



## APPENDIX D

# Procedure Design Concept Descriptions and Findings

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## TABLE OF CONTENTS

<b>Appendix D</b>	<b>Design Concept Descriptions</b> .....	<b>D-1</b>
D.1	Preliminary Draft Design Concept Phase Alternatives .....	D-1
D.1.1	Recommendation 14 Alternative 1 - Fly Over Turn at 1.5 NM from Shoreline (Nighttime) ....	D-1
D.1.2	Recommendation 14 Alternative 1 – Fly By Turn at 1.5 NM from Shoreline (Nighttime).....	D-3
D.1.3	Recommendation 14 Alternative 2 – Turn at Shoreline (Nighttime) .....	D-5
D.1.4	Recommendation 14 Alternative 3 – Turn at CNEL 65 DB Contour (Nighttime).....	D-7
D.1.5	Recommendation 15 Alternative 1 – Extend JETTI Waypoint Two NM West (DAYTIME) .....	D-9
D.1.6	Recommendation 15 Alternative 2 – Fly By Turn at 1.5 NM from Shoreline then to ZZOOO Waypoint (Nighttime).....	D-11
D.1.7	Recommendation 15 Alternative 3 – Fly Over Turn at 1.5 NM from Shoreline then to ZZOOO Waypoint (Nighttime) .....	D-13
D.1.8	Recommendation 16 Alternative 1 – Cross LNTRN Waypoint at 9,000 ft. to I805/SR52 at 7,000 Ft. to KLOMN Waypoint at 6,000 ft. ....	D-15
D.1.9	Recommendation 16 Alternative 2 – Cross LNTRN Waypoint at 9,000 ft. Direct to KLOMN Waypoint at 6,000 ft. ....	D-17
D.1.10	Recommendation 16 Alternative 3 – Cross BAUCA Waypoint at 9,000 ft. Direct to KLOMN Waypoint at 6,000 ft. ....	D-19
D.2	Draft Design Concept Phase Alternatives .....	D-21
D.2.1	Recommendation 14 Alternative 1 - Fly Over Turn at 1.5 NM from Shoreline (Nighttime) ..	D-21
D.2.2	Recommendation 14 Alternative 1 - Fly By Turn at 1.5 NM from Shoreline (Nighttime) .....	D-23
D.2.3	Recommendation 14 Alternative 1 Version 2- Fly By Turn at 1.5 NM from Shoreline (Nighttime) .....	D-25
D.2.4	Recommendation 14 Alternative 4 - Fly By Turn between Shoreline and 1.5 NM (Nighttime) .....	D-27
D.2.5	Recommendation 14 Alternative 5 - ELSO (285-degree heading) to Fly By Turn at 1.5 NM from Shoreline (Nighttime) .....	D-29
D.2.6	Recommendation 14 Alternative 6 - ELSO (285-degree heading) (Daytime) .....	D-31
D.2.7	Recommendation 15 Alternative 1 - Extend JETTI Waypoint 2 NM West (Daytime).....	D-33
D.2.8	Recommendation 15 Alternative 2 - Fly By Turn at 1.5 NM from Shoreline then to ZZOOO Waypoint (Nighttime).....	D-35
D.2.9	Recommendation 15 Alternative 2 Version 2 - Fly By Turn at 1.5 NM from Shoreline then to ZZOOO Waypoint (Nighttime).....	D-37

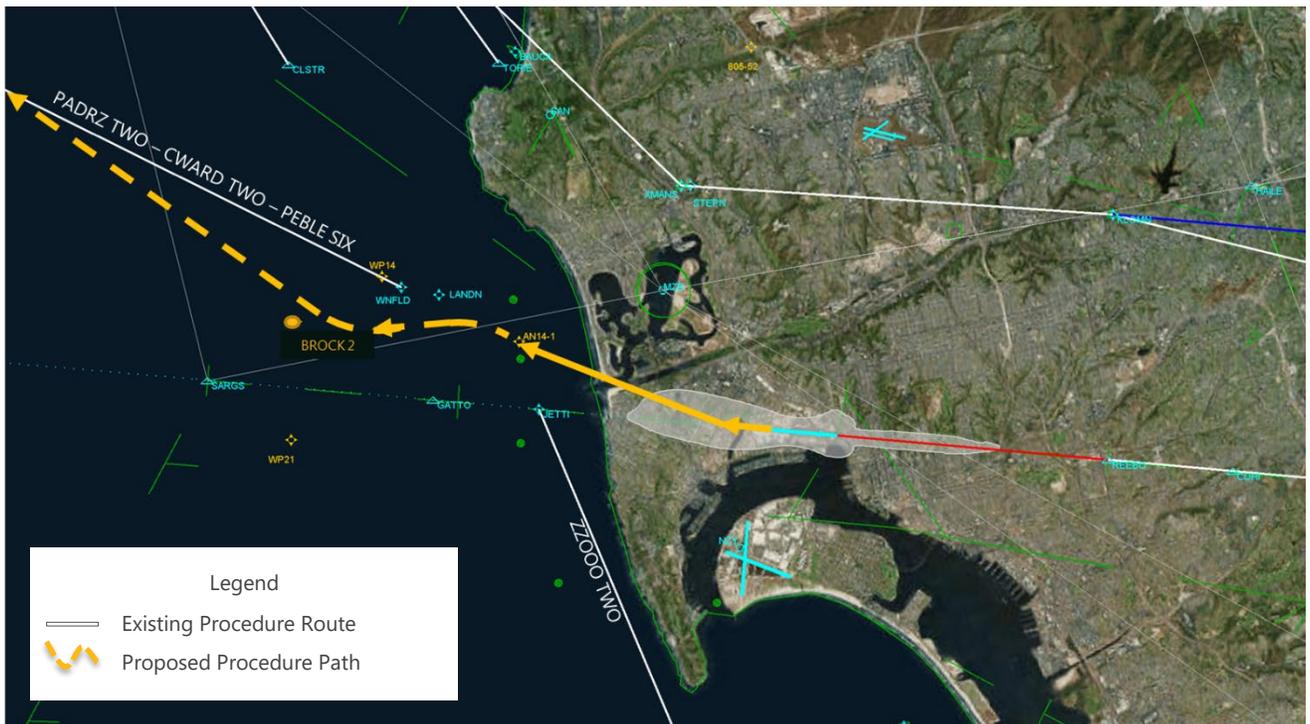
- D.2.10 Recommendation 15 Alternative 3 - Fly Over Turn at 1.5 NM from Shoreline then to ZZOOO Waypoint (Nighttime) .....D-39
- D.2.11 Recommendation 15 Alternative 4 - Fly By Turn between Shoreline and 1.5 NM from Shoreline then to ZZOOO Waypoint (Nighttime) .....D-41
- D.2.12 Recommendation 15 Alternative 5 - ELSO (285-degree heading) to Fly By Turn at 1.5 NM from Shoreline then to ZZOOO Waypoint (Nighttime) .....D-43
- D.2.13 Recommendation 16 Alternative 1 Version 2 - Cross LNTRN Waypoint at 10,000 ft. to I805/SR52 at 8,000 ft. to KLOMN Waypoint at 6,000 ft. ....D-45
- D.2.14 Recommendation 16 Alternative 1 Version 3 - Cross LNTRN Waypoint at or above 8,000 ft. to I805/SR52 at 7,000 ft. to KLOMN Waypoint at 6,000 ft. ....D-47
- D.2.15 Recommendation 16 Alternative 2 Version 2 - Cross LNTRN Waypoint at 10,000 ft. Direct to KLOMN Waypoint at 6,000 ft. ....D-49
- D.3 Final Design Concept Phase Alternatives .....D-51
  - D.3.1 Recommendation 14 Alternative 1 - Fly By Turn at 1.5 NM from Shoreline (Nighttime) .....D-51
  - D.3.2 Recommendation 14 Alternative 4 - Fly By Turn between Shoreline and 1.5 NM (Nighttime) .....D-53
  - D.3.3 Recommendation 15 Alternative 1 - Extend JETTI Waypoint 2 NM West (Daytime) .....D-55
  - D.3.4 Recommendation 15 Alternative 2 Version 2 - Fly By Turn at 1.5 NM from Shoreline then to ZZOOO Waypoint (Nighttime) .....D-57
  - D.3.5 Recommendation 15 Alternative 4 - Fly By Turn between Shoreline and 1.5 NM from Shoreline then to ZZOOO Waypoint (Nighttime) .....D-59
  - D.3.6 Recommendation 16 Alternative 1 Version 3 - Cross LNTRN Waypoint at or above 8,000 ft. to I805/SR52 at 7,000 ft. to KLOMN Waypoint at 6,000 ft. ....D-61

# APPENDIX D DESIGN CONCEPT DESCRIPTIONS

## D.1 PRELIMINARY DRAFT DESIGN CONCEPT PHASE ALTERNATIVES

### D.1.1 RECOMMENDATION 14 ALTERNATIVE 1 - FLY OVER TURN AT 1.5 NM FROM SHORELINE (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	14 ALTERNATIVE 1 – FLY OVER TURN AT 1.5 NM FROM SHORELINE (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Preliminary Draft Concept phase – Version 1
<b>Description:</b>	The concept involves a redesign of the PADRZ TWO SID using the same initial departure heading to a fly over waypoint located at one and a half (1.5) nautical miles (NM) from the shore, then to a new waypoint located due west, then to KERNL waypoint and the remaining waypoints on the PADRZ TWO Standard Instrument Departure (SID).
<b>Intent:</b>	Revise PADRZ SID or create a new procedure to reduce noise in the La Jolla and Pacific Beach areas.
<b>Version Notes:</b>	This is the initial version of the alternative design concept.



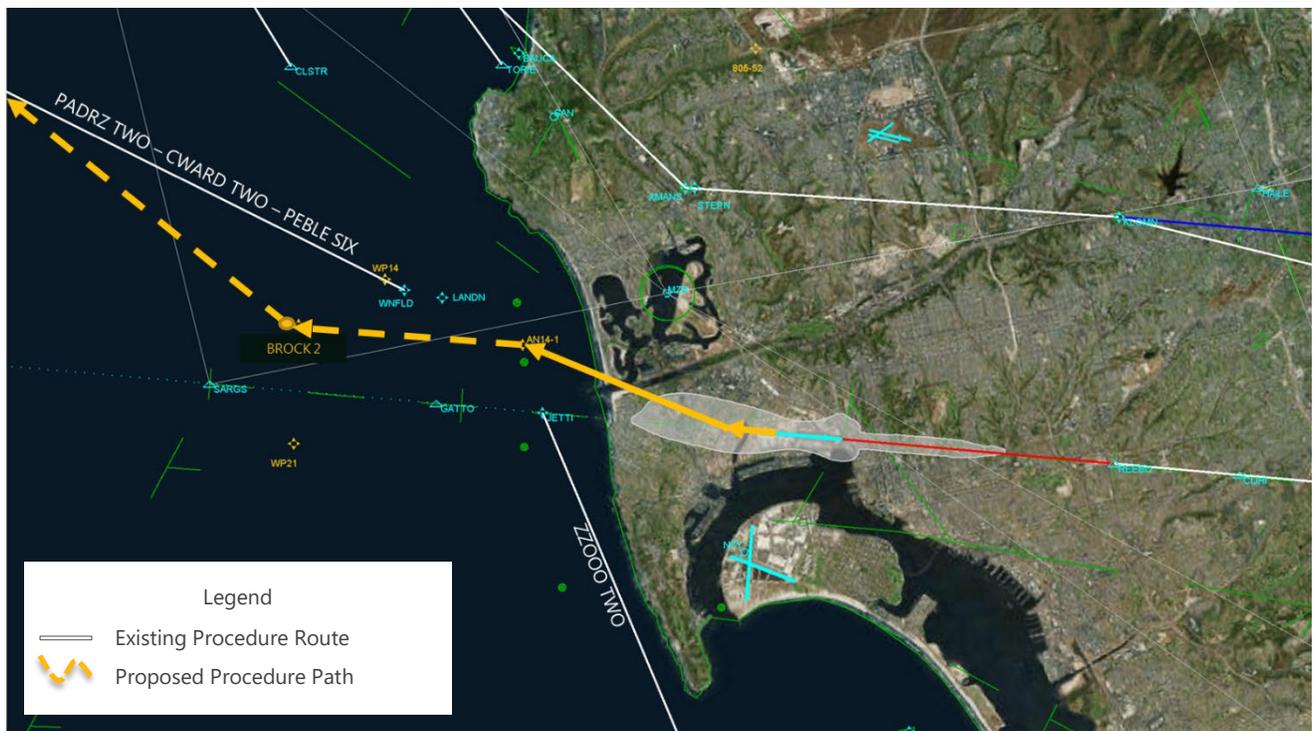
**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), procedure routes (white, blue and red) and navigational aids (cyan)); HMMH, March 2018 (4th Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., May 2018 (proposed procedure path and waypoints (orange)).

**Graphic Reference:** Presented to TAC on May 31, 2018 and CAC on July 19, 2018.

<b>Screening Findings:</b>					
<input checked="" type="checkbox"/> Pass to Draft	<input type="checkbox"/> Pass to Final	<input type="checkbox"/> Pass to Next Steps			
<input type="checkbox"/> Pass to Part 150	<input type="checkbox"/> Eliminate				
<b>Reason for Elimination:</b>					
<input type="checkbox"/> 65 CNEL Influence	<input type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #	
<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input type="checkbox"/> Safety	
<b>Design Notes:</b>					
<ul style="list-style-type: none"> <li>▪ Keeps nighttime departures further south of La Jolla</li> <li>▪ Increases flight distance approximately 1.4 NM compared to PADRZ TWO SID</li> <li>▪ Compatible with proposed ANAC Recommendation 15 Alternative 3 design concept with fly over waypoint</li> <li>▪ Not compatible with proposed ANAC Recommendation 15 Alternative 2 design concept with fly by waypoint due to different turn paths caused by a fly over versus fly by design-- would create a safety risk to potential converging traffic with aircraft on proposed Recommendation 15 Alternative 2 SID</li> </ul>					
<b>Summary Narrative:</b>					
<p>ANAC 14 Alternative 1 (with Fly Over) is a modification of the PADRZ TWO SID to include a left turn to the west to stay further south of the La Jolla area. The design uses the same initial heading and RNAV coding that is used for the current PADRZ TWO SID to a new fly over waypoint, ANAC-14, located along the initial heading at 1.5 NM from the shoreline, then to BROCK2 waypoint, then back to KERNL waypoint and the remaining waypoints on the PADRZ TWO SID.</p> <p>The design meets the intent of ANAC Noise Recommendation 14 and is compliant with the current restrictions used by the Southern California Terminal Radar Approach Control (SCT TRACON) for departures and missed approaches. Therefore, it was recommended to be passed to the Draft Design Concept phase of the project. Input from TAC and CAC required to determine fly over or fly by design preference.</p>					

### D.1.2 RECOMMENDATION 14 ALTERNATIVE 1 – FLY BY TURN AT 1.5 NM FROM SHORELINE (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	14 ALTERNATIVE 1 – FLY BY TURN AT 1.5 NM FROM SHORELINE (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Preliminary Draft Concept phase – Version 1
<b>Description:</b>	The concept involves a redesign of the PADRZ TWO SID using the same initial departure heading to a fly by waypoint located at 1.5 NM from the shore, then to a new waypoint located due west, then to KERNL waypoint and the remaining waypoints on the PADRZ TWO SID.
<b>Intent:</b>	Revise PADRZ SID or create a new procedure to reduce nighttime noise in the La Jolla and Pacific Beach areas.
<b>Version Notes:</b>	This is the initial version of the alternative design concept.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), procedure routes (white, blue and red) and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., May 2018 (proposed procedure path and waypoints (orange)).

**Graphic Reference:** Presented to TAC on May 31, 2018 and CAC on July 19, 2018.

**Screening Findings:**

- |   |  |   |
|---|--|---|
| <input checked="" type="checkbox"/> Pass to Draft | <input type="checkbox"/> Pass to Final | <input type="checkbox"/> Pass to Next Steps |
| <input type="checkbox"/> Pass to Part 150         | <input type="checkbox"/> Eliminate     |   |

**Reason for Elimination:**

- |  |   |  |  |   |
|--|---|--|--|---|
| <input type="checkbox"/> 65 CNEL Influence   | <input type="checkbox"/> ANAC Intent    | <input type="checkbox"/> Charting Requirements | <input type="checkbox"/> Design Criteria         | <input type="checkbox"/> Duplicate ANAC # |
| <input type="checkbox"/> Existing Compliance | <input type="checkbox"/> Not Applicable | <input type="checkbox"/> Noise Impact          | <input type="checkbox"/> Operational Feasibility | <input type="checkbox"/> Safety           |

**Design Notes:**

- Keeps nighttime departures further south of La Jolla
- Increases flight distance approximately 1.4 nautical miles as compared to PADRZ TWO SID
- Compatible with proposed ANAC Recommendation 15 Alternative 2 design concept with fly by waypoint
- Not compatible with proposed ANAC Recommendation 15 Alternative 3 design concept with fly over waypoint due to different turn paths caused by a fly over versus fly by design-- would create a safety risk to potential converging traffic with aircraft on proposed Recommendation 15 Alternative 3 SID

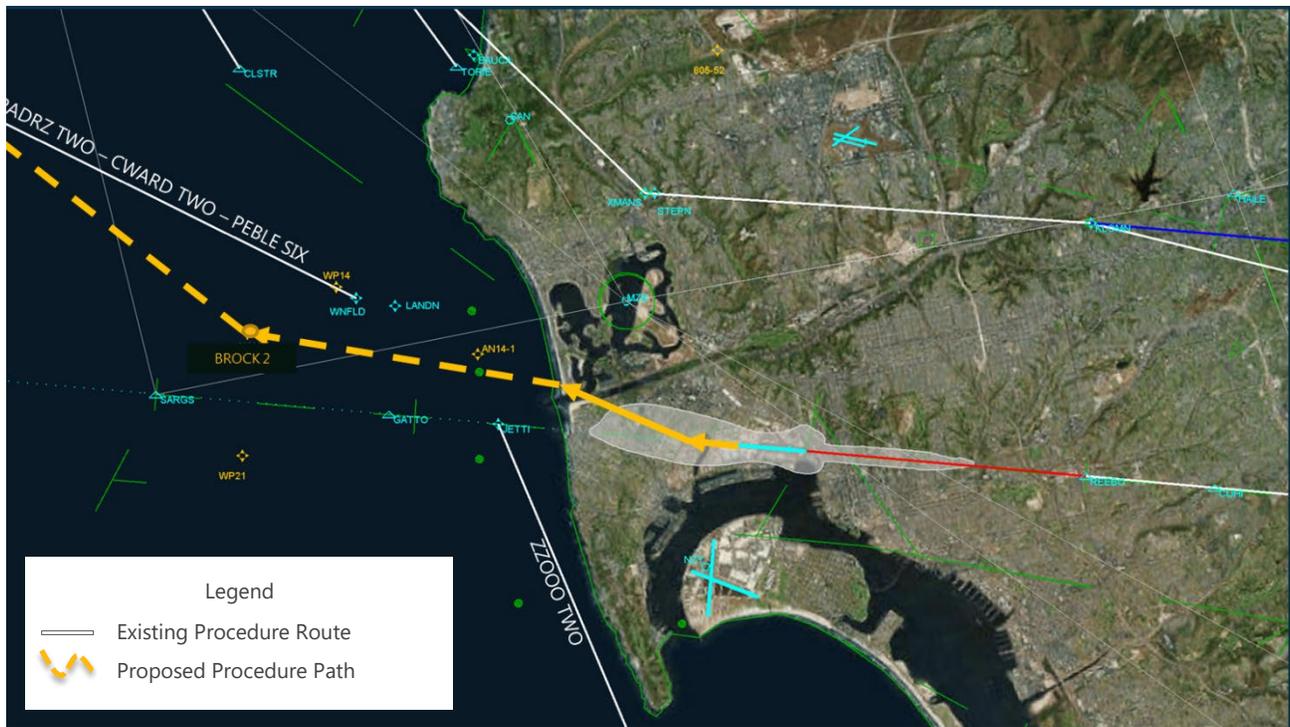
**Summary Narrative:**

ANAC 14 Alternative 1 (with Fly By) is a modification of the PADRZ TWO SID to include a left turn to the west to stay further south of the La Jolla area. The design uses the same initial heading and RNAV coding that is used for the current PADRZ TWO SID to a new fly by waypoint, ANAC-14, located along the initial heading at 1.5 NM from the shoreline, then to BROCK2, then back to KERNL and the remaining waypoints on the PADRZ TWO SID.

The design meets the intent of ANAC Noise Recommendation 14 and is compliant with the current restrictions used by SCT TRACON for departures and missed approaches. Therefore, it was recommended to be passed to the draft phase of the project. Input from TAC and CAC required to determine fly over or fly by design preference.

### D.1.3 RECOMMENDATION 14 ALTERNATIVE 2 – TURN AT SHORELINE (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	14 ALTERNATIVE 2 – TURN AT SHORELINE (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Preliminary Draft Concept phase – Version 1
<b>Description:</b>	The concept involves a redesign of the PADRZ TWO SID using the same initial heading to a fly by waypoint located at the shoreline, then to a new waypoint, BROCK 2, located due west, then to KERNEL and the remaining waypoints on the PADRZ TWO SID.
<b>Intent:</b>	Revise PADRZ SID or create a new procedure to reduce nighttime noise in the La Jolla and Pacific Beach areas.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Legend**

- Existing Procedure Route
- Proposed Procedure Path

**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), procedure routes (white, blue and red) and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., May 2018 (proposed procedure path and waypoints (orange)).

