

**LUMMI NATION  
WASTE MANAGEMENT TEAM ANNUAL REPORT  
2005**



**March 2006**

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**Prepared for:**

**Lummi Indian Business Council  
(LIBC)**

**Funded by:**

**U. S. Environmental Protection Agency  
(Assistance ID No. BG-97042601-2)**

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**March 30, 2006**

## **Abstract**

What was to become the Lummi Waste Management team was created in the latter part of 2002 to address illegal solid waste dumping on the Lummi Indian Reservation. The Lummi Indian Business Council initially fully funded this effort until U.S. Environmental Protection Agency funding was obtained to help support the effort starting in October 1, 2004. A total of 440 tons of solid waste, nearly 150 appliances, nearly 300 tires, and over 50 abandoned vehicles have been removed from the Reservation and disposed of at an off-Reservation licensed transfer station since the beginning of the program. This report gives an overview of the solid waste management effort and more specific information on clean up activities over the October 1, 2004 through December 31, 2005 period.

## 1. Introduction

As shown in Figure 1, the Lummi Indian Reservation (Reservation) is located in northwestern Washington State at the mouth of the Nooksack River and along the western border of Whatcom County. The Nooksack River drains a watershed of 786 square miles, flows through the Reservation near the mouth of the river, and discharges to Bellingham Bay (and partially to Lummi Bay during high flows).

The Reservation includes the Nooksack and Lummi river deltas and all tidelands adjacent to upland areas of the Reservation. In addition to riverine and coastal floodplain areas, the Lummi Reservation has two relatively large forested upland areas and a smaller upland area on Portage Island. The Reservation includes approximately 12,500 acres of uplands and 7,000 acres of tidelands. The Reservation is located at the southern extent of the Strait of Georgia and the northern extent of Puget Sound. Approximately 38 miles of highly productive marine shoreline surround the Reservation uplands on all but the north and northeast borders. The Reservation features relatively low topographic relief and a temperate marine climate. Although there is relatively dense residential development along some of the Reservation shorelines, many parts of the Reservation can be described as a rural setting.

The Reservation waters (a.k.a. Lummi Nation Waters) contain significant resources for both the Lummi Nation and the region. Numerous economically and culturally important species, including herring, salmon, oyster, manila clam, little neck clam, butter clam, horse clam, and Dungeness crab, are present in Lummi Nation waters. Estuarine waters of the Nooksack and Lummi River deltas form the interface between marine water and fresh water. Estuarine waters have a unique importance for fish habitat, as juvenile salmon reside in these waters during their acclimatization to saltwater and adult salmon during their acclimatization to fresh water. Because these water resources are vital for economic stability, growth, and the cultural and spiritual life of the community, the potential contamination of Lummi Nation surface waters has a direct, serious, and substantial effect on the health and welfare of the Lummi Nation, its members, and all persons present on the Reservation.

Reservation waters also contain large eelgrass meadows and habitat for numerous species of waterfowl, marine birds, and raptors (including the bald eagle and peregrine falcon). Nonpoint-source pollution can result in economic and cultural hardship by decreasing the health and abundance of fish, shellfish, and wildlife; cause downgrades of commercial shellfish beds; and affect human health through consumption of contaminated fish and shellfish.

In addition, because of the geographic and hydrogeologic conditions in the area, ground water resources on the Reservation are also vulnerable to pollution. Over 95 percent of the residential water supply for the Reservation is currently

