



Business Message Standard (BMS) Transport Capacity Plan

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08 Jul 2009	Jean-Luc Champion, GS1 Global Office on behalf of Jaco Voorspuij, DHL	09-000189

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Document Change History

Date of Change	Version	Changed By	Reason for Change	Summary of Change	Model Build #
08Nov2011	1.0	Coen Janssen	Public Review	Updated chapter 2	

Date of Change	Version	Changed By	Reason for Change	Summary of Change	Model Build #
08Dec2011	1.0	Coen		For TSD Comments for Major release 3.0 In section 6.1 Business example, updated example to reflect: Change from forecastedGrossWeight, forecastedGrossVolume, plannedGrossWeight and plannedGrossVolume in TransportCapacityPlanItem.to, requestedGrossVolume, requestedGrossWeight, proposedGrossVolume and proposedGrossWeight.	

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1. Business Domain View

1.1. Problem Statement / Business Need

This BMS, Transport Capacity Plan, is part of the global GS1 standard for transport planning, enabling Logistic Services Buyers to share capacity forecasts for transportation equipment required by trade lane, origin and destination with Logistic Services Sellers. In this way, Logistic Services Sellers can anticipate the demand for transportation capacity, and can measure their ability to support projected volumes. By providing this visibility to Logistic Services Sellers, the seller will have a reduced need to react to equipment requirements at a moment's notice, easing capacity constraints, improving the efficiency of equipment deployment and utilization, and ultimately taking out unnecessary cost in the supply chain.

The Logistic Services Seller is responsible for developing the Transport Capacity Plan. He does this based on the Transport Capacity Requirements communicated to him by the Logistic Services Buyer.

NOTE: Please refer to BMS Transport Capacity Requirements for more information on this.

Given that the Logistic Services Seller will likely have numerous clients, he should evaluate capacity commitments to all buyers before determining whether they can support the capacity needs of each individual buyer. Based on a number of factors, the Logistic Services Seller may determine the need to allocate capacity from one client to another.

When analysing the forecast received from the Logistic Services Buyer, the Logistic Services Seller may combine the cargo (for multiple requirement lines) if they are for the same trade lane (i.e. origin/destination), forecast bucket, and service requirement level (e.g. refrigerated vs. general cargo).

1.2. Objective

To supply the detail design of the (specific) business transaction needed to meet the requirements of the referenced BRAD(s).

1.3. Audience

Implementers of the Business Message Standard.

1.4. References

Reference Name	Description
BRAD Transport Planning (GS1, 2011)	
Logistics Interoperability Model (GS1, 2007)	

1.5. Acknowledgements

The following is a list of individuals (and their companies) who participated in the creation, review and approval of this BMS.

1.5.1. BRG Work Group

Function	Name	Company / organisation
BRG Work Group Chair	Fred Kempkes	Unilever
BRG Work Group Chair	Jaco Voorspuij	DHL
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BRG Work Group Member	Mary Vayou	BMT Group Ltd & e-Freight

1.5.2. Design Team Members

Function	Name	Organisation
Modeler	Coen Janssen, Mark van Eeghem	GS1 Global Office
XML Technical Designer	Dipan Anarkat	GS1 Global Office
EANCOM Technical Designer	Not applicable	
Peer Reviewer	Eric Kauz	GS1 Global Office
Process Manager	Jean-Luc Champion	GS1 Global Office

2. Business Context

Context Category	Value(s)
Industry	All
Geopolitical	All
Product	All
Process	Transport Management
System Capabilities	GS1 System
Official Constraints	None

