



WELLINGTON NEW ZEALAND

PURSUANT to Sections 28, 29, and 30 of the Civil Aviation Act 1990

I, HARRY JAMES DUYNHOVEN, Minister for Transport Safety,

HEREBY MAKE the following ordinary rules.

SIGNED AT Wellington

This *Fifth* day of *September* 2006

by **HARRY JAMES DUYNHOVEN**

A handwritten signature in black ink, appearing to read 'Harry James Duynhoven', with a stylized flourish at the end.

Minister for Transport Safety

Civil Aviation Rules

Part 139, Amendment 5

Aerodromes—Certification, Operation and Use

Docket 4/CAR/2

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Rule objective

The objective of amendment 5 to Part 139 is to improve aviation safety by incorporating into Part 139 the ICAO Annex 14 requirements for runway end safety areas to be provided at each end of a runway.

The amendment applies to aerodromes that are required to be certificated in accordance with Part 139 and requires:

- runway end safety areas for runways that are used by aeroplanes conducting regular air transport services to or from New Zealand:
- runway end safety areas for runways that are used by aeroplanes with more than 30 passenger seats and conducting regular air transport services if, after 12 October 2006—
 - the aerodrome becomes certificated in accordance with Part 139; or
 - the runway is a new runway at a certificated aerodrome; or
 - the runway is upgraded to an instrument runway; or
 - the runway is extended by more than a specified distance.

The following amendments to other Parts are associated with this amendment 5 to Part 139:

1. amendment 32 to Part 1:
2. amendment 14 to Part 121:
3. amendment 10 to Part 125:
4. amendment 4 to Part 129:
5. amendment 14 to Part 135.

Extent of consultation

In January 2000 the Civil Aviation Industry Rules Advisory Group (**CIRAG**) Executive accepted a terms of reference for the establishment of a Technical Study Group (**TSG**) to participate in a rule making project to implement the ICAO requirements for runway end safety areas. The terms of reference covered the provision of RESA in relation to the New Zealand aerodromes that are used by aeroplanes conducting regular international air transport operations, and the consistency of the requirement for RESA across all New Zealand aerodromes. Participants for the TSG were drawn from the 7 aerodromes that would be affected by the rule proposal, the aircraft operators who were involved with the international air transport operations, aircrew representatives, the airways system operator, and the CAA.

An external consultant was also engaged to carry out a comprehensive cost benefit analysis on the proposal to require RESA at the 7 aerodromes that would be directly affected by the rule to determine that the application of RESA would meet the criteria of the Act for safety at reasonable cost.

The members of the TSG have been fully involved with the input information that was required for the cost benefit analysis and, with the exception of the requirements where an existing aerodrome is certificated after the date of the rule, with the development of the proposed rules.

A Notice of Proposed Rulemaking, NPRM 04-03 Runway End Safety Areas (RESA), containing the proposed rules was issued for public consultation under Docket 4/CAR/2 on 2 July 2004.

Notification of the publication of this NPRM for public submissions was made in the CARRIL, on the CAA web site, and in the *Gazette* on 1 July 2004 and in the major metropolitan newspapers on Saturday 3 July 2004. Copies of the NPRM were sent to 195 interested parties and letters advising of the availability of the NPRM were sent to a further 34 organisations on 29 and 30 June 2004.

The period for public submissions was initially set to close on 16 August 2004, but following an industry request for an extension the period for public submissions was closed on 30 August 2004.

New Zealand Transport Strategy

The amendments to Part 139 do not take into account the requirements of the New Zealand Transport Strategy (**NZTS**) because the development of the proposed rule changes and the publication of the NPRM for public submissions was undertaken before the requirements of the NZTS came into force on 1 December 2004 with the Civil Aviation Amendment Act (No 2) 2004.

