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RDGE-SCM/2024 Middle Asia Proposals for coordination with APAC Region

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Overview of Proposals for coordination with APAC Region

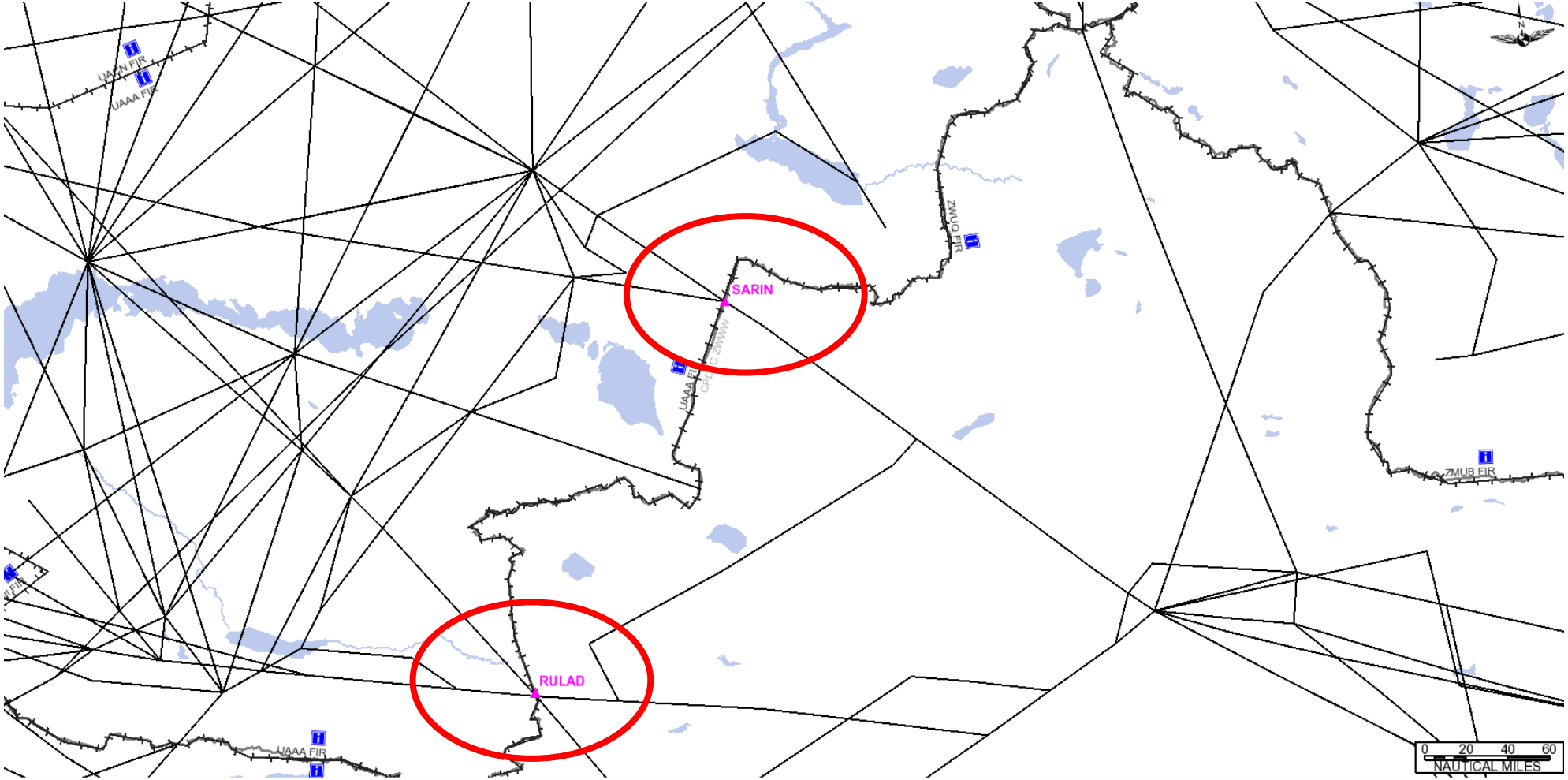
Total of 10 Proposals for coordination with APAC Region

- 7 Proposals from Kazakhstan
- 1 Proposal from Kyrgyzstan
- 2 Proposals from Uzbekistan

7 Proposals from Kazakhstan

Growing air traffic between Kazakhstan and P.R. China

- Congestion at current border waypoints, SARIN and RULAD
- Causing significant operational challenges for Kazakhstan



Traffic Growth in Kazakhstan on SARIN and RULAD

2023

866 weekly flights:
351 flights through SARIN
515 flights through RULAD
averaging **124** flights per day through both waypoints.

2024 (first 8 months)

1105 weekly flights:
492 flights through SARIN
613 flights through RULAD
representing **27.6% increase** compared to 2023.

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7 Proposals from Kazakhstan

Safety concerns

During peak traffic periods, controllers often resort to using offset maneuvers to separate aircraft, creating lateral intervals for altitude changes.

- ➢ This adds complexity to Air Traffic Services and increases flight times.

With the increase in traffic and higher sector loads concrete actions to implement optimization options for ATS route and border waypoints are urgently required

- ➢ This is not about reduced flight times and less fuel burn anymore (flight efficiency), it is ATCO workload and traffic flow complexity (**Safety**)

7 proposed ATS routes, with 5 proposed waypoints

- aimed at optimizing air traffic between Europe and East Asia

Implementation of even **One** new ATS route and/or new waypoint will:

- contribute greatly to improving safety, efficiency and overall capacity of air navigation
- ease the burden on existing waypoints
- create new opportunities for enhanced air traffic management and cooperation between Kazakhstan and P.R. China.

Prioritization of Kazakhstan Proposals

The implementation of *any* of the proposed options meets our requirements and goals, as each ATS route provides its own benefits in terms of reducing distance, relieving FIR sectors, and decreasing the load on existing ATS routes.

However, based on various factors such as the load on current ATS routes and economic feasibility, the following prioritization of the proposals is recommended:

- Proposal 1, 2 have the **highest priority**:
  - offers a significant reduction in the total distance compared to existing ATS routes such as N161, BORIS – RULAD, BORIS – SARIN, and BALUN – SARIN.
  - will not only improve air traffic distribution but also significantly reduce the load on key border crossing points.
- Proposals 3, and 4 are ranked at **medium level of priority**:
  - offer substantial improvements in air traffic management through traffic redistribution
  - however, are less effective in terms of distance reduction compared to Proposal 1.
- Proposals 5, 6 and 7: represent a compromise between distance reduction and economic benefits.

Assumptions used to develop Kazakhstan Proposals

- Proposals are based on in-depth analysis of the current airspace and traffic flows, focusing on enhancing operational efficiency, reducing fuel consumption, and lowering CO2 emissions.
- It is assumed that a portion of the traffic from SARIN and RULAD will be diverted to the proposed projects, thereby creating opportunities for improvements of the more efficient utilization of the airspace.
- The analysis was conducted with a focus on two waypoints that frequently appear in many flight plans passing through the airspace of the Republic of Kazakhstan, connecting Europe and East Asia: SUBUT in Azerbaijan and GOVSA in China.
- These waypoints were chosen as reference points for calculating the total flight distance and to assess the efficiency of potential new ATS routes.

