SECTION 6

DNL Contributor Analysis

The Representative Receptors of #5 Florida Key Community College, #7 Gerald Adams Elementary School, #9 and #10 Key Haven North and South Residential Clusters, #11 Key West Baptist Temple, #12 Key West by the Sea Subdivision, #15 Lower Keys Medical Center, and #21 Fort East Martello Museum would be exposed to less than 65 dB DNL for all Alternatives. For the 17 other Representative Receptor locations that would be exposed to a DNL of at least 65 dB for at least one Alternative, additional detail about the DNL contribution of individual aircraft types is provided in Figures 6-1 through 6-17. Note these figures are arranged in order of highest to lowest average DNL at the location across all alternatives, and that the DNL (dB) vertical axis scale varies depending on the DNL range across all alternatives for each location.

The Super Hornet is the primary DNL contributor at most receptor locations and would remain so for the action Alternatives, primarily due to greater single-event noise levels generated by the aircraft on approach, and to a smaller degree, the greater number of flight operations conducted by the aircraft, relative to other modeled types. The Super Hornet's contribution to the overall DNL would be approximately 6-10 dB greater than any other modeled aircraft's DNL contribution for receptors located on eastern Stock Island and Key Haven. The DNL for eastern Stock Island would primarily be driven by Runway 07 straight-in arrival, FCLP, and departure operations. The DNL for Key Haven would primarily be driven by Runway 07 break arrivals and FCLP operations. Additionally, #6 Geiger Key Marina would see the Super Hornet's DNL contribution be approximately 4 to 7 dB greater than any other individual aircraft's DNL contribution. The DNL for Geiger Key Marina would be primarily driven by Runway 25 break arrivals and Runway 07 departures.

Only receptor #24, Seaside Resorts Mobile Home Park, would see a slightly greater DNL contribution from aircraft other than the Super Hornet. Departures contribute to over 90 percent (within 0.5 dB) of the DNL at Seaside Resorts Mobile Home Park. The SEL generated by Super Hornet departures at this location is estimated to be approximately 3 to 4 dB less than those generated by the legacy Hornet, F-5 and F-35C, based on the modeling herein.

The F-35C's contribution to DNL at most receptor locations for Alternative 1 would remain similar to that of the Hornet, varying by approximately ±2 dB.

Additional detail regarding specific aircraft and operation type contribution to DNL at all Representative Receptor locations can be found in Appendix A Tables A15.1-A15.12.