Summary of submissions

A total of 41 responses to the NPRM were received. Twenty two were written submissions, and 19 were enquiries, congratulations, or updates from aerodrome operators on their progress toward meeting the proposed rules. The 22 written submissions comprised 12 from aerodrome operators, 4 from aircraft operators, 3 from aviation consultants, and 3 from flight crew representative organisations.

The submissions, comments and internal CAA feedback have been considered and as a result the following changes have been made to the rule proposals:

- the application of the RESA requirements that may apply to runways that are used only for domestic operations after the date of the rule is limited to those runways that are used by aeroplanes that are configured with more than 30 passenger seats. The NPRM proposals unintentionally included the smaller runways and grass runways at certificated aerodromes:
- the technical requirements for RESA have been re-drafted to clarify the requirements:
- the stepped requirement for the physical characteristics for RESA have been removed because the rule now only applies to the runways used by the large aeroplanes that are configured with more than 30 passenger seats.

A brief summary of the submissions is attached to this document under Consultation Details.

Some editorial changes have also been made for the final drafting of the rules.

The rules as amended were then referred to Parliament's Regulations Review Committee before being signed by the Minister for Transport Safety.

Examination of submissions

Submissions may be examined by application to the Docket Clerk at the Civil Aviation Authority between 8:30 am and 4:30 pm on weekdays, except statutory holidays.

Insertion of amendments

The amendments to the rules in this Part are reflected by the revocation of existing rules 139.51 and 139.101 and insertion of new rules 139.51 and 139.101, the addition of new rules 139.102, and the addition of appendix A.

Effective date of rule

Amendment 5 to Part 139 comes into force on 12 October 2006.

Availability of rules

Civil Aviation Rules are available from—

CAA web site: <http://www.caa.govt.nz/>

Freephone: 0800 GET RULES (0800 438 785)

Rule Amendments

Subpart B — Certification Requirements

Rule 139.51 is revoked and replaced by the following new rule:

139.51 Aerodrome design requirements

(a) An applicant for the grant of an aerodrome operating certificate must ensure that the physical characteristics of the aerodrome; the obstacle limitation surfaces; the visual aids for navigation and for denoting obstacles and restricted areas; and the equipment and installations for the aerodrome are commensurate with the following—

- (1) the characteristics of the aircraft that the aerodrome is intended to serve;
- (2) the lowest meteorological minima intended for each runway;
- (3) the ambient light conditions intended for the operation of aircraft.

(b) An applicant for the grant of an aerodrome operating certificate must ensure that a runway end safety area that complies with the physical characteristics prescribed in appendix A.1 is provided at each end of a runway at the aerodrome if—

- (1) the runway is used for regular air transport services operating to or from New Zealand; or
- (2) the aerodrome operating certificate is first issued after 12 October 2006 and the runway is used for regular air transport services by aeroplanes that have a seating configuration of more than 30 seats excluding any required crew member seat; or
- (3) the runway is commissioned after 12 October 2006 to be used for regular air transport services by aeroplanes that have a seating configuration of more than 30 seats excluding any required crew member seat; or

- (4) the runway is used for regular air transport services by aeroplanes that have a seating configuration of more than 30 seats excluding any required crew member seat and—
 - (i) either the landing distance available or the length of the runway strip is extended to a distance or length that is more than 15 metres greater than the respective distance or length that was published for the runway immediately before 12 October 2006; or
 - (ii) the runway is upgraded to an instrument runway after 12 October 2006.
- (c) The physical characteristics, obstacle limitation surfaces, visual aids, equipment and installations, and RESA provided at the aerodrome must be acceptable to the Director.

Rule 139.101 is revoked and replaced by the following new rule:

139.101 Continued compliance

A holder of an aerodrome operating certificate must—

- (1) hold at least one complete and current copy of the holder's aerodrome certification exposition on the aerodrome; and
- (2) comply with all procedures, plans, systems and programmes detailed in the exposition; and
- (3) make each applicable part of the exposition available to personnel who require those parts to carry out their duties; and
- (4) except as provided in rule 139.102, continue to meet the standards and comply with the requirements of Subpart B prescribed for aerodrome certification under this Part; and
- (5) notify the Director of any change of address for service, telephone number, or facsimile number required by form CAA 24139/01 within 28 days of the change.

