

“CLIFFS NOTES” SUMMARY OF FINAL REPORT OF WAIMEA TRAFFIC CIRCULATION STUDY

by Bob Hunter (using the plan’s own words, except where [noted])

As far back as 1986, the update of the comprehensive plan by the County of Hawaii identified traffic congestion and the Lindsey Road bottleneck as issues. [See Fig. 4]

Current Transportation Issues

[During the PM peak period,] traffic queues on Kawaihae Road were observed extending $\frac{3}{4}$ of a mile beyond the Opelo Road intersection, while on Mamalahoa Highway, the traffic queue extends $\frac{3}{4}$ of a mile back from the Lindsey Road intersection. [See Fig. 7] During the AM peak period, westbound traffic at Kamamalu Road intersection was observed to queue almost 2 miles back to the DHHL Hawaiian Farmer’s Market. [See Fig. 6] This indicates that besides the Lindsey Road bottleneck, the Kamamalu Road intersection is also creating a bottleneck to traffic.

There is regional through traffic, but based on a license plate survey conducted by Wilbur Smith and Associates (WSA) for the Kawaihae Bypass project, it appears that the current regional through traffic comprises between 15 and 32 percent of the total traffic, depending on the location being studied. [See Fig. 9] The implication of this finding is that while the proposed Kawaihae and Waimea Bypass Roads would help lessen the existing congestion within Waimea, much of the congestion is caused by traffic originating [in] or destined for Waimea. This increases the importance of providing alternative routes close to the core of Waimea such as the Kawaihae-Mamalahoa Connector Road and the Parker Ranch Connector Road.

Potential connector road routes to the north ... do not provide connectivity to the commercial center of Waimea ... [and] would likely not be used by the community.... [See Fig. 10] It was judged inappropriate to utilize these roadways [located in the northern areas of Waimea] to provide alternative routes for traffic currently using the Lindsey Road intersection. [See Fig. 11]

The Waimea community has identified other transportation issues...: congestion in the vicinity of the Waimea Elementary and Middle schools..., need for more transit service, need for more bicycle facilities, [and] need for more pedestrian facilities.

Existing Traffic Conditions

Examining 24-hour traffic volumes at selected locations is a useful tool for determining travel patterns and overall travel demand. Total traffic volumes increased 27% from 1996 to 2004, equivalent to 3% annual growth rate. Peak period turning movement counts were conducted on March 7 (Tuesday), 8 (Wednesday), and 9 (Thursday) 2006.

SimTraffic is a powerful microscopic simulation tool especially helpful as a tool to evaluate congested traffic conditions. [Peak hour] travel time was simulated with SimTraffic. [During the AM peak hour], travel time from Mud Lane to Waimea Airport took 40 minutes...[and] travel time from Mud Lane to Kohala Mountain Road took 40 minutes. [See Figs. 17 and 18] [During the PM peak hour], travel time from Waimea Airport to Mud Lane took 55 minutes... [and] travel from Kohala Mountain Road to Mud Lane took 70 minutes. [See Figs. 19 and 20] [Peak hour traffic] queues are the source of much of the traffic complaints within the Waimea community and will be a measure of effectiveness of actions taken to improve transportation in the Waimea area.

Short-Term Future Traffic Volumes

The short-term future is defined as a five-year horizon, so the short-term future traffic volumes were forecasted for this time period. The five year horizon is the year 2011. By 2011, ... five major developments are expected to add about 1,400 homes in west and south Waimea. [See Table 2] Trips generated were assumed to be distributed as follows: 50% to Kailua-Kona and South Kohala Coast, 30% within Waimea, and 20% to Hamakua, North Hilo and South Hilo. Background [regional, through-Waimea] traffic was expected to grow at an annual rate of 2% from 2006 to 2011.

Recommended Short-Range Actions

The short-range actions fall into the following categories: Phase 1 Roadway Improvements, Phase 2 Roadway Improvements, Transit Improvements and Pedestrian/Bicycle Improvements. [See Table 3]

Phase 1 roadway improvements are: [1] Selected Widening of Mamalahoa Highway, [2] Parker Ranch Connector Road, [3] Waimea School Access Improvements, [4] Prohibit East and West-bound Left-Turn Lanes at Lindsey/Mamalahoa Intersection [and] [5] Traffic Signal Optimization. [See Fig. 24]

[1] This action would widen Mamalahoa Highway to four lanes from the North Hawaii Community Hospital driveway to a point approximately one-half mile east of Kamamalu Street. [See Fig. 25]

[2] The Parker Ranch Connector will provide much needed parallel capacity to Mamalahoa Highway. To be truly effective, it needs to be complete from Mamalahoa Highway, west of Lindsey Road, [to] Mamalahoa Highway in the vicinity of Kamalamalu Street. Whatever alignment results, however, it is recommended that the Parker Ranch Connector Road intersect Mamalahoa Highway in the vicinity of the Civic Center Driveway as opposed to a direct connection to Kamalalu Street. [See Fig. 26]

[3] A connector roadway between Lindsey Road and the Waimea Schools internal road, referred to as Road A, would allow for smoother and safer drop off of students at the schools. It is also proposed to remove parking along Mamalahoa Highway adjacent to the school [to] reduce friction along Mamalahoa Highway and improve traffic safety.