KAZ / CHN interface

Proposal 1 (KAZ)

Unidirectional Eastbound

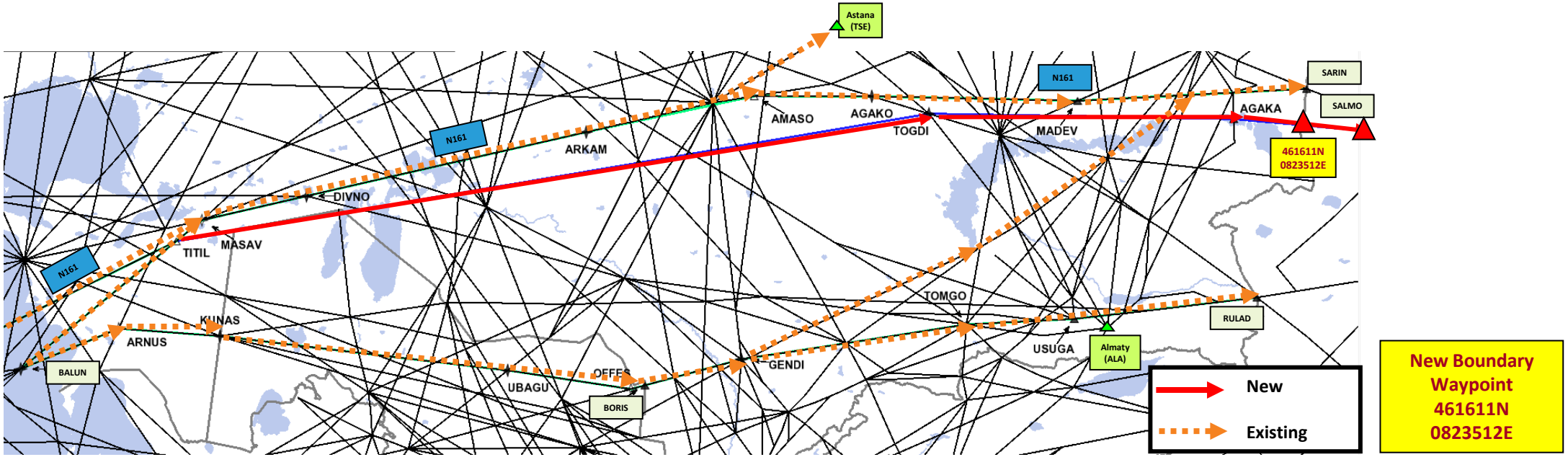
TITIL - XXXXX – TOGDI - 470156N 0771253E – AGAKA - 461611N 0823512E - SALMO

PROPOSAL 1: Unidirectional Eastbound

TITIL-XXXXX-TOGDI-470156N 0771253E-AGAKA-461611N 0823512E–SALMO

Distance: 2267.2 NM (4199 km), reduction of fuel: -25 194 l, CO2: -63 993 kg

Kazakhstan Priority: A - should be implemented within 12 months.



Objectives:

1. Ease congestion in Astana FIR Sector A1C, Shymkent FIR Sector A1I (heavily loaded) & Almaty FIR Sector A3A.
2. Provide an alternative route utilizing different FIR boundary crossing points and sector intersections.
3. Significantly distance transit flow from busy airports such as Almaty and Astana, which, in turn, will reduce controller workload, enhance flight safety, and improve overall air traffic management efficiency.
4. Allow air traffic controllers to use altitude change procedures more flexibly, simplifying management across different ATS route segments.

Benefits:

Attractive option compared to the existing ATS routes, i.e. N161, BORIS – RULAD, BORIS – SARIN, and BALUN – SARIN.

Anticipated traffic shifts:

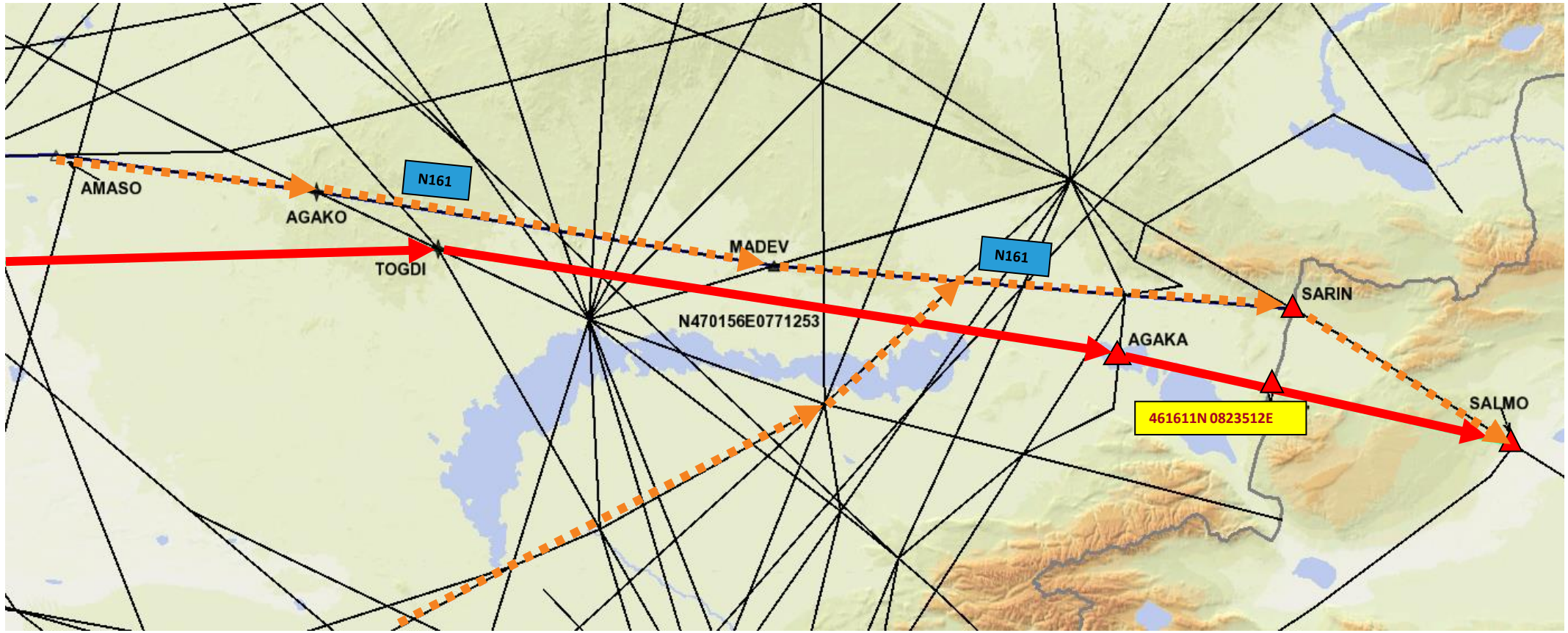
1. 40% from N161 and BORIS – RULAD, and
2. 80% from BORIS – SARIN and BALUN – SARIN

- approximately **1307** flights per month.

PROPOSAL 1: Unidirectional Eastbound

TITIL-XXXXX-TOGDI-470156N 0771253E-AGAKA-461611N 0823512E–SALMO

Distance: 2267.2 NM (4199 km), reduction of fuel: -25 194 l, CO2: -63 993 kg



Remarks:

- Minimum Obstacle Clearance of 2000 ft, segment from AGAKA at coordinates 461611N 0823512E is set at 8800 ft.
- supported by major airlines such as All Nippon Airways (ANA), KLM, EgyptAir, and Finnair.

