Transportation System

Goal: Develop and manage roads to support resource management activities; recognize the potential for future development of major transportation and utility systems.

Objectives: Roads trails and utility systems are developed and managed to support resource management; recognize the potential for future development of major transportation and utility systems.

Transportation Question 1: Are the standards and Guidelines used for forest development roads and log transfer facilities effective in limiting the environmental effects to anticipated levels?

Roads

Evaluation Criteria

Environmental effects of forest development roads and log transfer facilities. Focal areas include drainage of rock pits (TRAN4 IV., BMP 14.9, TRAN4 II.A.6, BMP 14.17), and effectiveness of access management prescriptions in restricting access and preventing sediment transport: TRAN6 1.A.

Monitoring observations will focus on roads closed in high use areas. At least ten percent of recently closed NFS roads on a selected road system will be evaluated annually. The roads selected for monitoring in FY2012 included:

- Ketchikan – Shoal Cove- 8400000, 8430200, and 8435000 were selected from a group of roads that had been closed between 2004 and 2011.
- Petersburg – Kuiu Island- 6409 from a pool of roads closed in 2010.

The INFRA database will be utilized to determine the roads that have been closed on a given road system during the past one to three years. Since most motorized traffic occurs on road systems connected to or near communities, the monitoring effort will likewise focus on those systems. Road systems will be evaluated to determine where significant motor vehicle traffic exists on roads that have been recently closed. Once a road system has been selected for monitoring, at least ten percent of roads that have been closed during the past three years will be selected for monitoring. The Shoal Cove system is a short boat ride from the city of Ketchikan. The Kuiu Island road system considered remote because it is a long distance from any community.

Monitoring Results

During the road storage process, some or all of the drainage structures may be removed as the road is being placed in a self-maintaining state. Removing drainage structures eliminated highway legal motor vehicle access on all the roads monitored. The removal of drainage structures does not always eliminate off-highway vehicle (OHV) use. ML 1 roads, unless dual designated as Motorized Trails and shown on the Motor Vehicle Use Map (MVUM), are closed to all motorized vehicles except administrative traffic, and other very limited uses permitted by law. The self-maintaining aspects of stored roads were evaluated on the criteria listed below.

Effectiveness of water bars on steep grade for erosion control

The 2012 monitoring trip on the Shoal Cove road system showed that the waterbars were effective in minimizing erosion along steep road grades. Similar results were documented on Kuiu Island. In review of the last five years of monitoring data, we conclude that water bar installation has been effective in limiting or eliminating water flowing down the road, and erosion of the road surface. Through the years, there have been comments made about an overabundance of waterbars, or a missing waterbar, but the monitoring is that erosion of the road surface has been limited.

Effectiveness of water bars where culverts have been left in place

The practice of installing waterbars where culverts have been left in place is intended to serve as a mitigation measure. If the culvert were to fail structurally or plug, the water would flow through the waterbars and back into its native channel. This eliminates or greatly reduces the risk of stream diversion or a road washout. In 2012 and during the rest of the five year review period, this practice has been successful. Most culverts left in place have been functioning as designed, so this mitigation method has not been required at many sites to date.

The 6587 road on Zarembo was monitored in 2010, and it was found that a contractor had dug the water bars too deeply. This was causing the water to flow through the waterbar rather than through the culvert. The waterbars showed little to no evidence of erosion and in most cases had developed vegetated banks. The waterbars were functioning correctly but more effort and cost was expended by over-excavating the waterbars rather than letting the culvert function as the primary means of getting the water across the road.

Efficiency of water bar placement

The water bars are generally placed as needed on roads inspected during the FY2008-2012 monitoring trips; however, there were a few dry (unneeded) water bars noted. Also, there were some cases where an extra water bar could have been installed. The proper placement of water bars help roads shed water before it can have a chance to develop enough energy to cause significant erosion. This helps preserve the road prism and reduces the cost of reopening the road in the future.

Erosion control at streams where structures have been removed

Erosion control at streams where structures have been moved is usually accomplished with a combination of measures. Primarily these consist of

- Matching the existing stream width, rather than simply matching the removed structure width.
- Sloping the road fills (stream banks) back at an angle much less than their natural angle of repose. This is usually a 2 horizontal to 1 vertical slope. (For reference, minimum road fill slopes requirements are much steeper at 1.25 horizontal to 1 vertical.) In some cases, near fish stream and/or where OHV access for administrative or trail use is desired, the maximum slope has been specified as 3:1. Where bedrock is encountered, by necessity the slopes follow the bedrock and are steeper.
- Seed and fertilizer is applied near the banks of the stream to stabilize any mineral soils at the site.

As a result of the monitoring process, we have modified past erosion control measures into what is identified above. Prior to 2010, almost all fill slopes were a 2:1 slope. Through monitoring and public input a need for shallower slopes at some sites was identified. New 3:1 slope requirements for specific sites were subsequently added to contracts and positive results have been seen as a result.

The 2012 monitoring effort at Shoal Cove reviewed roads where a number of culverts had been removed. The application of seed and fertilizer the year before at the sites had resulted in a thick grass mat where mineral soils were present. Although not as thick or as tall, grass was also growing along shot rock fills

slopes as well.

All erosion control was fully functional at all sites monitored with one minor exception. At MP 0.9 of NFSR 8435000 a stream culvert had been removed but the equipment operator matched the bed width through the road fill with the culvert width rather than the stream width as required by the contract. The stream corrected the deficiency on its own by eroding (minor) a small portion of one of the banks. On the remaining stream banks vegetation had been established. The recommendation is to ensure that equipment operators implement the contract requirements.

