

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

**Information Technology – Geographic Information**

**Framework Data Content Standard**

**Part 5: Governmental unit and other geographic area boundaries**

**CAUTION NOTICE**

**This standard document may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Users of American National Standards may receive current information on all standards by contacting the American National Standards institute (ANSI).**

35 Secretariat:  
36 INFORMATION TECHNOLOGY INDUSTRY COUNCIL  
37 Approved:  
38 YEAR-MM  
39 **American National Standards Institute**

Information Technology – Geographic Information Framework Data Content Standard  
Part 5: Governmental unit and other geographic area boundaries

40 **American**  
41 **National**  
42 **Standard**

67 Approval of an American National Standard requires verification by the  
68 American National Standards Institute (ANSI) that the requirements for due  
69 process, consensus, and other criteria for approval have been met by the  
70 standards developer.  
71  
72 Consensus is established when, in the judgment of the ANSI Board of  
73 Standards review, substantial agreement has been reached by directly and  
74 materially affected interests. Substantial agreement means much more than  
75 a simple majority, but not necessarily unanimity. Consensus requires that  
76 all views and objections be considered, and that a concerted effort be made  
77 toward their resolution.  
78  
79 The use of American National Standards is completely voluntary; their  
80 existence does not in any respect preclude anyone, whether he or she has  
81 approved the standards or not, from manufacturing, marketing, purchasing,  
82 or using products, processes, or procedures not conforming to the standards.  
83  
84 The American National Standards Institute does not develop standards and  
85 will in no circumstances give an interpretation of any American National  
86 Standard. Moreover, no person shall have the right or authority to issue an  
87 interpretation of an American National Standard in the name of the  
88 American National Standards Institute. Request for interpretations should  
89 be addressed to the secretariat or sponsor whose name appears on the title  
90 page of this standard.  
91  
92  
93  
94  
95  
96  
97  
98

99

100 Published by:  
101 Information Technology Industry Council  
102 1250 Eye Street NW, Suite 200  
103 Washington, DC 20005  
104 Voice: 202.737.8888  
105 FAX: 202.638.4922  
106 WEB: [www.itic.org](http://www.itic.org)

107  
108 Copyright © by Information Technology Industry Council  
109 All rights reserved.

110 No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise,  
111 without the written permission of the publisher.  
112 Printed in the United States of America.

113  
114  
115  
116

117 **Contents**

118	<b>Introduction</b> .....	<b>v</b>
119	<b>1 Scope</b> .....	<b>1</b>
120	<b>2 Normative references</b> .....	<b>1</b>
121	<b>3 Standards development</b> .....	<b>1</b>
122	<b>4 Maintenance authority</b> .....	<b>2</b>
123	<b>4.1 Level of responsibility</b> .....	<b>2</b>
124	<b>4.2 Contact information</b> .....	<b>2</b>
125	<b>5 Terms and definitions</b> .....	<b>2</b>
126	<b>6 Content model</b> .....	<b>5</b>
127	<b>6.1 Geographic area feature</b> .....	<b>5</b>
128	<b>6.2 Geographic area boundaries</b> .....	<b>5</b>
129	<b>6.3 Geographic area relationships</b> .....	<b>5</b>
130	<b>6.3.1 Maintenance relationships</b> .....	<b>5</b>
131	<b>6.3.2 Spatial relationships</b> .....	<b>7</b>
132	<b>7 UML model</b> .....	<b>10</b>
133	<b>8 Data dictionary</b> .....	<b>11</b>
134	<b>8.1 GovtUnits</b> .....	<b>11</b>
135	<b>8.2 GeographicArea</b> .....	<b>11</b>
136	<b>8.3 GovernmentalUnit</b> .....	<b>13</b>
137	<b>8.4 AdministrativeUnit</b> .....	<b>14</b>
138	<b>8.5 StatisticalUnit</b> .....	<b>15</b>
139	<b>8.6 OtherUnit</b> .....	<b>16</b>
140	<b>8.7 Boundary</b> .....	<b>16</b>
141	<b>8.8 MaintenanceRelationship</b> .....	<b>18</b>
142	<b>8.9 SpatialRelationship</b> .....	<b>18</b>
143	<b>8.10 BoundaryClassifier</b> .....	<b>19</b>
144	<b>8.11 Code lists and enumerations</b> .....	<b>20</b>
145	<b>8.11.1 Code lists</b> .....	<b>21</b>
146	<b>8.11.2 SpatialRelationshipList enumeration</b> .....	<b>29</b>
147	<b>Annex A (informative) Sample map extraction and associated attribute table</b> .....	<b>31</b>
148	<b>Figures</b>	
149	<b>Figure 1 – UML model</b> .....	<b>10</b>
150	<b>Figure 2 – Code lists and enumerations</b> .....	<b>20</b>
151	<b>Figure A.1 – Sample map</b> .....	<b>31</b>
152		
153	<b>Tables</b>	
154	<b>Table 1 – Data dictionary for GovtUnits</b> .....	<b>11</b>
155	<b>Table 2 – Data dictionary for GeographicArea</b> .....	<b>11</b>
156	<b>Table 3 – Data dictionary for GovernmentalUnit</b> .....	<b>13</b>
157	<b>Table 4 – Data dictionary for AdministrativeUnit</b> .....	<b>14</b>
158	<b>Table 5 – Data dictionary for StatisticalUnit</b> .....	<b>15</b>
159	<b>Table 6 – Data dictionary for OtherUnit</b> .....	<b>16</b>
160	<b>Table 7 – Data dictionary for Boundary</b> .....	<b>17</b>
161	<b>Table 8 – Data dictionary for MaintenanceRelationship</b> .....	<b>18</b>
162	<b>Table 9 – Data dictionary for SpatialRelationship</b> .....	<b>19</b>

Information Technology – Geographic Information Framework Data Content Standard  
Part 5: Governmental unit and other geographic area boundaries

163	<b>Table 10 – Data dictionary for BoundaryClassifier .....</b>	<b>19</b>
164	<b>Table 11 – CodeList for AdministrativeUnitType .....</b>	<b>21</b>
165	<b>Table 12 – CodeList for DeterminationType .....</b>	<b>23</b>
166	<b>Table 13 – CodeList for GovernmentalUnitType .....</b>	<b>23</b>
167	<b>Table 14 – CodeList for SpatialChangeType .....</b>	<b>25</b>
168	<b>Table 15 – CodeList for StatisticalUnitType .....</b>	<b>26</b>
169	<b>Table 16 – SpatialRelationshipList enumeration.....</b>	<b>30</b>
170	<b>Table A.1 – Sample associated attribute table .....</b>	<b>32</b>
171	<b>Table A.2 – Sample spatial relationships.....</b>	<b>33</b>
172	<b>Table A.3 – Sample maintenance and change types .....</b>	<b>34</b>
173		

174 **Foreword**

175 Geographic information, also known as geospatial information, both underlies and is the subject  
176 of much of the political, economic, environmental, and security activities of the United States. In  
177 recognition of this, the United States Office of Management and Budget issued Circular A-16  
178 (revised 2002), which established the Federal Geographic Data Committee (FGDC) as a  
179 coordinating organization.

180 Work on this standard started under the Geospatial One-Stop e-Government initiative. The  
181 standard was developed with the support of the member agencies and organizations of the  
182 FGDC and aids in fulfilling a primary objective of the National Spatial Data Infrastructure (NSDI),  
183 that is, creation of common geographic base data for seven critical data themes. The seven core  
184 data themes are considered framework data of critical importance to the spatial data  
185 infrastructure.

186 The increasing need to coordinate collection of new data, identify applicability of existing data,  
187 and exchange data at the national level led to the submission of this standard to the ANSI  
188 process to become an American National Standard. The national standard contained in this  
189 document and its parts was sponsored by Technical Committee L1, Geographic Information  
190 Systems, of the InterNational Committee for Information Technology Standards (INCITS), an  
191 ANSI-accredited standards development organization.

192 As the Geographic Information Framework Data Content Standard was developed using public  
193 funds, the U.S. Government will be free to publish and distribute its contents to the public, as  
194 provided through the Freedom of Information Act (FOIA), Part 5 United States Code, Section 552,  
195 as amended by Public Law No. 104-231, "Electronic Freedom of Information Act Amendments of  
196 1996".

197 **Introduction**

198 The primary purpose of this part of the Geographic Information Framework Data Content  
199 Standard is to support the exchange of governmental unit and other geographic area boundary  
200 data. This part seeks to establish a common baseline for the semantic content of governmental  
201 unit and other geographic area boundary databases for public agencies and private enterprises.  
202 It also seeks to decrease the costs and simplify the exchange of governmental unit and other  
203 geographic area boundary data among local, Tribal, State, and Federal users and producers.  
204 That, in turn, discourages duplicative data collection. Benefits of adopting this part of the  
205 standard also include the long-term improvement of the geospatial governmental unit and other  
206 geographic area boundary data within the community.