New option

Existing option

New Boundary Waypoint 461611N 0823512E

KAZ / CHN interface

Proposal 2 (KAZ)

Unidirectional Eastbound

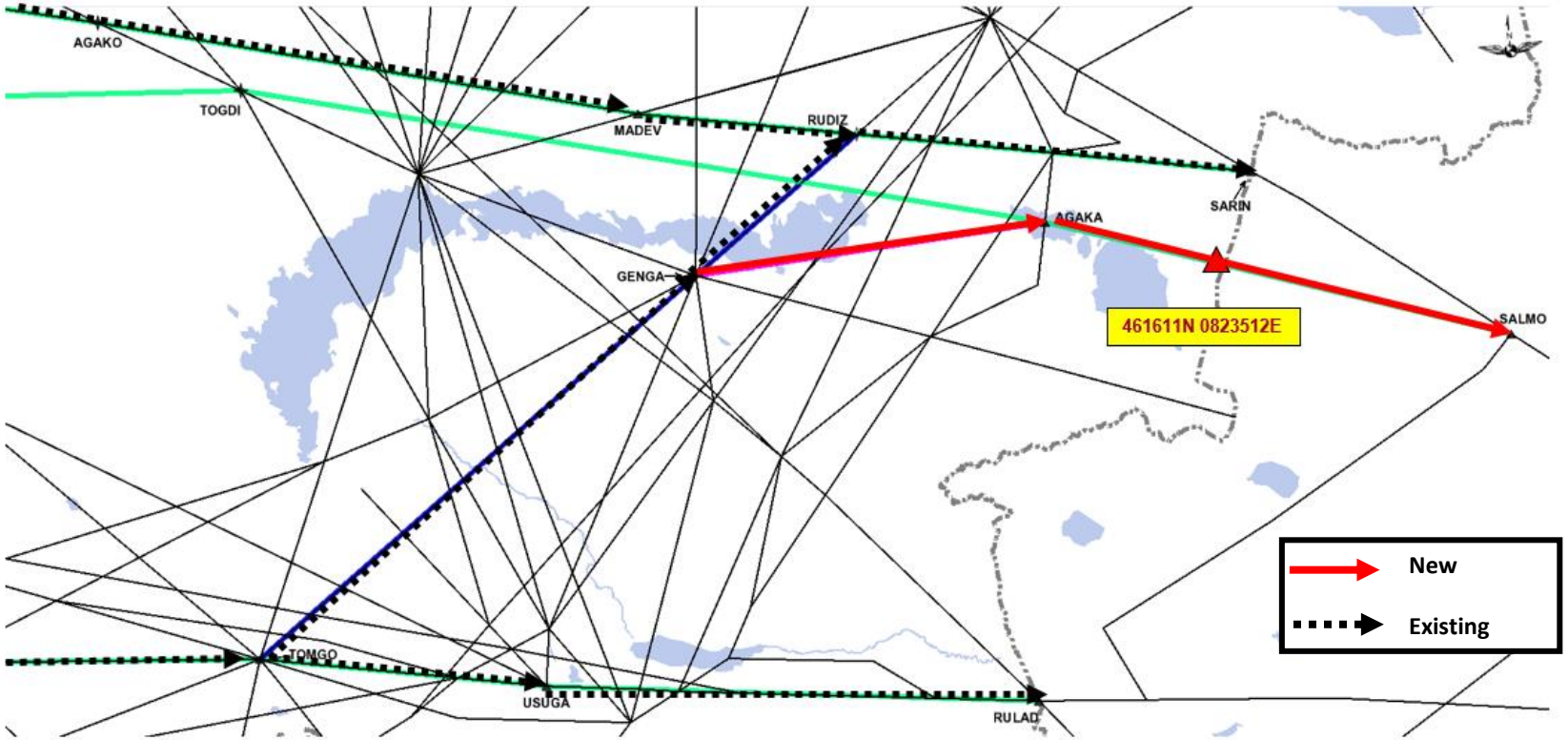
GENGA - 462546N 0782244E – AGAKA - 461611N 0823512E - SALMO

PROPOSAL 2: Unidirectional Eastbound

GENGA-462546N 0782244E-AGAKA-461611N 0823512E–SALMO

Distance: 325.7 NM, -14.7 NM, reduction of fuel: -187 l, CO2: -474 kg

Kazakhstan Priority: A should be implemented within 12 months.



Remarks: Minimum Obstacle Clearance of 2000 ft, segment from AGAKA at coordinates 461611N 0823512E is set at 8800 ft.

Objectives:

1. Ease controller workload in Almaty FIR Sector A4A.
2. Creates options for two corridors, BALUN and BORIS.
3. Reduces load on the TOMGO waypoint, Shymkent FIR, Sector A1I, and Almaty FIR Sector A3A.

Benefits:

Creates options compared to the existing ATS routes, i.e. BORIS – SARIN and BALUN – SARIN.

Anticipated traffic shifts:

1. 80% from BORIS-SARIN – approx. 417 flts/mth;
2. 40% from BALUN-SARIN – approx. 230 flts/mth.

New Boundary Waypoint 461611N 0823512E

KAZ / CHN interface

Proposal 3 (KAZ)

Unidirectional Eastbound

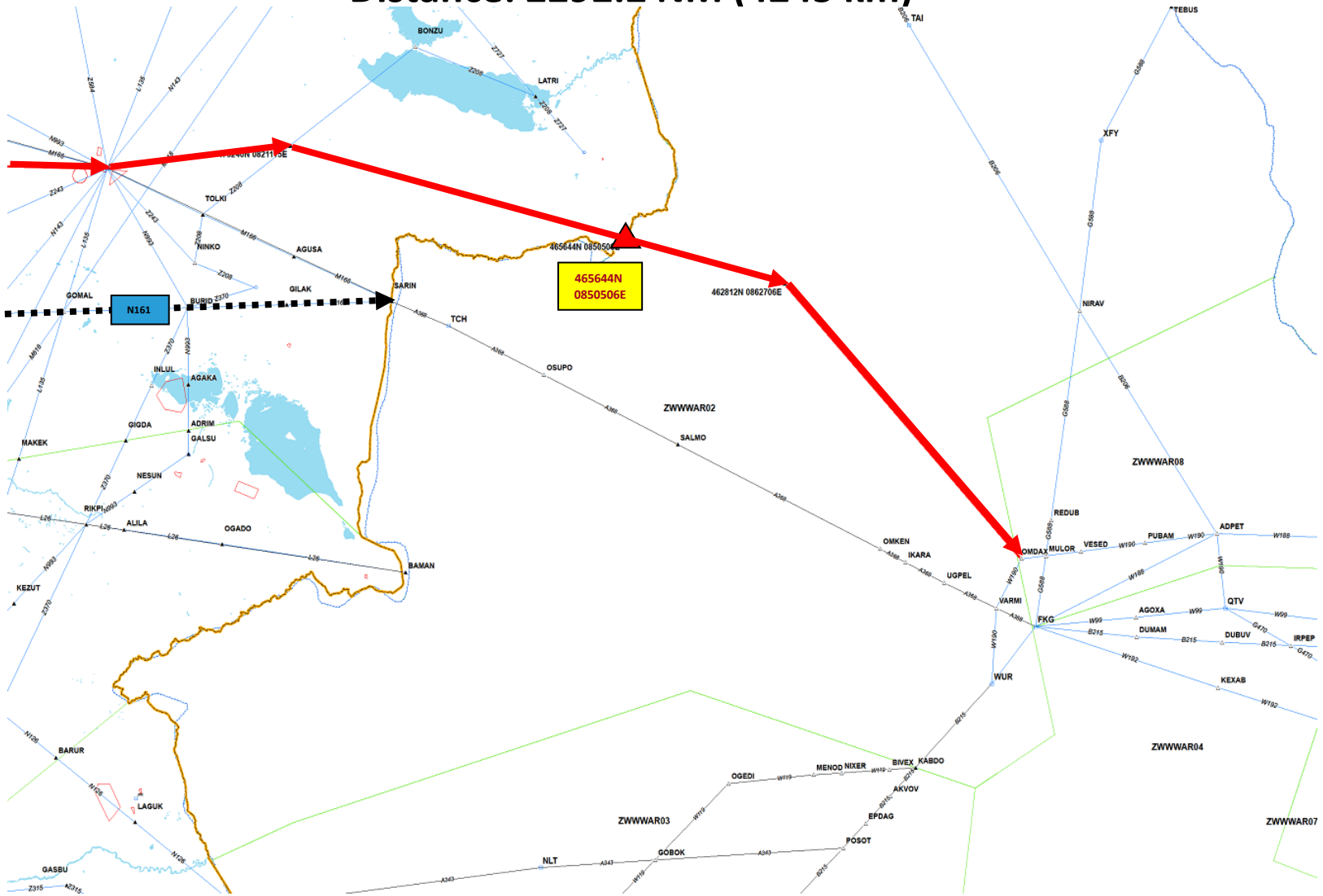
LEYLA - RUTIL - XXXXX – 475240N 0821115E – 465644N 0850506E – 462812N 0862706E - OMDAX

