CHICAGO
MAYOR BRANDON JOHNSON

School Sound Insulation Program Process

ONCC School Sound Insulation Program Committee

January 11, 2024

CDA
Chicago Department of Aviation

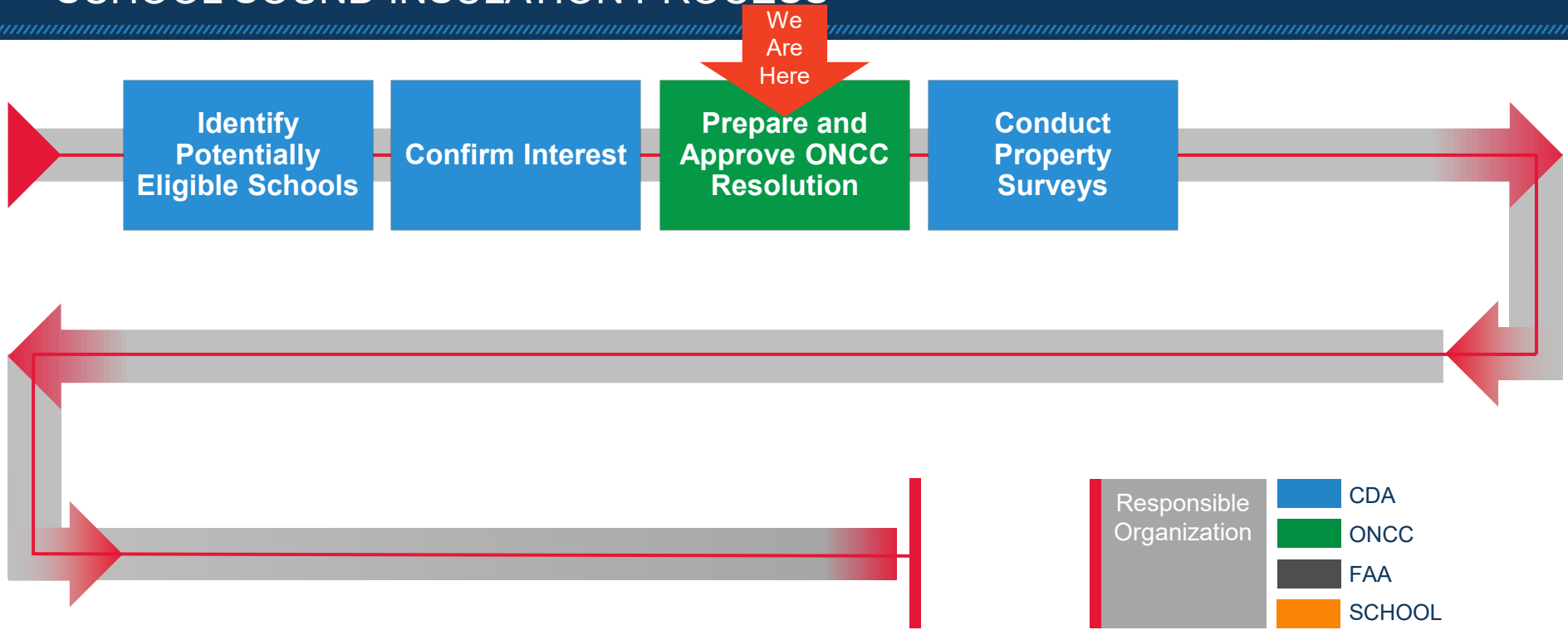
O'HARE
INTERNATIONAL AIRPORT

ELIGIBILITY CRITERIA

A school must meet the following criteria to seek sound insulation funding:

1. School is recognized by the Illinois State Board of Education.
2. School is located within an annual day-night average sound level (DNL) of 60 decibels (dB) or greater of the latest Federal Aviation Administration (FAA) approved noise contour.
3. School is in a building which has had continuous school since October 1, 1998.
4. School achieves results of a measured, A-weighted, time-averaged, windows-closed interior sound level noise monitoring simulating aircraft operations during normal school hours that are equal to or greater than 45 dB (45 Leq).

SCHOOL SOUND INSULATION PROCESS



PROPERTY SURVEY

- Purpose: Determine the quantity and characteristics of all eligible rooms.
  - Eligible rooms are classrooms, libraries, fixed-seat auditoriums, and educator offices.
  - Ineligible rooms include gymnasiums, hallways, and cafeterias.
  - Characteristics such as roof style, types of windows and doors, ventilation, and other factors that could impact the test are inventoried.

