopographicPlaceRefref="nptgLocality:E0030065"/>
    <Name>Carcroft</Name>
  </TopographicPlaceView>
</ScheduledStopPoint>
<ScheduledStopPointversion="any" id="atco:370046735">
  <Name>MillLane/CrossHill</Name>
  <NameSuffix>adj</NameSuffix>
  <TopographicPlaceView>
    <TopographicPlaceRefref="nptgLocality:E0030531"/>
    <Name>Skellow</Name>
  </TopographicPlaceView>
</ScheduledStopPoint>
<ScheduledStopPointversion="any" id="atco:370046734">
  <Name>MillLane/Willowbrook</Name>
  <NameSuffix>opp</NameSuffix>
  <TopographicPlaceView>
    <TopographicPlaceRefref="nptgLocality:E0030531"/>
    <Name>Skellow</Name>
  </TopographicPlaceView>
</ScheduledStopPoint>
<ScheduledStopPointversion="any" id="atco:370045887">
  <Name>MillLane/GreenLane</Name>
  <NameSuffix>adj</NameSuffix>
  <TopographicPlaceView>
    <TopographicPlaceRefref="nptgLocality:E0030531"/>
    <Name>Skellow</Name>
  </TopographicPlaceView>
</ScheduledStopPoint>
</scheduledStopPoints>
</ServiceFrame>
<FareFrameversion="1.0" id="epd:UK:FSYO:FareFrame_UK_PI_FARE_NETWORK:FSYO:PB0002307:49:50:
:op"dataSourceRef="op:operator"responsibilitySetRef="network_data">
  <TypeOfFrameRefref="fxc:UK:DFT:TypeOfFrame_UK_PI_NETWORK:FXCP"version="fxc:v1.0"/>
  <fareZones>
    <FareZoneversion="1.0" id="fs@Acomb_Green_Lane">
      <Name>AcombGreenLane</Name>
      <members>
        <ScheduledStopPointRefref="atco:370010246"version="any">
          DoncasterFrenchgateInterchange/A9,DoncasterTownCentre</ScheduledStopPointRef>
        <ScheduledStopPointRefref="atco:370046407"version="any">
          NorthBridgeRoad/ElwisStreet,DoncasterTownCentre</ScheduledStopPointRef>
      </members>
    </FareZone>
    <FareZoneversion="1.0" id="fs@Mattison_Way">
      <Name>MattisonWay</Name>
      <members>
        <ScheduledStopPointRefref="atco:370045336"version="any">
          GreatNorthRoad/CoppiceRoad,Highfields</ScheduledStopPointRef>
        <ScheduledStopPointRefref="atco:370045539"version="any">
          GreatNorthRoad/DoncasterLane,Woodlands</ScheduledStopPointRef>
        <ScheduledStopPointRefref="atco:370045534"version="any">
          GreatNorthRoad/WelfareRoad,Woodlands</ScheduledStopPointRef>
        <ScheduledStopPointRefref="atco:370045532"version="any">
          GreatNorthRoad/ThePark,Woodlands</ScheduledStopPointRef>
        <ScheduledStopPointRefref="atco:370045001"version="any">
          GreatNorthRoad/ChadwickRoad,Woodlands</ScheduledStopPointRef>
      </members>
    </FareZone>
    <FareZoneversion="1.0" id="fs@Nursery_Drive">
      <Name>NurseryDrive</Name>
      <members>
        <ScheduledStopPointRefref="atco:370045242"version="any">
          LodgeRoad/ChestnutAvenue,Carcroft</ScheduledStopPointRef>
        <ScheduledStopPointRefref="atco:370041223"version="any">
          LodgeRoad/PoplarRoad,Carcroft</ScheduledStopPointRef>
      </members>
    </FareZone>
    <FareZoneversion="1.0" id="fs@Holl_Bank/Beech_Ave">

```

```

<Name>HollBank/BeechAve</Name>
<members>
  <ScheduledStopPointRefref="atco:370046735"version="any">
    MillLane/CrossHill,Skellow</ScheduledStopPointRef>
  <ScheduledStopPointRefref="atco:370046734"version="any">
    MillLane/Willowbrook,Skellow</ScheduledStopPointRef>
  <ScheduledStopPointRefref="atco:370045887"version="any">
    MillLane/GreenLane,Skellow</ScheduledStopPointRef>
</members>
</FareZone>
</fareZones>
</FareFrame>
<FareFrameversion="1.0" id="epd:UK:FSYO:FareFrame_UK_PI_FARE_PRODUCT:FSYO:
PB0002307:49:50:@pass:op"dataSourceRef="op:operator"responsibilitySetRef="op:tariffs">
  <TypeOfFrameRefref="fxc:UK:DFT:TypeOfFrame_UK_PI_FARE_PRODUCT:
FXCP"versionRef="fxc:v1.0"/>
  <tariffs>
    <Tariffversion="1.0" id="Tariff@single@FSYO:PB0002307:49:50:">
      <validityConditions>
        <ValidBetween>
          <FromDate>2023-01-01T00:00:00.000Z</FromDate>
        </ValidBetween>
      </validityConditions>
      <Name>Tariffforadultsingle</Name>
      <OperatorRefversion="1.0" ref="noc:FSYO"noc:136362</OperatorRef>
      <LineRefversion="1.0" ref="FSYO:PB0002307:49:50:"/>
      <TypeOfTariffRefversion="fxc:v1.0" ref="fxc:zone_to_zone"/>
      <TariffBasis>zoneToZone</TariffBasis>
      <fareStructureElements>
        <FareStructureElementversion="1.0" id="Tariff@single@lines">
          <Name>O/Dpairsfor50</Name>
          <TypeOfFareStructureElementRefversionRef="fxc:v1.0" ref="fxc:access"/>
          <distanceMatrixElements>
            <DistanceMatrixElementversion="1.0" id="Acomb_Green_Lane+Mattison_Way">
              <priceGroups>
                <PriceGroupRefversion="1.0" ref="price_band_1.20"/>
              </priceGroups>
              <StartTariffZoneRefversion="1.0" ref="fs@Acomb_Green_Lane"/>
              <EndTariffZoneRefversion="1.0" ref="fs@Mattison_Way"/>
            </DistanceMatrixElement>
            <DistanceMatrixElementversion="1.0" id="Acomb_Green_Lane+Nursery_Drive">
              <priceGroups>
                <PriceGroupRefversion="1.0" ref="price_band_1.50"/>
              </priceGroups>
              <StartTariffZoneRefversion="1.0" ref="fs@Acomb_Green_Lane"/>
              <EndTariffZoneRefversion="1.0" ref="fs@Nursery_Drive"/>
            </DistanceMatrixElement>
            <DistanceMatrixElementversion="1.0" id="Acomb_Green_Lane+Holl_Bank/Beech_Ave">
              <priceGroups>
                <PriceGroupRefversion="1.0" ref="price_band_2.00"/>
              </priceGroups>
              <StartTariffZoneRefversion="1.0" ref="fs@Acomb_Green_Lane"/>
              <EndTariffZoneRefversion="1.0" ref="fs@Holl_Bank/Beech_Ave"/>
            </DistanceMatrixElement>
            <DistanceMatrixElementversion="1.0" id="Mattison_Way+Nursery_Drive">
              <priceGroups>
                <PriceGroupRefversion="1.0" ref="price_band_1.20"/>
              </priceGroups>
              <StartTariffZoneRefversion="1.0" ref="fs@Mattison_Way"/>
              <EndTariffZoneRefversion="1.0" ref="fs@Nursery_Drive"/>
            </DistanceMatrixElement>
            <DistanceMatrixElementversion="1.0" id="Mattison_Way+Holl_Bank/Beech_Ave">
              <priceGroups>
                <PriceGroupRefversion="1.0" ref="price_band_1.50"/>
              </priceGroups>
              <StartTariffZoneRefversion="1.0" ref="fs@Mattison_Way"/>
              <EndTariffZoneRefversion="1.0" ref="fs@Holl_Bank/Beech_Ave"/>
            </DistanceMatrixElement>
            <DistanceMatrixElementversion="1.0" id="Nursery_Drive+Holl_Bank/Beech_Ave">
              <priceGroups>
                <PriceGroupRefversion="1.0" ref="price_band_1.20"/>
              </priceGroups>
              <StartTariffZoneRefversion="1.0" ref="fs@Nursery_Drive"/>
              <EndTariffZoneRefversion="1.0" ref="fs@Holl_Bank/Beech_Ave"/>
            </DistanceMatrixElement>
          </distanceMatrixElements>
        </FareStructureElement>
      </fareStructureElements>
    </tariffs>
  </TypeOfFrameRef>
</FareFrame>

```

