

# Flow of Events for Use Case – Define Line Of Sight

Change Log	
17/10/2004	Renamed from UC-DefineLineOfSight Changes in flow of events to reflect use of geographic elements and annotated point
01/11/2004	Finalized for pre-integrated model

## Overview

Defines the line of sight from an access road exit onto a public road.

Note that line of sight properties need to take into account any obstructions to visibility (trees, streetlights etc.) that may be present and that might reduce the visibility angle and distance.

*Note also that line of sight information is determined for a particular set of circumstances at a particular date/time. Such information may change and the methods for updating this information to a file where they are not subject to data provision from planning applications is not determined. In such cases, line of sight information might be more appropriately calculated from available data.*

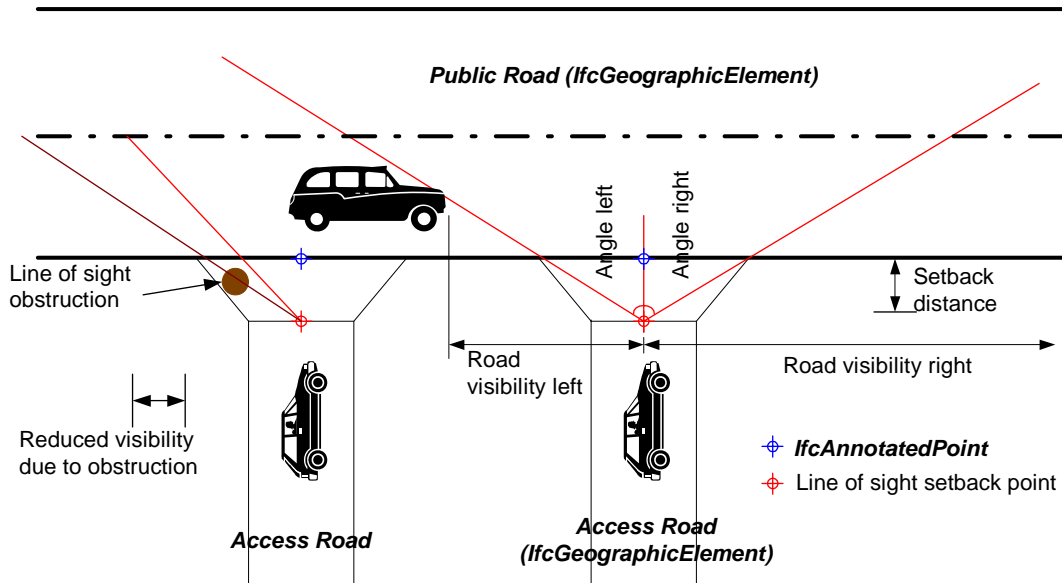


Figure 1: Line of sight from access road considerations

## Process

### Preconditions

- Public road must be defined and located
- Access road must be defined and located
- Transition from access road to public road must be defined and located.

### Actors

Applicant

### Main Flow

Flow	Entity
1. Determine the access road for which the line of	IfcGeographicElementType

sight data is to be determined using IfcGeographicElement and IfcGeographicElementType and Pset_GeographicElementTypeFeatureCatalog	IfcGeographicElement Pset_GeographicElementTypeFeatureCatalog
2. Determine the public road onto which line of sight data is to be determined using IfcGeographicElement and IfcGeographicElementType and Pset_GeographicElementTypeFeatureCatalog	IfcGeographicElementType IfcGeographicElement Pset_GeographicElementTypeFeatureCatalog
3. Determine the geometric extents of any obstructions to the line of sight. It is probable that such obstructions can be determined as IfcGeographicElement and IfcGeographicElementType and Pset_GeographicElementTypeFeatureCatalog	IfcGeographicElementType IfcGeographicElement Pset_GeographicElementTypeFeatureCatalog
4. The point at which line of sight data is determined is found from the IfcRelConnectsElements relation between the access road and the public road. If the connection geometry is through IfcConnectionPointGeometry, then the line of sight point is at the connection point. However, if connection geometry is through IfcConnectionCurveGeometry, then the point needs to be further qualified.	IfcRelConnectsElements IfcConnectionPointGeometry IfcConnectionCurveGeometry
5. Establish the point at which line of sight is determined using IfcAnnotatedPoint	IfcAnnotatedPoint
6. Specify setback distance from the point at which the line of sight is measured from the public road	
7. Measure the angle of visibility from the line of sight point onto the public road to the left and right of the access road (noting that depending on the flow of traffic that the angles to left and right may differ)	
8. Measure or calculate the visibility distance from the line of sight point onto the public road to the left and right of the access road (noting that depending on the flow of traffic that the distances to left and right may differ)	
9. Capture information in the property set Pset_AnnotatedPointLineOfSight	Pset_AnnotatedPointLineOfSight
10. Information captured in the property set may be used for annotation through facilities in the IfcPresentationXXX resources.	

