Layer Name:	County Routes		
Shapefile:	SDOT_CountyRoutes		
Layer Type:	Line		
Status:	Complete		
Geog. Extent:	Main Hawaiian Islands		
Projection:	Universal Trans Mercator, Zone 4 (Meters)		
Datum:	NAD 83		
Description:	DOT Road Inventory (County Routes) for the main Hawaiian islands.		
Source:	Received from State of Hawaii Dept. of Transportation, July, 2011		
History:	Prepared/Updated for State DOT, 2009		
	Originally published by/for State DOT in 2005		
	See SDOT_Routes_2005_Metadata.pdf for additional historical and processing information.		
Attributes:	Direction: Island Route_Name Route BMP: EMP: Facility_T Owner_Name ID1	+MP: Direction is from milepost 0 towards end of route -MP: Direction is from end of route towards milepost 0 Island Route Name(s) – may be more than one name in this field Official Route Number For DOT Internal Use For DOT Internal Use Route Type (e.g., Route, Contra-flow, Service, etc.) Owner Name For DOT Internal Use	
Contact:	Goro Sulijoadikusumo, Department of Transportation, State of Hawaii Phone: (808) 587-1839 Email: Goro.Sulijoadikusumo@hawaii.gov Joan Delos Santos, Office of Planning, State of Hawaii, PO Box 2359, Honolulu, Hi. 96804; (808) 587-2895. email: jdelos_santos@dbedt.hawaii.gov		

Layer Name:	Service and Other Roads		
Shapefile:	SDOT_ServiceAndOtherRoads		
Layer Type:	Line		
Status:	Complete		
Geog. Extent:	Main Hawaiian Islands		
Projection:	Universal Trans Mercator, Zone 4 (Meters)		
Datum:	NAD 83		
Description:	DOT Road Inventory (Service and Other Roads) for the main Hawaiian islands.		
Source:	Received from State of Hawaii Dept. of Transportation, July, 2011		
History:	Prepared/Updated for State DOT, 2009		
	Originally published by/for State DOT in 2005		
	See SDOT_Routes_2005_Metadata.pdf for additional historical and processing information.		
Attributes:	Direction: Island Route_Name Route BMP: EMP: Facility_T Owner_Name ID1	+MP: Direction is from milepost 0 towards end of route -MP: Direction is from end of route towards milepost 0 Island Route Name(s) – may be more than one name in this field Official Route Number For DOT Internal Use For DOT Internal Use Route Type (e.g., Route, Contra-flow, Service, etc.) Owner Name For DOT Internal Use	
Contact:	Goro Sulijoadikusumo, Department of Transportation, State of Hawaii Phone: (808) 587-1839 Email: Goro.Sulijoadikusumo@hawaii.gov Joan Delos Santos, Office of Planning, State of Hawaii, PO Box 2359, Honolulu, Hi. 96804; (808) 587-2895. email: jdelos_santos@dbedt.hawaii.gov		

