4.7 TRAFFIC

Traffic conditions are currently operating at acceptable levels, but during times of heightened security, traffic tends to back up on roads to WAAF and SBMR.

4.7.1 Impact Methodology

The traffic impact analysis describes the potential impacts from construction traffic, from transporting troops on roads to training ranges, and from increased traffic due to the increased activity and number of military personnel and their families stationed at SBMR. Convoys would be restricted to non-peak hours. The analysis includes long-term traffic volumes and impacts on local intersections and evaluates the impacts of construction traffic on the local circulation network. Impacts on local circulation, parking, access, and traffic safety also were evaluated.

The objectives of the traffic impact analysis are to quantify the impacts of the Proposed Action on traffic LOS and circulation, and to identify and evaluate potential roadway improvements and traffic demand management strategies to mitigate the traffic impacts of the proposed project. To accomplish these objectives, the following tasks are performed:

Task 1: Collect data. Traffic volumes along the major streets and roadways within the study area were determined from traffic counts performed by Hawai'i Department of Transportation and from traffic data contained in traffic studies for other area projects. Because intersections are typically the capacity constraints along a street or roadway, emphasis is on obtaining traffic data at key intersections within the study area. Other data collected included intersection configurations, traffic control devices, speed limits, and right-of-way controls. Adjacent land use constraints were also noted.

Task 2: Quantify project generated traffic. The number of peak hour trips that each project will generate was estimated using standard trip generation procedures described in the *Trip Generation Handbook* (Institute of Transportation Engineers 1998). The purpose of this task was to determine the level of analysis required. If the generation analysis determined an insignificant increase or resulted in fewer peak hour trips than for existing conditions, a traffic impact analysis is not required.

Task 3: Analyze existing LOS. Using the data collected for Task 1, traffic operating conditions in the project vicinity were determined. The methodology for signalized and unsignalized intersections described in the 2000 Highway Capacity Manual (HCM) was used to determine the LOS at the study intersections (Institute of Transportation Engineers 1998).

Task 4: Determine future background traffic projections. Future background traffic conditions are determined by estimating what traffic conditions would be during the design year without the proposed project. The ITE provides guidelines for determining the design year for a traffic impact analysis. A project that generates less than 500 peak hour trips is designated a "small development." For a small development, the suggested study horizon, or design year, is the opening year. Since this project is a small development, the design year would be 2005 (Institute of Transportation Engineers 1991, 8).

Task 5: Distribute and assign project generated trips. Project generated trips were distributed based on the available approach and departure routes. The project-related traffic was then superimposed on 2005 background traffic projections to estimate 2005 background plus project traffic projections.

Task 6: Quantify traffic impacts of the proposed project. The HCM methodology was used to conduct an LOS analysis for background plus project conditions. The results of this analysis were compared to 2005 background (without project) conditions to determine the incremental impacts.

Task 7: Identify and evaluate potential mitigation measures. The impact analysis identifies locations where the project has a significant traffic impact. Improvements that will mitigate these impacts are identified and assessed. Improvements that are most effective in mitigating the project's impacts and are feasible are recommended.

4.7.2 Factors Considered for Impacts Analysis

Since there are no local standards, criteria established by the Federal Highway Administration (FHWA), Institute of Transportation Engineers (ITE), and the American Association of State Highway and Transportation Officials (AASHTO) were used to prepare this analysis.

Factors considered in determining whether an alternative would have a significant impact include the extent or degree to which its implementation would result in:

- Increases in vehicle trips on local roads that would disrupt or alter local circulation patterns;
- Lane closures or impediments that would disrupt or alter local circulation patterns;
- Activities that would create potential traffic safety hazards;
- Increased conflicts with pedestrian and bicycle routes or fixed-route transit;
- Exceed the capacity of on- and off-ramps, cause LOS at intersections and freeway mainline segments to deteriorate from LOS A through D to LOS E or F, cause LOS to deteriorate from LOS E to LOS F, or increase congestion (to greater than 0.01 as shown in Table 4-6) at intersections currently operating at (or anticipated to operate at) LOS F;
- Increase demand on public transportation in excess of planned or anticipated capacity at time of increase;
- Increase demand for bicycle and pedestrian facilities in excess of planned or anticipated capacity at time of increase;
- Result in parking demand exceeding the supply; or
- Impede emergency access on or off the site.

The Institute of Transportation Engineers recommends that a traffic impact study should be performed if, in lieu of another locally preferred criterion, development generates an additional 100 vehicle trips in the peak direction during the site's peak hour (Institute of Transportation Engineers 1991, 5). There are no local criteria for determining whether a traffic impact study is needed. This determination is performed on a case-by-case basis considering the level of congestion in the study area and other local factors such as anticipated development in the area.