Drainage of Rock Pits

Rock pits were monitored for signs of inadequate drainage and excessive erosion between FY2008 and 2012. Pits along the roads monitored had positive drainage and met BMPs.

Evaluation of Results

The monitoring protocol was revised between the 2009 and 2010 field seasons. The information from 2009 and before was completed in another format. As shown in the erosion control section above, the results of this monitoring led to changes in the way we treat stream crossings where administrative or trail use is anticipated.

Additionally, we had been seeing inadequate turf establishment on projects early in the five year review period. This was stemming from several factors including from biologists not understanding the seed mix (afraid of invasive species), CORs and contractors overlooking contract requirements, and past direction to seed only on organic soils. To correct this, the Tongass has emphasized the importance of turf establishment and the use of weed free seed contributes negligible risk of introducing invasive species to a project site as a result of turf establishment. This has led to significant improvements in implementing the turf establishment contract requirement in 2011 and 2012.

Action Plan

Continued emphasis is being placed on erosion control in all Tongass contracts. A new specification was developed in 2013 to ensure better, more site specific erosion control plans in an effort to get contractor's to more fully understand the importance of preventing erosion. Revisions to standard drawings that clarify and improve project implementation are underway.

Log Transfer Facilities

Monitoring will continue to be conducted for each log transfer facility (LTF) under terms of the LTF permits, in accordance with Alaska water quality standards and requirements for the Environmental Protection Agency for non-point source discharge. LTF monitoring for this report was accomplished through field inspection and documented through completion of a Log Transfer Facility Monitoring Matrix. The matrix is designed to tabulate assessments made of the success of the Best Management Practices (BMPs) stipulated as terms of the LTF permits. The assessment elements of the LTF Monitoring matrix include site identification (common name, Corps of Engineers permit name, NPDES general permit), transfer activity (facility transfer type, activity status, current year volume), runoff control (sediment ponds, vegetative strips), bark & debris disposal (removal of bark & debris from LTF/yard), marine zone of bark deposit, date of last dive), and fuel control. The primary components of the fuel control category include visible oil sheen per LTF guidelines M5 of the 2008 Forest Plan (Alaska Timber Taskforce Guidelines), discharge reported to Alaska Department of Environmental Conservation (ADEC)

under requirements of Alaska Administrative Code (18 AAC 75.300-307), and discharge reported to National Response Center (NRC) under requirements of the Clean Water Act (40 CFR 110,117, and 302)

Monitoring Results

Two general types of monitoring occur: upland and marine. The upland monitoring is summarized into assessments developed by Forest Service timber sale administrators, and is recorded under the general categories of "Fuel Control", "Runoff Control" and "Bark & Debris". These assessments were made for all active sites. Contracted divers perform underwater bark debris surveys to accomplish marine monitoring.

Bark Monitoring and Reporting

Bark deposition monitoring is required annually for most active LTFs where wood is placed in the water. This is performed in accordance with the EPA General NPDES Permit No. AK-G670-1000, and EPA General NPDES Permit No. AK-G70-0000. This monitoring is required at sites that are planned to transfer a total volume of 15 million board feet (MMBF) or more during the next five years and are located in less than 60 feet mean low lower water (MLLW). Monitoring of bark accumulations are not required on LTFs classified as type V or VI log transfer facilities under Part I.B. In FY 2012, one LTF was utilized to place wood in the water. The type V LTF at Pat's Creek had 0.988 MMBF transferred and did not require bark monitoring.

If the annual bark monitoring survey conducted at the beginning of the season indicates continuous coverage by bark and wood debris of 0.9 acres or greater, the next annual bark monitoring survey is conducted after cessation of log transfer, or in the following year prior to any additional log transfer. Otherwise, the annual bark monitoring survey is not required during years the when the LTF is not operating.

The purpose of the bark monitoring program is to determine compliance the Alaska water quality standards for settable-residues in marine waters. In accordance with 18 AAC Section 70.210, ADEC has authorized a zone of deposit for facilities authorized to discharge under the general NPDES permit. The zone of deposit may include continuous coverage, discontinuous coverage, and trace coverage by bark and woody debris. Bark monitoring is completed in accordance with EPA General NPDES Permit No. AK-G70-0000. No bark monitoring dives were not conducted in FY2012. During the past five years, no active LTF has accrued bark deposition in excess of 0.9 acres.

Oil Sheen Monitoring and Reporting

During periods of LTF operation, receiving waters at the LTF shall be visually monitored daily for the presence of oil sheen. The presence of oil sheen shall be recorded, with the date, name of observer, cause or source of oil sheen, and corrective actions taken. Any spill shall be reported to the EPA within twenty four hours in accordance with Part IX.B.

Evaluation of Results

Between FY2008 and 2012, all active log transfer facilities were operated in accordance with the permits. No oil sheens were reported, and subsequently no corrective actions were taken. If fuel/hydraulic spills occur, they are handled as specified in the Spill Prevention Control and Countermeasures Plan (SPCC) anticipated in their operating plans. The Daily Oil Sheen Logs are utilized to document causes of sheens and corrective actions. The logs are required by stipulation of NPDES permits in some cases, and by

Forest Service contract in others.

The actions of the sale administrators, which are prescribed in the standards and guidelines for log transfer facilities, have served to limit the environmental effects of LTF operation to anticipated levels. The guidelines for locating LTFs along straights and channels proved to be effective in reducing underwater bark accumulations.

Action Plan

Continue to monitor LTFs as required by their permits.