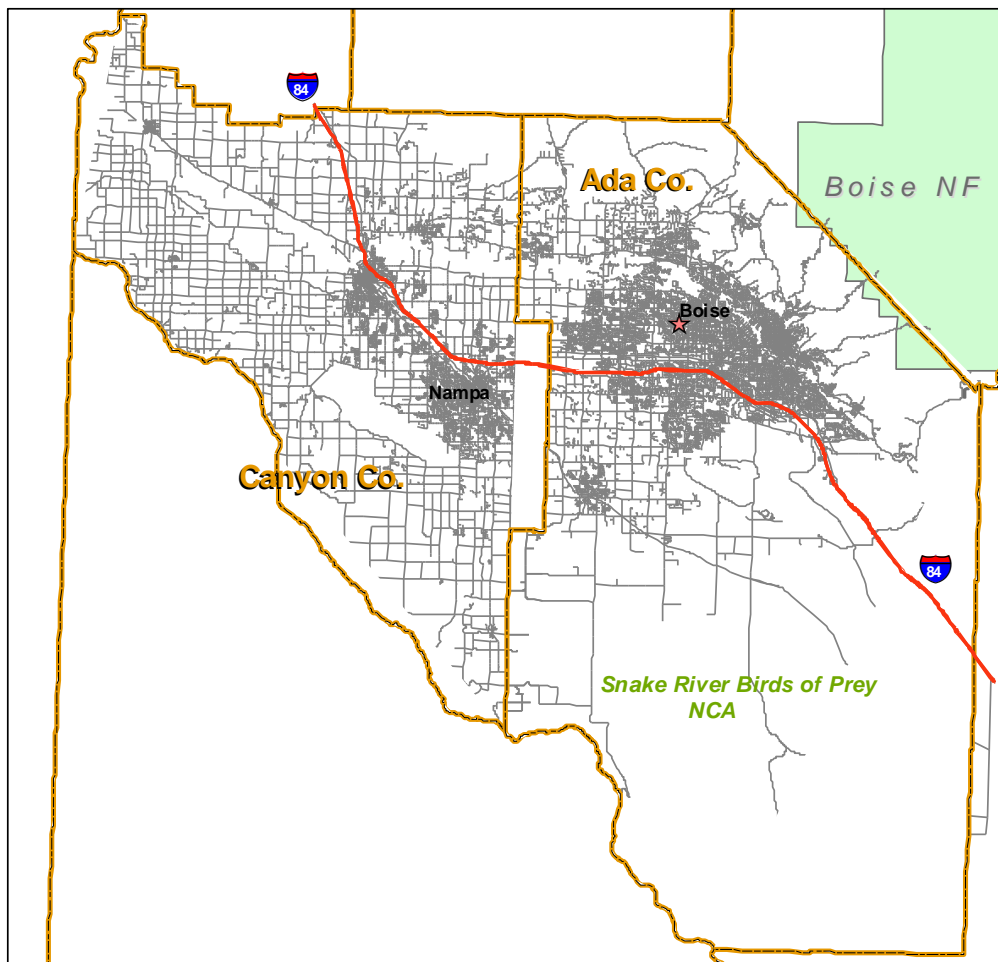# Data Assessment of the Idaho Road Transportation Framework Pilot Project in Canyon and Ada Counties

July 27, 2008

Transportation QA Report Form

Project: Idaho Geospatial Data Clearinghouse   **Date:** 7/27/2008

Project Block: Canyon and Ada counties, WA   **Reviewer:** T. Detlefsen, G. Whitaker

Projection: Transverse Mercator   **Zone:** Idaho TM

Datum: NAD83

Units: Meters

Dataset type: shapefile .shp with .prj file   **Vector data position:** Centerline Orthoimage/DRG

Metadata: Project Level

Metadata Notes: (if none provided was information provided to create Project Level metadata?)

One project level file, roads_id_igdc.shp.xml, was provided by the Idahao Geospatial Data Clearinghouse (INSIDE Idaho). It contains the vector information.

Add Partner-supplied accuracy information, if available: Relative Horizontal Test performed: No

If Yes, explain; include data type used for test, i.e. DRG, Ortho-Image or Control Point:

No Partner-supplied accuracy information available.

Summary follows on next page-

2

Background Information:

The Geospatial Data Assessment Team has received an Idaho Roads Framework dataset from the Idaho Geospatial Data Clearinghouse (INSIDE Idaho). Idaho Roads Framework is a statewide road transportation dataset and contains the best data available from all levels of government including federal, state and local agencies and tribal nations.

Data includes information about roads and appears to be relatively seamless for the state, connected and continuous between jurisdictions. It is designed to serve as a base road transportation layer for Idaho and is updated weekly as part of an automated program managed by INSIDE Idaho.

Dataset Received:

One dataset, an ESRI shapefile, was obtained from INSIDE Idaho for evaluation of the data for possible integration into The National Map. This dataset contains roads from most counties in Idaho, and is called the Idaho Road Transportation Framework Pilot Project. This evaluation will pertain only to the data included within Canyon and Ada counties. The data steward for Canyon County is the Canyon County Sheriff's Office. The data steward for Ada County is the Ada County GIS.

Information received from INSIDE Idaho indicates that the dataset was cast in Idaho Transverse Mercator North American Datum (NAD) 1983. Data depicts the roads, streets, names, associated address ranges, and basic events, which forms a framework that can be used for transportation planning and project development.

Procedures Required to Evaluate the Data:

The acquired dataset was obtained from INSIDE Idaho via FTP. Because the data was received in an ArcGIS format, this evaluation was conducted using ArcGIS ArcMap software, version 9.2.