The following new rule is inserted after 139.101:

139.102 Transition requirements for runway end safety area Rules

A holder of an aerodrome operating certificate for an aerodrome that is being used for regular air transport services operating to or from New Zealand immediately before 12 October 2006—

- (1) is not required to comply with the requirement prescribed in rule 139.51(b)(1) until 12 July 2007; or
- (2) if it is not practicable for the certificate holder to comply with the requirement prescribed in rule 139.51(b)(1) by 12 July 2007, the certificate holder must comply with the requirement as soon as practicable, but not later than 12 October 2011.

The following new Appendix is inserted after 139.359:

Appendix A—Aerodrome physical characteristics

A.1 Physical characteristics for RESA

- (a) A RESA must extend—
 - (1) to a distance of at least 90 metres from the end of the runway strip, and
 - (2) if practicable—
 - (i) to a distance of at least 240 metres from the end of the runway strip; or
 - (ii) to the greatest distance that is practicable between the 90 metres required in paragraph(a)(1) and the 240 metres required in paragraph (a)(2)(i).
- (b) The width of a RESA must—
 - (1) be at least twice the width of the associated runway and be positioned symmetrically on either side of the extended centre line of the runway; and

- (2) where practicable, be equal to the width of the graded portion of the associated runway strip.
- (c) A RESA must be constructed to—
 - (1) provide a cleared and graded area to reduce the risk of damage to an aeroplane that undershoots or overruns the runway; and
 - (2) where practicable, be clear of any object which might endanger an aeroplane that undershoots or overruns the runway.
- (d) A RESA must not penetrate the approach or take-off climb surface for the runway.
- (e) If a RESA has a longitudinal slope—
 - (1) any downward slope must not exceed 5%; and
 - (2) slope changes must be as gradual as practicable; and
 - (3) abrupt changes or sudden reversals of slopes must be avoided.
- (f) If a RESA has a transverse slope—
 - (1) any upward or downward slope must not exceed 5%; and
 - (2) slope changes must be as gradual as practicable.

Consultation Details

(This statement does not form part of the rules contained in Part 139. It provides details of the consultation undertaken in making of the rules.)

A Notice of Proposed Rulemaking, NPRM 04-03 Runway End Safety Areas (RESA), containing the proposed rules was issued for public consultation under Docket 4/CAR/2 on 2 July 2004.

A total of 41 responses to the NPRM were received. Twenty two were written submissions, and 19 were enquiries, congratulations, or updates from aerodrome operators on their progress toward meeting the proposed rules. The 22 written submissions comprised 12 from aerodrome operators, 4 from aircraft operators, 3 from aviation consultants, and 3 from flight crew representative organisations.

A full summary of the public submissions on the NPRM and the CAA responses is contained in the “Summary of Public Submissions NPRM 04-03” which was published on the CAA web page on 2 September 2005.

The submissions and all background material used in developing the rules are held on the docket file and are available for public inspection at Aviation House, 10 Hutt Road Petone. Persons wishing to view the docket should contact the Docket Clerk on Phone +64 560 9603 and ask for docket 4/CAR/2.

Brief summary of submissions on NPRM 04-03

The submissions covered the following:

- The definitions and interpretation of terms and phrases used in the proposed rules—
 - A number of submissions commented on the use of the term “enhance the deceleration” in relation to the construction and surface conditions required for RESA. The submitters considered that the term was confusing and did not adequately define the requirement.

