

**European Climate, Infrastructure and Environment Executive Agency**Sustainable Networks and Investments Department  
Unit B2 - CEF Transport**AMENDMENT N° 2****TO AGREEMENT No INEA/CEF/TRAN/M2017/1619346**

The **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ("the Agency"), under the powers delegated by the European Commission ("the Commission"), represented for the purposes of signature of this amendment by the Head of Unit B2 of the Agency, Lucie Žáčková,

on the one part,

**and**

**HungaroControl Zrt. (HungaroControl)**

RESZVENYTARSASAG

Registration No 01-10-045570

Igló utca 33-35

1185 Budapest

Hungary

VAT No HU17783051,

represented for the purposes of signature of this amendment by Chief Technology Officer, Barnabás Kis and Director of ATM, Gábor Menráth

hereinafter referred to collectively as "the beneficiaries", and individually as "beneficiary" for the purposes of this amendment

on the other part,

Having regard to the above-mentioned grant agreement concluded between the Agency and the beneficiary on 19/12/2018 as amended on 29/09/2023,

Whereas:

- (1) The beneficiary has requested the Agency on 21/12/2023 to amend the above-mentioned grant agreement for the following reason(s): extend the duration of the Action by 9 months until 31 December 2024 due to technical delays, and update the contact person for the Grant Agreement.
- (2) The measures provided for in this amendment do not affect the award of the Union financial aid.

HAVE AGREED AS FOLLOWS:

## **Article 1**

(1) Article 2.2 is replaced by the following article:

"2.2 The action shall run from 16/04/2018 ("the starting date") until 31/12/2024 ("the completion date")."

(2) Article 4.1.1 "Reporting periods" is replaced by the following article:

### **"4.1.1 Reporting periods"**

The action is divided into the following reporting periods:

- Reporting period 1 from the starting date of the action to 31 December 2018;
- Reporting period 2 from 1 January 2019 to 31 December 2019;
- Reporting period 3 from 1 January 2020 to 31 December 2020;
- Reporting period 4 from 1 January 2021 to 31 December 2021;
- Reporting period 5 from 1 January 2022 to 31 December 2022;
- Reporting period 6 from 1 January 2023 to 31 December 2023;
- Last reporting period from 1 January 2024 to the completion date of the action."

(3) Article 6.3 is replaced by the following article:

### **"6.3 Communication details of the beneficiaries"**

Any communication from the Agency to the beneficiaries shall be sent to the following addresses:

For HungaroControl Zrt.:

Melinda LENGYEL-TÖSÉR

EU Project Controller

Igló utca 33-35, 1185 Budapest, Hungary

E-mail address: melinda.toser@hungarocontrol.hu"

(4) Annex I shall read as follows:

## "ANNEX I

### DESCRIPTION OF THE ACTION

#### ARTICLE I.1 – IMPLEMENTATION OF THE TEN-T NETWORK

The action contributes to the implementation of the:

- the core network
- Horizontal priority: Single European Sky – SESAR system.

#### ARTICLE I.2 – LOCATION OF THE ACTION

I.2.1 Member State(s): Hungary.

I.2.2 Region(s) (using the NUTS2 nomenclature): Közép-Magyarország (HU10).

I.2.3 Third country(ies): not applicable.

#### ARTICLE I.3 – SCOPE AND OBJECTIVES OF THE ACTION

The main objective of the Action is to implement and synchronize necessary infrastructure – via software upgrades and/or installations of the latest Air Traffic Management (ATM) system - that will result in an operational and state-of-the-art integrated tower ATM system. In addition to the software upgrades and installations, a contingency and simulation site will also be established in order to provide the same level and quality of ATM services provided today by HungaroControl. It will ensure a robust platform for testing and validating future system upgrades as well as for conducting system development activities. In the long run, the integrated data set of the system will enhance Air Traffic Control Officers' decision-making.

In line with current trends in tower service provision, the integrated system is designed to be modular and easily scalable to accommodate multiple airports upon demand. The capabilities will be tested and validated at Budapest Airport, but with its modular architecture and customisable Human Machine Interface, the system will be an easily deployable solution to provide ATC services for additional airports with different equipment configurations. In the future, further airports could be involved in the single-platform service provision quickly and cost-efficiently, saving time and investment compared to stand-alone ATM systems.

The Action consists of the following 5 activities: 1. Project management and dissemination; 2. Advanced Surface Movement Guidance and Control System (A-SMGCS) upgrade (Interfaces); 3. Video system upgrade; 4. A-SMGCS upgrade to mirTWR (System integration) and 5. Multilateration (MLAT) migration and upgrade.