207

208 **Framework Data Content Standard – Governmental unit and**  
209 **other geographic area boundaries**

210 **1 Scope**

211 The purpose of the Geographic Information Framework Data Content Standard, Part 5:  
212 Governmental Unit and Other Geographic Area Boundaries is to establish the content  
213 requirements for the collection and interchange of governmental units and other geographic area  
214 boundary data and to facilitate the maintenance and use of that information.

215 This part identifies and defines the terminology, encoding schema, and data components required  
216 to describe a geographic area and its boundary.

217 This part applies to the following types of geographic areas:

- 218 • Governmental units
- 219 • Administrative units
- 220 • Statistical units
- 221 • Other units

222 For the purposes of this part, these types of geographic areas are defined as follows:

- 223 • A governmental unit is a geographic area with legally defined boundaries established  
224 under Federal, Tribal, State, or local law, and with the authority to elect or appoint  
225 officials and raise revenues through taxes.
- 226 • An administrative unit is a geographic area established by rule or regulation of a  
227 legislative, executive, or judicial governmental authority, a non-profit organization, or  
228 private industry for the execution of some function.
- 229 • A statistical unit is a geographic area defined for the collection, tabulation, and/or  
230 publication of demographic, and/or other statistical data.
- 231 • Other units are those geographic areas that are not governmental units, administrative  
232 units, or statistical units as defined herein, and are not areas that are defined or  
233 described in other framework parts.

234 This part specifies the content and organization necessary for the successful interchange of  
235 geographic area boundary data. This part does not specify a particular structure for interchange  
236 of boundary data. Further, data producers and users may structure geographic area boundary  
237 data in any format for their internal use.

238 **2 Normative references**

239 Annex A of the Base Document (Part 0) lists normative references applicable to two or more parts  
240 of the standard. Annex D of the Base Document lists informative references applicable to two or  
241 more of the parts. ANSI and ISO standards may be purchased through the ANSI eStandards  
242 Store at <http://webstore.ansi.org/ansidocstore/default.asp>, accessed October 2006.

243 **3 Standards development**

244 The FGDC Subcommittee on Cultural and Demographic Data, sponsor of the Geographic  
245 Information Framework Data Content Standard, Part 5: Governmental Unit and Other Geographic  
246 Area Boundaries part, initiated the development of this document pursuant to the Office of  
247 Management and Budget (OMB) Circular A-16 that specifies governmental unit boundaries as  
248 one of the seven data themes that constitute the National Spatial Data Infrastructure (NSDI).  
249 Development commenced with the submittal of the "Proposal for a National Spatial Data  
250 Infrastructures Project" to the FGDC Standards Working Group in November 1997. The proposal  
251 was accepted by the FGDC, and completed Public Review in April 1998 with favorable

Information Technology – Geographic Information Framework Data Content Standard  
Part 5: Governmental unit and other geographic area boundaries

252 comments. The first version of the working draft was completed in February 1999. In August  
253 2002, the FGDC determined that the development of the seven framework themes of the NSDI  
254 would continue under the auspices of INCITS L1. Thus, the review and affirmation of the  
255 Governmental Unit and Other Geographic Area Boundaries part will be through ANSI process.

256 **4 Maintenance authority**

257 **4.1 Level of responsibility**

258 The FGDC is the responsible organization for coordinating work on all parts of the Geographic  
259 Information Framework Data Content Standard. The U.S. Census Bureau on behalf of the U.S.  
260 Department of Commerce, working with the FGDC, is directly responsible for development and  
261 maintenance of the Geographic Information Framework Data Content Standard, Part 5:  
262 Governmental Unit and Other Geographic Area Boundaries.

263 The FGDC shall be the sole organization responsible for direct coordination with the InterNational  
264 Committee for Information Technology Standards (INCITS) concerning any maintenance or any  
265 other requirements mandated by INCITS or ANSI.

266 **4.2 Contact information**

267 Address questions concerning this part of the standard to:

268 Federal Geographic Data Committee Secretariat  
269 c/o U.S. Geological Survey  
270 590 National Center  
271 Reston, Virginia 20192 USA

272 Telephone: (703) 648-5514  
273 Facsimile: (703) 648-5755  
274 Internet (electronic mail): [gdc@fgdc.gov](mailto:gdc@fgdc.gov)  
275 WWW Home Page: <http://fgdc.gov>

276 Or

277 Randy Fusaro  
278 Chief, National Geographic Partnerships Team  
279 U.S. Census Bureau  
280 GEO 7400, 4700 Silver Hill Road, Washington, DC 20233-7400  
281 [randy.j.fusaro@census.gov](mailto:randy.j.fusaro@census.gov)

282 **5 Terms and definitions**

283 Definitions applicable to the Governmental Unit and Other Geographic Area Boundaries part are  
284 listed below. More general terms and definitions can be found in the Base Document (Part 0).  
285 Users are advised to consult that part for a complete set of definitions.

286 **5.1**  
287 **administrative unit**

288 area established by rule, treaty, or regulation of a legislative, executive, or judicial governmental  
289 authority, a non-profit organization, or private industry for the execution of some function

290 EXAMPLES American Indian Trust Land, Congressional District, Enterprise Zone/Empowerment  
291 Community, State Legislative District

292 **5.2**  
293 **areal**

294 two-dimensional

295 **5.3**

296 **boundary**

297 set that represents the limit of an entity [ISO 19107]

298 NOTE A boundary may or may not follow a visible feature and may or may not be visibly marked.

299 EXAMPLE The line that marks the limit of a geographic entity.

300 **5.4**

301 **co-determined**

302 changes to a **boundary** segment by either geographic area that shares the **boundary** segment  
303 impose the same changes to the **boundary** of another geographic area that shares the same  
304 **boundary** segment

305 **5.5**

306 **contains**

307 interior of one geographic area completely includes and encompasses the interior and **boundary**  
308 of the other geographic area, so that their **boundaries** do not intersect

309 NOTE This is the opposite and reciprocal condition to "inside".

310 **5.6**

311 **covered by**

312 interior of one geographic area is completely included in the interior of the **boundary** of the other  
313 geographic area and their **boundaries** intersect

314 NOTE This is the opposite and reciprocal condition to "covers".

315 **5.7**

316 **covers**

317 interior and **boundary** of one geographic area completely includes the interior of the other  
318 geographic area and their **boundaries** intersect

319 NOTE This is the opposite and reciprocal condition to "covered by".

320 **5.8**

321 **determined by**

322 changes to a **boundary** segment by another geographic area require the same changes to the  
323 **boundary** of a particular geographic area that shares the same **boundary** segment.

324 NOTE This is the opposite of and potential reciprocal condition to "determines".

325 **5.9**

326 **determines**

327 changes to a **boundary** segment by one geographic area require the same changes to the  
328 **boundary** of another geographic area that shares the **boundary** segment

329 NOTE This is the opposite of and potential reciprocal condition to "determined by".

330 **5.10**

331 **disjoint**

332 **boundaries** and interiors of two geographic areas do not intersect

333 **5.11**

334 **equal**

335 two geographic areas have the same **boundary** and interior

Information Technology – Geographic Information Framework Data Content Standard  
Part 5: Governmental unit and other geographic area boundaries

- 336 **5.12**  
337 **governmental unit**
- 338 geographic area with legally defined **boundaries** established under Federal, Tribal, State, or local  
339 law, and with the authority to elect or appoint officials and raise revenues through taxes
- 340 EXAMPLES American Indian Reservation, City, School District, Village
- 341 **5.13**  
342 **independent of**
- 343 changes to a **boundary** segment by one geographic area creates a new, unshared **boundary**  
344 segment in the **boundary** of that geographic area, and impose no changes to the **boundary** of  
345 another geographic area that shared the **boundary** segment by coincidence
- 346 **5.14**  
347 **inside**
- 348 interior and **boundary** of one geographic area is completely included in the interior of the other  
349 geographic area, so that their **boundaries** do not intersect
- 350 NOTE This is the opposite and reciprocal condition to “contains”.
- 351 **5.15**  
352 **instance**
- 353 one real world occurrence of a particular **type**
- 354 **5.16**  
355 **maintenance relationship**
- 356 relative dependency between two or more geographic areas for maintaining common **boundary**  
357 or area information
- 358 **5.17**  
359 **other unit**
- 360 geographic area that is not a **governmental unit**, **administrative unit**, or **statistical unit**, as  
361 defined herein, and that is not an area defined or described in other framework parts
- 362 **5.18**  
363 **overlap**
- 364 **boundaries** and interiors of two geographic areas intersect
- 365 **5.19**  
366 **spatial relationship**
- 367 relative spatial location of a geographic area in terms of one or more geographic areas
- 368 **5.20**  
369 **statistical unit**
- 370 geographic area defined for the collection, tabulation, and/or publication of demographic, and/or  
371 other statistical data
- 372 EXAMPLES Census Block, Metropolitan Area, Rural-Urban Commuting Area, Unorganized Territory,  
373 ZIP Code Tabulation Area
- 374 **5.21**  
375 **touch**
- 376 **boundaries** of two geographic areas intersect but the interiors do not intersect

377 **5.22**  
378 **type**

379 class of real world occurrences with common characteristics

380 **6 Content model**

381 The content model for geographic area boundary data documented in the following subsections  
382 and codified in the UML diagram and data dictionary sections below includes geographic area  
383 features, geographic area boundary features, and geographic area relationships.