PROPOSAL 3: Unidirectional Eastbound

LEYLA-RUTIL-XXXXX-475240N 0821115E-465644N 0850506E-462812N 0862706E-OMDAX

Distance: 2292.2 NM (4245 km)

Kazakhstan Priority: A-B could be implemented within 12-36 months.



New

Existing

New Boundary Waypoint
465644N 0850506E

PROPOSAL 3: Unidirectional Eastbound

LEYLA-RUTIL-XXXXX-475240N 0821115E-465644N 0850506E-462812N 0862706E-OMDAX

Distance: 2292.2 NM (4245 km)

Rmks: Minimum Obstacle Clearance of 2000 ft, segment from 475240N 0821115E to 465644N 0850506E is defined at 10500ft.

Objectives:

1. Separate westbound and eastbound traffic in Aktobe, Astana, and Almaty FIRs by utilizing different flight levels for one-way ATS routes,
2. Reduces likelihood of conflicts between aircraft during altitude changes, eases controller workload and increase safety.
3. Connection with W190 can help relieve congestion in Urumqi FIR, specifically Sector ZWWWAR02.

Benefits:

1. Advantages of using tailwinds along this ATS route. Improved air traffic management on routes in direction of China.
2. Shorter than BORIS–SARIN by 43.2 NM (80 km).
3. Shorter than BALUN–SARIN by 15.2 NM (28 km).

Anticipated traffic shifts:

1. 80% from BORIS-SARIN and
2. 40% from BALUN-SARIN

- approximately **417** flights per month.

KAZ / CHN interface

Proposal 4 (KAZ)

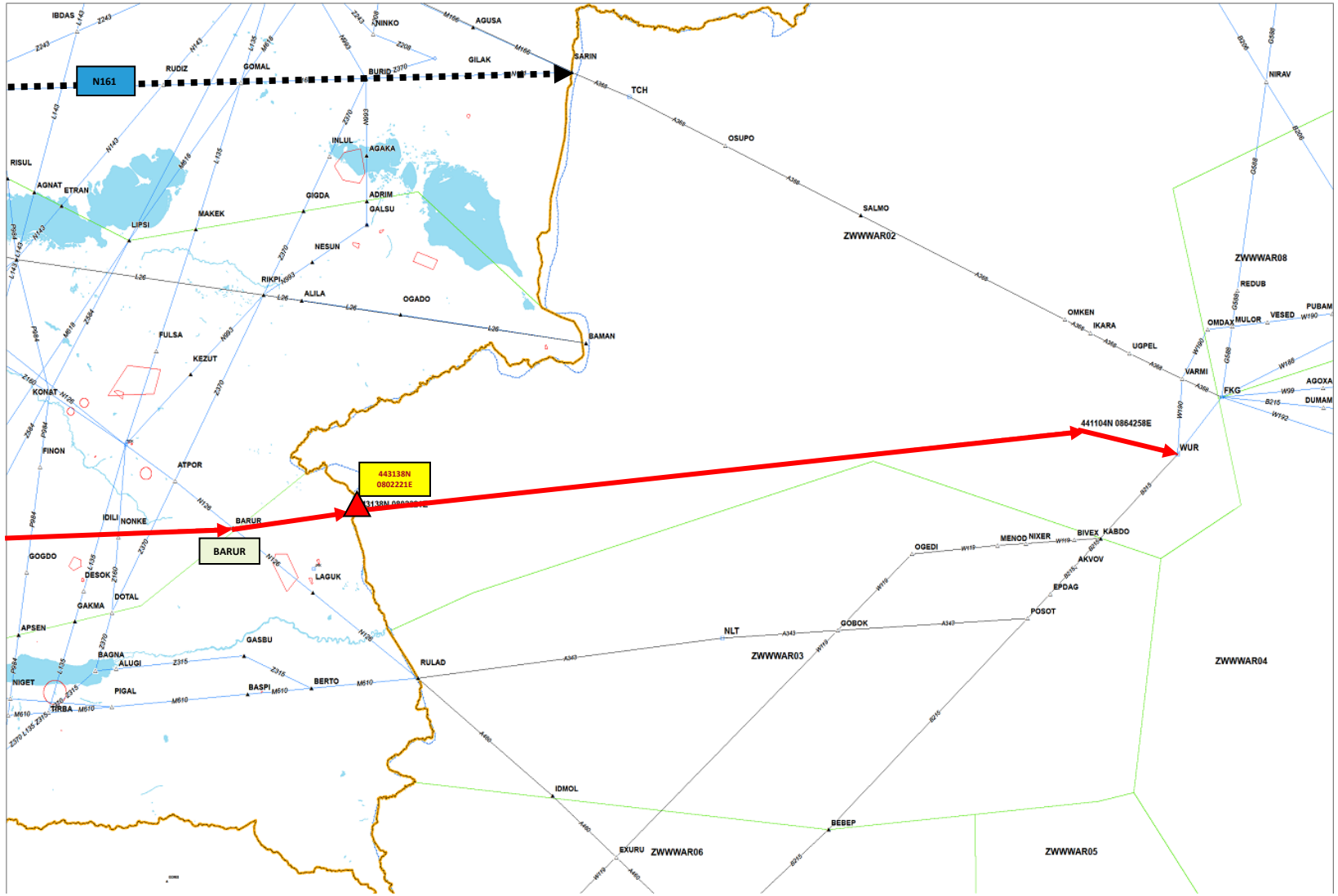
Unidirectional Eastbound

KZO - 444633N 0690608E – AKIMU – IDILI – BARUR - 443138N 0802221E - 441104N 0864258E - WUR

PROPOSAL 4: Unidirectional Eastbound

KZO-444633N 0690608E-AKIMU-IDILI-BARUR-443138N 0802221E-441104N 0864258E-WUR

Kazakhstan Priority: A-B could be implemented within 12-36 months.



