

Forest Inventory and Analysis

FIA Supplemental Guides

Volume: Urban Database Tables (available from Spatial Data Services)

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Preface

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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.fed.us/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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Summary for this guide

Item	Value
Supplemental guide edition (revision date)	10.15.2021

Update highlights

The is the first edition for this supplemental guide. This section is a placeholder. It will be used for future editions to summarize updates to this document.

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.

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.

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Chapter 1: Overview

Chapter Contents:

Section	Heading
1.1	Document Purpose
1.2	Keys Presented with the Tables
1.3	Oracle Data Types

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.fed.us/tools-data/spatial/>.

This supplemental document and the [Urban FIADB User Guides](#) can be accessed at the following web address: <https://www.fia.fs.fed.us/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).

ENTITY_NAME	ENTITY_SHORTNAME
ID_BOUNDARY	BND
ID_CLOSED_BOUNDARY	CBND
REF_BOUNDARY_CHANGE	RBC
REF_PLOT_TYPE	RPT

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

Oracle data type	Definition
DATE	<p>A data type that stores the date, typically in the format of MM/DD/YYYY.</p> <p>This type can also be stored as a "timestamp" data type that stores both the date and time to the second. "Date" is in the format of MM/DD/YYYY. "Time" 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.</p>
NUMBER	A data type that contains only numbers, positive or negative, with a floating-decimal point.
NUMBER(SIZE, D)	<p>A data type that contains only numbers up to a specified maximum size. The maximum size (<i>and optional fixed-decimal point</i>) is specified by the value(s) listed in the parentheses.</p> <p>For example, an attribute with a data type specified as "NUMBER(2)" indicates that the attribute may contain a maximum of 2 digits (<i>for example</i>, "11" or "5"), however, none of the digits are decimals. An attribute with a data type specified as "NUMBER(3,1)" may contain a maximum of 3 digits, however, the last digit is a fixed decimal (<i>for example</i>, "4.0" or "12.7"). Likewise, "NUMBER(6,4)" would indicate that an attribute may contain a maximum of 6 digits, however, the last 4 digits are part of a fixed decimal (<i>for example</i>, "18.7200").</p> <p>Note: When needed, digits to the right of a fixed-decimal point are filled in with zero(s).</p>
VARCHAR2(SIZE)	<p>A data type that contains alphanumeric data (numbers and/or characters) up to a specified maximum size.</p> <p>For example, an attribute with a data type specified as "VARCHAR2(8)" indicates that the attribute may contain a maximum of eight alphanumeric characters.</p>

Chapter 2: Supplemental Urban Database Tables

Chapter Contents:

Section	Database table	Oracle table name
2.1	Boundary Table	ID_BOUNDARY
2.2	Closed Boundary Table	ID_CLOSED_BOUNDARY

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.fed.us/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.