Recent 2004 1-meter and 2006 2-meter National Agriculture Imagery Program (NAIP) digital orthoimagery, Digital Raster Graphics (DRG's) and Census Bureau TIGER/Line data were used as a comparison source. The shapefile and the orthoimagery were cast in NAD83. The DRG's were cast in NAD27 and re-projected on-the-fly to NAD83.

Feature Content, Positional Accuracy and Tracking:

The INSIDE Idaho dataset ESRI shapefile, named Roads_id_igdc.shp, consists of centerline vector data representing most USGS class 1, 2 and 3 roads, and some USGS class 4 roads and class 5 trails as shown on the DRG's. By closely comparing the features collected in the ESRI shapefile with the orthoimagery and the DRG's, it appears that collection criteria required collection of, generally, publicly-maintained roads only, therefore most USGS class 4 (private or unmaintained roads) and class 5 (trails) features were not collected and are not present in the file.

In the following examples, the INSIDE Idaho data is shown in red and the Census TIGER/Line data is shown in yellow. The Census TIGER data shows not only roads but also other lines that may be Census blocks and tracts or other feature classes.

See WaltersButte.jpg, a portion of Walters Butte (Canyon County), ID quadrangle below. Note the missing roads in the INSIDE Idaho dataset that are collected in the Census dataset. Many of these roads also appear on the DRG.

WaltersButte.jpg
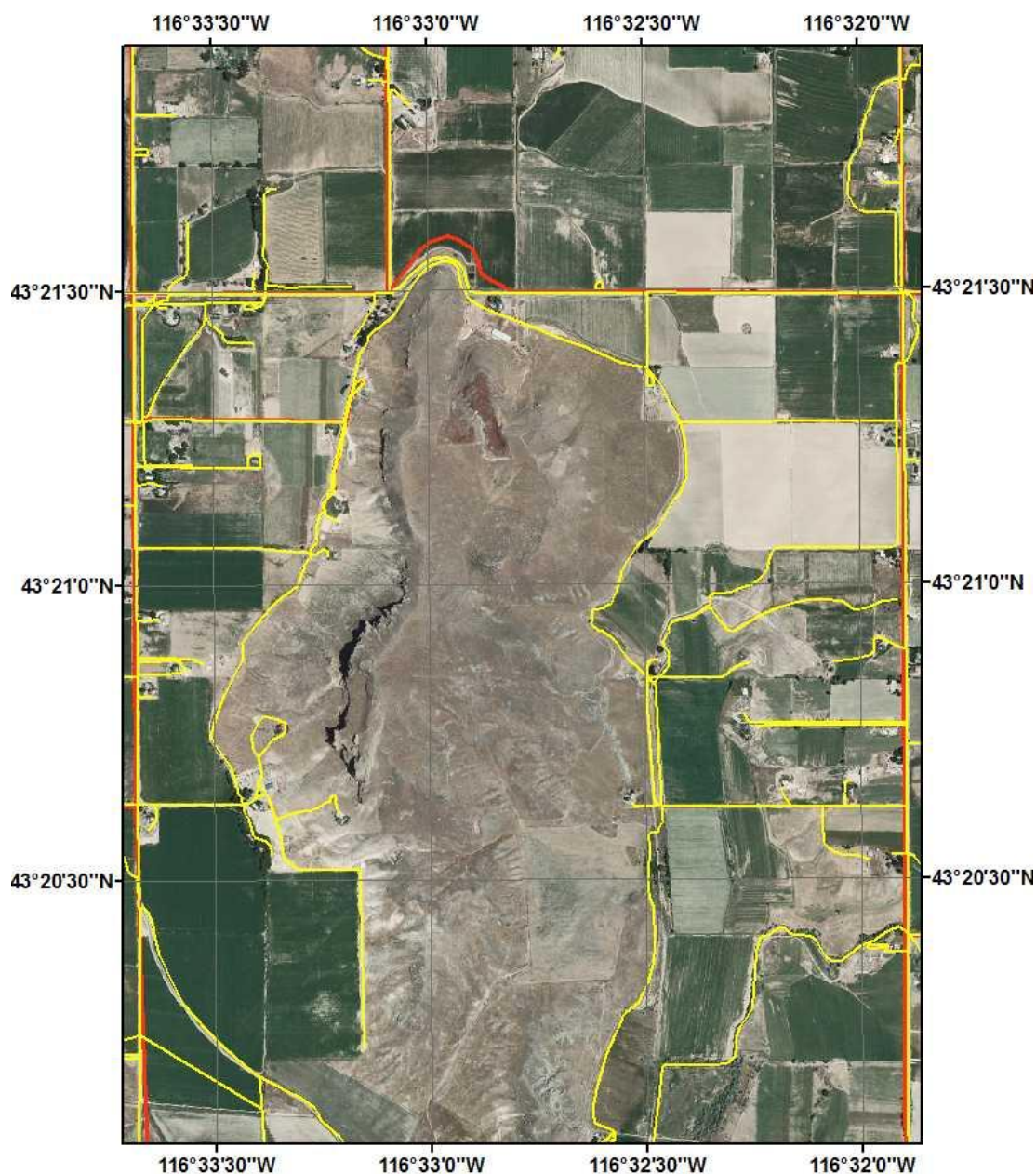
FalconCrestGolfCourse.jpg, a portion of Cloverdale (Ada County) and Mora (Ada County), ID quadrangles below, proves that any dataset may be truly out-of-date when compared with a newer source. The access road to The access road to the golf course southeast of Hubbard Reservoir is missing on both the Census dataset and the INSIDE Idaho dataset.