#### ARTICLE I.4 – ACTIVITIES

I.4.1 Activities timetable

Activity number	Activity title	Indicative start date	Indicative end date	Milestone number
1	Project management and dissemination	16/04/2018	31/12/2024	1, 2
2	Advanced Surface Movement Guidance and Control System (A-SMGCS) upgrade	29/05/2018	11/02/2020	3, 4, 5
3	Video system upgrade	16/04/2018	31/12/2024	6, 7, 8
4	A-SMGCS upgrade to mirTWR (system integration)	08/04/2020	31/12/2024	9, 10, 11, 12
5	MLAT migration and upgrade	30/10/2019	31/12/2022	13, 14, 15, 16

#### I.4.2 Activities description

##### **Activity 1: Project management and dissemination**

The objective of the Activity is to ensure the technical, administrative and financial implementation of the Action in accordance with the related regulations and programme requirements through the timely coordination and monitoring of the activities, the preparation and submission of interim and final reports as well as consultation and close cooperation with national authorities and INEA.

Communication and dissemination initiatives will ensure the visibility of EU funding in line with the requirements. Communication and dissemination will be carried out through different media channels and appropriate means (e. g. press releases, articles, organisation and/or participation in professional events, videos).

Project management will be handled internally, in close cooperation with the technical and financial coordinators to ensure the successful implementation of the Action. A project management team composed of HungaroControl staff with the appropriate technical and administrative skills will be established. The project team will regularly report to the Project Manager. Project management will have no direct control over the implementation of the technical activities which are under the responsibility of the relevant technical departments, but will closely monitor its development.

The following results of Activity 1 are expected:

- A Project Management Plan is drafted (milestone 1).
- A Press release at the end of the Action is published (milestone 2).

##### **Activity 2: Advanced Surface Movement Guidance and Control System (A-SMGCS) upgrade**

The objective of the Activity is to integrate the Automated Weather Observing System (AWOS), the AGL (Airfield Ground Lighting) system and the long range Automatic Dependent Surveillance – Broadcast (ADS-B) receiver into the A-SMGCS and to carry out a hardware upgrade for the AGL system.

The following results of Activity 2 are expected:

- The technical specifications for A-SMGCS upgrade are drafted (milestone 3).
- The contract for A-SMGCS upgrade is signed (milestone 4).

- The SAT for A-SMGCS upgrade is completed (milestone 5).

### **Activity 3: Video system upgrade**

HungaroControl's present video system is used for training and contingency purposes. The use of existing infrastructure was restricted to limited locations and network bandwidth. The objective of this Activity is to install cameras in several locations around Budapest Airport to provide a better line of sight and redundant coverage. Additionally, the aim is to replace the video processing and display hardware and to upgrade the video software focusing on the ATM related functionalities and the user friendly Human Machine Interface. Lastly, the objective of this Activity is also to provide an independent contingency/test system.

The following results of Activity 3 are expected:

- The user requirements for video upgrade are drafted (milestone 6).
- The contract for the video system upgrade is signed (milestone 7).
- The authorisation for video system upgrade is obtained (milestone 8).

### **Activity 4: A-SMGCS upgrade to mirTWR (system integration)**

The objective of the Activity is to move from the existing A-SMGCS system to the Modular Integrated Remote Tower (mirTWR) system and substitute several ATM related supporting systems, or when this is not feasible, assimilate the Human Machine Interface part to an integrated ATM system. Following the completion of the Automatic Dependent Surveillance-Broadcast (ADS-B), Automated Weather Observing System (AWOS) and Airfield Ground Lighting (AGL) integration (covered within the framework of Activity 2), the integration of the Tower system can be implemented under Activity 4. It is necessary to eliminate parallel development and upgrades of the currently segregated systems and integrate all tower related ATM functions in one ATM system. To perform a fully integrated tower system, the Runway Status Panel functionality, the Video System's Controller Working Position (CWP) functions, the Air Ground Surveillance (AGS) interface and the Aeronautical Message Handling System (AMHS) interface and the former Aeronautical Fixed Telecommunication Network (AFTN) terminal functions will be implemented.

The following results of Activity 4 are expected:

- The tender for Modular Integrated Remote Tower is launched (milestone 9).
- The contract for Modular Integrated Remote Tower is signed (milestone 10).
- The FAT for Modular Integrated Remote Tower is completed (milestone 11).
- The installation complete protocol for A-SMGCS upgrade is signed (milestone 12).

### **Activity 5: MLAT migration and upgrade**

HungaroControl's current Multilateration (MLAT) system uses 22 receiver and 6 transmitter stations attached to a central processing station via a dedicated fibre optic ring to specify the positions of the aircrafts and vehicles at Budapest Airport. The optic ring terminates at the current tower building. All of the receivers need dedicated optical links to connect to the central processing station. Within this Activity, HungaroControl will introduce a new optical ring and will have more redundancy so that it will become possible to move the central

processing part of the system from the current tower to HungaroControl HQ technical rooms. The migration of the servers and system elements, together with the procurement of three new receiver stations, will be managed in Phase 1 of the Activity.

