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Abstract
This document is a volume within the Forest Inventory and Analysis (FIA) Supplemental Guides series. This guide, **Urban Database Tables (available from Spatial Data Services)**, describes supplemental database tables that are not available in the Urban Forest Inventory and Analysis Database (Urban FIADB) because of the FIA data confidentiality policy.

Each attribute in a database table is listed with its column name, unabbreviated descriptive name, and a detailed description of the attribute. Attributes that are coded include a list of the codes and their meanings.

Users needing this type of information should contact the FIA Spatial Data Services (SDS) team by following the instructions provided at the following web address: https://www.fia.fs.usda.gov/tools-data/spatial/.

**Keywords:**
Urban, Forest Inventory and Analysis, inventory database, supplemental guide, user manual, user guide, monitoring, Spatial Data Services

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Supplemental Guide Updates

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</tr>
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Update highlights

This section summarizes updates to this document.
Table A: Addition of table and column descriptions to this user guide (these tables are no longer available in the Urban FIADB because of the FIA data confidentiality policy).

<table>
<thead>
<tr>
<th>Section</th>
<th>Database table</th>
<th>Oracle table name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2</td>
<td>Reference Building Distance Table</td>
<td>REF_BUILDINGDISTANCE</td>
<td>This table stores reference data for the DISTANCE_CD attribute. Code for this attribute indicates the distance between a sampled tree and a building.</td>
</tr>
<tr>
<td>3.3</td>
<td>Reference Offset Point Table</td>
<td>REF_OFFSETPOINT</td>
<td>This table stores reference data for the OFFSET_POINT attribute. Code for this attribute identifies which offset point was used as a reference for a given measurement.</td>
</tr>
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<th>Old URL address</th>
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<tbody>
<tr>
<td>Urban FIA - Program</td>
<td><a href="https://www.fia.fs.fed.us/program-features/urban/">https://www.fia.fs.fed.us/program-features/urban/</a></td>
<td><a href="https://www.fia.fs.usda.gov/program-features/urban/">https://www.fia.fs.usda.gov/program-features/urban/</a></td>
</tr>
<tr>
<td>FIA - Northern Research Station</td>
<td><a href="https://www.nrs.fs.fed.us/fia/">https://www.nrs.fs.fed.us/fia/</a></td>
<td><a href="https://www.nrs.fs.usda.gov/fia/">https://www.nrs.fs.usda.gov/fia/</a></td>
</tr>
</tbody>
</table>
Features within this document

- Revision dates -
  - **Title page** - The revision date, which is referred to as the "edition" for this supplemental guide, is listed on the first page of the "Table of Contents." This date does not correspond to the release date for a particular version of an FIA database or a field guide. This allows for increased flexibility to provide additional updates to the supplemental guide that are independent of the timing of a database release.
  - **Sections** - The revision date listed in the header for a specific document section (e.g., chapter, appendix) is the date that the section was last revised. If a section was not updated since the previous supplemental guide version, the revision date in the header for that section will remain unchanged.

- **Reference Tables** - These tables contain supplementary reference data (e.g., values, codes, code descriptions) for various attributes (database table columns). Reference tables have the "REF_" prefix within the table name.

- **Index of Tables** - This section is an index of the database tables within this supplemental guide, sorted alphabetically by table name. This index includes a brief description for each table.

- **Index of Column Names** - This section is an index of the attributes, sorted alphabetically by column name, and identifies the name of the table where the column is found. This index also lists a section number for each attribute, which indicates the location for the attribute within this supplemental guide.

- **Blank cells in tables** - A double dash (--) in a table cell is equivalent to a blank cell and indicates that the cell does not contain any information.
Hard-copy printing

To print sections from this PDF document, it will be necessary to specify the continuous page number range for the desired section to be printed. The following table outlines the start page and end page for each document section. This guide is intended to be printed on both sides of the paper.

**Table C:** Page range for individual document sections (for hard-copy printing).

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<th>end page</th>
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</thead>
<tbody>
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<td>28</td>
</tr>
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<th>Heading</th>
</tr>
</thead>
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<tr>
<td>1.3</td>
<td>Oracle Data Types</td>
</tr>
</tbody>
</table>

1.1 Document Purpose

This document is a volume within the Forest Inventory and Analysis (FIA) Supplemental Guides series. This guide, Urban Database Tables (available from Spatial Data Services), describes supplemental database tables that are not available in the Urban Forest Inventory and Analysis Database (Urban FIADB) because of the FIA data confidentiality policy.

Each attribute in a database table is listed with its column name, unabbreviated descriptive name, and a detailed description of the attribute. Attributes that are coded include a list of the codes and their meanings.

Users needing this type of information should contact the FIA Spatial Data Services (SDS) team by following the instructions provided at the following web address: https://www.fia.fs.usda.gov/tools-data/spatial/.

This supplemental document and the Urban FIADB User Guides can be accessed at the following web address: https://www.fia.fs.usda.gov/library/database-documentation/. Refer to appendix A (Quick Links) for references to various websites.

1.2 Keys Presented with the Tables

For each table, a list of keys is located directly below the list of column names (attributes) located at the beginning of the section. These keys are used to join data from different tables. The following provides a general definition of each kind of key.

Primary key
A single column in a table whose values uniquely identify each row in an Oracle table. The primary key for most Urban FIADB tables is the sequence number (CN) column.

The name of the primary key for each table is listed in the table description. It follows the nomenclature of 'ENTITY_SHORTNAME'_PK.

The following list contains standard short names (aliases) for the database entities described in this document.
Table 1-1: Entity short names (aliases).

<table>
<thead>
<tr>
<th>ENTITY_NAME</th>
<th>ENTITY_SHORTNAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID_BOUNDARY</td>
<td>BND</td>
</tr>
<tr>
<td>ID_CLOSED_BOUNDARY</td>
<td>CBND</td>
</tr>
<tr>
<td>REF_BOUNDARY_CHANGE</td>
<td>RBC</td>
</tr>
<tr>
<td>REF_BUILDING_DISTANCE</td>
<td>RBD</td>
</tr>
<tr>
<td>REF_OFFSET_POINT</td>
<td>ROP</td>
</tr>
<tr>
<td>REF_PLOT_TYPE</td>
<td>RPT</td>
</tr>
</tbody>
</table>

**Unique key**
Multiple columns in a table whose values uniquely identify each entity represented by a row in an Oracle table. For example, each record in the Urban FIADB ID_PLOT table represents a distinct plot visit. Each plot visit is uniquely identified by PLOTID and VISIT_NBR. There can be one and only one row for each unique key value. The unique key varies for each Urban FIADB table.

The name of the unique key for each table is listed in the table description. It follows the nomenclature of 'ENTITY_SHORTNAME'_UK.

**Foreign key**
A column in a table that is used as a link to a matching column in another Oracle table.

A foreign key connects a record in one table to one and only one record in another table. Foreign keys are used both to link records between data tables and as a check (or constraint) to prevent "unrepresented data."

For example, to link rows of data in the Urban FIADB ID_TREE table for a specific plot to the ID_PLOT table, there needs to be a corresponding data row for that same plot in the ID_PLOT table. The attribute PLT_CN in the ID_TREE table is a foreign key that can be used to link specific rows in the ID_TREE table to one record in the ID_PLOT table using the plot attribute CN.