**Graphic Reference:** Presented to TAC on May 31, 2018 and CAC on July 19, 2018.

**Screening Findings:**

- Pass to Draft
- Pass to Final
- Pass to Next Steps
- Pass to Part 150
- Eliminate

**Reason for Elimination:**

- 65 CNEL Influence
- ANAC Intent
- Charting Requirements
- Design Criteria
- Duplicate ANAC #
- Existing Compliance
- Not Applicable
- Noise Impact
- Operational Feasibility
- Safety

**Design Notes:**

- Keeps nighttime departures further south of La Jolla
- Increases flight distance approximately 0.54 NM compared to PADRZ TWO SID
- Not compatible with proposed ANAC Recommendation 15 Alternative 2 and 3 design concepts
- May not be feasible due to expected change in initial departure headings from Runway 27 and incompatibility to ANAC Recommendation 15 design concepts
- Ground track for heavy jets are expected to be south of existing initial departure paths over areas exposed to CNEL 65 or higher
- Not consistent with the current procedure in place restricting turns on departure prior to 1.5 nautical miles from the shoreline
- Fly Over waypoint did not pass TARGETS flyability assessment for this design alternative

**Summary Narrative:**

ANAC 14 Alternative 2 predicated on Alternative 1, but is designed to turn aircraft west at the shoreline versus a waypoint located along the initial heading at 1.5 NM from the shoreline. Two versions of this alternative were attempted, one using a fly by waypoint and another using fly over waypoint. However, the fly over waypoint design did not pass the TARGETS flyability assessment because there is not sufficient distance from the runway end to the fly over waypoint at the shoreline for the aircraft avionics system to navigate and accurately execute intended flight path. Therefore, the fly over version of this alternative was not formally presented as an alternative.

The flyby design version is compliant with FAA criteria and passes the TARGETS flyability assessment. However, the modelled ground tracks for departing aircraft showed major dispersion and the inability of large and heavy aircraft to maintain the intended initial flight path. The modelled heavy aircraft would simply omit the waypoint at the shoreline resulting in a ground track that went from the runway end almost directly to the BROCK 2 waypoint. The dispersion of heavy jet aircraft reduces the predictability of the procedure; therefore, reducing the level of safety compared to the existing PADRZ SID design. The resulting flight path would shift noise south of the areas associated with the current departure track resulting in a shift in the CNEL 65. Due to these impacts the alternative was recommended to be eliminated from further consideration.

### D.1.4 RECOMMENDATION 14 ALTERNATIVE 3 – TURN AT CNEL 65 DB CONTOUR (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	14 ALTERNATIVE 3 – TURN AT CNEL 65 DB CONTOUR (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Preliminary Draft Concept phase – Version 1
<b>Description:</b>	The concept involves a redesign of the PADRZ TWO SID using the same initial heading to a fly by waypoint located at the northwestern edge of the Community Noise Equivalent Level (CNEL) 65 decibel (dB) contour, then to a new waypoint, BROCK 2, located due west, then to KERNEL and the remaining waypoints on the PADRZ TWO SID.
<b>Intent:</b>	Revise PADRZ SID or create a new procedure to reduce noise in the La Jolla and Pacific Beach areas.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), procedure routes (white, blue and red) and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., May 2018 (proposed procedure path and waypoints (orange)).

**Graphic Reference:** Presented to TAC on May 31, 2018 and CAC on July 19, 2018.

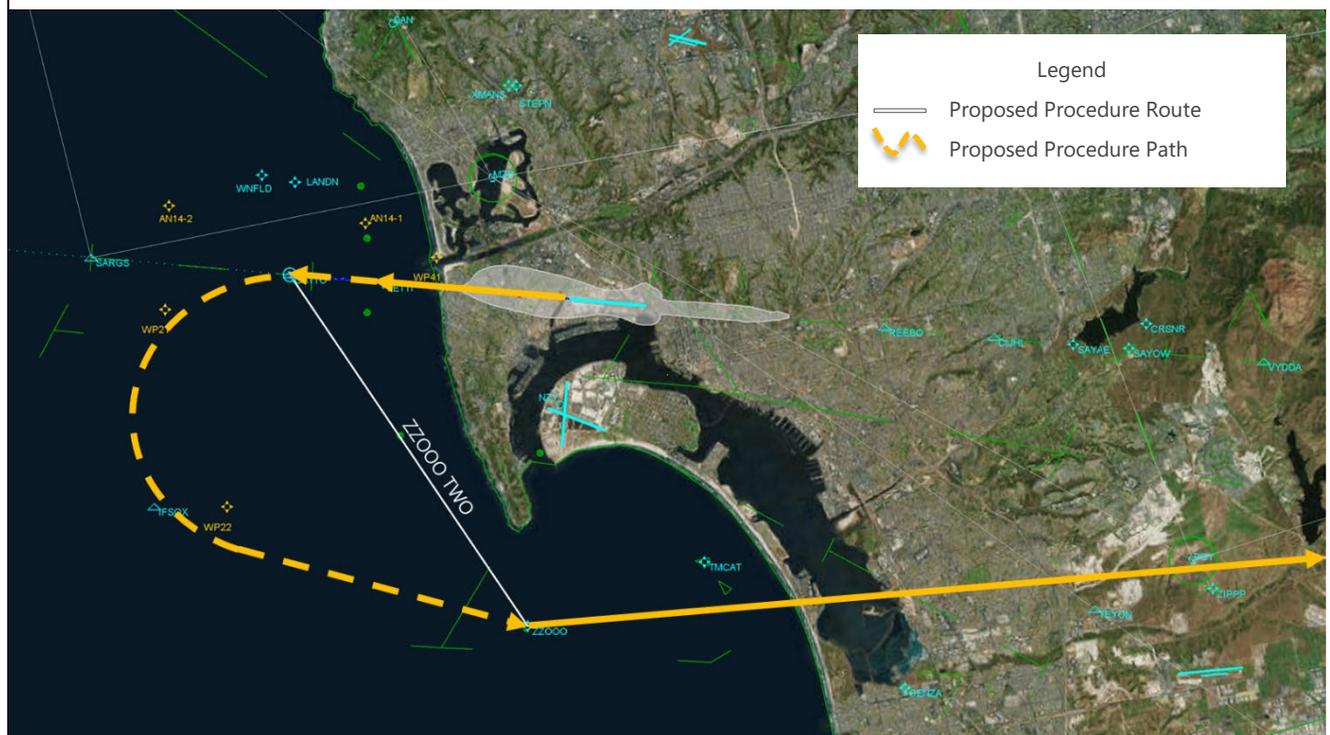
**Screening Findings:**

- Pass to Draft
- Pass to Final
- Pass to Next Steps
- Pass to Part 150
- Eliminate

<b>Reason for Elimination:</b>				
<input checked="" type="checkbox"/> 65 CNEL Influence	<input type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input checked="" type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #
<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input checked="" type="checkbox"/> Safety
<b>Design Notes:</b>				
<ul style="list-style-type: none"> <li>▪ Keeps nighttime departures further south of La Jolla</li> <li>▪ Increases flight distance approximately 0.42 NM compared to PADRZ TWO SID</li> <li>▪ Aircraft would turn left after initial heading prior to reaching 1.5 NM west of the shoreline</li> <li>▪ Not compatible with proposed ANAC Recommendation 15 Alternative 2 and 3 design concepts</li> <li>▪ Not feasible due to expected change in initial departure headings from Runway 27. Heavy jets are expected to be south of existing initial departure paths over areas exposed to CNEL 65 dB or higher</li> <li>▪ Fly Over waypoint design does not meet FAA design criteria</li> <li>▪ Does not pass TARGETS flyability assessment</li> </ul>				
<b>Summary Narrative:</b>				
<p>ANAC 14 Alternative 3 is predicated on Alternative 2, but is designed to turn aircraft west at the edge of the CNEL 65 versus a waypoint located along the initial heading at the shoreline. Two versions of this alternative were attempted, one using a fly by waypoint and another using fly over waypoint. The fly over waypoint design did not meet FAA RNAV design criteria and did not pass the TARGETS flyability assessment, because there is not sufficient distance from the runway end to the fly over waypoint for the aircraft avionics system to navigate and accurately execute intended flight path. Therefore, the fly over version of this alternative was not formally presented as an alternative.</p> <p>The fly by waypoint design passes the FAA criteria and flyability checks, but the modelled ground tracks for departing aircraft showed major dispersion and the inability of large and heavy aircraft to maintain the intended initial route. The modelled heavy aircraft would simply omit the waypoint at the CNEL 65 resulting in a ground track that went from the runway end almost directly to the BROCK 2 waypoint. The dispersion of heavy jet aircraft reduces the predictability of the procedure; therefore, reducing the level of safety compared to the existing PADRZ SID design. The resulting flight path would shift noise south of the areas associated with the current departure track resulting in a shift in the CNEL 65. Due to these impacts, the alternative was recommended to be eliminated from further consideration.</p>				

### D.1.5 RECOMMENDATION 15 ALTERNATIVE 1 – EXTEND JETTI WAYPOINT TWO NM WEST (DAYTIME)

<b>ANAC RECOMMENDATION:</b>	15 ALTERNATIVE 1 – EXTEND JETTI 2 NM WEST (DAYTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Daytime (6:30 a.m. to 9:59 p.m.) Departure
<b>Version:</b>	Preliminary Draft Concept phase – Version 1
<b>Description:</b>	The concept involves a modification of the ZZ000 TWO SID where the JETTI waypoint is moved two NM further west of its current location.
<b>Intent:</b>	Revise the ZZ000 SID to move departures further west of the Point Loma shoreline, reduce or eliminate flight paths over the Point Loma Peninsula, including Cabrillo National Park and to cross over ZZ000 waypoint at a higher altitude compared to current conditions.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan) and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., May 2018 (proposed procedure route (white) and proposed procedure path and waypoints (orange)).

**Graphic Reference:** Presented to TAC on May 31, 2018 and CAC on July 19, 2018.

**Screening Findings:**

- Pass to Draft       Pass to Final       Pass to Next Steps
- Pass to Part 150       Eliminate

**Reason for Elimination:**

- 65 CNEL Influence
- ANAC Intent
- Charting Requirements
- Design Criteria
- Duplicate ANAC #
- Existing Compliance
- Not Applicable
- Noise Impact
- Operational Feasibility
- Safety

**Design Notes:**

- Meets minimum "direct to fix (DF) with a turn segment length" design criteria between JETTI and ZZOOO waypoints
- Designed without speed 230 kts speed limit
- Would increase frequency of aircraft over 8,000 feet Mean Sea Level (MSL) over ZZOOO waypoint
- Moves traffic away from Point Loma shoreline as aircraft proceed towards ZZOOO waypoint
- Would increase flight distance by 2.95 NM compared to existing ZZOOO SID
- Maintains all existing En Route transitions

**Summary Narrative:**

This concept is designed to shift the JETTI waypoint further west with intent of keeping aircraft further away from the shoreline and to provide more flight track distance for aircraft to climb to achieve 8,000 feet at the ZZOOO waypoint. This alternative was also designed to remove the current speed restriction on the ZZOOO TWO required to ensure aircraft flyability from JETTI to ZZOOO.

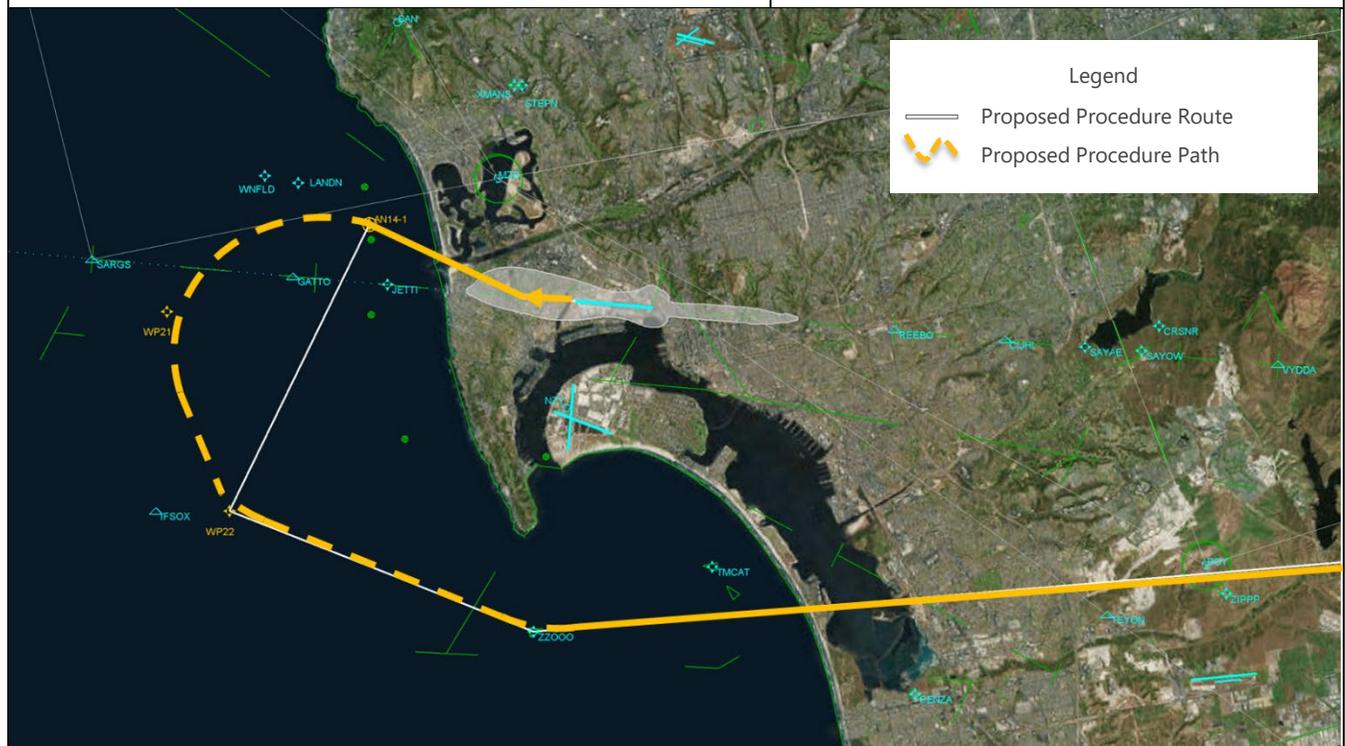
The procedure design meets FAA criteria and passes the flyability assessment, and the intent of the recommendation. Therefore, it was recommended to be passed to the draft phase of the project.



<b>Reason for Elimination:</b>				
<input type="checkbox"/> 65 CNEL Influence	<input type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #
<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input type="checkbox"/> Safety
<b>Design Notes:</b>				
<ul style="list-style-type: none"> <li>▪ Aircraft would turn left after initial heading at a fly by waypoint 1.5 NM west of the shoreline</li> <li>▪ A Track to Fix leg design provides a more predictable path with less dispersion compared to the existing ZZOOO SID Fly Over to Direct to Fix leg design</li> <li>▪ Fly by waypoint and Track to Fix leg design keeps nighttime departures south of Point Loma and increases altitude over ZZOOO waypoint</li> <li>▪ Similar flight distance as compared to existing radar vector departures at night</li> <li>▪ Compatible with proposed ANAC Recommendation 14 Alternative 1 nighttime design concept with fly by waypoint</li> <li>▪ Not compatible with proposed ANAC Recommendation 14 Alternative 1 nighttime design concept with fly over waypoint due to different turn paths caused by a fly over versus fly by design– would create a safety risk to potential converging traffic with aircraft on Recommendation 14 Alternative 1 fly over turn</li> <li>▪ Maintains all existing En Route transitions currently used as part of the ZZOOO TWO SID</li> <li>▪ Not feasible during Contra-Flow operations (arrivals on Runway 9 and departures on Runway 27)</li> </ul>				
<b>Summary Narrative:</b>				
<p>Recommendation 15 Alternative 2 is predicated on the establishment of a new RNAV procedure for nighttime departures to the south and east when the Air Traffic Control Tower directs all jet departures to turn right after 10:00 p.m.. Currently, this is a radar vector only operation. The design of the procedure uses initial heading of the PADRZ TWO SID to a fly by waypoint, ANAC-14, located 1.5 NM from the shoreline. This is the same waypoint as used in Recommendation 14 Alternative 1 fly by design. Aircraft will then track to a new fly by waypoint located west of JETTI, then to the ZZOOO waypoint and the remaining portion of the ZZOOO TWO SID.</p> <p>The procedure design meets the intent of the recommendation and FAA criteria, and passes the TARGETS flyability assessment. Therefore, it was recommended to be passed to the draft phase of the project. Input from TAC and CAC required to determine fly over or fly by design preference.</p>				

### D.1.7 RECOMMENDATION 15 ALTERNATIVE 3 – FLY OVER TURN AT 1.5 NM FROM SHORELINE THEN TO ZZOOO WAYPOINT (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	15 ALTERNATIVE 3 – FLY OVER WAYPOINT AT 1.5 NM FROM SHORELINE THEN TO ZZOOO (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Preliminary Draft Concept phase – Version 1
<b>Description:</b>	The concept involves the development of a new SID using the initial heading design of the PADRZ TWO SID to a fly by waypoint located 1.5 NM from the shore, then to a series of fly by waypoint to the ZZOOO waypoint and the remaining portion of the ZZOOO TWO SID.
<b>Intent:</b>	Revise the ZZOOO SID to significantly reduce or eliminate flight paths over the Point Loma Peninsula, including Cabrillo National Park and to reduce east bound turns over La Jolla.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan) and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., May 2018 (proposed procedure route (white) and proposed procedure path and waypoints (orange)).

**Graphic Reference:** Presented to TAC on May 31, 2018 and CAC on July 19, 2018.

**Screening Findings:**

- Pass to Draft       Pass to Final       Pass to Next Steps
- Pass to Part 150       Eliminate

<b>Reason for Elimination:</b>				
<input type="checkbox"/> 65 CNEL Influence	<input type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #
<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input type="checkbox"/> Safety
<b>Design Notes:</b>				
<ul style="list-style-type: none"> <li>▪ Aircraft would turn left after initial heading at a fly over waypoint 1.5 NM west of the shoreline</li> <li>▪ Fly over waypoint and Direct to Fix leg design keeps nighttime departures south of Point Loma and increases altitude over ZZOOO waypoint, but will have similar dispersion to the current ZZOOO SID traffic as aircraft head south to the ZZOOO waypoint</li> <li>▪ Similar flight distance as compared to existing radar vector departures at night</li> <li>▪ Compatible with proposed ANAC Recommendation 14 Alternative 1 nighttime design concept with a fly over waypoint</li> <li>▪ Not compatible with proposed ANAC Recommendation 14 Alternative 1 nighttime design concept with a fly by waypoint due to different turn paths caused by a fly over versus fly by design – would create a safety risk to potential converging traffic with aircraft on proposed Recommendation 14 Alternative 1 with a fly by turn</li> <li>▪ Maintains all existing En Route transitions currently used as part of the ZZOOO TWO SID</li> <li>▪ Not feasible during Contra-Flow operations (arrivals on Runway 9 and departures on Runway 27)</li> </ul>				
<b>Summary Narrative:</b>				
<p>Recommendation 15 Alternative 3 is the similar to Recommendation 15 Alternative 2. The design of the procedure uses initial heading of the PADRZ TWO SID to a fly over waypoint, ANAC-14, located 1.5 NM from the shoreline. This is the same waypoint as used in Recommendation 14 Alternative 1 with a fly over waypoint design. Aircraft will then fly direct a new fly by waypoint located west of the JETTI waypoint, then track to the ZZOOO waypoint and the remaining portion of the ZZOOO TWO SID.</p> <p>The procedure design meets the intent of the recommendation and FAA criteria, and passes the TARGETS flyability assessment. Therefore, it was recommended to be passed to the draft phase of the project. Input from TAC and CAC required to determine fly over or fly by design preference.</p>				

### D.1.8 RECOMMENDATION 16 ALTERNATIVE 1 – CROSS LNTRN WAYPOINT AT 9,000 FT. TO I805/SR52 AT 7,000 FT. TO KLOMN WAYPOINT AT 6,000 FT.

<b>ANAC RECOMMENDATION:</b>	16 ALTERNATIVE 1 – LNTRN AT 9,000 FT. TO I805/SR52 AT 7,00 FT. TO KLOMN AT 6,000 FT.
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Arrivals
<b>Version:</b>	Preliminary Draft Concept phase – Version 1
<b>Description:</b>	The concept involves the revision of the COMIX STAR with direct routing from LNTRN waypoint to a new fly by waypoint at I805/SR52 to KLOMN waypoint. Aircraft will cross LNTRN at 9,000 feet, I805/SR52 at 7,000 feet, and KLOMN at 6,000 feet.
<b>Intent:</b>	Reassess and revive the entire arrival corridor in a manner that more appropriately “shares the noise” instead of concentrating arrivals from the North into a very narrow corridor over La Jolla area.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), Runway 27 RNP approach (white) and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., May 2018 (proposed procedure route (white) and proposed procedure path (orange)).