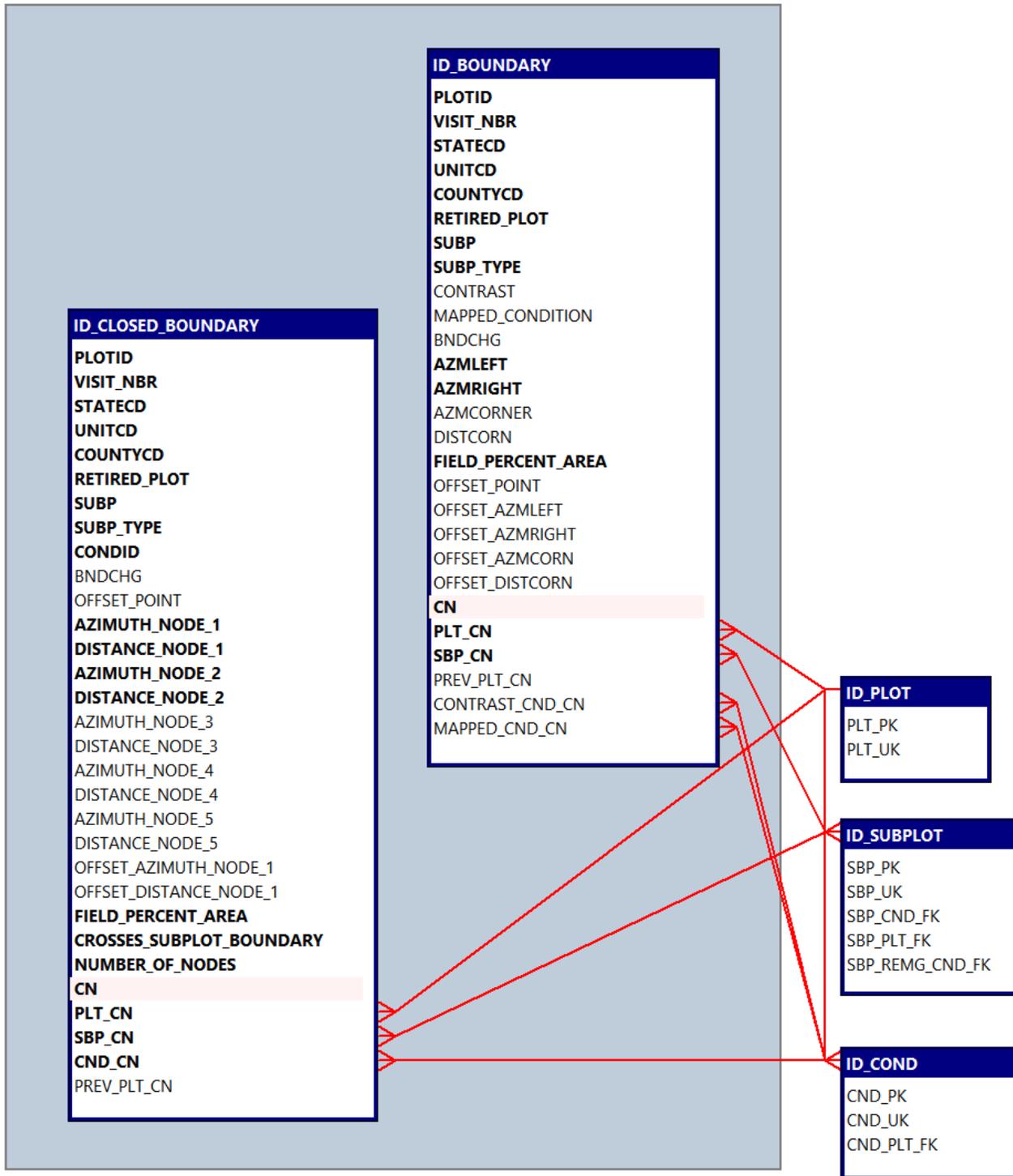


Figure 2-1: Inventory data table group - boundary tables.

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.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
2.1.1	PLOTID	Plot identifier	INTEGER
2.1.2	VISIT_NBR	Visit number	NUMBER(2)
2.1.3	STATECD	State code	NUMBER(2)
2.1.4	UNITCD	Survey unit code	NUMBER(2)
2.1.5	COUNTYCD	County code	NUMBER(3)
2.1.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
2.1.7	SUBP	Subplot/microplot identifier	NUMBER(2)
2.1.8	SUBP_TYPE	Subplot/microplot type code	NUMBER(1)
2.1.9	CONTRAST	Contrasting condition class	NUMBER(1)
2.1.10	MAPPED_CONDITION	Mapped condition class	NUMBER(1)
2.1.11	BNDCHG	Boundary change code	NUMBER(1)
2.1.12	AZMLEFT	Left azimuth	NUMBER(3)
2.1.13	AZMRIGHT	Right azimuth	NUMBER(3)
2.1.14	AZMCORNER	Corner azimuth	NUMBER(3)
2.1.15	DISTCORN	Corner distance	NUMBER(3)
2.1.16	FIELD_PERCENT_AREA	Field percent area	NUMBER(3)
2.1.17	OFFSET_POINT	Offset point	NUMBER(3)
2.1.18	OFFSET_AZMLEFT	Offset left azimuth	NUMBER(3)
2.1.19	OFFSET_AZMRIGHT	Offset right azimuth	NUMBER(3)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
2.1.20	OFFSET_AZMCORN	Offset corner azimuth	NUMBER(3)
2.1.21	OFFSET_DISTCORN	Offset corner distance	NUMBER(3)
2.1.22	CN	Boundary sequence number	INTEGER
2.1.23	PLT_CN	Plot sequence number	INTEGER
2.1.24	SBP_CN	Subplot sequence number	INTEGER
2.1.25	PREV_PLT_CN	Previous plot sequence number	INTEGER
2.1.26	CONTRAST_CND_CN	Contrasting condition sequence number	INTEGER
2.1.27	MAPPED_CND_CN	Mapped condition sequence number	INTEGER