The name of each foreign key is listed in the table description. It follows the nomenclature of 'CHILD-ENTITY_SHORTNAME'_'PARENT-ENTITY_SHORTNAME'_FK. The 'child-entity_shortname' refers to the record functioning as a child of another record. This can follow a common pattern such as "one plot can be the parent of many child trees" (e.g., TRE_PLT_FK). The foreign key is usually supported by a primary key.
# 1.3 Oracle Data Types

<table>
<thead>
<tr>
<th>Oracle data type</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE</td>
<td>A data type that stores the date, typically in the format of MM/DD/YYYY.</td>
</tr>
<tr>
<td></td>
<td>This type can also be stored as a &quot;timestamp&quot; data type that stores both the date and time to the second. &quot;Date&quot; is in the format of MM/DD/YYYY. &quot;Time&quot; is in the format of HOUR:MINUTE:SECOND AM/PM. For example, '7/15/2018 1:58:01 PM' to indicate the date and time.</td>
</tr>
<tr>
<td>NUMBER</td>
<td>A data type that contains only numbers, positive or negative, with a floating-decimal point.</td>
</tr>
<tr>
<td>NUMBER(SIZE, D)</td>
<td>A data type that contains only numbers up to a specified maximum size. The maximum size (<em>and optional fixed-decimal point</em>) is specified by the value(s) listed in the parentheses.</td>
</tr>
<tr>
<td></td>
<td>For example, an attribute with a data type specified as &quot;NUMBER(2)&quot; indicates that the attribute may contain a maximum of 2 digits (<em>for example</em>, &quot;11&quot; or &quot;5&quot;), however, none of the digits are decimals. An attribute with a data type specified as &quot;NUMBER(3,1)&quot; may contain a maximum of 3 digits, however, the last digit is a fixed decimal (<em>for example</em>, &quot;4.0&quot; or &quot;12.7&quot;). Likewise, &quot;NUMBER(6,4)&quot; would indicate that an attribute may contain a maximum of 6 digits, however, the last 4 digits are part of a fixed decimal (<em>for example</em>, &quot;18.7200&quot;).</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> When needed, digits to the right of a fixed-decimal point are filled in with zero(s).</td>
</tr>
<tr>
<td>VARCHAR2(SIZE)</td>
<td>A data type that contains alphanumeric data (numbers and/or characters) up to a specified maximum size.</td>
</tr>
<tr>
<td></td>
<td>For example, an attribute with a data type specified as &quot;VARCHAR2(8)&quot; indicates that the attribute may contain a maximum of eight alphanumeric characters.</td>
</tr>
</tbody>
</table>
Chapter 2: Supplemental Urban Database Tables

Chapter Contents:

<table>
<thead>
<tr>
<th>Section</th>
<th>Database table</th>
<th>Oracle table name</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Boundary Table</td>
<td>ID_BOUNDARY</td>
</tr>
<tr>
<td>2.2</td>
<td>Closed Boundary Table</td>
<td>ID_CLOSED_BOUNDARY</td>
</tr>
</tbody>
</table>

Overview: Supplemental Urban Database Tables

This chapter provides supplemental documentation for FIA urban database tables that are not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the FIA Spatial Data Services (SDS) team by following the instructions provided at the following web address: https://www.fia.fs.usda.gov/tools-data/spatial/.

Figure 2-1 shows an Entity Relationship Diagram (ERD) for the boundary tables. This diagram depicts linkage to other tables in the Inventory Data table group using foreign key attributes.
Figure 2-1: Inventory data table group - boundary tables.
2.1 Boundary Table

Oracle table name: ID_BOUNDARY

The purpose of the ID_BOUNDARY table is to store boundary data collected during the field visit for a plot. Boundaries are used to delineate land conditions that intersect the plot footprint. There are two types of boundaries defined within the urban FIA field protocol: traditional and closed. This table stores traditional boundary data. Closed boundary data are stored in the ID_CLOSED_BOUNDARY table. Boundary data are the basis for the condition proportion unadjusted (CONDPROP_UNADJ) calculation stored in the subplot condition table (ID_SUBP_COND) in the Urban FIADB.

A traditional boundary is a straight line or a line with a single corner that describes the boundary between two land conditions on the plot footprint. This type of boundary is also used in the rural FIA inventory program. A closed boundary is a set of nodes that may or may not intersect the footprint boundary. It can describe a land condition that is entirely contained within the footprint of a given plot. For more information on the collection of boundary data, refer to the FIA National Urban Field Guide (see appendix A, Quick Links).

Note that boundary data are not populated for every plot visit. It is possible that the entire plot footprint falls within a single land condition and thus no boundaries between land conditions exist.

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Column name (attribute)</th>
<th>Descriptive name</th>
<th>Oracle data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.1</td>
<td>PLOTID</td>
<td>Plot identifier</td>
<td>INTEGER</td>
</tr>
<tr>
<td>2.1.2</td>
<td>VISIT_NBR</td>
<td>Visit number</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>2.1.3</td>
<td>STATECD</td>
<td>State code</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>2.1.4</td>
<td>UNITCD</td>
<td>Survey unit code</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>2.1.5</td>
<td>COUNTYCD</td>
<td>County code</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>2.1.6</td>
<td>RETIRED_PLOT</td>
<td>Retired plot number</td>
<td>NUMBER(5)</td>
</tr>
<tr>
<td>2.1.7</td>
<td>SUBP</td>
<td>Subplot/microplot identifier</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>2.1.8</td>
<td>SUBP_TYPE</td>
<td>Subplot/microplot type code</td>
<td>NUMBER(1)</td>
</tr>
<tr>
<td>2.1.9</td>
<td>CONTRAST</td>
<td>Contrasting condition class</td>
<td>NUMBER(1)</td>
</tr>
<tr>
<td>2.1.10</td>
<td>MAPPED_CONDITION</td>
<td>Mapped condition class</td>
<td>NUMBER(1)</td>
</tr>
<tr>
<td>2.1.11</td>
<td>BNDCHG</td>
<td>Boundary change code</td>
<td>NUMBER(1)</td>
</tr>
<tr>
<td>2.1.12</td>
<td>AZMLEFT</td>
<td>Left azimuth</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>2.1.13</td>
<td>AZMRIGHT</td>
<td>Right azimuth</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>2.1.14</td>
<td>AZMCORNER</td>
<td>Corner azimuth</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>2.1.15</td>
<td>DISTCORN</td>
<td>Corner distance</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>2.1.16</td>
<td>FIELD_PERCENT_AREA</td>
<td>Field percent area</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>2.1.17</td>
<td>OFFSET_POINT</td>
<td>Offset point</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>2.1.18</td>
<td>OFFSET_AZMLEFT</td>
<td>Offset left azimuth</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>2.1.19</td>
<td>OFFSET_AZMRIGHT</td>
<td>Offset right azimuth</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>Subsection</td>
<td>Column name (attribute)</td>
<td>Descriptive name</td>
<td>Oracle data type</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------</td>
<td>------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>2.1.20</td>
<td>OFFSET_AZMCORN</td>
<td>Offset corner azimuth</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>2.1.21</td>
<td>OFFSET_DISTCORN</td>
<td>Offset corner distance</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>2.1.22</td>
<td>CN</td>
<td>Boundary sequence number</td>
<td>INTEGER</td>
</tr>
<tr>
<td>2.1.23</td>
<td>PLT_CN</td>
<td>Plot sequence number</td>
<td>INTEGER</td>
</tr>
<tr>
<td>2.1.24</td>
<td>SBP_CN</td>
<td>Subplot sequence number</td>
<td>INTEGER</td>
</tr>
<tr>
<td>2.1.25</td>
<td>PREV_PLT_CN</td>
<td>Previous plot sequence number</td>
<td>INTEGER</td>
</tr>
<tr>
<td>2.1.26</td>
<td>CONTRAST_CND_CN</td>
<td>Contrasting condition sequence number</td>
<td>INTEGER</td>
</tr>
<tr>
<td>2.1.27</td>
<td>MAPPED_CND_CN</td>
<td>Mapped condition sequence number</td>
<td>INTEGER</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key type</th>
<th>Alias</th>
<th>Constraint column(s)</th>
<th>Table joins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>BND_PK</td>
<td>CN</td>
<td>N/A</td>
</tr>
<tr>
<td>Unique</td>
<td>BND_UK</td>
<td>PLOTID, VISIT_NBR, SUBP, CONTRAST, MAPPED_CONDITION, AZMLEFT, AZMRIGHT, AZMCORNER</td>
<td>N/A</td>
</tr>
<tr>
<td>Foreign</td>
<td>BND_PLT_FK</td>
<td>PLT_CN</td>
<td>ID_BOUNDARY.PLT_CN = ID_PLOT.CN</td>
</tr>
<tr>
<td>Foreign</td>
<td>BND_SBP_FK</td>
<td>SBP_CN</td>
<td>ID_BOUNDARY.SBP_CN = ID_SUBPLOT.CN</td>
</tr>
<tr>
<td>Foreign</td>
<td>BND_CNTST_CND_FK</td>
<td>CONTRAST_CND_CN</td>
<td>ID_BOUNDARY.CONTRAST_CND_CN = ID_COND.CN</td>
</tr>
<tr>
<td>Foreign</td>
<td>BND_MPPD_CND_FK</td>
<td>MAPPED_CND_CN</td>
<td>ID_BOUNDARY.MAPPED_CND_CN = ID_COND.CN</td>
</tr>
</tbody>
</table>