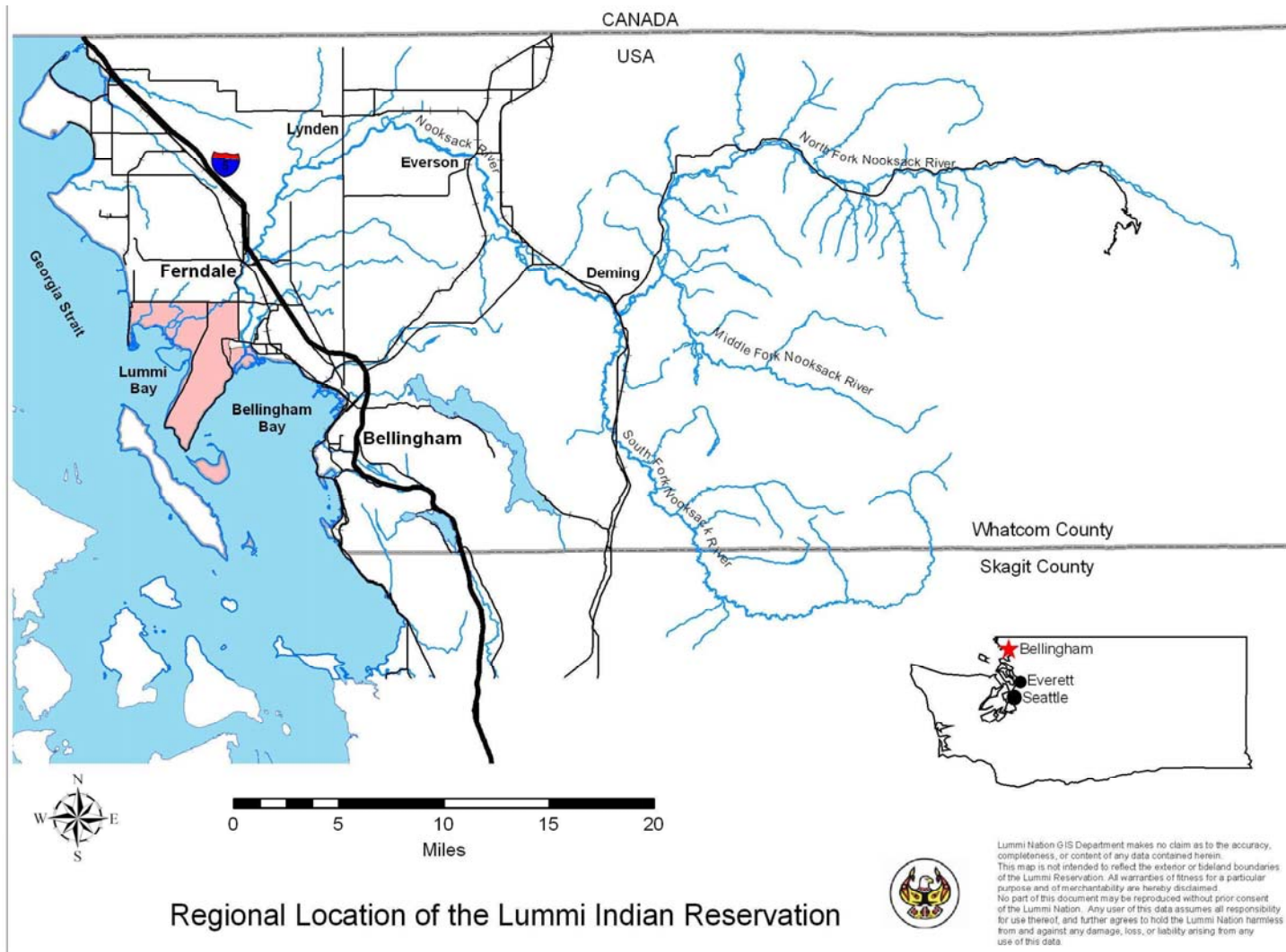


Figure 1. Regional Location of the Lummi Indian Reservation

pumped from local ground water wells. The contamination of these aquifers would adversely affect the health of persons drinking or using water from these supplies. Ground water resources are vulnerable to contamination from agricultural, residential, municipal, commercial, and industrial land uses. Ground water contamination could lead to the loss of the primary water supply source for the Reservation because water supply wells are difficult to replace, ground water contamination is very expensive to treat, and some damages to ground water caused by contamination may be impossible or unfeasible to mitigate.

## **2. Problem Statement and Response**

Solid waste dumpsites can be a public health threat and a threat to the quality of Reservation waters. Pollutants of concern include bacteria/pathogens, metals, nutrients, pesticides, oil, grease, and other chemicals. Similar to other rural areas throughout the world, solid waste dumping occurs on the Lummi Reservation and it is difficult to both identify who is doing the dumping and to stop the dumping. Cleaning up the dumpsites is the most direct way of removing the potential public health threat and threat to Reservation water quality. Placing signs, preventing access to dumpsite locations, community education efforts, and providing assistance in solid waste removal are methods that can help stop illegal dumping activity.