Layer Name:	State Routes		
Shapefile:	SDOT_StateRoutes		
Layer Type:	Line		
Status:	Complete		
Geog. Extent:	Main Hawaiian Islands		
Projection:	Universal Trans Mercator, Zone 4 (Meters)		
Datum:	NAD 83		
Description:	DOT Road Inventory (State Routes) for the main Hawaiian islands.		
Source:	Received from State of Hawaii Dept. of Transportation, July, 2011		
History:	Prepared/Updated for State DOT, 2009		
	Originally published by/for State DOT in 2005		
	See SDOT_Routes_2005_Metadata.pdf for additional historical and processing information.		
Attributes:	Direction: Island Route_Name Route BMP: EMP: Facility_T Owner_Name ID1	+MP: Direction is from milepost 0 towards end of route -MP: Direction is from end of route towards milepost 0 Island Route Name(s) – may be more than one name in this field Official Route Number For DOT Internal Use For DOT Internal Use Route Type (e.g., Route, Contra-flow, Service, etc.) Owner Name For DOT Internal Use	
Contact:	Goro Sulijoadikusumo, Department of Transportation, State of Hawaii Phone: (808) 587-1839 Email: Goro.Sulijoadikusumo@hawaii.gov Joan Delos Santos, Office of Planning, State of Hawaii, PO Box 2359, Honolulu, Hi. 96804; (808) 587-2895. email: jdelos_santos@dbedt.hawaii.gov		

```
Identification Information:
     Citation:
           Citation Information:
                 Originator: Mandli Communications, Inc.
                 Publication Date: 1/28/2005
                 Title: AllIslands 1 28 2005
                 Geospatial Data Presentation Form: vector digital data
                 Online Linkage:
                       \\LARRYSLAP\C\Hawaii\ShapeFiles\OurBaseMaps
                       \ProjectedUTM\AllIslands 1 28 2005.shp
     Description:
           Abstract:
                 Data collected as part of the 2003-2004 Hawaii DOT
                 photolog project. GPS points were collected at 500 points
                 per mile in each direction. The two directions of a road
                 were run through a centerlining algorithm to produce one
                 centerlined trace running in the cardinal direction. The
                 data was then projected to UTM Zone 4N meters.
           Purpose:
                 The data in this map is used to update the current data
                 set to fix recent road realignments and generally provide
                 a data set with increased accuracy.
     Time Period of Content:
           Time Period Information:
                 Single Date/Time:
                       Calendar Date: 1/28/2005
           Currentness Reference: publication date
     Status:
           Progress: Complete
           Maintenance and Update Frequency: As needed
     Spatial Domain:
           Bounding Coordinates:
                 West Bounding Coordinate: -159.780860
                 East Bounding Coordinate: -154.757404
                 North Bounding Coordinate: 22.228112
                 South Bounding Coordinate: 18.897858
     Keywords:
           Theme:
                 Theme Keyword: Hawaiian Islands
                 Theme Keyword: road base map
           Place:
                 Place Keyword: State of Hawaii
                 Place Keyword: Main Hawaiian Islands
                 Place Keyword: Kauai
                 Place Keyword: Oahu
                 Place Keyword: Molokai
                 Place Keyword: Lanai
```

```
Place Keyword: Maui
                 Place Keyword: Hawaii
     Access Constraints: None
     Use Constraints:
           There are no expressed warranties associated with the release
           of these databases. Specifically, no warranty is made that the
           GIS data or any subsequent updates will be error free and no
           warranty is made regarding the positional or thematic accuracy
           of the GIS data. The GIS data and any features it depicts do
           not represent or confer any legal rights, privileges, benefits,
           boundaries or claims of any kind.
           The State of Hawaii encourages GIS data users to verify the
           suitability of the data before use. Please report any
           discrepancies or errors found to Higways Division.
     Point of Contact:
           Contact Information:
                 Contact Person Primary:
                       Contact Person: Larry Mattke
                       Contact Organization: Mandli Communications, Inc.
                 Contact Position: GIS Manager
                 Contact Voice Telephone: 608-835-3500
                 Contact Facsimile Telephone: 608-835-7891
                 Contact Electronic Mail Address: lmattke@mandli.com
                 Hours of Service: 8:30am - 5:00pm CST/CDT
     Data Set Credit: State of Hawaii, Highways
     Native Data Set Environment:
           Microsoft Windows 2000 Version 5.1 (Build 2600) Service Pack 2;
           ESRI ArcCatalog 8.2.0.700
Data Quality Information:
     Attribute Accuracy:
           Attribute Accuracy Report: Good - Attribute accuracy verified
           using existing data
     Completeness Report: Complete for main hawaiian islands
     Positional Accuracy:
           Horizontal Positional Accuracy:
                 Horizontal Positional Accuracy Report: Accurate within
                 1-5 meters RMS horizontal and vertical.
           Vertical Positional Accuracy:
                 Vertical Positional Accuracy Report: Accurate within 1-5
                 meters RMS horizontal and vertical
     Lineage:
           Process Step:
```

Process Description:

Data collected as part of the 2003-2004 Hawaii DOT photolog project.

The GPS/ Inertial Device used for data gathering collected data according to the WGS 84 ellipsoid. Dual GPS antennas and receivers were used to gain positional accuracy. Real time differential correction was applied to all data using an OmniStar South American satellite subscription. The elevation (altitude) values are in reference to the GEOID99 ellipsoid. Values listed are approximately 18-19 m higher than the sea level elevation, with the actual difference depending on the lat/long position. This concept is explained at the GEOID99 web site: http://www.ngs.noaa.gov/GEOID/GEOID99/>.

