



Robert D. Niehaus, Inc.  
140 East Carrillo Street  
Santa Barbara, CA 93101  
Phone: (805) 962-0611  
Fax: (805) 962-0097  
[www.rdniehaus.com](http://www.rdniehaus.com)  
Email: [Miki@RDNiehaus.com](mailto:Miki@RDNiehaus.com)

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## MEMORANDUM

From: Miki Hashimoto, Jessica Solis/Robert D. Niehaus, Inc.  
To: Maria (Angie) Lopez, Carlos Guzman, Yvette Robles/Fort Buchanan DPW  
Matthew Conlan/OACSIM  
Date: 24 August 2018  
Subject: Fort Buchanan 2018 HMA, Housing Market Area Definition

### BACKGROUND

The purpose of this memorandum is to present the limits of timed drives accomplished over the period 13-17 August in support of determining the market area serving Fort Buchanan. Per Army guidance, the market area serving Fort Buchanan is defined as those communities that can be reached within a 30-minute commute during peak traffic periods by a private vehicle under average year-round driving and weather conditions.

Driving in Puerto Rico is challenging on several fronts. The local road network is generally in poor condition from general disrepair and poor water drainage, particularly after Hurricane Maria (September 2017). A common contributor to traffic is relatively high instances of vehicle stalls which block traffic lanes, as well as vehicles stopped in intersections, and vehicles avoiding flooded roads after heavy rainfall. Traffic is particularly heavy and unpredictable during peak traffic hours.

During the timed drives the weather ranged from clear skies to light scattered showers. No significant delays due to accidents, weather, or construction were encountered. During peak commute periods for military personnel, traffic is moderate to heavy and generally slow-flowing between the city subsets.

In summary, five drives were undertaken during the period 13-17 August 2018 during peak commute periods, approximately 1600-1700. All of the drives originated from the Headquarters Building at Fort Buchanan and used the Main Gate off of PR-28, the only 24 hour gate at Fort Buchanan. Information on the actual timed drives accomplished from these duty stations is presented below.

### TIMED DRIVE SUMMARIES

A northerly drive from the Headquarters Building towards Old San Juan commenced at 1615. After exiting through the Main Gate, driving continued along PR-28 east to PR-165. The junction for PR-22 east was taken to PR-2, followed by Highway 1 toward Old San Juan. The San Juan National Historic Site for Castillo San Felipe del Morro was reached after 25 minutes and 9.5 miles. Driving continued south toward the Port of San Juan, but heavy traffic was encountered on Calle del Cristo. The 30-minute boundary was reached after 9.8 miles on Calle del Cristo near the San Juan Bautista Cathedral.

A westerly drive from Fort Buchanan toward Levittown in Toa Baja was accomplished starting from the HQ building at 1645. PR-28 was taken to the PR-165 west. After approximately five miles and ten minutes of travel, heavy traffic was encountered near the exit for the Bacardi Distillery. The drive continued slowly along PR-165 and the Hondo River was crossed after 24 minutes and 6.4 miles. Traffic cleared after passing the junction with PR-167, the road towards Levittown, after 26 minutes and 6.9 miles. Travel continued on PR-165 and the 30-minute boundary was reached after 9 miles, just outside the Camino Del Mar community.

A westerly drive from Fort Buchanan toward Rio Piedras in the city of San Juan was accomplished from the HQ building at 1620. PR-28 was taken to the PR-165 followed by PR-22 with no delays. The junction for PR-18 south was taken and heavy traffic was encountered after five miles and fifteen minutes. The exit for PR-17 was taken after 25 minutes and 6.5 miles. Travel continued on Highway 1 south and the limits of the 30-minute commute were reached at the junction of PR-3 near Rio Piedras.

A southeasterly drive toward Caguas was accomplished leaving the HQ building at 1650. After exiting the Main Gate, PR-28 was taken to PR-165. PR-22 east was taken to the PR-18 south, at 4.9 miles and ten minutes, where moderate traffic was encountered. Travel continued on PR-18 south, which at 8.5 miles and 22 minutes becomes the PR-52 west and moderate traffic continued. The 30-minute mark was reached after 14 miles, just reaching the end of the San Juan Municipality and entering into the Trujillo Alto Municipality.

A southwesterly drive toward the city of Naranjito was accomplished starting at 1645 at the HQ building of Fort Buchanan. After passing the main gate, PR-28 was taken to PR-5 south, where heavy traffic was encountered. After approximately four miles and nineteen minutes, travel continued toward PR-2 west, with continued heavy traffic. The exit for PR-167 south was taken after 24 minutes and 4.2 miles. Travel continued on PR-167 and the 30 minute boundary was reached after 5.8 miles at the junction of PR-840.

## **DISCUSSION**

As discussed above, no delays due to road construction or weather were encountered, although traffic was particularly heavy during peak commute periods. Because timed drives were not undertaken in all possible directions from each duty station the limits in these directions were estimated based on travel conditions experienced during the timed drives that were accomplished and input from the Directorate of Public Works.

We understand that the timed drives conducted during the week of 13-18 August 2018 are a small sampling of the average market area commute. Driving conditions continue to be affected by Hurricane Maria one year later. Repair and reconstruction is an ongoing effort in Puerto Rico and many families remain displaced, altering commuting patterns.

Many traffic lights also remain unused or are otherwise broken, which affects traffic flow. Notably, the traffic light just outside the Main Gate (on PR-28) is non-operational as of August 2018, and impacts traffic flow entering and exiting the installation. The proposed market area relies heavily on the input of the Fort Buchanan Directorate of Public Work for establishing an approximate 30 minute commute, assuming that within the 5 year study period the road conditions and traffic flow will return to pre-hurricane conditions.

**Figure 1. Proposed Market Area, Fort Buchanan, 2018**