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

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.fed.us/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.fed.us/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.fed.us/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

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

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

Code	Description
1	Subplot boundary.
2	Microplot boundary.

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. CONDID is a number that uniquely identifies each condition for the plot visit.

2.1.10 MAPPED_CONDITION

Mapped condition class. The condition class identifier (ID_COND.CONDID, Urban FIADB) for the condition that is being mapped. CONDID 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](#)

Codes: BNDCHG

Code	Description
0	No change - Boundary is the same as indicated on plot map and/or data collected by a previous crew.
1	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.
2	Error correction - Boundary has been changed to correct an error from previous crew.
3	Changed variable definition - Boundary has been changed to reflect a change in variable definition.

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

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

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.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
2.2.1	PLOTID	Plot identifier	INTEGER
2.2.2	VISIT_NBR	Visit number	NUMBER(2)
2.2.3	STATECD	State code	NUMBER(2)
2.2.4	UNITCD	Survey unit code	NUMBER(2)
2.2.5	COUNTYCD	County code	NUMBER(3)
2.2.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
2.2.7	SUBP	Subplot identifier	NUMBER(2)
2.2.8	SUBP_TYPE	Subplot/microplot type code	NUMBER(1)
2.2.9	CONDID	Condition class identifier	NUMBER(1)
2.2.10	BNDCHG	Boundary change code	NUMBER(1)
2.2.11	OFFSET_POINT	Offset point	NUMBER(3)
2.2.12	AZIMUTH_NODE_1	Azimuth to node 1	NUMBER(3)
2.2.13	DISTANCE_NODE_1	Distance to node 1	NUMBER(2)
2.2.14	AZIMUTH_NODE_2	Azimuth to node 2	NUMBER(3)
2.2.15	DISTANCE_NODE_2	Distance to node 2	NUMBER(2)
2.2.16	AZIMUTH_NODE_3	Azimuth to node 3	NUMBER(3)
2.2.17	DISTANCE_NODE_3	Distance to node 3	NUMBER(2)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
2.2.18	AZIMUTH_NODE_4	Azimuth to node 4	NUMBER(3)
2.2.19	DISTANCE_NODE_4	Distance to node 4	NUMBER(2)
2.2.20	AZIMUTH_NODE_5	Azimuth to node 5	NUMBER(3)
2.2.21	DISTANCE_NODE_5	Distance to node 5	NUMBER(2)
2.2.22	OFFSET_AZIMUTH_NODE_1	Offset azimuth to node 1	NUMBER(3)
2.2.23	OFFSET_DISTANCE_NODE_1	Offset distance to node 1	NUMBER(2)
2.2.24	FIELD_PERCENT_AREA	Field percent area	NUMBER(3)
2.2.25	CROSSES_SUBPLOT_BOUNDARY	Crosses subplot boundary	NUMBER(1)
2.2.26	NUMBER_OF_NODES	Number of nodes	NUMBER(1)
2.2.27	CN	Boundary sequence number	INTEGER
2.2.28	PLT_CN	Plot sequence number	INTEGER
2.2.29	SBP_CN	Subplot sequence number	INTEGER
2.2.30	CND_CN	Condition sequence number	INTEGER
2.2.31	PREV_PLT_CN	Previous plot sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	CBND_PK	CN	N/A
Unique	CBND_UK	PLOTID, VISIT_NBR, SUBP, CONDDID, AZIMUTH_NODE_1, AZIMUTH_NODE_2, AZIMUTH_NODE_3, AZIMUTH_NODE_4, AZIMUTH_NODE_5	N/A
Foreign	CBND_PLT_FK	PLT_CN	ID_CLOSED_BOUNDARY.PLT_CN = ID_PLOT.CN
Foreign	CBND_SBP_FK	SBP_CN	ID_CLOSED_BOUNDARY.SBP_CN = ID_SUBPLOT.CN
Foreign	CBND_CND_FK	CND_CN	ID_CLOSED_BOUNDARY.CND_CN = ID_COND.CN

