Turn-around process

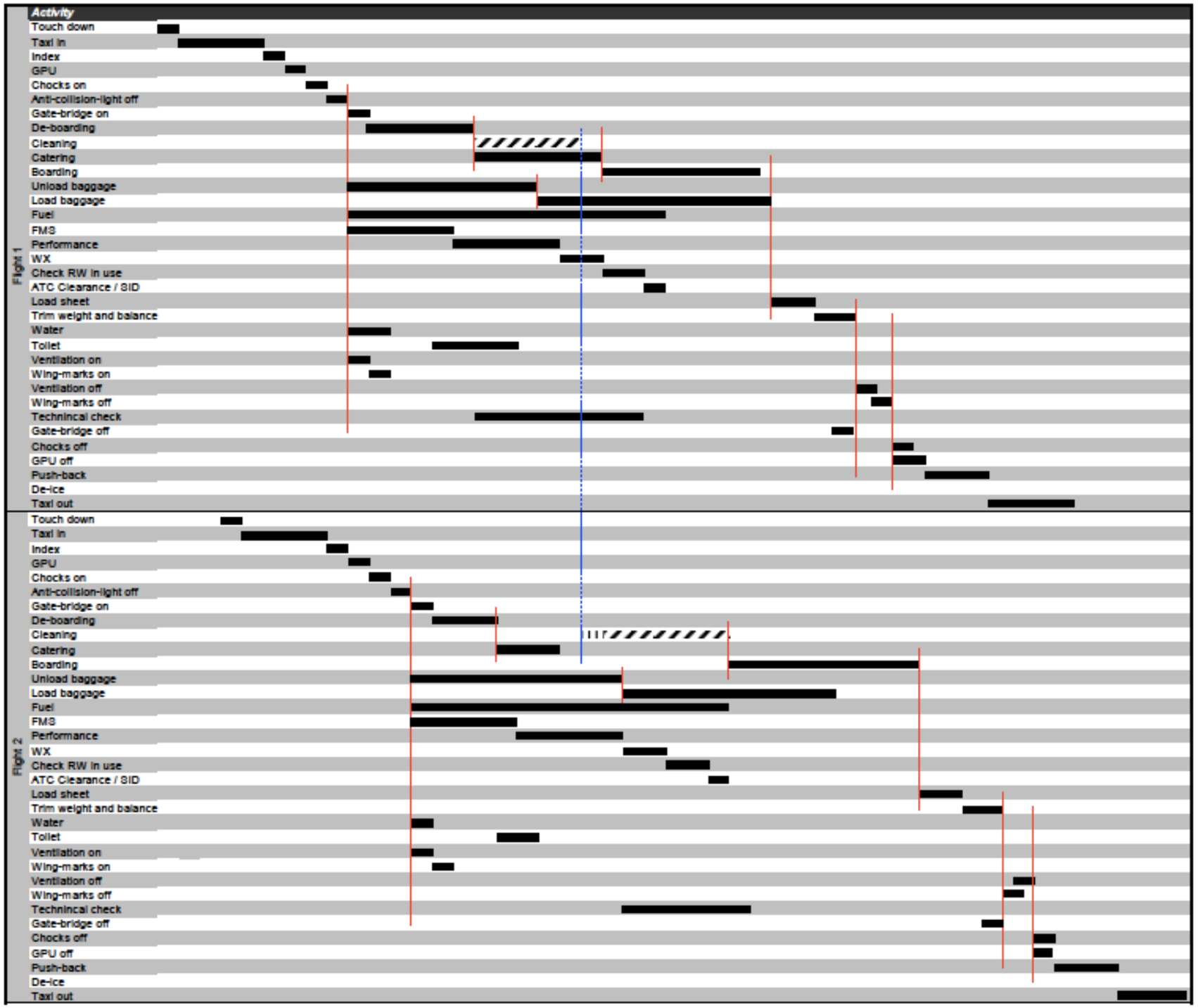


Figure 4: Gantt charts for the turn-around processes for two flights

A Gantt chart, commonly used in project management, is one of the most popular and useful ways of showing activities (tasks or events) displayed against time. On the left of the chart is a list of the activities and along the top is a suitable time scale. Each activity is represented by a bar; the position and length of the bar reflects the start date, duration and end date of the activity. This allows you to see at a glance:

- What the various activities are
- When each activity begins and ends
- How long each activity is scheduled to last
- Where activities overlap with other activities, and by how much
- The start and end date of the whole project

(http://www.gantt.com/)

source: AIRPORT LOGISTICS-INTEGRATION OF ATM AND GROUND PROCESSES Anna Lindh, Tobias Andersson, Peter Värbrand and Di Yuan

Tentafråga

Tankningen på Skolanda sköts av Pumpab som förfogar över två tankbilar.
För en viss period ser deras uppdrag ut enligt nedan:

Flight	Tidigast start	Senast slutfört	Uppskattad tankningsmängd [kg]
2	06.00	06.35	7200
5	06.10	06.30	2400
6	06.15	06.50	12000
8	06.35	07.00	4000
12	06.35	07.05	6400
13	07.00	07.20	4000
16	07.15	07.40	8000
18	07.30	08.05	12000
21	07.55	08.15	5600

Den mindre bilen har en kapacitet på 8 m3 medan den större klarar 12 m3.
Uppskattad tid att förflytta sig mellan två flighter, eller från en flight till depån där bilarna fyller på med bränsle i tankarna, är 5 min.
Båda bilarna kan användas vid en och samma flight, men enbart en bil i taget kan fylla på bränsle.
Tankningshastighet 1 m3 per minut, både för att tanka planen och fylla på bränsle i depån.
Bränsledensiteten är 0,8 kg/liter.
Visualisera uppdragen i ett Gantt-schema. Bestäm hur de två bilarna ska betjäna de aktuella flighterna. Diskutera för och nackdelar med din lösning.

Landside

Landside

includes:

- Bus, train stops
- Parking
- Maintenance buildings

- Maintenance department needs an area to fix lawn mowers, snow blowers, cars, trucks, etc.
- Airlines and handling companies need a space for maintenance and storage of ground equipment, or offices

Landside - planning

- Don’t create obstacles
- Organize storage such that easily reachable
- If there’s no space for parking/storage of ground equipment, it will end up airside
- Maintenance material stored to protect from weather and deterioration
- Cargo terminals planned wrt security requirements
- Rental cars were often located closed to the terminal, are now located further away
    - Trend towards collaboration of several companies sharing a building

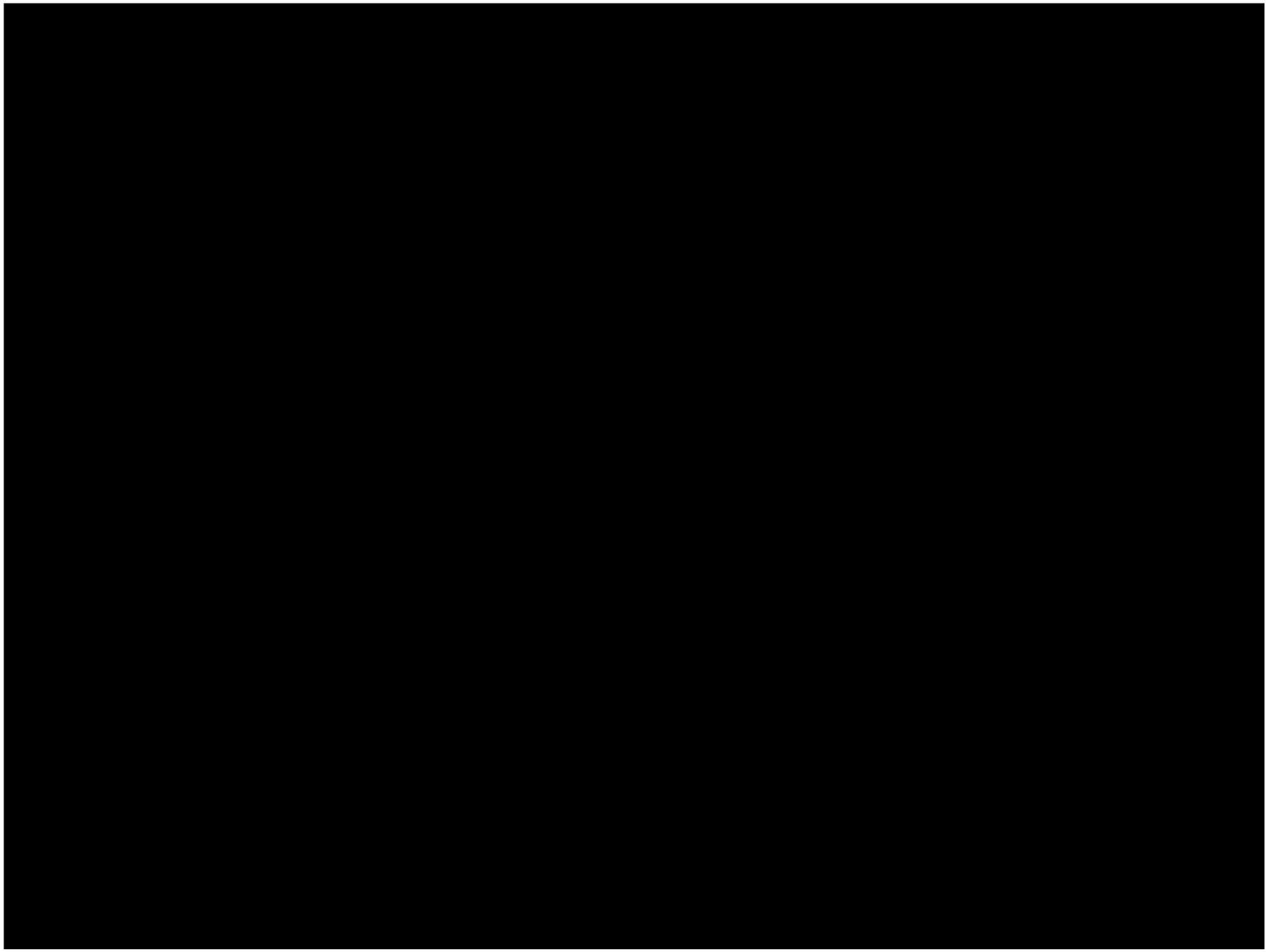
Earnings through parking vs. environmental focus??