**Graphic Reference:** Presented to TAC on May 31, 2018 and CAC on July 19, 2018.

**Screening Findings:**

- Pass to Draft
- Pass to Final
- Pass to Next Steps
- Pass to Part 150
- Eliminate

<b>Reason for Elimination:</b>				
<input type="checkbox"/> 65 CNEL Influence	<input checked="" type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #
<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input type="checkbox"/> Safety
<b>Design Notes:</b>				
<ul style="list-style-type: none"> <li>▪ Design includes proposed waypoint at I-805 and SR-52 and directs arrivals direct to KLOMN waypoint from LNTRN instead of going to the XMANS waypoint</li> <li>▪ Increasing altitude at LNTRN waypoint to 10,000 feet not feasible due to descent gradient requirements (maximum of 330 feet per nautical mile) between LNTRN and the new I805/SR52 waypoint at 7,000 feet.</li> <li>▪ Possible ATC issues with MCAS Miramar</li> <li>▪ Moves noise from one community to another - may be deemed infeasible by FAA due to environmental concerns</li> <li>▪ Maintains all existing En Route transitions for the COMIX STAR</li> <li>▪ Reduces the flight track by one NM compared to the COMIX STAR</li> </ul>				
<b>Summary Narrative:</b>				
<p>Recommendation 16 Alternative 1 design is based on a conceptual flight path provided by ANAC. The conceptual flight path involves moving the XMANS waypoint to the intersection of I805 and SR52. This establishes a straight route from LNTRN to a new waypoint, I805-52 located at the intersection of I805 and SR52, then to the KLOMN waypoint. This design moves arrival traffic to the northern area of La Jolla near the Torey Pines golf course.</p> <p>The altitudes used for this design are predicated on the COMIX TWO STAR. An attempt was made to raise the altitude at LNTRN to 10,000 feet. However, the descent gradient maximum from in the segment from LNTRN to I805-52 at 7,000 feet would be exceeded. Therefore, 9,000 feet was maintained at LNTRN.</p> <p>The new route significantly changes the flight track for the arrival resulting in a shift in noise from one community to another. The new route also reduces the sequencing and spacing area available to SCT TRACON for arrivals and places traffic within the Miramar Marine Corps Air Station Airspace where possible conflicts may occur.</p> <p>An evaluation was conducted based on the MITRE CAASD Guidance for Noise Screening of Air Traffic Actions, Revision 1.1 dated December 2012. The evaluation included the lateral or LAT test which is used to screen for potential noise impacts resulting from the lateral movement of a routes above 3,000 ft above ground level (AGL) that may occur by adding, removing or changing the location of a fix, assuming the location change occurs in isolation. The LAT test resulted in a “fail” indicating the proposed design may cause a change in Day/Night Noise Level (CNEL) exceeding the noise screening thresholds (a CNEL 3.0 dB increase for areas exposed to CNEL 60 to 65 levels or a CNEL 5.0 dB increase for areas exposed to levels between CNEL 45 and 60 dB).</p> <p>At the May 31, 2018 TAC meeting, airline representatives indicated concerns related to the alternative design concepts for Recommendation 16 (arrivals from the north to Runway 27). They indicated the decent from LNTRN waypoint at 8,000 ft. MSL to KLOMN waypoint at 6,000 ft. MSL is already difficult to make for the navigation software onboard the aircraft, especially for aircraft with modern wing design (e.g. Embraer 175 and Boeing 737-MAX models). Steep descents in addition to speed reductions are not recommended for arrival procedures. This combination could lead some navigation software to reduce speed well before air traffic controller would like the aircraft to be at a slower speed leading to potential non-compliance to air traffic control instructions.</p> <p>At the July 19, 2018 CAC meeting, CAC indicated this alternative design concept did not adequately meet the intent of Recommendation 16. This alternative represents the closest design to meet the intent, but. CAC requested the crossing altitude over the LNTRN waypoint to be increased to 10,000 ft. MSL. The Team eliminated Recommendation 16 Version 1, because it did not meet the intent of ANAC Recommendation 16. The Team added a design concept for consideration during the Draft Design Concept phase: Recommendation 16 Alternative 1 Version 2 (Cross LNTRN Waypoint at 10,000 ft. to I805/SR52 at 8,000 ft. to KLOMN Waypoint at 6,000 ft. CAC also requested the design for Recommendation 16 be part of the noise model screening analysis.</p>				

### D.1.9 RECOMMENDATION 16 ALTERNATIVE 2 – CROSS LNTRN WAYPOINT AT 9,000 FT. DIRECT TO KLOMNM WAYPOINT AT 6,000 FT.

<b>ANAC RECOMMENDATION:</b>	16 ALTERNATIVE 2 – LNTRN TO KLOMNM
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Arrivals
<b>Version:</b>	Preliminary Draft Concept phase – Version 1
<b>Description:</b>	The concept involves the revision of the COMIX STAR with direct routing from LNTRN waypoint to KLOMNM waypoint. Aircraft will cross LNTRN at 9,000 feet, and KLOMNM at 6,000 feet.
<b>Intent:</b>	Reassess and revise the entire arrival corridor in a manner that more appropriately “shares the noise” instead of concentrating arrivals from the North into a very narrow corridor.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), Runway 27 RNP approach (white) and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., May 2018 (proposed procedure route (white) and proposed procedure path (orange)).

**Graphic Reference:** Presented to TAC on May 31, 2018 and CAC on July 19, 2018.

**Screening Findings:**

- Pass to Draft       Pass to Final       Pass to Next Steps
- Pass to Part 150       Eliminate

**Reason for Elimination:**

- 65 CNEL Influence       ANAC Intent       Charting Requirements       Design Criteria       Duplicate ANAC #
- Existing Compliance       Not Applicable       Noise Impact       Operational Feasibility       Safety

**Design Notes:**

- Design includes proposed waypoint at I-805 and SR-52
- Reduces vectoring and sequencing area may be deemed infeasible by FAA
- Possible ATC issues with MCAS Miramar
- Moves noise from one community to another - may be deemed infeasible by FAA due to environmental concerns
- Maintains all existing En Route transitions for the COMIX STAR
- Reduces the flight track by one NM compared to the COMIX STAR

**Summary Narrative:**

Recommendation 16 Alternative 2 is an alternative design based on the suggestion provided in the ANAC recommendation and Alternative 1. The design establishes a straight route from LNTRN waypoint to KLOMN waypoint without the I805-52 waypoint, moving traffic away from La Jolla. The altitudes used for this design are predicated on the COMIX TWO STAR. The altitudes used were the same as used in Recommendation 16 Alternative 1. Aircraft would cross LNTRN waypoint at 9,000 feet and KLOMN at 6,000 feet.

Although FAA design criteria is met, the proposed concept route significantly changes the flight track for the arrival resulting in a shift in noise from one community to another. The new route also reduces the sequencing and spacing area available to SCT for arrivals and places traffic within the Miramar Marine Corps Air Station Airspace where possible conflicts may occur.

An evaluation was conducted based on the MITRE CAASD Guidance for Noise Screening of Air Traffic Actions, Revision 1.1 dated December 2012. The evaluation included the lateral or LAT test which is used to screen for potential noise impacts resulting from the lateral movement of a routes above 3,000 ft above ground level (AGL) that may occur by adding, removing or changing the location of a fix, assuming the location change occurs in isolation. The LAT test resulted in a "fail" indicating the proposed design may cause a change in Day/Night Noise Level (CNEL) exceeding the noise screening thresholds (a CNEL 3.0 dB increase for areas exposed to CNEL 60 to 65 levels or a CNEL 5.0 dB increase for areas exposed to levels between CNEL 45 and 60 dB).

At the May 31, 2018 TAC meeting, airline representatives indicated concerns related to the alternative design concepts for Recommendation 16 (arrivals from the north to Runway 27). They indicated the decent from LNTRN waypoint at 8,000 ft. MSL to KLOMN waypoint at 6,000 ft. MSL is already difficult to make for the navigation software onboard the aircraft, especially for aircraft with modern wing design (e.g. Embraer 175 and Boeing 737-MAX models). Steep descents in addition to speed reductions are not recommended for arrival procedures. This combination could lead some navigation software to reduce speed well before air traffic controller would like the aircraft to be at a slower speed leading to potential non-compliance to air traffic control instructions.

At the July 19, 2018 CAC meeting, CAC indicated this alternative design concept did not adequately meet the intent of Recommendation 16. CAC requested the crossing altitude over the LNTRN waypoint to be increased to 10,000 ft. MSL and include a waypoint at the I-805/SR52 intersection. The Team eliminated Recommendation 16 Alternative 2, because it did not meet the intent of ANAC Recommendation 16. The Team added a design concept for consideration during the Draft Design Concept phase: Recommendation 16 Alternative 1 Version 2 (Cross LNTRN Waypoint at 10,000 ft. to I805/SR52 at 8,000 ft. to KLOMN Waypoint at 6,000 ft.) and Recommendation 16 Alternative 2 Version 2 (Cross LNTRN Waypoint at 10,000 ft. to KLOMN Waypoint at 6,000 ft.). A version of Recommendation 16 Alternative 2 design without a waypoint at I-805/SR-52 was maintained as an option if Alternative 1 Version 2 was found to be not feasible.

### D.1.10 RECOMMENDATION 16 ALTERNATIVE 3 – CROSS BAUCA WAYPOINT AT 9,000 FT. DIRECT TO KLOMNI WAYPOINT AT 6,000 FT.

<b>ANAC RECOMMENDATION:</b>	16 ALTERNATIVE 3 – BAUCA TO KLOMNI
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Arrivals
<b>Version:</b>	Preliminary Draft Concept phase – Version 1
<b>Description:</b>	The concept involves the revision of the COMIX STAR with routing from LNTRN waypoint to BAUCA waypoint to KLOMNI waypoint. Aircraft will cross LNTRN at 10,000, BAUCA at 9,000 feet and KLOMNI at 6,000 feet.
<b>Intent:</b>	Reassess and revise the entire arrival corridor in a manner that more appropriately “shares the noise” instead of concentrating arrivals from the North into a very narrow corridor.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), Runway 27 RNP approach (white) and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., May 2018 (proposed procedure route (white) and proposed procedure path (orange)).

**Graphic Reference:** Presented to TAC on May 31, 2018 and CAC on July 19, 2018.

**Screening Findings:**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Pass to Draft    | <input type="checkbox"/> Pass to Final        | <input type="checkbox"/> Pass to Next Steps |
| <input type="checkbox"/> Pass to Part 150 | <input checked="" type="checkbox"/> Eliminate |   |

**Reason for Elimination:**

- |  |   |  |  |   |
|--|---|--|--|---|
| <input type="checkbox"/> 65 CNEL Influence   | <input checked="" type="checkbox"/> ANAC Intent | <input type="checkbox"/> Charting Requirements | <input type="checkbox"/> Design Criteria         | <input type="checkbox"/> Duplicate ANAC # |
| <input type="checkbox"/> Existing Compliance | <input type="checkbox"/> Not Applicable         | <input type="checkbox"/> Noise Impact          | <input type="checkbox"/> Operational Feasibility | <input type="checkbox"/> Safety           |

**Design Notes:**

- Design attempted to keep arrivals north of La Jolla when crossing over the shoreline
- Reduces vectoring and sequencing area may be deemed infeasible by FAA
- Moves noise from one community to another - may be deemed infeasible by FAA due to environmental concerns
- Does not pass TARGETS flyability for low performance aircraft crossing COMIX waypoint at 15,000 feet MSL
- Flight track is further south of MCAS Miramar compared to Alternatives 1 and 2
- Maintains all existing En Route transitions of the COMIX STAR
- Reduction in distance is less than one NM compared to the COMIX STAR

**Summary Narrative:**

Recommendation 16 Alternative 3 was proposed as alternative route that would be further north of the existing flight path and south of the flight path associated with Recommendation 16 Alternatives 1 or 2. The altitudes used for this design were predicated on the COMIX TWO STAR.

At the July 19, 2018 CAC meeting, CAC indicated this alternative design concept did not adequately meet the intent of Recommendation 16. CAC requested the crossing altitude over the LNTRN waypoint to be increased to 10,000 ft. MSL and include a waypoint at the I-805/SR52 intersection. The Team eliminated Recommendation 16 Alternative 2, because it did not meet the intent of ANAC Recommendation 16. The Team added a design concept for consideration during the Draft Design Concept phase: Recommendation 16 Alternative 1 Version 2 (Cross LNTRN Waypoint at 10,000 ft. to I805/SR52 at 8,000 ft. to KLOMN Waypoint at 6,000 ft.

## D.2 DRAFT DESIGN CONCEPT PHASE ALTERNATIVES

### D.2.1 RECOMMENDATION 14 ALTERNATIVE 1 - FLY OVER TURN AT 1.5 NM FROM SHORELINE (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	14 ALTERNATIVE 1 – FLY OVER TURN AT 1.5 NM FROM SHORELINE (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Draft Design Concept – Version 1
<b>Description:</b>	The concept involves a redesign of the PADRZ TWO SID using the same initial heading to a fly over waypoint located at 1.5 NM from the shoreline, then to a new waypoint located due west, then to KERNL waypoint and the remaining waypoints on the PADRZ TWO SID.
<b>Intent:</b>	Revise PADRZ SID or create a new procedure to reduce nighttime noise in the La Jolla and Pacific Beach areas.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), existing procedure routes (white, final approach (red) and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., May 2018 (proposed procedure route (white) and proposed procedure path and waypoints (orange)).

**Graphic Reference:** Presented to TAC and CAC on August 30, 2018.

**Screening Findings:**

- Pass to Draft
- Pass to Final
- Pass to Next Steps
- Pass to Part 150
- Eliminate

<b>Reason for Elimination:</b>				
<input type="checkbox"/> 65 CNEL Influence	<input checked="" type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #
<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input checked="" type="checkbox"/> Safety
<b>Design Notes:</b>				
<ul style="list-style-type: none"> <li>▪ Aircraft turn left after passing over waypoint located at 1.5 NM from shoreline</li> <li>▪ Traffic patterns turning left after flying over waypoint is expected to be dispersed and not predictable compared to a fly by design</li> <li>▪ Cause a S-turn type pattern for traffic heading north/northwest</li> <li>▪ Keeps nighttime departures south of La Jolla, but closer to La Jolla compared to using a fly by waypoint.</li> <li>▪ Increases flight distance approximately 1.43 NM compared to PADRZ departures at night</li> <li>▪ Compatible with proposed ANAC Recommendation 15 Nighttime Alternative 3 design concept with Fly Over waypoint</li> <li>▪ Not compatible with proposed ANAC Recommendation 15 Nighttime Alternative 2 fly by design concept due to potential loss of safe separation with following aircraft on proposed northbound SID as lead aircraft turns south towards ZZOOO waypoint</li> </ul>				
<b>Summary Narrative:</b>				
<p>Recommendation 14 Alternative 1 with a fly over waypoint is a modification of the PADRZ TWO SID to include a left turn to the west to keep aircraft further south La Jolla area during nighttime hours. The design uses the same initial heading and RNAV coding that is used for the current PADRZ TWO SID to a new fly over waypoint, ANAC-14, located along the initial heading at 1.5 NM from the shoreline, then to BROCK2, then back to KERNL and the remaining waypoints on the PADRZ TWO SID. No adjustments to the design were conducted between the Preliminary Draft Design Concept phase and the Draft Design Concept phase.</p> <p>Further analysis was conducted in the draft phase of this alternative. The design meets the intent of Recommendation 14 and is compliant with the current restrictions used by SCT TRACON for departures and missed approaches. However, according to FAA criteria, a fly over waypoint should only be used when operationally necessary. Second, a fly by waypoint design for eastbound departures and a fly over waypoint design for northbound departures is not compatible due to potential loss of safe separation with following aircraft on proposed northbound SID as lead aircraft heading east turns south towards ZZOOO waypoint. Third, the use of a fly over waypoint on this procedure will cause aircraft traffic patterns turning west to be unpredictable and track closer to La Jolla compared to a fly by waypoint design. At the August 30, 2018 CAC and TAC meetings, TAC and CAC indicated a preference to the fly by design as a means to best meet the intent of Recommendation 14 compared to the fly over design. Therefore, this procedure was recommended to be eliminated from further consideration based on the potential safety risks associated with the incompatibility between a fly by design for eastbound departures and a fly over design for northbound departures, and use of the CAC preferred fly by design that best meets the intent of Recommendation 14 to keep northbound departures further south of the La Jolla area. This design concept was recommended to be eliminated from further consideration.</p>				

### D.2.2 RECOMMENDATION 14 ALTERNATIVE 1 - FLY BY TURN AT 1.5 NM FROM SHORELINE (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	14 ALTERNATIVE 1 – FLY BY TURN AT 1.5 NM FROM SHORELINE (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Draft Design Concept – Version 1
<b>Description:</b>	The concept involves a redesign of the PADRZ TWO SID using the same initial heading to a fly by waypoint located at 1.5 nautical miles from the shore, then to a new waypoint located due west, then to KERNL and the remaining waypoints on the PADRZ TWO SID.
<b>Intent:</b>	Revise PADRZ SID or create a new procedure to reduce noise in the La Jolla, Mission Beach, and Pacific Beach areas.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), existing procedure routes (white, final approach (red) and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., May 2018 (proposed procedure path and waypoints (orange)).

**Graphic Reference:** Presented to TAC and CAC on August 30, 2018.

**Screening Findings:**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Pass to Draft    | <input type="checkbox"/> Pass to Final        | <input type="checkbox"/> Pass to Next Steps |
| <input type="checkbox"/> Pass to Part 150 | <input checked="" type="checkbox"/> Eliminate |   |

**Reason for Elimination:**

- |  |   |  |  |   |
|--|---|--|--|---|
| <input type="checkbox"/> 65 CNEL Influence   | <input checked="" type="checkbox"/> ANAC Intent | <input type="checkbox"/> Charting Requirements | <input type="checkbox"/> Design Criteria         | <input type="checkbox"/> Duplicate ANAC # |
| <input type="checkbox"/> Existing Compliance | <input type="checkbox"/> Not Applicable         | <input type="checkbox"/> Noise Impact          | <input type="checkbox"/> Operational Feasibility | <input type="checkbox"/> Safety           |

**Design Notes:**

- Keeps nighttime departures further south of La Jolla
- Increases flight distance approximately 1.43 NM as compared to PADRZ TWO SID
- Compatible with proposed Recommendation 15 Nighttime Alternative 2 design concept
- Not compatible with proposed Recommendation 15 Nighttime Alternative 3 design concept due to potential loss of safe separation with following aircraft on proposed northbound SID as lead aircraft turns south towards ZZOOO waypoint

**Summary Narrative:**

Recommendation 14 Alternative 1 with a fly by waypoint is a modification of the PADRZ TWO SID to include a left turn to the west to keep aircraft further south of the La Jolla area for nighttime hours. The design uses the same initial heading and RNAV coding that is used for the current PADRZ TWO SID to a new fly by waypoint, ANAC-14, located along the initial heading at 1.5 NM from the shoreline, then to BROCK2, then back to KERNL and the remaining waypoints on the PADRZ TWO SID. No adjustments to the design were conducted between the Preliminary Draft Design Concept phase and the Draft Design Concept phase.

Further analysis was conducted as part of the draft phase of the project. The design meets the intent of ANAC Noise Recommendation 14 and is compliant with the current restrictions used by SCT TRACON for departures and missed approaches. However, through discussions with TAC and CAC at the August 30, 2018 meeting, there was a concern that aircraft would turn west prior to the established noise dots located 1.5 nautical miles from the shoreline due to the Distance Turn Anticipation (DTA) associated with the fly by waypoint. As a result, this design was recommended to be eliminated and replaced with Recommendation Alternative 1 with fly by waypoint Version 2 that moves the waypoint slightly west to ensure aircraft would not start the turn until 1.5 NM from the shoreline.

### D.2.3 RECOMMENDATION 14 ALTERNATIVE 1 VERSION 2- FLY BY TURN AT 1.5 NM FROM SHORELINE (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	14 ALTERNATIVE 1 VERSION 2 – FLY BY TURN AT 1.5 NM FROM SHORELINE (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Draft Design Concept – Version 2
<b>Description:</b>	The concept involves a redesign of the PADRZ TWO SID using the same initial heading to a fly by waypoint, ANAC14-1, located at two NM from the shoreline, then to a new waypoint located due west, then to KERNEL waypoint and the remaining waypoints on the PADRZ TWO SID.
<b>Intent:</b>	Revise PADRZ SID or create a new procedure to reduce noise in the La Jolla and Pacific Beach areas.
<b>Version Notes:</b>	This is the second version of the alternative



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), existing procedure routes (white, final approach (red) and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., August 2018 (proposed procedure path and waypoints (orange)).

**Graphic Reference:** Presented to TAC and CAC on August 30, 2018.

**Screening Findings:**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Pass to Draft    | <input checked="" type="checkbox"/> Pass to Final | <input type="checkbox"/> Pass to Next Steps |
| <input type="checkbox"/> Pass to Part 150 | <input type="checkbox"/> Eliminate                |   |

**Reason for Elimination:**

- |  |   |  |  |   |
|--|---|--|--|---|
| <input type="checkbox"/> 65 CNEL Influence   | <input type="checkbox"/> ANAC Intent    | <input type="checkbox"/> Charting Requirements | <input type="checkbox"/> Design Criteria         | <input type="checkbox"/> Duplicate ANAC # |
| <input type="checkbox"/> Existing Compliance | <input type="checkbox"/> Not Applicable | <input type="checkbox"/> Noise Impact          | <input type="checkbox"/> Operational Feasibility | <input type="checkbox"/> Safety           |

**Design Notes:**

- Ensures turns after initial heading do not occur prior to 1.5 NM from shoreline
- Aircraft start turn at 1.5 NM from shoreline just prior to waypoint and flies just south of waypoint to join next course
- Keeps nighttime departures further south of La Jolla
- Increases flight distance approximately 1.5 NM as compared to PADRZ departures at night
- Compatible with proposed ANAC Recommendation 15 Nighttime Alternative 2 Version 2 design concept

**Summary Narrative:**

Recommendation 14 Alternative 1 Version 2 is a modification of the PADRZ TWO SID to include a left turn to the west to keep aircraft further south of La Jolla area during nighttime hours. The design uses the same initial heading and RNAV coding that is used for current PADRZ TWO SID to a new fly by waypoint, ANAC-14-1, located along the initial heading at two NM from the shoreline, then to BROCK2, then back to KERNL and the remaining waypoints on the PADRZ TWO SID. The design has been modified to ensure aircraft do not turn prior to the established noise dots located 1.5 NM from the shoreline. The design allows for predictable flight tracks that are designed to stay south of ANAC14-1.

The design meets the intent of ANAC Noise Recommendation 14 and FAA criteria, and is compliant with the current restrictions used by SCT TRACON for departures and missed approaches. Therefore, it was recommended to be passed on to the final phase of the project.