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.fed.us/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.fed.us/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.fed.us/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)

Code	Description
1	Urban subplot: 48.0-foot subplot centered on plot center (PC).

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)

Code	Description
1	Subplot boundary.

2.2.9 CONDIC

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

Code	Description
0	No change - Boundary is the same as indicated on plot map and/or data collected by a previous crew.
1	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.
2	Error correction - Boundary has been changed to correct an error from previous crew.
3	Changed variable definition - Boundary has been changed to reflect a change in variable definition.

2.2.11 OFFSET_POINT

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

Codes: OFFSET_POINT

Code	Description
0	Normal position (subplot center).
1	North subplot offset point.
2	East subplot offset point.
3	South subplot offset point.
4	West subplot offset point.
110	Normal position of microplot 11 (center).
111	North microplot 11 offset point.
112	East microplot 11 offset point.

Code	Description
113	South microplot 11 offset point.
114	West microplot 11 offset point.
120	Normal position of microplot 12 (center).
121	North microplot 12 offset point.
122	East microplot 12 offset point.
123	South microplot 12 offset point.
124	West microplot 12 offset point.
130	Normal position of microplot 13 (center).
131	North microplot 13 offset point.
132	East microplot 13 offset point.
133	South microplot 13 offset point.
134	West microplot 13 offset point.
140	Normal position of microplot 14 (center).
141	North microplot 14 offset point.
142	East microplot 14 offset point.
143	South microplot 14 offset point.
144	West microplot 14 offset point.

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

Code	Description
0	Does not cross the subplot boundary.
1	Does cross the subplot boundary.

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:

Section	Database table	Oracle table name
3.1	Reference Boundary Change Table	REF_BOUNDARY_CHANGE
3.2	Reference Plot Type Table	REF_PLOT_TYPE

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.fed.us/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

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.1.1	VALUE	Code value	NUMBER(1)
3.1.2	ABBR	Code abbreviation	VARCHAR2(27)
3.1.3	MEANING	Code meaning	VARCHAR2(164)
3.1.4	RETIRED	Code retired	CHAR(1)

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)

Code	Description
0	No change - Boundary is the same as indicated on plot map and/or data collected by a previous crew.
1	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.
2	Error correction - Boundary has been changed to correct an error from previous crew.
3	Changed variable definition - Boundary has been changed to reflect a change in variable definition.

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 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

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.2.1	VALUE	Code value	NUMBER(1)
3.2.2	ABBR	Code abbreviation	VARCHAR2(9)
3.2.3	MEANING	Code meaning	VARCHAR2(28)
3.2.4	RETIRED	Code retired	CHAR(1)

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

3.2.1 VALUE

Code value. The value of the code.

Codes: VALUE (SUBP_TYPE)

Code	Description
1	Subplot boundary.
2	Microplot boundary.

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.

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 group prefix	Table group name	Purpose
ID_	Inventory Data	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.
REF_	Reference Data	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.