topic 6

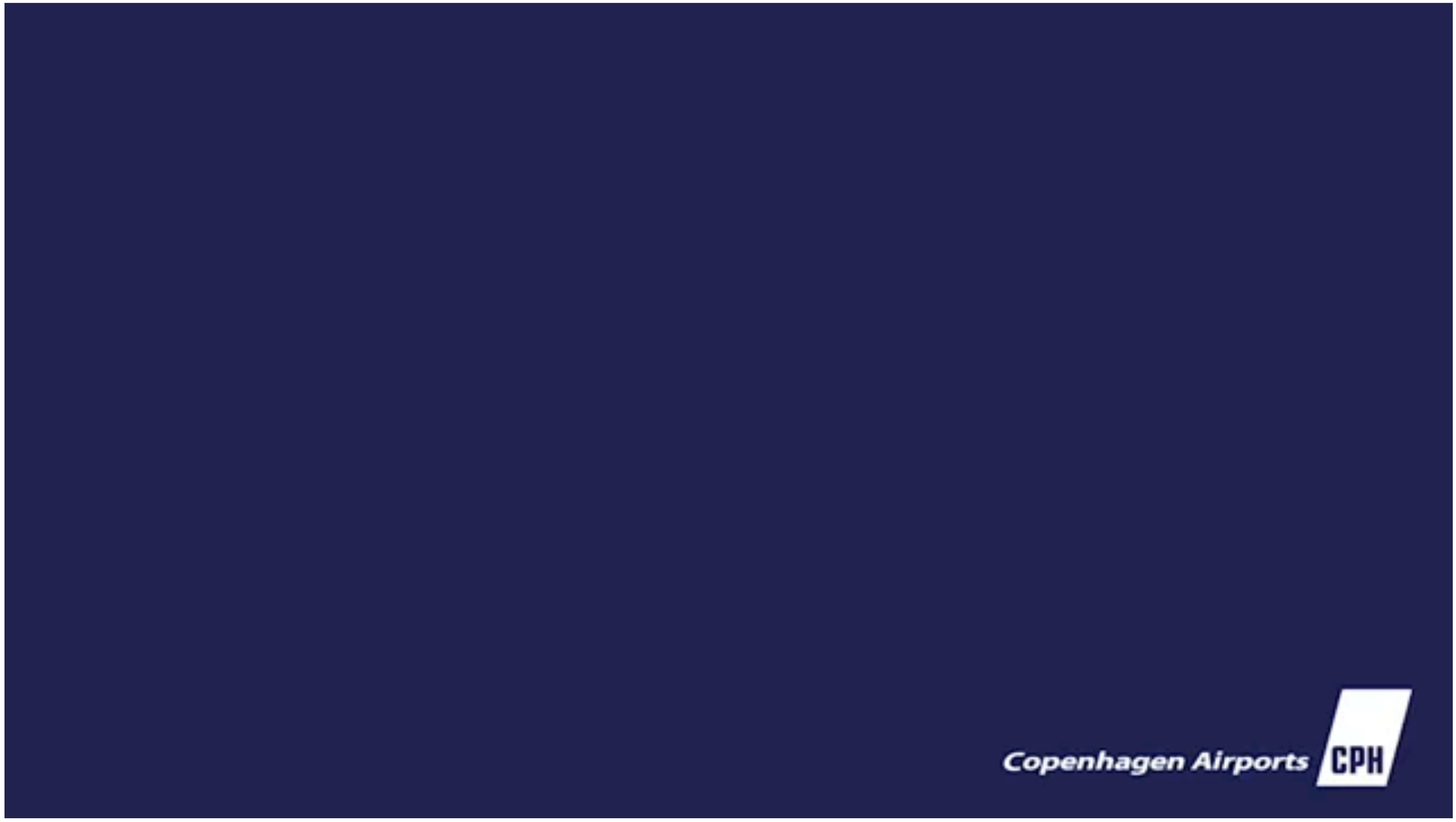
Air Traffic and Air Transportation
Flygtrafik och flygtransporter

