



Traffic Flow Restrictions

AIXM 5 Public Design Review
February 7-8, 2006
Washington DC



What are traffic flow restrictions

- Impose a restrictive measure on a single flight or a traffic flow
 - Only flights arriving at EADD can use Airway A14 from EKO to WICOM
 - Jets departing KIAD on J10 must cross HYPER at FL90
 - EPL UG21 CHALA forbidden if not departing Reims FIR and for destination Bordeaux FIR or LFLL.



Components of a traffic flow restriction

- Restriction
 - Name, operational goal
- Condition
 - Identification of traffic flow affected by the restriction
- Activation Time
 - Time period when the restrictions is in effect
- Usage restriction/requirement (optional)
 - Route instructions that are forbidden or must occur in affected traffic flow
 - When not specified any flow that fulfills the condition is forbidden
 - Example: Route reserved for single traffic flow



eRAD – electronic Route Availability Document

- Information at <http://www.cfm.eucontrol.be/rad/index.htm>
- Future eRAD file to be generated and distributed in AIXM

ROUTE RESTRICTIONS THROUGH THE NETHERLANDS - EH

S/R	AIRWAY	FROM - TO	RESTRICTIONS	ID No.
		WOODY	Not available for traffic Dep./Overfly EHAAFIR Via COA/DENUT	EHEB1001
	UG9	ARNEM - RKN	Not available for traffic 1. Dest. EDLLFIR 2. Dep. EHAAFIR	EH**2001
	G/UG10	ENKOS - SPY	Only available for traffic via 1. L/UL602 2. UL7 3. UY70	EH**2002