New

Existing

New Boundary Waypoint 443138N 0802221E

PROPOSAL 4: Unidirectional Eastbound

KZO-444633N 0690608E-AKIMU-IDILI-BARUR-443138N 0802221E-441104N 0864258E-WUR

Remarks:
1. Minimum Obstacle Clearance of 2000 ft, segment from BARUR to 443138N0802221E is defined at 16300 feet.
2. Supported by major airlines such as All Nippon Airways (ANA), KLM, EgyptAir, and Finnair.

Objectives:

1. Ease workload on busy waypoints BERVI, BOGDI, ELENU, SUBER, Almaty FIR Sector A3A, and Shymkent FIR Sector A1A
2. Utilizing different flight levels for one-way ATS routes reduces likelihood of conflicts between aircraft during altitude changes, eases controller workload and increase safety.
3. At tactical level, crews often request DCT TUROK-RULAD or MILSO-RULAD.

Benefits:

Through AKIMU, **three new flight options** through Kazakhstan's airspace via: GASBI/BALUN/BORIS to 443138N 0802221E.

1. via GASBI total distance of 2273 NM (4210 km),
1. shorter than N161 [2282.4 NM (4227 km)] by 9.4 NM (17 km),
2. shorter than BORIS – SARIN [2335.4 NM (4325 km)] by 62.4 NM (116 km), and
3. shorter than BALUN-SARIN [2307.4 NM (4273 km)] by 34.4 NM (64 km).

Anticipated traffic shifts: 40% from N161 and 80% from BALUN-SARIN and BORIS-SARIN: approx. **875** flts/mth.

2. via BALUN total distance of 2238 NM (4145 km),
1. 44.4 NM (82 km) shorter than N161
2. 16.5 NM (31 km) shorter than T916 BALUN – SARIN, and
3. 69.4 NM (129 km) shorter than BALUN – SARIN.

Anticipated traffic shifts: 80% from N161 and BALUN-SARIN, 40% from T916: approx. **1113** flts/mth.

3. via BORIS total distance of 2264 NM (4193 km)
1. 18.4 NM (34 km) shorter than N161
2. 5.8 NM (11 km) shorter than BORIS-RULAD
3. 71.4 NM (132 km) shorter than BORIS-SARIN, and
4. 43.4 NM (80 km) shorter than BALUN-SARIN.

Anticipated traffic shifts:
20% from BORIS-RULAD, 40% from GASBI-SARIN, and 80% from BORIS-SARIN and BALUN-SARIN: approx. **1091** flts/mth.

KAZ / CHN interface

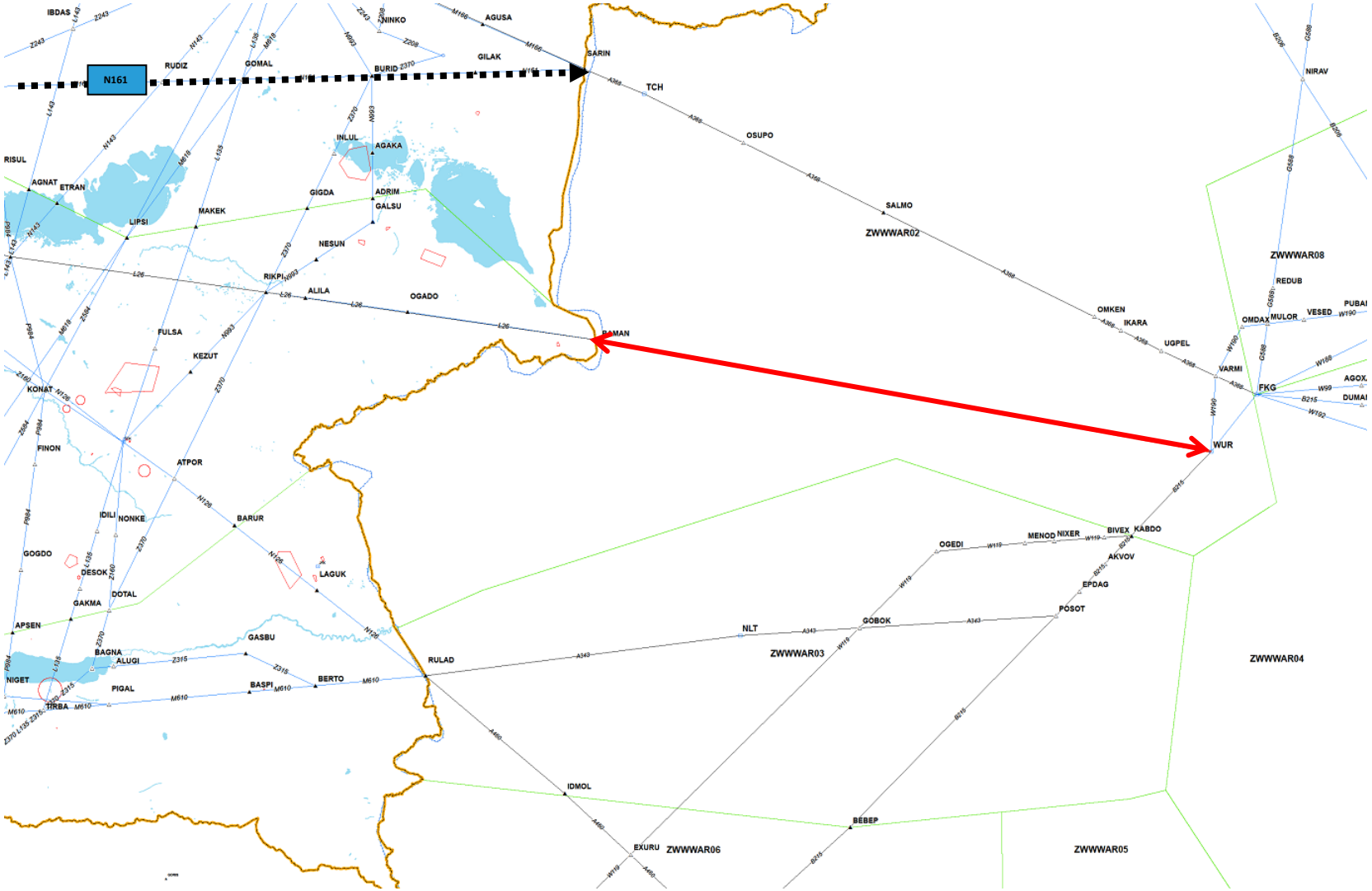
Proposal 5 (KAZ)

Bidirectional

BAMAN - WUR

PROPOSAL 5: Bidirectional
BAMAN-WUR

Kazakhstan Priority:
C - could be implemented within 36 months.



New
Existing

New Boundary Waypoint
443138N 0802221E

PROPOSAL 5: Bidirectional
BAMAN-WUR

Objectives:

1. total flight distance from SUBUT to GOVSA is reduced by 1 NM.
2. reduce the load on the SARIN waypoint, Almaty FIR Sector A4A, and the RULAD waypoint in Sector A3A.
3. will attract air traffic from the BORIS – SARIN corridor, which in turn will ease the workload in the Shymkent FIR, Sector A1I.