FalconCrestGolfCourse.jpg
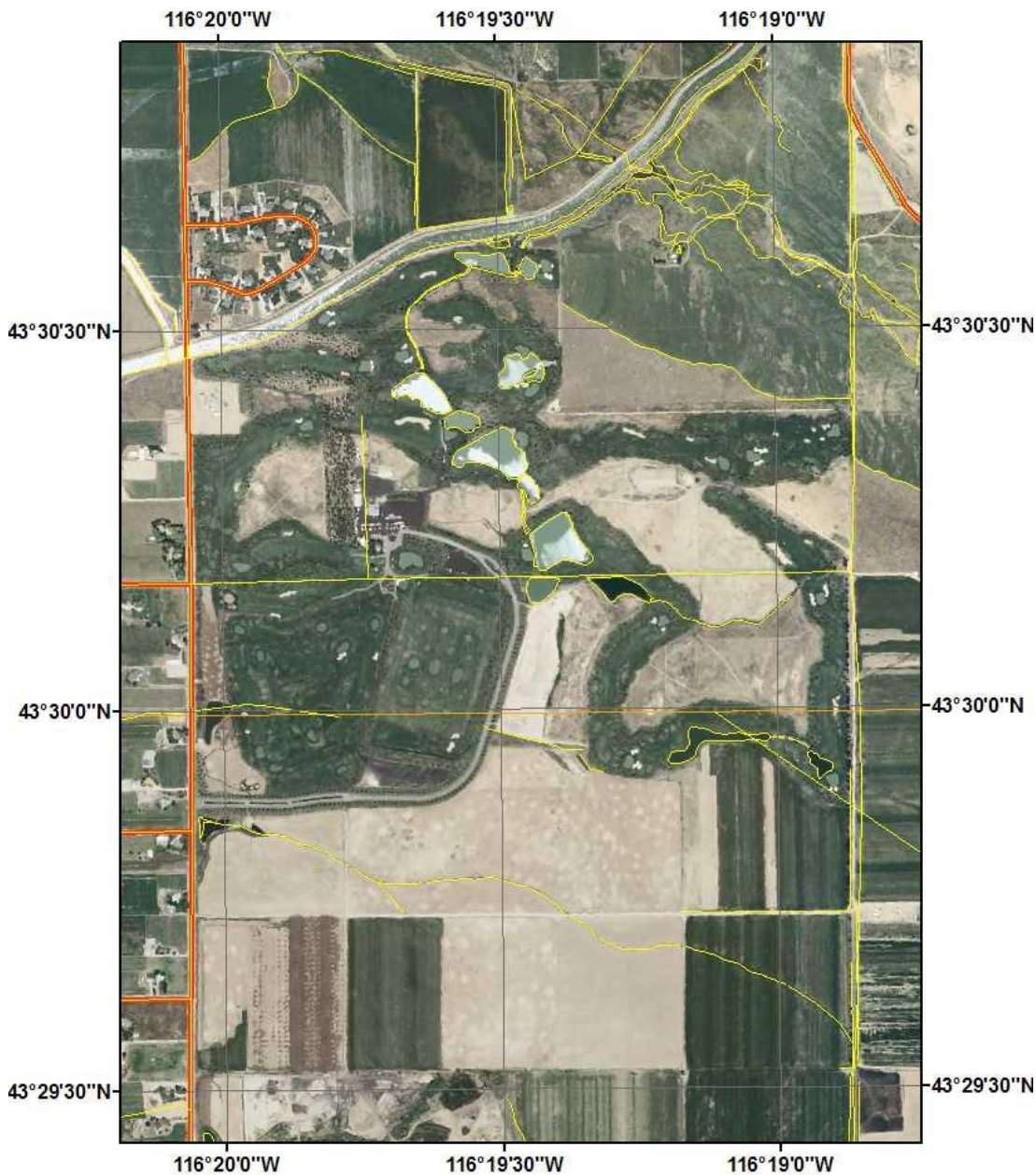
FarmwayVillage.jpg, a portion of Caldwell (Canyon County), ID quadrangle below, shows the missing roads within the residential development, once called the USDA Farm Family Labor Camp at Caldwell. Note that the roads existed in the Census dataset and on the older DRG but is not collected in the INSIDE Idaho dataset.

