ODOT Crash_Geodatabase_Guidelines.docx

This document explains the use and settings for Crash Geodatabases prepared by ODOT's GIS Unit and supported by the Crash Analysis & Reporting Unit.

The geodatabases are developed in ArcGIS using the NAD 1983 Oregon Statewide Lambert Feet Int'l projected coordinate system, in Lambert Conformal Conic.

ROAD NETWORK
Crashes are snapped to OR-Trans linework. Older crashes were snapped to the vintage of OR-Trans for the year in which the crash was entered into our data system. *If you use a newer version of OR-Trans or a different road network layer, crash points may not fall exactly upon your linework.* We recommend using a buffer of about 3 feet to place crash points on linework.

GEODATABASE TABLES
When you connect to the geodatabase, you should see the four tables bulleted below, and their related classes. If you intend to analyze vehicle-specific or participant-specific data, you must add all four tables (not the "related classes") to your map document. If you intend to analyze only crash locations, you need only add the "crash" table to your map document. The table names are:

- crashes: This is the parent table, containing location information for all crashes.
- crashes_PARTIC_NON_VHCL: This table contains records for all "non-motorists" (i.e., pedestrians, bicyclists, etc.).
- crashes_VHCL: This table contains all vehicle records.
- crashes_PARTIC_VHCL: This table contains all records for participants who were "vehicle occupants".

SETTINGS
After you've added the tables to your map document, the following changes should be made to the Field properties of each table, for the records to display logically when you view crash details using the "Identify" tool (ordered by Crash ID, vehicle number and participant number).

1) "**crashes**" table
   - Right click the table and select "**Properties**"
   - In the Layer Properties window, click the "**Display**" tab
   - In the Display Expression "**Field**" drop-down box, select "**CRASH ID**"
   - Click "OK"

2) "**crashes_PARTIC_NON_VHCL**" table (non-motorist records)
   - Right click the table and select "**Properties**".
   - In the Layer Properties window, click the "**Display**" tab.
   - In the Display Expression "**Field**" drop-down box, select "**Partic Vehicle Seq No**".
     - ▶ Because there's no vehicle associated with this record, the number will be **zero**. This identifies the participant record as a **non-motorist**.
     - ▶ Alternatively, you could select "" to see the sequential number assigned to this participant in relation to other participants in the crash.
   - Click "OK"

3) "**crashes_VHCL**" table
- Right click the table and select "**Properties**"
- In the Layer Properties window, click the "**Display**" tab
- In the Display Expression "**Field**" drop-down box, select "**Vehicle No**".
- Click "OK"

4) **crashes_PARTIC_VHCL**
- Right click the table and select "**Properties**"
- In the Layer Properties window, click the "**Display**" tab
- In the Display Expression "**Field**" drop-down box, select "**Partic Vehicle Seq No**".
  - ▶ This will sort the vehicle occupant records within a given vehicle.
  - ▶ Alternatively, you could select "**Partic Display Seq No**" to see the sequential number assigned to this participant in relation to other participants in the crash.
- Click "OK"

INTERPRETING CRASH LOCATIONS

The city and county values are harvested from our GISU's polygons, which are updated annually from tax-lot data received from the Oregon Department of Revenue. The codes are validated against our Road Inventory and Classification data, and discrepancies are reviewed.

Conflicts can occur when city or county boundaries run down the road centerline, or along the roadsides, but the road linework or city/county polygons don't match the aerial imagery of the centerline or road edges. For discrepancies at county borders, we refer to the Public Road Inventory data to assign the crash.

Our crash data technicians follow complex rules to pinpoint crash location, in relation to the city, county, intersections or road segment. The crash point placement *does not always represent* the actual crash location, particularly for intersectional crashes that occurred outside the center of the intersection. To de-code the crash location, review the data in all fields listed below. Rules for Distance, Direction, and Location of Impact differ depending on the road jurisdiction (highway, county road, city street). Kindly refer to the crash Code Manual for that information.

Fields for determining crash location:

CRASH table
- Street and Intersecting Street
- Character of Road
- Distance from Nearest Intersection
- Direction from Nearest Intersection
- Crash Type
- Collision Type
- Location of Impact

VEHICLE table

- Vehicle Movement Code
- Vehicle Direction "From"
- Vehicle Direction "To"

PARTIC table (to determine where a non-motorist was struck as the first harmful event)
- Non-Motorist Movement Code
- Non-Motorist Direction "From"
- Non-Motorist Direction "To"
- Non-Motorist Location

(continued)

DEFAULT UNLOCATABLE CRASH POINTS
"Unlocatable crashes" are crashes that can't be snapped to a road network because:
- either the crash report didn't provide enough information to identify the location of the crash, or
- linework didn't exist in the OR-Trans layer we used for geocoding crash points at the time the case was coded.

We deliberately select a default coordinate for these crashes and call them Default Unlocatable Crash Points.

These default crash points are placed off the road network but still inside the local jurisdiction in which the crash occurred. *This is why you'll find clusters of crash points that are unrelated to each other, placed somewhere off the road network* for the given jurisdiction: within a city, county, or urban area. To display these records, use this definition query UNLOCT_FLG = 1.

The following situations will result in a crash point being placed at a default location.
- Crashes that occurred on a highway or mile-pointed county road at an unknown mile-point (MP = 999.99)
- Local road crashes where the nearest intersecting street or mile-point is unknown
- City street crashes where the distance and/or direction from the nearest intersecting street is unknown

CODE MANUAL
the "Motor Vehicle Traffic Crash Analysis & Coding Manual" can be found in the Crash Data Tools and Products section on the Crash Statistics and Reports web page. The manual serves as a data dictionary for coded crash data.

CDS Database Changes
Changes or additions to fields, codes, and database tables over the years are listed in the "Crash Data System Database Changes" in the Crash Data Tools and Products section on the Crash Statistics and Reports web page. Because database expansion, conversion, and enhancements occur on an ongoing basis, data for recent years is not always comparable to data from many years prior. The physical road network across the State changes annually in many areas due to construction, jurisdictional transfers, natural events such as landslides that require re-routing of highways, etc. Legislation and national

safety hot topics may influence the data that is collected. For these reasons, care must be taken when comparing historic data.

CAR UNIT CONTACTS
For questions on crash coding, call [Kimberlee Ward](#) at (503)986-4240.

For questions related to the crash geodatabases or shapefiles, call [Theresa Heyn](#) at (503) 986-4233.