3. Additional Technical Requirements Analysis

Not applicable

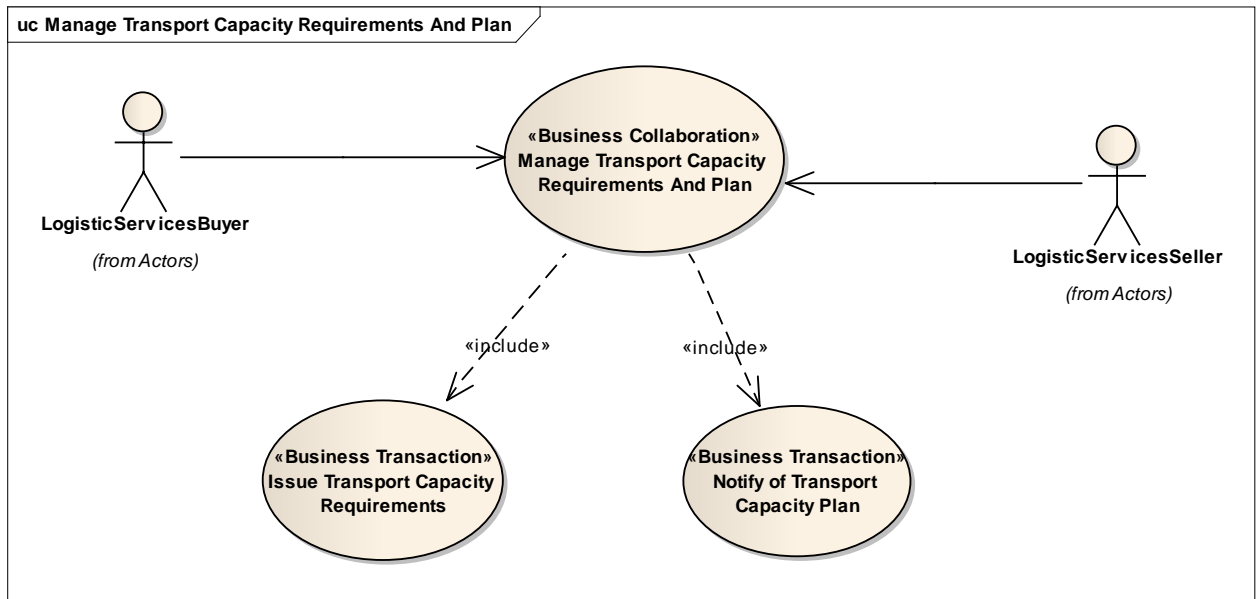
3.1. Technical Requirements (optional)

Number	Statement	Rationale
	Not applicable	

4. Business Transaction View

4.1. Use Case Diagram – Manage Transport Capacity Plan

Figure 4-1 Use Case Diagram



4.2. Use Case Description – Notify of Transport Capacity Plan

Use Case ID	UC-1B
Use Case Name	Notify of Transport Capacity Plan
Use Case Description	The purpose of this transaction is to enable the Logistic Service Seller to submit a transport capacity plan to the Logistic Service Buyer, identifying how they will support the transport capacity requirements.
Actors (Goal)	Logistic Service Buyer (LSB) Logistic Service Seller (LSS)
Performance Goals	

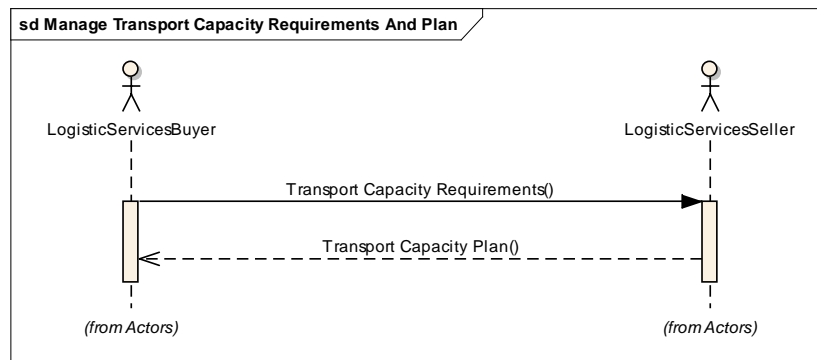
Use Case ID	UC-1B
Preconditions	<p>The LSS has received the transport capacity requirements (capacity forecast) from the LSB.</p> <p>The trading partners have agreed upon:</p> <ul style="list-style-type: none"> Timeframe that the transport capacity plan should be sent after receipt of transport capacity requirements. Time Horizon of the information within the message Forecast Buckets which organize the data based on the time horizon (<i>e.g. data in message that is for 3-4 months prior to shipment – “buckets” are per month; 2 months prior – “buckets” are per week; 1 month prior – “buckets” are by week for weeks 3& 4, and by day for weeks 1 & 2</i>) <p>Partners have also pre-defined the freight terms, geographic scope of partnership, and distribution strategies to be utilized.</p>
Post conditions	The LSB has received the transport capacity plan.
Scenario	<p>Begins when... The LSS has received the transport capacity requirements</p> <p>Continues with...</p> <ul style="list-style-type: none"> The LSS develops a transport capacity plan The LSS sending the transport capacity plan to the LSB The LSB receiving the transport capacity plan <p>Ends when... LSB has received the transport capacity plan</p>
Alternative Scenario	
Related Requirements	
Related Rules	

4.3. Activity Diagram(s) – Notify of Transport Capacity Plan

Not applicable

4.4. Sequence Diagram(s) – Manage Transport Capacity Plan

Figure 4-2 Sequence Diagram



NOTE: Sending of the transport capacity plan is optional. When used it must be in reply to Transport Capacity Requirements.