In 2002, the Lummi Indian Business Council (LIBC – the governing body of the Lummi Nation) initiated Project Clean-Up. Project Clean-Up operated under the direction of the LIBC Vice-Chairman's Office during 2003. In 2004, Project Clean-Up was institutionalized within the administrative structure of the LIBC by moving the program from the Office of the Vice-Chairman to the Lummi Planning Department. Within the Planning Department it was renamed the Lummi Waste Management. In January 2004, the Lummi Nation also adopted a Solid Waste Control and Disposal Code (Title 18 of the Lummi Nation Code of Laws).

During 2002 and 2003, Project Clean-Up was funded by the LIBC. During calendar year 2004, the activities of the Lummi Waste Management were largely funded by the LIBC and partially funded by a U.S. Environmental Protection Agency (EPA) grant (starting on October 1, 2004). During 2005, Lummi Waste Management was largely funded by this EPA grant. The costs associated with this program include supporting salaries and benefits of the clean-up crews, providing materials (e.g., gloves, safety vests, signage, plastic bags, tools, equipment, gates, vehicles, repair and maintenance, fuel), and dumping fees.

## **3. Project Clean-Up/Lummi Waste Management Results**

Materials from solid waste dumpsites are picked up either by hand, with hand tools, or with the use of small front-end loader with a "thumb" that was purchased for Project Clean-Up during 2003. The collected material are transported to the nearby solid waste transfer station for disposal using a flat bed truck and/or trailer

purchased for the project. Hazardous materials (e.g., paint, oil, car batteries, pesticides, household cleaners) are separated and transported to the hazardous waste collection site operated by Whatcom County near the Bellingham airport.

In addition to purchasing the primary clean-up equipment (small front-end loader, flat bed truck, and trailer) during 2003, Project Clean-Up staff posted signs to encourage people not to litter and/or to report violators to the Lummi Law and Order department and gated off seven areas where illegal dumping was a recurrent problem. Figure 2 through Figure 5 show examples of these gates and signs. Of the seven locations that were gated during 2003, one gate was vandalized during 2005 to the extent that it needs to be replaced (Figure 5). The locations of these gates are shown in Figure 8.



Figure 2. A typical *No Dumping* sign marking a Lummi Reservation border.



Figure 3. Kwina Slough, vehicle access to this site is permanently restricted. No solid waste was removed from this area after the installation of this gate.



Figure 4. Limited seasonal access has reduced illegal dumping at this popular boat launch site.



Figure 5. Vandals destroyed this gate along the Lummi River during 2005 – it is scheduled for replacement during 2006.

In addition to clean-up activities, Project Clean-Up staff developed a brochure that described the program and encouraged recycling and the proper disposal of household hazardous wastes. The Lummi Waste Management has continued this public information and education effort and has published descriptions of their services in a brochure and in the community newspaper, and has acquired and distributed brochures on proper solid waste disposal, hazardous material disposal, waste reduction, and recycling.

In 2003, Project Clean-up removed 67.7 tons of solid waste from illegal dumpsites on the Reservation and 86.5 tons of solid wastes from the houses and property of elderly and disabled tribal members (combined over 150 tons). The program helped 123 tribal elders living on the Reservation. The solid waste was transported to the Recycling and Disposal Services collection site located along Slater Road (approximately 2 miles from the northeastern corner of the Reservation). Figure 6 shows the locations of clean-up activities during 2003.



Figure 6. Project Clean-Up Sites during 2003



Clean-up activities continued during 2004 and 2005. Figure 7 shows representative “before and after” photographs of site clean-ups.