```

</distanceMatrixElements>
<GenericParameterAssignmentversion="1.0"order="01" id="Tariff@single@lines">
  <TypeOfAccessRightAssignmentRefversion="fxc:v1.0"ref="fxc:can_access"/>
  <ValidityParameterAssignmentType>EQ</ValidityParameterAssignmentType>
  <validityParameters>
    <LineRefversion="1.0"ref="FSYO:PB0002307:49:50:"/>
  </validityParameters>
</GenericParameterAssignment>
</FareStructureElement>
<FareStructureElementversion="1.0" id="Tariff@single@eligibility">
  <Name>eligibleusertypes</Name>
  <TypeOfFareStructureElementRefversionRef="fxc:v1.0"ref="fxc:eligibility"/>
  <GenericParameterAssignmentversion="1.0"order="1" id="Tariff@single@eligibility">
    <TypeOfAccessRightAssignmentRefversion="fxc:v1.0"ref="fxc:eligible"/>
    <LimitationGroupingType>XOR</LimitationGroupingType>
    <limitations>
      <UserProfileversion="1.0" id="op:adult-0">
        <Name>adult</Name>
        <TypeOfConcessionRefversion="fxc:v1.0"ref="fxc:none"/>
        <UserType>adult</UserType>
      </UserProfile>
    </limitations>
  </GenericParameterAssignment>
</FareStructureElement>
<FareStructureElementversion="1.0" id="Tariff@single@conditions_of_travel">
  <Name>Conditionsoftravel</Name>
  <TypeOfFareStructureElementRefversionRef="fxc:v1.0"ref="fxc:travel_conditions"/>
  <GenericParameterAssignmentversion="1.0"order="1" id="
    "Tariff@single@conditions_of_travel">
    <TypeOfAccessRightAssignmentRefversion="fxc:v1.0"ref="fxc:condition_of_use"/>
    <LimitationGroupingType>AND</LimitationGroupingType>
    <limitations>
      <RoundTripversion="1.0" id="Tariff@single@condition@direction">
        <Name>SingleTrip</Name>
        <TripType>single</TripType>
      </RoundTrip>
      <FrequencyOfUseversion="1.0" id="Tariff@single@oneTrip">
        <Name>Onetripnottransfers</Name>
        <FrequencyOfUseType>single</FrequencyOfUseType>
        <MaximalFrequency>1</MaximalFrequency>
      </FrequencyOfUse>
    </limitations>
  </GenericParameterAssignment>
</FareStructureElement>
</fareStructureElements>
</Tariff>
</tariffs>
<fareProducts>
  <PreassignedFareProductid="Trip@adult_single"version="1.0">
    <Name>adultsingle</Name>
    <ChargingMomentRefversionRef="fxc:v1.0"ref="fxc:prepayment"/>
    <ChargingMomentType>beforeTravel</ChargingMomentType>
    <TypeOfFareProductRefversion="1.0"ref="fxc:standard_product@trip@single"/>
    <validableElements>
      <ValidableElementid="Trip@adult_single@travel"version="1.0">
        <Name>singleRide</Name>
        <fareStructureElements>
          <FareStructureElementRefversion="1.0"ref="Tariff@single@lines"/>
          <FareStructureElementRefversion="1.0"ref="Tariff@single@eligibility"/>
          <FareStructureElementRefversion="1.0"ref="
            "Tariff@single@conditions_of_travel"/>
        </fareStructureElements>
      </ValidableElement>
    </validableElements>
    <accessRightsInProduct>
      <AccessRightInProductid="Trip@adult_single"version="1.0"order="1">
        <ValidableElementRefversion="1.0"ref="Trip@adult_single@travel"/>
      </AccessRightInProduct>
    </accessRightsInProduct>
    <ProductType>singleTrip</ProductType>
  </PreassignedFareProduct>
</fareProducts>
<salesOfferPackages>
  <SalesOfferPackageversion="1.0" id="Trip@adult_single-SOP@Cash_only_ticket">
    <Name>Cashonlyticket</Name>

```

```

<distributionAssignments>
  <DistributionAssignmentversion="any" id="Trip@adult_single-
    SOP@Cash_only_ticket@onBoard" order="1">
    <DistributionChannelRefref="fxc:on_board" version="fxc:v1.0"/>
    <DistributionChannelType>onBoard</DistributionChannelType>
    <PaymentMethods>cash</PaymentMethods>
  </DistributionAssignment>
</distributionAssignments>
<salesOfferPackageElements>
  <SalesOfferPackageElementid="Cash_only_ticket@adult_single-
    SOP@paperTicket" version="1.0" order="1">
    <TypeOfTravelDocumentRefversion="fxc:v1.0" ref="fxc:paperTicket"/>
    <PreassignedFareProductRefversion="1.0" ref="Trip@adult_single"/>
  </SalesOfferPackageElement>
</salesOfferPackageElements>
</SalesOfferPackage>
</salesOfferPackages>
</FareFrame>
<FareFrameversion="1.0" id="epd:UK:FSYO:FareFrame_UK_PI_FARE_PRICE:FSYO:PB0002307:49:50:
  @pass:op" dataSourceRef="op:operator" responsibilitySetRef="op:tariffs">
  <Name>Pricesforadultsingle</Name>
  <TypeOfFrameRefref="fxc:UK:DFT:TypeOfFrame_UK_PI_FARE_PRICE:FXCP" version="fxc:v1.0"/>
  <FrameDefaults>
    <DefaultCurrency>GBP</DefaultCurrency>
  </FrameDefaults>
  <prerequisites>
    <FareFrameRefversion="1.0" ref="epd:UK:FSYO:FareFrame_UK_PI_FARE_PRODUCT:FSYO:
      PB0002307:49:50:@pass:op"/>
  </prerequisites>
  <priceGroups>
    <PriceGroupversion="1.0" id="price_band_1.20">
      <members>
        <GeographicalIntervalPriceversion="1.0" id="price_band_1.20@adult">
          <Amount>1.20</Amount>
        </GeographicalIntervalPrice>
      </members>
    </PriceGroup>
    <PriceGroupversion="1.0" id="price_band_1.50">
      <members>
        <GeographicalIntervalPriceversion="1.0" id="price_band_1.50@adult">
          <Amount>1.50</Amount>
        </GeographicalIntervalPrice>
      </members>
    </PriceGroup>
    <PriceGroupversion="1.0" id="price_band_2.00">
      <members>
        <GeographicalIntervalPriceversion="1.0" id="price_band_2.00@adult">
          <Amount>2.00</Amount>
        </GeographicalIntervalPrice>
      </members>
    </PriceGroup>
  </priceGroups>
  <fareTables>
    <FareTableid="Trip@single-SOP@Cash_only_ticket@Line_FSYO:
      PB0002307:49:50:@adult" version="1.0">
      <Name>FareTableforadultsingle</Name>
      <Description>adultsinglefares-Organisedasafaretriangle</Description>
      <pricesFor>
        <PreassignedFareProductRefversion="1.0" ref="Trip@adult_single"/>
        <SalesOfferPackageRefversion="1.0" ref="Trip@adult_single-SOP@Cash_only_ticket"/>
        <UserProfileRefversion="1.0" ref="op:adult-0"/>
      </pricesFor>
      <usedIn>
        <TariffRefversion="1.0" ref="Tariff@single@FSYO:PB0002307:49:50:"/>
      </usedIn>
      <specifics>
        <LineRefversion="1.0" ref="FSYO:PB0002307:49:50:"/>
      </specifics>
      <columns>
        <FareTableColumnversion="1.0" id="Trip@single-
          SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@c1@Acomb_Green_Lane" order="1">
          <Name>AcombGreenLane</Name>
        </FareTableColumn>
        <FareTableColumnversion="1.0" id="Trip@single-
          SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@c2@Mattison_Way" order="2">

```