5. Information Model (Including GDD Report)

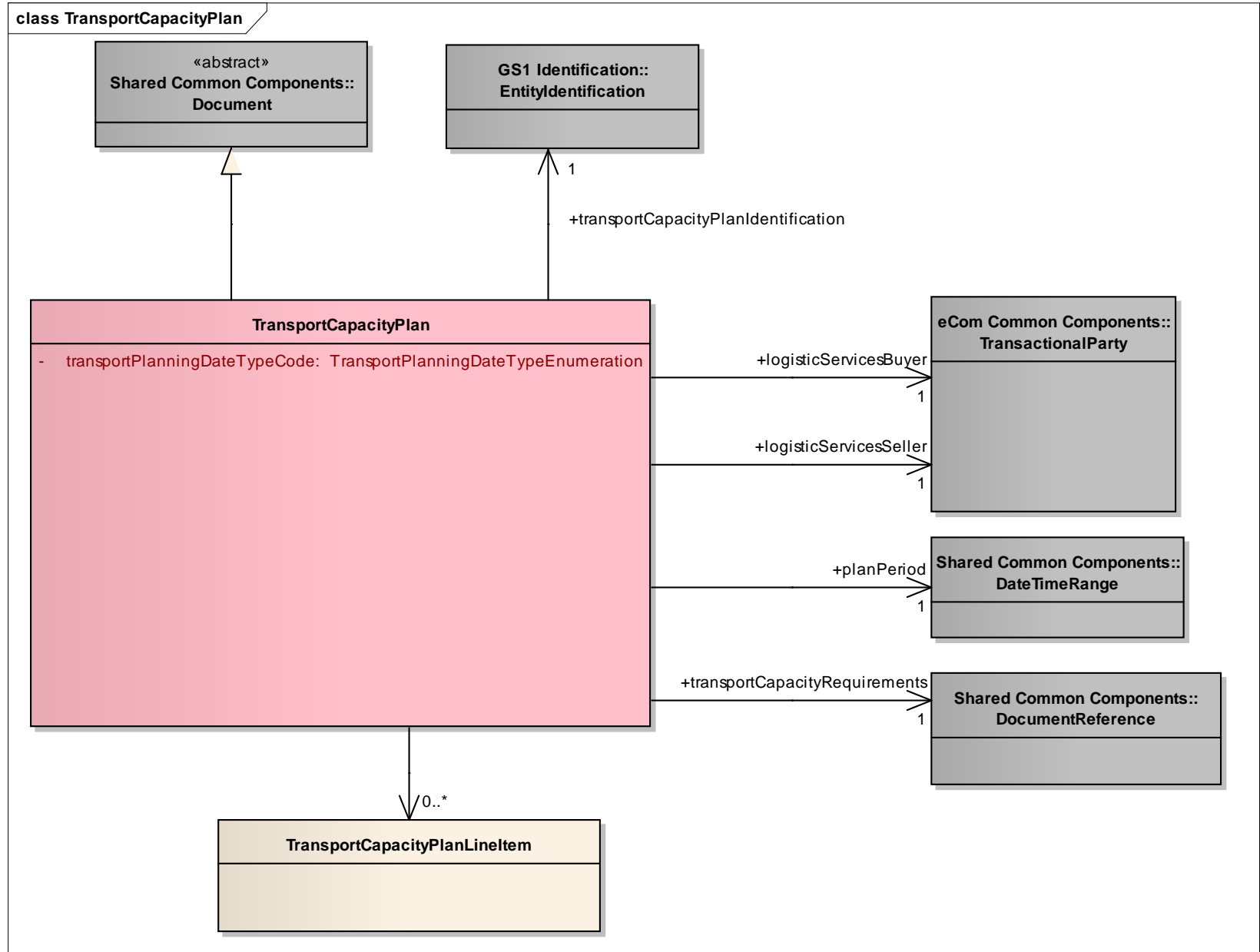
5.1. Transport Capacity Plan

5.1.1. GDD Report - Transport Capacity Plan

Content	Attribute / Role	Datatype /Secondary class	Multiplicity	Definition	Requirements
TransportCapacityPlan				Transport Capacity Plan is created by the Logistic Services Seller based on the Transport Capacity Requirements communicated to him by the Logistic Services Buyer.	
Generalization		Document		Used to specify basic information about the content of the message including version number, creation date and time.	BRAD Transport Planning - TCP2, TCP3
Association	transportCapacityPlanIdentification	EntityIdentification	1..1	Provides the unique identification of the transport capacity plan.	BRAD Transport Planning - TCP1
Association	logisticServicesBuyer	TransactionalParty	1..1	A party that purchases logistics services from another party	BRAD Transport Planning - TCP6