FarmwayVillage.jpg
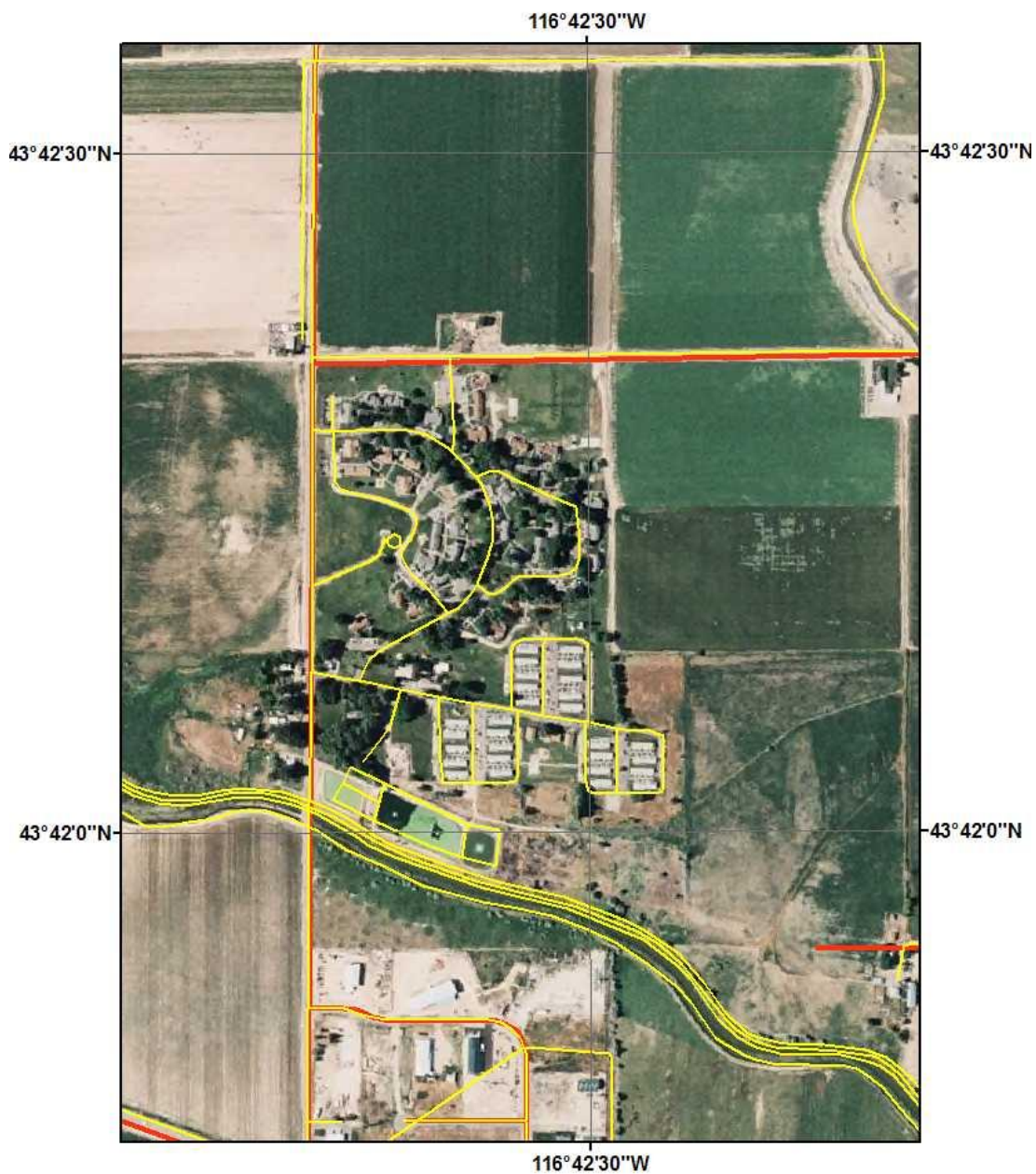
MorrisHillCemetery.jpg, a portion of Boise South (Ada County), ID quadrangle below, shows the missing roads within the cemetery near the center of Boise. Note that the roads existed on the DRG but is not collected in the INSIDE Idaho dataset.

MorrisHillCemetery.jpg
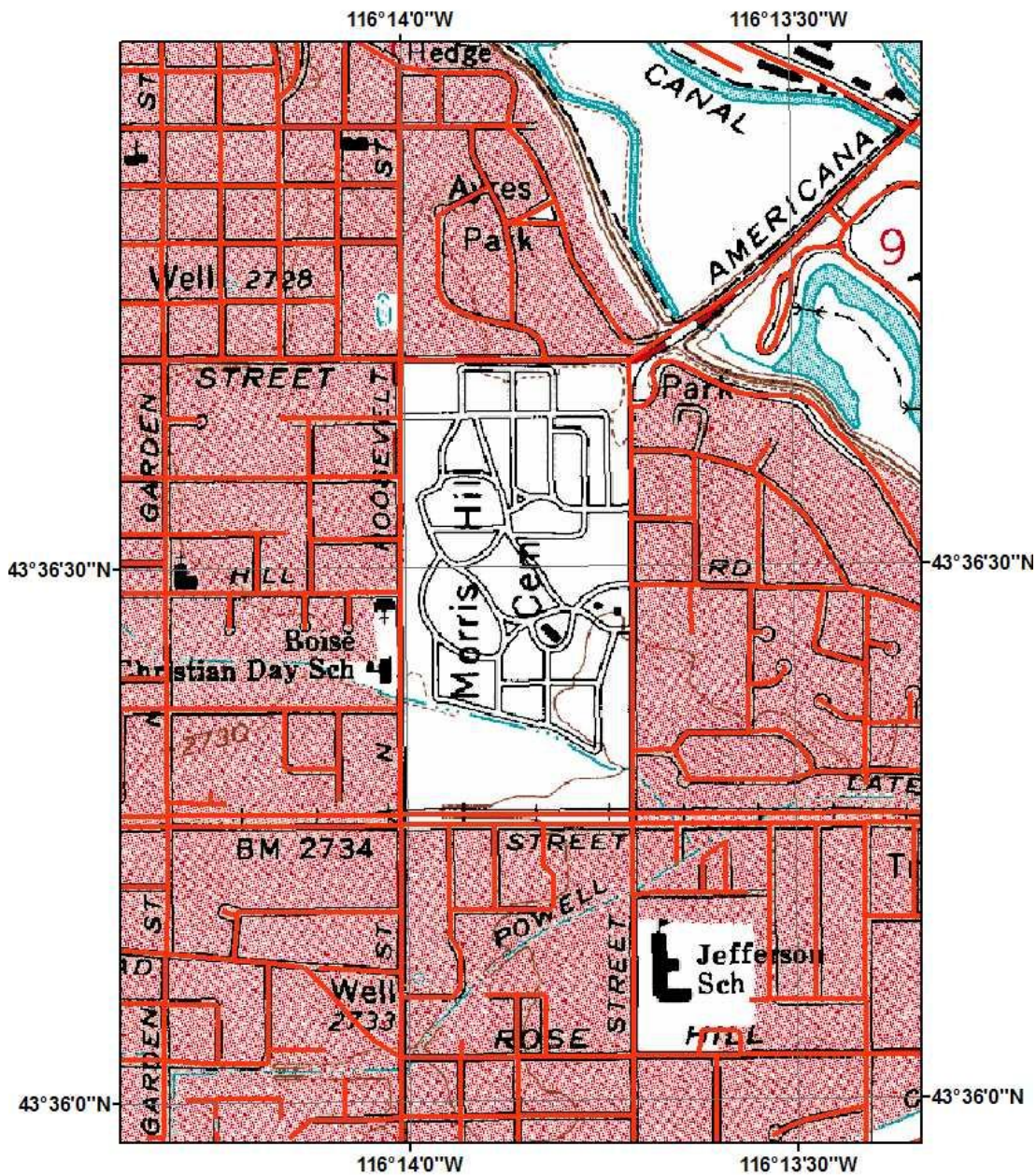
Nyssa.jpg, a portion of Nyssa (Canyon County) and Parma (Canyon County, ID quadrangles below, shows missing roads around the landing strip and north of US Highway 20/26. The roads exist in the Census dataset and can be clearly seen on the NAIP orthoimage but is not collected in the INSIDE Idaho dataset. Also note the gap in the highway north of the landing strip and the roads that do not join the features in Payette County,