Section	Oracle table name	Table name	Description
	ID_		
2.1	ID_BOUNDARY	Boundary Table	<p>This table stores 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.</p> <p>Table joins:</p> <ul style="list-style-type: none"> • ID_BOUNDARY.PLT_CN = ID_PLOT.CN links the boundary record to the plot visit record. • ID_BOUNDARY.SBP_CN = ID_SUBPLOT.CN links the boundary record to the subplot record. • ID_BOUNDARY.CONTRAST_CND_CN = ID_COND.CN links the boundary record to the contrasting condition record. • ID_BOUNDARY.MAPPED_CND_CN = ID_COND.CN links the boundary record to the mapped condition record. • ID_BOUNDARY.PREV_PLT_CN = ID_PLOT.CN links the boundary record to the previous plot visit record.
2.2	ID_CLOSED_BOUNDARY	Closed Boundary Table	<p>This table stores 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.</p> <p>Table joins:</p> <ul style="list-style-type: none"> • ID_CLOSED_BOUNDARY.PLT_CN = ID_PLOT.CN links the closed boundary record the plot visit record. • ID_CLOSED_BOUNDARY.SBP_CN = ID_SUBPLOT.CN links the closed boundary record to the subplot record. • ID_CLOSED_BOUNDARY.CND_CN = ID_COND.CN links the closed boundary record to the condition record. • ID_CLOSED_BOUNDARY.PREV_PLT_CN = ID_PLOT.CN links the closed boundary record to the previous plot visit record.
	REF_		
3.1	REF_BOUNDARY_CHANGE	Reference Boundary Change Table	This table stores reference data for the BNDCHG attribute. Code for this attribute indicates if a boundary has changed since the previous measurement.
3.2	REF_PLOT_TYPE	Reference Plot Type Table	This 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.

Index of Column Names

Index - Quick Link:			
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**.

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

Section	Column name (attribute)	Oracle table name	Descriptive name
	A		
3.1.2	ABBR	REF_BOUNDARY_CHANGE	Code abbreviation
3.2.2	ABBR	REF_PLOT_TYPE	Code abbreviation
2.2.12	AZIMUTH_NODE_1	ID_CLOSED_BOUNDARY	Azimuth to node 1
2.2.14	AZIMUTH_NODE_2	ID_CLOSED_BOUNDARY	Azimuth to node 2
2.2.16	AZIMUTH_NODE_3	ID_CLOSED_BOUNDARY	Azimuth to node 3
2.2.18	AZIMUTH_NODE_4	ID_CLOSED_BOUNDARY	Azimuth to node 4
2.2.20	AZIMUTH_NODE_5	ID_CLOSED_BOUNDARY	Azimuth to node 5
2.1.14	AZMCORNER	ID_BOUNDARY	Corner azimuth
2.1.12	AZMLEFT	ID_BOUNDARY	Left azimuth
2.1.13	AZMRIGHT	ID_BOUNDARY	Right azimuth
	B		
2.1.11	BNDCHG	ID_BOUNDARY	Boundary change code
2.2.10	BNDCHG	ID_CLOSED_BOUNDARY	Boundary change code
	C		
2.1.22	CN	ID_BOUNDARY	Boundary sequence number
2.2.27	CN	ID_CLOSED_BOUNDARY	Boundary sequence number
2.2.30	CND_CN	ID_CLOSED_BOUNDARY	Condition sequence number
2.2.9	CONDID	ID_CLOSED_BOUNDARY	Condition class identifier
2.1.9	CONTRAST	ID_BOUNDARY	Contrasting condition class