The device assigned a GPS point every half second (2 Hz). Images were collected at 500 points per mile in each direction. GPS points are assigned to each image using linear interpolation along the collected 2 Hz points.

In areas of low satellite visibility, the inertial system continued to produce accurate data points, based on gyro and DMI data. The positional accuracy during a 60 second GPS outage is < 1.5 m RMS. True heading and pitch/roll accuracy of the unit are both < 0.02 deg for real-tim DGPS.

The two directions of a road were run through a centerlining algorithm to produce one centerlined trace running in the cardinal direction. The route ends were adjusted to eliminate intersections gaps and overshoots. The data was then projected to UTM Zone 4N meters.

Spatial_Data_Organization_Information: Direct_Spatial_Reference_Method: Vector Point_and_Vector_Object_Information: SDTS Terms Description:

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SDTS Point and Vector Object Type: String
                 Point and Vector Object Count: 830
Spatial_Reference Information:
     Horizontal Coordinate System Definition:
           Planar:
                 Grid Coordinate System:
                       Grid Coordinate System Name: Universal Transverse
                       Mercator
                       Universal Transverse Mercator:
                             UTM Zone Number: 4
                             Transverse Mercator:
                                   Scale Factor at Central Meridian:
                                   0.999600
                                   Longitude of Central Meridian:
                                   -159.000000
                                   Latitude of Projection Origin: 0.000000
                                   False Easting: 500000.000000
                                   False Northing: 0.000000
                 Planar Coordinate Information:
                       Planar Coordinate Encoding Method: coordinate pair
                       Coordinate Representation:
                             Abscissa Resolution: 0.001024
                             Ordinate Resolution: 0.001024
                       Planar Distance Units: meters
           Geodetic Model:
                 Horizontal Datum Name: North American Datum of 1983
                 Ellipsoid Name: Geodetic Reference System 80
                 Semi-major Axis: 6378137.000000
                 Denominator of Flattening Ratio: 298.257222
Entity and Attribute Information:
     Detailed Description:
           Entity Type:
                 Entity Type Label: AllIslands 1 28 2005
           Attribute:
                 Attribute Label: FID
                 Attribute Definition: Internal feature number.
                 Attribute Definition Source: ESRI
                 Attribute Domain Values:
                       Unrepresentable Domain:
                             Sequential unique whole numbers that are
                             automatically generated.
           Attribute:
                 Attribute Label: Shape
                 Attribute Definition: Feature geometry.
                 Attribute Definition Source: ESRI
```

```
Attribute Domain Values:
                       Unrepresentable Domain: Coordinates defining the
                       features.
           Attribute:
                 Attribute_Label: ROUTE_NAME
           Attribute:
                 Attribute_Label: ISLAND
           Attribute:
                 Attribute Label: ROUTE
           Attribute:
                 Attribute Label: OWNERSHIP
           Attribute:
                 Attribute Label: BMP
           Attribute:
                 Attribute Label: EMP
           Attribute:
                 Attribute Label: TLENGTH
     Overview Description:
Distribution Information:
     Resource Description: Centerline Road Coverage
     Standard Order Process:
           Digital Form:
                 Digital Transfer Information:
                       Transfer Size: 14.082
Metadata Reference Information:
    Metadata Date: 20050324
    Metadata Contact:
           Contact Information:
                 Contact Organization Primary:
                       Contact Organization: Mandli Communications, Inc.
                       Contact Person: Larry Mattke
                 Contact Position: GIS Manager
                 Contact Address:
                       Address Type: mailing and physical address
                       Address: 535 Oakwood Drive
                       City: Oregon
                       State or Province: WI
                       Postal Code: 53575
                       Country: USA
                 Contact Voice Telephone: 608-835-3500
                 Contact Facsimile Telephone: 608-835-7891
                 Contact Electronic Mail Address: lmattke@mandli.com
                 Hours of Service: 8:30 am - 5:00 pm CST/CDT
    Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial
    Metadata
```