Association	logisticServicesSeller	TransactionalParty	1..1	A party that provides logistics services to another party.	BRAD Transport Planning - TCP7
Association	planPeriod	DateTimeRange	1..1	The period to which the plan applies.	BRAD Transport Planning - TCP4
Association	transportCapacityRequirements	DocumentReference	1..1	Reference to the transport capacity requirements message on which the plan has been based.	BRAD Transport Planning - TCP8
Association		TransportCapacityPlanLineItem	0..*	Specifies the transport capacity plan on detail level.	BRAD Transport Planning - TCP9

Content	Attribute / Role	Datatype /Secondary class	Multiplicity	Definition	Requirements
Attribute	transportPlanningDateTypeCode	TransportPlanningDateTypeEnumeration	1..1	Code specifying the type of date used for transport planning, i.e. the delivery date or the pick-up date.	BRAD Transport Planning - TCP5

5.1.2. Class Diagram - Transport Capacity Plan



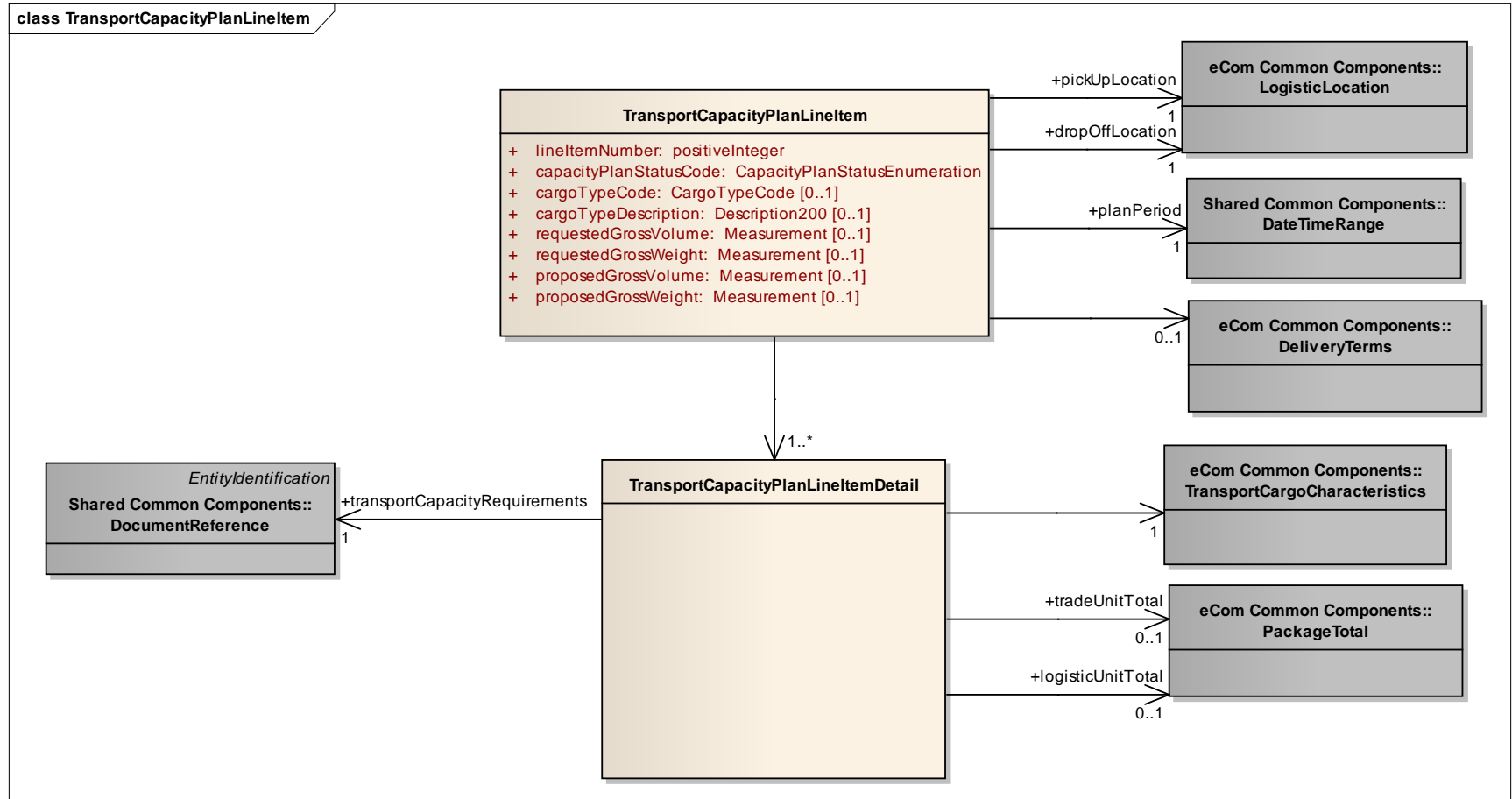
5.1.3. GDD Report - Transport Capacity Plan Line Item