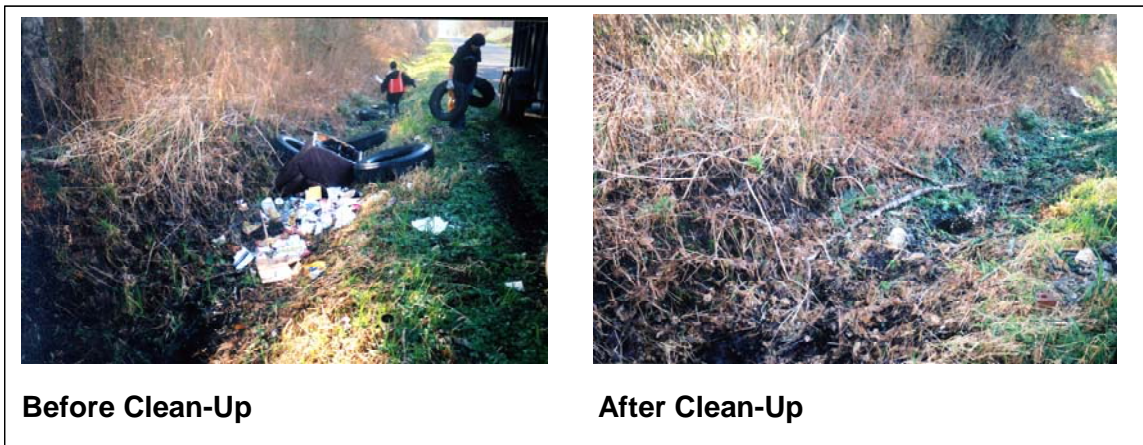


Figure 7. Representative “Before and After” Site Photographs

Clean-up locations over the October 1, 2004 through December 31, 2005 period are shown in Figure 8 and Figure 9. Figure 8 shows the locations where access gates were installed during 2003 and where solid wastes were removed from illegal dumpsites. In addition to their regular workload, Lummi Waste Management staff has been utilizing the Lummi Nation community service work crews on the weekends. These crews, which are not paid, are primarily youth offenders. During these community service clean-up efforts, Lummi Waste Management staff provides informal education about the potential affects that illegal dumping can have on their community and their lifestyle and also provide written information/brochures.

Along with ongoing work to ensure the waterways of the Reservation are free of waste, Lummi Waste Management has also continued to assist elder and disabled tribal members with their waste management. This is accomplished by providing clean-up services to eligible households (tribal elder or tribal member with disabilities) on a once per year basis. Figure 9 shows the locations and range of quantities of wastes removed from individual residences. This service was provided to a total of 193 residences of elder and/or disabled tribal members over the October 1, 2004 through December 31, 2005.

Table 1 summarizes the total amount of solid wastes removed by Lummi Waste Management over the October 1, 2004 through December 31, 2005 period. As shown in Table 1, mixed household waste was by far the largest category of solid waste removed and disposed of at the off-Reservation transfer station. There were also a total of 62 appliances, 108 tires, and 53 abandoned vehicles removed from the Reservation over this period.

Table 1. Summary of Solid Wastes Disposal over the October 1, 2004 through December 31, 2005 Period

<b>Solid Waste Category</b>	<b>Quantity</b>
Mixed Household Waste/Garbage	147 tons
Yard Waste	7.95 tons
Wood	1.7 tons
Metal	0.3 tons
Washers/Dryers	35 Units
Refrigerators	27 Units
Tires (Rim Off)	36 Units
Tires (Rim On)	72 Units
Abandoned Vehicle	53 Units

Several sites, particularly the sites along the Nooksack River below Marine Drive and along Chief Martin Road, were locations where there has been frequent/recurring solid waste dumping and associated clean-ups. The location along North Red River Road where the gate was vandalized is also a location where frequent dumping occurred (see Figure 5 and Figure 8).

