Integrated Vegetation Management Plan

Revised March 2014 by ADOT&PF

Alaska Department of Transportation and Public Facilities

Originally Developed by
Shannon & Wilson, Inc.
June 2013

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INTEGRATED VEGETATION MANAGEMENT PLAN FOR THE ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

1.0 INTRODUCTION

The Alaska Department of Transportation and Public Facilities (ADOT&PF) oversees 255 airports, 11 ferries serving 35 communities, 5,619 miles of highway and 720 public facilities throughout the state of Alaska. This Integrated Vegetation Management Plan (IVMP) has been developed for use upon lands owned or leased by ADOT&PF, which includes State-owned right-of-ways, airports, and state facilities occupied by other agencies.

The intent of this IVMP is to comply with Chapter 18, Section 90 of the Alaska Administrative Code (AAC) and complement ADOT&PF's *Guidelines for Vegetation Control within Department Right-of-Way*, or as amended. This IVMP will assist ADOT&PF in its responsibility to manage the vegetation upon its lands to improve safety and control invasive plant species.

ADOT&PF intends to begin using herbicide as a maintenance tool, along with non-chemical maintenance and vegetation control measures, following the required posting and notification requirements specified within 18 AAC 90.640. Through the use of the herbicides described within this IVMP, along with current and traditional non-chemical maintenance practices, it is the intent of ADOT&PF to provide improved maintenance service and public safety in a more cost-effective manner.

All herbicide application shall comply with state and federal herbicide regulations. All herbicide application covered within this IVMP will be performed by certified applicators and using state-approved herbicides in accordance with their labels. Apart from vegetation, no other pest categories are included in this IVMP.

IPM Plan Effective Dates:	Original July 2013 – July 2015 Revised April 2014 – April 2016
Management Area Name/Location:	Alaska Department of Transportation and Public Facilities (ADOT&PF)
General Site Description:	ADOT&PF owned or leased lands and facilities.
Land Uses:	Public rights-of-ways, airports, and other lands and facilities

	owned or leased by ADOT&PF.
Name of Person in Charge:	Michael Coffey, Statewide Maintenance Engineer, Office of the Commissioner, Department of Transportation and Public Facilities
Certified Applicator Name(s):	Various
Certification Numbers:	Various

2.0 ADOT&PF STATEWIDE MAINTENANCE

ADOT&PF Statewide Maintenance and Operations (M&O) is overseen by Michael Coffey, the Statewide Maintenance Engineer, who has been identified as the Person in Charge for this IVMP. The state is divided into three regions: Central, Northern, and Southeast (Figure 1, Page 16). Each region is further broken into maintenance districts that are each managed by a District Superintendent. Vegetation management is implemented regionally by the Regional M&O Director/Chief and District Superintendents.

Vegetation management varies slightly throughout the state given each region's climate, topography, vegetated communities, wildlife, and extent of ADOT&PF facilities. However, each region has the same vegetation management goals and objectives.

3.0 ADOT&PF VEGETATION MANAGEMENT GOALS AND OBJECTIVES

The primary goal of vegetation throughout ADOT&PF lands is to improve public safety. The goals and objectives for vegetation management within this IVMP differ for those communities associated with ADOT&PF road right-of-ways and those within ADOT&PF airport facilities.