Content	Attribute / Role	Datatype /Secondary class	Multi plicity	Definition	Requirements
<u>TransportCapacityPlanLineItem</u>				Specifies the planned transport capacity allocation for a given route and cargo type.	
Association	planPeriod	DateTimeRange	1..1	The period to which the transport capacity plan line item applies.	BRAD Transport Planning - TPL8 (TPS1)
Association	dropOffLocation	LogisticLocation	1..1	The location where the goods need to be delivered.	BRAD Transport Planning - TPL7 (TCL1)
Association	pickUpLocation	LogisticLocation	1..1	The location where the goods need to be collected.	BRAD Transport Planning - TPL7 (TCL1)
Association		DeliveryTerms	0..1	The applicable legal, customs, financial and insurance terms for the delivery of the goods.	BRAD Transport Planning - TPL3
Association		TransportCapacityPlanLineItemDetail	1..*	Details on the transport capacity requirements on which the plan is based.	BRAD Transport Planning - TPL9
Attribute	lineItemNumber	positiveInteger	1..1	Provides the line number associated to the line item.	BRAD Transport Planning - TPL1
Attribute	capacityPlanStatusCode	CapacityPlanStatusEnumeration	1..1	Code specifying the degree to which the requested capacity can be supported.	BRAD Transport Planning - TPL4
Attribute	cargoTypeCode	CargoTypeCode	0..1	Code specifying the classification of a type of cargo for	BRAD Transport Planning - TPL2

Content	Attribute / Role	Datatype /Secondary class	Multi plicity	Definition	Requirements
				example hazardous cargo.	
Attribute	cargoTypeDescription	Description200	0..1	Free text specifying the classification of a type of cargo.	BRAD Transport Planning - TPL2
Attribute	requestedGrossVolume	Measurement	0..1	The requested transport capacity expressed as the volume of the goods, calculated by multiplying the maximum length, width, and height of the packaged goods.	BRAD Transport Planning - TPL5
Attribute	requestedGrossWeight	Measurement	0..1	The requested transport capacity expressed as the weight of the goods, including the weight of transport packaging, and potentially the weight of any transport equipment.	BRAD Transport Planning - TPL5
Attribute	proposedGrossVolume	Measurement	0..1	The proposed transport capacity expressed as the volume of the goods, calculated by multiplying the maximum length, width, and height of the packaged goods.	BRAD Transport Planning - TPL6
Attribute	proposedGrossWeight	Measurement	0..1	The proposed transport capacity expressed as the weight of the goods, including the weight of transport	BRAD Transport Planning - TPL6