2.1.1 **PLOTID**  
*Plot identifier.* A unique identifier for the sampling point. This value has no interpretation beyond a unique identifier for a spot on the ground.

2.1.2 **VISIT_NBR**  
*Visit number.* An iterating counter recording the number of times the sampling point has been visited.

2.1.3 **STATECD**  
*State code.* A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census.

Refer to the *Urban FIADB User Guides: Database Description* volume, appendix B (State, Survey Unit, and County Codes) for codes (available at web address: https://www.fia.fs.usda.gov/library/database-documentation/).
2.1.4 **UNITCD**  
*Survey unit code.* The Forest Inventory and Analysis survey unit identification number. Survey units are groups of counties within States used to organize the population into logical groups for field logistics as well as for estimation purposes.

Refer to the *Urban FIADB User Guides: Database Description* volume, appendix B (State, Survey Unit, and County Codes) for codes (available at web address: https://www.fia.fs.usda.gov/library/database-documentation/).

2.1.5 **COUNTYCD**  
*County code.* The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census are used.

Refer to the *Urban FIADB User Guides: Database Description* volume, appendix B (State, Survey Unit, and County Codes) for codes (available at web address: https://www.fia.fs.usda.gov/library/database-documentation/).

2.1.6 **RETIRED_PLOT**  
*Retired plot number.* The retired plot number. This value no longer uniquely identifies the sampling point. It is retained for the purpose of compatibility with past data sets as well as the rural FIADB product.

2.1.7 **SUBP**  
*Subplot/microplot identifier.* The identity of the subplot or microplot. The national urban protocol includes five subplot elements (listed below).

**Codes: SUBP**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Urban subplot: 48.0-foot subplot centered on plot center (PC).</td>
</tr>
<tr>
<td>11</td>
<td>East microplot: 6.8-foot microplot located 12 feet from PC, 90 degrees.</td>
</tr>
<tr>
<td>12</td>
<td>South microplot: 6.8-foot microplot located 12 feet from PC, 180 degrees.</td>
</tr>
<tr>
<td>13</td>
<td>West microplot: 6.8-foot microplot located 12 feet from PC, 270 degrees.</td>
</tr>
<tr>
<td>14</td>
<td>North microplot: 6.8-foot microplot located 12 feet from PC, 360 degrees.</td>
</tr>
</tbody>
</table>

2.1.8 **SUBP_TYPE**  
*Subplot/microplot type code.* A code indicating whether the boundary data are for a subplot or microplot.

**Codes: SUBP_TYPE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Subplot boundary.</td>
</tr>
<tr>
<td>2</td>
<td>Microplot boundary.</td>
</tr>
</tbody>
</table>

2.1.9 **CONTRAST**  
*Contrasting condition class.* The condition class identifier (ID_COND.CONDID, Urban FIADB) for the condition that contrasts with the condition located at the subplot center (for boundaries on the subplot) or at the microplot center (for boundaries on the
microplot), i.e., the number for the condition class present on the other side of the boundary. CONID is a number that uniquely identifies each condition for the plot visit.

2.1.10 **MAPIED_CONDITION**  
**Mapped condition class.** The condition class identifier (ID_COND.CONID, Urban FIADB) for the condition that is being mapped. CONID is a number that uniquely identifies each condition for the plot visit.

2.1.11 **BNDCHG**  
**Boundary change code.** A code indicating the relationship between previously recorded and current boundary information. This code is only valid for remeasurement locations (ID_PLOT.KINDCD = 2, Urban FIADB).

Reference table: **REF_BOUNDARY_CHANGE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No change - Boundary is the same as indicated on plot map and/or data collected by a previous crew.</td>
</tr>
<tr>
<td>1</td>
<td>New boundary - New boundary, or boundary data has been changed to reflect an actual on-the-ground physical change resulting in a difference from the boundaries recorded.</td>
</tr>
<tr>
<td>2</td>
<td>Error correction - Boundary has been changed to correct an error from previous crew.</td>
</tr>
<tr>
<td>3</td>
<td>Changed variable definition - Boundary has been changed to reflect a change in variable definition.</td>
</tr>
</tbody>
</table>

2.1.12 **AZMLEFT**  
**Left azimuth.** The azimuth, to the nearest degree, from the subplot or microplot center to the farthest left point of the condition being mapped, where the boundary intersects the subplot or microplot perimeter.

2.1.13 **AZMRIGHT**  
**Right azimuth.** The azimuth, to the nearest degree, from subplot or microplot center to the farthest right point of the mapped condition, where the boundary intersects the subplot or microplot perimeter.

2.1.14 **AZMCORNER**  
**Corner azimuth.** The azimuth, to the nearest degree, from the subplot or microplot center to a corner or curve in a boundary. If a boundary is best described by a straight line between the two perimeter points, a value of 0 is recorded for AZMCORNER (0 = none).

2.1.15 **DISTCORN**  
**Corner distance.** The horizontal distance, to the nearest 1 foot, from the subplot or microplot center to a boundary corner point.