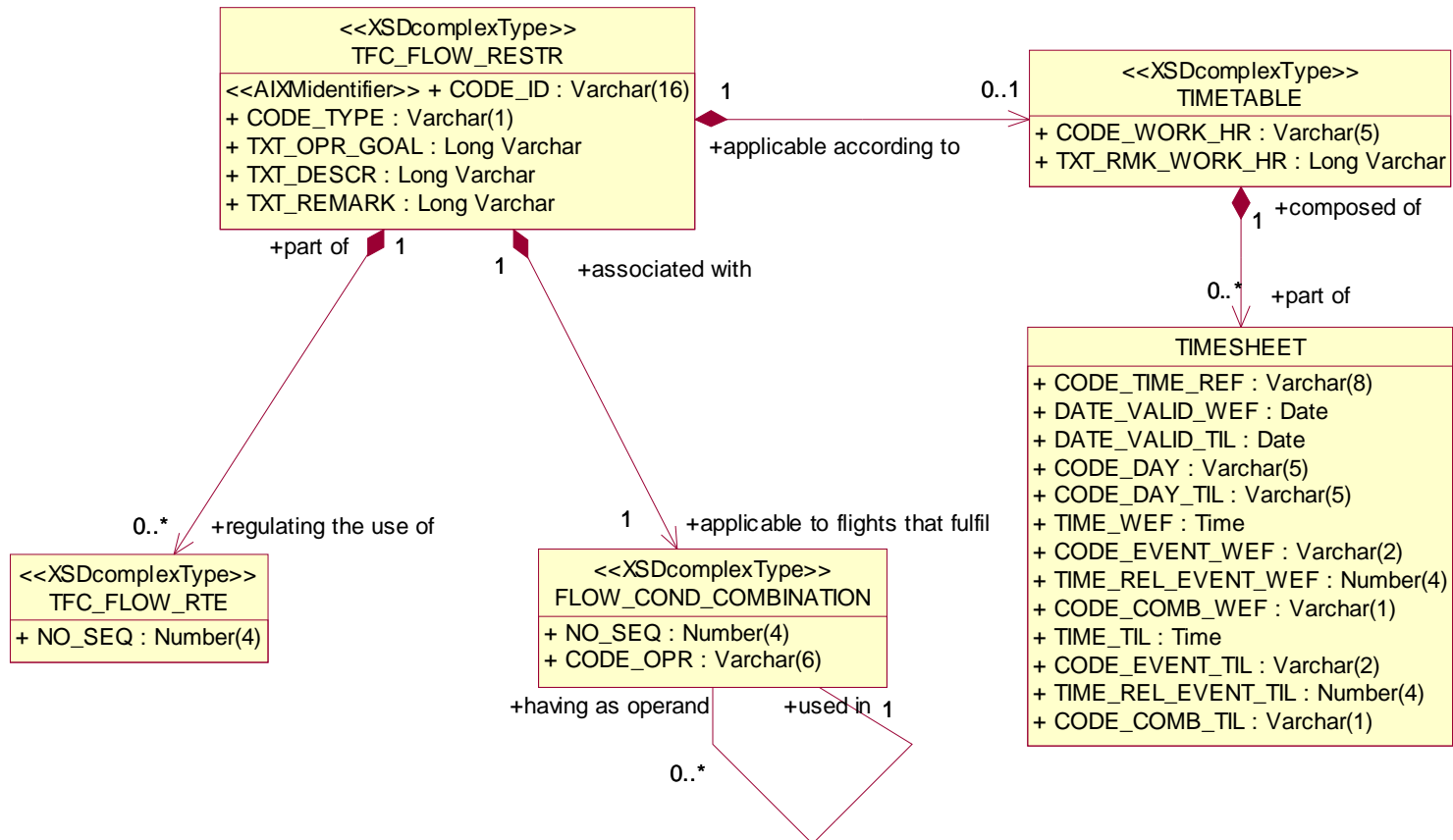
Restrictions in the FAA

- Currently encoded in Letters of Agreement (LOA) and Standard Operating Procedures (SOP)
 - FAA attendees see loa.faa.gov

ATLANTA ARTC CENTER AND ROANOKE ATC TOWER

(3) All aircraft arriving the New River Valley Airport (PSK) shall be cleared direct/vectored to the Pulaski VORTAC (PSK) by ARTCC. At the PSK 10 DME, ARTCC shall terminate radar service and transfer communications. Control for turns is released by ARTCC within 10 DME of the PSK VORTAC.

AICM Restriction Model



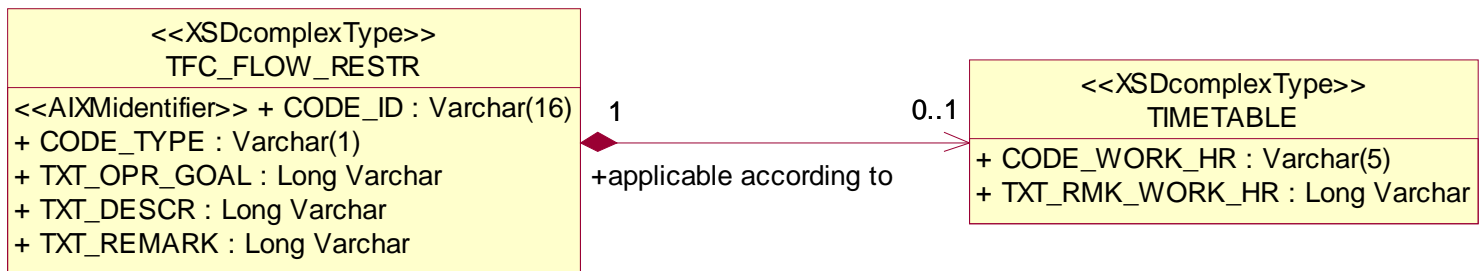


Traffic Flow Restriction feature

```
<<XSDcomplexType>>  
TFC_FLOW_RESTR  
-<<AIXMidentifier>> + CODE_ID : Varchar(16)  
+ CODE_TYPE : Varchar(1)  
+ TXT_OPR_GOAL : Long Varchar  
+ TXT_DESCR : Long Varchar  
+ TXT_REMARK : Long Varchar
```