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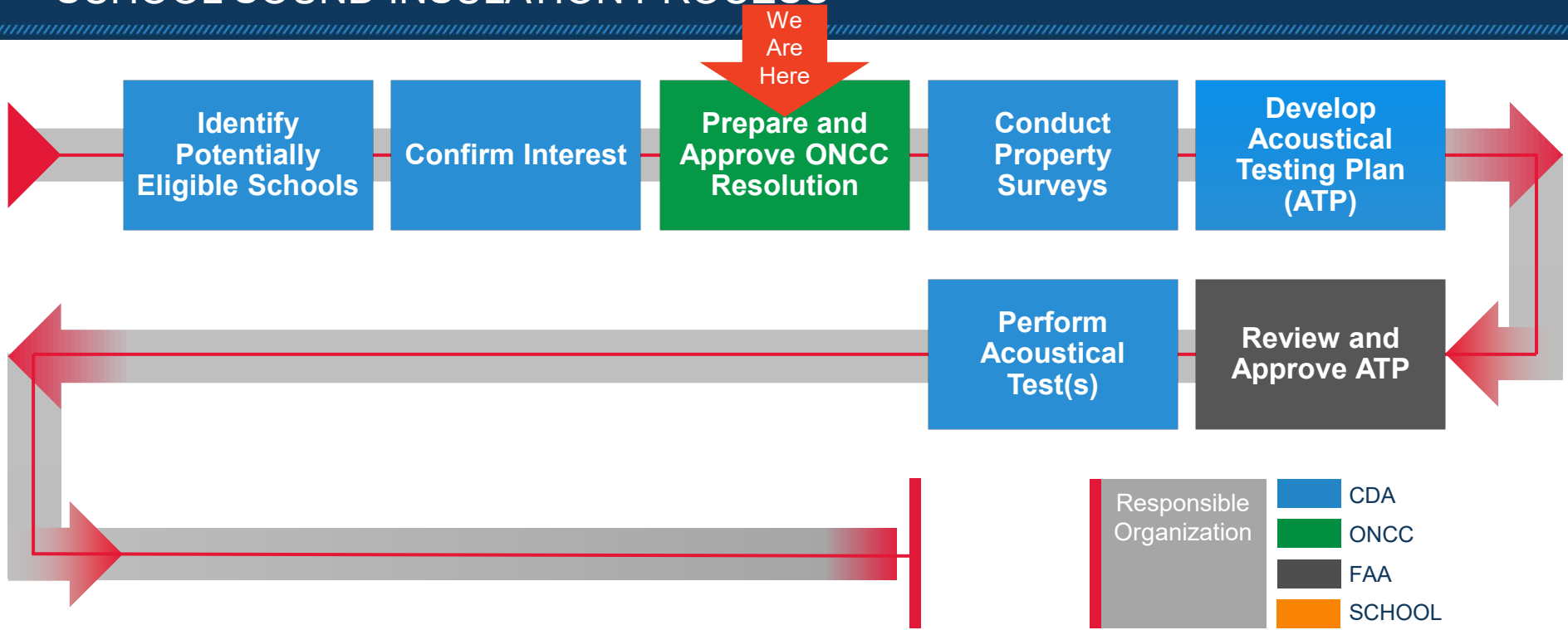

ACOUSTICAL TEST

- Test is conducted using artificial noise.
- The procedure follows those outlined in the FAA Advisory Circular (AC) 150/5000-9B and SAE Aerospace Recommended Practice (ARP) 6973.
- A specialized field monitoring kit that includes a signal generator, amplifier, and an equalizer to produce a noise source of equal energy in each octave band (known in the acoustics field as “pink noise”).
- The goal is to have a uniform sound field exposed to all the surfaces of interest.
- Measurements are made both on the exterior and in the interior of the structure.
- Interior sound levels are also measured and recorded without the loudspeaker to provide background or ambient sound levels.

