



FAA *GA* SVS Certification Perspective

**NASA SVS-GA Interactive Research
Workshop – October 2002**

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Overview of FAA SVS Issues

- **Terrain Depiction on PFD**
- **Highway-in-the-Sky Flight Guidance**
- **Flight Path Vector or Velocity Vector**
- **Low-Speed Awareness Cue**
- **AFM / POH Supplements**

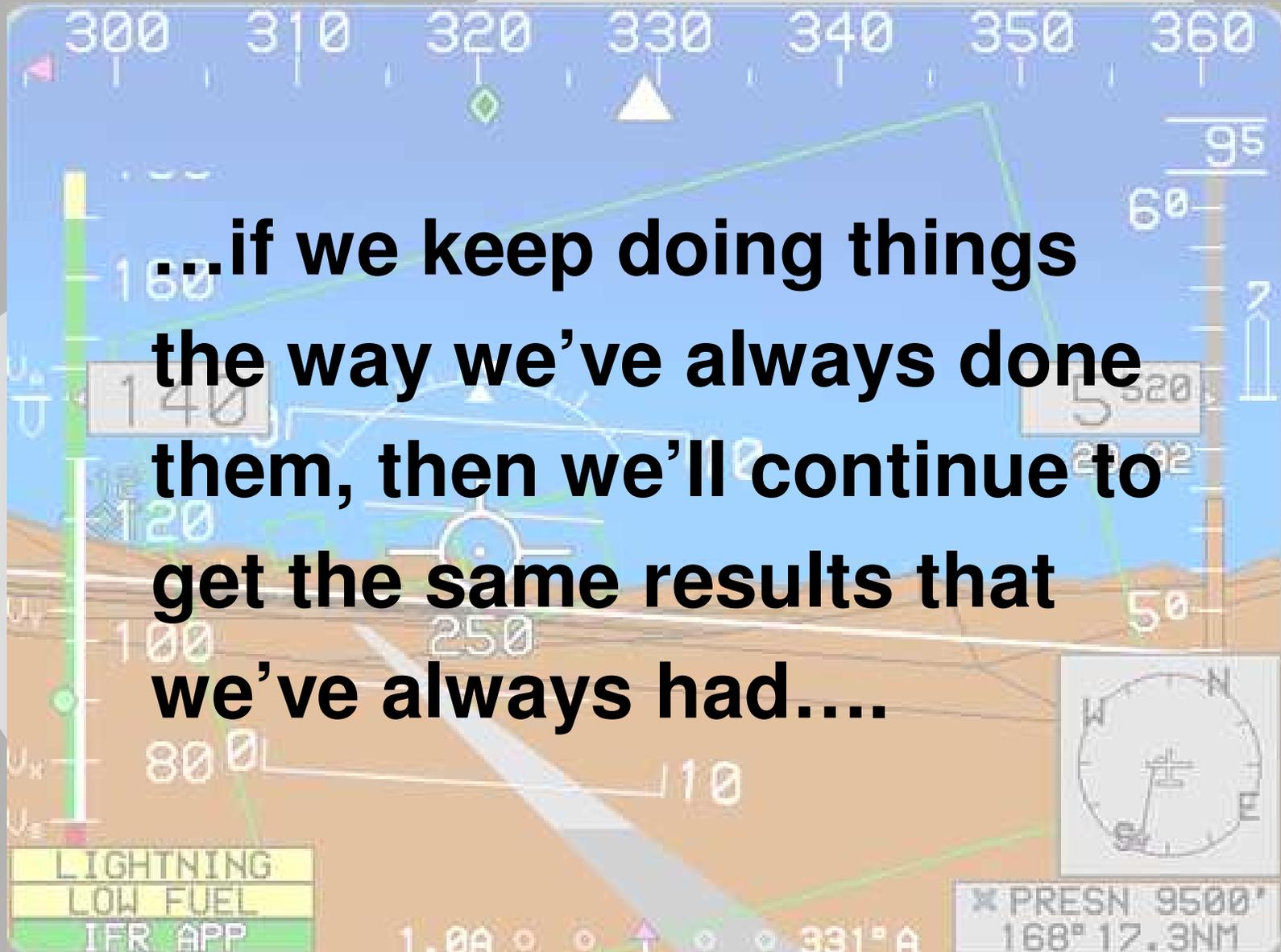
Typical 30 yr Old GA IFR Panel



Typical New GA IFR Panel

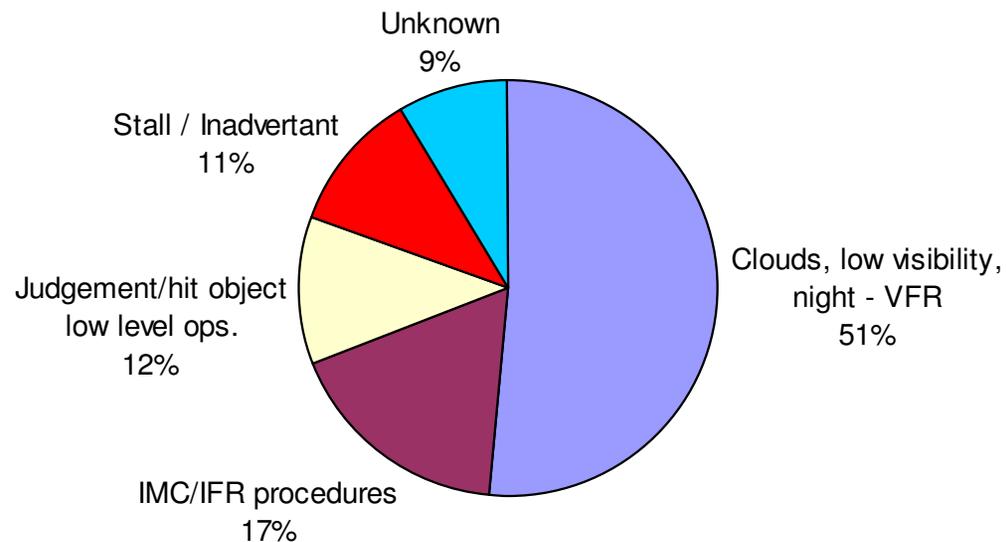


**...if we keep doing things
the way we've always done
them, then we'll continue to
get the same results that
we've always had....**



Typical GA Accident Profile

U.S. Top 5 Retractable Gear Fatal Accidents Causes



When Will the FAA Have Rules and Guidance for SVS Displays?

- General guidance project in the Business Plan – but that's still over a year away
- Guidance will need to be general – display and system variables are vast and unpredictable
- Focus on Practical Test Standards
- Systems will have to be evaluated on their own merits
- Again, will have to use something like PTS for standardized evaluation as much as practical

Terrain Depiction

- Enhanced situational awareness only
- NASA GA synthetic vision research support
- Terrain database confidence = TAWS
- Can ***NOT*** use display to descend below MDA

Highway-in-the-Sky

- Different Display Types
- Basically performs the same function as a 3-dimensional flight director
- Does not supercede minimum descent altitude
- Vertical guidance called out in RTCA / DO-229C
- Box dimensions within course width and height limits for GPS/WAAS approach as defined in RTCA / DO-229C