384 **6.1 Geographic area feature**

385 Data representing a geographic area feature instance shall provide complete identification of a  
386 geographic area, and its type. Governmental units, administrative units, and statistical units each  
387 relate to an associated code list consisting of known units of that type and the definition of the  
388 known units. For geographic areas not enumerated in the code lists or for those geographic  
389 areas of type other units, a unit type and type definition shall be documented. Each geographic  
390 area shall have an instance name, or the name of the specific geographic area being  
391 documented, and an instance code identifying the instance.

392 **6.2 Geographic area boundaries**

393 Data representing the boundary of a geographic area feature shall be provided as complete  
394 polygon geometry attributes of the geographic area feature, or as a set of boundary features with  
395 curve geometries, or both. If both are provided, then either the curve geometries of the boundary  
396 features shall be identical to segments of the polygon geometries, or the differences shall be  
397 documented in boundaryClassifier attributes of the boundary features.

398 **6.3 Geographic area relationships**

399 Optional data may be provided to represent maintenance relationships and spatial relationships  
400 between two or more geographic areas and their boundaries.

401 **6.3.1 Maintenance relationships**

402 A maintenance relationship exists when there is a relative dependency between two or more  
403 geographic areas for maintaining common boundary or area information.

404 Each maintenance relationship may have a “controlsChangesTo” role with respect to associated  
405 boundary features where changes are in a “changeControlledBy” role with respect to the  
406 maintenance relationship. The absence of specified associated boundary features for a  
407 maintenance relationship shall be interpreted to mean that all boundary components and/or area  
408 shared by the geographic areas in the maintenance relationship are controlled by the  
409 maintenance relationship.

410 Each maintenance relationship is an association between one geographic area feature in a  
411 “fromUnit” role and one or more geographic area features in a “toUnit” role. These roles in a  
412 maintenance relationship map the causality of a determination type for a specific spatial type of  
413 boundary change.

414 Multiple maintenance relationships with different determination types and spatial change types  
415 may be required to represent all of the dependencies between two geographic area features. For  
416 example, one geographic area may determine changes to the boundary of another when it  
417 expands, but not when it contracts.

418 **6.3.1.1 Determination types**

419 Determination types specify how changes to a shared boundary by one geographic area feature  
420 member of a maintenance relationship affect that boundary from the perspective of the other  
421 geographic area feature member of the relationship.

422 **6.3.1.1.1 Determines**

423 Changes to a boundary segment by one geographic area require the same changes to the  
 424 boundary of another geographic area that shares the boundary segment.



425  
 426  
 427 When A expands along the shared boundary with B, A determines B.

428 **6.3.1.1.2 Determined by**

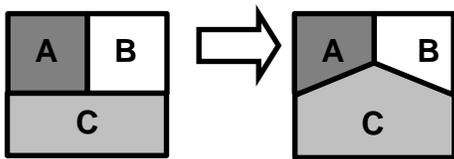
429 Changes to a boundary segment by another geographic area require the same changes to the  
 430 boundary of a particular geographic area that shares the same boundary segment. This is the  
 431 opposite of and potential reciprocal condition to "Determines".



432  
 433  
 434 When A expands along the shared boundary with B, B is determined by A.

435 **6.3.1.1.3 Co-determined**

436 Changes to a boundary segment by either geographic area that shares the boundary segment  
 437 imposes the same changes to the boundary of another geographic area that shares the same  
 438 boundary segment.



439  
 440  
 441 When C expands along the shared boundary with A and the shared boundary with B, it co-  
 442 determines the boundaries of A and B.

443 **6.3.1.1.4 Independent of**

444 Changes to a boundary segment by one geographic area creates a new, unshared boundary  
 445 segment in the boundary of that geographic area, and impose no changes to the boundary of  
 446 another geographic area that shared the boundary segment by coincidence.



447  
 448  
 449 When B contracts along a shared boundary with A and A is independent of B, then a new  
 450 geographic area and boundary segments must be created to replace them (C).

451 **6.3.1.2 Spatial change type**

452 A spatial change type specifies the type of change to a shared boundary by one geographic area  
 453 feature member of a maintenance relationship that affects that boundary from the perspective of  
 454 the other geographic area feature member of the relationship.

455 **6.3.1.2.1 Expansion**

456 Increase in the area of a geographic area caused by a legal or administrative change in the  
457 definition of its boundary, for example, by annexation of adjacent territory.



458  
459

460 A expands.

461 **6.3.1.2.2 Contraction**

462 Decrease in the area of a geographic area caused by a legal or administrative change in the  
463 definition of its boundary, for example, by de-annexation of adjacent territory.

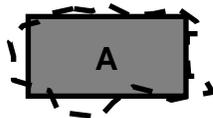


464  
465

466 A contracts.

467 **6.3.1.2.3 Reshape**

468 Change in the digital representation of the boundary of a geographic area to correspond to a  
469 more accurate or current survey information, where there has been no change to the official  
470 definition of the boundary.



471  
472

473 A reshapes.

474 **6.3.1.2.4 All**

475 All changes to boundaries, whether due to expansion, contraction, or reshape.

476 **6.3.2 Spatial relationships**

477 Spatial relationships describe the relative spatial location of two geographic area features and  
478 their boundaries.

479 Each spatial relationship is an association between one geographic area feature in a “fromUnit”  
480 role and one or more geographic area features in a “toUnit” role. These roles are asymmetric and  
481 reciprocal for the contains / inside and covers / covered by spatial relationship types. They are  
482 symmetric and identical for the overlap, touch, equal, and disjoint spatial relationship types.

483 **6.3.2.1 Spatial relationship types**

484 For the purposes of this part, spatial relationship types are enumerated and defined as follows.

485 **6.3.2.1.1 Contains**

486 The interior of one geographic area completely includes and encompasses the interior and  
487 boundary of the other geographic area, so that their boundaries do not intersect.



488

489

490 A contains B.

491 **6.3.2.1.2 Inside**

492 The interior and boundary of one geographic area are completely included in the interior of the  
493 other geographic area, so that their boundaries do not intersect. This is the opposite of and  
494 reciprocal condition to contains.



495

496

497 B is inside A.

498 **6.3.2.1.3 Covers**

499 The interior and boundary of one geographic area completely include the interior of the other  
500 geographic area and their boundaries intersect.



501

502

503 A covers B.

504 **6.3.2.1.4 Covered by**

505 The interior of one geographic area is completely included in the interior or the boundary of the  
506 other geographic area and their boundaries intersect. This is the opposite of and reciprocal  
507 condition to covers.



508

509

510 B is covered by A.

511 **6.3.2.1.5 Overlap**

512 The boundaries and interiors of the two geographic areas intersect.



513

514

515 A overlaps B and B overlaps A.

516 **6.3.2.1.6 Touch**

517 The boundaries of two geographic areas intersect but the interiors do not intersect.



518

519

520 A touches B and B touches A.

Information Technology – Geographic Information Framework Data Content Standard  
Part 5: Governmental unit and other geographic area boundaries

