

Forest Road GIS Integration Project

Data Input, Conversion Rules, and Merging Process

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GIS File Names

The shapefile names appear in “[]” after the process they were created in.

xxxxxfry (.shp, .dbf, .shx, .sbn, .sbx)

xxxxx = text sting of source data

lkcty = lake county land department

dnrdf = DNR division of forestry

bland = Blandin

fr = forest road

y = unique integer representing state of data

0 = original data

1 = non-forest roads removed from data and/or table of attributes cleaned up

Shapefile Attribute Format

Alias	Type	Width	Decimal
Shape	FIELD_SHAPELINE	9	0
Name	FIELD_CHAR	20	0
Number	FIELD_CHAR	10	0
Season_of_use	FIELD_CHAR	1	0
Type	FIELD_CHAR	1	0
Status	FIELD_CHAR	1	0
Lanes	FIELD_DECIMAL	3	1
Cleared_width	FIELD_DECIMAL	1	0
Accuracy	FIELD_CHAR	1	0
Closure_method	FIELD_CHAR	1	0
Admin_code	FIELD_DECIMAL	2	0
Admin_name	FIELD_CHAR	20	0
Admin2_code	FIELD_DECIMAL	2	0
Admin3_code	FIELD_DECIMAL	2	0
Source	FIELD_CHAR	20	0

Attribute Descriptions

name	Alpha numeric string	Name used by agency (up to 20 characters)
number	Alpha numeric string	Number used by agency (up to 10 characters)
season_of_use		
A	All weather forest road	(7) (MNDOT coding system: 1-4 = interstate and county roads, 5 city roads, 6 township roads)
S	Dry summer forest road	(8)
W	Winter forest road(freeze down)	(9)
type		
A	Arterial (MNDOT - local)	Thru road usually connects to Township, County, etc. road
C	Collector (MNDOT - local)	Serves 1,001 or more acres
M	Local (MINDOT - local)	Serves less than 1000 acres
status		
O	normally open	
C	normally closed	
I	Intermittently open	
P	Permit Required	
lanes		
1	number of lanes	One lane = Less than 15 feet of driving surface
1.5	1.5 lane	= 16 - 19 feet of driving surface
2	Two lane	= More than 19 feet of driving surface
width		
0	12 -18'	Average total width cleared of trees
1	19 - 25'	
2	26 - 50'	
3	50 +	
accuracy		
H	High	GPS, +/- 20 feet
M	Medium	Digitized, +/- 80 feet
L	Low	Esitmated from photo, +/- 150 feet
closure_method		
G	Gate	
B	Berm/Ditch	
R	Rocks	
N	Natural Vegetation	
S	Sign/Barricade	

admin_code Who administers, standard codes and names Also known as jurisdiction. Who makes decisions on the road.

- 1 Forest Service
- 2 DNR-Forestry
- 3 DNR-Wildlife
- 4 County Land Dept.
- 5 Blandin
- 6 Boise-Cascade
- 7 Potlatch
- 8 NIP
- 9 DNR-T&W
- 10 BLM

admin_name Who administers (names defined in admin_code) Also known as jurisdiction. Who makes decisions on the road.

- Forest Service
- DNR-Forestry
- DNR-Wildlife
- County Land Dept.
- Blandin
- Boise-Cascade
- Potlatch
- NIP NonIndustrial Private
- DNR-T&W
- BLM

admin2_code Same as admin_code Use this if there is coop working agreement.
admin3_code Same as admin_code Use this if there is coop working agreement.
source text DNR, lake county, blandin, etc Source of data

Blandin conversion rules

Kept all roads in initial data set.

Conversion rules used to create common forest road attribute data from initial data. [blandfr1]

source = Blandin

removed Lpoly/Rpoly/-id/# fields

Department of Natural Resources Data conversion rules

Kept all roads in initial data set.