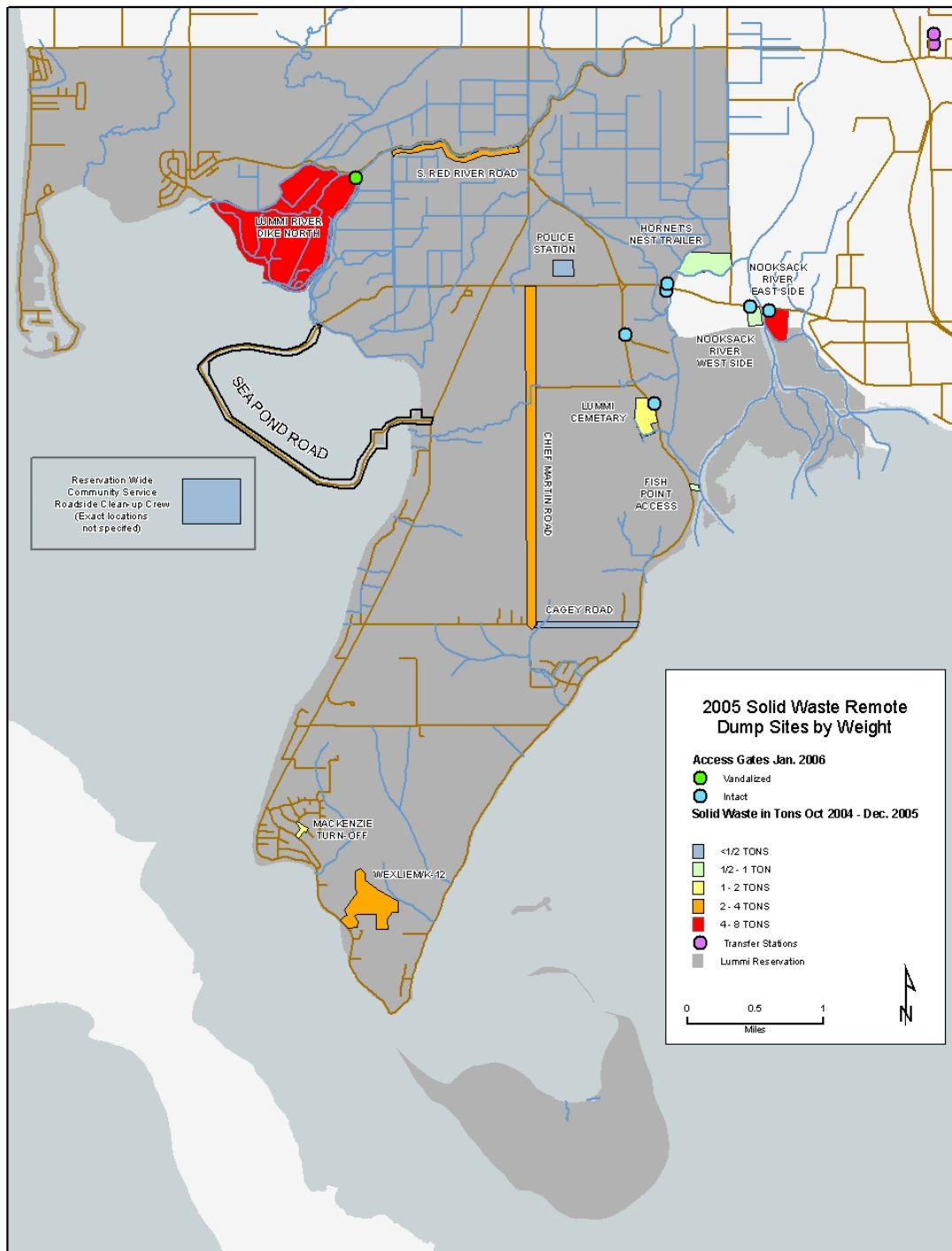


Figure 8. Locations of Solid Waste Dump Sites and Clean-up Activity

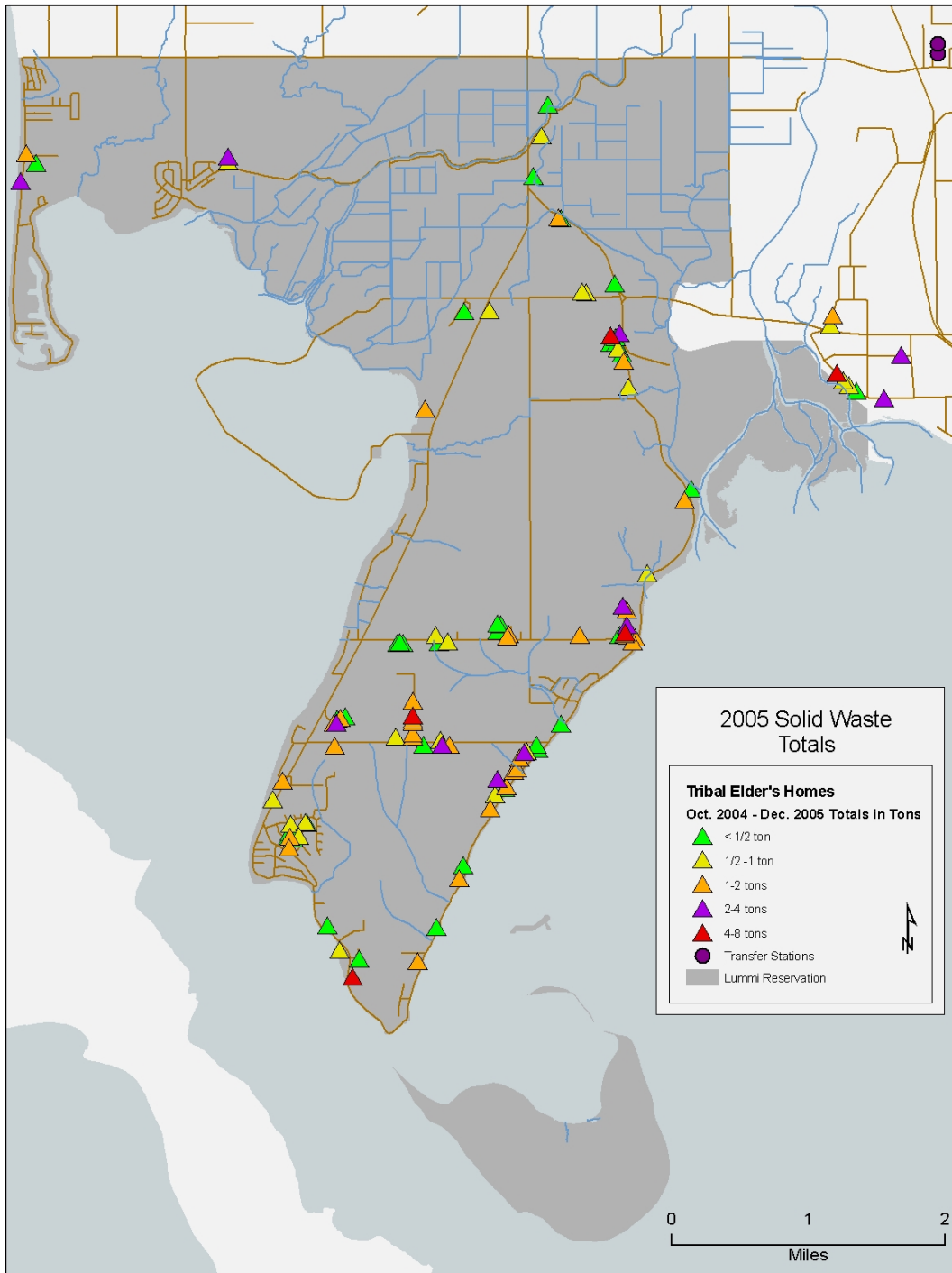


Figure 9. Locations of Residences of Tribal Elders or Tribal Members with Disabilities that we helped by Lummi Waste Management

#### 4. Discussion/Conclusion

Gates and signage have proven to be effective in preventing illegal solid waste dumping at some locations on the Reservation – particularly along Kwina Slough. However, the need to access areas behind gates has limited the effectiveness of these gates at other locations. For example, the areas on both sides of the Nooksack River below Marine Drive that are used for launching fishing boats, has been cleaned up four times. The vandalism of one of the gates along North Red River Road has re-opened a previously closed area and resulted in further dumping activities. Controlling illegal dumping along relatively isolated areas of the Reservation, such as Chief Martin Road, is more difficult. Overall, there have been recurrent violations at about a quarter of the major illegal dumpsites. Generally, the amount of solid waste dumped on existing sites is far less than existed there before the initial clean-up. With closure of popular dumpsites, however, new sites are being abused.