Section	Column name (attribute)	Oracle table name	Descriptive name
2.1.26	CONTRAST_CND_CN	ID_BOUNDARY	Contrasting condition sequence number
2.1.5	COUNTYCD	ID_BOUNDARY	County code
2.2.5	COUNTYCD	ID_CLOSED_BOUNDARY	County code
2.2.25	CROSSES_SUBPLOT_BOUNDARY	ID_CLOSED_BOUNDARY	Crosses subplot boundary
	D		
2.2.13	DISTANCE_NODE_1	ID_CLOSED_BOUNDARY	Distance to node 1
2.2.15	DISTANCE_NODE_2	ID_CLOSED_BOUNDARY	Distance to node 2
2.2.17	DISTANCE_NODE_3	ID_CLOSED_BOUNDARY	Distance to node 3
2.2.19	DISTANCE_NODE_4	ID_CLOSED_BOUNDARY	Distance to node 4
2.2.21	DISTANCE_NODE_5	ID_CLOSED_BOUNDARY	Distance to node 5
2.1.15	DISTCORN	ID_BOUNDARY	Corner distance
	E		
	F		
2.1.16	FIELD_PERCENT_AREA	ID_BOUNDARY	Field percent area
2.2.24	FIELD_PERCENT_AREA	ID_CLOSED_BOUNDARY	Field percent area
	G		
	H		
	I		
	J		
	K		
	L		
	M		
2.1.27	MAPPED_CND_CN	ID_BOUNDARY	Mapped condition sequence number
2.1.10	MAPPED_CONDITION	ID_BOUNDARY	Mapped condition class
3.1.3	MEANING	REF_BOUNDARY_CHANGE	Code meaning
3.2.3	MEANING	REF_PLOT_TYPE	Code meaning
	N		
2.2.26	NUMBER_OF_NODES	ID_CLOSED_BOUNDARY	Number of nodes
	O		
2.2.22	OFFSET_AZIMUTH_NODE_1	ID_CLOSED_BOUNDARY	Offset azimuth to node 1
2.1.20	OFFSET_AZMCORN	ID_BOUNDARY	Offset corner azimuth
2.1.18	OFFSET_AZMLEFT	ID_BOUNDARY	Offset left azimuth
2.1.19	OFFSET_AZMRIGHT	ID_BOUNDARY	Offset right azimuth
2.2.23	OFFSET_DISTANCE_NODE_1	ID_CLOSED_BOUNDARY	Offset distance to node 1
2.1.21	OFFSET_DISTCORN	ID_BOUNDARY	Offset corner distance
2.1.17	OFFSET_POINT	ID_BOUNDARY	Offset point

Section	Column name (attribute)	Oracle table name	Descriptive name
2.2.11	OFFSET_POINT	ID_CLOSED_BOUNDARY	Offset point
	P		
2.1.1	PLOTID	ID_BOUNDARY	Plot identifier
2.2.1	PLOTID	ID_CLOSED_BOUNDARY	Plot identifier
2.1.23	PLT_CN	ID_BOUNDARY	Plot sequence number
2.2.28	PLT_CN	ID_CLOSED_BOUNDARY	Plot sequence number
2.1.25	PREV_PLT_CN	ID_BOUNDARY	Previous plot sequence number
2.2.31	PREV_PLT_CN	ID_CLOSED_BOUNDARY	Previous plot sequence number
	Q		
	R		
3.1.4	RETIRED	REF_BOUNDARY_CHANGE	Code retired
3.2.4	RETIRED	REF_PLOT_TYPE	Code retired
2.1.6	RETIRED_PLOT	ID_BOUNDARY	Retired plot number
2.2.6	RETIRED_PLOT	ID_CLOSED_BOUNDARY	Retired plot number
	S		
2.1.24	SBP_CN	ID_BOUNDARY	Subplot sequence number
2.2.29	SBP_CN	ID_CLOSED_BOUNDARY	Subplot sequence number
2.1.3	STATECD	ID_BOUNDARY	State code
2.2.3	STATECD	ID_CLOSED_BOUNDARY	State code
2.1.7	SUBP	ID_BOUNDARY	Subplot/microplot identifier
2.2.7	SUBP	ID_CLOSED_BOUNDARY	Subplot identifier
2.1.8	SUBP_TYPE	ID_BOUNDARY	Subplot/microplot type code
2.2.8	SUBP_TYPE	ID_CLOSED_BOUNDARY	Subplot/microplot type code
	T		
	U		
2.1.4	UNITCD	ID_BOUNDARY	Survey unit code
2.2.4	UNITCD	ID_CLOSED_BOUNDARY	Survey unit code
	V		
3.1.1	VALUE	REF_BOUNDARY_CHANGE	Code value
3.2.1	VALUE	REF_PLOT_TYPE	Code value
2.1.2	VISIT_NBR	ID_BOUNDARY	Visit number
2.2.2	VISIT_NBR	ID_CLOSED_BOUNDARY	Visit number
	W		
	X		
	Y		
	Z		