If a traffic impact study is required, the three categories shown in Table 4-6 are used to define a significant impact for a signalized intersection.

Table 4-6
Definition of a Significant Traffic Impact

Final V/C Ratio	Project Related Increase in V/C Ratio
0.700 – 0.800	Equal to or greater than 0.040
0.801 – 0.900	Equal to or greater than 0.020
> 0.900	Equal to or greater than 0.010

Source: LADOT 1993, 10
Note: V = volume
C = capacity

There are no similar criteria for unsignalized intersections. The Traffic Study Policies and Procedures suggest that unsignalized intersections be analyzed assuming signalized conditions so that intersections are evaluated using comparable criteria, and that the V/C ratio for the overall intersection, rather than each traffic movement, be used to evaluate the intersection.

In addition to these factors, public concerns expressed during the scoping process were also considered in the impact analysis. They included traffic impacts from convoys on roadway segments and intersections, the cumulative effects of traffic, and traffic safety issues. In addition, the public was concerned about the potential impacts from the construction of new military vehicle trails, their use for public emergencies, and increased access to private lands.

4.7.3 Summary of Impacts

Table 4-7 lists the types of traffic impacts associated with the Proposed Action, Reduced Land Acquisition Alternative, and No Action Alternative at the relevant installations. General descriptions of the impacts are also provided.

Proposed Action (Preferred Alternative)

Significant Impacts

There would be no significant impacts on traffic under the Proposed Action.

Significant Impacts Mitigable to Less than Significant

There would be no significant and mitigable impacts on traffic under the Proposed Action.

Table 4-7
Summary of Potential Traffic Impacts

Impact Issues	SBMR			DMR			KTA			PTA			Project-wide Impacts		
	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA
Intersection operations	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙+	⊙+	○
Roadway segment operations	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙+	⊙+	⊙
Construction traffic	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○
Parking	⊙	⊙	○	○	○	○	○	⊙	○	○	○	○	⊙	⊙	○

This table summarizes project-wide impacts. For installation-specific impacts see Chapters 5 through 8.
In cases when there would be both beneficial and adverse impacts, both are shown on this table. Mitigation measures would only apply to adverse impacts.

LEGEND:

⊗ = Significant
⊘ = Significant but mitigable to less than significant
⊙ = Less than significant
○ = No impact
\+ = Beneficial impact

N/A = Not applicable
PA = Proposed Action
RLA = Reduced Land Acquisition
NA = No Action

Less than Significant Impacts

Intersection Operations. The Helemanō Trail, between SBMR and HMR, would cross public roadways at three locations: Kawaihae Road north of Queen Kaʻahumanu Highway, Kawaihae Road east of Queen Kaʻahumanu Highway, and Māmalahoa Highway north of Saddle Road. Convoy traffic would yield to public traffic at these crossings and would not affect public traffic. The LOS for convoy traffic would be C or better (light congestion; occasional backups on critical approaches), assuming worst case conditions, so impacts would be less than significant, and no mitigation is necessary.

The trail between PTA and Kawaihae Harbor would cross state highways at three locations: Mamalahoa Highway (SR 190) south of Saddle Road, Kawaihae Road (SR 19) east of Queen Kaahumanu Highway, and Akoni Pule Highway (SR270) north of Kawaihae Road (SR19). Convoy traffic would yield to public traffic at these three locations to minimize impacts on traffic operations. The LOS for convoy traffic would be C or better, so impacts would be less than significant, and no mitigation is necessary.

The LOS for the trail crossings of public roadways is applicable as long as they are two-way roadways. Widening to four lanes or more would affect the LOSs because convoy traffic would have to cross a wider roadway and contend with faster traffic. Plans to widen the roadways at any of the proposed trail crossings are not known.

All trail crossings would be signed in compliance with federal, state, and local standards. All signs and the installation of these signs would have to be approved by the appropriate agency. Additional warning signs and safety measures may be required by the local agencies during periods of intensified trail use. The trails would be signed and gated to prohibit public access, to prevent conflicts between military traffic and public traffic, and to avoid safety

problems. The trail crossings would have no impact on public traffic flows because convoy traffic would yield to traffic along the public roadways. Additional traffic associated with the Proposed Action would use the trails. Military traffic that currently uses public roadways may be rerouted to the trails when not being used for activities under the Proposed Action. Thus, current military traffic volumes along public roadways would not increase and could be less during certain periods.