2.1.16 **FIELD_PERCENT_AREA**  
**Field percent area.** The percentage of the plot area within the mapped condition.
### 2.1.17 OFFSET_POINT

**Offset point.** A code indicating the location from which the boundary was measured for each subplot/microplot.

**Codes: OFFSET_POINT**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal position (subplot center).</td>
</tr>
<tr>
<td>1</td>
<td>North subplot offset point.</td>
</tr>
<tr>
<td>2</td>
<td>East subplot offset point.</td>
</tr>
<tr>
<td>3</td>
<td>South subplot offset point.</td>
</tr>
<tr>
<td>4</td>
<td>West subplot offset point.</td>
</tr>
<tr>
<td>110</td>
<td>Normal position of microplot 11 (center).</td>
</tr>
<tr>
<td>111</td>
<td>North microplot 11 offset point.</td>
</tr>
<tr>
<td>112</td>
<td>East microplot 11 offset point.</td>
</tr>
<tr>
<td>113</td>
<td>South microplot 11 offset point.</td>
</tr>
<tr>
<td>114</td>
<td>West microplot 11 offset point.</td>
</tr>
<tr>
<td>120</td>
<td>Normal position of microplot 12 (center).</td>
</tr>
<tr>
<td>121</td>
<td>North microplot 12 offset point.</td>
</tr>
<tr>
<td>122</td>
<td>East microplot 12 offset point.</td>
</tr>
<tr>
<td>123</td>
<td>South microplot 12 offset point.</td>
</tr>
<tr>
<td>124</td>
<td>West microplot 12 offset point.</td>
</tr>
<tr>
<td>130</td>
<td>Normal position of microplot 13 (center).</td>
</tr>
<tr>
<td>131</td>
<td>North microplot 13 offset point.</td>
</tr>
<tr>
<td>132</td>
<td>East microplot 13 offset point.</td>
</tr>
<tr>
<td>133</td>
<td>South microplot 13 offset point.</td>
</tr>
<tr>
<td>134</td>
<td>West microplot 13 offset point.</td>
</tr>
<tr>
<td>140</td>
<td>Normal position of microplot 14 (center).</td>
</tr>
<tr>
<td>141</td>
<td>North microplot 14 offset point.</td>
</tr>
<tr>
<td>142</td>
<td>East microplot 14 offset point.</td>
</tr>
<tr>
<td>143</td>
<td>South microplot 14 offset point.</td>
</tr>
<tr>
<td>144</td>
<td>West microplot 14 offset point.</td>
</tr>
</tbody>
</table>

### 2.1.18 OFFSET_AZMLEFT

**Offset left azimuth.** The azimuth, to the nearest degree, from the offset point to the farthest left point of the condition being mapped, where the boundary intersects the subplot or microplot perimeter.

### 2.1.19 OFFSET_AZMRIGHT

**Offset right azimuth.** The azimuth, to the nearest degree, from the offset point to the farthest right point of the condition being mapped, where the boundary intersects the subplot or microplot perimeter.
2.1.20 **OFFSET_AZMCORN**
Offset corner azimuth. The azimuth, to the nearest degree, from the offset point to a corner or curve in a boundary. If a boundary is best described by a straight line between the two perimeter points, a value of 0 is recorded for OFFSET_AZMCORN (0 = none).

2.1.21 **OFFSET_DISTCORN**
Offset corner distance. The horizontal distance, to the nearest 1 foot, from the offset point to a boundary corner point.

2.1.22 **CN**
Boundary sequence number. A unique sequence number used to identify the boundary record (in ID_BOUNDARY).

2.1.23 **PLT_CN**
Plot sequence number. Foreign key linking the boundary record to the plot visit record (ID_BOUNDARY.PLT_CN = ID_PLOT.CN).

2.1.24 **SBP_CN**
Subplot sequence number. Foreign key linking the boundary record to the subplot record (ID_BOUNDARY.SBP_CN = ID_SUBPLOT.CN).

2.1.25 **PREV_PLT_CN**
Previous plot sequence number. The sequence number (CN) linking the boundary record to the previous plot visit record (ID_BOUNDARY.PREV_PLT_CN = ID_PLOT.CN).

2.1.26 **CONTRAST_CND_CN**
Contrasting condition sequence number. Foreign key linking the boundary record to the contrasting condition record (ID_BOUNDARY.CONTRAST_CND_CN = ID_COND.CN). The record in the ID_COND table is for the condition that contrasts with the condition at subplot/microplot center.

2.1.27 **MAPPED_CND_CN**
Mapped condition sequence number. Foreign key linking the boundary record to the mapped condition record (ID_BOUNDARY.MAPPED_CND_CN = ID_COND.CN). The record in the ID_COND table is for the condition that is being mapped.
2.2 Closed Boundary Table

*Oracle table name: ID_CLOSED_BOUNDARY*

The purpose of the ID_CLOSED_BOUNDARY table is to store closed boundary data collected during the field visit for a plot. Boundaries are used to delineate land conditions that intersect the plot footprint. There are two types of boundaries defined within the urban FIA field protocol: traditional and closed. This table stores closed boundary data. Traditional boundary data are stored in the ID_BOUNDARY table. Boundary data are the basis for the condition proportion unadjusted (CONDPROP_UNADJ) calculation stored in the subplot condition table (ID_SUBP_COND) in the Urban FIADB.

A **traditional boundary** is a straight line or a line with a single corner that describes the boundary between two land conditions on the plot footprint. This type of boundary is also used in the rural FIA inventory program. A **closed boundary** is a set of nodes that may or may not intersect the footprint boundary. It can describe a land condition that is entirely contained within the footprint of a given plot. For more information on the collection of boundary data refer to the FIA National Urban Field Guide (see appendix A, Quick Links).

Note that boundary data are not populated for every plot visit. It is possible that the entire plot footprint falls within a single land condition and thus no boundaries between land conditions exist.

Also note that closed boundary data are only collected on subplots. Microplots are only permitted to have use traditional boundaries due to their small size.

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Column name (attribute)</th>
<th>Descriptive name</th>
<th>Oracle data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2.1</td>
<td>PLOTID</td>
<td>Plot identifier</td>
<td>INTEGER</td>
</tr>
<tr>
<td>2.2.2</td>
<td>VISIT_NBR</td>
<td>Visit number</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>2.2.3</td>
<td>STATECD</td>
<td>State code</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>2.2.4</td>
<td>UNITCD</td>
<td>Survey unit code</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>2.2.5</td>
<td>COUNTYCD</td>
<td>County code</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>2.2.6</td>
<td>RETIRED_PLOT</td>
<td>Retired plot number</td>
<td>NUMBER(5)</td>
</tr>
<tr>
<td>2.2.7</td>
<td>SUBP</td>
<td>Subplot identifier</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>2.2.8</td>
<td>SUBP_TYPE</td>
<td>Subplot/microplot type code</td>
<td>NUMBER(1)</td>
</tr>
<tr>
<td>2.2.9</td>
<td>CONDID</td>
<td>Condition class identifier</td>
<td>NUMBER(1)</td>
</tr>
<tr>
<td>2.2.10</td>
<td>BNDCHG</td>
<td>Boundary change code</td>
<td>NUMBER(1)</td>
</tr>
<tr>
<td>2.2.11</td>
<td>OFFSET_POINT</td>
<td>Offset point</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>2.2.12</td>
<td>AZIMUTH_NODE_1</td>
<td>Azimuth to node 1</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>2.2.13</td>
<td>DISTANCE_NODE_1</td>
<td>Distance to node 1</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>2.2.14</td>
<td>AZIMUTH_NODE_2</td>
<td>Azimuth to node 2</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>2.2.15</td>
<td>DISTANCE_NODE_2</td>
<td>Distance to node 2</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>2.2.16</td>
<td>AZIMUTH_NODE_3</td>
<td>Azimuth to node 3</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>2.2.17</td>
<td>DISTANCE_NODE_3</td>
<td>Distance to node 3</td>
<td>NUMBER(2)</td>
</tr>
</tbody>
</table>
2.2.1 **PLOTID**
*Plot identifier.* A unique identifier for the sampling point. This value has no interpretation beyond a unique identifier for a spot on the ground.