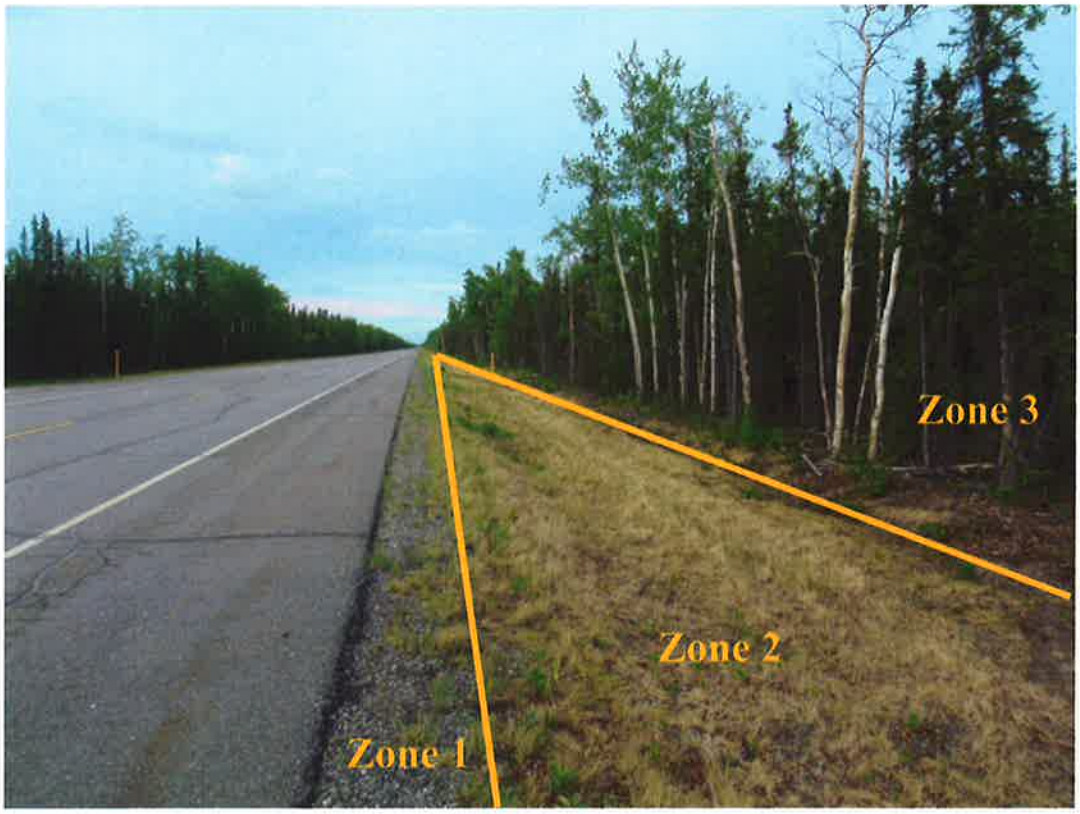
3.1 ADOT&PF Road Right-of-Way Management

Effective vegetation management reduces the risk of functional or structural failure which may contribute to crashes, injury, or disruption to travel. Effective vegetation management will help limit physical obstruction or restricted visibility and can reduce the severity of run-off-road crashes.

ADOT&PF objectives in vegetation management within its road system right-of-ways are in accordance with the *Guidelines for Vegetation Management, 1st Edition*, by the American Association of State Highway and Transportation Officials (AASHTO). These guidelines define

three roadside management zones (Zones 1, 2, and 3) from the edge of pavement to improve sight distances, maintain access, protect structures, and reduce wildlife strikes.

The three roadside management zones, which were originally developed by the National Roadside Vegetation Management Association and has been within the AASHTO *Guidelines for Vegetation Management, 1st Edition* are illustrated in Photograph 1 and can generally be described as follows:



Photograph 1: Roadside Vegetation Management Zones

3.1.1 Zone 1 (Vegetation Free Zone)

A 1- to 3-foot gravel or paved shoulder adjacent to the road system to provide maintenance and operational access to guard rail, improve drainage, reduce fire potential, increase sight distance, and prevent destruction of pavement from vegetation.

3.1.2 Zone 2 (Recovery or Operational Zone)

Provides a stable, low-growing vegetated community to accommodate suitable space for drivers to regain control of errant vehicles, maintain sight distance, provide clearance for

signage, maintain roadside drainage capacity, eliminate hazard vegetation, prevent erosion and road stabilization, and accommodate utilities.

3.1.3 Zone 3 (Natural Zone)

Maintained for a natural, self-sustaining vegetated community appropriate for the adjoining land uses. Maintenance, if any, determined by safety concerns (snow storage, shade trees, sight distance, etc.).

3.2 ADOT&PF Airport Facilities

Airports certified by the Federal Airways Administration (FAA) are typically permanently staffed by three to four dedicated ADOT&PF staff. Uncertified airports are typically in rural communities, do not have dedicated staff, and may or may not have regular maintenance agreements with the local communities. These rural, uncertified airports are also located in areas where services are scarce. As a result, the regular maintenance measures that are achievable between certified and uncertified airports differ greatly although their objectives are similar.

3.2.1 FAA Certified Airports

Many FAA certified airports have wildlife management plans developed for each airport based on their location and wildlife presence. Within some of these wildlife management plans, vegetation management is included to minimize hazard wildlife from becoming a safety concern. Additionally, vegetation management at these airports includes routinely clearing the landing approaches, lights, signage, fence lines, and where vegetation is breaking through pavement.

