

# *Short-term Intent Information*

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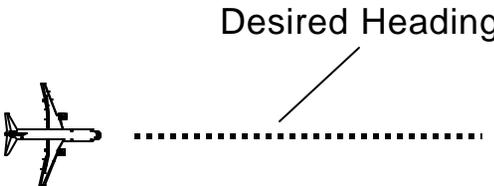
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242A-WP-6-10

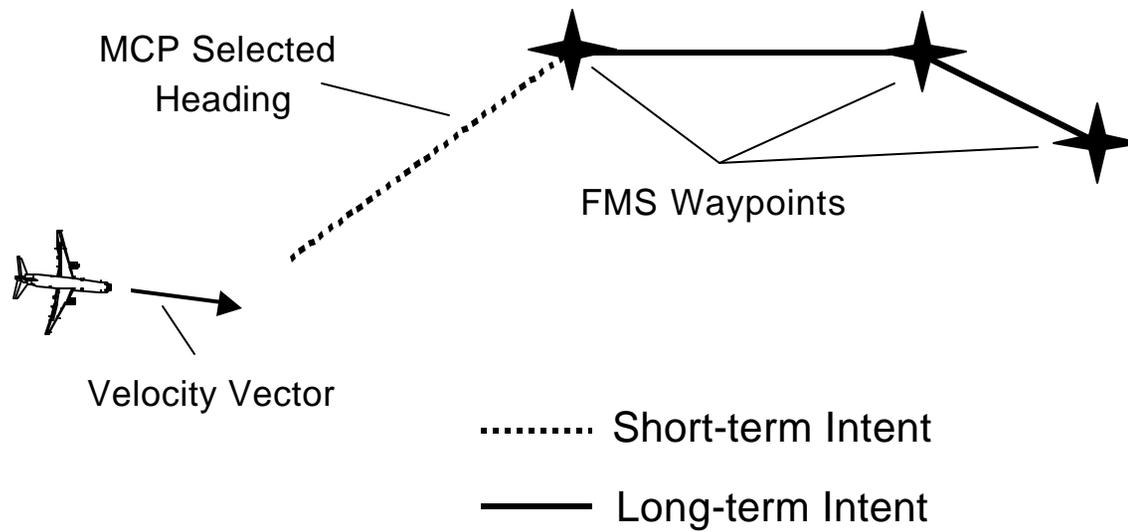
# *Short and Long-term Intent*

- Intent information can be categorized into:
  - Short-term intent - desired heading/track, target altitude.
    - Describes path en-route to next TCP (if available).
    - Some paths may be open-ended and not have a TCP (eg. Altitude Hold, Heading/Track Hold). In these cases, no long-term intent is available.
  - Long-term intent.
    - TCP defines end of current path segment.
    - May include additional TCP's if part of FMS flight plan.
- DO-242A will focus on short-term intent.
  - Short-term intent proposal can be expanded to include long-term intent.
  - Long-term intent will be discussed in appendix.

# Horizontal Intent Examples

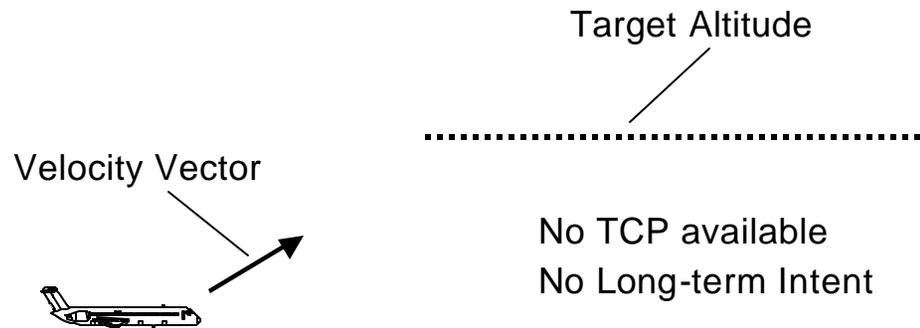
- Heading hold:  No TCP available  
No Long-term Intent

- Turn to heading to intercept FMS flight path:

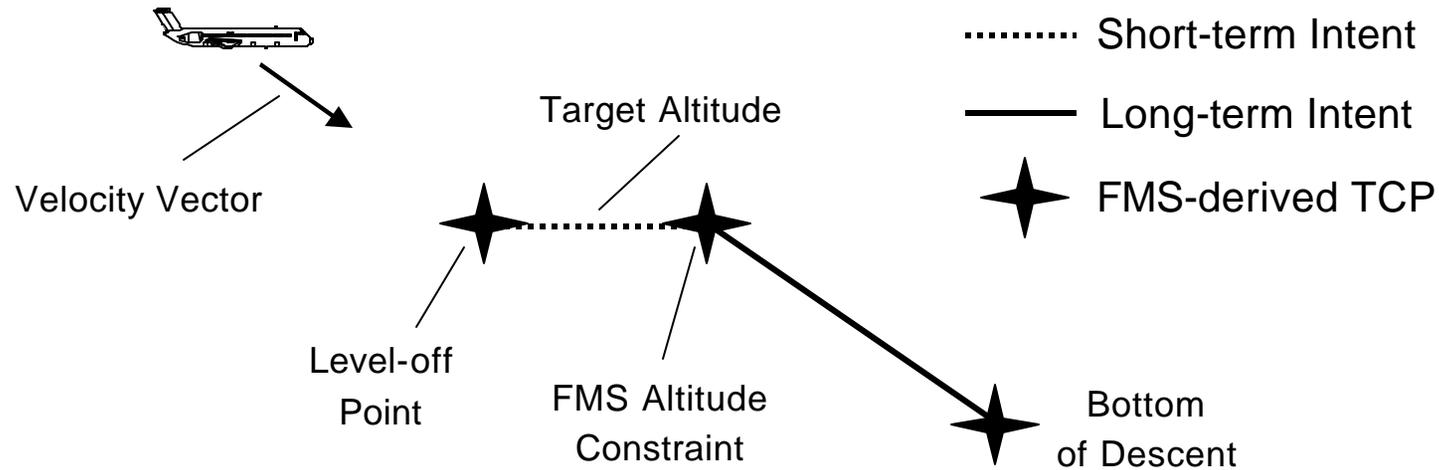


# Vertical Intent Examples

- Vertical Speed (V/S) Climb:



- FMS Descent:



# *General Approach for Broadcasting Short-term Intent*

- Desired heading/track and target altitude.
- Target source indicators provide aircraft system that drives altitude and heading/track targets.
  - Could be used by receiving aircraft to assess confidence that intent information will remain unchanged.
  - For example, MCP targets may be more prone to change than those driven by FMS, given tactical nature of MCP-based control.
- Mode indicators provide confirmation that aircraft has captured or is maintaining the broadcast target state.
  - Could be used to indicate non-conformance if aircraft goes through broadcast targets.

## *Harmonization with other Intent Work*

- Consistent with DO-242 Section 2.1.2.3.2 (Current Intent), p. 38
  - “Target altitude is the desired barometric altitude or flight level for level-off during a climb or descent phases, or the desired barometric altitude or flight level during a constant altitude flight segment.”
  - “Desired track is the anticipated ground track direction for horizontal turn completion, or the intended ground track during a constant flight leg segment.”
- Consistent with Mode S DAP Initiative and ICAO SCRSP Document on Target Altitude (April 2001).
  - Same definition of target altitude.
  - Similar target source and mode indicators.

# *Proposed DO-242A Short-term Intent Parameters*

- Horizontal.
  - 1) Target Heading/Track.
  - 2) Target Source Indicator.
    - Heading/Track Hold.
    - MCP Selected Heading/Track.
    - FMS Track Angle.
  - 3) Mode Indicator.
    - Acquiring.
    - Maintaining.
  - *Turn Radius (space reserved)*
  - *Validity Bits (space reserved)*
- Vertical.
  - 1) Target Altitude.
  - 2) Target Source Indicator.
    - Altitude Hold.
    - MCP Selected Altitude.
    - FMS Altitude (Constraint or Cruise Altitude).
  - 3) Mode Indicator.
    - Acquiring.
    - Capture/Maintaining.
  - *Validity Bits (space reserved)*
- Validity bits used for conformance monitoring on transmitting aircraft.
- Status bits could be used to ensure information is current.

## *Rationale*

- Proposal requires transmitting aircraft to determine target states based on information from various aircraft systems, current flight modes, and aircraft performance.
- Increased processing on transmitting aircraft should reduce probability of incorrect path re-construction by receiving entity (aircraft or ATC).
- Intent information provided whether or not current flight segment has defined end point (TCP).
- Proposal is compatible with and can be expanded to include TCP-based navigation.