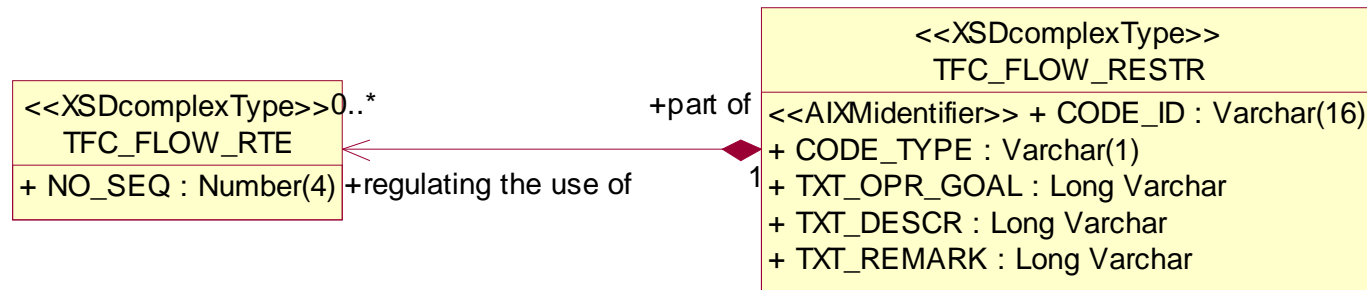
- CODE_ID
 - Unique identifier. Recommended country code and numeric sequence
- CODE_TYPE
 - **Forbidden** – Traffic flows cannot use specified routes
 - **Mandatory** – Traffic flows must use specified routes
 - **Closed for Cruising** – Flights may transition through
- Text fields
 - Operational goal
 - Description
 - General remark

Restriction timetable



- Hours when the restrictions applies
- Complex interpretation in referenced features also have activation hours
 - General rule: Combine using intersection of activation hour

Traffic flow route

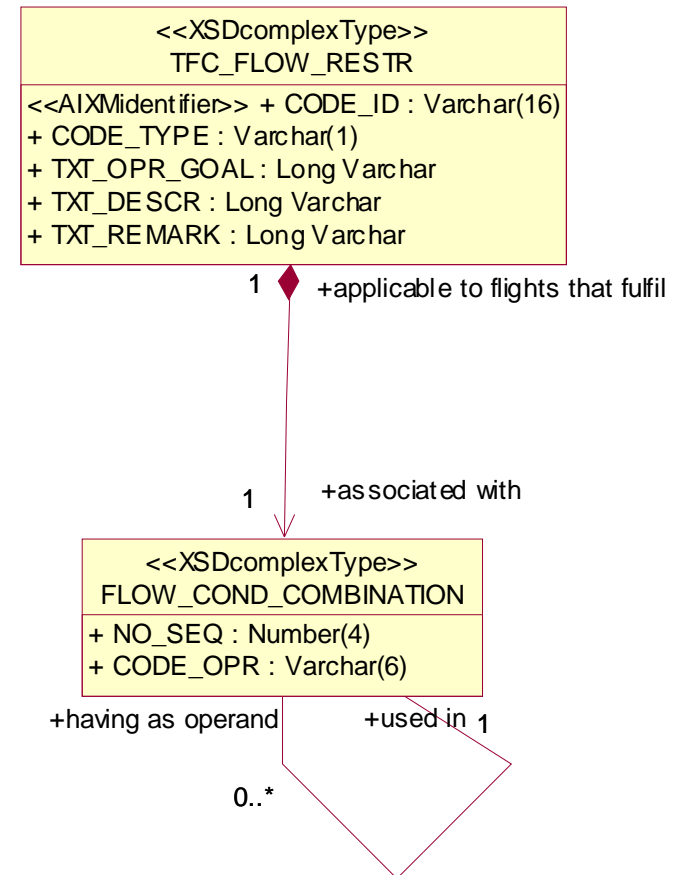


- Routings for the restriction
 - Such as route portion, STAR, SID, airspace, significant point(s)
 - Example, HYPER.J12.EKO is forbidden for KDCA arrivals