3.2.2 Non-Certified Airports

Non-certified airports generally do not have wildlife management plans although have the same vegetation management objectives as FAA certified airports. Vegetation management is performed when funding is possible.

4.0 VEGETATION HAZARDS

ADOT&PF maintenance personnel face a variety of hazards from unmanaged vegetation throughout its system. Many of the hazards are common throughout the state, along the right-of-way as well as airports. This IVMP has been developed to allow ADOT&PF to better manage these hazards.

4.1 ADOT&PF Right-of-Way Vegetation Hazards

Vegetation maintenance hazards common throughout the state's right-of-way include vegetation harming guard rail, fence lines, impairing sight lines, impairing visibility of signage, and encouraging wildlife closer to the road system. Noxious and invasive weeds and are also becoming increasingly present throughout the right-of-way, although the specific species of noxious weeds vary by region.

Of particular concern to ADOT&PF is the difficulty controlling vegetation from damaging guard rails and fence lines. Non-chemical vegetation control cannot keep up with the rapid growth of willow (*Salix spp.*), cottonwoods (*Populus spp.*), birch (*Betula spp.*), and alder (*Alnus spp.*) saplings that grow up through guard rails. As a result, sand and other material build up on the upslope edge of the roadway and reduce the ability for proper drainage. This, in turn, can lead to pavement and slope failure. Similarly, vegetation growing up through the ADOT&PF chain link fence damages these fences and reduces their ability to separate vehicles from wildlife.

Photograph 2: Mechanical control of Zones 1 and 2 unable to address guard rail vegetation.

4.2 ADOT&PF Airport Vegetation Hazards

Vegetation hazards common at both FAA certified and non-certified airports maintained by ADOT&PF include vegetation damaging perimeter fencing, obstructing landing lights, damaging paved and unpaved runways, and creating habitat suitable for undesirable wildlife.

Noxious and invasive weeds occur at airports and necessitate an integrated vegetation management approach.

5.0 VEGETATION MONITORING AND ACTION THRESHOLDS

ADOT&PF maintenance personnel will perform vegetation monitoring as part of their current maintenance observation schedule. However, the frequency and regularity of maintenance observations differs for ADOT&PF right-of-way, airports, and facilities based on resources and access.

5.1 Right-of-Way Vegetation Monitoring and Action Thresholds

ADOT&PF maintenance personnel perform visual inspection of its entire roadway system on a monthly basis at a minimum. Maintenance personnel, as part of their asset monitoring system, identify areas of concern so that maintenance activities are prioritized. The presence of hazard vegetation and noxious and invasive weeds are part of this identification process.

Hazard vegetation and noxious and invasive weeds will be noted during these monthly maintenance inspections. Vegetation within the right-of-way will be evaluated based on the goals of the AASHTO *Guidelines for Vegetation Management, 1st Edition*.

5.1.1 Zone 1 (Vegetation Free Zone)

This zone will be evaluated based on the presence of vegetation and managed so that it is practically free of vegetation. The extent of vegetation within Zone 1 within Photograph 3 would be considered above treatment threshold.

Photograph 3: Vegetation present in Zone 1 and sight lines impaired by woody vegetation in Zone 2.

5.1.2 Zone 2 (Recovery or Operational Zone)

This zone will be evaluated based on the presence and type of vegetation obscuring signage, impairing guard rail and fence lines, presence of noxious and invasive weeds, and extent of tall shrub or tree vegetation throughout the zone.

Tall herbaceous or woody vegetation shall be controlled in this zone as these communities interfere with the goals of this zone and the safety of users. This zone will be managed for a low growing herbaceous vegetation community free of noxious or nuisance weeds. The extent of woody vegetation within Zone 2 within Photograph 3 would be considered above treatment threshold.

5.1.3 Zone 3 (Natural Zone)

This zone shall be evaluated based on the presence of noxious and invasive weeds, hazard trees, and shade trees. In general, vegetation management within Zone 3 shall be

minimal. Trees identified as a danger to roadway users may be removed manually. Noxious and invasive weeds may be controlled through chemical or non-chemical methods.

Based on the observations made, maintenance personnel will identify the type and extent of action necessary to control vegetation, if any. This information will help prioritize scheduling of mechanical or chemical vegetation control.