```

    <Name>MattisonWay</Name>
  </FareTableColumn>
  <FareTableColumnversion="1.0" id="Trip@single-
    SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@c3@Nursery_Drive" order="3">
    <Name>NurseryDrive</Name>
  </FareTableColumn>
</columns>
<rows>
  <FareTableRowversion="1.0" id="Trip@single-SOP@Cash_only_ticket@
    FSYO:PB0002307:49:50:@adult@r1@Holl_Bank/Beech_Ave" order="1">
    <Name>HollBank/BeechAve</Name>
  </FareTableRow>
  <FareTableRowversion="1.0" id="Trip@single-SOP@Cash_only_ticket@
    FSYO:PB0002307:49:50:@adult@r2@Nursery_Drive" order="2">
    <Name>NurseryDrive</Name>
  </FareTableRow>
  <FareTableRowversion="1.0" id="Trip@single-
    SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@r3@Mattison_Way" order="3">
    <Name>MattisonWay</Name>
  </FareTableRow>
</rows>
<includes>
  <FareTableid="Trip@single-
    SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@c1@Acomb_Green_Lane" version=
    "1.0">
    <Name>FareTableforadultsingle</Name>
    <Description>Column1</Description>
    <cells>
      <Cellversion="1.0" id="Trip@single-
        SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@Acomb_Green_Lane" order="1">
        <DistanceMatrixElementPriceversion="1.0" id="Trip@single-
          SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@
            Acomb_Green_Lane+Mattison_Way">
          <GeographicalIntervalPriceRefversion="1.0" ref="price_band_1.20@adult"/>
          <DistanceMatrixElementRefversion="1.0" ref="Acomb_Green_Lane+Mattison_Way"/>
        </DistanceMatrixElementPrice>
        <ColumnRefversionRef="1" ref="Trip@single-
          SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@c1@Acomb_Green_Lane"/>
        <RowRefversionRef="1" ref="Trip@single-
          SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@r3@Mattison_Way"/>
      </Cell>
      <Cellversion="1.0" id="Trip@single-
        SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@Acomb_Green_Lane" order="2">
        <DistanceMatrixElementPriceversion="1.0" id="Trip@single-
          SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@
            Acomb_Green_Lane+Nursery_Drive">
          <GeographicalIntervalPriceRefversion="1.0" ref="price_band_1.50@adult"/>
          <DistanceMatrixElementRefversion="1.0" ref="Acomb_Green_Lane+Nursery_Drive"/>
        </DistanceMatrixElementPrice>
        <ColumnRefversionRef="1" ref="Trip@single-
          SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@c1@Acomb_Green_Lane"/>
        <RowRefversionRef="1" ref="Trip@single-
          SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@r2@Nursery_Drive"/>
      </Cell>
      <Cellversion="1.0" id="Trip@single-
        SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@Acomb_Green_Lane" order="3">
        <DistanceMatrixElementPriceversion="1.0" id="Trip@single-
          SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@Acomb_Green_Lane+
            Holl_Bank/Beech_Ave">
          <GeographicalIntervalPriceRefversion="1.0" ref="price_band_2.00@adult"/>
          <DistanceMatrixElementRefversion="1.0" ref="Acomb_Green_Lane
            +Holl_Bank/Beech_Ave"/>
        </DistanceMatrixElementPrice>
        <ColumnRefversionRef="1" ref="Trip@single-
          SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@c1@Acomb_Green_Lane"/>
        <RowRefversionRef="1" ref="Trip@single-
          SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@r1@Holl_Bank/Beech_Ave"/>
      </Cell>
    </cells>
  </FareTable>
  <FareTableid="Trip@single-
    SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@c2@Mattison_Way" version="1.0">
    <Name>FareTableforadultsingle</Name>
    <Description>Column2</Description>
    <cells>

```



```

<Cellversion="1.0" id="Trip@single-
  SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@Mattison_Way" order="1">
  <DistanceMatrixElementPriceversion="1.0" id="Trip@single-
    SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@Mattison_Way+
    Nursery_Drive">
    <GeographicalIntervalPriceRefversion="1.0" ref="price_band_1.20@adult"/>
    <DistanceMatrixElementRefversion="1.0" ref="Mattison_Way+Nursery_Drive"/>
  </DistanceMatrixElementPrice>
  <ColumnRefversionRef="1" ref="Trip@single-
    SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@c2@Mattison_Way"/>
  <RowRefversionRef="1" ref="Trip@single-
    SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@r2@Nursery_Drive"/>
</Cell>
<Cellversion="1.0" id="Trip@single-
  SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@Mattison_Way" order="2">
  <DistanceMatrixElementPriceversion="1.0" id="Trip@single-
    SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@Mattison_Way+
    Holl_Bank/Beech_Ave">
    <GeographicalIntervalPriceRefversion="1.0" ref="price_band_1.50@adult"/>
    <DistanceMatrixElementRefversion="1.0" ref="Mattison_Way+
    Holl_Bank/Beech_Ave"/>
  </DistanceMatrixElementPrice>
  <ColumnRefversionRef="1" ref="Trip@single-
    SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@c2@Mattison_Way"/>
  <RowRefversionRef="1" ref="Trip@single-
    SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@r1@Holl_Bank/Beech_Ave"/>
</Cell>
</cells>
</FareTable>
<FareTableid="Trip@single-
  SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@c3@Nursery_Drive" version="1.0">
  <Name>FareTableforadultsingle</Name>
  <Description>Column3</Description>
  <cells>
    <Cellversion="1.0" id="Trip@single-
      SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@Nursery_Drive" order="1">
      <DistanceMatrixElementPriceversion="1.0" id="Trip@single-
        SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@Nursery_Drive+
        Holl_Bank/Beech_Ave">
        <GeographicalIntervalPriceRefversion="1.0" ref="price_band_1.20@adult"/>
        <DistanceMatrixElementRefversion="1.0" ref="Nursery_Drive+
        Holl_Bank/Beech_Ave"/>
      </DistanceMatrixElementPrice>
      <ColumnRefversionRef="1" ref="Trip@single-
        SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@c3@Nursery_Drive"/>
      <RowRefversionRef="1" ref="Trip@single-
        SOP@Cash_only_ticket@FSYO:PB0002307:49:50:@adult@r1@Holl_Bank/Beech_Ave"/>
    </Cell>
  </cells>
</FareTable>
</includes>
</FareTable>
</fareTables>
</FareFrame>
</frames>
</CompositeFrame>

```


Appendix III

Metadata frame example. This contains all 'Type Of' values to be used in the BODS NeTEx profile.

```
<CompositeFrame id="fxc:UK:DFT:TypeOfFrame_UK_PI_METADATA_OFFER:FXCP:fxc"
  version="fxc:v1.0" responsibilitySetRef="fxc:FXC_metadata" dataSourceRef="fxc:dft">
  <ValidBetween>
    <FromDate>2019-05-01T00:00:00</FromDate>
    <ToDate>2022-12-31T12:00:00</ToDate>
  </ValidBetween>
  <Name>UK FXCP Passenger Information Profile common resources</Name>
  <TypeOfFrameRef version="fxc:v1.0"
    ref="fxc:UK:DFT:TypeOfFrame_UK_PI_METADATA_OFFER:FXCP:fxc"/>
  <codespaces>
    <Codespace id="naptStop_data">
      <Xmlns>naptStop</Xmlns>
      <XmlnsUrl>http://www.naptan.org.uk/stops</XmlnsUrl>
      <Description>UK National Public Transport Access Nodes: Stops.</Description>
    </Codespace>
    <Codespace id="noc_data">
      <Xmlns>noc</Xmlns>
      <XmlnsUrl>http://www.traveline.co.uk/noc</XmlnsUrl>
      <Description>UK national operator codes</Description>
    </Codespace>
  </codespaces>
  <FrameDefaults>
    <DefaultCodespaceRef ref="fxc_metadata"/>
    <DefaultDataSourceRef ref="fxc:dft" version="fxc:v1.0"/>
    <DefaultResponsibilitySetRef ref="fxc:FXC_metadata" version="fxc:v1.0"/>
  </FrameDefaults>
  <frames>
    <ResourceFrame id="fxc:UK:DFT:ResourceFrame_UK_PI_METADATA_FRAMES:FXCP:fxc"
      version="fxc:v1.0" responsibilitySetRef="fxc:FXC_metadata" dataSourceRef="fxc:dft">
      <Name>UK FXCP Fare profile Frame types and codespaces</Name>
      <codespaces>
        <Codespace id="fxc_metadata">
          <Xmlns>fxc</Xmlns>
          <XmlnsUrl>netex.org.uk/fxc</XmlnsUrl>
          <Description>UK FareXChange Profile metadata</Description>
        </Codespace>
        <Codespace id="epd_data">
          <Xmlns>epd</Xmlns>
          <XmlnsUrl>http://fnetex-cen.eu/epd</XmlnsUrl>
          <Description>European Passenger Information profile data - use for UK frame
            names</Description>
        </Codespace>
      </codespaces>
      <dataSources>
        <DataSource id="fxc:dft" version="fxc:v1.0">
          <Email>standards@netex.org.uk</Email>
        </DataSource>
      </dataSources>
      <responsibilitySets>
        <ResponsibilitySet version="fxc:v1.0" id="fxc:FXC_metadata">
          <Name>Common</Name>
          <roles>
            <ResponsibilityRoleAssignment version="fxc:v1.0" id="fxc:FXC_metadata:Dft">
              <DataRoleType>creates distributes</DataRoleType>
              <StakeholderRoleType>DataRegistrar</StakeholderRoleType>
              <ResponsibleOrganisationRef ref="nptg:Dft" versionRef="nptg:v2.1"/>
              <ResponsibleAreaRef ref="nptgUkRegion:GB" versionRef="nptg:v2.1"/>
            </ResponsibilityRoleAssignment>
          </roles>
        </ResponsibilitySet>
      </responsibilitySets>
      <typesOfValue>
        <ValueSet version="fxc:1.0" id="fxc:Types_of_Specific_Frame_Basic"
          classOfValues="TypeOfFrame">
          <Name>Types of FXC Specific Frame Basic</Name>
          <values>
            <TypeOfFrame version="fxc:v1.0" id="fxc:UK:DFT:TypeOfFrame_UK_PI_COMMON:FXCP">
              <Name>UK FXCP common Local resources</Name>
              <FrameClassRef nameOfClass="ResourceFrame"/>
            </TypeOfFrame>
          </values>
        </ValueSet>
      </typesOfValue>
    </ResourceFrame>
  </frames>
</CompositeFrame>
```