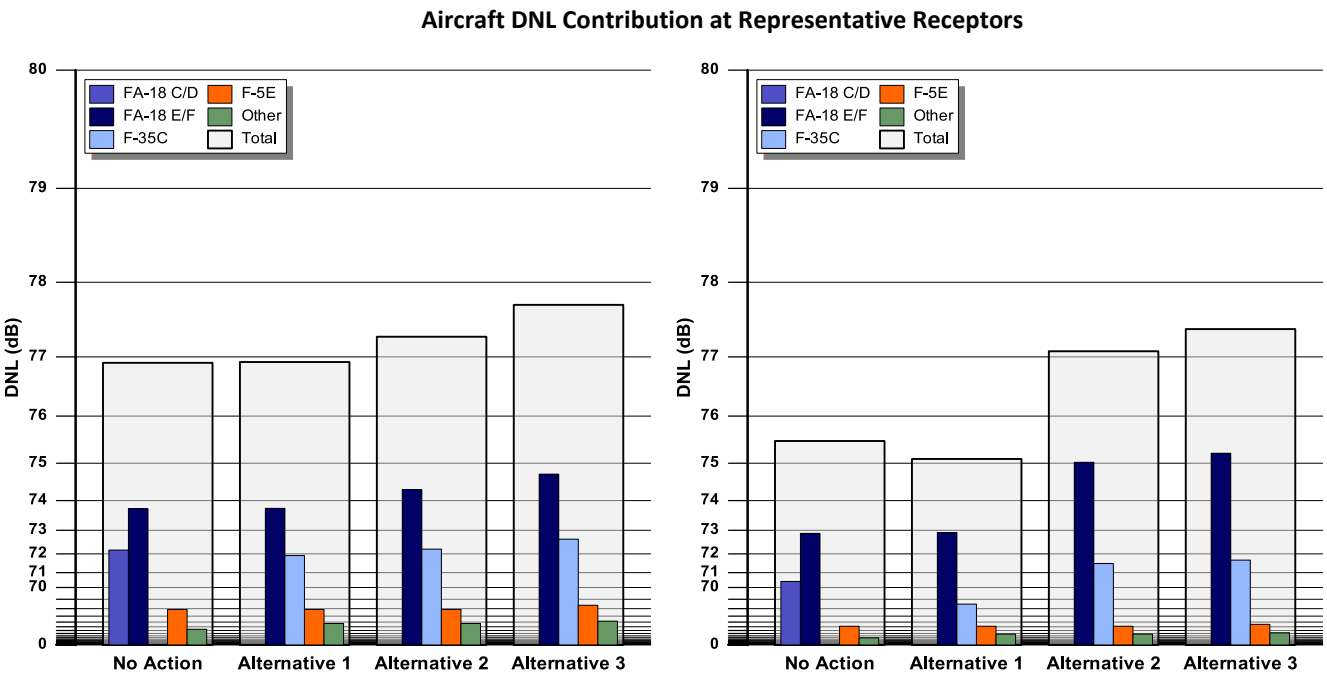

Figure 6-1. (23) East Rockland Key Residential Cluster

Figure 6-2. (3) Boca Chica Road Housing Cluster

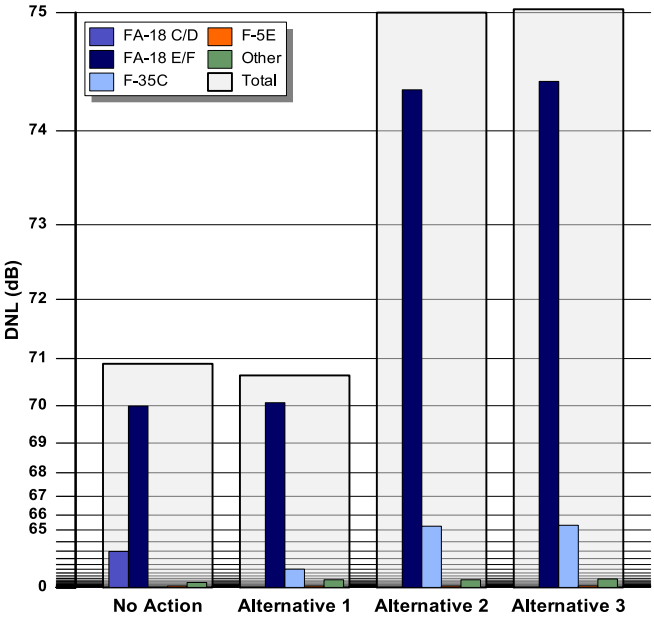

Figure 6-3. (13) Key West Harbour Yacht Club

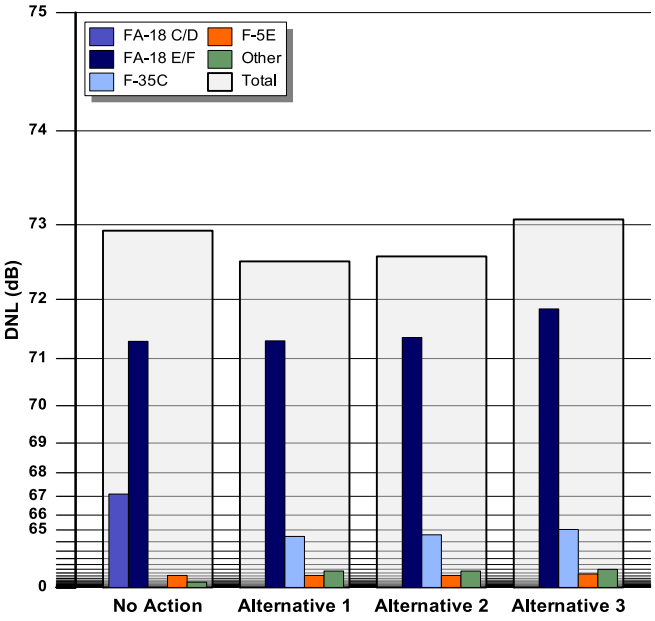

Figure 6-4. (6) Geiger Key Marina

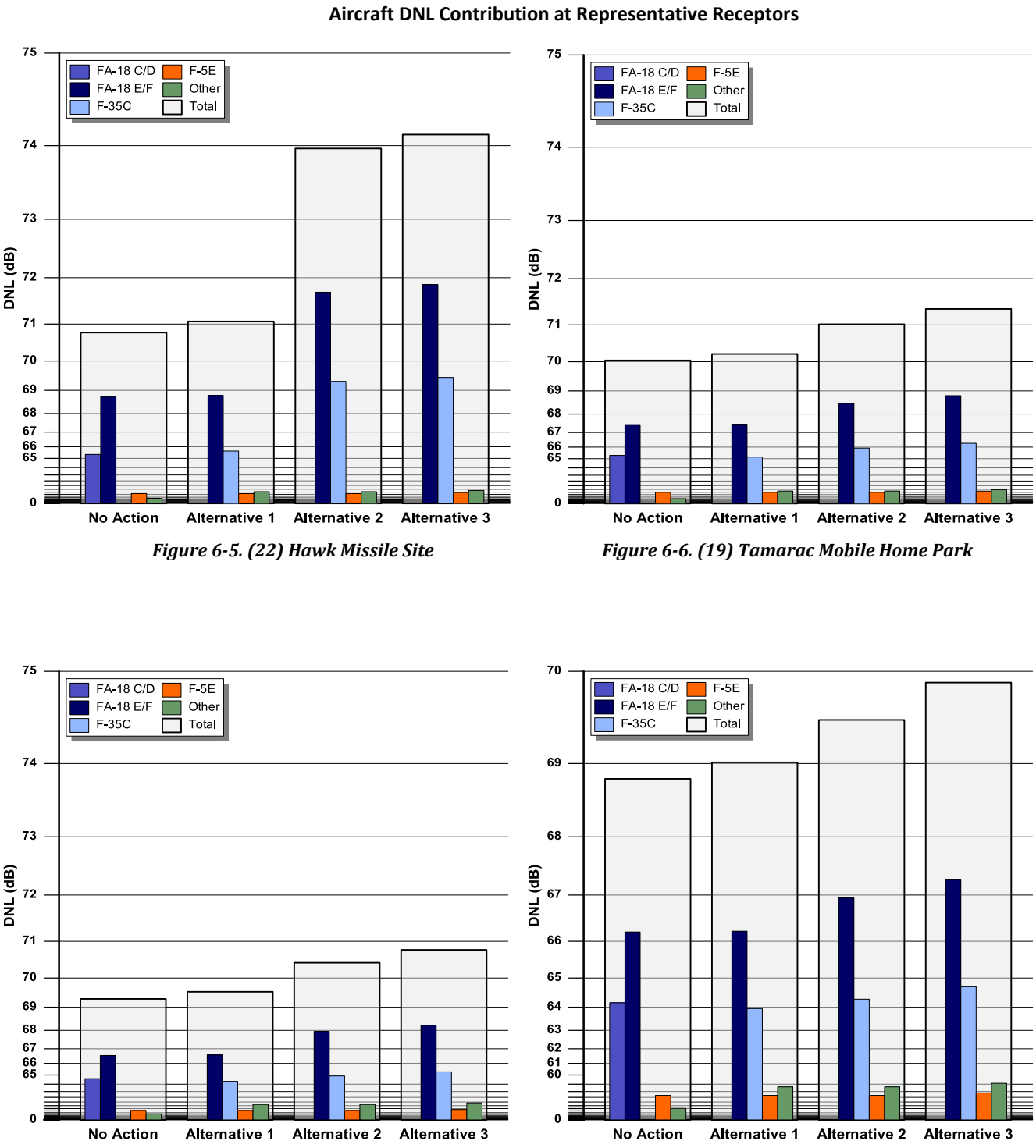

Figure 6-5. (22) Hawk Missile Site

Figure 6-6. (19) Tamarac Mobile Home Park

Figure 6-7. (14) Keys Presbyterian Church

Figure 6-8. (2) Bobalu's Southern Café

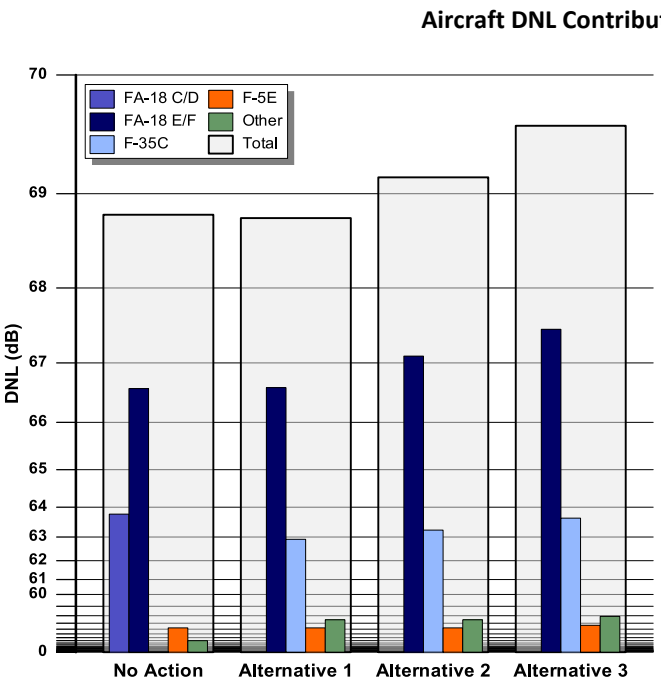

Figure 6-9. (16) New Life Tabernacle