Nyssa.jpg

AldapeSummit.jpg, a portion of Robie Creek (Ada County), ID quadrangle below, shows the missing road, which is needed to complete the road network in the adjacent Boise County, and missing jeep trail not collected in the INSIDE Idaho dataset. The features exist in the Census dataset and can be clearly seen on the NAIP orthoimage.
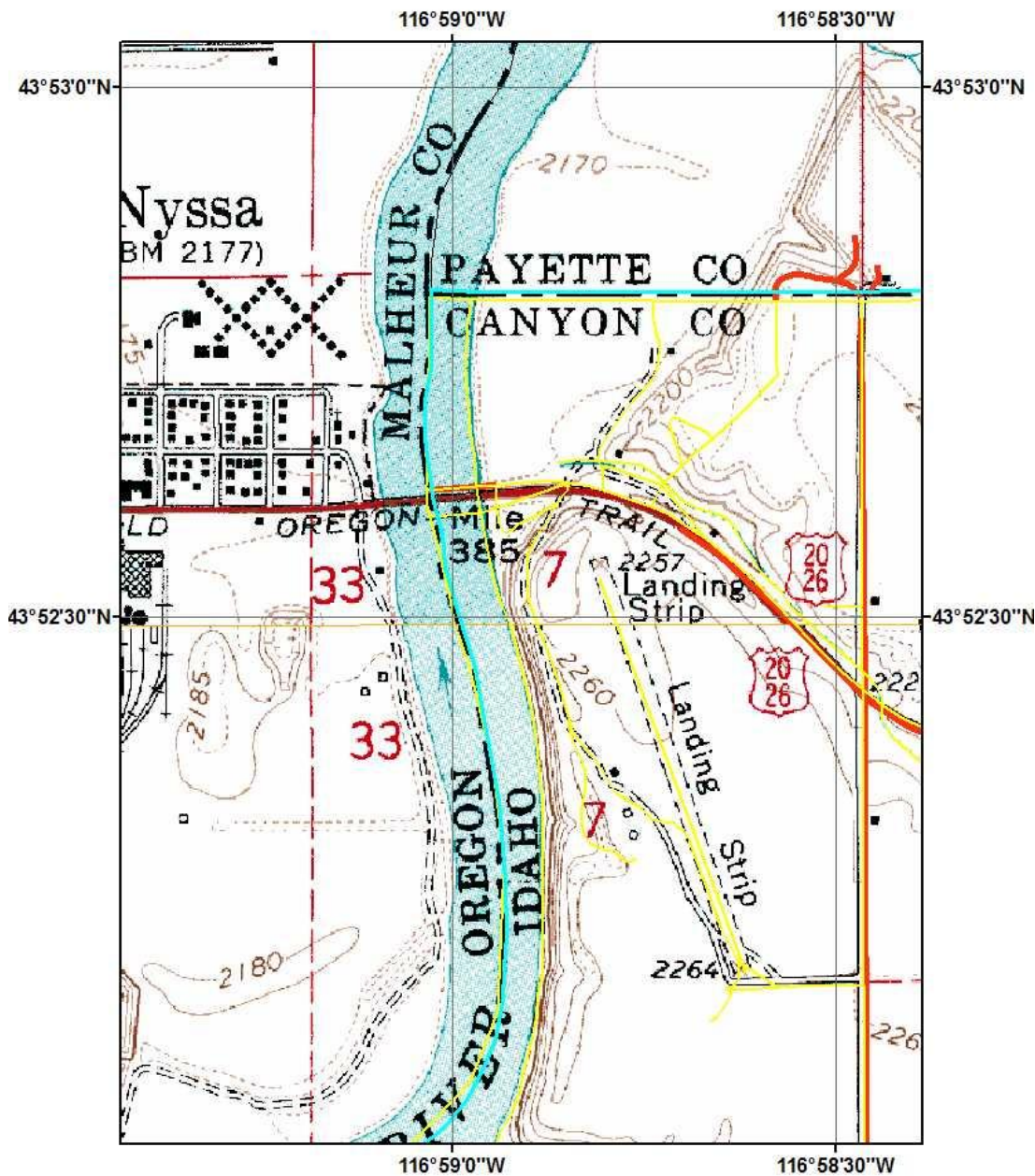
AldapeSummit.jpg

Riverside.jpg, a portion of Opalene Gulch (Canyon County), ID quadrangle below, shows the Census data generally more completely collected and also more accurately placed than the INSIDE Idaho dataset when compared with the orthoimage. Another visual inspection with the DRG also shows that the Census data is generally more completely collected and more accurately placed.