Benefits:

1. total length of 2281.5 NM (4225 km), serves as an alternative to several existing routes, such as N161 with a distance of 2282.4 NM (4227 km), BORIS – SARIN with a distance of 2335.4 NM (4325 km), and BALUN – SARIN with a distance of 2307.4 NM (4273 km).
2. The new ATS route is 0.9 NM (2 km) shorter than N161, 53.9 NM (100 km) shorter than BORIS – SARIN, and 25.9 NM (48 km) shorter than BALUN – SARIN.

Anticipated traffic shifts:

1. 10% from N161,
2. 60% from BALUN-SARIN, and
3. 80% from BORIS-SARIN

- approximately **542** flights per month.

KAZ / CHN interface

Proposal 6 (KAZ)

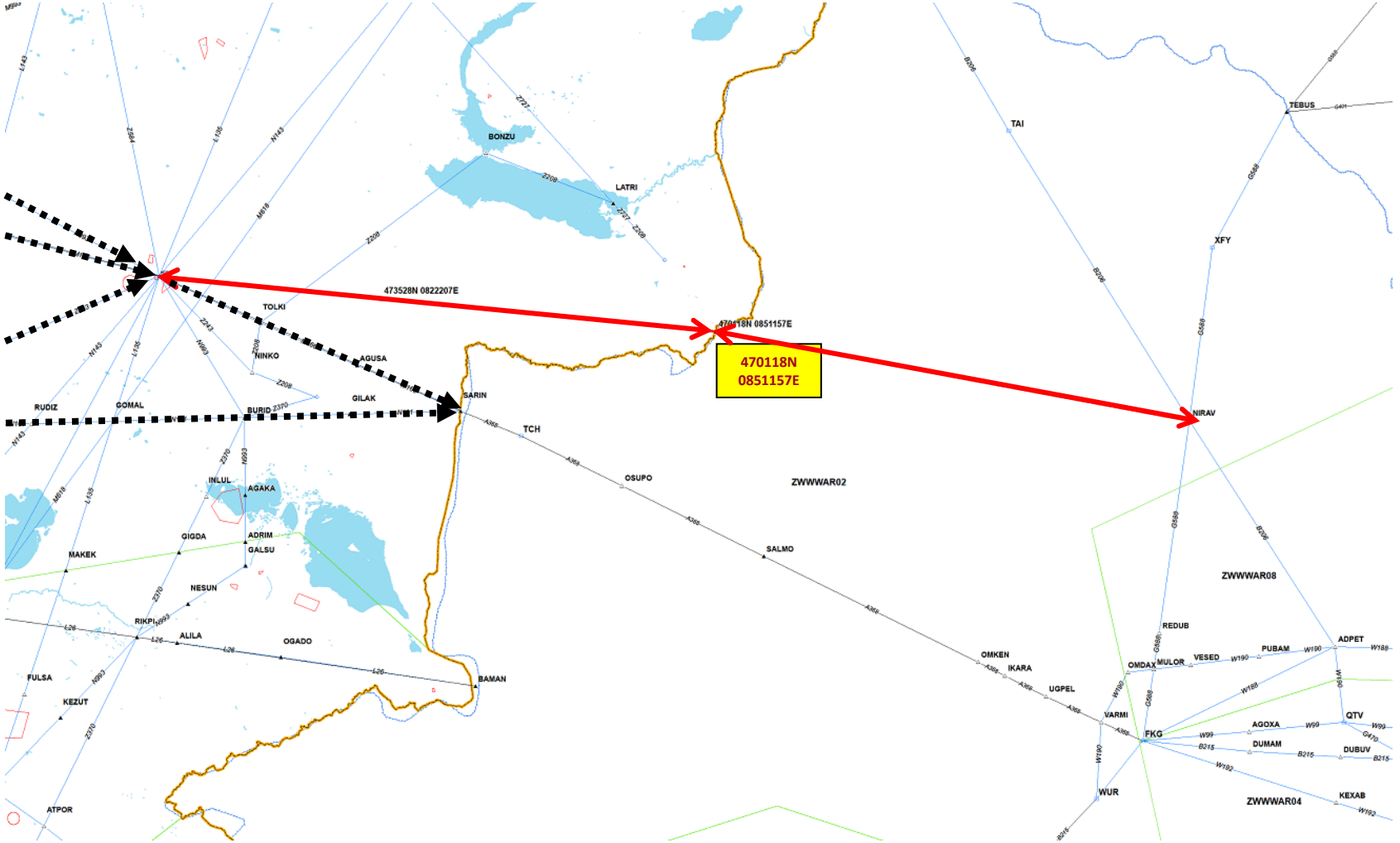
Bidirectional

AGZ – 473528N 0822207E – 470118N 0851157E - NIRAV

PROPOSAL 6: Bidirectional

AGZ – 473528N 0822207E – 470118N 0851157E – NIRAV

Kazakhstan Priority:
C - could be implemented within 36 months.



PROPOSAL 6: Bidirectional

AGZ – 473528N 0822207E – 470118N 0851157E – NIRAV

Distance: 372.2 NM (689 km) -14.5 NM (27 km), reduction of fuel: -184 l, CO2: -467 kg.

Rmks: Minimum Obstacle Clearance of 2000ft the segment from 473528N 0822207E to 470118 N0851157E is designated at 12400ft.

Objectives:

1. To reduce the load on the SARIN waypoint, Almaty FIR Sector A4A, and the RULAD waypoint in Sector A3A.
2. To attract air traffic from the BORIS – SARIN corridor in order to ease workload in the Shymkent FIR, Sector A1I.

Benefits:

1. 14.5 NM shorter than flights via BORIS-SARIN corridors
2. total length of 2320.9 NM (4298 km), serves as an alternative to BORIS – SARIN route.
3. BORIS – SARIN (2335.4 NM), shorter by 14.5 NM (27 km).

Anticipated traffic shifts:

40% from BORIS – SARIN: approximately **188** flights per month.

KAZ / CHN interface

Proposal 7 (KAZ)