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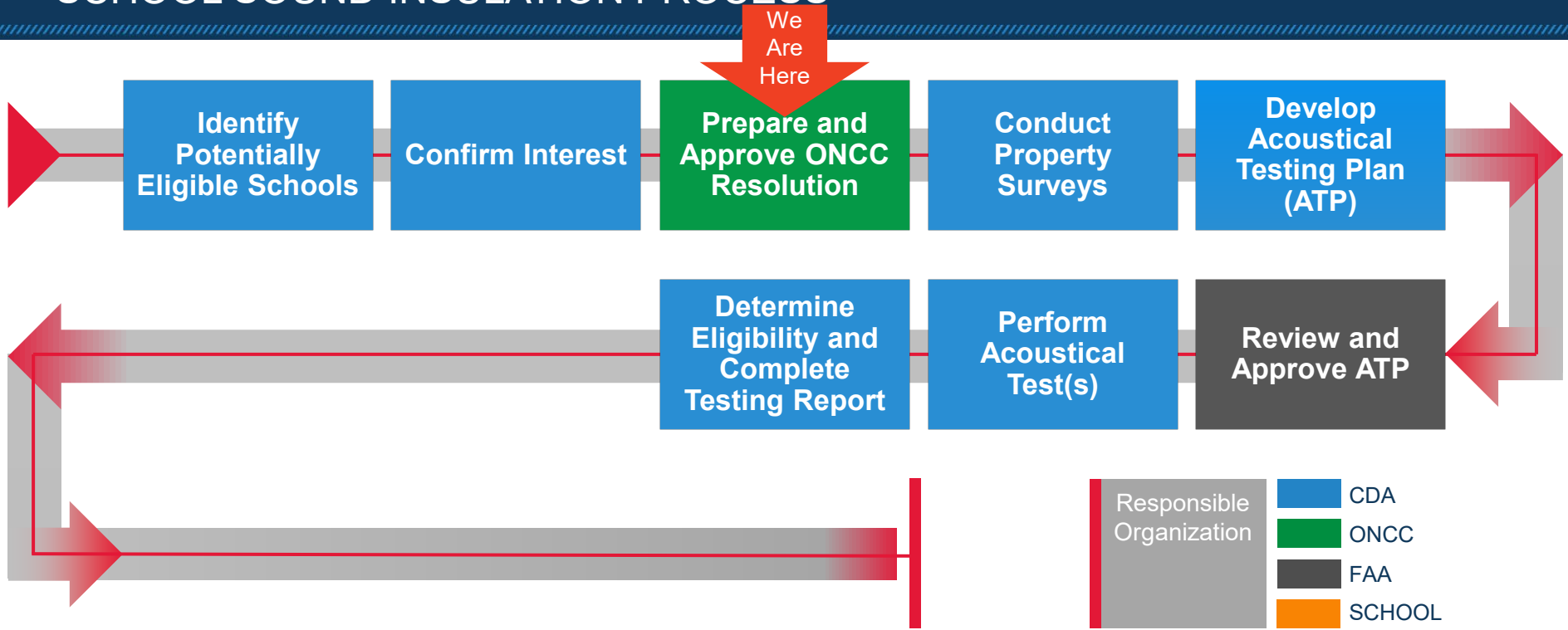

DETERMINATION OF ELIGIBILITY

Unique room Leq(Day)*	• Conduct acoustical testing in each of the rooms that are unique, i.e. libraries, auditoriums, educator offices, multi-media rooms, computer rooms, etc.
Classroom Leq(Day)*	• Conduct acoustical testing in a minimum of 10% of classrooms of similar size and construction style with a minimum sample of two rooms.
School Leq(Day)*	• The average will be a median average of the interior Leq(day)* noise levels of all eligible rooms within the building tested.
≥45.0 dB	**Schools that have average interior Leq(day)* noise levels equal to, or greater than, 45.0 dB would be considered noise impacted and would be eligible to apply for sound insulation grants.**

*Note: Leq(day) is the A-weighted, time-averaged, windows-closed interior equivalent sound level during normal school hours.