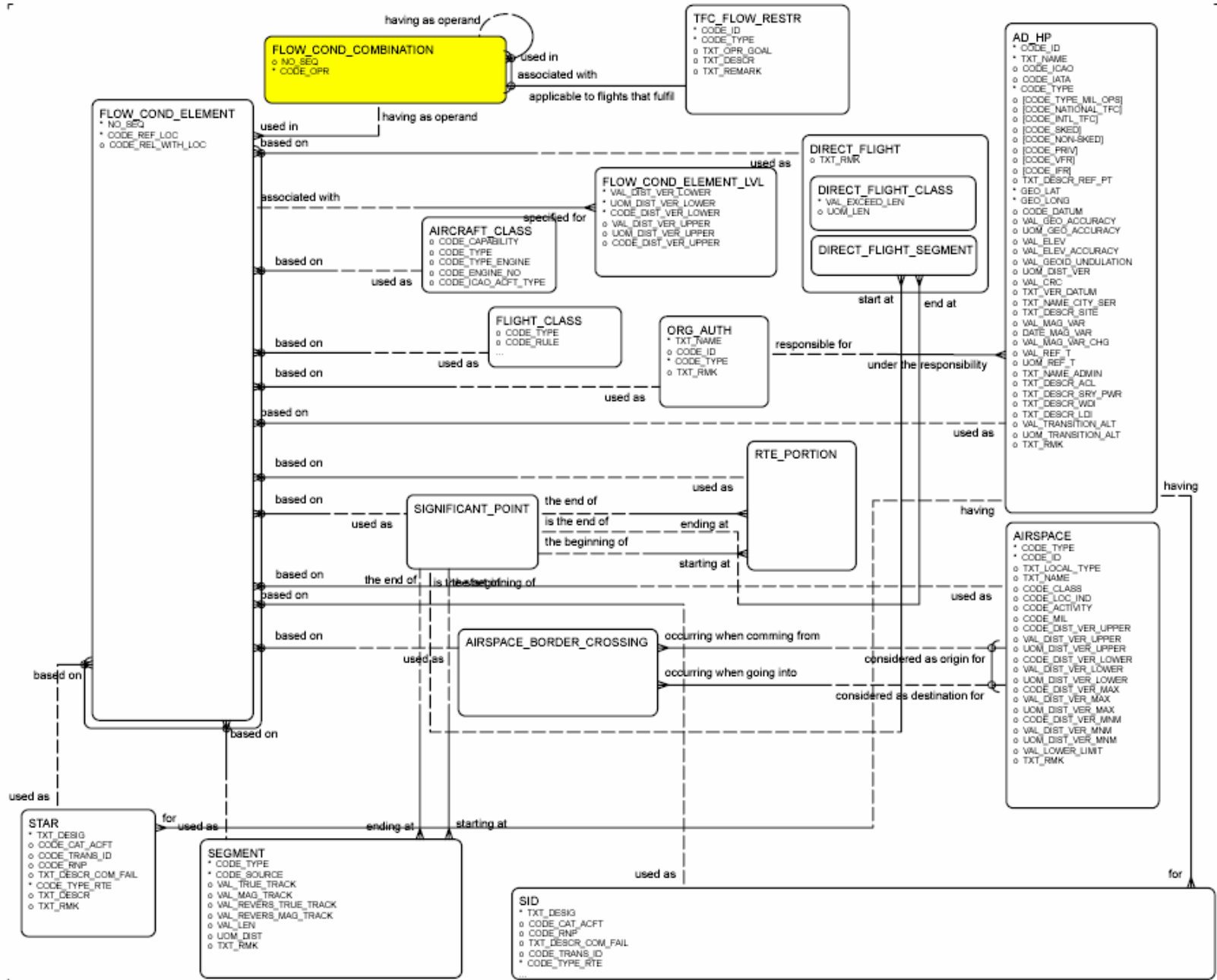
TFC_FLOW_RESTR CODE_TYPE	TFR_FLOW_RTE interpretation
FORBIDDEN	All specified routings are restricted
MANDATORY	Specified routings are alternatives
CLOSED FOR CRUISING	No TFC_FLOW_RTE specified. Crossing allowance specified in flow condition

Traffic flow route

- Conditions for applicability
 - Combination of flight properties and location
- CODE_OPR
 - AND, ANDNOT, OR, SEQ, NONE



Flow condition element





Flow condition element

- Identify affected traffic flow
 - Direct flight
 - Aircraft
 - Flight class
 - Departure/Arrival airport
 - Organization
 - Airspace
 - Significant Point
 - Route Segment
 - SID, STAR
 - Airspace Border Crossing



Example

**UM25 ANNET INGOR only available for traffic destination
LFPB/PC/PG/PT/OB**

- Condition
 - Flights crossing Route Portion *UM25 ANNET to INGOR*
 - *ANDNOT* going to LFPB, LFPC, LFPG, LFPT, LFOB
- Restriction: *FORBIDDEN*