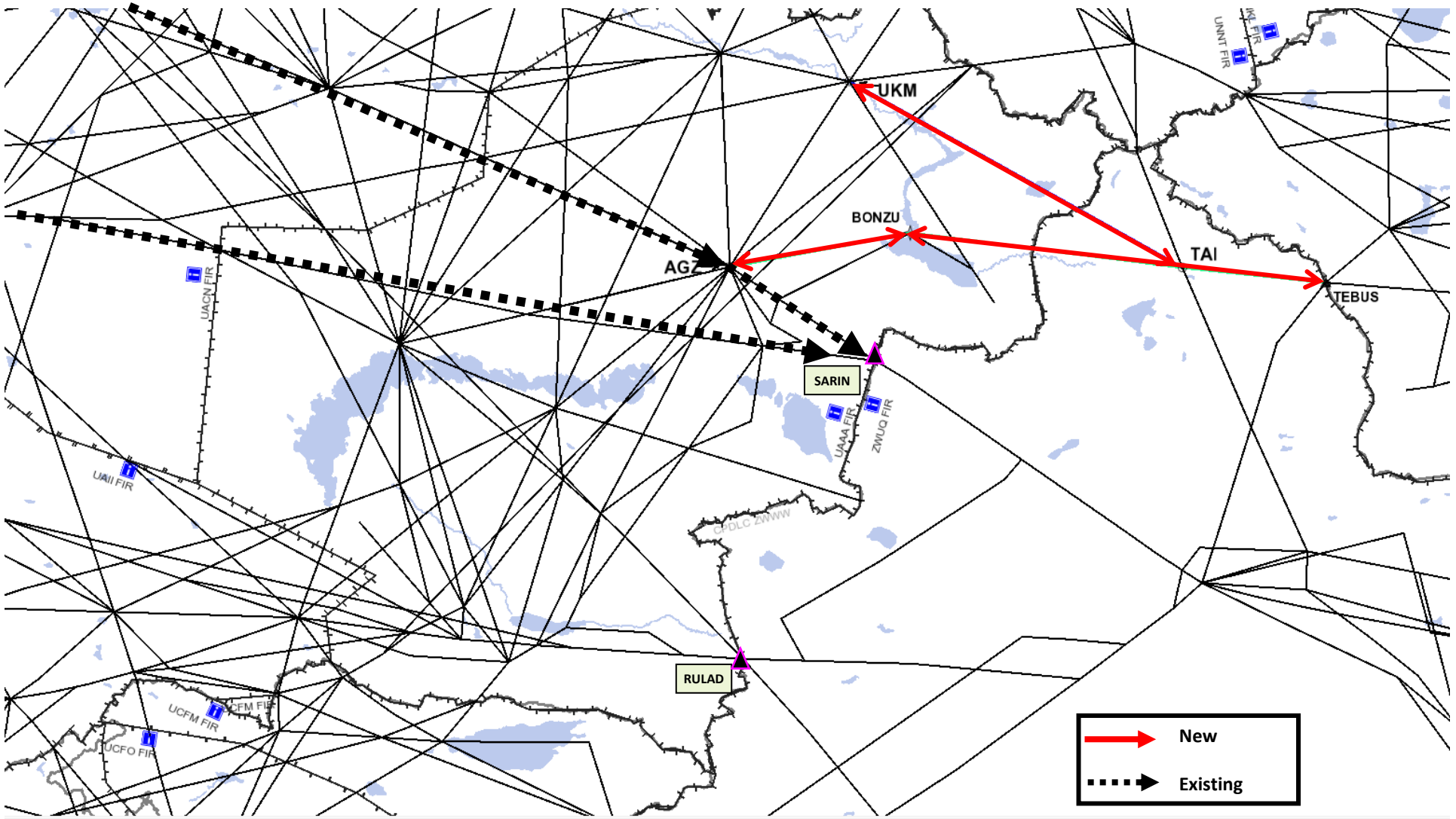
Bidirectional

a. AGZ - BONZU - new Border point - TAI – TEBUS;

b. UKM - new Border point – TAI.

PROPOSAL 7: Bidirectional

a. AGZ – BONZU – new point – TAI – TEBUS & b. UKM – new point – TAI



Remarks:
New FIR Boundary Points required.

Benefits:
AGZ-BONZU in comparison to existing option via SARIN (provided by FINNAIR), for 1 flight operated with A350-900 and statistical winter winds towards Beijing and beyond to Korea and Japan:
Fuel saving 800kg,
2500kg less CO2,
Distance reduction 75 NM,
Time saving 6 min

Kazakhstan Priority:
C - could be implemented within 36 months.

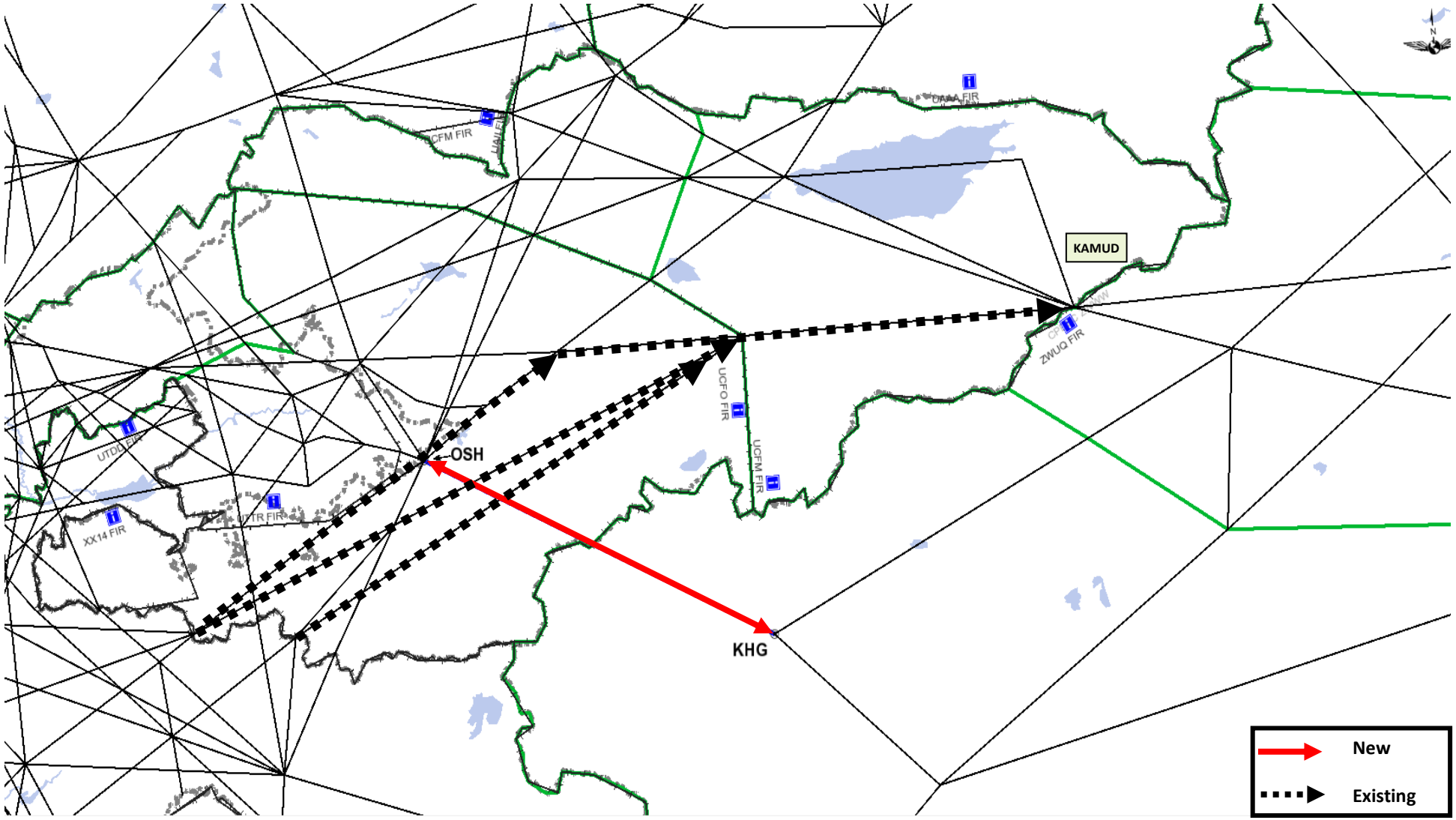
KGZ / CHN interface

Proposal 8 (KGZ)

Bidirectional
Osh [OSH] – New Point between KGZ & CHN – Kashi [KHG]
(VOR/DME Urumqi FIR)

PROPOSAL 8: Bidirectional

Osh [OSH] – Kashi [KHG]



Remarks:
New FIR Boundary Point required

Initial proposal from RDGE/22 in 2015

Kyrgyzstan Priority: A/B - could be implemented within 12-36 months.