521 **6.3.2.1.7 Equal**

522 The two geographic areas have the same boundary and interior.



523

524

525 A equals B and B equals A.

526 **6.3.2.1.8 Disjoint**

527 The boundaries and interiors of two geographic areas do not intersect.



528

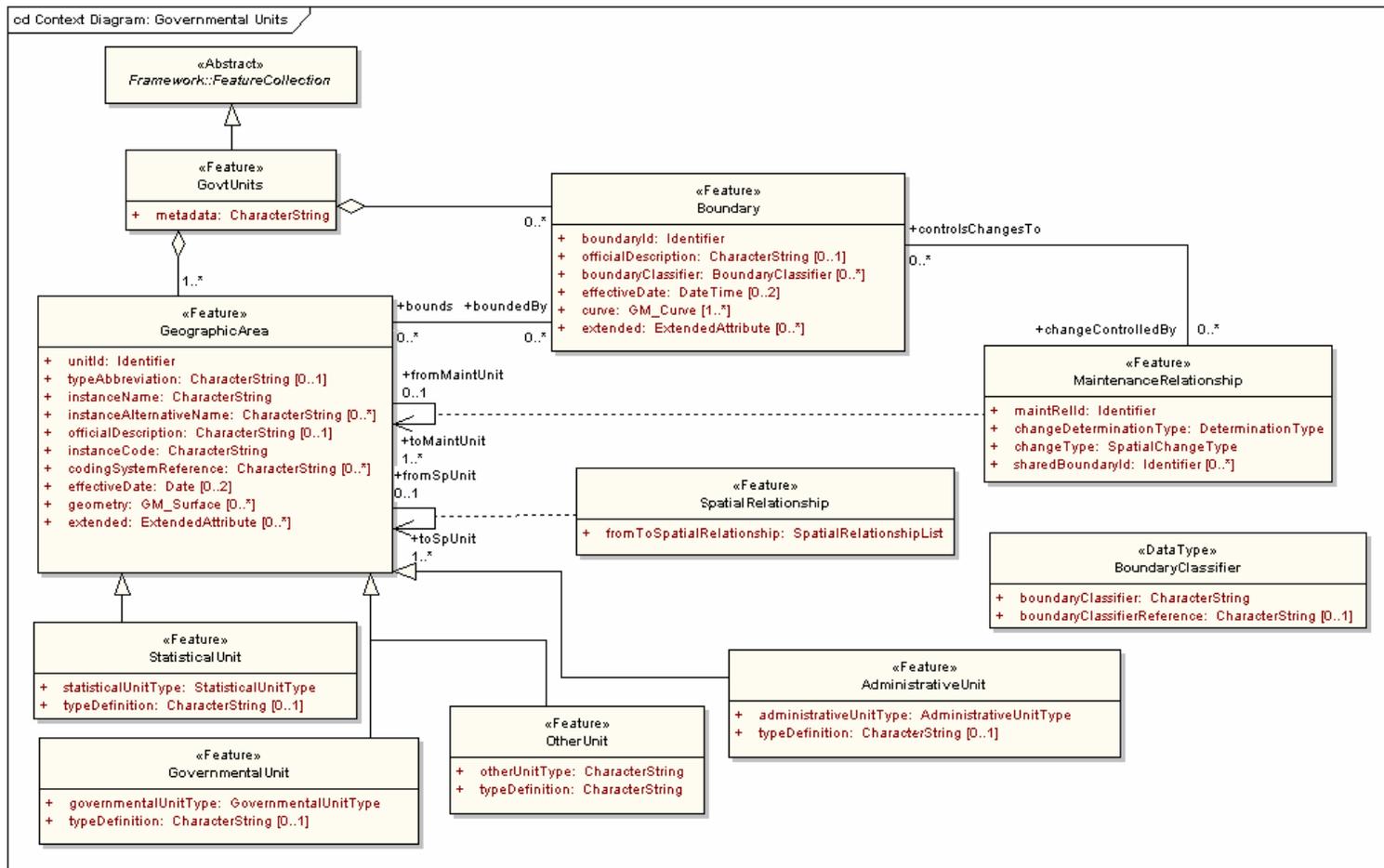
529

530 A is disjoint with B and B is disjoint with A.

531

532 **7 UML model**

533



534

535

Figure 1 – UML model

536 **8 Data dictionary**

537 The data dictionary provides all entity and attribute definitions, domains, obligations/conditions, maximum occurrences and data types for  
 538 elements depicted in the UML model.

539 **8.1 GovtUnits**

540 **Table 1 – Data dictionary for GovtUnits**

Line	Name/Role Name	Definition	Obligation/Condition	Maximum Occurrence	Data Type	Domain
1	GovtUnits				<<Feature>>	Line 2
2	metadata	Structured or unstructured metadata as defined by the community of practice	M	1	CharacterString	May be text or structured metadata fragment or URI

541

542 **8.2 GeographicArea**

543 GeographicArea is an abstract class that captures the information about the type of the geographic area being described and the name, attribute  
 544 information, and geometry about the specific instance being described. GeographicArea can optionally be bounded by boundary features that  
 545 may or may not fully enclose the area. GovernmentalUnit, AdministrativeUnit, StatisticalUnit, and OtherUnit are specialized, non-abstract  
 546 subclasses derived from GeographicArea to capture type-specific information. Each of these unit classes is a GeographicArea. Two or more  
 547 GeographicAreas may have one or more SpatialRelationships and/or MaintenanceRelationships.

548

549 **Table 2 – Data dictionary for GeographicArea**

Line	Name/Role Name	Definition	Obligation/Condition	Maximum Occurrence	Data Type	Domain
3	GeographicArea	Class that captures information about the type of geographic area being described			<<Feature>>	Lines 4-18
4	unitId	Identifier assigned to the governmental unit, administrative unit, statistical unit, or other unit	M	1	<<DataType>> Framework::Identifier	Unrestricted
5	typeAbbreviation	Type code or abbreviation for the	O	1	CharacterString	Unrestricted

Information Technology – Geographic Information Framework Data Content Standard  
 Part 5: Governmental unit and other geographic area boundaries

Line	Name/Role Name	Definition	Obligation/Condition	Maximum Occurrence	Data Type	Domain
		feature unit type				
6	instanceName	"Official" feature name. If available, the instanceName is the name of the geographic area feature from the Geographic Names Information System (GNIS)	M	1	CharacterString	Unrestricted
7	instanceAlternativeName	"Unofficial", or variant, feature name	O	*	CharacterString	Unrestricted
8	officialDescription	Phrases, coordinates, meets and bounds, name of the organization responsible for administering the unit, or other authoritative information describing the geographic area	O	1	CharacterString	Unrestricted
9	instanceCode	Specific code that identifies the geographic area	M	1	CharacterString	Unrestricted
10	codingSystemReference	Citation, reference, or documentation identifying the instance code type, for example USPS ZIP+4 code	C/if code exists	*	CharacterString	Unrestricted
11	effectiveDate	Date on which a geographic area change took effect	O	2	Date	Any valid geometry type from ISO 19107
12	geometry	Geometric representation of the feature	O	*	<<Type>> GM_Surface	Defined in ISO 19107
13	extended	Group of properties that permit the identification and transport of unofficial feature attributes	O	*	<<DataType>> Framework::Extended Attribute	Unrestricted
14	Role name: bounded by	Links the GeographicArea to the Boundary curves and Boundary attributes	O	*	<<Feature>> Boundary	
15	Role name: toMaintUnit	Links destination GeographicAreas to the MaintenanceRelationship that describes the relationship between	M	*	<<Feature>> GeographicArea	

Information Technology – Geographic Information Framework Data Content Standard  
 Part 5: Governmental unit and other geographic area boundaries

Line	Name/Role Name	Definition	Obligation/Condition	Maximum Occurrence	Data Type	Domain
		two or more specified GeographicAreas				
16	Role name: toSpUnit	Links destination GeographicAreas to the SpatialRelationship that describes the relationship between two or more specified GeographicAreas	M	*	<<Feature>> GeographicArea	
17	Role name: fromMaintUnit	Links source GeographicAreas to the MaintenanceRelationship that describes the relationship between two or more specified GeographicAreas	O	1	<<Feature>> GeographicArea	
18	Role name: fromSpUnit	Links source GeographicAreas to the SpatialRelationship that describes the relationship between two or more specified GeographicAreas	O	1	<<Feature>> GeographicArea	

550

551 **8.3 GovernmentalUnit**

552 GovernmentalUnit is a type of geographic area with legally defined boundaries established under Federal, Tribal, State, or local law, and with the  
 553 authority to elect or appoint officials and raise revenues through taxes. A non-exhaustive list of known GovernmentalUnits are specified in the  
 554 code list GovernmentalUnitType and defined in the optional typeDefinition.

555

556

**Table 3 – Data dictionary for GovernmentalUnit**

Line	Name/Role Name	Definition	Obligation/Condition	Maximum Occurrence	Data Type	Domain
19	GovernmentalUnit	Type of geographic area with legally defined boundaries established under Federal, Tribal, State, or local law, and with the authority to elect or appoint officials and raise revenues			<<Feature>>	Lines 20-21

Information Technology – Geographic Information Framework Data Content Standard  
 Part 5: Governmental unit and other geographic area boundaries

Line	Name/Role Name	Definition	Obligation/Condition	Maximum Occurrence	Data Type	Domain
		through taxes				
20	governmentalUnitType	Name of the type of geographic area with geographic entity with legally defined boundaries established under Federal, State, Tribal, or local law, and with the authority to elect or appoint officials and raise revenues through taxes	M	1	<<CodeList>> GovernmentalUnitType	Unrestricted
21	typeDefinition	Definition of the unit type	C/if Governmental UnitTypeCode is not enumerated	1	CharacterString	Unrestricted

557

558 **8.4 AdministrativeUnit**

559 AdministrativeUnit is a type of geographic area established by rule or regulation of a legislative, executive, or judicial governmental authority, a  
 560 non-profit organization, or private industry for the execution of some function. A non-exhaustive list of known AdministrativeUnits are specified in  
 561 the code list AdministrativeUnitTypeCode and defined in the optional typeDefinition.