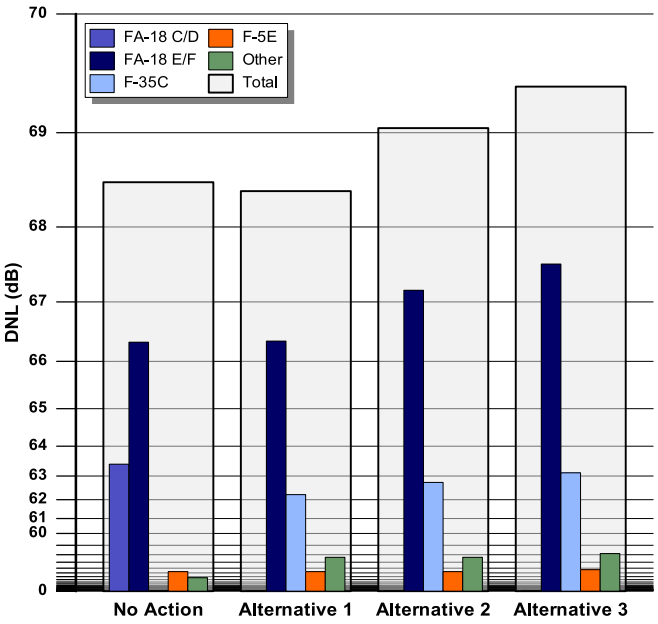

Figure 6-10. (1) Big Coppitt First Baptist Church

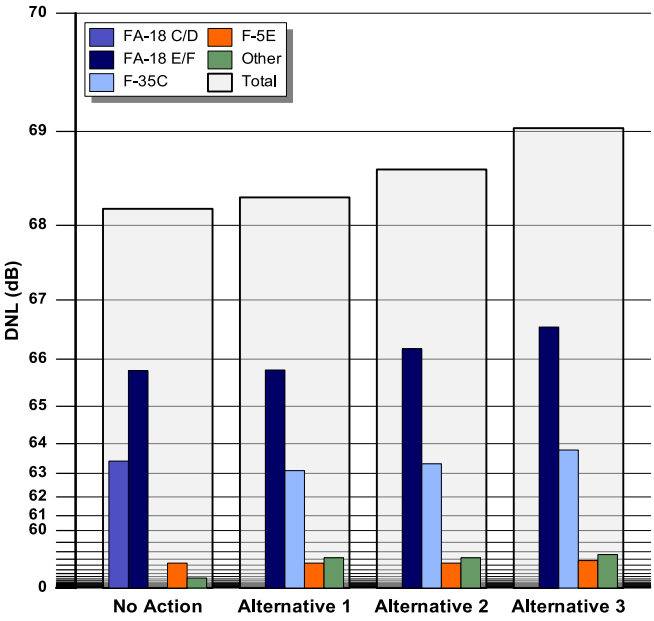

Figure 6-11. (20) United Pentecostal Church

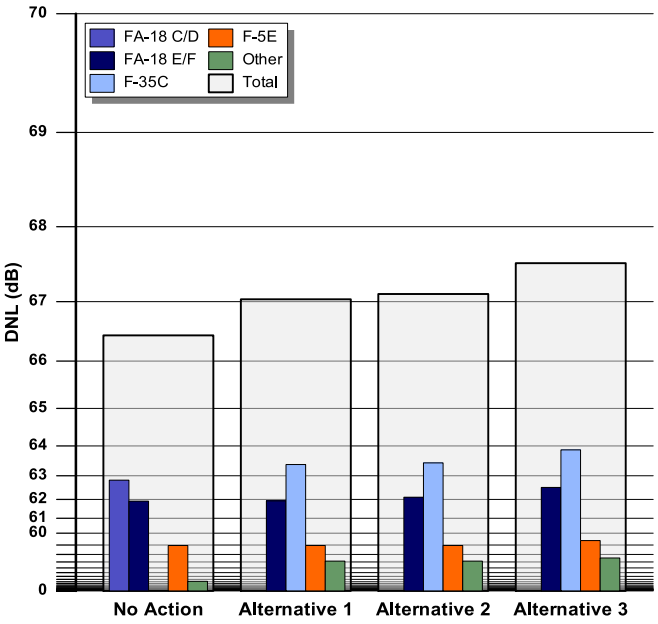

Figure 6-12. (24) Seaside Resorts Mobile Home Park

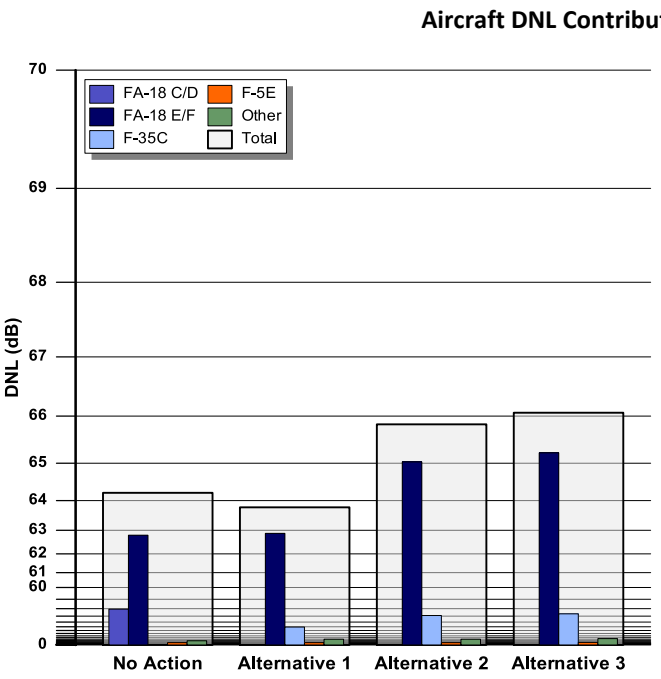

Figure 6-13. (4) Coconut Grove Mobile Home Park

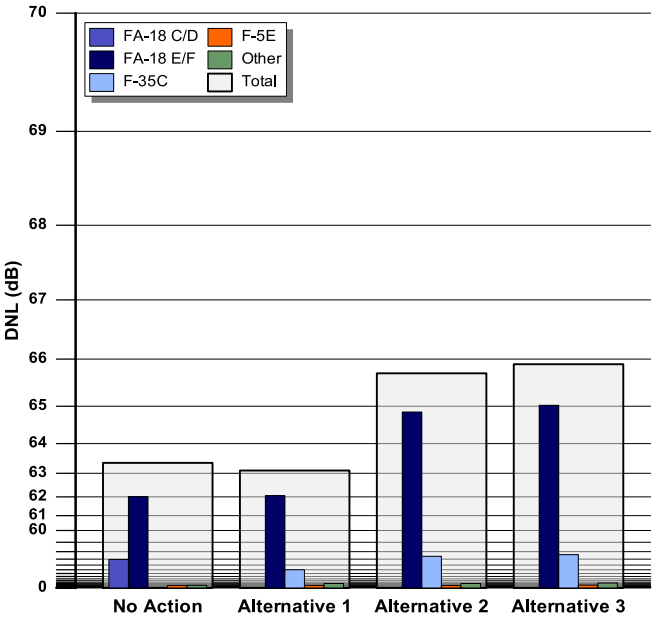

Figure 6-14. (10) Key Haven South Residential Cluster

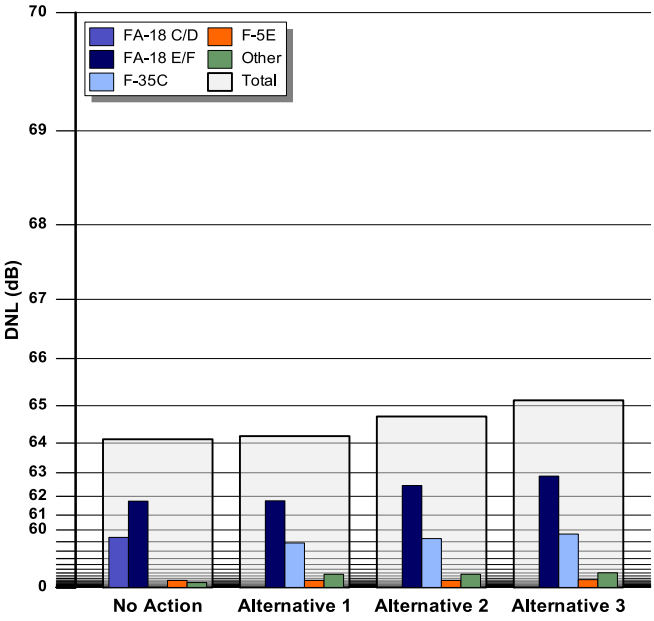

Figure 6-15. (18) Southern Key Cemetery

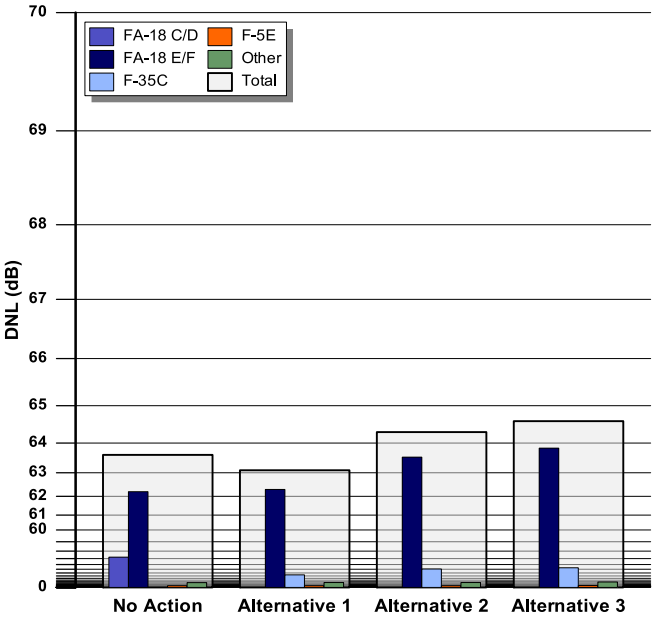

Figure 6-16. (17) Shrimp Shack Dockside Grill