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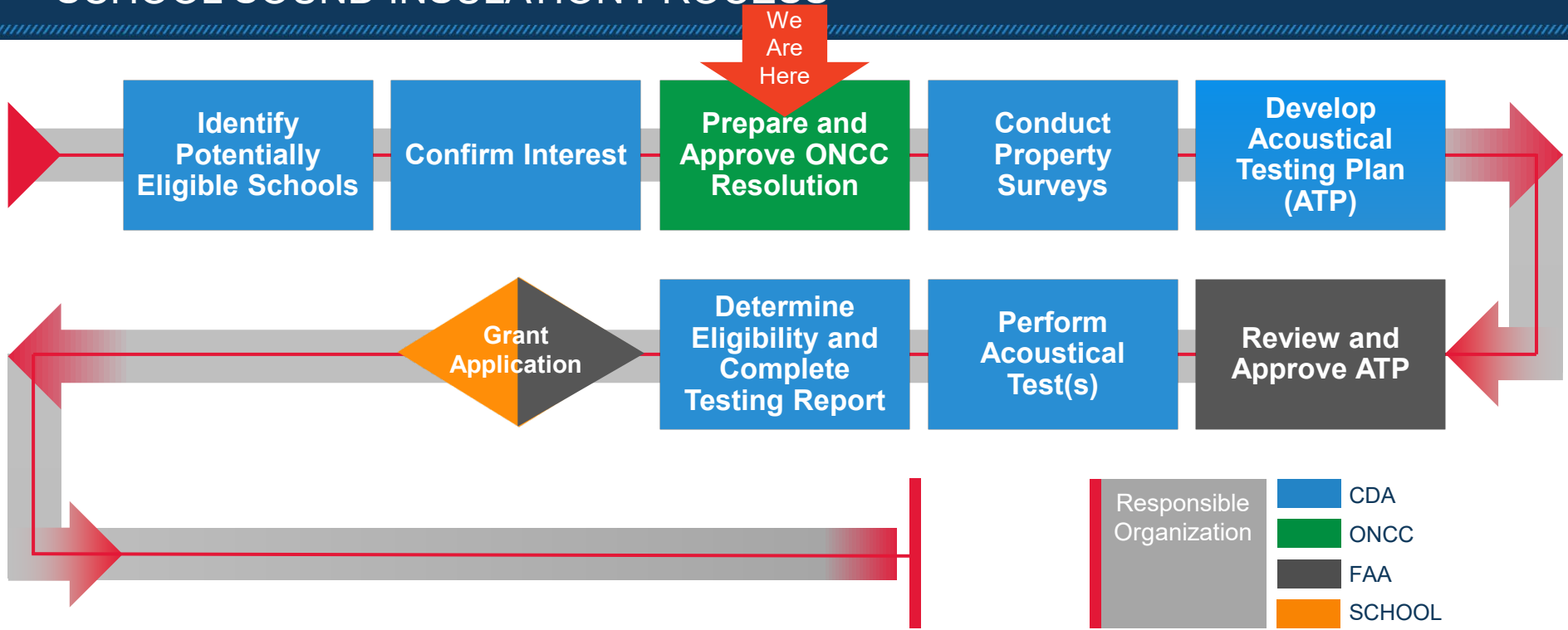

GRANT ADMINISTRATION

- The school meets all criteria for the FAA grant reimbursement application.
  - The school applies for design and construction grant at the same time, or
  - The school submits two separate grant applications.
- The school executes a grant agreement with the FAA to receive reimbursement.
- Private religious schools obtain an agreement with the local municipality to facilitate the grant.
- The FAA reimburses up to 80% of the eligible cost using Airport Improvement Program (AIP) funds.

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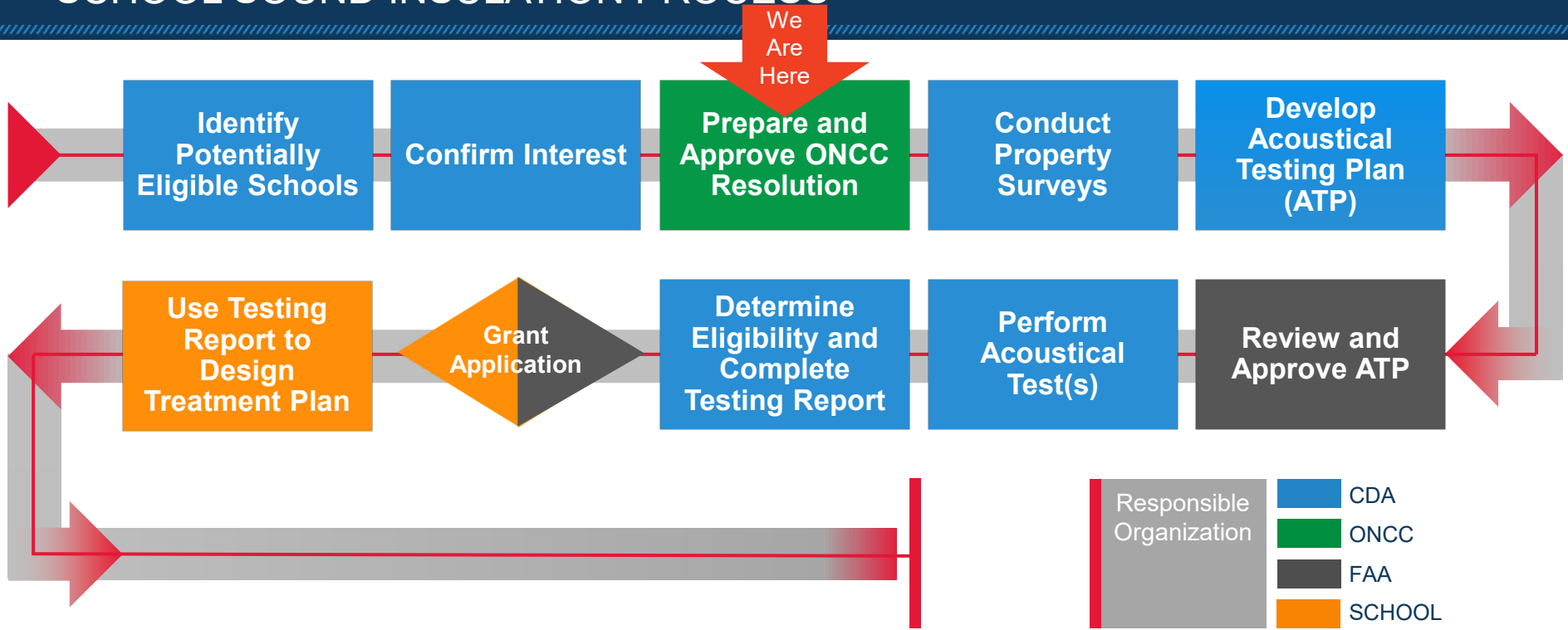