Riverside.jpg
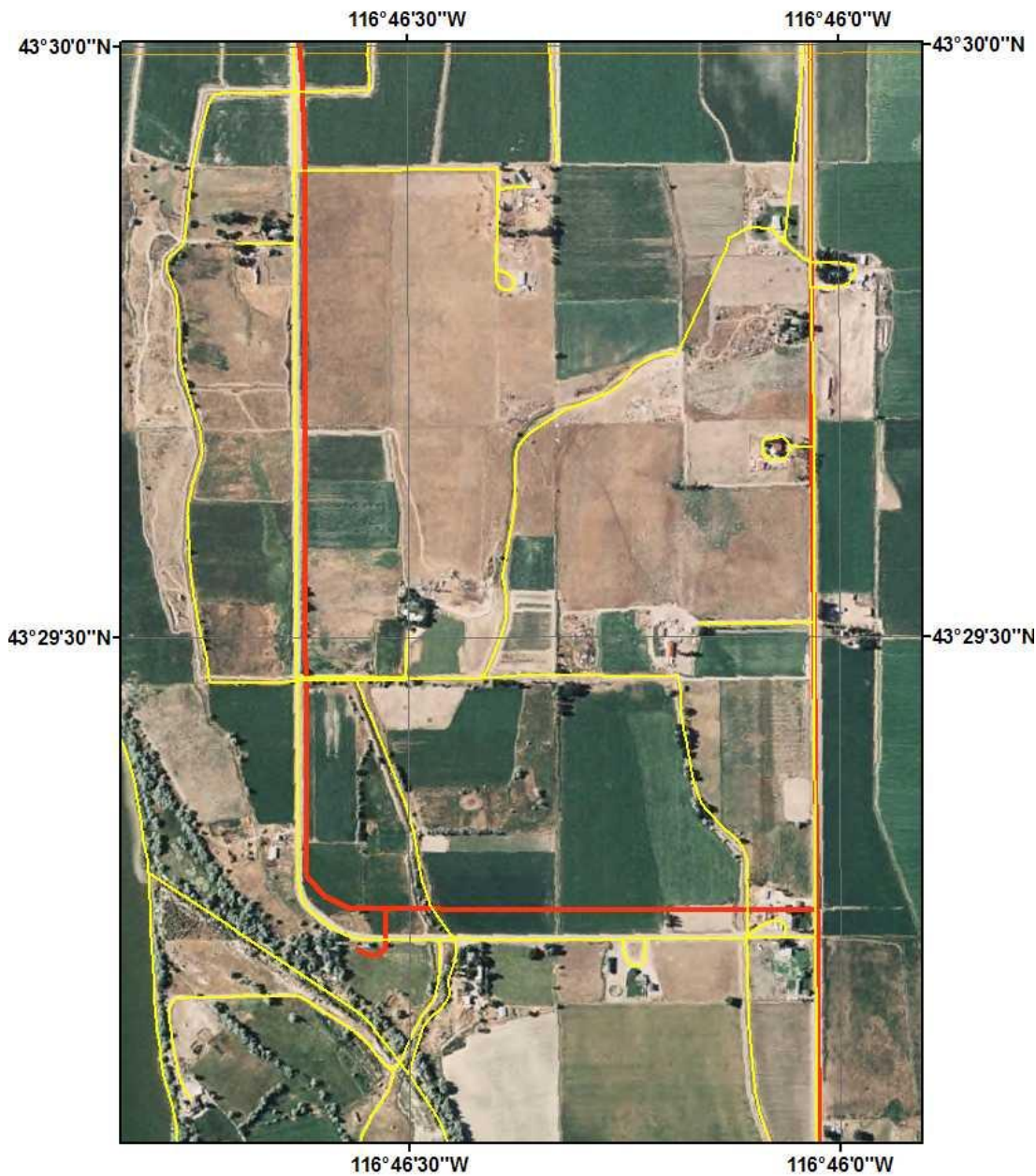
BigFootBar.jpg, a portion of Jackass Butte (Ada County), ID quadrangle below, shows roads within the Snake River Birds of Prey National Conservation Area that are missing in the INSIDE Idaho dataset in Ada County but collected in the Census data. Note that the Census data also joins the INSIDE Idaho dataset in Elmore County to the south. Features can be clearly seen in the orthoimage. Elmore County appears to have a different collection criteria than Ada County in the INSIDE Idaho dataset.