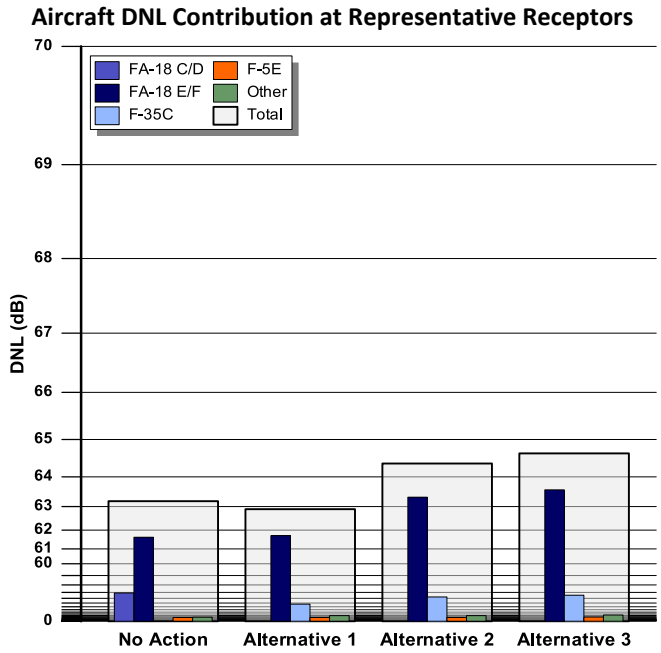

Figure 6-17. (8) HogFish Bar & Grille

As stated previously, rotary-wing aircraft were not modeled for this noise study because their inclusion would have a negligible effect on the overall DNLs. At airfields where the majority of operations are generated by fixed-wing jet engine aircraft, rotary-wing aircraft do not typically have a discernable affect on DNLs. In such cases, it is common practice to exclude rotary-wing aircraft from the airfield noise modeling.