```

<TypeOfFrame version="fxc:v1.0"
  id="fxc:UK:DFT:TypeOfFrame_UK_PI_CALENDAR:FXCP">
  <Name>UK FXCP Service calendar</Name>
  <FrameClassRef nameOfClass="ServiceCalendarFrame"/>
</TypeOfFrame>
<TypeOfFrame version="fxc:v1.0" id="fxc:UK:DFT:TypeOfFrame_UK_PI_STOP:FXCP">
  <Name>UK FXCP Stops: NapTAN Stop Place and NPTG Locations Frame</Name>
  <FrameClassRef nameOfClass="SiteFrame"/>
</TypeOfFrame>
<TypeOfFrame version="fxc:v1.0"
  id="fxc:UK:DFT:TypeOfFrame_UK_PI_NETWORK:FXCP">
  <Name>UK FXCP Network</Name>
  <FrameClassRef nameOfClass="ServiceFrame"/>
</TypeOfFrame>
<TypeOfFrame version="fxc:v1.0"
  id="fxc:UK:DFT:TypeOfFrame_UK_PI_TIMETABLE:FXCP">
  <Name>UK FXCP Tietable: N</Name>
  <FrameClassRef nameOfClass="TimetableFrame"/>
</TypeOfFrame>
<TypeOfFrame version="fxc:v1.0"
  id="fxc:UK:DFT:TypeOfFrame_UK_PI_METADATA:FXCP">
  <Name>UK Bus Profile common resources</Name>
  <FrameClassRef nameOfClass="ResourceFrame"/>
</TypeOfFrame>
</values>
</ValueSet>
<ValueSet version="fxc:v2.4" id="fxc:Types_of_Offer_Frame_Basic"
  classOfValues="TypeOfFrame">
  <Name>Types of UK Offer Frame</Name>
  <values>
  <TypeOfFrame version="fxc:v1.0"
    id="fxc:UK:DFT:TypeOfFrame_UK_PI_STOP_OFFER:FXCP">
    <Name>UK FXCP composite container STOP OFFER</Name>
    <FrameClassRef nameOfClass="CompositeFrame"/>
  </TypeOfFrame>
  <TypeOfFrame version="fxc:v1.0"
    id="fxc:UK:DFT:TypeOfFrame_UK_PI_LINE_OFFER:FXCP">
    <Name>UK FXCP composite container LINE OFFER</Name>
    <FrameClassRef nameOfClass="CompositeFrame"/>
  </TypeOfFrame>
  <TypeOfFrame version="fxc:v1.0"
    id="fxc:UK:DFT:TypeOfFrame_UK_PI_NETWORK_OFFER:FXCP">
    <Name>UK FXCP composite container LINE OFFER</Name>
    <FrameClassRef nameOfClass="CompositeFrame"/>
  </TypeOfFrame>
  <TypeOfFrame version="fxc:v1.0"
    id="fxc:UK:DFT:TypeOfFrame_UK_PI_METADATA_OFFER:FXCP:fxc">
    <Name>UK FXCP composite used to group other UKmetadta</Name>
    <FrameClassRef nameOfClass="CompositeFrame"/>
  </TypeOfFrame>
  </values>
</ValueSet>
<ValueSet version="fxc:1.0" id="fxc:Types_of_Specific_Frame_for_Fares"
  classOfValues="TypeOfFrame">
  <Name>Types of FXC Specific Frame</Name>
  <values>
  <TypeOfFrame version="fxc:v1.0"
    id="fxc:UK:DFT:TypeOfFrame_UK_PI_FARE_COMMON:FXCP">
    <Name>UK Bus Profile Fare Common Parameters</Name>
    <FrameClassRef nameOfClass="FareFrame"/>
  </TypeOfFrame>
  <TypeOfFrame version="fxc:v1.0"
    id="fxc:UK:DFT:TypeOfFrame_UK_PI_FARE_NETWORK:FXCP">
    <Name>UK Bus Profile Fare Network</Name>
    <FrameClassRef nameOfClass="ServiceFrame"/>
  </TypeOfFrame>
  <TypeOfFrame version="fxc:v1.0"
    id="fxc:UK:DFT:TypeOfFrame_UK_PI_FARE_PRODUCT:FXCP">
    <Name>UK FXCP Fare Products Frame</Name>
    <FrameClassRef nameOfClass="FareFrame"/>
  </TypeOfFrame>
  <TypeOfFrame version="fxc:v1.0"
    id="fxc:UK:DFT:TypeOfFrame_UK_PI_FARE_PRICE:FXCP">
    <Name>UK FXCP Fare Prices Frame</Name>
    <FrameClassRef nameOfClass="FareFrame"/>
  </TypeOfFrame>
  </values>
</ValueSet>

```

```

    </TypeOfFrame>
  </values>
</ValueSet>
<ValueSet version="fxc:v1.0" id="fxc:Types_of_Offer_Frame_for_Fares"
  classOfValues="TypeOfFrame">
  <Name>Types of UK Offer Frame</Name>
  <values>
    <TypeOfFrame version="fxc:v1.0"
      id="fxc:UK:DFT:TypeOfFrame_UK_PI_STOP_FARE_OFFER:FXCP">
      <Name>UK FXCP composite container STOP OFFER</Name>
      <FrameClassRef nameOfClass="CompositeFrame"/>
    </TypeOfFrame>
    <TypeOfFrame version="fxc:v1.0"
      id="fxc:UK:DFT:TypeOfFrame_UK_PI_LINE_FARE_OFFER:FXCP">
      <Name>UK FXCP composite container LINE OFFER</Name>
      <FrameClassRef nameOfClass="CompositeFrame"/>
    </TypeOfFrame>
    <TypeOfFrame version="fxc:v1.0"
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      <FrameClassRef nameOfClass="CompositeFrame"/>
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  <Name>Types of UK Transaction Frame</Name>
  <values>
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      id="fxc:UK:DFT:TypeOfFrame_UK_PI_FARE_TRANSACTIONS:FXCP">
      <Name>UK Bus Profile Operator sample transactions</Name>
      <FrameClassRef nameOfClass="SalesTransactionFrame"/>
    </TypeOfFrame>
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  <Name>FXCP - Fare profile metadata</Name>
  <FrameDefaults>
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    <DefaultDataSourceRef ref="fxc:dft" version="fxc:v1.0"/>
    <DefaultResponsibilitySetRef ref="fxc:FXC_metadata" version="fxc:v1.0"/>
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    </DefaultLocale>
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      </ValidBetween>
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      <VersionType>baseline</VersionType>
    </Version>
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      id="fxc:operator_travel_shop">
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    <PointOfInterestClassification version="fxc:v1.0"
      id="fxc:tourist_information_centre">