562

563

**Table 4 – Data dictionary for AdministrativeUnit**

Line	Name/Role Name	Definition	Obligation/Condition	Maximum Occurrence	Data Type	Domain
22	AdministrativeUnit	Type of geographic area established by rule or regulation of a legislative, executive, or judicial governmental authority, a non-profit organization, or private industry for the execution of some function			<<Feature>>	Lines 23-24
23	administrativeUnitType	Name of the type of administrative unit established by rule or regulation of a legislative, executive, or judicial governmental authority, a non-profit organization, a corporation, or a	M	1	<<CodeList>> AdministrativeUnitType	Unrestricted

Information Technology – Geographic Information Framework Data Content Standard  
 Part 5: Governmental unit and other geographic area boundaries

Line	Name/Role Name	Definition	Obligation/Condition	Maximum Occurrence	Data Type	Domain
		private party for the execution of some function				
24	typeDefinition	Definition of the unit type	C/if Administrative UnitTypeCode is not enumerated	1	CharacterString	Unrestricted

564

565 **8.5 StatisticalUnit**

566 StatisticalUnit is a type of geographic area defined for the collection, tabulation, and/or publication of demographic, and/or other statistical data. A  
 567 non-exhaustive list of known StatisticalUnits are specified in the code list StatisticalUnitType and defined in the optional typeDefinition.

568

569

**Table 5 – Data dictionary for StatisticalUnit**

Line	Name/Role Name	Definition	Obligation/Condition	Maximum Occurrence	Data Type	Domain
25	StatisticalUnit	StatisticalUnit is a type of geographic area defined for the collection, tabulation, and/or publication of demographic, and/or other statistical data			<<Feature>>	Lines 26-27
26	statisticalUnitType	Name of the type of statistical unit defined for the collection, tabulation, analysis, and/or publication of demographic, economic, or other statistical data	M	1	<<CodeList>> StatisticalUnitType	Unrestricted
27	typeDefinition	Definition of the unit type	C/if StatisticalUnit TypeCode is not enumerated	1	CharacterString	Unrestricted

570

571 **8.6 OtherUnit**

572 OtherUnit are types of geographic areas that are not governmental units, administrative units, or statistical units as defined herein, and are areas  
 573 not defined or described in other framework parts.

574

575

**Table 6 – Data dictionary for OtherUnit**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
28	OtherUnit	Type of geographic area that is not a governmental unit, administrative unit, or statistical unit as defined herein, and is not an area defined or described in other framework parts			<<Feature>>	Lines 29-30
29	otherUnitType	Name of the type of other geographic area that is not a governmental unit, administrative unit, or statistical unit, and is not an area defined or described in other framework parts	M	1	CharacterString	Unrestricted
30	typeDefinition	Definition of the unit type	M	1	CharacterString	Unrestricted

576

577 **8.7 Boundary**

578 Boundary is a feature type that captures the information about the individual boundary segments being described, including the descriptive  
 579 attribute information, and geometry about the one or more specific instances being described. Boundary can optionally bound one or more  
 580 GeographicAreas or may be used to exchange boundary segments. Boundaries may have “changeControlledBy” roles in associations with one or  
 581 more MaintenanceRelationships.

**Table 7 – Data dictionary for Boundary**

Line	Name/Role Name	Definition	Obligation/Condition	Maximum Occurrence	Data Type	Domain
31	Boundary	Set that represents the limit of an entity	O	*	<<Feature>>	Lines 32-39
32	boundaryId	Identifier assigned to the boundary	M	1	<<DataType>> Framework::Identifier	Unrestricted
33	officialDescription	Phrases, coordinates, meets and bounds, name of the organization responsible for administering the unit, or other authoritative information describing the geographic area	O	1	CharacterString	Unrestricted
34	boundaryClassifier	Term or phrase describing the boundary or boundary attributes and, optionally, the citation, reference, or documentation defining or further describing the term or phrase	O	*	<<DataType>> BoundaryClassifier	Unrestricted
35	effectiveDate	Date on which a geographic area change took effect	O	2	DateTime	Defined in ISO 19103
36	curve	1-dimensional geometric primitive, representing the continuous image of a line	M	*	<<Type>> GM_Curve	Defined in ISO 19107
37	extended	Group of properties that permit the identification and transport of unofficial feature attributes	O	1	<<DataType>> Framework::Extended Attribute	Unrestricted
38	Role name: changeControlledBy	Links Boundaries to the MaintenanceRelationship that describes the relationship between two or more specified Boundaries	O	*	<<Feature>> MaintenanceRelation ship	
39	Role name: bounds	Links Boundaries to the GeographicArea contained within the limiting Boundaries	O	*	<<Feature>> Geographic Area	

583

584 **8.8 MaintenanceRelationship**

585 A maintenance relationship exists when there is a relative dependency between two or more geographic areas for maintaining common boundary  
 586 or area information. A fromUnitId, or source, one to many toUnitIds, or targets, a changeDeterminationType, and a changeType shall be provided  
 587 for each maintenance relationship.

588

**Table 8 – Data dictionary for MaintenanceRelationship**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
40	MaintenanceRelationship	Relative dependency between two or more geographic areas for maintaining common boundary or area information			<<Feature>>	Lines 41-44
41	maintRelId	Name or code identifying the specific maintenance relationship instance	M	1	<<DataType>> Framework::Identifier	Unrestricted
42	changeDeterminationType	Specifies the interdependencies for the identified Boundary segments	M	1	<<CodeList>> DeterminationType	Unrestricted
43	changeType	Type of boundary change in the maintenance relationship	M	1	<<CodeList>> SpatialChangeType	Unrestricted
44	sharedBoundaryId	Boundary instanceCode identifying the boundary curve(s) involved in the maintenance relationship interdependencies	O	*	<<DataType>> Framework::Identifier	Unrestricted

589

590 **8.9 SpatialRelationship**

591 SpatialRelationships describe the relative spatial location of two geographic area features and their boundaries.

592 A fromUnitId, or source, one to many toUnitArealDs, or targets, and a fromToSpatialRelationship shall be provided for each spatialRelationship.

593

594

**Table 9 – Data dictionary for SpatialRelationship**

Line	Name/Role Name	Definition	Obligation/Condition	Maximum Occurrence	Data Type	Domain
45	SpatialRelationship	Relative spatial location of two geographic area features and their boundaries			<<Feature>>	Line 46
46	fromToSpatialRelationship	Specifies the type of spatial relationship between the identified geographic areas	M	1	<<CodeList>> SpatialRelationship List	Unrestricted

595

**8.10 BoundaryClassifier**

597 BoundaryClassifier is a class that links a free text boundaryClassifier and optionally a reference for the boundaryClassifier with one or many  
 598 specific boundaries.

599

**Table 10 – Data dictionary for BoundaryClassifier**

Line	Name/Role Name	Definition	Obligation/Condition	Maximum Occurrence	Data Type	Domain
47	BoundaryClassifier	Relative spatial location of two geographic area features and their boundaries			<<DataType>>	Line 48-49
48	boundaryClassifier		M	1	CharacterString	Unrestricted
49	boundaryClassifierReference		O	1	CharacterString	Unrestricted