Conversion rules used to create common forest road attribute data from initial data. [dnrdffr1]

Name = name

Number = number

Season of Use = A if Seasonofuse = AllWX

Season of Use = S if Seasonofuse = anything except Winter Only or AllWX

Season of Use = W if Seasonofuse = Winter Only

Type = A if Roadclass = 1, 2, or 3

Type = C if Roadclass = 4

Type = L if Roadclass = 5 or 6

Status = O if Closure = Open

Status = C if Closure = Closed

Status = I if Closure = O/C

Status P =

Lanes = 1 if Roadclass = 5 or 6

Lanes = 1.5 if Roadclass = 4

Lanes = 2 if Roadclass = 1, 2, or 3

Width = 0 if Roadclass = 4, 5, or 6

Width = 1 if Roadclass = 3

Width = 2 if Roadclass = 2

Width = 3 if Roadclass = 1

Accuracy = H if Pdop = 8

Accuracy = M if Pdop = 50

Accuracy = L if Pdop = 99

Admin Code = 2 if Administra = anything

Admin Name = DNR-Forestry if Administra = anything

Admin2 Code = 1 if Administra = Coop/USFS

Admin2 Code = 3 if Administra = Coop/WLife

Admin2 Code = 4 if Administra = Coop/County Lands

Admin2 Code = 8 if Administra = Coop/pvt

Admin2 Code = 6 if Administra = Coop/Boise

Admin2 Code = 9 if Administra = Coop/DNR-T&W

Source = DNR-Forestry

Lake County Land Dept Data conversion rules

Cleaned initial data.

Original Data LUT codes:

- 0 = proposed road
- 1 = paved road
- 2 = gravel road
- 3 = unimproved dirt road
- 4 = Class B Forest Access
- 5 = Recreational Trails
- 6 = Railroad
- 7 = Power line
- 8 = Forest Class A
- 9 = Winter Class C

Removed roads coded with a LUT of 5,6,7.

Conversion rules used to create common forest road attribute data from initial data. [lkctyfr1]

LUT 0,1:

season_of_use = A
type = A
status = O
lanes = 2
accuracy = M

LUT 2: season_of_use = A

type = A
status = O
lanes = 2
accuracy = M

LUT 3: season_of_use = S

type = C
status = O
lanes = 1
accuracy = M

LUT 4: season_of_use = A

type = C
status = O
lanes = 1
accuracy = M
admin_code = 4
admin_name = County Land Dept.

LUT 8: season_of_use = A

type = C
status = O
lanes = 1
accuracy = M
admin_code = 4
admin_name = County Land Dept.

LUT 9: season_of_use = W
type = C
status = O
lanes = 1
accuracy = M
admin_code = 4
admin_name = County Land Dept.

For all roads:

source = "lake county land dep"
number = lkcty0-id number

Removed Lpoly/Rpoly/-id/#/Trail/Tail-id/LUT fields

St. Louis County Land Dept Data conversion rules

Cleaned initial data.

Original Data ACCESS_TYPE codes:

0	Non Land Department Roads
1	Non Land Department Roads
2	Non Land Department Roads
3	Management Road - Year round
4	Management Road - Summer upland
5	Management Road - Winter lowland
6	not used
7	recreation trail
8	Misc access (power lines, RR ROW, gas lines etc)
37	coincident access types 3 & 7
38	coincident access types 3 & 8
47	coincident access types 4 & 7
48	coincident access types 4 & 8
57	coincident access types 5 & 7
58	coincident access types 5 & 8
78	coincident access types 7 & 8

Removed roads coded with a ACESSTYPE 0, 1, 2, 6, 7, 8, 78.

Conversion rules used to create common forest road attribute data from initial data. [stctyfr1]

ACESSTYPE 3:

season_of_use = A
type = A
status = O
lanes = 2
admin_code = 4
admin_name = County Land Dept.

ACESSTYPE 4:

season_of_use = S
type = C
status = O
lanes = 1.5
admin_code = 4
admin_name = County Land Dept.

ACESSTYPE 5:

season_of_use = W
type = C
status = O
lanes = 1
admin_code = 4
admin_name = County Land Dept.

ACCESSTYPE 37, 47, 57, 38, 48, 58:

season_of_use = A

type = C

status = C

lanes = 1

For all roads:

source = "stlo county land dep"

number = access_id number

name = name1

accuracy = "M"

Removed Fnode/Tnode/Lpoly/Rpoly/-id/# fields

Forest Service Data conversion rules

Kept all roads in initial data set.