2.2.2 **VISIT_NBR**
*Visit number.* An iterating counter recording the number of times the sampling point has been visited.
2.2.3 **STATECD**

State code. A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census.

Refer to the Urban FIADB User Guides: Database Description volume, appendix B (State, Survey Unit, and County Codes) for codes (available at web address: https://www.fia.fs.usda.gov/library/database-documentation/).

2.2.4 **UNITCD**

Survey unit code. The Forest Inventory and Analysis survey unit identification number. Survey units are groups of counties within States used to organize the population into logical groups for field logistics as well as for estimation purposes.

Refer to the Urban FIADB User Guides: Database Description volume, appendix B (State, Survey Unit, and County Codes) for codes (available at web address: https://www.fia.fs.usda.gov/library/database-documentation/).

2.2.5 **COUNTYCD**

County code. The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census are used.

Refer to the Urban FIADB User Guides: Database Description volume, appendix B (State, Survey Unit, and County Codes) for codes (available at web address: https://www.fia.fs.usda.gov/library/database-documentation/).

2.2.6 **RETIRED_PLOT**

Retired plot number. The retired plot number. This value no longer uniquely identifies the sampling point. It is retained for the purpose of compatibility with past data sets as well as the rural FIADB product.

2.2.7 **SUBP**

Subplot identifier. An identifier for the subplot. For a closed boundary, SUBP = 1 (urban subplot) is the only valid code.

Codes: SUBP (closed boundary)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Urban subplot: 48.0-foot subplot centered on plot center (PC).</td>
</tr>
</tbody>
</table>

2.2.8 **SUBP_TYPE**

Subplot/microplot type code. A code indicating whether the boundary data are for a subplot or microplot. For a closed boundary, SUBP_TYPE = 1 (subplot boundary) is the only valid code.

Codes: SUBP_TYPE (closed boundary)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Subplot boundary.</td>
</tr>
</tbody>
</table>
### 2.2.9 CONDID

**Condition class identifier.** A number that uniquely identifies each condition delineated for the plot visit. Each plot visit is assumed to have at least one condition.

A condition is initially defined by the condition class status (ID_COND.COND_STATUS_CD, Urban FIADB). Differences in reserved status, owner group, forest type, stand-size class, regeneration status, and tree density further define a condition for forest land. Differences in reserved status, owner group, and nonforest land use further define a condition for nonforest land.

At the time of the plot establishment, the condition class at plot center (the center of subplot 1) is usually designated as condition class 1. Other condition classes are assigned numbers sequentially at the time each condition class is delineated. On a plot, each sampled condition class must have a unique number that can change at remeasurement to reflect new conditions on the plot.

### 2.2.10 BNDCHG

**Boundary change code.** A code indicating the relationship between previously recorded and current boundary information. This code is only valid for remeasurement locations (ID_PLOT.KINDCD = 2, Urban FIADB).

**Reference table:** REF_BOUNDARY_CHANGE

**Codes: BNDCHG**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td><strong>No change</strong> - Boundary is the same as indicated on plot map and/or data collected by a previous crew.</td>
</tr>
<tr>
<td>1</td>
<td><strong>New boundary</strong> - New boundary, or boundary data has been changed to reflect an actual on-the-ground physical change resulting in a difference from the boundaries recorded.</td>
</tr>
<tr>
<td>2</td>
<td><strong>Error correction</strong> - Boundary has been changed to correct an error from previous crew.</td>
</tr>
<tr>
<td>3</td>
<td><strong>Changed variable definition</strong> - Boundary has been changed to reflect a change in variable definition.</td>
</tr>
</tbody>
</table>

### 2.2.11 OFFSET_POINT

**Offset point.** A code indicating the point serving as the origin for the closed boundary.

**Codes: OFFSET_POINT**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal position (subplot center).</td>
</tr>
<tr>
<td>1</td>
<td>North subplot offset point.</td>
</tr>
<tr>
<td>2</td>
<td>East subplot offset point.</td>
</tr>
<tr>
<td>3</td>
<td>South subplot offset point.</td>
</tr>
<tr>
<td>4</td>
<td>West subplot offset point.</td>
</tr>
<tr>
<td>110</td>
<td>Normal position of microplot 11 (center).</td>
</tr>
<tr>
<td>111</td>
<td>North microplot 11 offset point.</td>
</tr>
<tr>
<td>112</td>
<td>East microplot 11 offset point.</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>113</td>
<td>South microplot 11 offset point.</td>
</tr>
<tr>
<td>114</td>
<td>West microplot 11 offset point.</td>
</tr>
<tr>
<td>120</td>
<td>Normal position of microplot 12 (center).</td>
</tr>
<tr>
<td>121</td>
<td>North microplot 12 offset point.</td>
</tr>
<tr>
<td>122</td>
<td>East microplot 12 offset point.</td>
</tr>
<tr>
<td>123</td>
<td>South microplot 12 offset point.</td>
</tr>
<tr>
<td>124</td>
<td>West microplot 12 offset point.</td>
</tr>
<tr>
<td>130</td>
<td>Normal position of microplot 13 (center).</td>
</tr>
<tr>
<td>131</td>
<td>North microplot 13 offset point.</td>
</tr>
<tr>
<td>132</td>
<td>East microplot 13 offset point.</td>
</tr>
<tr>
<td>133</td>
<td>South microplot 13 offset point.</td>
</tr>
<tr>
<td>134</td>
<td>West microplot 13 offset point.</td>
</tr>
<tr>
<td>140</td>
<td>Normal position of microplot 14 (center).</td>
</tr>
<tr>
<td>141</td>
<td>North microplot 14 offset point.</td>
</tr>
<tr>
<td>142</td>
<td>East microplot 14 offset point.</td>
</tr>
<tr>
<td>143</td>
<td>South microplot 14 offset point.</td>
</tr>
<tr>
<td>144</td>
<td>West microplot 14 offset point.</td>
</tr>
</tbody>
</table>

2.2.12 **AZIMUTH_NODE_1**
Azimuth to node 1. The azimuth from subplot center to node 1 (the closest corner point of the closed boundary condition that is being mapped).

2.2.13 **DISTANCE_NODE_1**
Distance to node 1. The horizontal distance, to the nearest 1 foot, from subplot center to node 1 (the closest corner point of the closed boundary condition that is being mapped).

2.2.14 **AZIMUTH_NODE_2**
Azimuth to node 2. The azimuth from node 1 to node 2 (the next corner of the closed boundary, clockwise from node 1). The second corner is called node 2.

2.2.15 **DISTANCE_NODE_2**
Distance to node 2. The horizontal distance, to the nearest 1 foot, from node 1 to node 2 (the next corner of the closed boundary, clockwise from node 1). The second corner is called node 2.

2.2.16 **AZIMUTH_NODE_3**
Azimuth to node 3. The azimuth from node 2 to node 3 (the next corner of the closed boundary, clockwise from node 2). The third corner is called node 3.

2.2.17 **DISTANCE_NODE_3**
Distance to node 3. The horizontal distance, to the nearest 1 foot, from node 2 to node 3 (the next corner of the closed boundary, clockwise from node 2). The third corner is called node 3.
2.2.18 **AZIMUTH_NODE_4**  
*Azimuth to node 4.* The azimuth from node 3 to node 4 (the next corner of the closed boundary, clockwise from node 3). The fourth corner is called node 4.