600

601 **8.11 Code lists and enumerations**

602

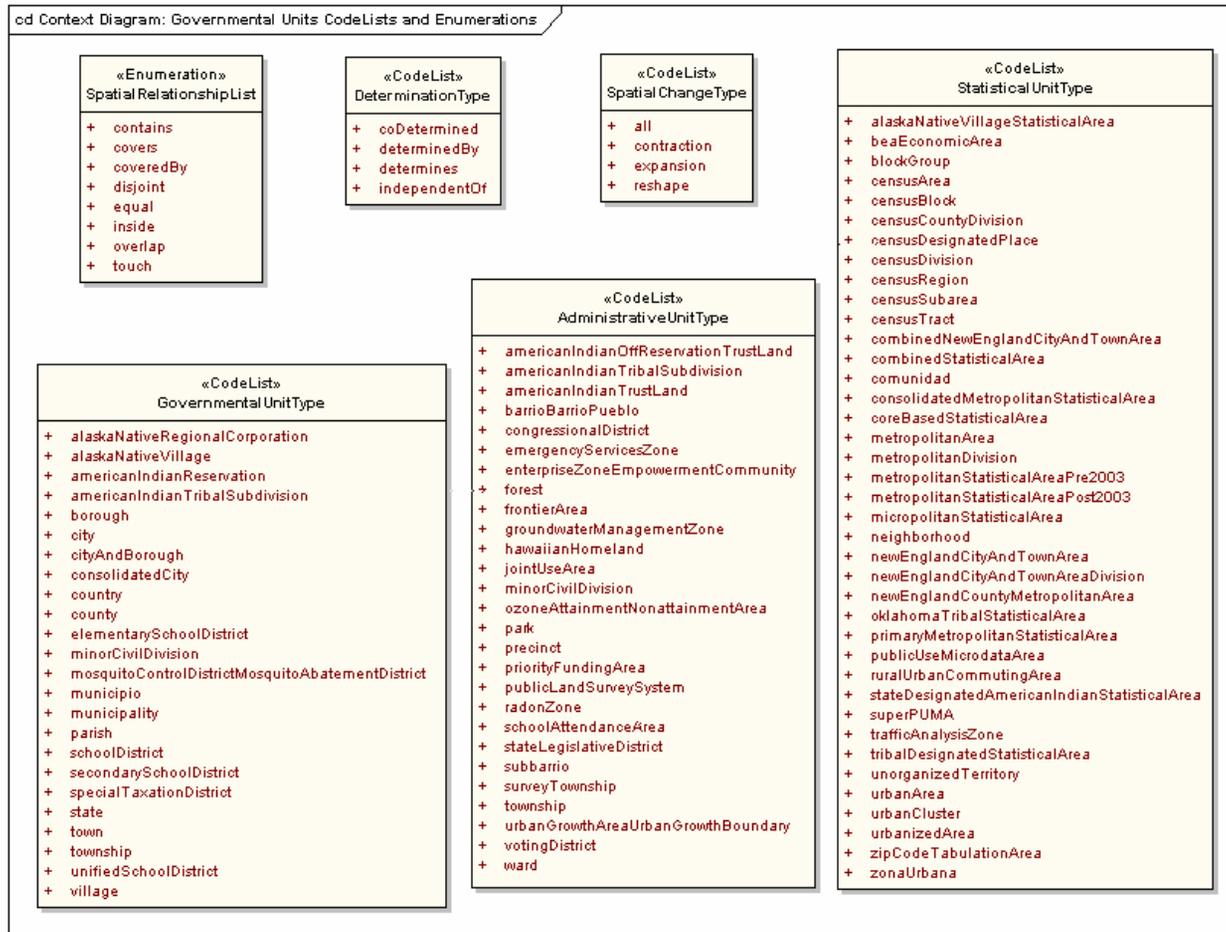


Figure 2 – Code lists and enumerations

603

604

Information Technology – Geographic Information Framework Data Content Standard  
Part 5: Governmental unit and other geographic area boundaries

605 **8.11.1 Code lists**

606 **8.11.1.1 AdministrativeUnitType code list**

607 AdministrativeUnitType is a CodeList of values for the attribute administrativeUnitType.

608

609

**Table 11 – CodeList for AdministrativeUnitType**

Name	Definition
americanIndianOffReservationTrustLand	The United States holds title for specific area in trust for the benefit of an American Indian tribe (Tribal trust land) or for an individual American Indian (individual trust land)
americanIndianTribalSubdivision	A legal subdivision of a federally recognized American Indian reservation, off-reservation trust land, or Oklahoma Tribal statistical area. These entities are internal units of self-government or administration that serve social, cultural, and/or economic purposes for American Indians living on a reservation, off-reservation trust land, or Oklahoma Tribal statistical area. Tribal subdivisions are known as areas, chapters, communities, districts, and segments
americanIndianTrustLand	An area for which the United States holds title in trust for the benefit of an American Indian tribe (Tribal trust land) or for an individual American Indian (individual trust land)
barrioBarrioPueblo	The primary legal divisions of municipios in Puerto Rico
congressionalDistrict (CD)	One of the 435 areas from which people are elected to the U.S. House of Representatives
emergencyServiceZone	A geographic entity, generally subdividing a county or municipality, defined for the purposes of planning and directing responses for emergency service responders, such as police, fire, and emergency medical services
enterpriseZoneEmpowermentCommunity	A geographic entity identified for purposes of administering economic development and community redevelopment programs, generally administered by the U.S. Department of Housing and Urban Development or the U.S. Department of Agriculture
forest	Bounded area of woods, forest, or grassland under the administration of a political agency (national forest, national grasslands, or State forest)
frontierArea	A geographic entity defined by the Department of Health and Human Services Office of Rural Health Policy for purposes of identifying counties with extremely low densities (generally less than seven people per square mile) in order to administer health programs
groundwaterManagementZone	A three-dimensional geographic entity containing groundwater being managed to mitigate impairment caused by the release of contaminants from a site
hawaiianHomeland (HHL)	An area held in trust for the benefit of native Hawaiians by the State of Hawaii, pursuant to the Hawaiian Homes Commission Act of 1920, as amended
jointUseArea	Territory that is administered, claimed, and/or used by two or more American Indian tribes. It may consist of an overlap of territory of adjoining American Indian reservations or Oklahoma Tribal statistical areas, or off-reservation trust land for one tribe that is located within the reservation of another tribe
minorCivilDivision (MCD)	A type of governmental unit that is the primary governmental or administrative division of a county or statistically equivalent entity in many States and statistically equivalent entities. MCDs are identified by a variety of terms, such as township, town (in eight States), or district. The U.S. Census Bureau recognizes MCDs in 28 States, the District of Columbia,

Information Technology – Geographic Information Framework Data Content Standard  
 Part 5: Governmental unit and other geographic area boundaries

Name	Definition
	Puerto Rico, and the Island Areas. In 20 States and American Samoa, all or many MCDs are active general-purpose governmental units. Many MCDs are not general-purpose governmental units, and therefore do not have elected officials to carry out legal functions; instead, they serve as nonfunctioning administrative entities
ozoneAttainmentNonattainmentArea	A geographic entity designated by the U.S. Environmental Protection Agency (EPA) for purposes of measuring, monitoring, and administering programs to improve air quality. An area is designated “nonattainment” if it has violated, or has contributed to violations of the national 8-hour ozone standard over a three-year period. EPA also may designate an area as attainment/unclassifiable, if it has: 1) monitored air quality data show that area is has not violated the ozone standard over a three-year period; or if 2) there is not enough information to determine the air quality in the area
park	Place or area set aside for recreation or preservation of a cultural or natural resource and under some form of government administration, not including National or State Forests or Reserves (national historical landmark, national park, State park, or Wilderness area)
precinct	A geographic entity subdividing a county, established by counties or municipalities for administrative or electoral purposes; one of several types of small geographic entities created by State and local governments for the purpose of administering elections
priorityFundingArea	An area defined for purposes of monitoring, planning, and administering efficient residential and commercial development as part of Smart Growth regulations in Maryland
publicLandSurveySystem	A survey of public lands; specifically the U.S. Public Land Survey system by which much of the United States was surveyed and divided into a rectangular grid system using townships, sections, and fractions of sections
radonZone	A geographic entity defined by the Environmental Protection Agency in response to a directive contained within Sections 307 and 309 of the Indoor Radon Abatement Act of 1988 (IRAA) to identify areas of the U.S. with the potential for elevated indoor radon levels. EPA’s Map of Radon Zones assigns each of the 3,141 counties in the U.S. to one of three zones based on radon potential
schoolAttendanceArea	A special-purpose geographic entity delineated by State, county, or local officials designating the school(s) that school-age children in that particular area must attend
stateLegislativeDistrict	The area represented by a member of the upper or lower chamber of a State legislature (or, for Nebraska, the unicameral legislature)
subbarrio	A legal subdivision of a barrio or barrio-pueblo (minor civil division) in 23 municipios in Puerto Rico
surveyTownship	The unit of survey of the U.S. Public Land Survey system representing a piece of land that is bounded on the east and west by meridians approximately six miles apart (exactly six miles at its south border) and on the north and south by parallels six miles apart, that is normally subdivided into 35 sections
township	A administrative unit that is a minor civil division in Arkansas, New Hampshire, Missouri, and North Carolina (Some townships in Missouri are functioning governmental units)
urbanGrowthAreaUrbanGrowthBoundary	An area defined for purposes of monitoring and controlling urban and suburban residential and commercial development. For instance, in Oregon, an “urban growth boundary” is delineated around each incorporated place or a group of incorporated places by State and local officials, and subsequently confirmed in State law, to control urban development

Information Technology – Geographic Information Framework Data Content Standard  
 Part 5: Governmental unit and other geographic area boundaries

Name	Definition
votingDistrict (VTD)	The generic name for a geographic entity—such as an election district, precinct, or ward—established by Tribal, State, and local governments for the purpose of conducting elections
ward	A type of local electoral subdivision of an incorporated place or minor civil division

610

611 **8.11.1.2 DeterminationType code list**

612 DeterminationType is a CodeList of values for the attribute changeDeterminationType.

613

614

**Table 12 – CodeList for DeterminationType**

Name	Definition
coDetermined	Changes to a boundary segment by either geographic area that shares the boundary segment imposes the same changes to the boundary of another geographic area that shares the same boundary segment
determinedBy	Changes to a boundary segment by another geographic area require the same changes to the boundary of a particular geographic area that shares the same boundary segment. This is the opposite of and potential reciprocal condition to "determines"
determines	Changes to a boundary segment by one geographic area require the same changes to the boundary of another geographic area that shares the boundary segment
independentOf	Changes to a boundary segment by one geographic area creates a new, unshared boundary segment in the boundary of that geographic area, and impose no changes to the boundary of another geographic area that shared the boundary segment by coincidence