In Phase 2 the system will be further extended and updated. Budapest Airport has several developments underway in the time frame of the Action and beyond. A terminal building extension (called PierB) is under construction, thereafter an apron extension is planned for a new cargo terminal. A railway development is also provisioned for Budapest Airport in the next 5 years. All of these implementation projects cause changes in the area and obstacles that affect the surveillance system.

As a result, the performance of the MLAT system may degrade due to the effect of the new structures on the propagation of the electromagnetic waves used by the system. To mitigate this effect, the system shall be upgraded with new receiving stations to cover the problematic areas.

The following results of Activity 5 are expected:

- The contract for MLAT migration is signed (milestone 12).
- The authorisation for MLAT migration is obtained (milestone 13).
- The contract for MLAT upgrade is signed (milestone 14).
- The authorisation for MLAT upgrade is obtained (milestone 15).

#### ARTICLE I.5 – MILESTONES AND MEANS OF VERIFICATION

Milestone number	Milestone description	Indicative completion date	Means of verification
1	Project Management Plan Drafted	31/12/2018	Project Management Plan approved by HungaroControl
2	Press release published	31/12/2024	Press release published
3	Technical specifications for A-SMGCS upgrade drafted	30/11/2018	Technical specification document for A-SMGCS upgrade approved by HungaroControl
4	Contract for A-SMGCS upgrade signed	11/04/2019	Copy of the signed contract for A-SMGCS upgrade
5	SAT for A-SMGCS upgrade completed	11/02/2020	Copy of the signed SAT complete protocol by HungaroControl
6	User requirements for video system upgrade drafted	30/11/2018	List of functional requirements and simulated images of required views approved by HungaroControl
7	Contract for video system upgrade signed	02/09/2019	Copy of the signed contract for video system upgrade
8	Authorisation for video system upgrade obtained	31/12/2024	Copy of video system upgrade authority approval
9	Tender for Modular Integrated Remote Tower	28/08/2020	Copy of notice of

10	Contract for Modular Integrated Remote Tower signed	17/02/2021	publication of tender Copy of signed contract for Modular Integrated Remote Tower
11	FAT for Modular Integrated Remote Tower completed	30/06/2023	Copy of the FAT for Modular Integrated Remote Tower protocol signed by HungaroControl
12	Installation complete protocol for A-SMGCS upgrade signed	31/10/2024	Copy of the installation complete protocol for A-SMGCS upgrade signed
13	Contract for MLAT migration signed	20/05/2020	Copy of the signed contract for MLAT migration
14	Authorisation for MLAT migration obtained	14/05/2021	Copy of MLAT migration authority approval
15	Contract for MLAT upgrade signed	28/12/2021	Copy of the signed contract for MLAT upgrade
16	Authorisation for MLAT upgrade obtained	31/12/2022	Copy of MLAT upgrade authority approval

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(5) Table 2 of Annex III "Estimated budget of the Action" is replaced by the following table:

**Table 2: Indicative breakdown per activity of estimated eligible costs of the action (EUR)**

Activities	2018	2019	2020	2021	2022	2023	2024	Total
<b>ELIGIBLE DIRECT COSTS</b>								
Activity 1	2,456	6,840	21,293	11,354	37,326	33,427	17,727	<b>130,423</b>
Activity 2	2,898	770,639	0	0	0	0	0	<b>773,537</b>
Activity 3	10,270	51,554	56,709	1,016,998	4,046,613	2,397,596	295,899	<b>7,875,639</b>
Activity 4	0	0	64,995	1,190,092	3,635,852	3,839,231	383,812	<b>9,113,982</b>
Activity 5	0	6,289	6,177	500,064	1,855,889	0	0	<b>2,368,419</b>
<b>TOTAL ELIGIBLE DIRECT COSTS</b>	<b>15,624</b>	<b>835,322</b>	<b>149,174</b>	<b>2,718,508</b>	<b>9,575,680</b>	<b>6,270,254</b>	<b>697,438</b>	<b>20,262,000</b>
<b>Annual instalments of maximum CEF contribution</b>	<b>425,473</b>	<b>0</b>	<b>74,587</b>	<b>1,359,254</b>	<b>4,787,840</b>	<b>3,135,127</b>	<b>348,719</b>	<b>10,131,000</b>

## Article 2

All the other provisions of the grant agreement shall remain unchanged.

**Article 3**

The present amendment shall form an integral part of the grant agreement and it shall enter into force on the date on which it is signed by the last party. It shall take effect on 31/03/2024.

**SIGNATURES**

For the beneficiary HungaroControl Zrt.  
Barnabás Kis

For the Agency  
Lucie Žáčková

Done at Budapest, on

Done at Brussels, on

Gábor Menráth

Done at Budapest, on

In duplicate in English.