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        <Name>Tourist Information Centre</Name>
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      <Name>Operator defined zone</Name>
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      <Name>MultiOperator defined zone</Name>
    </TypeOfZone>
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      <Name>Concessionary scheme zone</Name>
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      <Name>Urban Bus</Name>
    </TypeOfProductCategory>
    <TypeOfProductCategory version="fxc:v1.0" id="fxc:rural_bus">
      <Name>Rural Bus</Name>
    </TypeOfProductCategory>
    <TypeOfProductCategory version="fxc:v1.0" id="fxc:park_and_ride">
      <Name>Rural Bus</Name>
    </TypeOfProductCategory>
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    </ChargingMoment>
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      <Name>Prepaid - pay as you go</Name>
    </ChargingMoment>
    <ChargingMoment version="fxc:v1.0" id="fxc:prepayment@bundled">
      <Name>Prepaid - paid along with a base product</Name>
    </ChargingMoment>
    <ChargingMoment version="fxc:v1.0" id="fxc:prepayment@free">
      <Name>Prepaid - free issue</Name>
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  <values>
    <TypeOfFareProduct version="fxc:v1.0"
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<TypeOfFareProduct version="fxc:v1.0" id="fxc:standard_product@trip@single">
  <Name>Single fare</Name>
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  id="fxc:era:standard_product@trip@time_limited">
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    </TypeOfFareProduct>
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    <TypeOfFareProduct version="fxc:v1.0" id="fxc:standard_product@pass@period">
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    </TypeOfFareProduct>
    <TypeOfFareProduct version="fxc:v1.0" id="fxc:standard_product@carnet@days">
      <Name>Carnet of 1 day' passes.</Name>
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      id="fxc:standard_product@discount@sales">
      <Name>Sales discount righty</Name>
    </TypeOfFareProduct>
    <TypeOfFareProduct version="fxc:v1.0"
      id="fxc:standard_product@discount@usage">
      <Name>Usage discount rights</Name>
    </TypeOfFareProduct>
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  <values>
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  <values>
    <TypeOfSalesOfferPackage version="fxc:v1.0"
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  <Name>Single operator standard product</Name>
</TypeOfSalesOfferPackage>
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    </TypeOfFareContractEntry>
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    </TypeOfFareContractEntry>
    <TypeOfFareContractEntry version="fxc:v1.0" id="fxc:on_board_purchase">
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    </TypeOfConcession>
    <TypeOfConcession version="fxc:v1.0" id="fxc:school_pupil">
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    <TypeOfConcession version="fxc:v1.0" id="fxc:student">
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    </TypeOfConcession>
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    <Name>Young Person</Name>
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  <TypeOfConcession version="fxc:v1.0" id="fxc:employee">
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    </TypeOfTariff>
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    </TypeOfFareStructureElement>
    <TypeOfFareStructureElement version="fxc:v1.0" id="fxc:access_when">
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        some period</Name>
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  <Name>Accepted by operator</Name>
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  <Name>Time intervals</Name>
</TypeOfFareStructureElement>
<TypeOfFareStructureElement version="fxc:v1.0" id="fxc:prerequisites">
  <Name>Defines required entitlements</Name>
</TypeOfFareStructureElement>
<TypeOfFareStructureElement version="fxc:v1.0" id="fxc:entitles">
  <Name>Gives right to other products</Name>
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  <Name>Defines a condition or restriction on purchase</Name>
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  <Name>Condition on use</Name>
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    <TypeOfAccessRightAssignment version="fxc:v1.0" id="fxc:can_access">
      <Name>Grants access rights to use or travel on</Name>
    </TypeOfAccessRightAssignment>
    <TypeOfAccessRightAssignment version="fxc:v1.0" id="fxc:cannot_access">
      <Name>Revokes access rights to use or travel on</Name>
    </TypeOfAccessRightAssignment>
    <TypeOfAccessRightAssignment version="fxc:v1.0" id="fxc:must_access">
      <Name>Requires access rights to use or travel on</Name>
    </TypeOfAccessRightAssignment>
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      <Name>Grants access rights to use or travel during some period</Name>
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    <TypeOfAccessRightAssignment version="fxc:v1.0"
      id="fxc:can_access_if_purchased">
      <Name>Right defines a property that may be Accessed if purchased</Name>
    </TypeOfAccessRightAssignment>
    <TypeOfAccessRightAssignment version="fxc:v1.0"
      id="fxc:can_use_with_type_of_travel_document">
      <Name>Right defines tyoe travel document condition</Name>
    </TypeOfAccessRightAssignment>
    <TypeOfAccessRightAssignment version="fxc:v1.0" id="fxc:condition_of_use">
      <Name>Defines a condition or restriction on use</Name>
    </TypeOfAccessRightAssignment>
    <TypeOfAccessRightAssignment version="fxc:v1.0" id="fxc:condition_of_sale">
      <Name>Defines a condition or restriction on purchase</Name>
    </TypeOfAccessRightAssignment>
    <TypeOfAccessRightAssignment version="fxc:v1.0" id="fxc:can_purchase">
      <Name>Gives right to purchase</Name>
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    <TypeOfAccessRightAssignment version="fxc:v1.0" id="fxc:can_purchase_when">
      <Name>Specifies when a purchase can be made</Name>
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    <TypeOfAccessRightAssignment version="fxc:v1.0" id="fxc:can_purchase_where">

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    <Name>Specifies where a purchase can be made</Name>
  </TypeOfAccessRightAssignment>
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    <Name>Requires right to other products</Name>
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    <Name>Penalties for misuse</Name>
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    <Name>Gives ability to purchase automatically using</Name>
  </TypeOfAccessRightAssignment>
  <TypeOfAccessRightAssignment version="fxc:v1.0" id="fxc:payment_schedules">
    <Name>Specifies if subscription or single payment</Name>
  </TypeOfAccessRightAssignment>
  <TypeOfAccessRightAssignment version="fxc:v1.0"
    id="fxc:reservation_condition">
    <Name>Indicates need for reservation</Name>
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  </TypeOfAccessRightAssignment>
  <TypeOfAccessRightAssignment version="fxc:v1.0" id="fxc:validity_chaining">
    <Name>Quota applies</Name>
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    <Name>Association of Train Operating Companies Limited</Name>
    <ShortName>UIC</ShortName>
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      <ToDate>2020-01-01T00:00:00Z</ToDate>
    </ValidityPeriod>
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  </Operator>
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    <Name>Network Rail Limited</Name>
    <ShortName>Network Rail</ShortName>
    <ValidityPeriod>
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      <ToDate>2020-01-01T00:00:00Z</ToDate>
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  </ValidBetween>
  <Name>Static code values for UK NPTG data</Name>
  <Description>This frame contains code values used to validate the
    NPTG</Description>
  <TypeOfFrameRef version="fxc:v1.0"
    ref="fxc:UK:DFT:TypeOfFrame_UK_PI_METADATA:FXCP"/>
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      <Xmlns>nptg</Xmlns>
      <XmlnsUrl>http://www.nptg.org.uk/nptg</XmlnsUrl>
      <Description>UK National Public Transport gazetteer fixed codes</Description>
    </Codespace>
    <Codespace id="nptgLocality_data">
      <Xmlns>nptgLocality</Xmlns>
      <XmlnsUrl>http://nptg.org.uk/locations</XmlnsUrl>
      <Description>National Public Transport gazetteer locations</Description>
    </Codespace>
    <Codespace id="nptgTariffZone_data">
      <Xmlns>nptgTariffZone</Xmlns>
      <XmlnsUrl>http://nptg.org.uk/tariffZones</XmlnsUrl>
      <Description>National Public Transport gazetteer plus bus zones</Description>
    </Codespace>
    <Codespace id="nptgAdminArea_data">
      <Xmlns>nptgAdminArea</Xmlns>
      <XmlnsUrl>http://www.nptg.org.uk/adminAreas</XmlnsUrl>
      <Description>UK National Public Transport gazetteer. Codes of administrative
        areas, are unique within the UK.</Description>
    </Codespace>
  </codespaces>
  <FrameDefaults>
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    <DefaultDataSourceRef ref="nptg:dft" version="nptg:v2.1"/>
    <DefaultResponsibilitySetRef ref="nptg:NPTG_metadata" version="nptg:v2.1"/>
  </FrameDefaults>
  <versions>
    <Version id="nptg:v2.1" version="any">
      <Description>NPTG version 2.1</Description>
      <VersionType>baseline</VersionType>
    </Version>
  </versions>
  <dataSources>
    <DataSource id="nptg:dft" version="nptg:v2.1">
      <Email>standards@nptg.org.uk</Email>
    </DataSource>
  </dataSources>
  <responsibilitySets>
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      <Name>Common</Name>
      <roles>
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          <DataRoleType>creates distributes</DataRoleType>
          <StakeholderRoleType>DataRegistrar</StakeholderRoleType>
          <ResponsibleOrganisationRef ref="nptg:Dft" version="nptg:v2.1"/>
          <ResponsibleAreaRef ref="nptgUkRegion:GB"
            nameOfRefClass="TransportAdministrativeZone" versionRef="0"
            xsi:type="TransportAdministrativeZoneRefStructure">UK</ResponsibleAreaRef>
        </ResponsibilityRoleAssignment>
      </roles>
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    <DataRoleType>creates distributes</DataRoleType>
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    <ResponsibleAreaRef ref="nptg:UK">TODO</ResponsibleAreaRef>
  </ResponsibilityRoleAssignment>
</roles>
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</responsibilitySets>
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  <ValueSet version="nptg:v2.1" id="nptg:UK_NPTG_profile@Types_of_frame"
    classOfValues="TypeOfFrame">
    <Name>Types of frame for UK NKTG profile</Name>
    <values>
      <TypeOfFrame version="nptg:v2.1" id="nptg:UK_NPTG_profile_payload">
        <Name>NPTG Locations and Tariff Zones Frame</Name>
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  </ClassRelationshipInFrame>
  <ClassRelationshipInFrame name="parentZone">
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    </ClassAttributeInFrame>
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    <ClassAttributeInFrame name="Name">
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    </ClassAttributeInFrame>
    <ClassAttributeInFrame name="ShortName">
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    <ClassAttributeInFrame name="Qualifier">
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      <Containment>byVersionedReference</Containment>
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    </ClassAttributeInFrame>
    <ClassAttributeInFrame name="_created">
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    </ClassAttributeInFrame>
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    </ClassAttributeInFrame>
    <ClassAttributeInFrame name="_modification">
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    <ClassAttributeInFrame name="Name">
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    </ClassAttributeInFrame>
    <ClassAttributeInFrame name="Name._lang">
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    </ClassAttributeInFrame>
    <ClassAttributeInFrame name="PrivateCode">
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    <ClassAttributeInFrame name="_srsName">
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    </ClassAttributeInFrame>
    <ClassAttributeInFrame name="gml.exterior.LinearRing.pos">
      <Mandatory>optional</Mandatory>
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</ClassInFrame>
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</TypeOfFrame>