Collaborative Decision Making

From Eurocontrol from 2010:



https://www.youtube.com/watch?v=DHsmv6zMuhQ&t=334s



https://www.youtube.com/watch?v=V17NSlABWdY

Collaborative decision making (CDM)

– Joined decision-making
– Stakeholders in the air traffic system should share relevant information with each other
– Stakeholder can influence decision of another stakeholder that influences own activity
– Example: air carrier A has two aircraft waiting to land. Together with ATC they decide to swap the queue places of the two aircraft.

Planning in air traffic

- Passengers/goods
  - travel/itinerary
  - planning of goods

- Airline
  - time schedule, fleet, staff, seeds/tickets, orientation, economies/ finances

- Airport
  - infrastructure, gate allocation, handling (check in, boarding, refueling, cleaning, etc.)

- ATM/ATC
  - fleet planning, arrival manager (AMAN)/departure manager (DMAN), operational control

Collaborative Decision Making

To achieve system goals

Ensuring the safest, most efficient National Aerospace System in the world

- *No single stakeholder has all the information, no two stakeholders have the same values, and all stakeholders interpret information through different experiences*
- *Sharing information, values and preferences, stakeholders learn from each other and build a common pool of knowledge*
- *Resulting in ATFM decisions and actions that are most valuable to the system*

Federal Aviation Administration

source: https://www.eurocontrol.int/sites/default/files/events/presentation/1-Brussels_ACDM_Confernece.pdf

What ARE the inefficiencies today?

No optimal use of Airport infrastructure
Not using all available data
Being reactive rather than pro-active
Keeping our operations to ourselves
We have a blaming culture today

Possible Causes?

- Sitting on Information
- Lack of having the full picture
- Buffering of planning
- Lack of procedures amongst partners

Different Definitions

https://de.slideshare.net/PreziChef/acdm

Press esc to exit full screen

Independent Consulting

The symptoms…

- No single partner has the complete picture
- Information is passed too late for partners to respond – and has not the same meaning

Examples:

- Airport & ATC don't know when the aircraft are ready for departure (Ground handler knows)
- Airlines don't know when the aircraft can start up until getting clearance. (hard for ATC to plan in advance)
- Airport & GHA only know the estimated arrival time when aircraft enter FIR boundary (Airline knows earlier)

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https://de.slideshare.net/PreziChef/acdm

Independent Consulting

The cure…

What if we're able to share and predict the aircraft readiness time?

- departure sequence can be planned earlier.
- runway / taxiway congestion can be managed in a better way.
- aircraft holding at stand instead of taxiway, save fuel.
- pilot will know in advance the engine start-up time.

What if we're able to get a better ETA much earlier than today?