615

616 **8.11.1.3 GovernmentalUnitType code list**

617 GovernmentalUnitType is a CodeList of values for the attribute governmentalUnitType.

618

619

**Table 13 – CodeList for GovernmentalUnitType**

Name	Definition
alaskaNativeRegionalCorporation (ANRC)	A corporate entity established to conduct both business and nonprofit affairs of Alaska Natives, pursuant to the Alaska Native Claims Settlement Act of 1972 (Public Law 92-203, as amended by Public Law 94-204). Twelve ANRCs are legally bounded geographic entities that cover Alaska, except for the Annette Islands Reserve (an American Indian reservation). A thirteenth ANRC represents Alaska Natives who do not live in Alaska and do not identify with any of the 12 corporations
alaskaNativeVillage (ANV)	A local governmental unit in Alaska that constitutes an association, band, clan, community, group, tribe, or village, recognized pursuant to the Alaska Native Claims Settlement Act of 1972 (Public Law 92-203, as amended Public Law 94-204). ANVs do not have clearly defined boundaries that are easily locatable, and they often include many square miles of land used by Alaska Natives for hunting and fishing, so the U.S. Census Bureau works with officials of the Alaska Native villages and Alaska Native Regional Corporations to delineate Alaska Native village statistical areas for data presentation purposes

Information Technology – Geographic Information Framework Data Content Standard  
Part 5: Governmental unit and other geographic area boundaries

Name	Definition
americanIndianReservation	A Federal American Indian reservation is an area that has been set aside by the United States for the use of one or more federally recognized American Indian tribes. Together with off-reservation trust land, a reservation covers territory over which one or more tribes have primary governmental authority. The boundary of a Federal reservation is defined by Tribal treaty, agreement, executive or secretarial order, Federal statute, or judicial determination. A State American Indian reservation is an area that a State government has allocated to a tribe recognized by that State, but not by the Federal government. American Indian reservations are known as colonies, communities, Indian communities, Indian villages, pueblos, rancherias, ranches, reservations, reserves, and villages
americanIndianTribalSubdivision	A legal subdivision of a federally recognized American Indian reservation, off-reservation trust land, or Oklahoma Tribal statistical area. These entities are internal units of self-government or administration that serve social, cultural, and/or economic purposes for American Indians. Tribal subdivisions are known as areas, chapters, communities, districts, and segments
borough	A legally established geographic entity in Alaska, which the Census Bureau treats as statistically equivalent to a county in other States; a minor civil division in each of the five counties that comprise New York city; a type of incorporated place in Connecticut, New Jersey, and Pennsylvania
city	A type of incorporated place in all States and the District of Columbia. In agreement with Hawaii, the U.S. Census Bureau does not recognize the city of Honolulu for presentation of census data. In Virginia, all cities are not part of any county, and so the Census Bureau treats them as equivalent to a county for data presentation purposes, as well as treating them as incorporated places; there also is one such independent city in each of three States: Maryland, Missouri, and Nevada. In 23 States and the District of Columbia, some or all cities are not part of any minor civil division, in which case the U.S. Census Bureau treats them as county divisions as well as incorporated places for data presentation purposes
cityAndBorough	A legally established geographic entity in Alaska, which the U.S. Census Bureau treats as the statistical equivalent of a county in other States; also, a type of incorporated place in Alaska
consolidatedCity	The U.S. Census Bureau refers to a governmental unit for which the functions of an incorporated place and its county or minor civil division have merged as a consolidated government. If one or more other incorporated places continue to function as separate governmental units even though they are part of a consolidated government, the U.S. Census Bureau refers to the primary incorporated place as a consolidated city
country	An independent, self-governing, political entity
county	The primary legal division of every State except Alaska and Louisiana
elementarySchoolDistrict	A school district inclusive of kindergarten through either the eighth or ninth grade or the first through either the eighth or ninth grade
minorCivilDivision (MCD)	A type of governmental unit that is the primary governmental or administrative division of a county or statistically equivalent entity in many States. MCDs are identified by a variety of terms, such as township, town (in eight States), or district. The U.S. Census Bureau recognizes MCDs in 28 States, the District of Columbia, Puerto Rico, and the Island Areas. In 20 States and American Samoa, all or many MCDs are active general-purpose governmental units. Many MCDs are not general-purpose governmental units, and therefore do not have elected officials to carry out legal functions; instead, they serve as nonfunctioning administrative entities
mosquitoControlDistrictMosquitoAbatement District	A geographic area defined for purposes of administering mosquito abatement or mosquito surveillance programs

Information Technology – Geographic Information Framework Data Content Standard  
Part 5: Governmental unit and other geographic area boundaries

Name	Definition
municipio	A governmental unit that is the primary legal division of Puerto Rico
municipality	A governmental unit that is a primary legal division in Alaska and the Northern Mariana Islands
parish	A governmental unit that is the primary legal division of Louisiana
schoolDistrict	A geographic entity within which State, county, or local officials or the U.S. Department of Defense provides public educational services for an area's residents
secondarySchoolDistrict	A school district inclusive of only high school (either the ninth through the twelfth grades or the tenth through the twelfth grades)
specialTaxationDistrict	An area defined for purposes of raising revenue to fund specific projects or programs, or to meet specific ongoing needs, such as security, trash collection, or infrastructure maintenance. Also known as business improvement districts (BID), downtown improvement districts (DID), special improvement districts (SID), or assessment districts
state	A primary governmental division of the United States
town	A governmental unit that is a functioning minor civil division found in the New England States, New York, and Wisconsin; and a type of incorporated place in 30 States and the U.S. Virgin Islands
township	A governmental unit that is a functioning minor civil division in 12 States (townships are administrative units in Arkansas, New Hampshire, and North Carolina). Townships in Missouri can be either functioning governmental units or nonfunctioning administrative units
unifiedSchoolDistrict	A school district inclusive of kindergarten through twelfth grade
village	A type of incorporated place in 20 States and American Samoa

620

621 **8.11.1.4 SpatialChangeType code list**

622 SpatialChangeType is a CodeList of values for the attribute changeType.

623

624

**Table 14 – CodeList for SpatialChangeType**

Name	Definition
all	All changes to geographic area boundaries, whether due to expansion, contraction, or reshape
contraction	Decrease in the area of a geographic area caused by a legal or administrative change in the definition of its boundary, for example, by de-annexation of adjacent territory
expansion	Increase in the area of a geographic area caused by a legal or administrative change in the definition of its boundary, for example, by annexation of adjacent territory
reshape	Change in the digital representation of the boundary of a geographic area to correspond to a more accurate or current survey information, where there has been no change to the legal definition of the boundary

625

626 **8.11.1.5 StatisticalUnitType**

627 StatisticalUnitType is a CodeList of values for the attribute statisticalUnitType.

Information Technology – Geographic Information Framework Data Content Standard  
Part 5: Governmental unit and other geographic area boundaries

628

629

**Table 15 – CodeList for StatisticalUnitType**

Name	Definition
alaskaNativeVillageStatisticalArea (ANVSA)	A statistical entity that represents the settled portion of an Alaska Native village for data presentation purposes
beaEconomicArea	A geographic entity defined by the Bureau of Economic Analysis (BEA) for purposes of tabulating, disseminating, and analyzing economic data. Each economic area consists of one or more economic nodes—metropolitan areas or similar areas that serve as centers of economic activity—and the surrounding counties that are economically related to the nodes
blockGroup (BG)	A statistical subdivision of a census tract. A BG consists of all tabulation blocks whose numbers begin with the same digit in a census tract
censusArea	A statistical entity that serves as the equivalent of a county in Alaska. Census areas are delineated cooperatively by the State of Alaska and the U.S. Census Bureau for the purpose of presenting census data for the portion of Alaska not within an organized borough, city and borough, or municipality
censusBlock	A geographic area bounded by visible and/or invisible features shown on a map prepared by the U.S. Census Bureau. A block is the smallest geographic entity for which the Census Bureau tabulates decennial census data
censusCountyDivision (CCD)	A statistical subdivision of a county, established and delineated cooperatively by the U.S. Census Bureau and State, local, and Tribal officials for data presentation purposes. CCDs have been established in 21 States that do not have minor civil divisions suitable for data presentation; that is, minor civil divisions have not been legally established, do not have governmental or administrative purposes, have boundaries that are ambiguous or change frequently, and/or generally are not well known to the public
censusDesignatedPlace (CDP)	A geographic entity that serves as the statistical counterpart of an incorporated place for the purpose of presenting census data for an area with a concentration of population, housing, and commercial structures that is identifiable by name, but is not within an incorporated place. CDPs usually are delineated cooperatively with State, Puerto Rico, Island Area, local, and Tribal officials based on U.S. Census Bureau guidelines. CDPs in Puerto Rico are referred to as either comunidades or zona urbanas
censusDivision	A grouping of States and the District of Columbia, established by the U.S. Census Bureau for the presentation of census data. The divisions are subdivisions of the four census regions
censusRegion	A grouping of States and the District of Columbia, established by the U.S. Census Bureau for the presentation of census data. Each region is divided into two or three census divisions
censusSubarea	A statistical subdivision of a borough, census area, or other entity that is the statistical equivalent of a county in Alaska. A census subarea is similar to a census county division in other States. Census subareas are delineated cooperatively by the State of Alaska and the U.S. Census Bureau
censusTract	A small, relatively permanent statistical subdivision of a county or statistically equivalent entity, delineated for data presentation purposes by a local group of census data users or the geographic staff of a regional census center in accordance with U.S. Census Bureau guidelines. Designed to be relatively homogeneous units