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  <Name>NPTG Admin areas for NPTG</Name>
  <classes>
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      <Mandatory>required</Mandatory>
      <attributes>
        <ClassAttributeInFrame name="Name">
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        </ClassAttributeInFrame>
      </attributes>
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          <RelationshipRef nameOfClass="OrganisationPart"/>
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          <Containment>inline</Containment>
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    <ClassInFrame nameOfClass="OrganisationPart">
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        </ClassAttributeInFrame>
        <ClassAttributeInFrame name="PublicCode">
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      </attributes>
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      </relationships>
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    <ClassInFrame nameOfClass="TransportAdministrativeZone">
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        </ClassAttributeInFrame>
        <ClassAttributeInFrame name="_version">
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          <Containment>byVersionedReference</Containment>
        </ClassRelationshipInFrame>
        <ClassRelationshipInFrame name="projections">
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          <Mandatory>optional</Mandatory>
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      </relationships>
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      <RelationshipRef nameOfClass="CodespaceAssignment"/>
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    </ClassAttributeInFrame>
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    <ClassAttributeInFrame name="EndValue">
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</ClassInFrame>
</classes>
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</TypeOfFrame>
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</ValueSet>
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  classOfValues="TypeOfPlace">
  <Name>NPTG Place Types</Name>
  <values>
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      <Name>NPTG Source Loc = Lo</Name>
    </TypeOfPlace>
    <TypeOfPlace version="nptg:v2.1" id="nptg:SourceLocalityType@Co">
      <Name>NPTG Source Loc = Co</Name>
    </TypeOfPlace>
    <TypeOfPlace version="nptg:v2.1" id="nptg:SourceLocalityType@Pa">
      <Name>NPTG Source Loc = Pa</Name>
    </TypeOfPlace>
    <TypeOfPlace version="nptg:v2.1" id="nptg:SourceLocalityType@ar">
      <Name>NPTG Source Loc = ar</Name>
    </TypeOfPlace>
    <TypeOfPlace version="nptg:v2.1" id="nptg:SourceLocalityType@Add">
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    </TypeOfPlace>
    <TypeOfPlace version="nptg:v2.1" id="nptg:SourceLocalityType@U">
      <Name>NPTG Source Loc = U</Name>
    </TypeOfPlace>
  </values>
</ValueSet>
<ValueSet version="nptg:v2.1" id="nptg:UK_NPTG_profile@Organisation_part_types"
  classOfValues="TypeOfZone">