Flight Path Vector or Velocity Vector

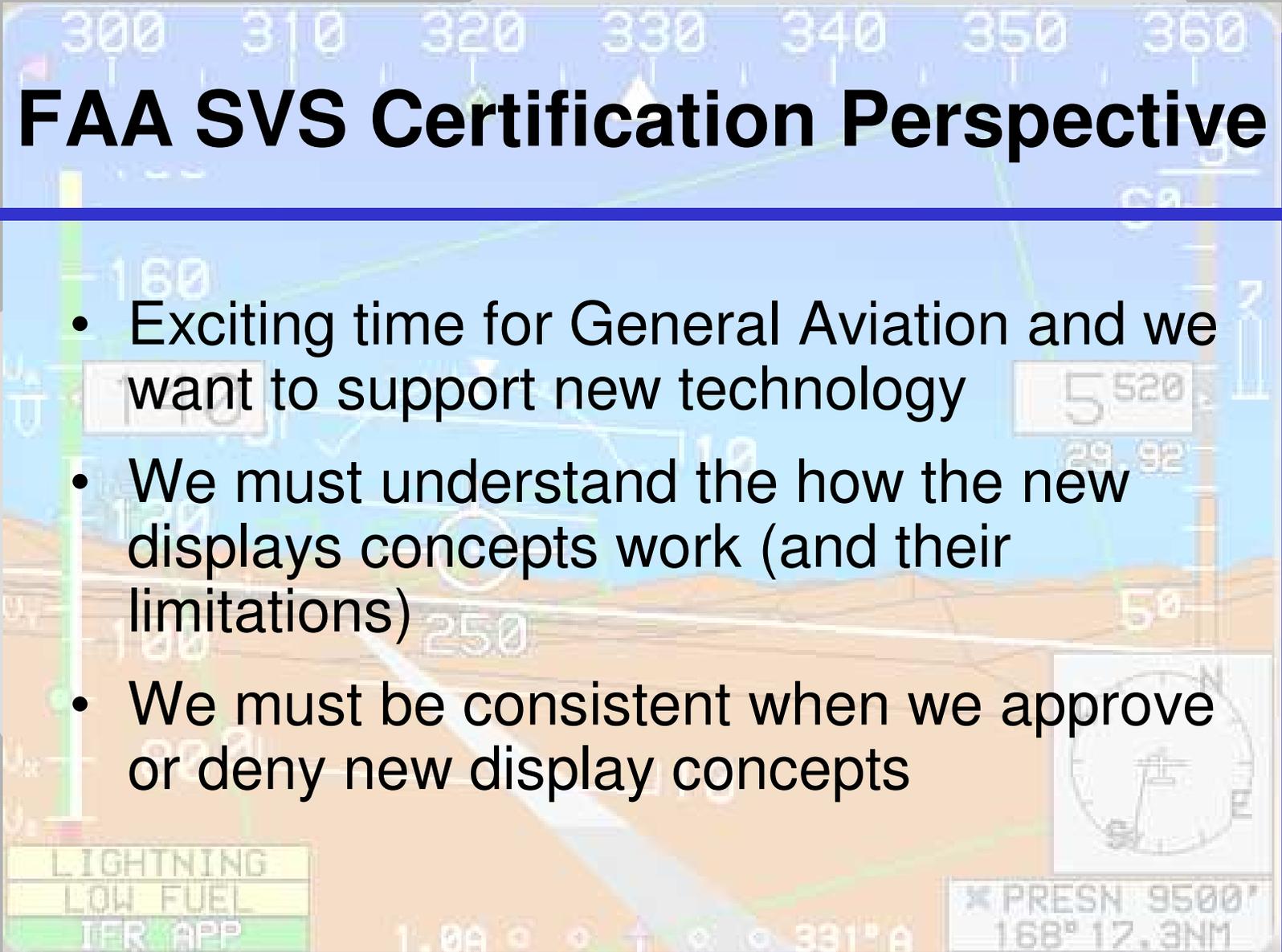
- Concern for confusion and training need
- NASA results suggest quick transition
- Similar to Introduction of flight director

Low-Speed Awareness Cue

- Efforts focus on airspeed tape
- Needs to be located in center of display
- Replace the unusual attitude cue with low-speed cue
- More appropriate for GA – remember the accident chart

Pilot's AFM / POH Supplement

- Need to explain how different displays are generated
- Need to clearly explain **vertical** and **horizontal** error margins so that pilots aren't overconfident
- Must be clear about what the display can't do



FAA SVS Certification Perspective

- Exciting time for General Aviation and we want to support new technology
- We must understand the how the new displays concepts work (and their limitations)
- We must be consistent when we approve or deny new display concepts

How Long For GA To Go From --

This...



to This!



We're Already There!

This 2 display instrument panel will be available from Cirrus in the 2003 models as an option – cost: \$24,500*



* From recent *Flight International* article

How Long For GA To Go From --

This...



to This!



We're Already There!