Whereas Table 1 summarized the quantities and types of wastes removed from the Reservation over the time period where EPA grant funds contributed to program support (i.e., October 1, 2004 through December 31, 2005), Table 2 summarizes the quantities and types of solid wastes removed from the Reservation on an annual basis over the 2003 through 2005 period.

Table 1. Summary of Solid Wastes Disposal over the January 1, 2003 through December 31, 2005 Period

<b>Solid Waste Category</b>	<b>2003<sup>1</sup></b>	<b>2004</b>	<b>2005</b>	<b>Total</b>
Mixed Household Waste/Garbage	154 tons	179 tons	108 tons	440 tons
Yard Waste		17 tons	8 tons	25 tons
Wood		0.6 tons	1.7 tons	2.3 tons
Metal		0.0 tons	0.3 tons	0.3 tons
Washers/Dryers		50 Units	29 Units	79 Units
Refrigerators		45 Units	22 Units	67 Units
Tires (Rim Off)		68 Units	34 Units	102 Units
Tires (Rim On)		132 Units	62 Units	194 Units
Abandoned Vehicle		32 Units	21 Units	53 Units

<sup>1</sup> Types of solid wastes not categorized during 2003.

Considering the quantity of material removed both during the 2004-2005 period partially supported by the EPA grant and over the life of the program, and the potential public health threat and water quality threat represented by the solid wastes, the program is an important community service and has been very helpful in improving the Reservation environment.