UZB / CHN interface

Proposal 9 (UZB)

Bidirectional

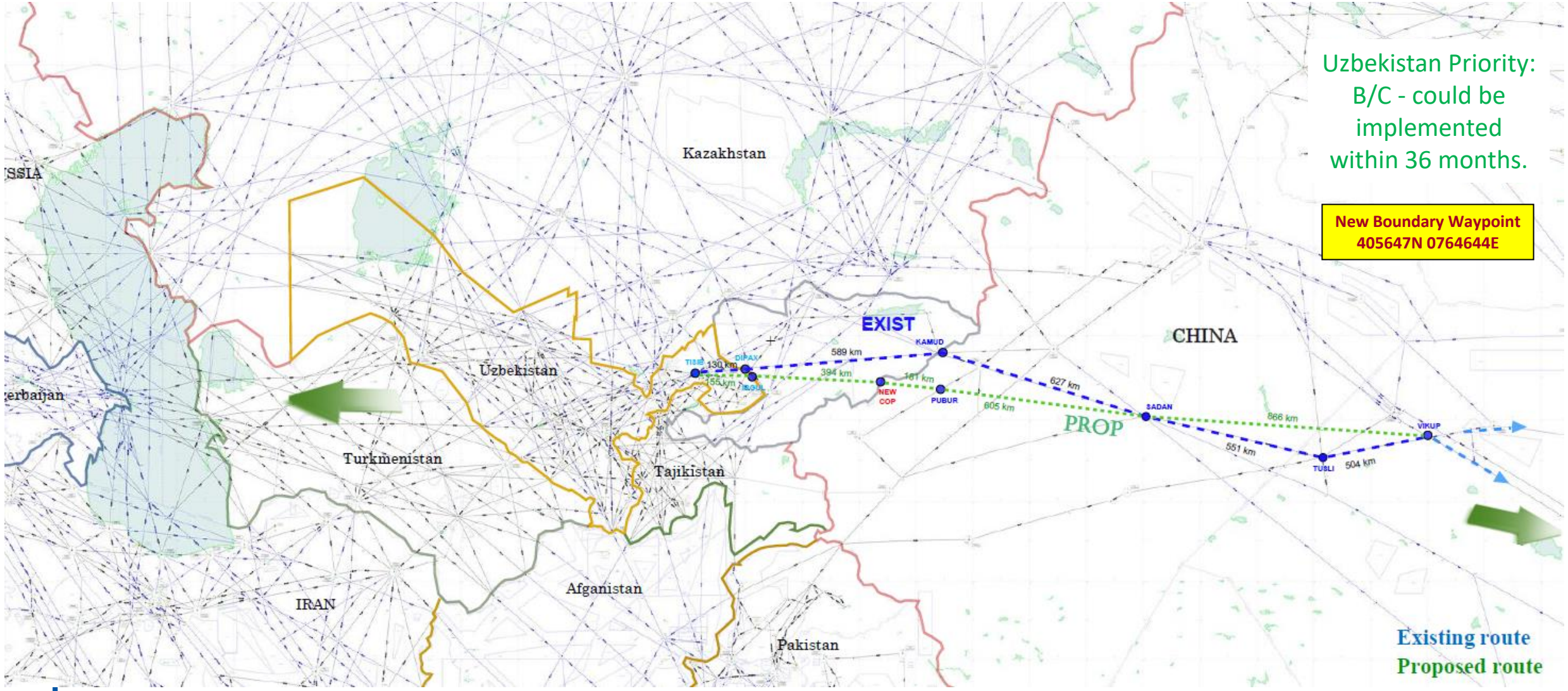
TISIB - IRGUL - New Point between KGZ & CHN – PUBUR - SADAN – VIKUP

PROPOSAL 9: Bidirectional

TISIB – IRGUL – 405647N 0764644E – PUBUR – SADAN – VIKUP (Distance: 2201 km)

Distance saving: 16 NM (30 km)

Existing: TISIB – DIPAX – L141 – KAMUD – W186 – SADAN – W187 – TUSLI – W112 – VIKUP (2231.6 km)



UZB / CHN interface

Proposal 10 (UZB)

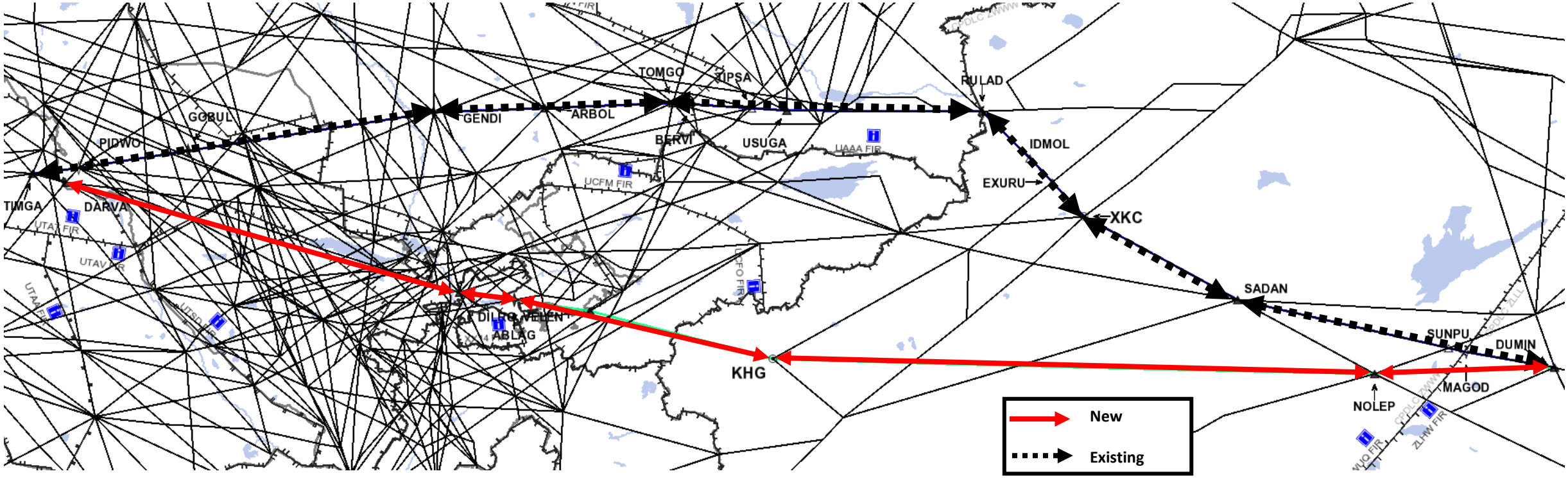
Bidirectional

DUMIN-NOLEP-New Point between KGZ & CHN-KHG-VELEN-ABLAG-DILRO-DARVA

PROPOSAL 10: Bidirectional

DUMIN-NOLEP-New Point between KGZ & CHN-KHG-VELEN-ABLAG-DILRO-DARVA

Distance saving 55 NM, Fuel saving 350kg, CO2 saving 1100kg, Time saving 4 min



Existing: DUMIN Y1 SADAN L888 XKC A460 RULAD M610 ARBOL Z621 GENDI N147 GOBUL A480 TIMGA (1582 NM)

Proposal: DUMIN-NOLEP-New Point between KGZ & CHN-KHG-VELEN-ABLAG-DILRO-DARVA (1493 NM)

Benefits: Distance saved: 55 NM, Fuel saved: 350kg, CO2 saved: 1100kg, Time saved: 4 min

Uzbekistan Priority: B/C - could be implemented within 36 months.

Thank You!

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