5.2 Airport Vegetation Monitoring and Action Thresholds

As noted earlier, the presence of ADOT&PF maintenance staff at FAA certified airports differs greatly from those of non-certified airports. Therefore, the regularity of monitoring at these airport types also differs, although the action thresholds for treatment are the same.

Photograph 4: Herbaceous vegetation obscuring landing lights at an uncertified, rural airport.

FAA certified airports will be inspected on a weekly basis, at a minimum. Maintenance personnel at FAA certified airports also use a checklist system to identify areas of concern to prioritize maintenance activities. Non-certified airports are often within rural environments and inaccessible. Therefore, monitoring of these non-certified airports vary based on their access. Those airports accessible by road will occur monthly while remote airports that are infrequently used will be monitored once every three years.

As part of the vegetation monitoring, critical airport infrastructure such as runway, lights, and approaches will be inspected to make sure that vegetation is not impairing the safety of the airport. This includes evaluating vegetation based on the airport's wildlife management plan, if applicable. Vegetation will be managed around runways, lights, and approaches when vegetation obscures the visibility of this critical infrastructure. A vegetation-free perimeter around lighting will be maintained. Herbaceous or woody vegetation obstructing lights, as shown in Photograph 4, will be considered above the treatment threshold.

Additionally, fence lines will be evaluated to determine the extent of woody vegetation in and around the fence lines. Woody vegetation growing among fence lines, as shown in Photograph

5, will be considered above the treatment threshold. Low-growing herbaceous vegetation may be allowed along fence lines as long as it does not include noxious or nuisance species.

Using the observations from the weekly maintenance inspections, the type and extent of vegetation management will be prioritized based on safety.

Photograph 5: Fast-growing woody vegetation damaging perimeter airport fence lines.

5.3 Noxious/Invasive Weed Monitoring and Action Thresholds

Road systems are common corridors for the spread of noxious and invasive weeds. The ADOT&PF road system is no different and is encumbered by numerous patches of noxious and invasive weeds. ADOT&PF is committed to doing its part to control the spread of noxious and invasive weeds, although elimination of these plant species is likely unrealistic.

As part of ADOT&PF monitoring, noxious and invasive weeds will be identified and included in the prioritization of vegetation control management. Additionally, ADOT&PF will work cooperatively with adjacent land owners and state and federal agencies, such as the National Forest Service, National Parks Service, Bureau of Land Management, Alaska Department of Agriculture, Alaska Department of Natural Resources, and others, to control the spread of noxious and invasive weeds. This includes authorizing these and other state or federal agencies to apply herbicides, in compliance with this IVMP. Noxious weeds, such as the Canada thistle (*Cirsium arvense*) rosettes, as shown in Photograph 6 along the Seward Highway in Anchorage for example, may be controlled by ADOT&PF maintenance personnel or other federal or state agencies in compliance with this IVMP.

Photograph 6: Canada thistle growing within ADOT&PF right-of-way along the Seward Highway in Anchorage.

The presence of noxious and/or invasive weeds will be considered above the action threshold. However control of these species will be prioritized along with the other vegetation management needs for each district. Where noxious and/or invasive weeds do not pose a safety hazard, their control will be considered secondary.

6.0 VEGETATION CONTROL MEASURES

Non-chemical vegetation control, including both preventative and mechanical control, will continue to be an effective method of vegetation management performed by ADOT&PF maintenance personnel.

6.1 Preventative Methods

Preventative vegetation control methods include the following activities:

- Road resurfacing.
- Asphalt patching.
- Establishment of low maintenance plantings, such as grasses, during road construction or rehabilitation
- Using native soils for backfill, where possible, from "weed free" sources during road construction.

6.2 Mechanical Methods

ADOT&PF use a suite of mechanical methods to control vegetation within its roadway and airport system, such as:

- Mowing
- Brush cutting
- Hydro-axing
- Burning
- Partnering with Southeast Alaska Guidance Association for light mechanical work using string trimmers and hand pulling.

While mechanical methods are effective, these methods tend to be labor intensive, fuel intensive, and typically require heavy equipment which itself requires maintenance. Given how time consuming and expensive these measures can be, ADOT&PF maintenance personnel have not

been able to keep up with all of their vegetation maintenance activities, prompting the need for an integrated approach.