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<values>
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    <Name>An NPTG Region</Name>
  </TypeOfZone>
  <TypeOfZone version="nptg:v2.1" id="nptg:AdministrativeArea@National">
    <Name>An NPTG Administrative Area with National scope (e.g. 910, 920
    etc)</Name>
  </TypeOfZone>
  <TypeOfZone version="nptg:v2.1" id="nptg:AdministrativeArea@Local">
    <Name>An NPTG Administrative Area with Local scope</Name>
  </TypeOfZone>
  <TypeOfZone version="nptg:v2.1" id="nptg:UkDistrict">
    <Name>An NPTG District</Name>
  </TypeOfZone>
  <TypeOfZone version="nptg:v2.1" id="nptg:UkLocality">
    <Name>An NPTG Locality</Name>
  </TypeOfZone>
  <TypeOfZone version="nptg:v2.1" id="nptg:PlusBusZone">
    <Name>An PlusBus Tariff Zone</Name>
  </TypeOfZone>
</values>
</ValueSet>
<ValueSet version="nptg:v2.1" id="nptg:UK_NPTG_profile@Sms_codes"
  classOfValues="TypeOfCodespaceAssignment">
  <Name>NPTG Codespace Assignment Types</Name>
  <values>
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      <Name>NPTG Stop prefix</Name>
    </TypeOfCodespaceAssignment>
    <TypeOfCodespaceAssignment version="nptg:v2.1" id="nptg:naptan_sms">
      <Name>NPTG Stop SMS prefix</Name>
    </TypeOfCodespaceAssignment>
    <TypeOfCodespaceAssignment version="nptg:v2.1" id="nptg:naptan_cleardown">
      <Name>NPTG stop cleardown range</Name>
    </TypeOfCodespaceAssignment>
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</typesOfValue>
<organisations>
  <GeneralOrganisation id="nptg:Dft" modification="new" status="active"
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    <Name>Department for Transport</Name>
  </GeneralOrganisation>
</organisations>
</ResourceFrame>
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  responsibilitySetRef="fxc:Fxc_metadata" dataSourceRef="fxc:dft">
  <Name>FXCP Values for Farexchange</Name>
  <FrameDefaults>
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    <DefaultDataSourceRef ref="fxc:dft" version="fxc:v1.0"/>
    <DefaultResponsibilitySetRef ref="fxc:Fxc_metadata" version="fxc:v1.0"/>
  </FrameDefaults>
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        <Precision>2</Precision>
      </PriceUnit>
      <PriceUnit id="fxc:EUR" version="fxc:v1.0">
        <Name>Euro</Name>
        <Precision>2</Precision>
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  </PricingParameterSet>
</geographicalUnits>
  <GeographicalUnit id="fxc:mi" version="fxc:v1.0">
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  <GeographicalUnit id="fxc:km" version="fxc:v1.0">
    <Name>Distance Unit Kilometres</Name>
  </GeographicalUnit>
  <GeographicalUnit id="fxc:unit_stage" version="fxc:v1.0">
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    </GeographicalUnit>
  </geographicalUnits>
  <usageParameters>
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      <UserType>adult</UserType>
      <DiscountBasis>none</DiscountBasis>
      <companionProfiles>
        <CompanionProfile version="fxc:v1.0" id="fxc:adult@infant">
          <UserProfileRef ref="fxc:infant" version="fxc:v1.0"/>
          <MinimumNumberOfPersons>0</MinimumNumberOfPersons>
          <MaximumNumberOfPersons>3</MaximumNumberOfPersons>
        </CompanionProfile>
      </companionProfiles>
    </UserProfile>
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      <Name>Child</Name>
      <TypeOfConcessionRef version="fxc:v1.0" ref="fxc:child"/>
      <UserType>child</UserType>
      <MinimumAge>5</MinimumAge>
      <MaximumAge>15</MaximumAge>
    </UserProfile>
    <UserProfile version="fxc:v1.0" id="fxc:infant">
      <Name>Infant</Name>
      <Description>Up to three children under 5 years of age, accompanied by a fare paying adult or child passenger, and not occupying a seat, may travel free of charge on the Companys services.</Description>
      <prices>
        <UsageParameterPrice version="fxc:v1.0" id="fxc:infant">
          <Amount>0</Amount>
        </UsageParameterPrice>
      </prices>
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      <MaximumAge>4</MaximumAge>
      <DiscountBasis>free</DiscountBasis>
      <companionProfiles>
        <CompanionProfile id="fxc:infant@adult" version="fxc:v1.0">
          <UserProfileRef ref="fxc:adult" version="fxc:v1.0"/>
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          <MaximumNumberOfPersons>1</MaximumNumberOfPersons>
          <DiscountBasis>none</DiscountBasis>
        </CompanionProfile>
      </companionProfiles>
    </UserProfile>
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      <Name>Student</Name>
      <TypeOfConcessionRef version="fxc:v1.0" ref="fxc:student"/>
      <UserType>student</UserType>
      <ProofRequired>membershipCard</ProofRequired>
      <DiscountBasis>discount</DiscountBasis>
    </UserProfile>
    <UserProfile version="fxc:v1.0" id="fxc:senior">
      <Name>Senior</Name>
      <TypeOfConcessionRef version="fxc:v1.0" ref="fxc:senior"/>
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      <MinimumAge>60</MinimumAge>
    </UserProfile>
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      <alternativeNames>
        <AlternativeName order="1" id="fxc:online_de" version="fxc:v1.0">
          <Name lang="de">Internetverkauf</Name>
        </AlternativeName>
        <AlternativeName order="1" id="fxc:online_fr" version="fxc:v1.0">
          <Name lang="fr">A vendre par l'internet</Name>
        </AlternativeName>
      </alternativeNames>
      <DistributionChannelType>online</DistributionChannelType>
      <IsObligatory>false</IsObligatory>
    </DistributionChannel>
  </distributionChannels>

```

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<DistributionChannel id="fxc:online_subscription" version="fxc:v1.0">
  <ShortName>online automatic subscription to renew</ShortName>
  <DistributionChannelType>online</DistributionChannelType>
  <IsObligatory>false</IsObligatory>
</DistributionChannel>
<DistributionChannel id="fxc:postal" version="fxc:v1.0">
  <ShortName>Ticket or card received by post</ShortName>
  <DistributionChannelType>postal</DistributionChannelType>
  <IsObligatory>false</IsObligatory>
</DistributionChannel>
<DistributionChannel id="fxc:agency" version="fxc:v1.0">
  <ShortName>e.g. Travel shop</ShortName>
  <DistributionChannelType>agency</DistributionChannelType>
  <IsObligatory>false</IsObligatory>
</DistributionChannel>
<DistributionChannel id="fxc:at_stop" version="fxc:v1.0">
  <ShortName>In station sale by machine, counter or payg</ShortName>
  <DistributionChannelType>atStop</DistributionChannelType>
  <IsObligatory>false</IsObligatory>
</DistributionChannel>
<DistributionChannel id="fxc:self_service_ticket_machine" version="fxc:v1.0">
  <ShortName>Automatic Ticket Machine</ShortName>
  <DistributionChannelType>atStop</DistributionChannelType>
</DistributionChannel>
<DistributionChannel id="fxc:pay_as_you_go_device" version="fxc:v1.0">
  <ShortName>Pay as you go device - eg smartcard</ShortName>
  <DistributionChannelType>atStop</DistributionChannelType>
</DistributionChannel>
<DistributionChannel id="fxc:at_counter" version="fxc:v1.0">
  <ShortName>Ticket counter sale</ShortName>
  <alternativeNames>
    <AlternativeName order="1" id="fxc:at_counter_de" version="fxc:v1.0">
      <Name lang="de">Schalter</Name>
    </AlternativeName>
    <AlternativeName order="1" id="fxc:at_counter_fr" version="fxc:v1.0">
      <Name lang="fr">A vendre par le guichet</Name>
    </AlternativeName>
  </alternativeNames>
  <DistributionChannelType>atStop</DistributionChannelType>
  <IsObligatory>false</IsObligatory>
</DistributionChannel>
<DistributionChannel id="fxc:on_board" version="fxc:v1.0">
  <ShortName>on_board</ShortName>
  <DistributionChannelType>onBoard</DistributionChannelType>
  <IsObligatory>false</IsObligatory>
</DistributionChannel>
<DistributionChannel id="fxc:mobile_device" version="fxc:v1.0">
  <ShortName>Mobile Device</ShortName>
  <DistributionChannelType>mobileDevice</DistributionChannelType>
  <IsObligatory>false</IsObligatory>
</DistributionChannel>
<DistributionChannel id="fxc:call_centre" version="fxc:v1.0">
  <ShortName>Call Centre</ShortName>
  <DistributionChannelType>telephone</DistributionChannelType>
  <IsObligatory>false</IsObligatory>
</DistributionChannel>
<DistributionChannel id="fxc:operator_travel_shop" version="fxc:v1.0">
  <ShortName>Operator Travel Shop</ShortName>
  <DistributionChannelType>telephone</DistributionChannelType>
  <IsObligatory>false</IsObligatory>
</DistributionChannel>
<DistributionChannel id="fxc:travel_agent" version="fxc:v1.0">
  <ShortName>Travel Agent</ShortName>
  <DistributionChannelType>agency</DistributionChannelType>
  <IsObligatory>false</IsObligatory>
</DistributionChannel>
<DistributionChannel id="fxc:employee_organisation" version="fxc:v1.0">
  <ShortName>Employee Organisation</ShortName>
  <DistributionChannelType>other</DistributionChannelType>
  <IsObligatory>false</IsObligatory>
</DistributionChannel>
<DistributionChannel id="fxc:statutory_organisation" version="fxc:v1.0">
  <ShortName>Statutory Organisation</ShortName>
  <DistributionChannelType>other</DistributionChannelType>
  <IsObligatory>false</IsObligatory>

```

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</DistributionChannel>
</distributionChannels>
<fulfilmentMethods>
  <FulfilmentMethod id="fxc:collect_on_board" version="fxc:v1.0">
    <Name>Collect on board</Name>
    <FulfilmentMethodType>conductor</FulfilmentMethodType>
    <typesOfTravelDocument>
      <TypeOfTravelDocumentRef ref="fxc:paperTicket" version="fxc:v1.0"/>
      <TypeOfTravelDocumentRef ref="fxc:hand_written_ticket" version="fxc:v1.0"/>
    </typesOfTravelDocument>
  </FulfilmentMethod>
  <FulfilmentMethod id="fxc:collect_from_machine" version="fxc:v1.0">
    <Name>Collect from machine</Name>
    <FulfilmentMethodType>ticketMachine</FulfilmentMethodType>
    <RequiresBookingReference>true</RequiresBookingReference>
    <typesOfTravelDocument>
      <TypeOfTravelDocumentRef ref="fxc:paperTicket" version="fxc:v1.0"/>
      <TypeOfTravelDocumentRef ref="fxc:magstripe_printed_ticket"
        version="fxc:v1.0"/>
    </typesOfTravelDocument>
  </FulfilmentMethod>
  <FulfilmentMethod id="fxc:collect_at_counter" version="fxc:v1.0">
    <Name>Collect at counter</Name>
    <FulfilmentMethodType>ticketOffice</FulfilmentMethodType>
    <typesOfTravelDocument>
      <TypeOfTravelDocumentRef ref="fxc:paperTicket" version="fxc:v1.0"/>
      <TypeOfTravelDocumentRef ref="fxc:magstripe_printed_ticket"
        version="fxc:v1.0"/>
      <TypeOfTravelDocumentRef ref="fxc:pass" version="fxc:v1.0"/>
      <TypeOfTravelDocumentRef ref="fxc:smartCard" version="fxc:v1.0"/>
      <TypeOfTravelDocumentRef ref="fxc:hand_written_ticket" version="fxc:v1.0"/>
      <TypeOfTravelDocumentRef ref="fxc:smartCard" version="fxc:v1.0"/>
    </typesOfTravelDocument>
  </FulfilmentMethod>
  <FulfilmentMethod id="fxc:collect_from_agent" version="fxc:v1.0">
    <Name>Travel agent issues ticket directly</Name>
    <FulfilmentMethodType>agent</FulfilmentMethodType>
    <typesOfTravelDocument>
      <TypeOfTravelDocumentRef ref="fxc:paperTicket" version="fxc:v1.0"/>
      <TypeOfTravelDocumentRef ref="fxc:electronic_document" version="fxc:v1.0"/>
    </typesOfTravelDocument>
  </FulfilmentMethod>
  <FulfilmentMethod id="fxc:mobile_app" version="fxc:v1.0">
    <Name>Mobile App</Name>
    <FulfilmentMethodType>mobileApp</FulfilmentMethodType>
    <typesOfTravelDocument>
      <TypeOfTravelDocumentRef ref="fxc:mobileApp" version="fxc:v1.0"/>
    </typesOfTravelDocument>
  </FulfilmentMethod>
  <FulfilmentMethod id="fxc:self_print" version="fxc:v1.0">
    <Name>Self Print</Name>
    <FulfilmentMethodType>selfprint</FulfilmentMethodType>
    <typesOfTravelDocument>
      <TypeOfTravelDocumentRef ref="fxc:self_print_ticket" version="fxc:v1.0"/>
      <TypeOfTravelDocumentRef ref="fxc:electronic_document" version="fxc:v1.0"/>
    </typesOfTravelDocument>
  </FulfilmentMethod>
  <FulfilmentMethod id="fxc:online_propagation" version="fxc:v1.0">
    <Name>Online propagation</Name>
    <FulfilmentMethodType>validator</FulfilmentMethodType>
    <typesOfTravelDocument>
      <TypeOfTravelDocumentRef ref="fxc:mobileApp" version="fxc:v1.0"/>
      <TypeOfTravelDocumentRef ref="fxc:smartCard" version="fxc:v1.0"/>
    </typesOfTravelDocument>
  </FulfilmentMethod>
  <FulfilmentMethod id="fxc:email" version="fxc:v1.0">
    <Name>EMAIL</Name>
    <FulfilmentMethodType>email</FulfilmentMethodType>
    <typesOfTravelDocument>
      <TypeOfTravelDocumentRef ref="fxc:self_print_ticket" version="fxc:v1.0"/>
    </typesOfTravelDocument>
  </FulfilmentMethod>
  <FulfilmentMethod id="fxc:post" version="fxc:v1.0">
    <Name>Send ticket by post</Name>
    <FulfilmentMethodType>post</FulfilmentMethodType>