Evidence to support this assertion for the NAS Key West EIS is found by inspection of the data from the Point of Interest (POI) analyses conducted for the Representative Receptor locations. Annual rotary-wing flight operations would total approximately 2,000 under any Alternative, i.e., less than 5 percent of the total flight operations under any Alternative. Combined with the F-5E, the Hornets and/or F-35C flight operations would account for 33,000-41,000 annual operations, and for all but 0.56-0.06 dB of the total modeled DNL at all analyzed receptor locations. This means the remaining 13,000-14,000 modeled fixed-wing flight operations, many of which are also jet-engined aircraft, would contribute less than 0.6 dB to the overall DNL at the receptor locations. Therefore, it can be concluded the 2,000 rotary-wing flight operations would contribute negligibly, i.e., much less than 0.6 dB, to the overall DNL.

A direct comparison of rotary- and fixed-wing single-event noise levels provides further support for this conclusion. Table 6-1 presents the Sound Exposure Levels (SELs) generated by 600 ft Above Ground Level (AGL) straight and level flyovers of the SH-60B helicopter and the four aforementioned fixed-wing aircraft types. The SELs are used to calculate the acoustic energy fraction of an SH-60B flyover compared to the fixed wing flyovers, and the number of SH-60B flyovers required to equal the acoustic energy of the fixed-wing aircraft flyovers. As can be seen in Table 6-1, one FA-18E/F flyover acoustically equates to approximately 1,200 SH-60B flyovers for the given flight conditions. The maximum annual number of rotary wing aircraft operations under any EIS alternative would be 2,030 (Alternative 3). In this example, two FA-18E/F flyovers acoustically equate to a greater number of SH-60B flyovers than the total rotary-wing operations under any EIS alternative.