- **CAA Comment:-** *The requirements relating to the surface conditions for RESA have been removed from the rule and appropriate guidance information is published in the advisory circulars.*
- A number of submissions commented on the use of the word “practicable” that is used in the transition and technical specification for RESA. The submitters consider that the term is open to interpretation and either the word should not be used or advisory information should be published.
 - **CAA comment:-***The CAA considers that the word “practicable” is an appropriate word to use in the rule. The word is also used in other legislation such as sections 26 and 84 of the Act. However the CAA also recommends that anyone contemplating developments to the physical characteristics of an aerodrome include dialogue with the CAA early in their plans as the interpretation of what is practicable for RESA will be on a case by case basis. Advisory material on the processes to be followed will be developed and published as individual cases are dealt with.*
- A number of submissions commented on the incorporation of the International Civil Aviation Organisation (ICAO) Standards and Recommended Practices (SARPS) into the specifications for RESA in the proposed rules. The submissions questioned why only one ICAO physical characteristic of aerodromes, namely RESA, was included in the proposed rules.
 - **CAA Comment:-** *The RESA project was a specific safety initiative started in parallel with a review of Part 139. The review of Part 139 will consider all aspects of conformity with Annex 14.*
- A number of submissions supported the concept of the ICAO Standards being in the rules and the Recommended Practices being recommendations in the advisory circulars.
 - **CAA Comment:-** *The rules prescribe the mandatory requirements which may reflect, by an incorporation by reference if necessary, an ICAO standard and where*

appropriate an ICAO recommended practice. The ACs contain information on an acceptable means of compliance with a rule requirement (but not necessarily the only means of compliance) as well as guidance material.

- Submissions considered that the Australian Civil Aviation Authority (**CASA**) system of a manual of standards (**MoS**) which is incorporated by reference into their rules should be used for Part 139.
 - **CAA Comment:-** *The CAA has considered a manual of standards for the New Zealand rules system but the legislative provisions in the Act for the Minister to make rules does not permit the incorporation of in-house documents into rules.*
- A number of submissions commented on the proposed rule that would require an existing runway to be provided with RESA if the runway was extended by 15 metres or more. Two areas of concern were:-
 - The background behind the figure of 15 metres and what it was trying to achieve.
 - **CAA Comment:-** *The intention is to stop airport operators creeping runway lengths without applying the RESA requirement. The 15 metre figure was considered to be at least 10 times any measurement error and should be sufficient to allow for the correction of any published errors in declared distances. The runway strip and landing distance available (**LDA**) measurements used are to allow for safety initiatives such as providing clearways and starter extensions which are allowed either inside existing runway strip lengths or are external to the runway strip.*
 - Whether the requirements for RESA would be triggered if the removal of obstacles enabled a displaced threshold to be removed.

- **CAA Comment:-** *The CAA accepts that aerodrome operators should not be discouraged from removing obstacles and therefore moving thresholds back to the beginning of runways, but aerodrome operators should also meet the commitments for RESA. Where current aircraft are operating with displaced thresholds any reduction in obstacles should be encouraged to improve safety, but moving thresholds should not compromise RESA. An aerodrome operator will not invoke the RESA requirements under the proposal if the obstruction is removed and the threshold is moved back to the runway end so long as they leave the LDA as it was with the displaced threshold. This effectively gives an overrun RESA of the distance the threshold is moved. The CAA accepts that works on aerodromes that require a temporary displacement of the threshold should not trigger requirements for RESA.*
- Some of the submissions expressed concern about the proposals to require aeroplane operators to use runways with RESA or to make adjustments to aeroplane performance calculations to account for any RESA distance that is less than 90 metres.
 - **CAA Comment:-** *The civil aviation rules prescribe requirements relating to aerodromes in both Part 139 for the design and operation of aerodromes and in the aircraft operating rules for the use of aerodromes. However it is the aircraft operator who is responsible for ensuring that any aerodrome to be used is appropriate for the aircraft and for the type of operation. If the aerodrome to be used does not meet the prescribed safety requirements then it is the aircraft operator who can decide not to use the aerodrome or in some cases, the aircraft operator can take some risk mitigating actions. In this case of RESA the aircraft operator can adjust the performance calculations for the aeroplane to compensate for the lack of a RESA at the overrun end of the runway. It is accepted that it is not practicable for the aeroplane operator to compensate for the lack of a RESA at the undershoot end of the runway because any such changes to the aeroplane operating*

characteristics would need to artificially change the visual and instrument origin of the glide slope point. This would create an unstable approach with serious changes to the landing “picture” that a pilot sees.