### Post Conditions

Line of sight information is captured and may be used for annotation as appropriate.

## IFC Usage and Extension Requirements

### Existing Entity/Class Usage

<i>Entity Class Name</i>	<i>Usage</i>
IfcConnectionCurveGeometry	Specifies connection geometry as a curve

IfcConnectionPointGeometry	Specifies connection geometry as a point
IfcRelConnectsElements	Connection relationship between elements
IfcRelDefinesByType	Relationship specifying the type applied to an equivalent occurrence entity

### New Entity/Class Requirement

<i>Entity Class Name</i>	<i>Usage</i>
IfcAnnotatedPoint	A qualified point with identity that specifies the point at which line of sight data applies

<i>Attribute</i>	<i>Cardinality</i>	<i>Datatype</i>	<i>Definition</i>

<i>#</i>	<i>Type (DER, U, WHERE)</i>	<i>Proposition</i>

<i>Entity Class Name</i>	<i>Usage</i>
IfcGeographicElement	Occurrences of geographic elements of a particular type.

<i>Attribute</i>	<i>Cardinality</i>	<i>Datatype</i>	<i>Definition</i>

<i>#</i>	<i>Type (DER, U, WHERE)</i>	<i>Proposition</i>

<i>Entity Class Name</i>	<i>Usage</i>
IfcGeographicElementType	Types of geographic elements In this case, geographic elements will be identified by type and through the feature catalog as roads and elements that might obstruct vision at the line of sight point.

<i>Attribute</i>	<i>Cardinality</i>	<i>Datatype</i>	<i>Definition</i>
GeographicElementType	1	IfcLabel	Named type of geographic element. Name should be drawn from a feature catalog or a subset thereof specified as an ontology.

<i>#</i>	<i>Type (DER, U, WHERE)</i>	<i>Proposition</i>

### Existing Property Set Usage

<i>Property Set Name</i>	<i>Usage</i>

### New Property Set Requirement

<i>Name:</i>	Pset_AnnotatedPointLineOfSight
<i>Applicability:</i>	

<b>Applicable Classes:</b>	IfcAnnotatedPoint
<b>Applicable Type Value:</b>	
<b>IFC Version:</b>	2x3
<b>Definition:</b>	Specifies the properties of the line of sight at a transition between an access road and a public road

<b>Property</b>	<b>Type</b>	<b>Datatype</b>	<b>Unit</b>	<b>Definition</b>
SetbackDistance	IfcPropertySingleValue	IfcPositiveLengthMeasure	LENGTHUNIT	Setback distance from the public road at which the line of sight is measured.
VisibleAngleLeft	IfcPropertySingleValue	IfcPositivePlaneAngleMeasure	PLANEANGLEUNIT	Angle of visibility to the left of the access
VisibleAngleRight	IfcPropertySingleValue	IfcPositivePlaneAngleMeasure	PLANEANGLEUNIT	Angle of visibility to the right of the access
RoadVisibleDistanceLeft	IfcPropertySingleValue	IfcPositiveLengthMeasure	LENGTHUNIT	Distance visible to the left of the access
RoadVisibleDistanceRight	IfcPropertySingleValue	IfcPositiveLengthMeasure	LENGTHUNIT	Distance visible to the right of the access

## **Issue List**

<b>Question</b>	<b>Answer</b>
Are any properties required in connection with pedestrians on sidewalks in terms of distance measurements?	[JDW 17.10.2004] None to be specified at this point
[TL 17.08.2004] The light of sight is an information that can be generated from the model (for code checking), however does it need to be stored in IFC? It may represent redundant and potentially inconsistent information.	[JDW 17.10.2004] Agreed and note added to use case to reflect this fact. However, considered that property set is appropriate in conjunction with an annotated point and therefore retained. This does not preclude alternative approaches.