CityGML 1.0

Special Interest Group 3D
(SIG 3D)

Modeling Subgroup

February 22nd, 2006
CityGML: Building Model (1 / 2)
CityGML: Building Model (2 / 2)
CityGML: Water Bodies

Legend

LoDXGeometry, X ∈ [m,..n]

Relation LoDXGeometry exists for each LoD X in the interval [m,..n], i.e. LoD m to LoD n

LoDXCurveGeometry, X in [0,1]

LoDXSolidGeometry, X in [1,..4]

LoDXGeometry, X in [2,..4]

WaterSurface: mandatory in LoD 2 - 4
Land Use

Legend

Relation LoDXGeometry exists for each LoD X in the interval [m..n], i.e., LoD m to LoD n.
CityGML: Digital Terrain Model

Legend

LoDXRelief, X ∈ [m,..n]
Relation LoDXRelief exists for each LoD X in the interval [m,..n] i.e. LoD m to LoD n

LoDXRelief, X ∈ [m,..n]

Last update: 25/08/05
CityGML: Groups

- Feature _CityObject
  - creationDate[0..1] : xs:date
  - terminationDate[0..1] : xs:date

- Role
  - roleName[1] : String

- Geometry
  - gml:Geometry

- Feature CityObjectGroup
  - function[0..*] : GroupFunctionType
  - class[0..*] : GroupClassType

- ExternalCodeList GroupFunctionType
- ExternalCodeList GroupClassType

Last update: 25/08/05
CityGML: Generic Objects and Attributes

Legend

LoDXGeometry, \( X \in \{m,..,n\} \)

Relation LoDXGeometry exists for each LoD \( X \) in the interval \([m,..,n]\), i.e. LoD \( m \) to LoD \( n \)

Last update: 22/02/06
CityGML: CityFurniture

Legend

LoDXGeometry, X ∈ {m...n}
Relation LoDXGeometry exists for each LoD X in the interval [m...n], i.e. LoD m to LoD n

- ImplicitGeometry
  - mimeType[0..1] : MimeType
  - referenceToLibraryObject[0..1] : x: anyURI
  - transformation[0..1] : MatrixType
  - referencePoint[1] : gml:Point

- «Feature»
  - _CityObject
    + creationDate[0..1] : xs:date
    + terminationDate[0..1] : xs:date

- «Feature»
  - CityFurniture
    + function[0..1] : FurnitureFunction
    + type[0..1] : FurnitureType
    + height[0..1] : gml:LengthType
    + diameter[0..1] : gml:LengthType

- LoDXImplicitRepresentation, X in 1..4

- LoDXExplicitGeometry, X in 1..4

- «Geometry»
  - Geometry

- «ExternalCodeList»
  - FurnitureFunction

- «ExternalCodeList»
  - MimeType

- «ExternalCodeList»
  - FurnitureType

Last update: 22/02/06
History:

060216: Diagram TopLevelFeatures: ExternalObjectReference added
060222: Furniture changed to CityFurniture
060222: Multiplicity oc CityModelMember changed
060222: Types changed to more precise gml or xs data types
060222: Stereotype ExternalCodeList introduced, used for Dictionary Attributes
060222: Implicit Geometry added to CityFurnitures and Generic City Objects
060222: Terrain Intersection Curve added to Generic City Objects (for modelling Tunnels, Bridges)
Discussion Issues:
- there are no specific GML3 classes for the representation of linear networks. GML 3 Topology is very complex and is not used by CityGML up to now. Thus the representation by Geometric Complexes is used, which has to be restricted to linear networks by constraints.

- the model does not allow for aggregations between different LoD, for example to aggregate a pedestrian and a bycicle path in LoD3 to a single Traffic Area in LoD2. This kind of modelling requires the definition of relations between objects in different LoD, which have not been considered yet.

In future versions:
Subclasses of WaterBody:
Ocean, StagnantWater, RunningWater

direction of flow, Gewässerstationierungsline (auch bei Straßen)
schiffbarkeit