6.3 Chemical Control

The use of herbicide application is expected to significantly improve ADOT&PF's ability to manage vegetation upon its road right-of-ways, airports, and facilities. While herbicides are expected to be an efficient and effective tool in managing vegetation, herbicide application must be done in an environmentally responsible manner.

In selecting herbicides suitable for ADOT&PF use, consideration was also given to habitat conditions in and adjacent to ADOT&PF lands. The ADOT&PF worked closely with the Alaska Department of Natural Resources Alaska Plant Materials Center and the University of Alaska Fairbanks Cooperative Extension Service Agriculture Program to select herbicides that minimize potential risks to human health and the environment while providing an effective and efficient method for vegetation management and invasive species control. Additional herbicides were selected since the original IVMP in order to give more options to control woody vegetation while also choosing herbicides that are also effective on noxious and invasive weeds.

For herbicides used to control noxious and invasive species and other unwanted vegetation, the ADOT&PF follows a process that helps ensure herbicides are used appropriately and only when necessary in combination with other effective control measures. The ultimate goal in any roadside treatment is to replace unwanted vegetation with appropriate native plants. In many cases herbicides are an effective tool for initial control of a problem. When combined with other control measures, herbicide use can be minimized or eliminated over time.

A federal lawsuit in Washington State necessitated environmental reviews of some herbicides and their impact on federally listed salmon species under the Endangered Species Act (ESA). This environmental review has resulted in a list of which herbicides that require a no-spray buffer zone around salmon-bearing streams (Appendix). While this list was developed to address ESA-listed salmon species in Washington State, ADOT&PF has primarily selected herbicides that either do not require no-spray buffer zones around salmon-bearing streams or were not included as part of the lawsuit.

TABLE 1.
POTENTIAL HERBICIDES TO BE USED BY ADOT&PF

Active Ingredients	Product Name	EPA Registration Number	Aquatic Approved
Glyphosate	Aquamaster	524-343	Yes
	RoundUp Ready-to-Use Weed and Grass Killer III	71995-33	No
Imazapyr	Habitat	241-426-67690	Yes
Triclopyr	Garlon 3A	62719-37	No
	Garlon 4	62719-40	No
	Garlon 4 Ultra**	62719-527	No
Aminopyralid	Milestone**	62719-519	No*
Clopyralid	Transline	62719-259	No
2,4-D, Floroxpyr, Dicamba	Escalade 2	228-442	No
Metsulfuron methyl	Escort XP**	352-439	No
Chlorsulfuron	Telar XP**	352-654	No*

*Though Milestone and Telar are NOT labeled for application to natural or man-made bodies of water it is permissible to use them to treat seasonally dry wetland such as floodplains, deltas, marshes, swamps, or bogs as well as transitional areas between upland and lowlands sites when no water is present. Milestone can be used to the water's edge.

**Applications of Mileston, Garlon 4 Ultra, Escort XP, and Telar XP can have non-target impacts to woody vegetation when applied to the root zone of trees; however these applications are still permissible by the label. Ensure that such injury can be tolerated if the woody vegetation is desirable.

Aquamaster and Roundup are non-selective herbicides for most vegetation. Habitat is also a nonselective herbicide for most vegetation and may be used as an alternative to Aquamaster. Milestone, Transline, Escalade 2, Garlon 3A and Galon 4/Ultra, Escort XP, and Telar XP are broadleaf selective herbicides with applications in non-cropland areas including roadside rights-of-ways and may be used to manage woody vegetation and invasive weed species according to the respective EPA-approved label.

ADOT&PF may use Aquamaster, Habitat, Garlon 3, Milestone, Transline, Escalade 2, Garlon 3A and Galon 4/Ultra, Escort XP, and Telar XP throughout its right-of-ways, FAA certified airports, accessible non-certified airports, and facilities in compliance with their EPA-approved

labels. RoundUp Ready-to-Use Weed and Grass Killer III is only intended for use in terrestrial, upland uses at remote non-certified airports where access is difficult as it comes pre-mixed in ready-to-use handheld application devices. Both Aquamaster and Habitat may be used to control vegetation within aquatic areas, if needed, only after an Alaska Pollution Discharge Elimination System Pesticide General Permit and a Pesticide Use Permit are obtained.