Original Data Codes

map_class

- Improved
- Secondary
- Unimproved
- Winter
- Closed

Accuracy

- H
- L

System

- BLM – bureau of land management
- FDR – forest development road
- OP – other public agency
- PO – private other

Oper_maint and

Objective

- 1 – basic custodial care (closed)
- 2 – high clearance vehicles
- 3 – suitable for passing cars
- 4 – moderate degree of user comfort
- 5 – high degree of user comfort

Functional

- A – arterial
- C – collector
- L – local

Surface_ty

- Ac-asphalt
- Agg-crushed aggregate or gravel
- Bit – bituminous trmnt except dust p
- Imp – improved native material
- Nat – native material

Lanes

- 1
- 2

Traffic_se

- A – free flowing mixed traffic
- B – congested during heavy traffic
- C – flow interrupted – use limited
- D – slow flow or may be blocked

Conversion rules used to create common forest road attribute data from initial data. [fssupfr1]

MAP_CLASS

Improved, Secondary, closed: season_of_use = A

Unimproved: season_of_use = S

Winter: season_of_use = W

Functionality

A: type = A

C: type = C

L: type = L

MAP_CLASS

Improved, Secondary, Unimproved, Winter: status = O

Closed: status = C

LANES

1: lanes = 1

2: lanes = 2

ACCURACY

H: accuracy = h

L: accuracy = l

SYSTEM

BLM: admin2_code = 10

PO: admin2_code = 8

For all roads:

admin_code = 1

admin_code = Forest Service

source = "superior nat forest"

number = RTE_NO

name = NAME

Removed non-common fields

Potlatch conversion rules

Kept all roads in initial data set.

Original Data Codes

Class

- 0 = Trail
- 1 = Graded wooded road
- 2 = 2nd class unpaved
- 3 = 1st class unpaved
- 4 = 2nd paved
- 5 = major paved
- 6 = RR
- 7 = pipeline
- 8 = powerline
- 9 = Indian reserve

Owner

- 0 = none
- 1 = county
- 2 = state
- 3 = FS
- 4 = Interstate

Number

Note: In data received the ownership codes were from 0-9 and the class codes were 0-2

Conversion rules used to create common forest road attribute data from initial data. [potlfr1]

For all roads:

- Number = number
- Source = "Potlatch"

Merging and Cleaning Data

- ?? MFRC GIS technician (Chad) remove overlapping roads (with-in 200') of known DNR/FS/Blandin forest roads.

- ?? Road committees meet and look at data on a GIS system. The most efficient method is to have a GIS technician projecting data on a screen, and the local managers and foresters providing input. This can be done on a township-by-township level, or multiple townships at a time. The key GIS data that will be projected includes public land survey lines, ownership, air photos, major roads, lakes, and the forest road data (provide printed legend to help view data). The basic steps are:
 - 1. Remove forest roads that do not exist
 - 2. Add forest roads that are missing
 - 3. Remove overlapping roads
 - 4. Identify these three attributes if they are missing
 - a. Administrator
 - 1 Forest Service
 - 2 DNR-Forestry
 - 3 DNR-Wildlife
 - 4 County Land Dept.
 - 5 Blandin
 - 6 Boise-Cascade
 - 7 Potlatch
 - 8 NIP
 - 9 DNR-T&W
 - 10 BLM
 - b. Road Type
 - A Arterial (MNDOT - local) Thru road usually connects to Township, County, etc
 - C Collector (MNDOT - local) Serves 1,001 or more acres
 - L Local (MNDOT - local) Serves less than 1000 acres
 - c. Season of use
 - A All weather forest road
 - S Dry summer forest road
 - W Winter forest road (freeze down)

- ?? Chad should do a final cleaning of the data in a GIS program. Remove short dead end roads (less than 33'), and connect roads (that end within 20' of each other) (ARC/INFO command: "clean forest_road forest_road_clean 10 6")

- ?? GIS technicians and foresters from each agency should go through data adding any other missing attribute information on their roads and send this to Chad to

update the main dataset. Also, as they add new roads, they can save them in a separate GIS coverage that can be added annually to the shared data layer.