All military vehicle trails would be made available for public use during state and national emergencies.

Vehicle convoys move personnel and equipment between installations. A convoy is normally defined as six or more military vehicles moving simultaneously from one point to another under a single commander, ten or more vehicles per hour going to the same destination over the same route, or any one vehicle requiring a special haul permit. Per command guidance, USARHAW convoys normally maintain a gap of at least 30 minutes between serials (a group of military vehicles moving together), 330 feet (100 meters) between vehicles on highways, and 7.5 to 15 feet (25 to 50 meters) while in town traffic. Per state regulation, military convoys are not authorized movement on state highways between 6:00 AM and 8:30 AM and 3:00 PM and 6:00 PM, Monday through Friday. Movements on Saturday, Sunday, and holidays are by special request only. Convoys traveling from Kawaihae Harbor to PTA must get clearance, and vehicles operating on Saddle Road within the boundaries of PTA must not exceed 25 mph.

As mitigation for project impacts on traffic congestion, the Army is considering creating a public Web site that lists a schedule of upcoming USARHAW activities, including training and public involvement projects. Subject to force protection measures and other security measures, this would contain USARHAW training and convoy schedules, community projects the USARHAW is involved in, any USARHAW activity or function that the public could attend, any general USARHAW news that might be of interest to the public, and USARHAW services available to the public.

Roadway Segment Operations. The traffic generated under the Proposed Action would be less than significant. Under the Proposed Action, roadway segment operations would operate at acceptable levels. Minor changes in traffic volumes adjacent to the individual projects at SBMR will result because of changed traffic patterns. However, the traffic changes are generally the result of redistribution of existing traffic within the SBMR property. With the exception of the facilities planned for the SRAA, there would be no changes in traffic patterns or flows outside the property. Therefore, the traffic impacts outside the property would be less than significant, and no mitigation is necessary.

Use of the SRAA requires the closure of an existing unpaved and little used road, Kunia Road. Since only plantation-related traffic uses this road, the closure would not affect traffic flows adjacent to the project and therefore, the impacts would be less than significant, and no mitigation is necessary.

The SRAA is immediately adjacent to the existing property. Traffic between the two properties would not have to use public roadways. Use of the area would not affect traffic along Kunia Road. The trail between SBMR and DMR would cross public roadways at two locations. At both locations, convoy traffic crossing the public roadway would operate at LOS C. There would be no impact on public traffic because convoy traffic would yield to public traffic, and no mitigation is necessary.

The trail between HMR and KTA, also known as Drum Road, is being improved as part of a prior project. The improvements consist of realignment, a hardened surface, and shoulders. These improvements have been addressed in a separate Environmental Assessment. Increased use of the trail would result from the project, but the LOS would be C or better. Therefore, impacts would be less than significant, and no mitigation is necessary.

Construction traffic. The construction associated with the Proposed Action would generate additional traffic from worker vehicles and trucks, but construction traffic would be temporary and less than significant.

To minimize traffic impacts on the surrounding community during construction, a construction traffic management program would be implemented. The program would stagger work hours to reduce impacts from construction workers during peak hours, would identify truck routes to limit truck traffic to major streets, and would designate parking for construction workers. Because project traffic would not significantly affect operations at the intersections and street segments in the project vicinity and traffic is generally free flowing, the interim construction worker traffic impacts would not be significant. No mitigation would be required.

Parking. The Proposed Action would result in increased parking demand associated with proposed facilities and additional personnel. The number of parking spaces would be determined by the proposed uses of the buildings. Therefore, as individual buildings are designed, the number of parking spaces required to accommodate the anticipated number of employees and visitors would be determined. The parking demand is usually based on the square footage of the building or the estimated number of employees and visitors that would use the building.

Reduced Land Acquisition Alternative

Less than Significant Impacts

Traffic impacts under Reduced Land Acquisition would be similar to those under the Proposed Action, with slightly less traffic impacts at SBMR and slightly greater impacts at PTA as a result of the location of QTR2 to PTA. The traffic-related impacts are comparable because the alignments of the military trails and the amount of traffic generated are the same.

No Action Alternative

Less Than Significant Impacts

Under No Action, there would continue to be traffic impacts pertaining to Legacy Force activities. This would include convoy traffic on public roads that could cause traffic congestion. BMPs would continue to be followed. Convoys would only occur during the non-peak hours and advance notification to the public would be provided in the event of large-scale convoy transport. Under No Action, the traffic volumes along the public roadways would remain at current levels, so the levels of service would not change.