### D.2.4 RECOMMENDATION 14 ALTERNATIVE 4 - FLY BY TURN BETWEEN SHORELINE AND 1.5 NM (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	14 ALTERNATIVE 4 – FLY BY TURN BETWEEN SHORELINE AND 1.5 NM (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Draft Design Concept – Version 1
<b>Description:</b>	The concept involves a redesign of the PADRZ TWO SID using the same initial heading to a fly by waypoint located between 0.5 to 1.0 NM from the shore, then to a new waypoint located due west, then to KERNL and the remaining waypoints on the PADRZ TWO SID.
<b>Intent:</b>	Revise PADRZ SID or create a new procedure to reduce noise in the La Jolla, Mission Beach, and Pacific Beach areas.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), existing procedure routes (white, final approach (red) and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., August 2018 (proposed procedure path and waypoints (orange)).

**Graphic Reference:** Presented to TAC and CAC on August 30, 2018.

**Screening Findings:**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Pass to Draft    | <input checked="" type="checkbox"/> Pass to Final | <input type="checkbox"/> Pass to Next Steps |
| <input type="checkbox"/> Pass to Part 150 | <input type="checkbox"/> Eliminate                |   |

**Reason for Elimination:**

- |  |   |  |  |   |
|--|---|--|--|---|
| <input type="checkbox"/> 65 CNEL Influence   | <input type="checkbox"/> ANAC Intent    | <input type="checkbox"/> Charting Requirements | <input type="checkbox"/> Design Criteria         | <input type="checkbox"/> Duplicate ANAC # |
| <input type="checkbox"/> Existing Compliance | <input type="checkbox"/> Not Applicable | <input type="checkbox"/> Noise Impact          | <input type="checkbox"/> Operational Feasibility | <input type="checkbox"/> Safety           |

**Design Notes:**

- Keeps nighttime departures further south of La Jolla without affecting initial departure path predictability
- Increases flight distance approximately 0.75 NM as compared to PADRZ SID departures at night
- Compatible with proposed ANAC Recommendation 15 Nighttime Alternative 4 design concept

**Summary Narrative:**

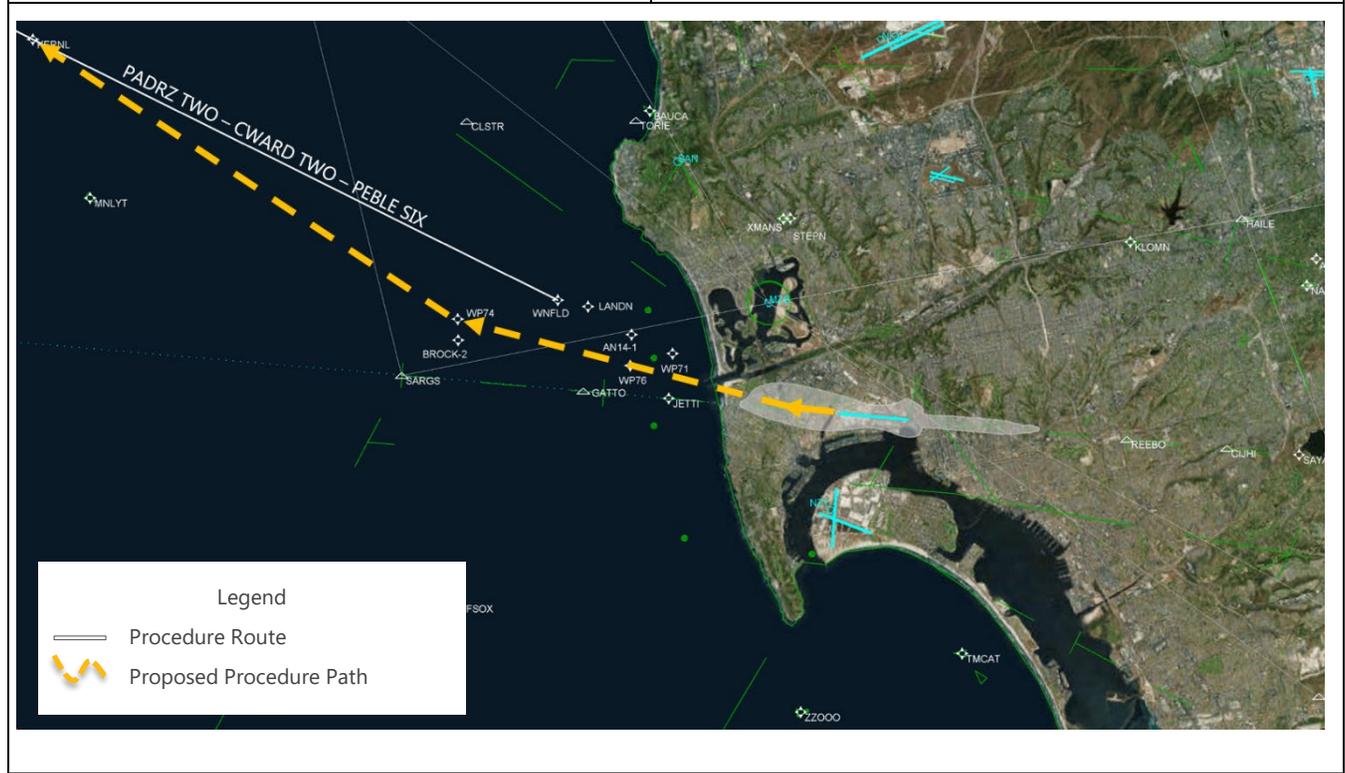
Recommendation 14 Alternative 4 is a modification of the PADRZ TWO SID to include a left turn to the west to keep aircraft further south of the La Jolla area during nighttime hours. It was introduced in the Draft Concept Design phase of the project due to the elimination of Recommendation 14 Alternatives 2 and 3 and based on CAC request to evaluate a design that can turn aircraft west as soon as possible. This design requires the 1.5 NM shoreline agreement would not apply (note: Noise Dots 4 and 5 would still be applicable).

Recommendation 14 Alternative 4 design includes an early turn beyond the shoreline but prior to 1.5 NM in attempt to identify the earliest location an aircraft may turn west within FAA RNAV design criteria, meeting the TARGETS flyability assessment, and without affecting the CNEL 65 noise exposure area. The design uses the same initial heading and RNAV coding that is used for the current PADRZ TWO SID to a new fly by waypoint, WP71, located along the initial heading at one NM from the shoreline, then to BROCK2, then back to KERNL and the remaining waypoints on the PADRZ TWO SID.

The design meets the intent of ANAC Noise Recommendation 14. The design is not consistent with the current early turn restrictions used by SCT TRACON for departures. A change would be required in the SCT TRACON Standard Operating Procedure (SOP) to eliminate the 1.5 NM turn restriction if this alternative is pursued. The alternative was recommended to be passed on to the final phase of the project for noise analysis. CAC indicated concerns related to potential noise increase for the Mission Bay area.

### D.2.5 RECOMMENDATION 14 ALTERNATIVE 5 - ELSO (285-DEGREE HEADING) TO FLY BY TURN AT 1.5 NM FROM SHORELINE (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	14 ALTERNATIVE 5 – ELSO TO FLY BY TURN AT 1.5 NM FROM SHORELINE (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Draft Design Concept – Version 1
<b>Description:</b>	The concept involves a redesign of the PADRZ TWO SID using a Vector to an Intercept leg and a heading of 285 degrees to a new waypoint located two NM from the shoreline, then to KERNL and the remaining waypoints on the PADRZ TWO SID.
<b>Intent:</b>	Revise PADRZ SID or create a new procedure to reduce noise in the La Jolla and Pacific Beach areas.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), existing procedure routes (white, final approach (red) and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., August 2018 (proposed procedure path and waypoints (orange)).

**Graphic Reference:** Presented to TAC and CAC on August 30, 2018.

**Screening Findings:**

<input type="checkbox"/> Pass to Draft	<input type="checkbox"/> Pass to Final	<input type="checkbox"/> Pass to Next Steps
<input checked="" type="checkbox"/> Pass to Part 150	<input type="checkbox"/> Eliminate	

**Reason for Elimination:**

<input type="checkbox"/> 65 CNEL Influence	<input type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #
<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input type="checkbox"/> Safety

**Design Notes:**

- Ensures turns after initial heading do not occur prior to 1.5 NM from shoreline
- Moves noise further south closer to Ocean Beach community and has high potential to effect CNEL 65 or higher area
- Keeps nighttime departures further south of La Jolla
- Increases flight distance approximately 0.5 NM compared to PADRZ departures at night
- Compatible with proposed ANAC Recommendation 15 Nighttime Alternative 5 design concept

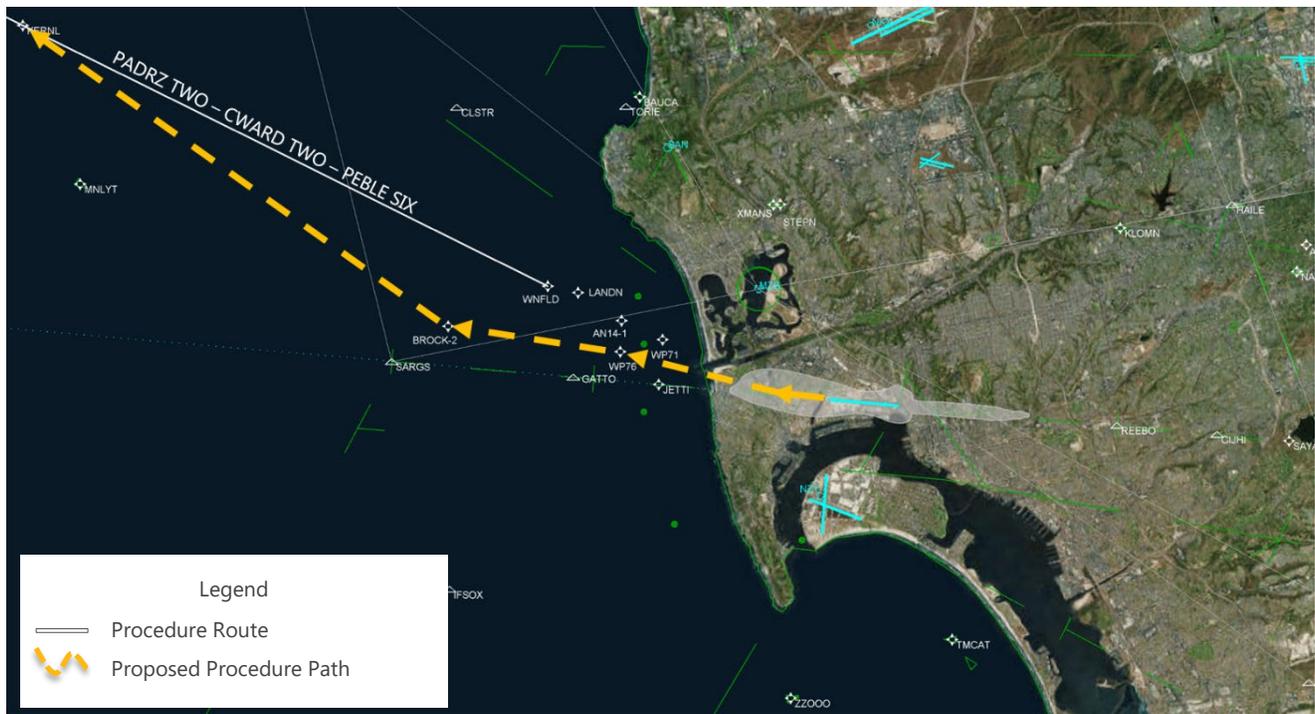
**Summary Narrative:**

Recommendation 14 Alternative 5 was introduced in the Draft Design Concept phase of the project as a result of TAC and CAC discussion regarding Equivalent Lateral Spacing Operations (ELSO) and criteria found in FAA Order 7110.65X – Divergent Heading for Successive Departures, which allows for a 10-degree heading from runway end to diverge from aircraft on another heading. The procedure is a modification of the PADRZ TWO SID to include a left turn to the west to keep aircraft further south of the La Jolla area. The design uses a 285-degree initial heading enabled by the ELSO criteria versus the current PADRZ SID initial heading as published today. Once established on the 285-degree heading, aircraft will fly to a new fly by waypoint located along the initial heading at 2 NM from the shoreline, then to BROCK2, then back to KERNL and the remaining waypoints on the PADRZ TWO SID.

The design meets the intent of ANAC Noise Recommendation 14 and is compliant with current SCT TRACON early turn restrictions in place today for departures. The ground track of the initial departure segment is new and includes a high potential to change the CNEL 65 noise contour exposure area. Because this measure could change the CNEL 65, it was considered outside of the project scope but should be studied as part of the 14 CFR FAR Part 150 Study (Part 150) among other proposed initial departure heading suggestions. Therefore, this alternative was recommended to be passed to the Part 150 project.

### D.2.6 RECOMMENDATION 14 ALTERNATIVE 6 - ELSO (285-DEGREE HEADING) (DAYTIME)

<b>ANAC RECOMMENDATION:</b>	14 ALTERNATIVE 6 –ELSO (DAYTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Daytime (6:31 a.m. to 9:59 p.m.) Departures
<b>Version:</b>	Draft Design Concept – Version 1
<b>Description:</b>	The concept involves a redesign of the PADRZ TWO SID using a Vector to an Intercept leg and an initial heading of 285 degrees to a new waypoint aligned with BROCK2, then to KERNL and the remaining waypoints on the PADRZ TWO SID.
<b>Intent:</b>	Revise PADRZ SID or create a new procedure to reduce noise in the La Jolla, Mission Beach, and Pacific Beach areas.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), existing procedure routes (white), final approach (red) and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., August 2018 (proposed procedure path and waypoints (orange)).

**Graphic Reference:** Presented to TAC and CAC on August 30, 2018.

**Screening Findings:**

- Pass to Draft
- Pass to Final
- Pass to Next Steps
- Pass to Part 150
- Eliminate

**Reason for Elimination:**

- 65 CNEL Influence
- ANAC Intent
- Charting Requirements
- Design Criteria
- Duplicate ANAC #
- Existing Compliance
- Not Applicable
- Noise Impact
- Operational Feasibility
- Safety

**Design Notes:**

- Keeps daytime departures further south of La Jolla
- Moves noise further south closer to Ocean Beach community and has high potential to effect CNEL 65 or higher area
- Increases flight distance approximately 0.4 NM compared to PADRZ departures
- Compatible with ZZOOO SID and Recommendation 15 Alternative 1

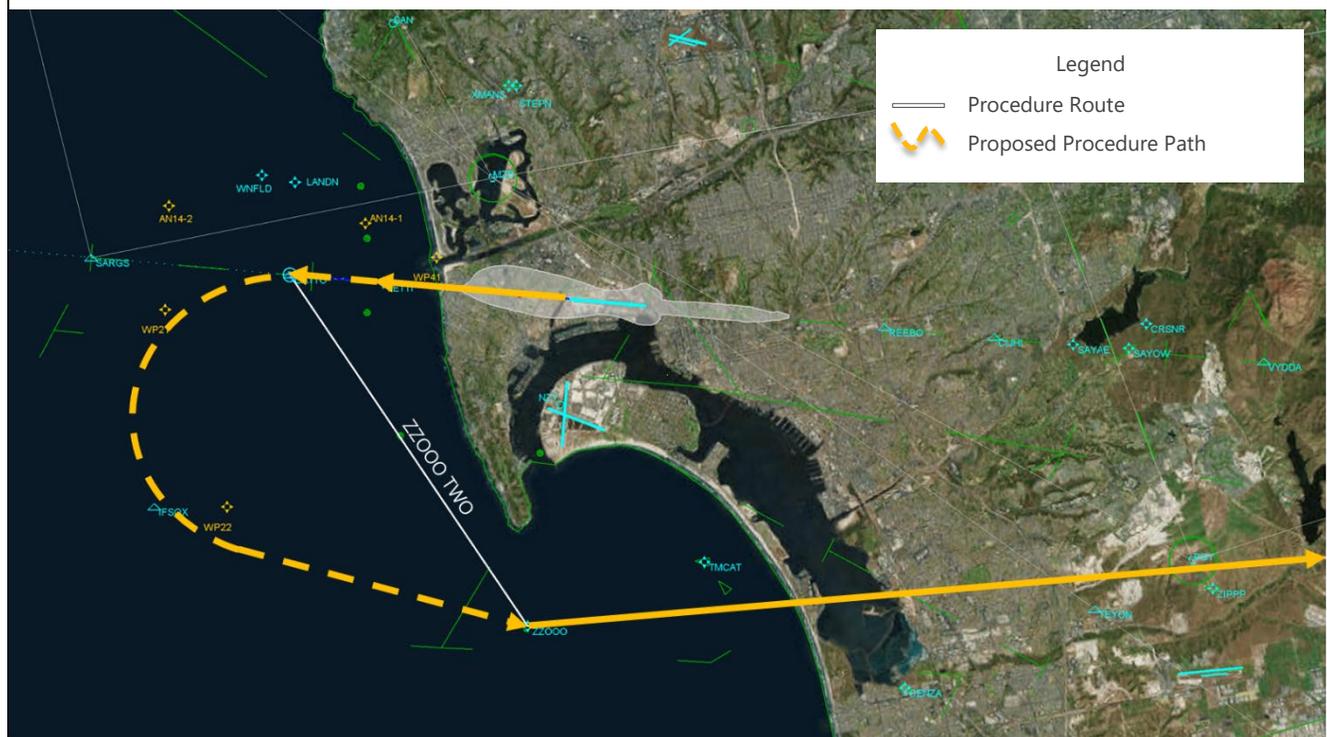
**Summary Narrative:**

Recommendation 14 Alternative 6 was introduced in the Draft Design Concept phase of the project as a result of TAC and CAC discussion regarding Equivalent Lateral Spacing Operations (ELSO) and criteria found in FAA Order 7110.65X – Divergent Heading for Successive Departures, allowing for a 10-degree heading from runway end to diverge from aircraft on another heading. The procedure, for daytime use, is a modification of the PADRZ TWO SID to include a left turn to the west to keep aircraft further south of the La Jolla area. The design uses a 285-degree initial heading enabled by the ELSO criteria versus the current PADRZ SID initial heading as published today. Once established on the 285-degree heading, aircraft will fly to a new fly over waypoint located slightly north of BROCK2, then back to KERNL and the remaining waypoints on the PADRZ TWO SID. This design allows for successive departure on Runway 27 with the ZZOOO TWO, and ANAC 15 Alternative 1 procedure for daytime operations.

The design meets the intent of Recommendation 14 and is not compliant with current SCT TRACON early turn restrictions in place today for departures. The ground track of the initial departure segment is new and has strong potential to change the CNEL 65 noise exposure area. Because this measure would change the CNEL 65, it was considered outside of the project scope and should be studied as part of the 14 CFR Part 150 Study (Part 150). Therefore, this alternative was recommended to be passed to the Part 150 project.

### D.2.7 RECOMMENDATION 15 ALTERNATIVE 1 - EXTEND JETTI WAYPOINT 2 NM WEST (DAYTIME)

<b>ANAC RECOMMENDATION:</b>	15 ALTERNATIVE 1 – EXTEND JETTI 2NM WEST (DAYTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Daytime (6:30 a.m. to 9:59 p.m.) Departure
<b>Version:</b>	Draft Design Concept – Version 1
<b>Description:</b>	The concept involves a modification of the ZZOOO TWO SID where the JETTI waypoint is moved two NM further west of its current location.
<b>Intent:</b>	Revise the ZZOOO SID to move departures further west of the Point Loma shoreline, reduce or eliminate flight paths over the Point Loma Peninsula, including Cabrillo National Park and to cross over ZZOOO waypoint at a higher altitude compared to current conditions.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., May 2018 (proposed procedure route (white), proposed procedure path and waypoints (orange)).

**Graphic Reference:** Presented to TAC and CAC on August 30, 2018.

**Screening Findings:**

- Pass to Draft
- Pass to Final
- Pass to Next Steps
- Pass to Part 150
- Eliminate

**Reason for Elimination:**

- 65 CNEL Influence
- ANAC Intent
- Charting Requirements
- Design Criteria
- Duplicate ANAC #
- Existing Compliance
- Not Applicable
- Noise Impact
- Operational Feasibility
- Safety

**Design Notes:**

- Meets required minimum distance between JETTI and ZZOOO waypoints – no waiver required
- Maintains all existing En Route transitions after ZZOOO waypoint
- Increase flight distance should increase frequency of aircraft over 8,000 feet MSL near ZZOOO waypoint (from 85% to over 95%)
- Moves dispersion of traffic further west from Point Loma
- Would increase flight distance by 2.95 NM compared to existing ZZOOO SID
- Radar vector may still occur

**Summary Narrative:**

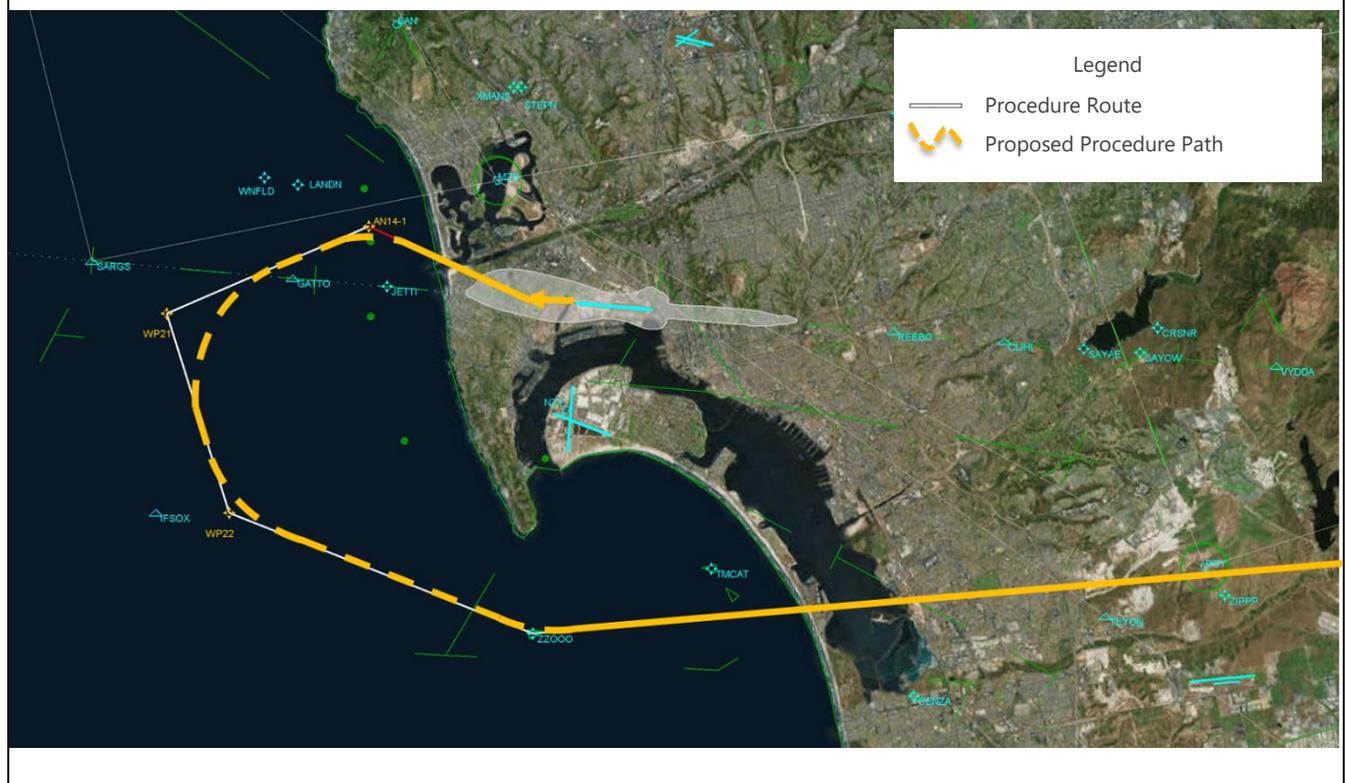
Recommendation 15 Alternative 1 is designed to shift the JETTI waypoint further west with intent of keeping aircraft further west from the Point Loma shoreline and to provide more flight track distance for aircraft to climb to achieve 8,000 feet at the ZZOOO waypoint. This alternative was also designed to remove the current speed restriction on the ZZOOO TWO required to ensure aircraft flyability from JETTI to ZZOOO. No changes were made to the design compared to the version evaluated under the Preliminary Draft Design Concept phase.