Appendix A: Quick Links

Appendix Contents:

Quick Links
Urban: Forest Inventory and Analysis (FIA)
Urban: i-Tree Software Suite
Urban: Other
National: Forest Inventory and Analysis (FIA)
FIA: Research Stations
USDA Forest Service
Other

Urban: Forest Inventory and Analysis (FIA)

Description	Website (URL address)
Urban FIA - Program	https://www.fia.fs.fed.us/program-features/urban/
Urban FIA - Urban DataMart	https://www.fia.fs.fed.us/tools-data/
Urban FIA - Urban Field Guides	https://www.fia.fs.fed.us/program-features/urban/
Urban FIA - Urban FIADB User Guides	https://www.fia.fs.fed.us/library/database-documentation/
Urban FIA - Research & Development	https://www.fs.fed.us/research/urban/

Urban: i-Tree Software Suite

Description	Website (URL address)
i-Tree Program (home page)	https://www.itreetools.org/
i-Tree - Tools	https://www.itreetools.org/tools

Urban: Other

Description	Website (URL address)
USDA Forest Service - Urban Research	https://www.fs.fed.us/research/urban/
Urban and Community Forestry Program	https://www.fs.usda.gov/managing-land/urban-forests/ucf
My City's Trees	https://mct.tfs.tamu.edu/

National: Forest Inventory and Analysis (FIA)

Description	Website (URL address)
FIA - National Program	https://www.fia.fs.fed.us/
FIA - Data and Tools	https://www.fia.fs.fed.us/tools-data/
FIA - Library	https://www.fia.fs.fed.us/library/
FIA - Field Guides, Methods, and Procedures	https://www.fia.fs.fed.us/library/field-guides-methods-proc/
FIA - FIADB User Guides	https://www.fia.fs.fed.us/library/database-documentation/
FIA - Supplemental Guides	https://www.fia.fs.fed.us/library/database-documentation/
FIA - Spatial Data Services (SDS)	https://www.fia.fs.fed.us/tools-data/spatial/

FIA: Research Stations

Description	Website (URL address)
FIA - Northern Research Station	https://www.nrs.fs.fed.us/fia/
FIA - Southern Research Station	https://www.fs.usda.gov/srsfia/
FIA - Rocky Mountain Research Station (Interior West)	https://www.fs.fed.us/rm/ogden/
FIA - Pacific Northwest Research Station	https://www.fs.usda.gov/pnw/program/rma

USDA Forest Service

Description	Website (URL address)
USDA Forest Service	https://www.fs.usda.gov/
USDA Forest Service - Contact Us	https://www.fs.usda.gov/about-agency/contact-us
USDA Forest Service - FSGeodata Clearinghouse	https://data.fs.usda.gov/geodata/
USDA Forest Service - National Programs and Offices	https://www.fs.usda.gov/about-agency/national-programs-offices
USDA Forest Service - National Headquarters	https://www.fs.usda.gov/organization
USDA Forest Service - Research & Development	https://www.fs.fed.us/research/
USDA Forest Service - State and Private Forestry	https://www.fs.usda.gov/about-agency/state-private-forestry
USDA Forest Service - Urban Research	https://www.fs.fed.us/research/urban/

Other

Description	Website (URL address)
Natural Resource Conservation Service (NRCS) - PLANTS database - home page	https://plants.sc.egov.usda.gov/java/
U.S. Geological Survey - Mission Areas, Water Resources	https://www.usgs.gov/mission-areas/water-resources
U.S. Geological Survey - National Water Information System (NWIS)	https://waterdata.usgs.gov/nwis