- airport will have more time to resolve gate conflict, better passenger experience
- ground handlers will be able to deploy resources more efficiently

Airport Collaborative Decision Making

(A-CDM)

https://de.slideshare.net/PreziChef/acdm

Different Definitions…

ETA – Estimated Time of Arrival

- ATC ACC: arrival on TMA entry
- ATC TWR: landing time on runway
- GH / Airport / Airline: arrival on stand

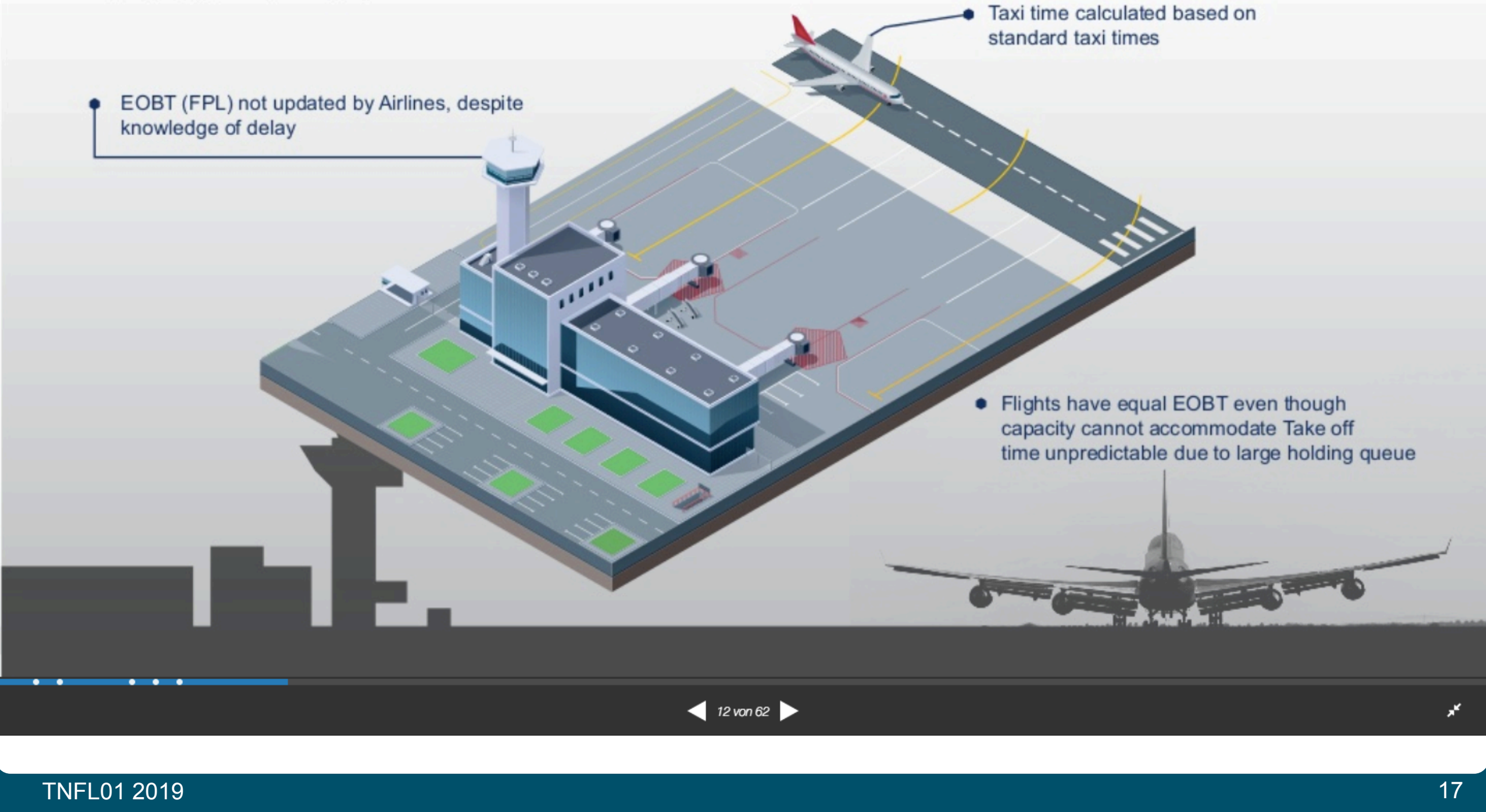
ETD - Estimated Time of Departure

- ATC TWR: take off time
- GH / Airport / Airline: pushback from stand

Folie clippen

Independent Consulting

Inaccurate Information



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Folie clippen

Independent Consulting

A-CDM will improve:

- resources usage
- decision making
- infrastructure usage
- predictability
- situational Awareness

NEED FOR COLLABORATION
Amongst all Airport Parties for A-CDM to WORK

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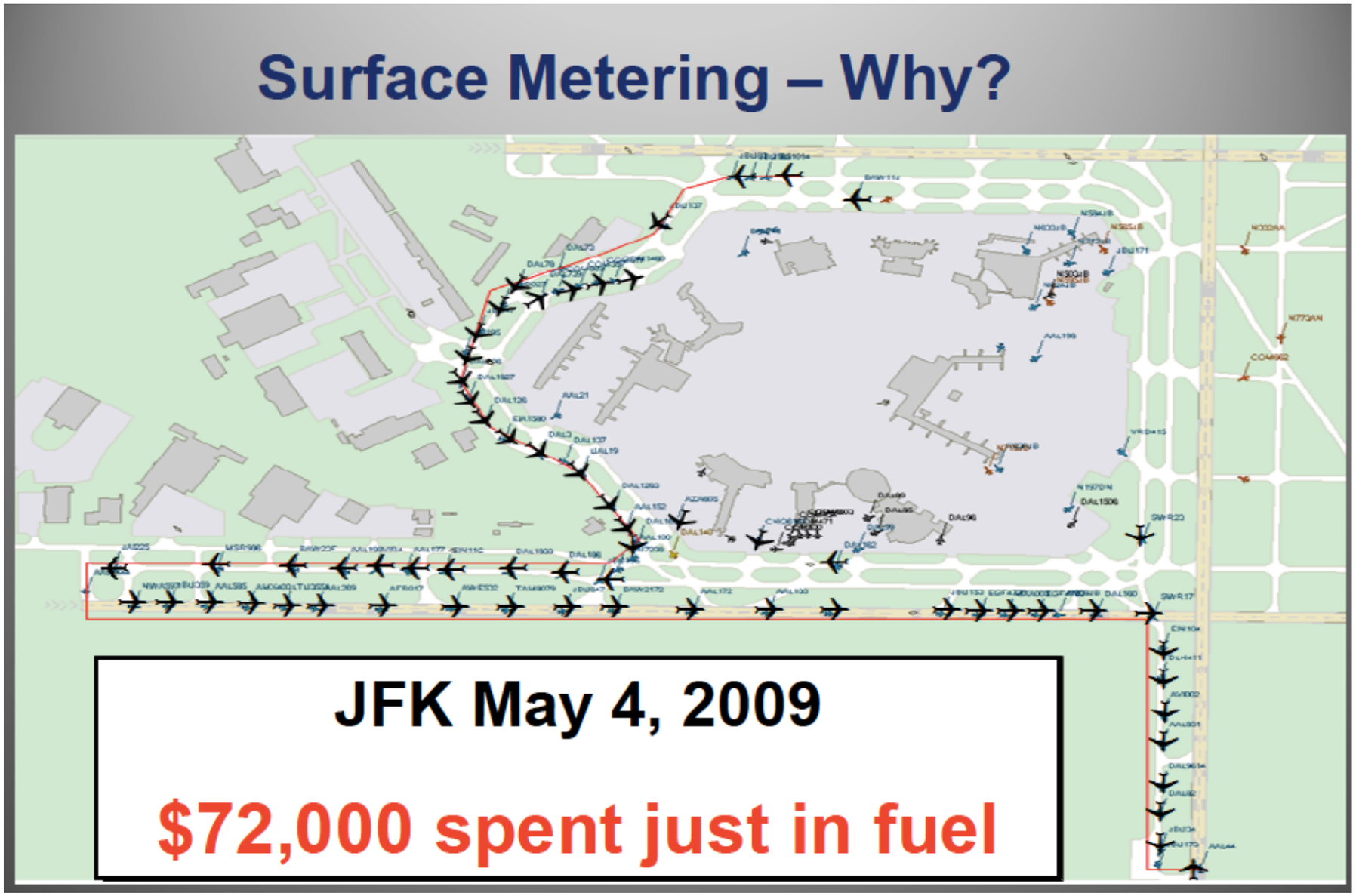
Surface Metering – Why?



source: https://www.eurocontrol.int/sites/default/files/events/presentation/1-Brussels_ACDM_Confernece.pdf