ELIGIBLE SOUND INSULATION TREATMENTS

Once a school is selected to receive sound insulation funding, there are several measures that can be implemented at the school to reduce aircraft noise impacts. Typical allowable sound insulation measures include:

- Window and door replacements
- Caulking and weather stripping of windows and doors
- Installation of central air ventilation

Source: FAA Airport Improvement Program Handbook Order 5100.38D, Change 1, Appendix R.

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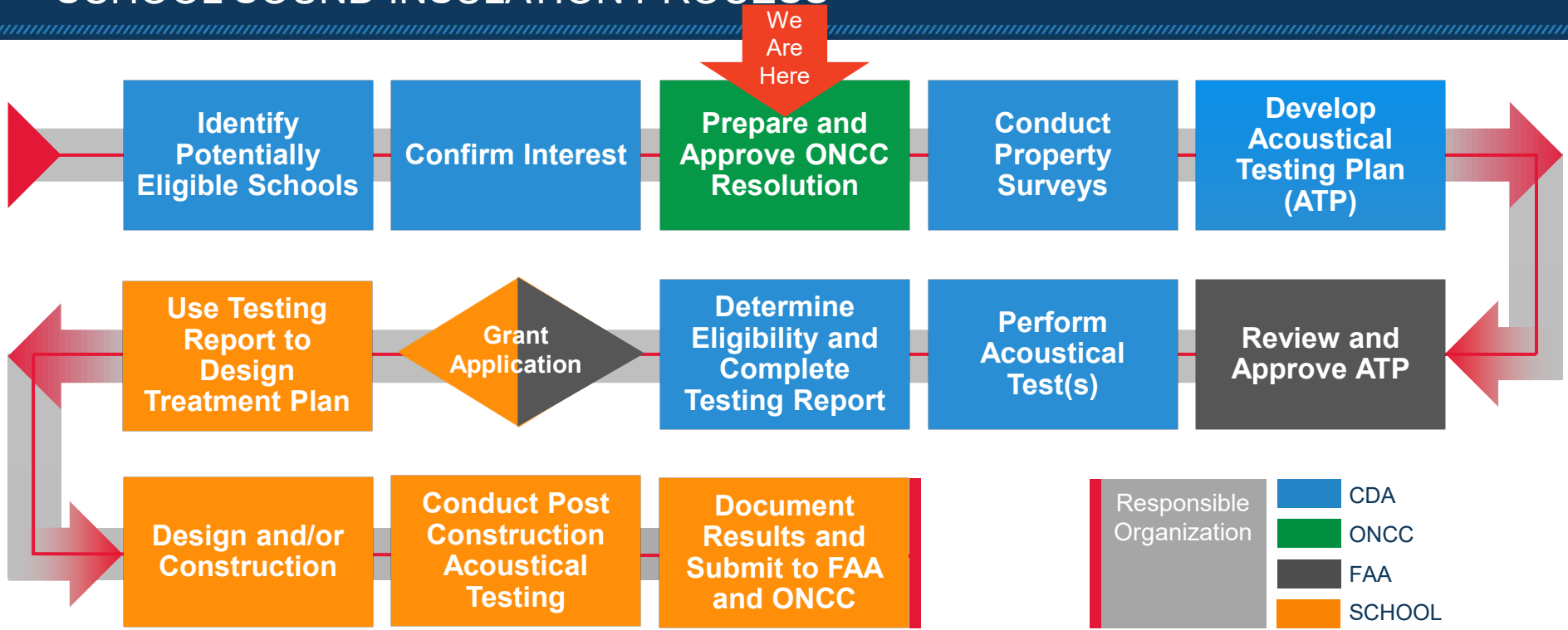

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