Some airline representatives in the TAC suggested the removal of the speed restriction may reduce the height of aircraft as they pass near the ZZOOO waypoint. Additional analysis was conducted to verify the altitudes near the ZZOOO waypoint using the 230 knot restriction and those without the restriction are similar. Further analysis conducted indicated the reason for the speed restriction was for aircraft flyability purposes related to the current ZZOOO procedure design between JETTI and ZZOOO waypoint. The design for Alternative 1 increases the distance between the two waypoints that no longer requires the speed restriction at the JETTI waypoint.

The procedure design meets FAA criteria and passes the flyability assessment, and the intent of the recommendation. Therefore, it was recommended to be passed to the final phase of the project.

### D.2.8 RECOMMENDATION 15 ALTERNATIVE 2 - FLY BY TURN AT 1.5 NM FROM SHORELINE THEN TO ZZOOO WAYPOINT (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	15 ALTERNATIVE 2 – FLY BY TURN AT 1.5 NM FROM SHORELINE THEN TO ZZOOO WAYPOINT (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Draft Design Concept – Version 1
<b>Description:</b>	The concept involves the development of a new SID using the initial heading design of the PADRZ TWO SID to a fly by waypoint located 1.5 NM from the shoreline, then to a new fly by waypoint, then to the ZZOOO waypoint and the remaining portion of the ZZOOO TWO SID.
<b>Intent:</b>	Revise the ZZOOO SID to significantly reduce or eliminate flight paths over the Point Loma Peninsula, including Cabrillo National Park and to reduce east bound turns over La Jolla.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., May 2018 (proposed procedure route (white), proposed procedure path and waypoints (orange)).

**Graphic Reference:** Presented to TAC and CAC on August 30, 2018.

**Screening Findings:**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Pass to Draft    | <input type="checkbox"/> Pass to Final        | <input type="checkbox"/> Pass to Next Steps |
| <input type="checkbox"/> Pass to Part 150 | <input checked="" type="checkbox"/> Eliminate |   |

<b>Reason for Elimination:</b>				
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<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input type="checkbox"/> Safety
<b>Design Notes:</b>				
<ul style="list-style-type: none"> <li>▪ Aircraft would turn left after initial heading at a fly by waypoint 1.5 NM west of the shoreline</li> <li>▪ Fly by waypoint and Track to Fix leg design keeps nighttime departures further west of Point Loma and increases altitude near the ZZOOO waypoint</li> <li>▪ Similar flight distance as compared to existing radar vector departures at night</li> <li>▪ Compatible with proposed ANAC Recommendation 14 Alternative 1 Version 1 nighttime design concept with fly by waypoint</li> <li>▪ Not compatible with proposed ANAC Recommendation 14 Alternative 1 nighttime design concept with fly over waypoint due to different turn paths caused by a fly over versus fly by design– would create a safety risk to potential converging traffic with aircraft on Recommendation 14 Alternative 1 fly over turn</li> <li>▪ Maintains all existing En Route transitions currently used as part of the ZZOOO TWO SID</li> <li>▪ Not feasible during Contra-Flow operations (arrivals on Runway 9 and departures on Runway 27)</li> </ul>				
<b>Summary Narrative:</b>				
<p>Recommendation 15 Alternative 2 is predicated on the establishment of a new RNAV procedure for nighttime departures to the south and east when the Air Traffic Control Tower directs all jet departures to turn right after 10:00 p.m. Currently, this is a radar vector only operation. The design of the procedure uses initial heading of the PADRZ TWO SID to a fly by waypoint, ANAC-14, located 1.5 NM from the shoreline. This is the same waypoint as used in Recommendation 14 Alternative 1 fly by design. Aircraft will then track to a new fly by waypoint located west of JETTI, then to the ZZOOO waypoint and the remaining portion of the ZZOOO TWO SID.</p> <p>Further analysis was conducted as part of the Draft Design Concept phase of the project. The design meets the intent of Recommendation 14 and is compliant with the current early turn restrictions used by SCT TRACON for departures and missed approaches. However, through discussions with TAC and CAC, there was a concern that aircraft would turn west prior to the established noise dots located 1.5 NM miles from the shoreline due to the Distance Turn Anticipation (DTA) associated with the fly by waypoint. As a result, this design was recommended to be eliminated and replaced with Recommendation 15 Alternative 2 Version 2.</p>				

### D.2.9 RECOMMENDATION 15 ALTERNATIVE 2 VERSION 2 - FLY BY TURN AT 1.5 NM FROM SHORELINE THEN TO ZZOOO WAYPOINT (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	15 ALTERNATIVE 2 VERSION 2- FLY BY WAYPOINT 1.5 NM FROM SHORE THEN TO ZZOOO (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Draft Design Concept – Version 2
<b>Description:</b>	The concept involves the development of a new SID using the initial heading design of the PADRZ TWO SID to a fly by waypoint located two NM from the shoreline, then to a new fly by waypoint, then to the ZZOOO waypoint and the remaining portion of the ZZOOO TWO SID.
<b>Intent:</b>	Revise the ZZOOO SID to significantly reduce or eliminate flight paths over the Point Loma Peninsula, including Cabrillo National Park and to reduce east bound turns over La Jolla.
<b>Version Notes:</b>	This is the Version 2 of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., August 2018 (proposed procedure route (white), proposed procedure path and waypoints (orange)).

**Graphic Reference:** Presented to TAC and CAC on August 30, 2018.

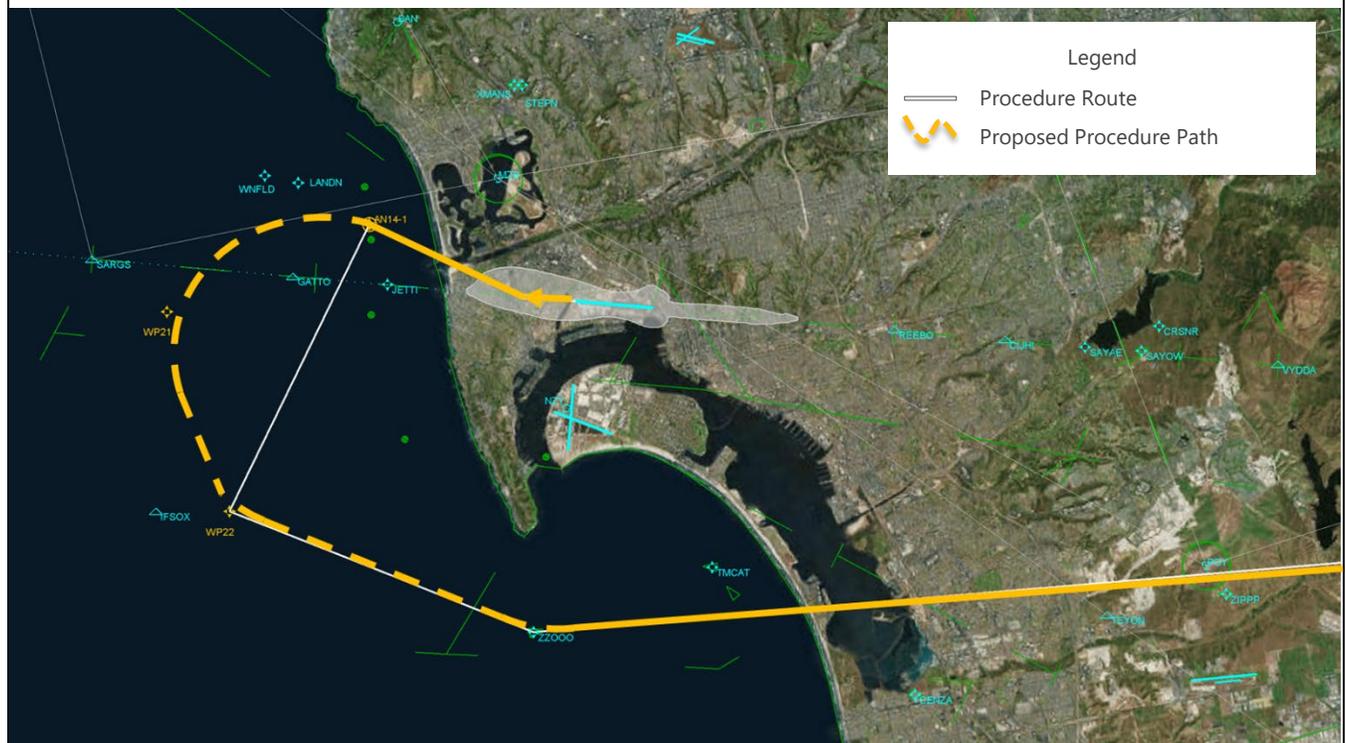
**Screening Findings:**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Pass to Draft    | <input checked="" type="checkbox"/> Pass to Final | <input type="checkbox"/> Pass to Next Steps |
| <input type="checkbox"/> Pass to Part 150 | <input type="checkbox"/> Eliminate                |   |

<b>Reason for Elimination:</b>				
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<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input type="checkbox"/> Safety
<b>Design Notes:</b>				
<ul style="list-style-type: none"> <li>▪ Ensures turns after initial heading do not occur prior to 1.5 NM from shoreline</li> <li>▪ Aircraft start turn at 1.5 NM from shoreline just prior to waypoint and flies just south of waypoint to join next course</li> <li>▪ Keeps nighttime departures further west of Point Loma and increases frequency of aircraft at or above 8,000 feet MSL near ZZOOO waypoint</li> <li>▪ Compatible with proposed ANAC Recommendation 14 Alternative 1 fly by nighttime design concept</li> <li>▪ Not compatible with proposed ANAC Recommendation 14 Alternative 1 nighttime design concept with fly over waypoint due to different turn paths caused by a fly over versus fly by design– would create a safety risk to potential converging traffic with aircraft on Recommendation 14 Alternative 1 fly over turn</li> <li>▪ Maintains routes after ZZOOO waypoint</li> <li>▪ Not feasible during Contra-Flow operations (arrivals on Runway 9 and departures on Runway 27)</li> </ul>				
<b>Summary Narrative:</b>				
<p>The design of Recommendation 15 Alternative 2 Version 2 is predicated on the establishment of a new RNAV procedure for nighttime departures to the south and east. Currently, this is a vector only operation. The design of the procedure uses initial heading of the PADRZ TWO SID to a fly by waypoint, ANAC-14 located two NM from the shoreline versus the 1.5 NM location of the Version 1 design. This is the same waypoint as used in Recommendation 14 Alternative 1 Version 2 Fly By design. Aircraft will then track to a new fly by waypoint located west of JETTI, then to the ZZOOO waypoint and the remaining portion of the ZZOOO TWO SID.</p> <p>The design meets the intent of Recommendation 15, is compatible with Recommendation 14 Alternative 1 Version 2, meets FAA design criteria, and is compliant with the current early turn restrictions used by SCT TRACON for departures and missed approaches. Therefore, it was recommended to be passed on to the final phase of the project.</p>				

### D.2.10 RECOMMENDATION 15 ALTERNATIVE 3 - FLY OVER TURN AT 1.5 NM FROM SHORELINE THEN TO ZZOOO WAYPOINT (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	15 ALTERNATIVE 3 – FLY OVER TURN AT 1.5 NM FROM SHORELINE THEN TO ZZOOO WAYPOINT (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Draft Design Concept – Version 1
<b>Description:</b>	The concept involves the development of a new SID using the initial heading design of the PADRZ TWO SID to a fly over waypoint located 1.5 NM from the shoreline, then to a series of fly by waypoint to the ZZOOO waypoint and the remaining portion of the ZZOOO TWO SID.
<b>Intent:</b>	Revise the ZZOOO SID to significantly reduce or eliminate flight paths over the Point Loma Peninsula, including Cabrillo National Park and to reduce east bound turns over La Jolla.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., May 2018 (proposed procedure route (white), proposed procedure path and waypoints (orange)).

**Graphic Reference:** Presented to TAC and CAC on August 30, 2018.

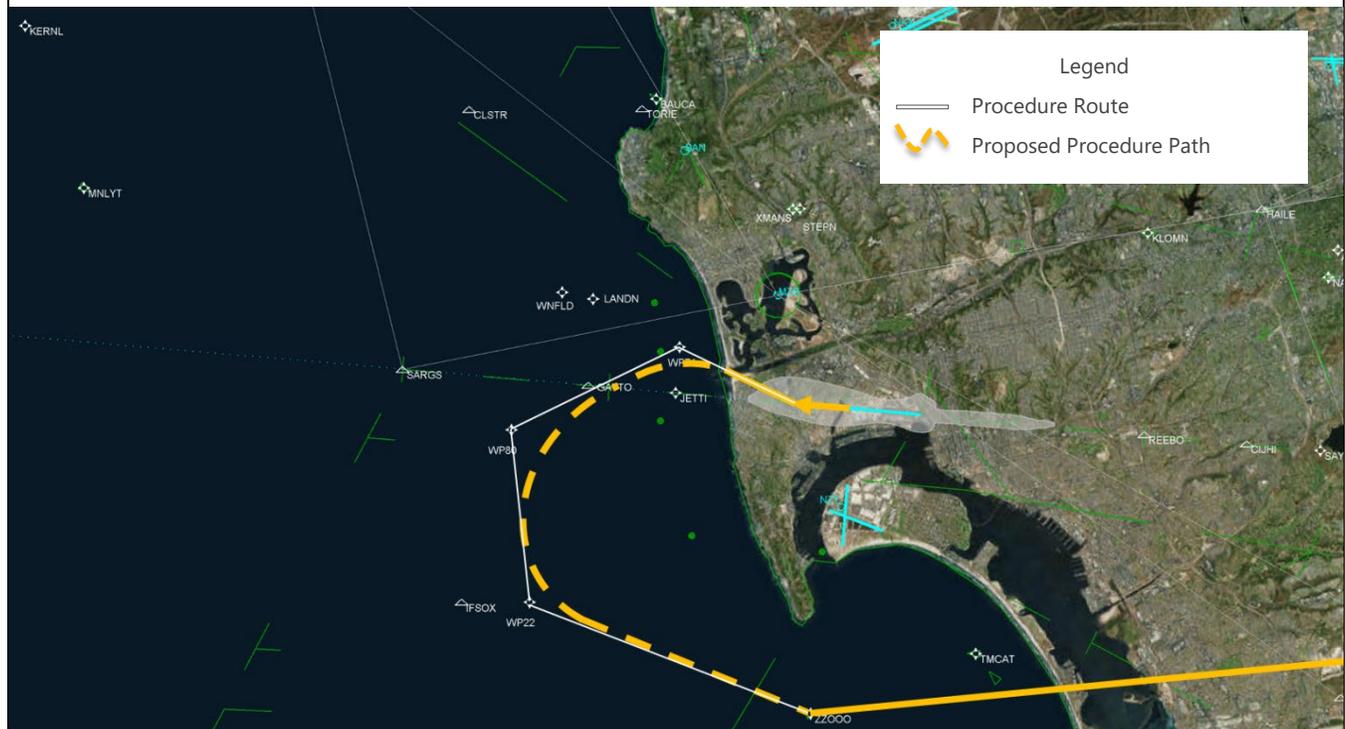
**Screening Findings:**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Pass to Draft    | <input type="checkbox"/> Pass to Final        | <input type="checkbox"/> Pass to Next Steps |
| <input type="checkbox"/> Pass to Part 150 | <input checked="" type="checkbox"/> Eliminate |   |

<b>Reason for Elimination:</b>				
<input type="checkbox"/> 65 CNEL Influence	<input checked="" type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #
<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input checked="" type="checkbox"/> Safety
<b>Design Notes:</b>				
<ul style="list-style-type: none"> <li>▪ Aircraft turn left after passing over waypoint located at 1.5 NM from shoreline</li> <li>▪ Keeps nighttime departures further west of Point Loma, but closer to La Jolla compared to using a fly by waypoint.</li> <li>▪ Expected to increase frequency of aircraft at or over 8,000 feet MSL near ZZOOO waypoint,</li> <li>▪ Not feasible with proposed ANAC Recommendation 14 nighttime design concepts with fly by waypoint due to potential loss of safe separation with following aircraft on proposed northbound SID as lead aircraft turns south towards ZZOOO waypoint</li> <li>▪ Maintains all existing routes after ZZOOO waypoint</li> <li>▪ Not feasible during Contra-Flow operations (arrivals on Runway 9 and departures on Runway 27)</li> </ul>				
<b>Summary Narrative:</b>				
<p>The design of Recommendation 15 Alternative 3 is predicated on the establishment of a new RNAV procedure for nighttime departures to the south and east. Currently, this is a vector only operation. The design of the procedure uses the same initial heading design of the PADRZ TWO SID to a fly over waypoint, ANAC-14 located 1.5 NM from the shoreline. This is the same waypoint as used in the Recommendation 14 Alternative 1 fly over design. Aircraft will then track to a new fly by waypoint located west of JETTI, then to the ZZOOO waypoint and the remaining portion of the ZZOOO TWO SID.</p> <p>The procedure design meets intent of the recommendation and passes the flyability assessment. However, according to FAA criteria, a fly over waypoint should only be used when operationally necessary. Second, a fly over waypoint design for eastbound departures and a fly by waypoint design for northbound departures is not compatible due to potential loss of safe separation with following aircraft on proposed northbound SID as lead aircraft heading east turns south towards ZZOOO waypoint. Third, the use of a fly over waypoint on this procedure will cause aircraft traffic patterns turning west to be unpredictable and track closer to La Jolla compared to a fly by waypoint design. At the August 30, 2018 CAC and TAC meetings, TAC and CAC indicated a preference to the fly by design as a means to best meet the intent of Recommendation 14 compared to the fly over design. Therefore, this procedure was recommended to be eliminated from further consideration based on the potential safety risks associated with the incompatibility between a fly over design for eastbound departures and a fly by design for northbound departures and employing the CAC preferred fly by design that best meets the intent of Recommendation 14 to keep northbound departures further south of the La Jolla area. This design concept was recommended to be eliminated from further consideration.</p>				

### D.2.11 RECOMMENDATION 15 ALTERNATIVE 4 - FLY BY TURN BETWEEN SHORELINE AND 1.5 NM FROM SHORELINE THEN TO ZZOOO WAYPOINT (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	15 ALTERNATIVE 4 – FLY BY TURN BETWEEN SHORELINE AND 1.5 NM FROM SHORELINE THEN TO ZZOOO WAYPOINT (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Draft Design Concept – Version 1
<b>Description:</b>	The concept involves the development of a new SID using the same initial heading design of the PADRZ TWO SID to a fly over waypoint located one NM from the shoreline, then to a new fly by waypoint, then to the ZZOOO waypoint and the remaining portion of the ZZOOO TWO SID.
<b>Intent:</b>	Revise the ZZOOO SID to significantly reduce or eliminate flight paths over the Point Loma Peninsula, including Cabrillo National Park and to reduce east bound turns over La Jolla.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (white), runways (cyan), and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., August 2018 (proposed procedure route (white), proposed procedure path (orange) and waypoints (white)).