ADOT&PF may apply Aquamaster, Habitat, or Garlon 3 herbicides using backpack sprayers, truck-mounted sprayers, wet blade application, or injection depending upon the vegetation targeted and as directed by the EPA-approved labels. RoundUp Ready-to-Use Weed and Grass Killer III is purchased within pre-mixed 1.33 gallon containers, 1.25 gallon pre-mixed refills, or 24 ounce handheld spray bottles. RoundUp Ready-to-Use Weed and Grass Killer III will only be applied from these pre-mixed handheld containers following the instructions within the EPA-approved label.

All herbicide applications will be conducted by a person who has a valid Certified Pesticide Applicator's license issued by the Alaska Department of Environmental Conservation.

All herbicide applications will comply with the requirements of 18 AAC 90.640 and with this IVMP.

Location	When Herbicide May Be Used	Post Treatment Monitoring
Right-of-ways	**Zone 1**: When vegetation is present, including noxious/invasive weeds. **Zone 2**: When tall vegetation begins to obstruct sightlines, when woody vegetation is present, or if noxious and/or invasive weeds are present. **Zone 3**: When noxious and/or invasive weeds are present. **All cases**: When woody vegetation is growing up through guard rail or within fence lines.	Following herbicide application, the treated site will be inspected within one month to assess the results of the application.
FAA Certified Airports and Accessible Un-certified	▪ When tall herbaceous vegetation or woody vegetation obstructs critical airport infrastructure, such as the runway, landing lights, or approaches.	Following herbicide application, the treated site will be inspected within one month to assess the results of the application.

Airports	▪ When vegetation is damaging pavement or gravel runways. ▪ When woody vegetation is growing up through fence lines. ▪ When noxious and/or invasive weeds are present.	
Remote Un-certified Airports	▪ When tall herbaceous vegetation or woody vegetation obstructs critical airport infrastructure, such as the runway, landing lights, or approaches. ▪ When noxious and/or invasive weeds are present.	Following herbicide application, the treated site will be assessed within six hours to observe evidence of effective treatment.

6.3.1 Notification

In accordance with 18 AAC 90.640(a)(2), ADOT&PF will provide this IVMP to the Alaska Department of Environmental Conservation (ADEC) to post on its website prior to IVMP implementation.

Prior to herbicide application, the following notification requirements will be met:

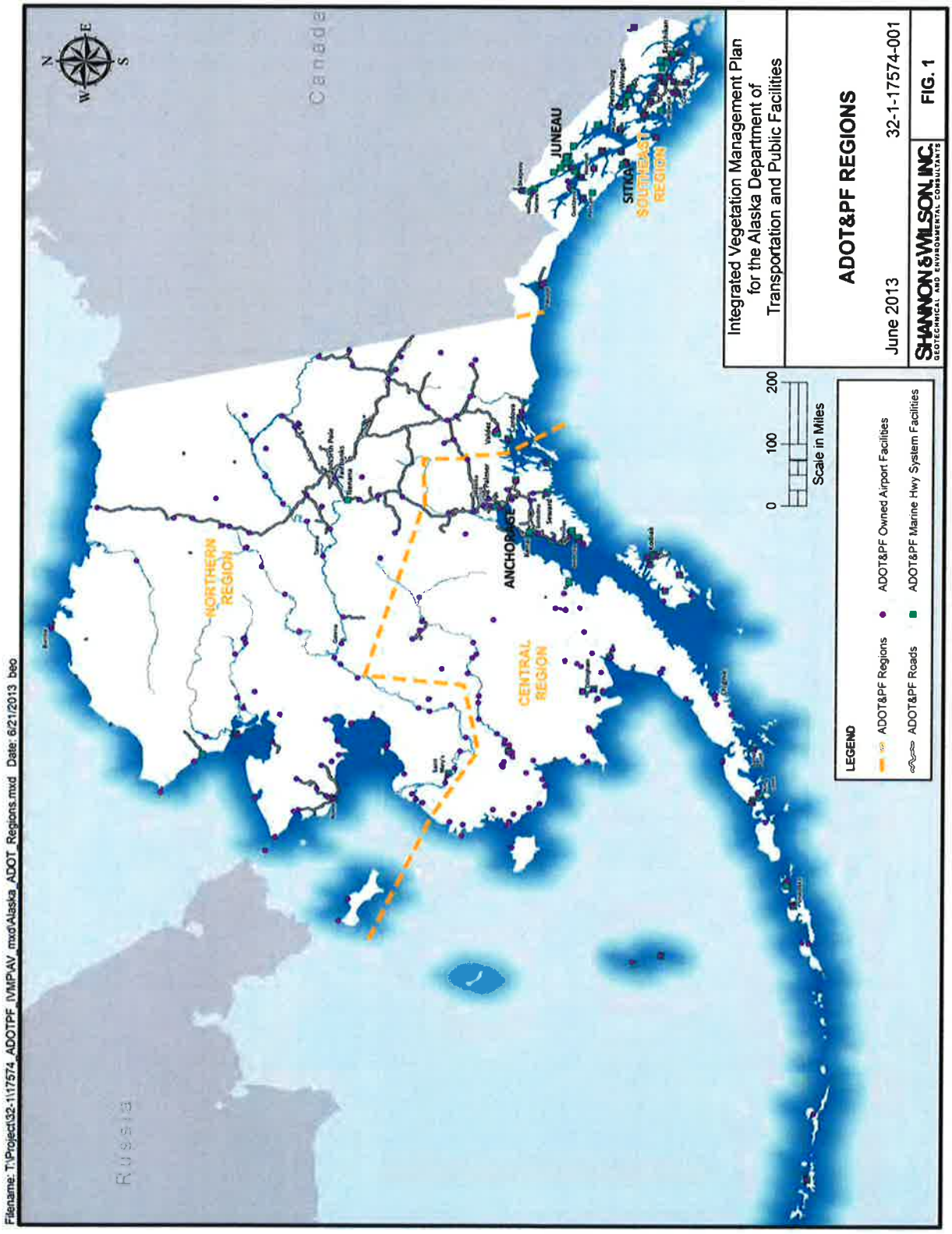
- Notification will be provided to ADEC, as required under 18 AAC 90.640(a)(6), not later than 15 days before each proposed application, including multiple application projects, as defined within 18 AAC 90.640(d).
- Two consecutive public notices for planned herbicide applications will be published in a newspaper of general circulation in the affected area, no later than 30 days before the date of scheduled single or multiple application projects as required by 18 AAC 90.640(b). This notice will include:
  - The location of the application
  - The complete name and EPA registration number of the herbicide(s)
  - The target pests
  - The method of application
  - For multiple application projects, the approximate number of applications to be made
  - How the public can receive more information about the proposed application

6.3.2 Record Keeping and Reporting

All records of herbicide application will be kept for a minimum of two years by the Person in Charge, Michael Coffey, the Statewide Maintenance Engineer for ADOT&PF, in accordance with 18 AAC 90.640(a)(7). These records will be available to ADEC at their request.

For each herbicide applied to more than 20 acres in a calendar year, ADOT&PF will publish on its website a report containing the following, in accordance with 18 AAC 90.640(a)(8):

- Herbicide EPA registration number,
- Quantity of mixed herbicide applied, and
- Location of each application.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CENTRAL REGION
SOUTHEAST REGION
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Scale in Miles
LEGEND
ADOT&PF Regions
ADOT&PF Roads
ADOT&PF Owned Airport Facilities
ADOT&PF Marine Hwy System Facilities
Integrated Vegetation Management Plan for the Alaska Department of Transportation and Public Facilities
ADOT&PF REGIONS
June 2013
32-1-17574-001
SHANNON&WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
FIG. 1

APPENDIX

PESTICIDES SUBJECT TO BUFFER ZONES IN WASHINGTON STATE

PESTICIDES SUBJECT TO BUFFER ZONES IN WASHINGTON STATE
Pesticide/ESA Effects Determinations Listed by Evolutionary Significant Unit (ESU)[1]

	Buffers required - "may affect" determination

	No buffers - "no effect" or "may, but not likely to adversely affect" determination

Click on the waterbody name for a specific ESU in the following table to view a detailed map in Adobe Acrobat PDF Format. The maps, produced by NOAA Fisheries, show the ESU geogpraphic boundaries. WSDA has developed county-specific maps to identify salmon-bearing streams within the ESUs and provided a list of exceptions to the buffers required by the final ruling in Washington Toxics Coalition, et al., v. EPA. The effects determination analysis and supporting documentation for each active ingredient may be viewed at epa.gov/oppfead1/endanger/effects/.