2.2.19 **DISTANCE_NODE_4**  
*Distance to node 4.* The horizontal distance, to the nearest 1 foot, from node 3 to node 4 (the next corner of the closed boundary, clockwise from node 3). The fourth corner is called node 4.

2.2.20 **AZIMUTH_NODE_5**  
*Azimuth to node 5.* The azimuth from node 4 to node 5 (the next corner of the closed boundary, clockwise from node 4). The fifth corner is called node 5.

2.2.21 **DISTANCE_NODE_5**  
*Distance to node 5.* The horizontal distance, to the nearest 1 foot, from node 4 to node 5 (the next corner of the closed boundary, clockwise from node 4). The fifth corner is called node 5.

2.2.22 **OFFSET_AZIMUTH_NODE_1**  
*Offset azimuth to node 1.* The azimuth from the OFFSET_POINT to node 1 (the closest corner point of the closed boundary condition being mapped).

2.2.23 **OFFSET_DISTANCE_NODE_1**  
*Offset distance to node 1.* The horizontal distance, to the nearest 1 foot, from the OFFSET_POINT to node 1 (the closest corner point of the closed boundary condition being mapped).

2.2.24 **FIELD_PERCENT_AREA**  
*Field percent area.* The percentage of the plot area within the mapped condition.

2.2.25 **CROSSES_SUBPLOT_BOUNDARY**  
*Crosses subplot boundary.* A code indicating whether the condition being mapped crosses the subplot boundary.

**Codes:** CROSSES_SUBPLOT_BOUNDARY

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Does not cross the subplot boundary.</td>
</tr>
<tr>
<td>1</td>
<td>Does cross the subplot boundary.</td>
</tr>
</tbody>
</table>

2.2.26 **NUMBER_OF_NODES**  
*Number of nodes.* The number of nodes that define the condition represented by the closed boundary. The maximum number of nodes is five. For closed boundaries that cross the subplot boundary, the total number of nodes includes the two nodes that result from the intersection of the condition and subplot boundary (node 1 and the final node).

2.2.27 **CN**  
*Closed boundary sequence number.* A unique sequence number used to identify the closed boundary record (in ID_CLOSED_BOUNDARY).
2.2.28  **PLT_CN**
Plot sequence number. Foreign key linking the closed boundary record to the plot visit record (ID_CLOSED_BOUNDARY.PLT_CN = ID_PLOT.CN).

2.2.29  **SBP_CN**
Subplot sequence number. Foreign key linking the closed boundary record to the subplot record (ID_CLOSED_BOUNDARY.SBP_CN = ID_SUBPLOT.CN).

2.2.30  **CND_CN**
Condition sequence number. Foreign key linking the closed boundary record to the condition record (ID_CLOSED_BOUNDARY.CND_CN = ID_COND.CN).

2.2.31  **PREV_PLT_CN**
Previous plot sequence number. The sequence number (CN) linking the closed boundary record to the previous plot visit record (ID_CLOSED_BOUNDARY.PREV_PLT_CN = ID_PLOT.CN).
Chapter 3: Supplemental Urban Reference Tables

Chapter Contents:

<table>
<thead>
<tr>
<th>Section</th>
<th>Database table</th>
<th>Oracle table name</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Reference Boundary Change Table</td>
<td>REF_BOUNDARY_CHANGE</td>
</tr>
<tr>
<td>3.2</td>
<td>Reference Building Distance Table</td>
<td>REF_BUILDING_DISTANCE</td>
</tr>
<tr>
<td>3.3</td>
<td>Reference Offset Point Table</td>
<td>REF_OFFSET_POINT</td>
</tr>
<tr>
<td>3.4</td>
<td>Reference Plot Type Table</td>
<td>REF_PLOT_TYPE</td>
</tr>
</tbody>
</table>

Overview: Supplemental Urban Reference Tables

This chapter provides supplemental documentation for FIA urban reference tables that are not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the FIA Spatial Data Services (SDS) team by following the instructions provided at the following web address: https://www.fia.fs.usda.gov/tools-data/spatial/.

Reference data are static or semi-static data that define codes used in other table groups of the database.
3.1 Reference Boundary Change Table

Oracle table name: REF_BOUNDARY_CHANGE

The REF_BOUNDARY_CHANGE table stores reference data for the BNDCHG attribute. Code for this attribute indicates if a boundary has changed since the previous measurement.

Referencing column(s):
- ID_BOUNDARY.BNDCHG
- ID_CLOSED_BOUNDARY.BNDCHG

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Column name (attribute)</th>
<th>Descriptive name</th>
<th>Oracle data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1.1</td>
<td>VALUE</td>
<td>Code value</td>
<td>NUMBER(1)</td>
</tr>
<tr>
<td>3.1.2</td>
<td>ABBR</td>
<td>Code abbreviation</td>
<td>VARCHAR2(27)</td>
</tr>
<tr>
<td>3.1.3</td>
<td>MEANING</td>
<td>Code meaning</td>
<td>VARCHAR2(164)</td>
</tr>
<tr>
<td>3.1.4</td>
<td>RETIRED</td>
<td>Code retired</td>
<td>CHAR(1)</td>
</tr>
</tbody>
</table>

Key type | Alias | Constraint column(s) | Table joins |
---------|-------|-----------------------|-------------|
Primary  | RBC_PK | VALUE                 | N/A         |

3.1.1 VALUE

**Code value.** The value of the code.

**Codes: VALUE (BNDCHG)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td><strong>No change</strong> - Boundary is the same as indicated on plot map and/or data collected by a previous crew.</td>
</tr>
<tr>
<td>1</td>
<td><strong>New boundary</strong> - New boundary, or boundary data has been changed to reflect an actual on-the-ground physical change resulting in a difference from the boundaries recorded.</td>
</tr>
<tr>
<td>2</td>
<td><strong>Error correction</strong> - Boundary has been changed to correct an error from previous crew.</td>
</tr>
<tr>
<td>3</td>
<td><strong>Changed variable definition</strong> - Boundary has been changed to reflect a change in variable definition.</td>
</tr>
</tbody>
</table>

3.1.2 ABBR

**Code abbreviation.** The abbreviation for the code.

3.1.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.
3.1.4 RETIRED

Code retired. A yes/no (Y/N) value indicating whether or not the code is retired.
3.2 Reference Building Distance Table

Oracle table name: REF_BUILDING_DISTANCE

The REF_BUILDING_DISTANCE table stores reference data for the DISTANCE_CD attribute. Code for this attribute indicates the distance between a sampled tree and a building.