**Graphic Reference:** Presented to TAC and CAC on August 30, 2018.

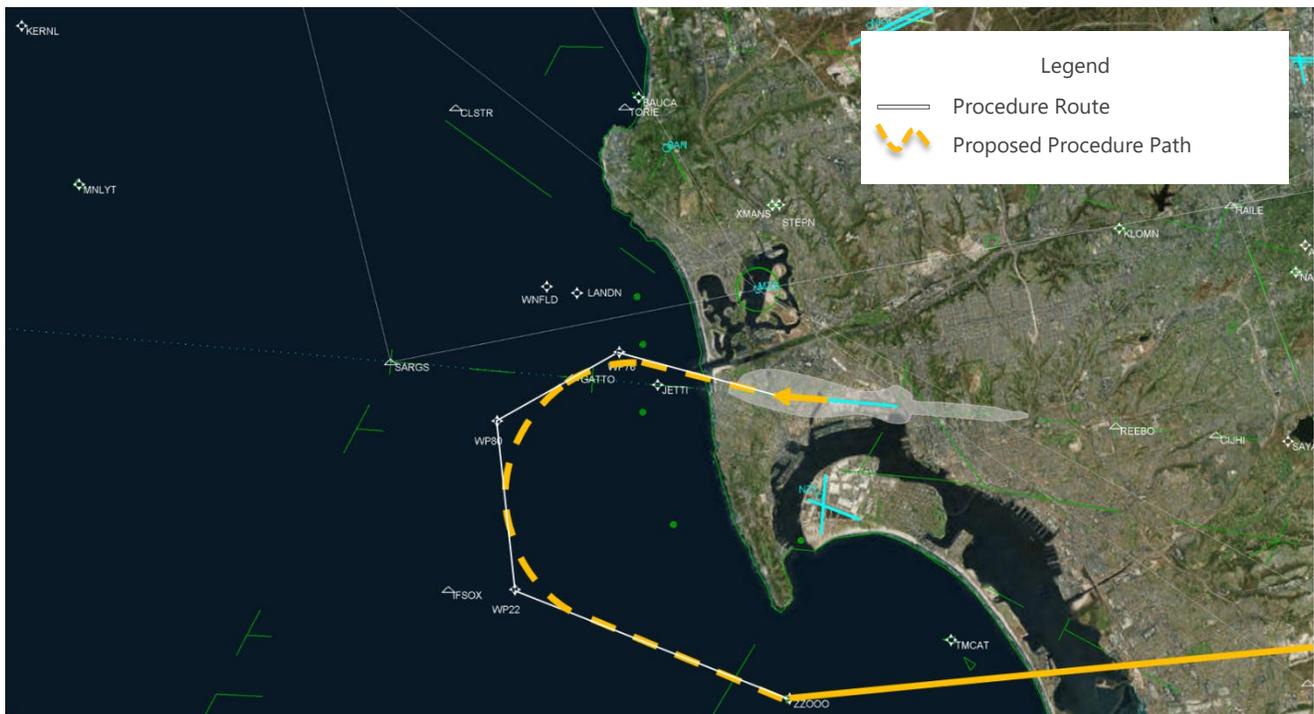
**Screening Findings:**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Pass to Draft    | <input checked="" type="checkbox"/> Pass to Final | <input type="checkbox"/> Pass to Next Steps |
| <input type="checkbox"/> Pass to Part 150 | <input type="checkbox"/> Eliminate                |   |

<b>Reason for Elimination:</b>				
<input type="checkbox"/> 65 CNEL Influence	<input type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #
<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input type="checkbox"/> Safety
<b>Design Notes:</b>				
<ul style="list-style-type: none"> <li>▪ Aircraft would turn left approximately 0.5 NM west of the shoreline</li> <li>▪ Compatible with Recommendation 14 Alternative 4 with same fly by waypoint location</li> <li>▪ Keeps nighttime departures further west of Point Loma</li> <li>▪ Expected to increase frequency of aircraft at or above 8,000 feet MSL near ZZOOO waypoint, but not as much as Recommendation 15 Alternative 2 due to shorter flight distance</li> <li>▪ Maintains all existing routes after ZZOOO waypoint</li> <li>▪ Not feasible during Contra-Flow operations (arrivals on Runway 9 and departures on Runway 27)</li> </ul>				
<b>Summary Narrative:</b>				
<p>The design of Recommendation 15 Alternative 4 is predicated on the establishment of a new RNAV procedure for nighttime departures to the south and east. Currently, this is a vector only operation. Recommendation 15 Alternative 4 design includes an early turn beyond the shoreline but prior to 1.5 NM in attempt to identify the earliest location an aircraft may turn west within FAA RNAV design criteria, meeting the TARGETS flyability assessment, and without affecting the CNEL 65 noise exposure area. This was designed to provide an eastbound departure procedure that is compatible with Recommendation 14 Alternative 4. The design uses the same initial heading and RNAV coding that is used for the current PADRZ TWO SID to a new fly by waypoint, WP71, located along the initial heading at one NM from the shoreline. The fly by waypoint is the same waypoint used in Recommendation 14 Alternative 4 to ensure compatibility between the two designs. Aircraft will then track to a new fly by waypoint located west of JETTI, then to the ZZOOO waypoint and the remaining portion of the ZZOOO TWO SID.</p> <p>The design meets the intent of ANAC Noise Recommendation 15. The design is not consistent with the current early turn restrictions used by SCT TRACON for departures. A change would be required in the SCT TRACON SOP to eliminate the 1.5 NM turn restriction if this alternative is pursued. The alternative was recommended to be passed on to the final phase of the project for noise analysis. CAC indicated concerns related to potential noise increase for the Mission Bay area.</p>				

### D.2.12 RECOMMENDATION 15 ALTERNATIVE 5 - ELSO (285-DEGREE HEADING) TO FLY BY TURN AT 1.5 NM FROM SHORELINE THEN TO ZZOOO WAYPOINT (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	15 ALTERNATIVE 5 – ELSO TO FLY BY TURN AT 1.5 NM FROM SHORELINE THEN TO ZZOOO WAYPOINT (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Draft Design Concept – Version 1
<b>Description:</b>	The concept involves a redesign of the PADRZ TWO SID using a Vector to an Intercept leg and a heading of 285 degrees to a new waypoint located two NM from the shoreline, then south via two new fly by waypoints, then to the ZZOOO waypoint and the remaining portion of the ZZOOO TWO SID.
<b>Intent:</b>	Revise the ZZOOO SID to significantly reduce or eliminate flight paths over the Point Loma Peninsula, including Cabrillo National Park and to reduce east bound turns over La Jolla.
<b>Version Notes:</b>	This is the initial version of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (white), runways (cyan), and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., August 2018 (proposed procedure route (white), proposed procedure path (orange) and waypoints (white)).

**Graphic Reference:** Presented to TAC and CAC on August 30, 2018.

**Screening Findings:**

- Pass to Draft
- Pass to Final
- Pass to Next Steps
- Pass to Part 150
- Eliminate

<b>Reason for Elimination:</b>				
<input checked="" type="checkbox"/> 65 CNEL Influence	<input type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #
<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input type="checkbox"/> Safety
<b>Design Notes:</b>				
<ul style="list-style-type: none"> <li>▪ Ensures turns after initial heading do not occur prior to 1.5 NM from shoreline</li> <li>▪ Moves noise further south closer to Ocean Beach community and has high potential to effect CNEL 65 or higher area</li> <li>▪ Compatible with Recommendation 14 Alternative 5 with same fly by waypoint location</li> <li>▪ Keeps nighttime departures further west of Point Loma and increases frequency of aircraft at or over 8,000 feet near ZZOOO waypoint compared to existing radar vector procedure</li> <li>▪ Maintains all existing routes after ZZOOO waypoint</li> <li>▪ Not feasible during Contra-Flow operations (arrivals on Runway 9 and departures on Runway 27)</li> </ul>				
<b>Summary Narrative:</b>				
<p>Recommendation 15 Alternative 5 was introduced in the Draft Design Concept phase of the project as a result of TAC discussion regarding Equivalent Lateral Spacing Operations (ELSO) and criteria found in FAA Order 7110.65X – Divergent Heading for Successive Departures, allowing for a 10-degree heading from runway end to diverge from aircraft on another heading. The procedure is a new SID for eastbound nighttime departures that keep aircraft further west and stay south of Point Loma and is compatible with Recommendation 14 Alternative 5, which was designed to keep nighttime departures further south of La Jolla. The design uses a 285-degree initial heading enabled by the ELSO criteria versus the current initial heading as published today. Once established on the 285-degree heading, aircraft will fly to a new fly by waypoint located along the initial heading at two NM from the shoreline, then to two new fly by waypoints to ZZOOO and the remaining waypoints on the ZZOOO TWO SID. This design allows for successive departure on Runway 27 with the ANAC 14 Alternative 5 procedure for nighttime operations.</p> <p>The design meets the intent of Recommendation 15 and is compliant with current SCT TRACON early turn restrictions in place today for departures. The ground track of the initial departure segment is new and has strong potential to change the CNEL 65 noise exposure area. Because this measure would change the CNEL 65, it was considered outside of the project scope and should be studied as part of the 14 CFR Part 150 Study (Part 150). Therefore, this alternative was recommended to be passed to the Part 150 project.</p>				

### D.2.13 RECOMMENDATION 16 ALTERNATIVE 1 VERSION 2 - CROSS LNTRN WAYPOINT AT 10,000 FT. TO I805/SR52 AT 8,000 FT. TO KLOMN WAYPOINT AT 6,000 FT.

<b>ANAC RECOMMENDATION:</b>	16 ALTERNATIVE 1 VERSION 2 – CROSS LNTRN AT 10,000 FT. TO I805/SR52 AT 8,000 FT. TO KLOMN AT 6,000 FT.
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Arrivals
<b>Version:</b>	Draft Design Concept – Version 2
<b>Description:</b>	The concept involves the revision of the COMIX STAR with direct routing from LNTRN waypoint to a new fly by waypoint at I805/SR52 to KLOMN waypoint. Aircraft will cross LNTRN at 10,000 feet, I805/SR52 at 8,000 feet, and KLOMN at 6,000 feet.
<b>Intent:</b>	Reassess and revive the entire arrival corridor in a manner that more appropriately “shares the noise” instead of concentrating arrivals from the North into a very narrow corridor over La Jolla area.
<b>Version Notes:</b>	This Version 2 of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), Runway 27 RNP approach (white) and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., August 2018 (proposed procedure route (white) and proposed procedure path (orange)).

**Graphic Reference:** Presented to TAC and CAC on August 30, 2018.

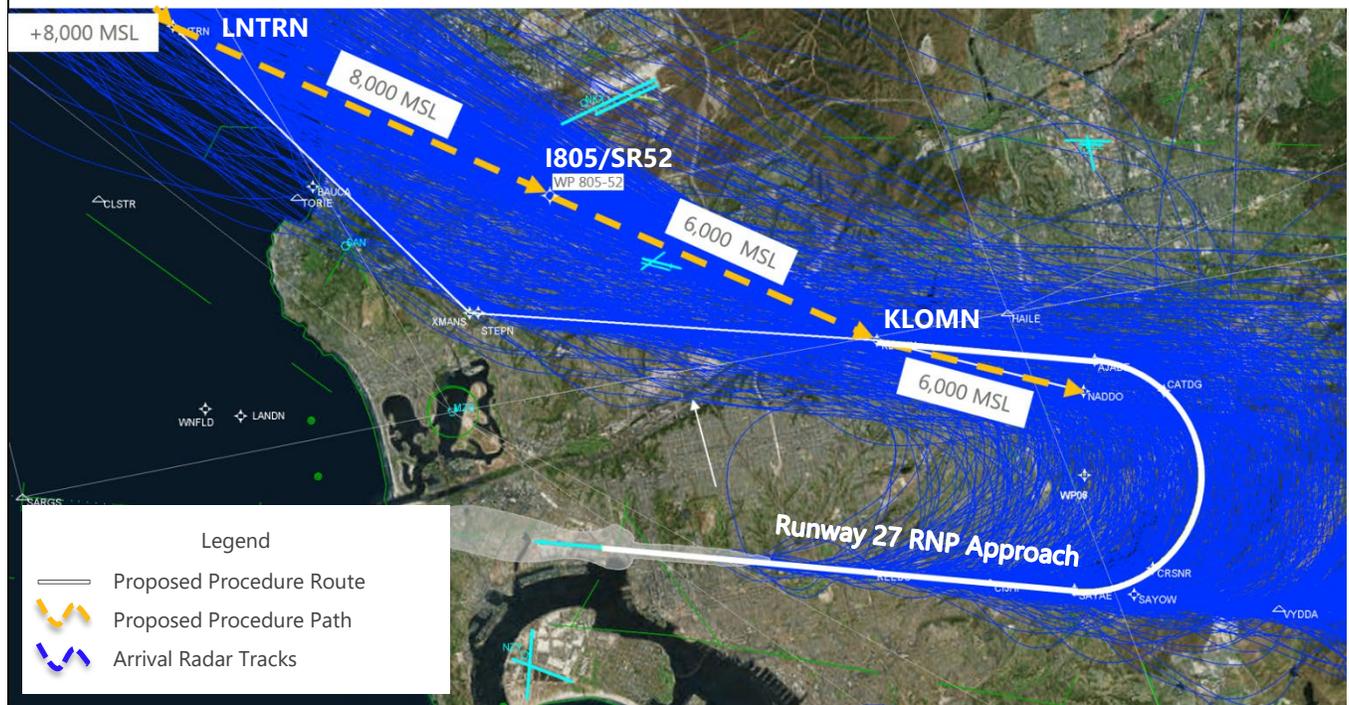
**Screening Findings:**

- Pass to Draft
- Pass to Final
- Pass to Next Steps
- Pass to Part 150
- Eliminate

<b>Reason for Elimination:</b>				
<input type="checkbox"/> 65 CNEL Influence	<input type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #
<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input checked="" type="checkbox"/> Operational Feasibility	<input checked="" type="checkbox"/> Safety
<b>Design Notes:</b>				
<ul style="list-style-type: none"> <li>▪ Design includes proposed waypoint at I-805 and SR-52</li> <li>▪ Due to elimination of longer downwind pattern, may cause FAA ATC vectoring off procedure to manage traffic into final approach and/or airlines inability to descent and reduce speed as requested by FAA ATC</li> <li>▪ Possible ATC issues with MCAS Miramar</li> <li>▪ Moves noise from one community to another - may be deemed infeasible by FAA due to environmental concerns</li> <li>▪ Maintains all existing routes up to LNTRN waypoint</li> <li>▪ Reduces the flight track by one NM</li> </ul>				
<b>Summary Narrative:</b>				
<p>Recommendation 16 Alternative 1 Version 2 was introduced in the Draft Design Concept phase as a result of the discussions with TAC and CAC regarding historical flight tracks in the area and the fact that the distance from LNTRN to KLOMN is adequate to comply with descent gradient requirements (not factoring speed adjustments) if aircraft cross LNTRN waypoint at 10,000 feet MSL. The CAC desired further development of the alternative.</p> <p>The new design includes a crossing altitude at LNTRN waypoint at 10,000 MSL but requires a redesign of all the altitudes on COMIX TWO STAR from the COMIX waypoint to LNTRN. The procedure complies with FAA criteria and the TARGETS flyability assessment tool. However, several comments were received from airline representatives at the August 30, 2018 TAC meeting indicating their aircraft are unable to meet the altitude restrictions associated with the current COMIX TWO STAR (LNTRN at 9,000) and that they would not be able to meet the restrictions if LNTRN was raised to 10,000 feet MSL. Pilots would have to use all means available to descend and slow down to comply with the altitude requirements. This includes the use of speed brakes (flaps on the top of the wings that extend up to slow aircraft speed), which is considered the last available measure for pilots to slow an aircraft down. The likelihood of non-compliance is high, which would require the pilot to inform ATC and cause additional workload for both the pilot and the controller. Frequent non-compliance due to the procedure design may also be considered a safety risk by the FAA.</p> <p>As in the case of preliminary draft versions for Recommendation 16, the new route significantly changes the flight track for the arrival resulting in a shift in noise from one community to another. The new route also reduces the sequencing and spacing area available to SCT for arrivals and places traffic within the MCAS Miramar airspace where possible conflicts may occur.</p> <p>CAC members requested Version 2 proceed to noise modeling to for evaluation. However, due to the aircraft performance issues and inability to comply with the proposed procedure identified by the airlines, it was eliminated from further consideration. CAC requested an evaluation of the design with an 8,000 feet MSL crossing altitude over LNTRN waypoint (refer to Version 3).</p>				

### D.2.14 RECOMMENDATION 16 ALTERNATIVE 1 VERSION 3 - CROSS LNTRN WAYPOINT AT OR ABOVE 8,000 FT. TO I805/SR52 AT 7,000 FT. TO KLOMKN WAYPOINT AT 6,000 FT.

<b>ANAC RECOMMENDATION:</b>	16 ALTERNATIVE 1 VERSION 3 – CROSS LNTRN WAYPOINT AT OR ABOVE 8,000 FT. TO I80/SR72 AT 7,00 FT. TO KLOMKN AT 6,000 FT.
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Arrivals
<b>Version:</b>	Draft Design Concept – Version 3
<b>Description:</b>	The concept involves the revision of the COMIX STAR with direct routing from LNTRN to a new fly by waypoint at I805/SR52 to KLOMKN. Aircraft will cross LNTRN at or above 8,000 feet, I80/SR72 at 8,000 feet, and KLOMKN at 6,000 feet.
<b>Intent:</b>	Reassess and revive the entire arrival corridor in a manner that more appropriately “shares the noise” instead of concentrating arrivals from the North into a very narrow corridor.
<b>Version Notes:</b>	This is Version 3 of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (white), runways (cyan), Runway 27 RNP approach (white) and navigational aids (cyan)); San Diego County Regional Airport Authority, May 2017 to December 2017 (radar data (blue)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., August 2018 (proposed procedure route (white), proposed procedure path (orange) and proposed waypoints (white)).

**Graphic Reference:** Presented to TAC and CAC on October 25, 2018.

**Screening Findings:**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Pass to Draft    | <input checked="" type="checkbox"/> Pass to Final | <input type="checkbox"/> Pass to Next Steps |
| <input type="checkbox"/> Pass to Part 150 | <input type="checkbox"/> Eliminate                |   |

<b>Reason for Elimination:</b>				
<input type="checkbox"/> 65 CNEL Influence	<input type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #
<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input type="checkbox"/> Safety
<b>Design Notes:</b>				
<ul style="list-style-type: none"> <li>▪ Design includes proposed waypoint at I-805 and SR-52</li> <li>▪ Due to elimination of longer downwind pattern, may cause FAA ATC vectoring off procedure to manage traffic into final approach and/or airlines inability to descent and reduce speed as requested by FAA ATC</li> <li>▪ Possible ATC issues with MCAS Miramar</li> <li>▪ Moves noise from one community to another - may be deemed infeasible by FAA due to environmental concerns</li> <li>▪ Maintains all existing routes up to LNTRN waypoint.</li> <li>▪ COMIX crossing altitude window modified to be 12,000 to 14,000</li> <li>▪ Reduces the flight track one NM</li> </ul>				
<b>Summary Narrative:</b>				
<p>Recommendation 16 Alternative 1 Version 3 was introduced late in the Draft Design Concept phase in attempt to design a procedure that may be acceptable to the airlines operating at San Diego International Airport and meet ANAC’s intended flight path location for Recommendation 16. The design was presented at the October 25, 2018 TAC and CAC meetings. As requested by CAC members, all designs were presented with radar tracks.</p> <p>The new design includes a crossing of LNTRN at or above 8,000 MSL and requires a redesign of some of the altitudes on COMIX TWO STAR from the COMIX waypoint to LNTRN. The current COMIX waypoint altitude is a window altitude between 12,000 and 15,000 feet MSL. To pass design criteria, the window altitude over the COMIX waypoint was reduced between 12,000 and 14,000 feet MSL. Based on a cursory review, FAA did not indicate a major concern with the change, but indicated possible concerns related to maintaining an optimized descent as intended in the current procedure. The procedure complies with FAA criteria and the TARGETS flyability assessment tool.</p> <p>As in the case of previous versions for Recommendation 16 Alternative 1, the new route changes the flight track for the arrival resulting in a shift in noise from one community to another. The new route also reduces the sequencing and spacing area available to SCT TRACON for arrivals and places traffic within the Miramar Marine Corps Air Station Airspace where possible conflicts may occur.</p> <p>Because the CAC members requested this procedure be screened for noise and the altitudes were adjusted to make the procedure flyable, it was recommended to be passed to the final phase of the project to quantify potential increases in CNEL.</p>				

### D.2.15 RECOMMENDATION 16 ALTERNATIVE 2 VERSION 2 - CROSS LNTRN WAYPOINT AT 10,000 FT. DIRECT TO KLOMNN WAYPOINT AT 6,000 FT.

<b>ANAC RECOMMENDATION:</b>	14 ALTERNATIVE 2 VERSION 2 – CROSS LNTRN WAYPOINT AT 10,000 FT. DIRECT TO KLOMNN AT 6,000 FT.
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Arrivals
<b>Version:</b>	Draft Design Concept – Version 2
<b>Description:</b>	The concept involves the revision of the COMIX STAR with direct routing from LNTRN to KLOMNN. Aircraft will cross LNTRN at or above 10,000 feet and KLOMNN at 6,000 feet.
<b>Intent:</b>	Reassess and revise the entire arrival corridor in a manner that more appropriately “shares the noise” instead of concentrating arrivals from the North into a very narrow corridor.
<b>Version Notes:</b>	This is Version 2 of the alternative.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan), Runway 27 RNP approach (white) and navigational aids (cyan)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., August 2018 (proposed procedure route (white) and proposed procedure path (orange)).

**Graphic Reference:** Presented to TAC and CAC on August 30, 2018.

**Screening Findings:**

- Pass to Draft
- Pass to Final
- Pass to Next Steps
- Pass to Part 150
- Eliminate

**Reason for Elimination:**

- 65 CNEL Influence
- ANAC Intent
- Charting Requirements
- Design Criteria
- Duplicate ANAC #
- Existing Compliance
- Not Applicable
- Noise Impact
- Operational Feasibility
- Safety

**Design Notes:**

- Design attempted to let aircraft descend between LNTRN and KLOMN with no interruption
- Due to elimination of longer downwind pattern, may cause FAA ATC vectoring off procedure to manage traffic into final approach and/or airlines inability to descent and reduce speed as requested by FAA ATC
- Possible ATC issues with MCAS Miramar
- Moves noise from one community to another - may be deemed infeasible by FAA due to environmental concerns
- Maintains all existing routes up to LNTRN waypoint.
- Reduces the flight track one NM

**Summary Narrative:**

Recommendation 16 Alternative 2 Version 2 was introduced in the Draft Design Concept phase as a result of the discussions with TAC and CAC regarding historical flight tracks in the area and the fact that the distance from LNTRN to KLOMN is adequate to comply with descent gradient requirements (not factoring speed adjustments) if aircraft cross LNTRN waypoint at 10,000 feet MSL. The CAC desired further development of the alternative.