[4] There is a need for additional signal time for east-west Mamalahoa Highway traffic movements and the Lindsey Road-Mamalahoa Highway traffic movements. To free up signal time for key traffic movements at this intersection, it is recommended that the east and west-bound left turn lanes [on Mamalahoa Highway] be eliminated. [See Fig. 27] Landscaped medians could be extended into the area currently used for left-turn lanes. [See Figs. 28 and 29]

The Kawaihae-Mamalahoa Connector Road is the primary Phase 2 roadway improvement. [See Fig. 30] It is hoped that an acceptable method to buffer the farm lots and affected residential lots can be worked out through the [Environmental Assessment]/Conceptual Design process. The Kawaihae Bypass route would be almost 6 miles longer than the more direct routes along Kawaihae Road or the Kawaihae-Mamalahoa Connector Road. [See Fig. 30]

It is recommended that intra-Waimea shuttle bus service be instituted to provide an alternative mode of transportation. [See Fig. 32]

The plan utilizes existing and proposed roadways as the backbone of a bicycle-pedestrian network and augments this backbone through the use of the Waimea Trails and Greenways project paths. It is recommended that bicycle and pedestrian facilities be part of all future roadway construction projects. [See Fig. 33]

Without Phase 1 and 2 projects, the future conditions will deteriorate in terms of delay and travel time. The major benefits of Phase 1 projects [occur] during AM peak hour. Phase 1 projects alone cannot mitigate PM traffic congestion to an acceptable level. Phase 2 projects in addition to Phase 1 projects can mitigate AM and PM traffic congestion to an acceptable level. Phase 1 and Phase 2 projects should be implemented as a whole package. [A] single project will only relocate the bottlenecks. [See Figs. 34, 35, 36, 37, 38 and 39]

To preserve the internal character of Waimea, it is important that future land use take advantage of the internal connector roadways and the future regional bypasses. Therefore, future growth of Waimea needs to be directed to the west and south of the existing Town. Development along the Mamalahoa Highway corridor east of Town would have the most detrimental impact on the Mamalahoa Highway corridor through Waimea.

Long-Term Future Volume Projection

The base for forecasting is the AM and PM volume counts in Year 2006. The State's Travel Demand Forecasting Model... indicates that the employment discrepancy between west and east still exists in 2020 at the level of 2000. Therefore, through-Waimea traffic is expected to grow at the rate of the population, which is 2%.

A license plate survey [of] vehicles going from Kawaihae Road just east of Queen Kaahumanu Hwy to Mud Lane and beyond ... in October, 2003,... showed that during 2:30 PM to 6:30 PM [on] eastbound Kawaihae Road just east of Queen Kaahumanu Hwy.... 23% of vehicles are through-Waimea traffic [and at the] southbound left turn lane at Lindsey Road intersection, 15% of vehicles are through-Waimea traffic.

Another license plate survey ... in December 1999 [revealed the following] percentages of through-Waimea traffic on Mamalahoa Highway east of Mud Lane [relative to that on Mamalahoa Highway] north of Kamuela Race Track: AM Peak-Eastbound 26% [and] Westbound 23%; PM Peak – Eastbound 25% [and] Westbound 21%. Percentages of through-Waimea traffic on Mamalahoa Highway west of Lindsey Road [were as follows]: AM Peak-Eastbound 19% [and] Westbound 20% [and] PM Peak-Eastbound 32% [and] Westbound 13%. [Thus, license plate surveys conducted in October, 2003 and December, 1999 showed that] the percentages of through-Waimea traffic are either below or about 30%. The rest, 70% [of] traffic would [be] To/From Waimea Traffic and Intra-Waimea Traffic combined.

Trip assignment [for long-term traffic projections] is conducted assuming the State Kawaihae Road Bypass and Waimea Bypass [will be] open by 2030. Trip assignment assumes all through-Waimea traffic will use the State Bypasses. More traffic could use the State Bypasses depending on how and where the State Bypasses link to Kawaihae Road and Mamalahoa Highway. For example, a linkage using the existing Mana Road between Waimea Bypass and Mamalahoa Highway could serve the traffic between Waimea Town areas and Waimea east of Mana Road.