Referencing column(s):
- ID_BUILDING_INTERACTION.DISTANCE_CD

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Column name (attribute)</th>
<th>Descriptive name</th>
<th>Oracle data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2.1</td>
<td>VALUE</td>
<td>Code value</td>
<td>NUMBER(1)</td>
</tr>
<tr>
<td>3.2.2</td>
<td>ABBR</td>
<td>Code abbreviation</td>
<td>VARCHAR2(17)</td>
</tr>
<tr>
<td>3.2.3</td>
<td>MEANING</td>
<td>Code meaning</td>
<td>VARCHAR2(78)</td>
</tr>
<tr>
<td>3.2.4</td>
<td>RETIRED</td>
<td>Code retired</td>
<td>CHAR(1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key type</th>
<th>Alias</th>
<th>Constraint column(s)</th>
<th>Table joins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>RBD_PK</td>
<td>VALUE</td>
<td>N/A</td>
</tr>
</tbody>
</table>

3.2.1 VALUE
Code value. The value of the code.

Codes: VALUE (DISTANCE_CD)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No building within 60 feet or tree does not meet height requirements.</td>
</tr>
<tr>
<td>1</td>
<td>Less than 20.1 feet.</td>
</tr>
<tr>
<td>2</td>
<td>20.1 to 40.0 feet.</td>
</tr>
<tr>
<td>3</td>
<td>40.1 to 60.0 feet.</td>
</tr>
</tbody>
</table>

3.2.2 ABBR
Code abbreviation. The abbreviation for the code.

3.2.3 MEANING
Code meaning. A brief summary description of the meaning of the code.

3.2.4 RETIRED
Code retired. A yes/no (Y/N) value indicating whether or not the code is retired.
3.3 Reference Offset Point Table

Oracle table name: REF_OFFSET_POINT

The REF_OFFSET_POINT table stores reference data for the OFFSET_POINT attribute. Code for this attribute identifies which offset point was used as a reference for a given measurement.

Referencing column(s):
- ID_SITETREE.OFFSET_POINT
- ID_TREE.OFFSET_POINT

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Column name (attribute)</th>
<th>Descriptive name</th>
<th>Oracle data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3.1</td>
<td>VALUE</td>
<td>Code value</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>3.3.2</td>
<td>ABBR</td>
<td>Code abbreviation</td>
<td>VARCHAR2(28)</td>
</tr>
<tr>
<td>3.3.3</td>
<td>MEANING</td>
<td>Code meaning</td>
<td>VARCHAR2(54)</td>
</tr>
<tr>
<td>3.3.4</td>
<td>RETIRED</td>
<td>Code retired</td>
<td>CHAR(1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key type</th>
<th>Alias</th>
<th>Constraint column(s)</th>
<th>Table joins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>ROP_PK</td>
<td>VALUE</td>
<td>N/A</td>
</tr>
</tbody>
</table>

3.3.1 VALUE

Code value. The value of the code.

Codes: VALUE (OFFSET_POINT)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal position (subplot center).</td>
</tr>
<tr>
<td>1</td>
<td>North subplot offset point.</td>
</tr>
<tr>
<td>2</td>
<td>East subplot offset point.</td>
</tr>
<tr>
<td>3</td>
<td>South subplot offset point.</td>
</tr>
<tr>
<td>4</td>
<td>West subplot offset point.</td>
</tr>
<tr>
<td>110</td>
<td>Normal position of microplot 11 (center).</td>
</tr>
<tr>
<td>111</td>
<td>North microplot 11 offset point.</td>
</tr>
<tr>
<td>112</td>
<td>East microplot 11 offset point.</td>
</tr>
<tr>
<td>113</td>
<td>South microplot 11 offset point.</td>
</tr>
<tr>
<td>114</td>
<td>West microplot 11 offset point.</td>
</tr>
<tr>
<td>120</td>
<td>Normal position of microplot 12 (center).</td>
</tr>
<tr>
<td>121</td>
<td>North microplot 12 offset point.</td>
</tr>
<tr>
<td>122</td>
<td>East microplot 12 offset point.</td>
</tr>
<tr>
<td>123</td>
<td>South microplot 12 offset point.</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>124</td>
<td>West microplot 12 offset point.</td>
</tr>
<tr>
<td>130</td>
<td>Normal position of microplot 13 (center).</td>
</tr>
<tr>
<td>131</td>
<td>North microplot 13 offset point.</td>
</tr>
<tr>
<td>132</td>
<td>East microplot 13 offset point.</td>
</tr>
<tr>
<td>133</td>
<td>South microplot 13 offset point.</td>
</tr>
<tr>
<td>134</td>
<td>West microplot 13 offset point.</td>
</tr>
<tr>
<td>140</td>
<td>Normal position of microplot 14 (center).</td>
</tr>
<tr>
<td>141</td>
<td>North microplot 14 offset point.</td>
</tr>
<tr>
<td>142</td>
<td>East microplot 14 offset point.</td>
</tr>
<tr>
<td>143</td>
<td>South microplot 14 offset point.</td>
</tr>
<tr>
<td>144</td>
<td>West microplot 14 offset point.</td>
</tr>
</tbody>
</table>

### 3.3.2 ABBR

**Code abbreviation.** The abbreviation for the code.

### 3.3.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

### 3.3.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.
3.4 Reference Plot Type Table

Oracle table name: REF_PLOT_TYPE

The REF_PLOT_TYPE table stores reference data for the SUBP_TYPE attribute. Code for this attribute identifies the type of footprint element (subplot or microplot) on which a boundary was delineated.

Referencing column(s):
- ID_BOUNDARY.SUBP_TYPE
- ID_CLOSED_BOUNDARY.SUBP_TYPE

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Column name (attribute)</th>
<th>Descriptive name</th>
<th>Oracle data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4.1</td>
<td>VALUE</td>
<td>Code value</td>
<td>NUMBER(1)</td>
</tr>
<tr>
<td>3.4.2</td>
<td>ABBR</td>
<td>Code abbreviation</td>
<td>VARCHAR2(9)</td>
</tr>
<tr>
<td>3.4.3</td>
<td>MEANING</td>
<td>Code meaning</td>
<td>VARCHAR2(28)</td>
</tr>
<tr>
<td>3.4.4</td>
<td>RETIRED</td>
<td>Code retired</td>
<td>CHAR(1)</td>
</tr>
</tbody>
</table>

Key type    | Alias | Constraint column(s) | Table joins |
-------------|-------|-----------------------|-------------|
Primary      | RPT_PK| VALUE                 | N/A         |

3.4.1 VALUE
Code value. The value of the code.

Codes: VALUE (SUBP_TYPE)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Subplot boundary.</td>
</tr>
<tr>
<td>2</td>
<td>Microplot boundary.</td>
</tr>
</tbody>
</table>

3.4.2 ABBR
Code abbreviation. The abbreviation for the code.

3.4.3 MEANING
Code meaning. A brief summary description of the meaning of the code.

3.4.4 RETIRED
Code retired. A yes/no (Y/N) value indicating whether or not the code is retired.
Index of Tables

This index contains a list and brief descriptions of the tables included within this guide. The list is alphabetized by table group prefixes and Oracle table names.

Appendix Contents:

<table>
<thead>
<tr>
<th>Table group prefix</th>
<th>Table group name</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID_</td>
<td>Inventory Data</td>
<td>This table group stores data collected during the sampling phase of an inventory as well as all calculated or derived values. This can include measurements taken during on-the-ground field work as well as measurements taken remotely in the office.</td>
</tr>
<tr>
<td>REF_</td>
<td>Reference Data</td>
<td>This table group provides code descriptions and related information for various attributes in the database. Reference data are static or semi-static data that define codes used in other table groups of the database.</td>
</tr>
<tr>
<td>Section</td>
<td>Oracle table name</td>
<td>Table name</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>ID_</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>ID_BOUNDARY</td>
<td>Boundary Table</td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Closed Boundary Table</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REF_</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>REF_BOUNDARY_CHANGE</td>
<td>Reference Boundary Change Table</td>
</tr>
<tr>
<td>3.2</td>
<td>REF_BUILDING_DISTANCE</td>
<td>Reference Building Distance Table</td>
</tr>
<tr>
<td>Section</td>
<td>Oracle table name</td>
<td>Table name</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>3.3</td>
<td>REF_OFFSET_POINT</td>
<td>Reference Offset Point Table</td>
</tr>
<tr>
<td>3.4</td>
<td>REF_PLOT_TYPE</td>
<td>Reference Plot Type Table</td>
</tr>
</tbody>
</table>
### Index of Column Names

#### Index - Quick Link:

| Index | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |

The following table contains an alphabetized list of all of the column names (attributes) in the **FIA Supplemental Guides - Volume: Urban Database Tables** (available from Spatial Data Services).