BigFootBar.jpg
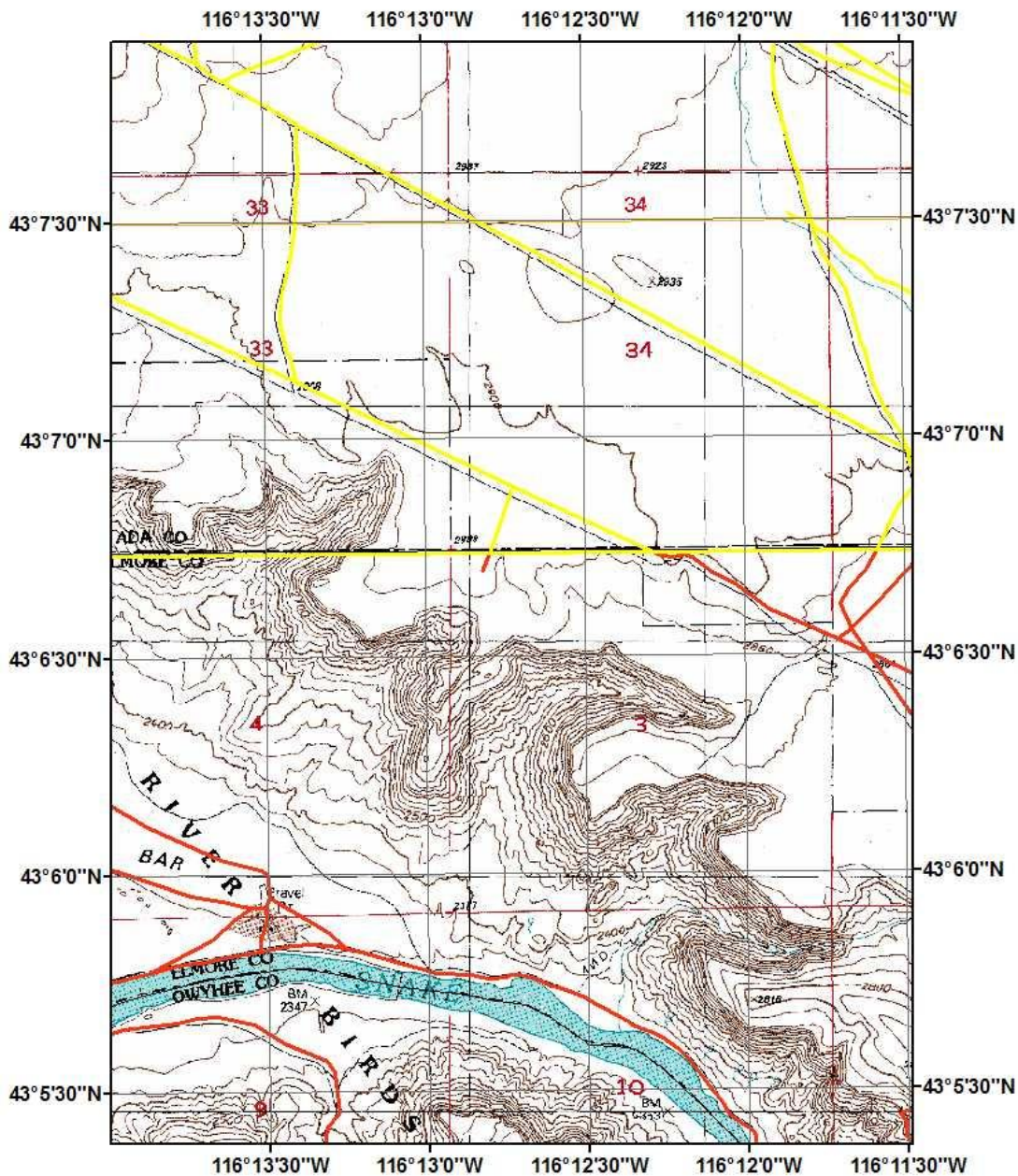
CountyJoin1.jpg, a portion of Middleton (Canyon and Ada counties), ID quadrangle below, shows the junction of Can Ada Road, Foothill Road and New Hope Road. There are six road features, which do not join between counties, collected to represent the four road segments. Can Ada Road, the north/south road and apparently the boundary line between the two counties, is duplicately collected and positionally different in each county. Note that the Canyon County version of Can Ada Road is more accurately placed than the Ada County version but still does not reflect the east/west jog at the junction as the orthoimage shows.

CountyJoin1.jpg

CountyJoin2.jpg. a portion of Kuna (Canyon and Ada counties), ID quadrangle below, shows the junction of McDermott Road, King Road and Bennett Road. There are seven road features, which do not join between the counties, collected to represent the four road segments. McDermott Road, the north/south road and apparently the boundary line between the two counties, is duplicately collected and positionally different in each county. Note that the Canyon County version of McDermott Road is more accurately placed than the Ada County version as the orthoimage shows, but the Ada County versions of the east/west roads are more accurately placed. Also note that Ada County extends a duplicate Bennett Road well into Canyon County.

CountyJoin2.jpg

<u>Attribution Characteristics</u>:

The statewide INSIDE Idaho dataset table has 510,691 lines and consists of 28 fields. The [NAME] field has the most information and lists the names or designations of highways, roads, streets, and trails. Associated with this field is the [NAME_SFX] field which lists the suffix of the name (like "Way", "St" or "Trl"). [PRE_DIR] and [POST_DIR] contain direction (like "N", "S", "E", or "W"). The full name can populate four fields. Attribute information is also maintained by the Idaho Transportation Integration Pilot Project Partners.

The Canyon and Ada portion of the Inside Idaho trans_road table is constructed as follows:

[FID]- sequence number
[Shape]- all records are "polyline"
[PRE_DIR]- "N", "S", "E", "W", or no record
[NAME]- see paragraph above
[NAME_SFX]- see paragraph above
[POST_DIR]- "N", "S", "E", "W", or no record
[SURF_TYPE]- all records are "0"
[SURF_DESC]- no record
[NUM_LANES]- all records are "0"
[SPEED]- 0 through 75 in 5 mph increments
[COMM_NAME]- community name associated with a zip code, or no record
[STATUS]- no record
[EDIT_DATE]- all records are "12:00:00 AM"
[LEN_FEET], [LEN_MILES], [LEN_METERS]- all records have numerical value or "0"
[FADD], [TADD]- all records have numerical value or "0"
[R_SIDE], [L_SIDE]- "odd", "even", or no record
[BMP], [EMP]- all records are "0"
[GIS_STEW]- GIS steward responsible for data
[LOCAL_ID]- numerical value or no record
[USE_RES]- "1", "2", or no record
[FUNC]- all records are "0"
[CARTO_TYPE]- "Interstate", "Local Road", "Seasonal Road", "State Highway", "U.S. Highway"

There are some editing considerations for the features in the Canyon and Ada portion of the INSIDE Idaho dataset to integrate into or correctly portray symbols in The National Map. The following addresses some of these issues, and continues by listing problems particular to each county.