- A submission commented that Australia and the US measure runway safety areas from the end of the runway rather than from the end of the runway strip.
 - **CAA Comment:-** *Currently Australia measures their RESA from the end of the runway strip and the FAA’s safety area is 1000 ft from the end of the runway. This is twice the length of the ICAO 60 metre runway end strip and 90 metre RESA. The previous requirements in Australia allowed RESA distances to be taken from the end of the runway.*
- Some submissions expressed concerns that changes in aircraft certification have influenced the overrun and undershoot statistics.
 - **CAA Comment:-** *These changes were looked at during the data gathering process for the cost benefit analysis (CBA) and it was considered that the changes to aircraft certification (i.e. allowing for wear in components) had taken place during the early part of the period considered and the later data covered the changes.*
- Some submissions considered that the proposed rules should only be applied to new runways or new runway developments and should not be applicable to existing runways.
 - **CAA Comment:-** *After considering all submissions and the fact that only aerodromes with Part 121 operations are required to be certificated in accordance with Part 139, the CAA has limited the proposals to cover:-*
 - *all existing runways that are upgraded (extended, upgraded to an instrument runway, or first certificated) after the rules come into force if the runway is used by aeroplanes that are configured*

with more than 30 passenger seats and conducting regular air transport services, and

- *runways used for all regular air transport services operated internationally irrespective of the size of aeroplane used, and*
- *new runways commissioned after the rules come into force if the runway is used by aeroplanes that are configured with more than 30 passenger seats and are conducting regular air transport services.*

The CAA recommends that anyone contemplating developments to the physical characteristics of an aerodrome include dialogue with the CAA early in their plans to determine the applicability of the RESA requirements.

- One submission recommended that the proposed rules be applied to all aerodromes in New Zealand.
 - **CAA Comment:-** *The CAA has noted that this submission follows the statement in Annex 14 where ICAO indicate the specifications in Annex 14 “unless otherwise indicated in a particular context, shall apply to all aerodromes open to public use”. The CAA will consider the submission when the overall review of Part 139 is carried out.*
- Some submissions considered that the application of ICAO SARPS to domestic aerodromes is inappropriate.
 - **CAA Comment:-** *The proposals in the NPRM only apply to runways at certificated aerodromes that are used to serve aeroplanes conducting international regular air transport services. The proposed requirements for RESA do not apply to existing runways that are used for domestic operations, however the RESA requirements will apply to any runway that is used by the larger aeroplanes (configured with more than 30 passenger seats) conducting regular air transport services domestically after the date the rule comes into force if an existing runway is upgraded (increased strip length or increased LDA, or upgraded to*

an instrument runway) or the aerodrome becomes certificated under Part 139. In these cases the decision by the aerodrome operator to upgrade the runway, or become certificated under Part 139 will need to take into account the requirement for RESA. Any other application of the RESA SARPS will be considered in the review of Part 139.