Content	Attribute / Role	Datatype /Secondary class	Multi plicity	Definition	Requirements
				packaging, and potentially the weight of any transport equipment.	
TransportCapacityPlanLineItemDetail				Specifies the requested transport capacity allocation for a given route and cargo type.	
Association		TransportCargoCharacteristics	1..1	Aggregate information on the goods to be transported.	BRAD Transport Planning - TRD2, TRD3, TRD4, TRD6
Association	logisticUnitTotal	PackageTotal	0..1	The total number of logistic units to be transported.	BRAD Transport Planning - TRD5
Association	tradeUnitTotal	PackageTotal	0..1	The total number of trade units (e.g. cases) to be transported.	BRAD Transport Planning - TRD5
Association	transportCapacityRequirements	DocumentReference	1..1	Reference to the related transport capacity requirements line item.	BRAD Transport Planning - TRD1

5.1.4. Class Diagram - - Transport Capacity Plan Line Item



5.2. Enumerations & codes (message specific classes only)

5.2.1. Capacity Plan Status Enumeration

Value	Description
ACCEPTED_IN_FULL	The full amount of the requested capacity can be supported.
ACCEPTED_PARTIAL	A partial amount of the requested capacity can be supported (i.e. "shortage"). For example, the requested capacity is 500 CBM, but the accepted capacity is 250 CBM).
ACCEPTED_EXCESS_AVAILABLE	The full amount of the requested capacity can be supported, and there is additional capacity available. For example, the requested capacity is 500 CBM. The accepted capacity is 500 CBM, and there is still 250 CBM of capacity of available.
REJECTED	The requested capacity cannot be supported.

5.2.2. Common codes / enumerations

Please refer to BMS eCom Domain Common for the following codelists:

- TransportPlanningDateTypeCode
- CargoTypeCode

6. Business Document Examples

6.1. Example 1

A Logistic Service Buyer, ABC_Company identified by GLN 1234567890123, is providing a forecast of capacity requirements for 6 months to Logistics_International identified by GLN 9876543212345.

TransportCapacityPlan	
creationDateTime	2009-12-14T12:00:00
documentStatusCode	ORIGINAL
documentActionCode	ADD
transportPlanningDateTypeCode	DELIVERY_DATE
EntityIdentification (+transportCapacityPlanIdentification)	
entityIdentification	PLAN1234
TransactionalParty (+logisticServicesBuyer)	
gln	1234567890123
TransactionalParty (+logisticServicesSeller)	
gln	9876543212345
DateTimeRange (+planPeriod)	
beginDate	2010-01-01
endDate	2010-06-30
DocumentReference (+transportCapacityRequirements)	
entityIdentification	RQMT1234
TransportCapacityPlanLineItem	
lineItemNumber	1
capacityPlanStatusCode	ACCEPTED_IN_FULL
cargoTypeCode	12
requestedGrossWeight	50 KGM
requestedGrossVolume	9.22 CBM
proposedGrossWeight	50 KGM
proposedGrossVolume	9.22 CBM
LogisticLocation(+pickUpLocation)	
unLocationCode	US LAX
LogisticLocation(+dropOffLocation)	
unLocationCode	US EWR
DateTimeRange(+planPeriod)	
beginDate	2010-01-01

endDate	2010-01-07
DeliveryTerms	
incotermsCode	CFR
LogisticLocation	
unLocationCode	US RDG
TransportCapacityPlanLineItemDetail	
TransportCargoCharacteristics	
cargoTypeCode	12
cargoTypeDescription	Furniture
totalGrossWeight	50 KGM
totalGrossVolume	9.22 CBM
totalItemQuantity	75
totalPackageQuantity	5
LogisticUnitTotal (+tradeUnitTotal)	
packageTypeCode	CS
totalPackageQuantity	25
LogisticUnitTotal (+logisticUnitTotal)	
packageTypeCode	200
totalPackageQuantity	25
DocumentReference (+transportCapacityRequirements)	
entityIdentification	RQMT1234
lineItemNumber	1

7. Implementation Considerations

Not applicable

8. Testing

This section describes the testing criteria for business solutions.