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    <typesOfTravelDocument>
      <TypeOfTravelDocumentRef ref="fxc:paperTicket" version="fxc:v1.0"/>
      <TypeOfTravelDocumentRef ref="fxc:magstripe_printed_ticket"
        version="fxc:v1.0"/>
      <TypeOfTravelDocumentRef ref="fxc:pass" version="fxc:v1.0"/>
      <TypeOfTravelDocumentRef ref="fxc:smartCard" version="fxc:v1.0"/>
    </typesOfTravelDocument>
  </FulfilmentMethod>
</FulfilmentMethod id="fxc:courier" version="fxc:v1.0">
  <Name>Send ticket by courier</Name>
  <FulfilmentMethodType>other</FulfilmentMethodType>
  <typesOfTravelDocument>
    <TypeOfTravelDocumentRef ref="fxc:paperTicket" version="fxc:v1.0"/>
    <TypeOfTravelDocumentRef ref="fxc:magstripe_printed_ticket"
      version="fxc:v1.0"/>
    <TypeOfTravelDocumentRef ref="fxc:pass" version="fxc:v1.0"/>
    <TypeOfTravelDocumentRef ref="fxc:smartCard" version="fxc:v1.0"/>
  </typesOfTravelDocument>
</FulfilmentMethod>
</fulfilmentMethods>
<typesOfTravelDocuments>
  <TypeOfTravelDocument id="fxc:distribution_channel_dependent" version="fxc:v1.0">
    <Name>Depends on channel used</Name>
    <MediaType>other</MediaType>
  </TypeOfTravelDocument>
  <TypeOfTravelDocument id="fxc:paperTicket" version="fxc:v1.0">
    <Name>Printed Ticket</Name>
    <MediaType>paperTicket</MediaType>
    <MachineReadable>ocr</MachineReadable>
  </TypeOfTravelDocument>
  <TypeOfTravelDocument id="fxc:hand_written_ticket" version="fxc:v1.0">
    <Name>Hand written ticket</Name>
    <MediaType>paperTicket</MediaType>
  </TypeOfTravelDocument>
  <TypeOfTravelDocument id="fxc:magstripe_printed_ticket" version="fxc:v1.0">
    <Name>Printed Ticket with magnetic Stripe</Name>
    <MediaType>paperTicket</MediaType>
    <MachineReadable>magneticStrip</MachineReadable>
  </TypeOfTravelDocument>
  <TypeOfTravelDocument id="fxc:self_print_ticket" version="fxc:v1.0">
    <MediaType>selfPrintPaperTicket</MediaType>
    <MachineReadable>ocr</MachineReadable>
  </TypeOfTravelDocument>
  <TypeOfTravelDocument id="fxc:pass" version="fxc:v1.0">
    <MediaType>card</MediaType>
    <MachineReadable>barCode</MachineReadable>
  </TypeOfTravelDocument>
  <TypeOfTravelDocument id="fxc:mobileApp" version="fxc:v1.0">
    <MediaType>mobileApp</MediaType>
    <MachineReadable>ocr</MachineReadable>
  </TypeOfTravelDocument>
  <TypeOfTravelDocument id="fxc:smartCard" version="fxc:v1.0">
    <MediaType>card</MediaType>
    <MachineReadable>chip</MachineReadable>
  </TypeOfTravelDocument>
  <TypeOfTravelDocument id="fxc:electronic_document" version="fxc:v1.0">
    <MediaType>none</MediaType>
    <MachineReadable>ocr</MachineReadable>
  </TypeOfTravelDocument>
  <TypeOfTravelDocument id="fxc:membership_card" version="fxc:v1.0">
    <MediaType>card</MediaType>
    <MachineReadable>none</MachineReadable>
  </TypeOfTravelDocument>
</typesOfTravelDocuments>
</FareFrame>
</frames>
</CompositeFrame>

```

Appendix IV

Elements validated for during the publication of a NeTeX file to BODS:

Element	Validation conditions
CompositeFrame	
ValidBetween	mandatory check
FromDate	mandatory check
TypeOfFrameRef	mandatory check

ResourceFrame	
TypeOfFrameRef	mandatory check
Organisations	mandatory check
Operator	mandatory check
PublicCode	mandatory check
Name	mandatory check

ServiceFrame	
TypeOfFrameRef	Conditional check if a ServiceFrame is present
lines	
Line	Conditional check if Lines is present
Name	Conditional check if Lines is present
PublicCode	Conditional check if Lines is present
OperatorRef	Conditional check if Lines is present
scheduledStopPoints	
ScheduledStopPoint	conditional check if scheduledStopPoints is present
Name	conditional check if scheduledStopPoints is present
NameSuffix	conditional check if scheduledStopPoints is present

FareFrame	
TypeOfFrameRef	conditional check if FareFrame is present
fareZones	
fareZone	conditional check if FareZones is present
Name	conditional check if FareZones is present
Members	conditional check if FareZones is present
ScheduledStopPointRef	conditional check if FareZones is present

FareFrame	
TypeOfFrameRef	conditional check if FareFrame is present
tariffs	mandatory check

Tariff	mandatory check
ValidityConditions	mandatory check
ValidBetween	mandatory check
FromDate	mandatory check
OperatorRef	mandatory check
TypeOfTariffRef	mandatory check
TariffBasis	mandatory check
timeIntervals	Conditional check if ProductType is dayPass or periodPass
TimeInterval	Conditional check if ProductType is dayPass or periodPass
Name	Conditional check if ProductType is dayPass or periodPass
fareStructureElements	mandatory check
FareStructureElement	mandatory check
Access	mandatory check
GenericParameterAssignment	mandatory check
TypeOfAccessRightAssignmentRef	mandatory check
ValidityParameterGroupingType	conditional check
validityParameters	mandatory check
FareStructureElement	mandatory check
Eligibility	mandatory check
GenericParameterAssignment	mandatory check
TypeOfAccessRightAssignmentRef	mandatory check
Limitations	mandatory check
UserProfile	mandatory check
Name	mandatory check
UserType	mandatory check
FareStructureElement	Conditional check if ProductType is dayPass or periodPass
Durations	Conditional check if ProductType is dayPass or periodPass
timeIntervals	Conditional check if ProductType is dayPass or periodPass
TimeIntervalRef	Conditional check if ProductType is dayPass or periodPass
FareStructureElement	mandatory check
Conditions_of_Travel	mandatory check
GenericParameterAssignment	mandatory check

TypeOfAccessRightAssignmentRef	mandatory check
limitations	mandatory check
RoundTrip	conditional check if ProductType is singleTrip or dayReturnTrip or periodReturnTrip
TripType	conditional check if ProductType is singleTrip or dayReturnTrip or periodReturnTrip
FrequencyOfUse	mandatory check
FrequenceOfUseType	mandatory check
AmountOfPriceUnitProduct	mandatory check
Name	mandatory check
TypeOfFareProductRef	mandatory check
ChargingMomentType	mandatory check
validableElements	mandatory check
ValidableElement	mandatory check
fareStructureElements	mandatory check
FareStructureElementRef	mandatory check
accessRightsInProduct	mandatory check
ValidableElementRef	mandatory check
ProductType	mandatory check
SalesOfferPackages	mandatory check
SalesOfferPackage	mandatory check
distributionAssignments	mandatory check
DistributionAssignment	mandatory check
DistributionChannelType	mandatory check
PaymentMethods	mandatory check
saleOfferPackageElements	mandatory check
SalesOfferPackageElement	mandatory check
TypeOfTravelDocumentRef	mandatory check
PreassignedFareProductRef	mandatory check

FareFrame	
TypeOfFrameRef	conditional check if FareFrame is present
fareTables	mandatory check
FareTable	mandatory check
pricesFor	mandatory check