The "Section" column indicates the location (subsection number) for the attribute within this guide.

<table>
<thead>
<tr>
<th>Section</th>
<th>Column name (attribute)</th>
<th>Oracle table name</th>
<th>Descriptive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1.2</td>
<td>ABBR</td>
<td>REF_BOUNDARY_CHANGE</td>
<td>Code abbreviation</td>
</tr>
<tr>
<td>3.2.2</td>
<td>ABBR</td>
<td>REF_BUILDING_DISTANCE</td>
<td>Code abbreviation</td>
</tr>
<tr>
<td>3.3.2</td>
<td>ABBR</td>
<td>REF_OFFSET_POINT</td>
<td>Code abbreviation</td>
</tr>
<tr>
<td>3.4.2</td>
<td>ABBR</td>
<td>REF_PLOT_TYPE</td>
<td>Code abbreviation</td>
</tr>
<tr>
<td>2.2.12</td>
<td>AZIMUTH_NODE_1</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Azimuth to node 1</td>
</tr>
<tr>
<td>2.2.14</td>
<td>AZIMUTH_NODE_2</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Azimuth to node 2</td>
</tr>
<tr>
<td>2.2.16</td>
<td>AZIMUTH_NODE_3</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Azimuth to node 3</td>
</tr>
<tr>
<td>2.2.18</td>
<td>AZIMUTH_NODE_4</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Azimuth to node 4</td>
</tr>
<tr>
<td>2.2.20</td>
<td>AZIMUTH_NODE_5</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Azimuth to node 5</td>
</tr>
<tr>
<td>2.1.14</td>
<td>AZMCORNER</td>
<td>ID_BOUNDARY</td>
<td>Corner azimuth</td>
</tr>
<tr>
<td>2.1.12</td>
<td>AZMLEFT</td>
<td>ID_BOUNDARY</td>
<td>Left azimuth</td>
</tr>
<tr>
<td>2.1.13</td>
<td>AZMRIGHT</td>
<td>ID_BOUNDARY</td>
<td>Right azimuth</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1.11</td>
<td>BNDCHG</td>
<td>ID_BOUNDARY</td>
<td>Boundary change code</td>
</tr>
<tr>
<td>2.2.10</td>
<td>BNDCHG</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Boundary change code</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2.22</td>
<td>CN</td>
<td>ID_BOUNDARY</td>
<td>Boundary sequence number</td>
</tr>
<tr>
<td>2.2.27</td>
<td>CN</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Boundary sequence number</td>
</tr>
<tr>
<td>Section</td>
<td>Column name (attribute)</td>
<td>Oracle table name</td>
<td>Descriptive name</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------------</td>
<td>----------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>2.2.30</td>
<td>CND_CN</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Condition sequence number</td>
</tr>
<tr>
<td>2.2.9</td>
<td>CONDID</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Condition class identifier</td>
</tr>
<tr>
<td>2.1.9</td>
<td>CONTRAST</td>
<td>ID_BOUNDARY</td>
<td>Contrasting condition class</td>
</tr>
<tr>
<td>2.1.26</td>
<td>CONTRAST_CND_CN</td>
<td>ID_BOUNDARY</td>
<td>Contrasting condition sequence number</td>
</tr>
<tr>
<td>2.1.5</td>
<td>COUNTYCD</td>
<td>ID_BOUNDARY</td>
<td>County code</td>
</tr>
<tr>
<td>2.2.5</td>
<td>COUNTYCD</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>County code</td>
</tr>
<tr>
<td>2.2.25</td>
<td>CROSSES_SUBPLOT_BOUNDARY</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Crosses subplot boundary</td>
</tr>
<tr>
<td>2.2.13</td>
<td>DISTANCE_NODE_1</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Distance to node 1</td>
</tr>
<tr>
<td>2.2.15</td>
<td>DISTANCE_NODE_2</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Distance to node 2</td>
</tr>
<tr>
<td>2.2.17</td>
<td>DISTANCE_NODE_3</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Distance to node 3</td>
</tr>
<tr>
<td>2.2.19</td>
<td>DISTANCE_NODE_4</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Distance to node 4</td>
</tr>
<tr>
<td>2.2.21</td>
<td>DISTANCE_NODE_5</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Distance to node 5</td>
</tr>
<tr>
<td>2.1.15</td>
<td>DISTCORN</td>
<td>ID_BOUNDARY</td>
<td>Corner distance</td>
</tr>
<tr>
<td>2.1.16</td>
<td>FIELD_PERCENT_AREA</td>
<td>ID_BOUNDARY</td>
<td>Field percent area</td>
</tr>
<tr>
<td>2.2.24</td>
<td>FIELD_PERCENT_AREA</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Field percent area</td>
</tr>
<tr>
<td>2.1.27</td>
<td>MAPPED_CND_CN</td>
<td>ID_BOUNDARY</td>
<td>Mapped condition sequence number</td>
</tr>
<tr>
<td>2.1.10</td>
<td>MAPPED_CONDITION</td>
<td>ID_BOUNDARY</td>
<td>Mapped condition class</td>
</tr>
<tr>
<td>3.1.3</td>
<td>MEANING</td>
<td>REF_BOUNDARY_CHANGE</td>
<td>Code meaning</td>
</tr>
<tr>
<td>3.2.3</td>
<td>MEANING</td>
<td>REF_BUILDING_DISTANCE</td>
<td>Code meaning</td>
</tr>
<tr>
<td>3.3.3</td>
<td>MEANING</td>
<td>REF_OFFSET_POINT</td>
<td>Code meaning</td>
</tr>
<tr>
<td>3.4.3</td>
<td>MEANING</td>
<td>REF_PLOT_TYPE</td>
<td>Code meaning</td>
</tr>
<tr>
<td>2.2.26</td>
<td>NUMBER_OF_NODES</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Number of nodes</td>
</tr>
<tr>
<td>2.2.22</td>
<td>OFFSET_AZIMUTH_NODE_1</td>
<td>ID_CLOSED_BOUNDARY</td>
<td>Offset azimuth to node 1</td>
</tr>
<tr>
<td>2.1.20</td>
<td>OFFSET_AZMCORN</td>
<td>ID_BOUNDARY</td>
<td>Offset corner azimuth</td>
</tr>
<tr>
<td>Section</td>
<td>Column name (attribute)</td>
<td>Oracle table name</td>
<td>Descriptive name</td>
</tr>
<tr>
<td>---------</td>
<td>------------------------</td>
<td>-------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>2.1.18</td>
<td>OFFSET_AZMLEFT</td>
<td>ID_BOUNDARY</td>
<td>Offset left azimuth</td>
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Appendix A: Quick Links

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**Urban: Forest Inventory and Analysis (FIA)**

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**Urban: i-Tree Software Suite**

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# National: Forest Inventory and Analysis (FIA)

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# FIA: Research Stations

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# USDA Forest Service

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