- One submission commented on the aerodrome certification process and the lack of CAA certification of declared lengths.
 - **CAA Comment:-** *The CAA is not responsible for verifying or certifying aerodrome data that is published for New Zealand aerodromes. Under Part 139 the aerodrome operator is required to have a management system and is responsible for ensuring that the data that is published for their aerodrome is accurate and kept up-to-date. The CAA audits the certificated aerodrome operators to ensure that they have the appropriate systems in place and are following those systems. A certificated aerodrome operator, being an aviation document holder, is required to ensure that their activities as an aerodrome operator are carried out safely and this includes ensuring that the data published for the aerodrome is accurate.*
- One submission commented on the use of the term “shortening a runway”, and suggested that it would be the more appropriate to refer to “reducing declared distances”.
 - **CAA Comment:-** *The CAA agrees with the comment and will use the suggested term.*
- One submission suggested that the CAA should notify operators when they need to adjust the aeroplane performance characteristics to compensate for the absence of an acceptable RESA at overseas aerodromes rather than prescribing this requirement in the rules for the aeroplane operator.
 - **CAA Comment:-** *The aeroplane operator has the responsibility of ensuring that the physical characteristics of a runway, including RESA, are suitable for a proposed operation. The NZ Rules clearly impose this requirement.*

- One submission considered that the application of the rules should be on the type of air services using a runway and not when an aerodrome was certificated in the aviation system.
 - **CAA Comment:-** *The rule is based on the type of air services using a runway. If the operation is a regular air transport service operating internationally then the air operator will, after the phase in period for the rule requirement, have to ensure that any runway used in the operation has a RESA or if there is no RESA then appropriate adjustments will be required to the aircraft performance data. Also if the operation is a domestic operation using an aeroplane configured with more than 30 passenger seats on regular air transport services and the intended aerodrome is not certificated under Part 139 before the date of the rule then the aerodrome will have to have RESA on the applicable runways to become certificated after the date of the rule.*
- Submissions commented that the transition proposals may not be reasonable.
 - **CAA Comment:-** *The transition requirements are the times recommended by the members of the RESA technical study group (TSG) who represented aerodrome operators (Auckland, Hamilton, Palmerston North, Wellington, Christchurch, Queenstown, and Dunedin who include members of the Airports Division of the AIA), aircraft operators (Air New Zealand, Mt Cook Airlines, and at various times Ansett NZ, Qantas NZ, and Jetconnect Ltd.), aircrew (The NZ Airline Pilots Association), the airways system operator (Airways NZ) and the regulatory authority (CAA Aeronautical Services). The times in the proposed rules are those that the TSG members felt were achievable. The nine month figure is to allow airlines time to visit runways and update their route guidance material, and those airports who have previously taken RESA into account time to carry out any minor work and include RESA in the published data for the aerodrome. Where other planning and civil works are required then it was*

considered by the TSG that RESA are achievable in five years. The proviso of as soon as practicable on the five year requirement is to ensure early planning and implementation rather than leaving action to the end of the transition period

- Submissions considered that alternative means of compliance, for example engineered solutions providing the same safety result, should be included in the rule proposals.
 - **CAA Comment:-** *ICAO and other Regulatory Authorities do not approve engineered solutions as an equivalent for RESA. The CAA does not consider that these engineered materials provide an equivalent for RESA and currently none provide for undershoot. They could be mitigating factors for a certificate holder to include in a petition for an exemption under Section 37 of the Act, from the proposed RESA requirements.*
- Submissions expressed concern about the interpretation and use of the accident data in the cost benefit study.
 - **CAA Comment:-** *The CAA contracted specialists in the field of aviation research to carry out the CBA. They used internationally accepted data as a basis for their analysis. The CAA was advised during briefings on the report that the authors considered the analysis conservative, and independent analysis forwarded as a submission to the NPRM also confirmed that the CBA was conservative.*
- Submissions expressed concern about the current CAA rulemaking processes.
 - **CAA Comment:-** *Several submissions discussed what the submitters considered to be problems with the CAA rulemaking processes that were in place when the proposed rules were developed. All of the proposals published in the NPRM, except for the requirement for RESA to be applicable if an existing aerodrome becomes certificated under Part 139 after the date of the rule, were developed with the participation of the Technical Study*

Group. The CAA is satisfied that all those who wanted to be involved with the rulemaking process were involved and that appropriate participation and consultation was undertaken.