8.1. Pass / Fail Criteria

Not applicable

8.2. Test Data

Not applicable

9. Adherence to Architectural Principles

#	AG Principle	BSD Adherence Statement	Does BSD Adhere?	Comment
2.1	The GS1 Architecture shall be fully aligned to GS1 Strategy, Vision, & Mission	The solution in the BSD is aligned with the business problem as defined in the CR and BCD.	<input checked="" type="checkbox"/>	
2.2	The GS1 Architecture shall leverage the use of GS1 Keys	The solution maintains the GS1 keys as the primary, mandatory identifiers.	<input checked="" type="checkbox"/>	
2.3	The GS1 Architecture shall leverage the common GS1 Global Data Dictionary (GDD)	The solution does not alter the formats of primary identifiers and complies with data elements as defined in the Global Data Dictionary.	<input checked="" type="checkbox"/>	
2.4	The GS1 Architecture shall be forward-looking, provide for migration strategies and backward compatibility, and support adaptable and flexible solutions	The solution is backwards compatible according to the stated scope in the document. The solution takes into consideration the potential impact of the standard, especially with respect to implementation and maintenance. Any potential known impact is documented.	<input checked="" type="checkbox"/>	
2.5	The GS1 Architecture shall support business processes tied to trading partner needs, relevant, and committed to demonstrable business value	All business requirements contained in the related BRAD come from trading partners or representatives with a genuine intention to implement the standards when developed. All requirements are driven by the business needs of the trading partners.	<input checked="" type="checkbox"/>	
2.6	The GS1 Architecture shall enable security where appropriate	Security solutions are included where appropriate.	<input checked="" type="checkbox"/>	
2.7	The GS1 Architecture shall be consistent	The solution does not violate consistency of the data architecture within each layer and between each layer of the GS1 System. For example, requirements do not alter a key used across GS1 standards or alter a reusable object without applying this change across related standards.	<input checked="" type="checkbox"/>	
2.8	The GS1 Architecture shall be royalty-free	The solution supports this principle where possible. The solution may include the use of other standards organizations that may not be royalty free.	<input checked="" type="checkbox"/>	

#	AG Principle	BSD Adherence Statement	Does BSD Adhere?	Comment
3.1	The GS1 Architecture should promote the achievement of the best overall value at the lowest total cost of ownership	The solution promotes the achievement of the best overall value at the lowest total cost of ownership.	<input checked="" type="checkbox"/>	
3.2	The GS1 Architecture should promote scalability	The solution takes into consideration the potential scalability of the standard. Any potential known impact to scalability is documented.	<input checked="" type="checkbox"/>	
3.3	The GS1 Architecture should promote seamless integration	The BSD promotes seamless integration with other GS1 Standards if in scope.	<input checked="" type="checkbox"/>	
3.4	The GS1 Architecture should promote interoperability and compliance	The solution takes into consideration data and process interoperability. For example, any shared objects between interoperable messages must remain consistent. Any potential known impact to interoperability is documented.	<input checked="" type="checkbox"/>	
3.5	The GS1 Architecture should promote simplicity and standard interfaces	The solution does not threaten the standardisation of the interfaces of the GS1 System. Interfaces are not limited to references to technology but also include such ideas as business interfaces and process interfaces.	<input checked="" type="checkbox"/>	
3.6	The GS1 Architecture should avoid duplication	The solution does not create duplications with existing GS1 components. If there are potential duplications, these are documented with a stated rationale for the duplication.	<input checked="" type="checkbox"/>	
3.7	The GS1 Architecture should promote technology independence and a layered approach	The solution does not impose implicit or explicit restrictions of any technology.	<input checked="" type="checkbox"/>	
3.8	The GS1 Architecture should promote global cross-sector definitions and leverage the best of global and the best of local	The solution takes into account a global perspective.	<input checked="" type="checkbox"/>	
3.9	The GS1 Architecture shall leverage a common strategy for extensibility	This solution uses consistent and common, extensibility approaches, methodologies and technology where available and applicable.	<input checked="" type="checkbox"/>	
4.1	In support of a common GS1 Architecture, GS1 shall leverage work of other standards bodies wherever possible.	This solution utilizes works of other standards bodies wherever possible.	<input checked="" type="checkbox"/>	

#	AG Principle	BSD Adherence Statement	Does BSD Adhere?	Comment
4.2	In support of a common GS1 Architecture, GS1 shall strive to eliminate exceptions and variances wherever possible	The solution strives to eliminate exceptions and variances wherever possible and does not create new variances.	<input checked="" type="checkbox"/>	

10. Summary of Changes

Change	BSD Version	Associated CR Number
Initial Version	1.0	N/A