Southern California TRACON CDA Design Overview

How does CDA fit?

Presentation to: CDA Workshop, GA Tech, Atlanta, GA
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Date: April 18, 2006
CDA in the Design Process

- How CDA can improve procedure design
  - Allows aircraft to perform on an optimum predictable path
  - Quantified profile changes in response to CDA information
- CDA capacity issues
  - Confidence levels in relation to varied aircraft performance
  - Increasing confidence results in reduced capacity
  - Anchor points may decrease CDA performance but can increase capacity.
- CDA pitfalls
  - Aircraft at flight idle have limited ability to slow further
  - Aircraft at CDA angle have little room to speed up
  - Negative effect of descent buffers
  - Cumulative effect of anchor points
  - Single stream vs. multi-stream
- Real life design example
Real Life Example: LAX Arrival Project

- Design changes in response to pilot/controller workgroups
- New profiles flown and refined in flight simulators
  - B737/B757/B767/A320
- New profile points set
- Redesign LAX Class B
- Modify SCT internal airspace
- Changed over 100 routes
- Modify 4 LAX ILS approaches
- Publish CIVET 5 which replaced MITTS 2
- Publish SEAVU 1 which replaced PARADISE 4
- Initial implementation on February 23, 2006
- Full implementation on March 2, 2006
LAX Arrival Fix Breakdown

49% of LAX Arrival Traffic

<table>
<thead>
<tr>
<th>Fix</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>SLJ</td>
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<tr>
<td>SLJ-P</td>
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<tr>
<td>VTU-J</td>
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<tr>
<td>DARTS-P</td>
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CDA Workshop April 18, 2006

Federal Aviation Administration
MITTS TWO Arrival
(profile view)
New “B” Airspace additions
December 22, 2005
CIVET FIVE (green) compared to current MITTS TWO (orange) (profile view)
Example: aircraft at KONZL and LAADY

Aircraft from JLI departs LAADY heading 360 (same speed.)

NET SPACING – 8 MILES
LAX CIVET/SEAVU Arrival Counts

<table>
<thead>
<tr>
<th>Date</th>
<th>SAT</th>
<th>SUN</th>
<th>MON</th>
<th>TUE</th>
<th>WED</th>
<th>THU</th>
<th>FRI</th>
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<tr>
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<td>227</td>
<td>211</td>
<td>198</td>
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<td>203</td>
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<td>SEAVU-KONZL</td>
<td>142</td>
<td>163</td>
<td>152</td>
<td>143</td>
<td>150</td>
<td>177</td>
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<tr>
<td>SEAVU-LAADDY</td>
<td>11</td>
<td>24</td>
<td>28</td>
<td>20</td>
<td>23</td>
<td>13</td>
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<td>187</td>
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<td>163</td>
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<td>190</td>
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<td>55</td>
<td>38</td>
<td>25</td>
<td>30</td>
<td>31</td>
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CIVET/SEAVU Arrival Counts

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<th>Day of Week</th>
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<tr>
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<td>198</td>
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<td>FRI</td>
<td>198</td>
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</tbody>
</table>

- **CIVET**
  - 3/25: 189
  - 3/26: 189
  - 3/27: 210
  - 3/21: 227
  - 3/29: 211
  - 3/30: 198
  - 3/31: 198
  - Average: 203

- **SEAVU**
  - 3/25: 142
  - 3/26: 163
  - 3/27: 152
  - 3/21: 143
  - 3/29: 150
  - 3/30: 177
  - 3/31: 168
  - Average: 156

- **SEAVU-KONZL**
  - 3/25: 11
  - 3/26: 24
  - 3/27: 28
  - 3/21: 20
  - 3/29: 23
  - 3/30: 13
  - 3/31: 17
  - Average: 19

- **SEAVU-LAADDY**
  - 3/25: 153
  - 3/26: 187
  - 3/27: 180
  - 3/21: 163
  - 3/29: 173
  - 3/30: 190
  - 3/31: 185
  - Average: 176

- **VISTA**
  - 3/25: 55
  - 3/26: 38
  - 3/27: 25
  - 3/21: 30
  - 3/29: 31
  - 3/30: 47
  - 3/31: 37
  - Average: 38
Side View

10,000'

New Class B

CIVET

GRAMM
Next Steps Using CDA Information

- Provide a framework for progress
- Minimal Thrust vs. Flight Idle
- Top Of Descent windows
- Free Descent vs. Anchor Points
- Modify STARs for:
  - CDA windows and Anchor Points
  - CTAS timing changes
  - Move transition points further west
CDA Improvements - CIVET Modifications
Transition Points

CIVET FIVE ARRIVAL
3/23/2005

Aircraft to proceed via RWY 25L unless otherwise instructed by ATC

NOTE: DME or RADAR required.
NOTE: Chart not to scale.
THANK YOU

Southern California TRACON

The Worlds Busiest TRACON

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Date: April 18, 2006