

### **3.3.8 Lake Worth Gardens, Willow Bend, and Other Residences North of Lake Worth Road**

The Lake Worth Gardens community, Willow Bend community, and other residential neighborhoods north of Lake Worth Road are contiguous and are evaluated as one noise study area. These communities are located 900 ft north of Lake Worth Road between Sta. 1406 and Sta. 1451. Noise levels at 185 residences are predicted to approach or exceed NAC for the year 2030 Build condition. The 185 impacted residences are in the first, and sometimes second row of homes or condominiums located along the toll booth ramps, or less than 400 ft from the nearest mainline travel lane of Florida's Turnpike.

Although locating a noise barrier outside the clear zone (i.e., non-shoulder barrier) is preferred, elevated portions of Florida's Turnpike (i.e., northbound on-ramp from Lake Worth Road) limit the effectiveness of non-shoulder barriers for some residences. A drainage canal running along the western edge of the Lake Worth Gardens community and underneath the northbound on-ramp from Lake Worth Road (Ramp Sta. 106) will further limit the effectiveness of non-shoulder barriers. To address the limitations of non-shoulder barriers and provide effective abatement to impacted residences, a noise barrier system combining two shoulder barriers and three non-shoulder barriers is determined to be the optimal barrier configuration.

Providing at least a 5 dBA reduction to 104 impacted residences, the barrier system described below maximizes the number of impacted residences that can be benefited. An additional 58 residences with predicted noise levels that do not approach the NAC would also be provided at least a 5 dBA reduction. Although the remaining 81 residences will be provided some decrease in traffic noise, the minimum 5 dBA reduction will not be achieved because the elevation of the residences (i.e., mostly third and fourth floors) combined with height limitations for noise barriers on structure, will limit the amount of reduction that can be provided.

- Barrier E10 is 22-ft high and 360-ft long. This is a non-shoulder barrier paralleling Florida's Turnpike outside the clear zone for the northbound on-ramp from Lake Worth Road. The northern end of Barrier E10 overlaps Barrier E11.
- Barrier E11 is 8-ft high and 419-ft long. This is a combination of a structure-mounted and ground-mounted noise barrier extending the length of the bridge over a drainage canal (located at Ramp Sta. 106) and along the shoulder of the northbound on-ramp from Lake Worth Road beyond both ends of the bridge (south and north). The noise barrier is located along the shoulder to effectively abate traffic noise at a gap where a non-shoulder barrier cannot be built because of a canal. The opposite ends of Barrier E11 overlap Barriers E10 and E12.
- Barrier E12 is 22-ft high and 501-ft long. This is a non-shoulder barrier located parallel to and outside the clear zone for the northbound on-ramp from Lake Worth Road. The opposite ends of Barrier E12 overlap Barriers E11 and E13.
- Barrier E13 is 8-ft high and 1,766-ft long. This is a structure-mounted noise barrier extending along the shoulder of the northbound on-ramp from Lake Worth Road and paralleling the northbound lanes of Florida's Turnpike. The noise barrier is located along the shoulder to effectively abate traffic noise at a gap where a non-shoulder barrier cannot be built because of a canal. The opposite ends of Barrier E13 overlap Barriers E12 and E14.
- Barrier E14 is 12-ft high and 2,601-ft long. This is a non-shoulder barrier paralleling Florida's Turnpike outside the clear zone for the northbound lanes. The southern end of Barrier E14 overlaps Barrier E13.

#### 4.0 CONCLUSIONS

Noise levels at 594 residences are predicted to approach or exceed NAC for the year 2030 Build Alternative. No noise sensitive sites are expected to experience a substantial increase in traffic noise compared to existing conditions.

Noise barriers were evaluated for the impacted noise sensitive sites. The results of the noise barrier evaluation are summarized by community in Table 4-1. Noise barriers could potentially provide at least a 5 dBA reduction to 438 of the 594 impacted residences. Noise barriers cannot provide at least a 5 dBA reduction to 156 impacted sites because the residence is either elevated (i.e., second, third, or fourth floor), affected by traffic noise from elevated portions of Florida's Turnpike (i.e., overpasses), or exposed to traffic noise from a nearby arterial road.