- Bridges, valuable in any GIS, are not attributed in any way by using line segments or nodes to portray bridge abutment ticks. There are no listed under/overpassing attributes.

- Nearly all road features are named. Upper/lowercase spelling is used in Canyon County and all uppercase in Ada County.

- Road features have no useable records listed for the fields [SURF_TYPE], [SURF_DESC] and [FUNC].

- State or federal highways list route numbers only, like "Hwy 44", and not the state or federal designation. As these highways enter cities, towns or villages, route numbers are replaced by local road names like "Star Blvd".

Canyon County-

- 46 road features list records in the [NAME] field like "Exit 17 W on Ramp". 23 additional road features list the record "Ramp" in the [NAME] field.

- State and federal highways have line segments that define mileposts and list records in the [NAME] field like "Hwy 19 MP 10".

Ada County-

- 30 road features list records in the [NAME][NAME_SFX] fields as "PUBLIC ALLEY". 16 road features list records in the [NAME] field as "ALLEY".

- Interstate 184 is incorrectly attributed as Interstate 84 in downtown Boise.

- Railroads and airport runways are included in the INSIDE Idaho dataset.

County Joins:

Most county boundaries that delineate this two-county assessment area generally follow the Public Land Survey System except where the Snake River is the boundary. Roads that follow the county boundaries have been established since the PLSS was platted. Canyon and Ada counties both have numerous duplicate county boundary line road segments that appear in the INSIDE Idaho dataset. In most cases, these duplicate road segments are not positionally coincident and do not track alike. Roads can also extend into another county's jurisdiction. Though these roads extend as little as a few hundred meters, many Ada County roads extend into Canyon County nearly two miles. There are also road gaps and interpretation differences between the two counties as well as with the other adjoining counties. When inspecting the joins between Canyon and Ada and any other adjacent county, small gaps can be seen, particularly where three and four-way road junctions exist. Roads, in Canyon, Ada or any other adjacent county, can stop at the county boundary even though, on the orthoimagery or DRG, the road visibly crosses and proceeds to the adjoining county's road network.

To integrate this two-county area into The National Map, edits would be required to delete duplicate road segments, collect roads visible on the orthoimagery to preserve the road network, and snap, split and join existing road junctions to ensure a seamless join at any county boundary.

Conclusion:

When compared to the 2004 and 2006 NAIP digital orthoimagery, the USGS DRG's and the Census TIGER data, a thorough inspection of the Inside Idaho dataset shows that, in Canyon and Ada counties, excellent positional accuracy, concise imagery tracking and complete data collection is exhibited within or adjacent to cities, towns and villages, though it appears that collection criteria required collection of, generally, publicly-maintained roads only as many private or unmaintained roads and trails are missing from the dataset. In many areas within Canyon County, however, roads may have been collected from plats instead of the orthoimagery because it appears that roads track correctly along engineered straight sections of road but not at all road curves or road junctions. The consistency of content also appears to incrementally deteriorate as the road network extends further away from population centers into the rural areas and then into the more remote federal lands.

In Ada County, for example, particularly within the Snake River Birds of Prey National Conservation Area, it appears that there are many roads and 4wd trails that are visible on the orthoimagery and the DRG's that are not collected in the INSIDE Idaho dataset. The Census Tiger data may be a good option for filling in these areas where the INSIDE Idaho dataset is lacking content but always compare with the latest orthoimagery to determine if the road feature still exists, tracks the source correctly and is accurately placed. Also note the other issues listed in the previous pages that may cause difficulty when integrating the INSIDE Idaho dataset into The National Map.

See appendix on the next page for information about the North Idaho Transportation Integration Pilot Project Partners and others participating as data stewards in the statewide INSIDE Idaho dataset.

APPENDIX

The North Idaho Transportation Integration Pilot Project Partners, recorded as participants in the Idaho Geospatial Data Clearinghouse (INSIDE Idaho) roads_id_igdc.shp.xml metadata file and in the GIS_STEW(ard) field of roads_idgc.shp are listed below.

BONNERGIS
Bonner County, Idaho GIS

BOUNDARYGIS
Boundary County, Idaho GIS

CDATRIBE
Coeur d'Alene Tribe GIS

KCGIS
Kootenai County, Idaho GIS

MADREXGIS
Madison County/City of Rexburg, Idaho GIS

NPCGIS
Nez Perce County, Idaho GIS

NPTGIS
Nez Perce Tribe- Land Services GIS

USCB
U.S. Census Bureau

Other participants recorded in the GIS_STEW(ard) field of roads_idgc.shp, but not recorded in the roads_id_igdc.shp.xml metadata file as one of The North Idaho Transportation Integration Pilot Project Partners are listed below.

ADA_COUNTY
Ada County, Idaho GIS

Blaine
Blaine County, Idaho GIS

CCSheriff
Canyon County, Idaho Sheriff's Office

Caribou_GIS
Caribou County, Idaho GIS

JEFFERSONGIS
Jefferson County, Idaho Road and Bridge

LEMHICOGIS
Lemhi County, Idaho GIS