The new design includes a crossing altitude at LNTRN waypoint at 10,000 MSL and proceeds direct to KLOMN at 6,000 feet. It requires a redesign of all the altitudes on COMIX TWO STAR from the COMIX waypoint to LNTRN. The procedure complies with FAA criteria and the TARGETS flyability assessment tool. However, several comments were received from airline representatives at the August 30, 2018 TAC meeting indicating their aircraft are unable to meet the altitude restrictions associated with the current COMIX TWO STAR (LNTRN at 9,000) and that they would not be able to meet the restrictions if LNTRN was raised to 10,000 feet MSL. Pilots would have to use all means available to descend and slow down to comply with the altitude requirements. This includes the use of speed brakes (flaps on the top of the wings that extend up to slow aircraft speed), which is considered the last available measure for pilots to slow an aircraft down. The likelihood of non-compliance is high, which would require the pilot to inform ATC and cause additional workload for both the pilot and the controller. Frequent non-compliance due to the procedure design may also be considered a safety risk by the FAA.

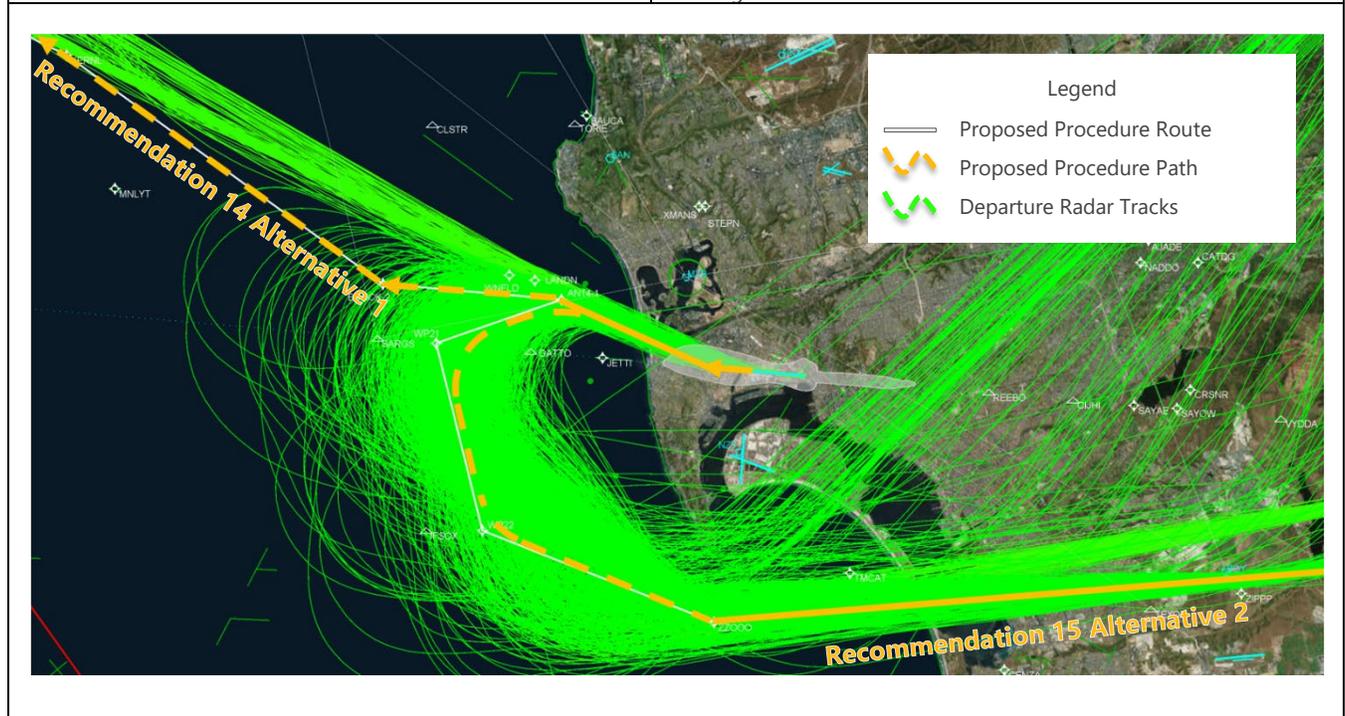
As in the case of preliminary draft versions for Recommendation 16, the new route significantly changes the flight track for the arrival resulting in a shift in noise from one community to another. The new route also reduces the sequencing and spacing area available to SCT for arrivals and places traffic within the MCAS Miramar airspace where possible conflicts may occur.

CAC members preferred Recommendation 16 Alternative 1 Version 2, which included a waypoint near the intersection of I-805 and SR-52. Due to the aircraft performance issues and inability to comply with the proposed procedure identified by the airlines, TAC members were concerned about operation feasibility and safety of the design. Therefore, this alternative design concept was eliminated from further consideration.

### D.3 FINAL DESIGN CONCEPT PHASE ALTERNATIVES

#### D.3.1 RECOMMENDATION 14 ALTERNATIVE 1 - FLY BY TURN AT 1.5 NM FROM SHORELINE (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	14 ALTERNATIVE 1 VERSION 2 – TURN AT 1.5 NM WITH FLY BY WAYPOINT
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Final Design Concept – Version 2
<b>Description:</b>	The concept involves a redesign of the PADRZ TWO SID using the same initial heading to a fly by waypoint, ANAC14-1, located at 2.0 nautical miles from the shore, then to a new waypoint located due west, then to KERNEL and the remaining waypoints on the PADRZ TWO SID.
<b>Intent:</b>	Revise PADRZ SID or create a new procedure to reduce noise in the La Jolla, Mission Beach, and Pacific Beach areas.
<b>Version Notes:</b>	This is Version 2 of the alternative. Shown with ANAC 15 Alternative 2 Version 2 and radar tracks as requested by CAC at August 30, 2018 meeting.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (white), runways (cyan), Runway 27 RNP approach (white) and navigational aids (cyan)); San Diego County Regional Airport Authority, May 2017 to December 2017 (radar data (light green)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., October 2018 (proposed procedure route (white), proposed procedure paths (orange) and proposed waypoints (white)).

**Graphic Reference:** Presented to TAC and CAC on October 25, 2018.

**Screening Findings:**

<input type="checkbox"/> Pass to Draft	<input type="checkbox"/> Pass to Final	<input type="checkbox"/> Pass to Next Steps
<input type="checkbox"/> Pass to Part 150	<input type="checkbox"/> Eliminate	<input checked="" type="checkbox"/> Pass to Next Steps After Part 150 Completion

**Reason for Elimination:**

<input type="checkbox"/> 65 CNEL Influence	<input type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #
<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input type="checkbox"/> Safety

**Design Notes:**

- Keeps departures between 10:00 p.m. and 6:30 a.m. further south of La Jolla without affecting initial departure path predictability and area exposed to CNEL 65 or higher
- Ensures turns after initial heading do not occur prior to 1.5 NM from shoreline
- Aircraft start turn at 1.5 NM from shoreline just prior to waypoint and flies just south of waypoint to join next course
- Keeps nighttime departures further south of La Jolla
- Increases flight distance ~ 1.5 NM as compared to PADRZ departures at night
- Compatible with proposed ANAC Recommendation 15 Nighttime Alternative 2 refined design concept
- BROCK2 waypoint adjusted further west

**Summary Narrative:**

Recommendation 14 Alternative 1 Version 2, depicted with ANAC 15 Alternative 2, is a modification of the PADRZ TWO SID to include a left turn to the west to keep aircraft further south of the La Jolla area between the hours of 10:00 p.m. and 6:30 a.m. The design uses the same initial heading and RNAV coding that is used for the current PADRZ TWO SID to a new fly by waypoint, ANAC-14-1, located along the initial heading at two NM from the shoreline, then to BROCK2, then back to KERNL and the remaining waypoints on the PADRZ TWO SID. The design has been modified to ensure aircraft do not turn prior to the established noise dots located 1.5 NM from the shoreline. The design allows for predictable flight tracks that are designed to stay south of ANAC14-1. No changes were made to the design compared to the version evaluated under the Draft Design Concept phase. The design meets the intent of ANAC Noise Recommendation 14 and is compliant with the current early turn restrictions used by SCT TRACON for departures and missed approaches.

The noise screening results did not indicate a change in CNEL levels above 1 dBA, but indicated reduction at levels between 0.5 and 0.9 dBA for the La Jolla area. The recommendation was to proceed forward with Recommendation 14 Alternative 1 based on input provided by TAC and CAC at the May 23, 2019 meeting to maintain the 1.5 NM turn restriction. The increase in point of closest approach distance from the flight path and La Jolla met the intent of Recommendation 14.

TAC and CAC members were concerned about the nighttime noise abatement heading related to locating all departures between 10:00 p.m. and 6:30 a.m. along the current PADRZ RNAV SID initial departure traffic pattern. Based on TAC and CAC input, the final recommendation was to hold from proceeding forward until ANAC Recommendation 17 and 21 are addressed in the Title 14 CFR Part 150 process in order to incorporate the result as part of the procedure design concept.



**Design Notes:**

- Keeps departures between 10:00 p.m. and 6:30 a.m. further south of La Jolla without affecting initial departure path predictability and area exposed to CNEL 65 or higher
- Increases flight distance approximately 0.75 NM as compared to PADRZ SID departures at night
- Compatible with proposed ANAC Recommendation 15 Nighttime Alternative 4 design concept

**Summary Narrative:**

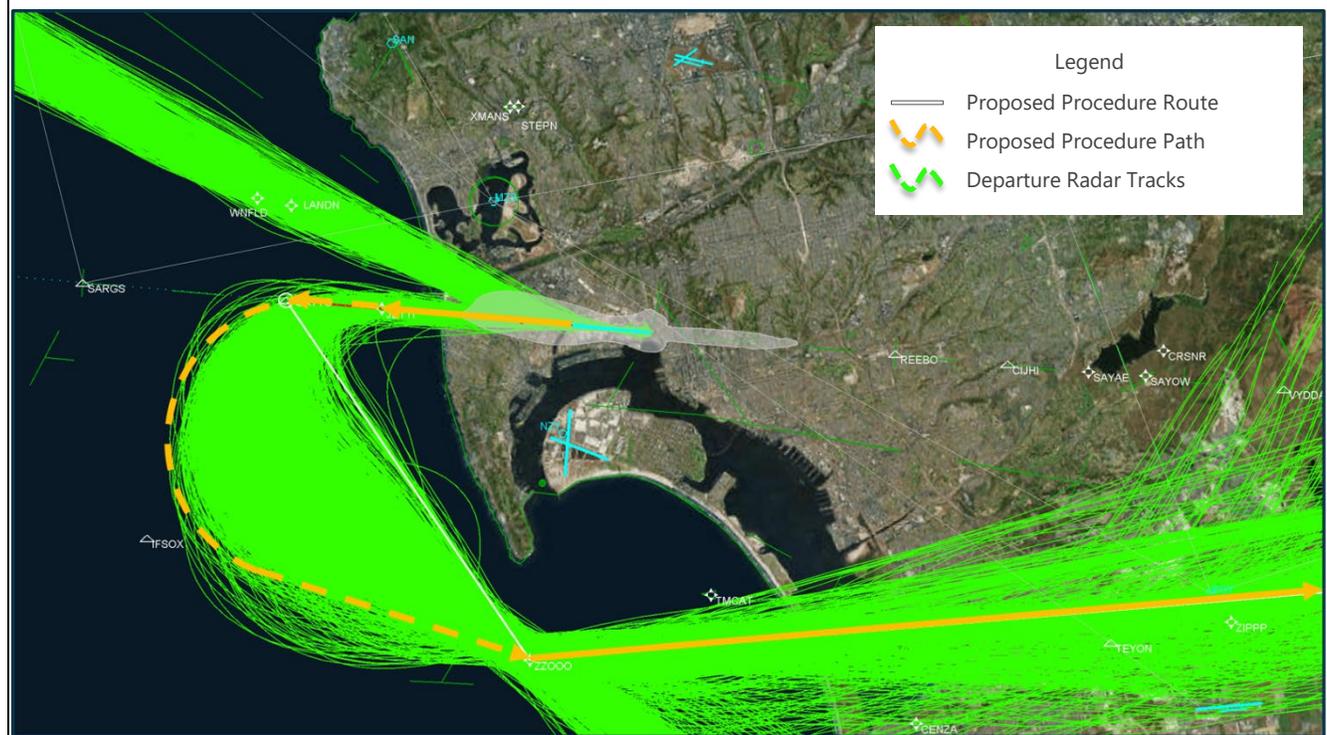
Recommendation 14 Alternative 4, depicted with ANAC 15 Alternative 4, is a modification of the PADRZ TWO SID to include a left turn to the west to keep aircraft further south of the La Jolla area between the hours of 10:00 p.m. and 6:30 a.m. It was introduced in the Draft Concept Design phase of the project due to the elimination of Recommendation 14 Alternatives 2 and 3 and based on CAC request to evaluate a design that can turn aircraft west as soon as possible. This design requires the 1.5 NM shoreline agreement would not apply (note: Noise Dots 4 and 5 would still be applicable).

Recommendation 14 Alternative 4 design includes an early turn beyond the shoreline but prior to 1.5 NM in attempt to identify the earliest location an aircraft may turn west within FAA RNAV design criteria, meeting the TARGETS flyability assessment, and without affecting the CNEL 65 noise exposure area. The design uses the same initial heading and RNAV coding that is used for the current PADRZ TWO SID to a new fly by waypoint, WP71, located along the initial heading at one NM from the shoreline, then to BROCK2, then back to KERNL and the remaining waypoints on the PADRZ TWO SID. A small adjustment to the new fly by waypoint was made to ensure the initial departure path from Runway 27 matched the existing PADRZ TWO SID path. The design meets the intent of ANAC Noise Recommendation 14. The design is not consistent with the current early turn restrictions used by SCT TRACON for departures and missed approaches. A change would be required in the SCT SOP if this alternative is pursued.

The noise screening results did not indicate a change in CNEL levels above 1 dBA, but indicated reduction at levels between 0.5 and 0.9 dBA for the La Jolla area. The recommendation was not to proceed forward with Recommendation 14 Alternative 4 based on input provided by TAC and CAC at the May 23, 2019 meeting to maintain the 1.5 NM turn restriction. Aircraft noise screening results indicated no substantial differences in CNEL level reductions between Recommendation 14 Alternative 1 and Alternative 4. Because both cannot be implemented, the recommendation was to proceed forward with Recommendation 14 Alternative 1.

### D.3.3 RECOMMENDATION 15 ALTERNATIVE 1 - EXTEND JETTI WAYPOINT 2 NM WEST (DAYTIME)

<b>ANAC RECOMMENDATION:</b>	15 ALTERNATIVE 1 – EXTEND JETTI 2 NM WEST (DAYTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Daytime (6:30 a.m. to 9:59 p.m.) Departure
<b>Version:</b>	Final Design Concept – Version 1
<b>Description:</b>	The concept involves a modification of the ZZ000 TWO SID where the JETTI waypoint is moved two NM further west of its current location.
<b>Intent:</b>	Revise the ZZ000 SID to move departures further west of the Point Loma shoreline, reduce or eliminate flight paths over the Point Loma Peninsula, including Cabrillo National Park and to cross over ZZ000 waypoint at a higher altitude compared to current conditions.
<b>Version Notes:</b>	This is the initial version of the alternative shown with radar tracks as requested by CAC at August 30, 2018 meeting.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (white), runways (cyan), Runway 27 RNP approach (white) and navigational aids (cyan)); San Diego County Regional Airport Authority, May 2017 to December 2017 (radar data (light green)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., October 2018 (proposed procedure route (white), proposed procedure paths (orange) and proposed waypoints (white)).

**Graphic Reference:** Presented to TAC and CAC on October 25, 2018.

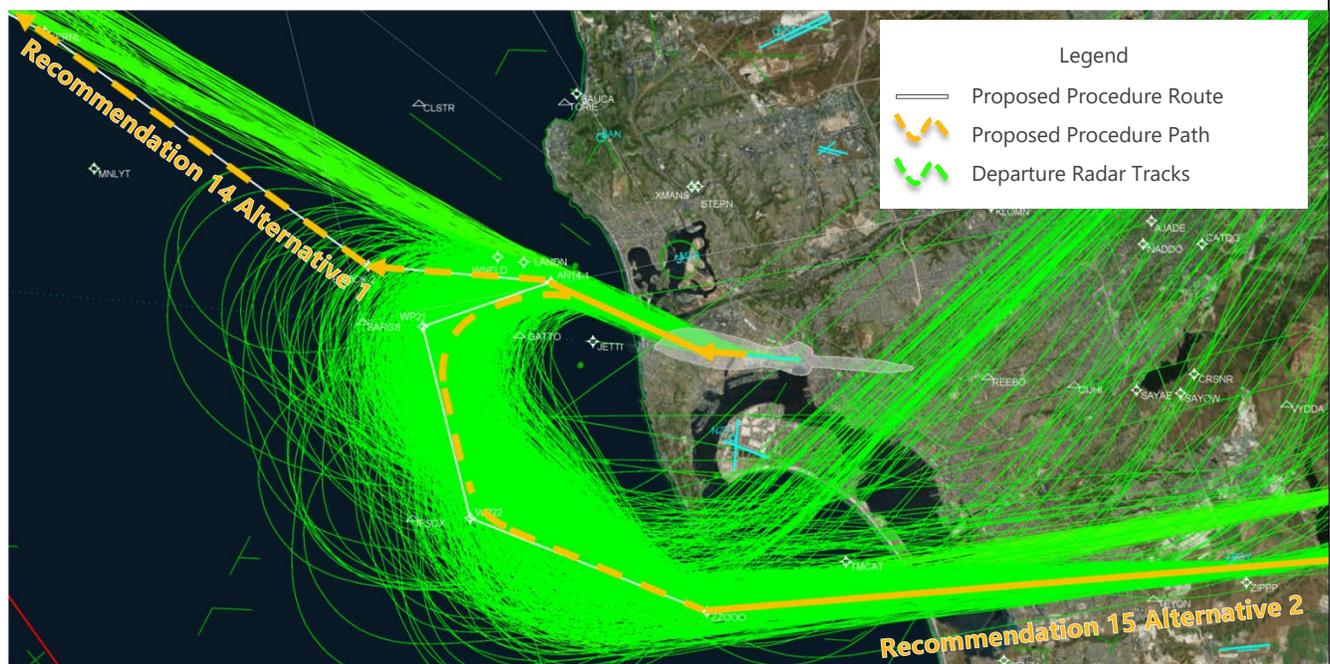
**Screening Findings:**

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Pass to Draft    | <input type="checkbox"/> Pass to Final | <input checked="" type="checkbox"/> Pass to Next Steps                |
| <input type="checkbox"/> Pass to Part 150 | <input type="checkbox"/> Eliminate     | <input type="checkbox"/> Pass to Next Steps After Part 150 Completion |

<b>Reason for Elimination:</b>				
<input type="checkbox"/> 65 CNEL Influence	<input type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #
<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input type="checkbox"/> Safety
<b>Design Notes:</b>				
<ul style="list-style-type: none"> <li>▪ Meets required minimum distance between JETTI and ZZOOO waypoints – no waiver required</li> <li>▪ Increase flight distance should increase frequency of aircraft over 8,000 feet MSL near ZZOOO waypoint (from 85% to over 95%)</li> <li>▪ Moves dispersion of traffic further west from Point Loma</li> <li>▪ Would increase flight distance by 2.95 NM compared to existing ZZOOO SID</li> <li>▪ Maintains all existing routes after ZZOOO waypoint</li> <li>▪ Radar vector may occur during Contra-Flow operations (arrivals on Runway 9 and departures on Runway 27)</li> </ul>				
<b>Summary Narrative:</b>				
<p>Recommendation 15 Alternative 1 is designed to shift the JETTI waypoint further west with intent of keeping aircraft further west of the Point Loma shoreline and to provide more flight track distance for aircraft to climb to achieve 8,000 feet at the ZZOOO waypoint. This alternative was also designed to remove the current speed restriction on the ZZOOO TWO required to ensure aircraft flyability from JETTI to ZZOOO. No changes were made to the design compared to the version evaluated under the Draft Design Concept phase. The procedure design meets FAA criteria and passes the TARGETS flyability assessment, and the intent of the recommendation.</p> <p>The aircraft noise screening analysis indicated CNEL levels within Point Loma near the shoreline may expect a decrease between 1 and 2 CNEL dBA. The decrease was attributed to increasing the distance between the shoreline and jet traffic turning south after passing the GATTO waypoint. Several grid points located in the southern portion of the Point Loma peninsula did indicate a reduction, but did not exceed 1 CNEL dBA.</p> <p>CAC member input indicated concerns related to assumed FAA ATC radar vectoring. CAC’s understanding of Recommendation 16 intent was to reduce radar vectoring. Radar heading vectors will always occur as needed to ensure safe and efficient movement of aircraft. A procedure design would not prevent FAA’s ability to issue radar vector headings. The noise screening assumption was to maintain current radar vector patterns for Recommendation 15 Alternative 1. There was no indication from FAA that the proposed design would reduce or eliminate the need to radar vector aircraft as needed to ensure safe separation.</p> <p>The recommendation was to proceed forward with Recommendation 15 Alternative 1. The aircraft noise screening results indicated a decrease between 1 and 2 CNEL dBA along the Point Loma peninsula shoreline by moving the eastbound jet departures further west as aircraft proceed south prior to turning left to the east. The primary concern with Recommendation 15 Alternative 1 concept design was the increase in flight distance. During the formal review process, FAA will determine if the proposed concept impacts FAA’s ability to meet their mission and goals. The FAA, along with airline input, will weigh the benefits versus the potential impacts (e.g., increased time and workload in sector, fuel burn). A reduction between 1 and 2 CNEL may not be enough to overcome the costs associated with additional fuel burn or potential impact in managing traffic in an efficient manner comparable to existing conditions.</p>				

### D.3.4 RECOMMENDATION 15 ALTERNATIVE 2 VERSION 2 - FLY BY TURN AT 1.5 NM FROM SHORELINE THEN TO ZZOOO WAYPOINT (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	15 ALTERNATIVE 2 VERSION 2- FLY BY TURN AT 1.5 NM FROM SHORELINE THEN TO ZZOOO WAYPOINT (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Final Design Concept – Version 2
<b>Description:</b>	The concept involves the development of a new SID using the initial heading design of the PADRZ TWO SID to a fly by waypoint located two NM from the shoreline, then to a new fly by waypoint, then to the ZZOOO waypoint and the remaining portion of the ZZOOO TWO SID.
<b>Intent:</b>	Revise the ZZOOO SID to significantly reduce or eliminate flight paths over the Point Loma Peninsula, including Cabrillo National Park and to reduce east bound turns over La Jolla.
<b>Version Notes:</b>	This is the version 2 of the concept. Shown with Recommendation 14 Alternative 1 Version 2 and radar tracks as requested by CAC at August 30, 2018 meeting.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (white), runways (cyan), Runway 27 RNP approach (white) and navigational aids (cyan)); San Diego County Regional Airport Authority, May 2017 to December 2017 (radar data (light green)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., October 2018 (proposed procedure route (white), proposed procedure paths (orange) and proposed waypoints (white)).