Active Ingredient Information		Evolutionary Significant Units (ESUs)											
		Chum	Chinook (Spring-run)	Steelhead	Steelhead	Chinook	Steelhead	Chum (Summer-run)	Sockeye	Chinook	Chinook (Fall-run)	Chinook (Spring/Summer-run)	Steelhead
Chemical	Product Names	Columbia River	Upper Columbia River	Upper Columbia River	Middle Columbia River	Lower Columbia River	Lower Columbia River	Hood Canal	Crescent Lake	Puget Sound	Snake River	Snake River	Snake River
1, 3-dichloropropene	Inline, Telone, Tri-Cal, Tri-Form												
2, 4-D[2]	Amine 4, Curtail												
acephate	Orthene												
alachlor	Lasso												
atrazine	Aatrex, Atrazine												
azinphos-methyl	Guthion												
bensulide	Prefar												
bentazon	Basagran												
bromoxynil	Buctril												
captan	Captan												
carbaryl	Sevin												
carbofuran	Furadan												
chlorothalonil	Bravo, Daconil												
chlorpyrifos	Dursban, Lorsban												
coumaphos	Co-Ral, Prozap												
diazinon	several												
dicamba	Banvel												
dichlobenil	Casoron												
diflubenzuron	Dimilin												
dimethoate	Digon, Dimate												
disulfoton	Di-Syston												
diuron (crop)[3]	Direx, Karmex												
diuron (non-crop)[4]	Direx, Karmex												
ethoprop	Mocap												
fenamiphos	Nemacur												
fenbutatin-oxide	Vendex												
iprodione	Rovral												
lindane	Lindane												

[1] An Evolutionarily Significant Unit or "ESU" is a distinctive group of Pacific salmon or steelhead.
[2] "No effect" determination based on crop use of 2, 4-D. When used to control aquatic weeds, 2, 4-D "may effect" all ESUs.
[3] Only high application rate crops with use during the winter or late winter seasons (peaches, filberts and walnuts) exceed levels of concern. Diuron use on other crops will have no effect on listed salmon and steelhead.
[4] There is believed to be a large amount of diuron use on rights-of-way and other non-crop sites in Washington. The "may effect" determination is based on the high label application rates, the potential direct and indirect effects of diuron at high rates, and the uncertainty of exposure.

PESTICIDES SUBJECT TO BUFFER ZONES IN WASHINGTON STATE
Pesticide/ESA Effects Determinations Listed by Evolutionary Significant Unit (ESU)[1]

	Buffers required - "may affect" determination		No buffers - "no effect" or "may, but not likely to adversely affect" determination

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Active Ingredient Information		Evolutionary Significant Units (ESUs)											
		Chum	Chinook (Spring-run)	Steelhead	Steelhead	Chinook	Steelhead	Chum (Summer-run)	Sockeye	Chinook	Chinook (Fall-run)	Chinook (Spring/ Summer-run)	Steelhead
Chemical	Product Names	Columbia River	Upper Columbia River	Upper Columbia River	Middle Columbia River	Lower Columbia River	Lower Columbia River	Hood Canal	Ozette Lake	Puget Sound	Snake River	Snake River	Snake River
linuron	Linex, Lorox												
malathion (crop)	several												
malathion (non-crop)[5]	several												
methamidophos	Monitor												
methidathion	Supracide												
methomyl	Lannate												
methyl parathion	Penncap-M, Declare												
metolachlor	Dual, Bicep												
metribuzin	Axlon, Sencor												
molinate	Hydram, Molinate, Ordram												
naled	Dibrom												
norflurazon	Evital, Solicam, Zorial												
oryzalin	Surflan												
oxyfluorfen	Goal												
paraquat dichloride	Cyclone, Gramoxone												
pebulate	Tillam												
pendimethalin	Prowl												
phorate	Thimet												
phosmet	Imidan												
prometryn	Caparol, Prometryne												
propargite	Omite, Comite												
simazine	Princep, Simazine												
tebuthiuron	Spike												
terbacil	Sinbar												
thiobencarb	Saturn, Bolero												
thiodicarb	Larvin												
triclopyr BEE	Garlon 4, Crossbow												
triclopyr TEA	Garlon 3A, Redeem												
trifluralin	Treflan, Trilin												

[5] Home owner uses make up a large portion of the non-crop malathion use. However, few states track home owner use data and many labels do not specify numeric application rates and/or intervals. The "may effect" determination for non-crop use is based on concern from home owner use.