**Graphic Reference:** Presented to TAC and CAC on October 25, 2018.

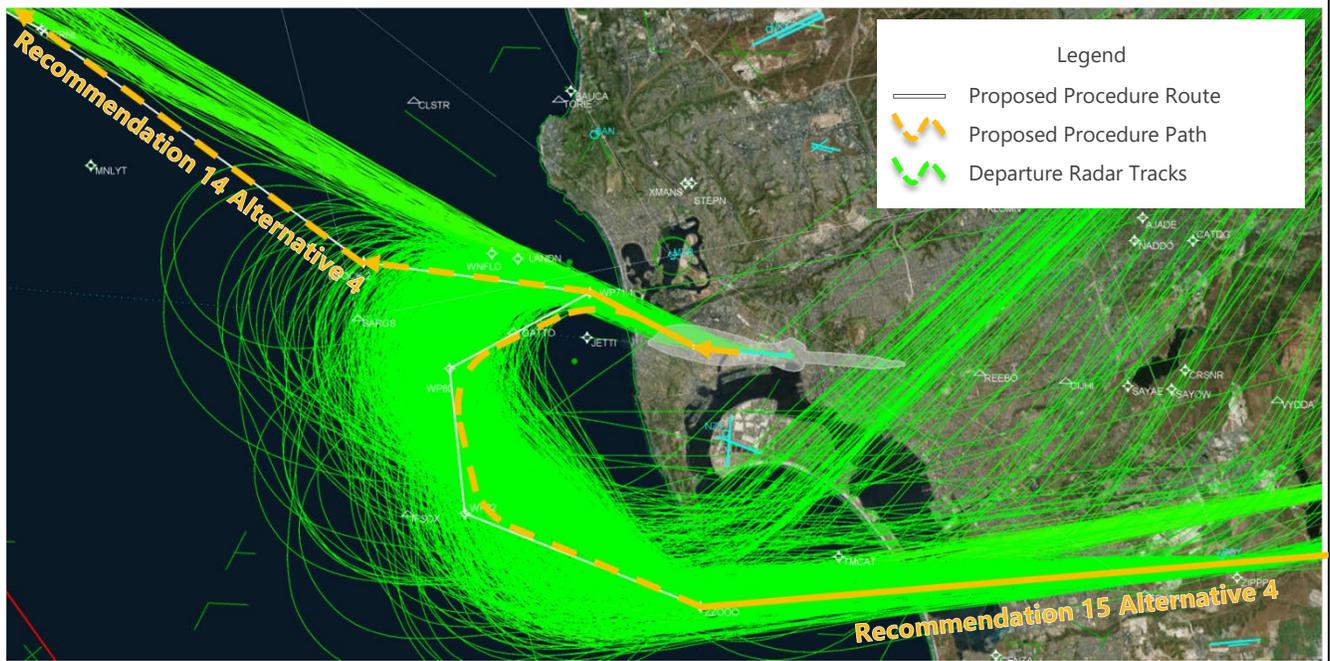
**Screening Findings:**

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Pass to Draft    | <input type="checkbox"/> Pass to Final | <input type="checkbox"/> Pass to Next Steps                                      |
| <input type="checkbox"/> Pass to Part 150 | <input type="checkbox"/> Eliminate     | <input checked="" type="checkbox"/> Pass to Next Steps After Part 150 Completion |

<b>Reason for Elimination:</b>				
<input type="checkbox"/> 65 CNEL Influence	<input type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #
<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input type="checkbox"/> Safety
<b>Design Notes:</b>				
<ul style="list-style-type: none"> <li>▪ Ensures turns after initial heading do not occur prior to 1.5 NM from shoreline</li> <li>▪ Aircraft start turn at 1.5 NM from shoreline just prior to waypoint and flies just south of waypoint to join next course</li> <li>▪ Keeps nighttime departures further west of Point Loma and increases frequency of aircraft at or above 8,000 feet MSL near ZZOOO waypoint</li> <li>▪ Compatible with proposed ANAC Recommendation 14 Alternative 1 fly by nighttime design concept</li> <li>▪ Maintains routes after ZZOOO waypoint</li> <li>▪ Not feasible during Contra-Flow operations (arrivals on Runway 9 and departures on Runway 27)</li> </ul>				
<b>Summary Narrative:</b>				
<p>This design, depicted with Recommendation 14 Alternative 2, is predicated on the establishment of a new RNAV procedure for nighttime departures to the south and east. Currently, this is a vector only operation. The design of the procedure uses initial heading of the PADRZ TWO SID to a fly by waypoint, ANAC14-1, located two NM from the shoreline. This is the same waypoint as used in Recommendation 14 Alternative 1 Version 2 fly by design. Aircraft will then track to a new fly by waypoint located west of JETTI, then to the ZZOOO waypoint and the remaining portion of the ZZOOO TWO SID. The design meets the intent of Recommendation 15, is compatible with Recommendation 14 Alternative 1 Version 2, meets FAA design criteria, and is compliant with the current early turn restrictions used by SCT TRACON for departures and missed approaches.</p> <p>The aircraft noise screening results indicated a decrease in CNEL levels between 1 and 2 dBA for the northern area of La Jolla as a result of redirecting eastbound departures that turn right then over La Jolla to the proposed procedure design directing aircraft south then to the ZZOOO waypoint. The change in CNEL levels within the Point Loma area did not exceed 1 CNEL dBA, but there were decreases in CNEL below 1 dBA with the southern area of Point Loma. Eighty-one percent of all jet departures on the nighttime noise abatement heading that turn left to the south then east were modeled on the proposed final design RNAV SID. The remaining 19 percent followed the same FAA ATC radar vector patterns observed in the baseline model. The results are similar for Recommendation 15 Alternative 4.</p> <p>The recommendation was to proceed forward with Recommendation 15 Alternative 2 based on input provided by TAC and CAC at the May 23, 2019 meeting to maintain the 1.5 NM turn restriction. Aircraft noise screening results indicated no substantial differences in CNEL level reductions between Alternative 2 and 4. Because both Alternative 2 and 4 cannot be implemented, the recommendation was to proceed forward with Recommendation 15 Alternative 2 to maintain the 1.5 NM turning restriction.</p> <p>TAC and CAC members were concerned about the nighttime noise abatement heading related to locating all departures between 10:00 p.m. and 6:30 a.m. along the current PADRZ RNAV SID initial departure traffic pattern. Based on TAC and CAC input, the final recommendation was to hold from proceeding forward until ANAC Recommendation 17 and 21 are addressed in the Title 14 CFR Part 150 process in order to incorporate the result as part of the procedure design concept.</p>				

### D.3.5 RECOMMENDATION 15 ALTERNATIVE 4 - FLY BY TURN BETWEEN SHORELINE AND 1.5 NM FROM SHORELINE THEN TO ZZOOO WAYPOINT (NIGHTTIME)

<b>ANAC RECOMMENDATION:</b>	15 ALTERNATIVE 4 – FLY BY TURN BETWEEN SHORELINE AND 1.5 NM FROM SHORELINE THEN TO ZZOOO WAYPOINT (NIGHTTIME)
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Nighttime (10:00 p.m. to 6:30 a.m.) Departures
<b>Version:</b>	Final Design Concept – Version 2
<b>Description:</b>	The concept involves the development of a new SID using the same initial heading design of the PADRZ TWO SID to a fly over waypoint located between 0.5 to 1.0 NM from the shoreline, then to a new fly by waypoint, then to the ZZOOO waypoint and the remaining portion of the ZZOOO TWO SID.
<b>Intent:</b>	Revise the ZZOOO SID to significantly reduce or eliminate flight paths over the Point Loma Peninsula, including Cabrillo National Park and to reduce east bound turns over La Jolla.
<b>Version Notes:</b>	This is the initial version of the concept. Shown with Recommendation 14 Alternative 4 and radar tracks as requested by CAC at August 30, 2018 meeting.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (white), runways (cyan), Runway 27 RNP approach (white) and navigational aids (cyan)); San Diego County Regional Airport Authority, May 2017 to December 2017 (radar data (light green)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., October 2018 (proposed procedure route (white), proposed procedure paths (orange) and proposed waypoints (white)).

**Graphic Reference:** Presented to TAC and CAC on October 25, 2018.

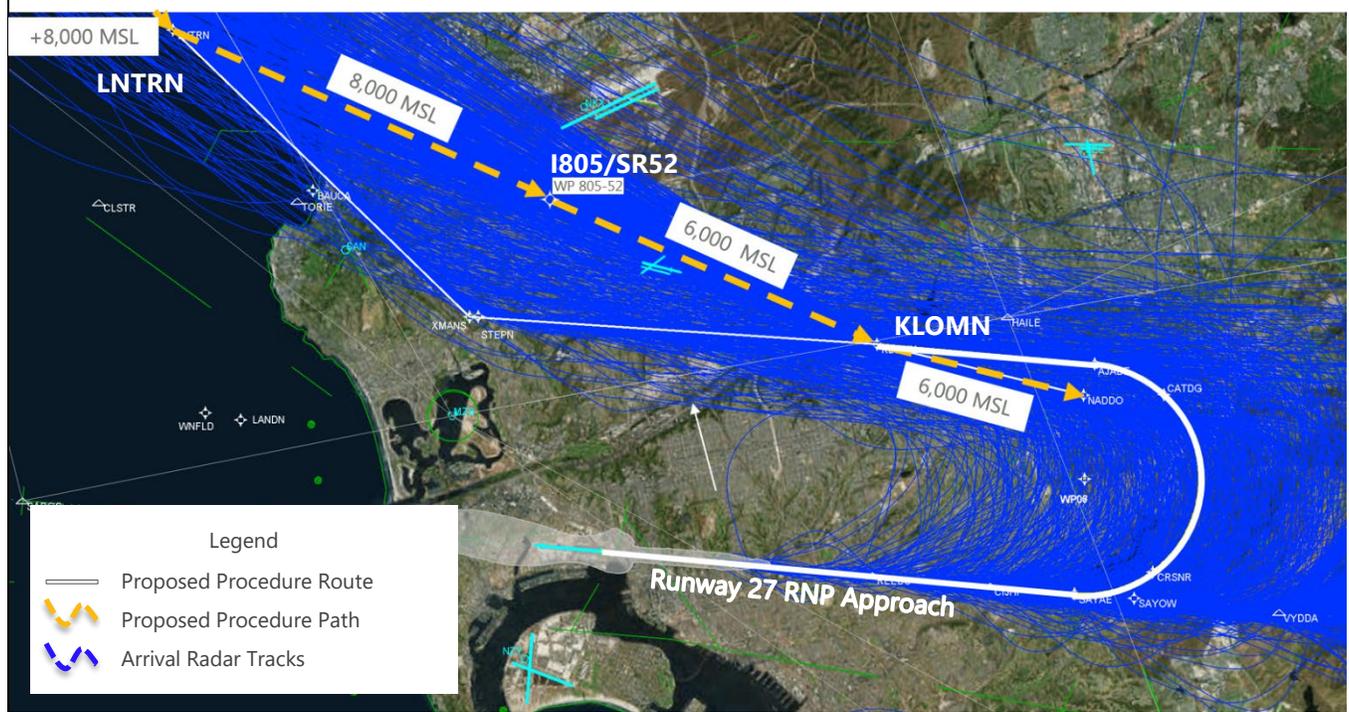
**Screening Findings:**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Pass to Draft    | <input type="checkbox"/> Pass to Final        | <input type="checkbox"/> Pass to Next Steps                           |
| <input type="checkbox"/> Pass to Part 150 | <input checked="" type="checkbox"/> Eliminate | <input type="checkbox"/> Pass to Next Steps After Part 150 Completion |

<b>Reason for Elimination:</b>				
<input type="checkbox"/> 65 CNEL Influence	<input type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #
<input checked="" type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input type="checkbox"/> Safety
<b>Design Notes:</b>				
<ul style="list-style-type: none"> <li>▪ Aircraft would turn left approximately 0.5 NM west of the shoreline</li> <li>▪ Compatible with Recommendation 14 Alternative 4 with same fly by waypoint location</li> <li>▪ Keeps nighttime departures further west of Point Loma</li> <li>▪ Expected to increase frequency of aircraft at or above 8,000 feet MSL near ZZOOO waypoint, but not as much as Recommendation 15 Alternative 2 due to shorter flight distance</li> <li>▪ Maintains all existing routes after ZZOOO waypoint</li> <li>▪ Not feasible during Contra-Flow operations (arrivals on Runway 9 and departures on Runway 27)</li> </ul>				
<b>Summary Narrative:</b>				
<p>This design, depicted with Recommendation 14 Alternative 4, is predicated on the establishment of a new RNAV procedure for nighttime departures to the south and east. Currently, this is a vector only operation. Recommendation 15 Alternative 4 design includes an early turn beyond the shoreline but prior to 1.5 NM in attempt to identify the earliest location an aircraft may turn west within FAA RNAV design criteria, meeting the TARGETS flyability assessment, and without affecting the CNEL 65 noise exposure area. This was designed to provide an eastbound departure procedure that is compatible with Recommendation 14 Alternative 4. The design uses the same initial heading and RNAV coding that is used for the current PADRZ TWO SID to a new fly by waypoint, WP71, located along the initial heading at one NM from the shoreline. The fly by waypoint is the same waypoint used in Recommendation 14 Alternative 4 to ensure compatibility between the two designs. Aircraft will then track to a new fly by waypoint located west of JETTI, then to the ZZOOO waypoint and the remaining portion of the ZZOOO TWO SID. The design meets the intent of ANAC Noise Recommendation 15. The design is not consistent with the current early turn restrictions used by SCT TRACON for departures. A change would be required in the SCT TRACON SOP to eliminate the 1.5 NM turn restriction if this alternative is pursued.</p> <p>The aircraft noise screening results indicated a decrease in CNEL levels between 1 and 2 dBA for the northern area of La Jolla as a result of redirecting eastbound departures that turn right then over La Jolla to the proposed procedure design directing aircraft south then to the ZZOOO waypoint. The change in CNEL levels within the Point Loma area did not exceed 1 CNEL dBA, but there were decreases in CNEL below 1 dBA with the southern area of Point Loma. Eighty-one percent of all jet departures on the nighttime noise abatement heading that turn left to the south then east were modeled on the proposed final design RNAV SID. The remaining 19 percent followed the same FAA ATC radar vector patterns observed in the baseline model. The results were similar to Recommendation 15 Alternative 2.</p> <p>The recommendation was not to proceed forward with Recommendation 15 Alternative 4 based on input provided by TAC and CAC at the May 23, 2019 meeting to maintain the 1.5 NM turn restriction. Aircraft noise screening results indicated no substantial differences in CNEL level reductions between Recommendation 15 Alternative 2 and Alternative 4. Because both cannot be implemented, the recommendation was to proceed forward with Recommendation 15 Alternative 2.</p>				

### D.3.6 RECOMMENDATION 16 ALTERNATIVE 1 VERSION 3 - CROSS LNTRN WAYPOINT AT OR ABOVE 8,000 FT. TO I805/SR52 AT 7,000 FT. TO KLOMN WAYPOINT AT 6,000 FT.

<b>ANAC RECOMMENDATION:</b>	16 ALTERNATIVE 1 VERSION 3– CROSS LNTRN WAYPOINT AT OR ABOVE 8,000 FT. TO I805/SR52 AT 7,000 FT. TO KLOMN WAYPOINT AT 6,000 FT.
<b>Runway Configuration:</b>	Runway 27 Arrivals and Departure
<b>Operational Mode:</b>	Runway 27 Arrivals
<b>Version:</b>	Final Design Concept – Version 3
<b>Description:</b>	The concept involves the revision of the COMIX STAR with direct routing from LNTRN to a new fly by waypoint at I805/SR52 to KLOMN. Aircraft will cross LNTRN at or above 8,000 feet, I80/SR72 at 8,000 feet, and KLOMN at 6,000 feet.
<b>Intent:</b>	Reassess and revive the entire arrival corridor in a manner that more appropriately “shares the noise” instead of concentrating arrivals from the North into a very narrow corridor.
<b>Version Notes:</b>	This is version 3 of the concept. Shown with radar tracks as requested by CAC at August 30, 2018 meeting.



**Graphic Source:** Federal Aviation Administration, February 2018 (radar video map (green), waypoints (white), runways (cyan), Runway 27 RNP approach (white) and navigational aids (cyan)); San Diego County Regional Airport Authority, May 2017 to December 2017 (radar data (blue)); HMMH, March 2018 (4<sup>th</sup> Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., August 2018 (proposed procedure route (white), proposed procedure path (orange) and proposed waypoints (white)).

**Graphic Reference:** Presented to TAC and CAC on October 25, 2018.

**Screening Findings:**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Pass to Draft    | <input type="checkbox"/> Pass to Final        | <input type="checkbox"/> Pass to Next Steps                           |
| <input type="checkbox"/> Pass to Part 150 | <input checked="" type="checkbox"/> Eliminate | <input type="checkbox"/> Pass to Next Steps After Part 150 Completion |

<b>Reason for Elimination:</b>				
<input type="checkbox"/> 65 CNEL Influence	<input type="checkbox"/> ANAC Intent	<input type="checkbox"/> Charting Requirements	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Duplicate ANAC #
<input type="checkbox"/> Existing Compliance	<input type="checkbox"/> Not Applicable	<input checked="" type="checkbox"/> Noise Impact	<input type="checkbox"/> Operational Feasibility	<input type="checkbox"/> Safety
<b>Design Notes:</b>				
<ul style="list-style-type: none"> <li>▪ Design includes proposed waypoint at I-805 and SR-52</li> <li>▪ Due to elimination of longer downwind pattern, may cause FAA ATC vectoring off procedure to manage traffic into final approach and/or airlines inability to descent and reduce speed as requested by FAA ATC</li> <li>▪ Possible ATC issues with MCAS Miramar</li> <li>▪ Moves noise from one community to another - may be deemed infeasible by FAA due to environmental concerns</li> <li>▪ Maintains all existing routes up to LNTRN waypoint.</li> <li>▪ COMIX crossing altitude window modified to be 12,000 to 14,000</li> <li>▪ Reduces the flight track one NM</li> </ul>				
<b>Summary Narrative:</b>				
<p>Recommendation 16 Alternative 1 Version 3 was introduced in the Draft Design Concept phase in attempt to design a procedure that may be acceptable to the airlines operating at San Diego International Airport and meet ANAC's intended flight path location for Recommendation 16.</p> <p>The new design includes a crossing of LNTRN at or above 8,000 MSL and requires a redesign of some of the altitudes on COMIX TWO STAR from the COMIX waypoint to LNTRN. The current COMIX waypoint altitude is a window altitude between 12,000 and 15,000 feet MSL. To pass design criteria, the window altitude over the COMIX waypoint was reduced between 12,000 and 14,000 feet MSL. Based on a cursory review, FAA did not indicate a major concern with the change, but indicated possible concerns related to maintaining an optimized descent as intended in the current procedure. The procedure complies with FAA criteria and the TARGETS flyability assessment tool.</p> <p>As in the case of previous versions for Recommendation 16 Alternative 1, the new route changes the flight track for the arrival resulting in a shift in noise from one community to another. The new route also reduces the sequencing and spacing area available to SCT TRACON for arrivals and places traffic within the Miramar Marine Corps Air Station Airspace where possible conflicts may occur.</p> <p>The aircraft noise results indicated CNEL levels increases as high as 5 CNEL dBA and decreases just under 5 CNEL dBA throughout northern San Diego. The changes in CNEL were attributed to moving 65 percent of all jet arrivals from the northwest from the current COMIX RNAV STAR flight path to the proposed Recommendation 16 Alternative 1 final design flight path. The change in flight path accomplished the intent to reduce CNEL levels within La Jolla. The change also provided a reduction over areas such as Clairemont and Clairemont Mesa. Although, the change in flight path would increase CNEL levels to noticeable levels over areas such as the University of California San Diego, University City and Kearny Mesa. If implemented, it is reasonable to expect residents located underneath the proposed path will notice an increase in overflights. Based on the noise screening results, achieving a reduction in noise for the La Jolla area by the relocation of the jet arrival flight path will cause a noticeable increase in noise for other communities.</p> <p>The recommendation was not to proceed forward with Recommendation 16 Alternative 1 Version 3 due to the potential for substantial increase in aircraft noise levels for areas such as the University of California San Diego, University City and Kearny Mesa. Increasing noise exposure levels over one community to decrease noise for another community is not an effective noise abatement approach. The design also did not fully address concerns with the operational feasibility based on user input. Concerns related to meeting required descent altitudes and speed reductions continued to exist by members of TAC who represent users.</p>				