Information Technology – Geographic Information Framework Data Content Standard  
 Part 5: Governmental unit and other geographic area boundaries

Name	Definition
	with respect to population characteristics, economic status, and living conditions at the time they are established, census tracts generally contain between 1,000 and 8,000 people, with an optimum size of 4,000 people. Census tract boundaries are delineated with the intention of being stable over many decades, so they generally follow relatively permanent visible features. However, they may follow governmental unit boundaries and other invisible features in some instances; the boundary of a State or county (or statistically equivalent entity) is always a census tract boundary
combinedNewEnglandCityAndTown Area	A geographic entity defined by the Federal Office of Management and Budget to provide a city- and town-based area that is conceptually similar to the county-based combined statistical areas
combinedStatisticalArea	A geographic entity defined by the Federal Office of Management and Budget consisting of two or more adjacent core based statistical areas that have social and economic ties as measured by commuting, but at lower levels than are found among counties within metropolitan and micropolitan statistical areas
comunidad	A census designated place in Puerto Rico that is not related to a municipio's seat of government
consolidatedMetropolitanStatisticalArea (CMSA)	A geographic entity designated by the Federal Office of Management and Budget (OMB) for use by Federal statistical agencies. An area becomes a consolidated metropolitan statistical area (CMSA) if it qualifies as a metropolitan area (MA), has a census population of 1,000,000 or more, has component parts that qualify as primary metropolitan statistical areas (PMSAs) based on official standards, and local opinion favors the designation. CMSAs consist of whole counties except in New England, where they consist of county subdivisions (primarily cities and towns)
coreBasedStatisticalArea	A metropolitan or micropolitan statistical area defined by the Federal Office of Management and Budget consisting of the county or counties associated with at least one urban core (urbanized area or urban cluster) of at least 10,000 population, plus adjacent counties having a high degree of social and economic integration with the core as measured through commuting
metropolitanArea (MA)	A geographic entity designated by the Federal Office of Management and Budget (OMB) for use by Federal statistical agencies. An MA contains a core area with a large population nucleus, together with adjacent communities that have a high degree of economic and social integration with that core. (Some MAs are defined around two or more nuclei.) MAs are defined in terms of one or more counties or, in New England, county subdivisions (primarily cities and towns). "Metropolitan area" is a collective term established by the OMB in 1990 to refer to metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs), primary metropolitan statistical areas (PMSAs), and New England county metropolitan areas (NECMAs)
metropolitanDivision	A geographic entity defined by the Federal Office of Management and Budget that contains a county or group of counties that function as a distinct area within a larger metropolitan statistical area
metropolitanStatisticalAreaPre2003 (MSA) (Definition prior to 2003)	A geographic entity defined by the Federal Office of Management and Budget for use by Federal statistical agencies. A metropolitan statistical area (MSA) is a metropolitan area (MA) that is not closely associated with another MA. An MSA consists of one or more counties, except in New England, where MSAs are defined in terms of county subdivisions (primarily cities and towns)
metropolitanStatisticalAreaPost2003	A geographic entity defined by the Federal Office of Management

Information Technology – Geographic Information Framework Data Content Standard  
Part 5: Governmental unit and other geographic area boundaries

Name	Definition
(Definition as of June 6, 2003)	and Budget consisting of the county or counties associated with at least one urbanized area of 50,000 or more population, plus adjacent counties having a high degree of social and economic integration with the core as measured through commuting
micropolitanStatisticalArea	A geographic entity defined by the Federal Office of Management and Budget consisting of the county or counties associated with at least one urban cluster of 10,000 or more population, plus adjacent counties having a high degree of social and economic integration with the core as measured through commuting
neighborhood	A geographic entity, generally defined within a municipality or county, that encompasses an area in which residents recognize a common identity as expressed through social and functional ties as well as various landscape elements
newEnglandCityAndTownArea (NECTA)	A city- and town-based geographic entity defined by the Federal Office of Management and Budget that is conceptually similar to the county-based metropolitan and micropolitan statistical areas
newEnglandCityAndTownAreaDivision	A city- and town-based geographic entity defined by the Federal Office of Management and Budget that functions as a distinct area within a larger New England city and town area
newEnglandCountyMetropolitanArea (NECMA)	A county-based area designated by the Federal Office of Management and Budget to provide an alternative to the county subdivision-based metropolitan statistical areas and consolidated metropolitan statistical areas in New England
oklahomaTribalStatisticalArea (OTSA)	A statistical entity identified and delineated by the U.S. Census Bureau in consultation with federally recognized American Indian tribes in Oklahoma that once had a reservation in that State. An OTSA encompasses an area that conforms to a tribe's reservation that was dissolved preceding the establishment of Oklahoma as a State in 1907. For some OTSAs, neighboring tribes agreed to modify the boundary for data presentation purposes. Referred to as a Tribal jurisdiction statistical area (TJSA) for the 1990 census and by a single all-encompassing entity called the "Historic Areas of Oklahoma (excluding urbanized areas)" for the 1980 census
primaryMetropolitanStatisticalArea (PMSA)	A geographic entity designated by the Federal Office of Management and Budget for use by Federal statistical agencies. If an area that qualifies as a metropolitan area (MA) has a census population of one million or more, two or more primary metropolitan statistical areas (PMSAs) may be defined within it if they meet official standards and local opinion favors the designation. When PMSAs are established within an MA, that MA is designated a consolidated metropolitan statistical area (CMSA)
publicUseMicrodataArea (PUMA)	A geographic entity for which the U.S. Census Bureau provides specially selected extracts of raw information from a small (5-percent) sample of long-form census records that are screened to protect confidentiality of census records. The extract files are referred to as public use microdata samples (PUMS). PUMAs must have a minimum census population of 100,000 and cannot cross State lines
ruralUrbanCommutingArea (RUCA)	A geographic entity defined by the U.S. Department of Agriculture's Economic Research Service in conjunction with the U.S. Department of Health and Human Service's Office of Rural Health Policy and the Washington/Wyoming/Alaska/Montana/Idaho (WWAMI) Rural Health Research Center to represent the area associated with an urban center through various levels of commutation. RUCAs are defined in terms of census tracts
stateDesignatedAmericanIndian	A statistical entity delineated for an American Indian tribe that does

Information Technology – Geographic Information Framework Data Content Standard  
Part 5: Governmental unit and other geographic area boundaries

Name	Definition
StatisticalArea (SDAISA)	not have a land base (reservation) and is recognized as a tribe by a State government, but not the Federal government. State designated American Indian statistical areas (SDAISAs) are identified and delineated for the U.S. Census Bureau by a State liaison identified by the governor's office
superPUMA	A geographic entity for which the U.S. Census Bureau provides specially selected extracts of raw information from a small (1-percent) sample of long-form census records that are screened to protect confidentiality of census records. The extract files are referred to as public use microdata samples (PUMS). Super-PUMAs must have a minimum census population of 400,000 and cannot cross State lines
trafficAnalysisZone (TAZ)	A statistical entity delineated by State and/or local transportation officials for tabulating traffic-related data—especially journey-to-work and place-of-work statistics. A TAZ usually consists of one or more census blocks, block groups, or census tracts
tribalDesignatedStatisticalArea (TDSA)	A statistical entity delineated for the U.S. Census Bureau by a federally recognized American Indian tribe that does not have a land base (a federally recognized reservation or off-reservation trust land). A TDSA generally encompasses a compact and contiguous area that contains a concentration of people who identify with a federally recognized American Indian tribe and in which there is structured or organized Tribal activity
unorganizedTerritory (UT)	In a State in which the U.S. Census Bureau provides data for minor civil divisions (MCDs), the portion of a county that is not included in a legally established MCD or in an incorporated place that is independent of an MCD. For data presentation purposes, the Census Bureau recognizes such area as one or more separate county subdivisions, each designated as an unorganized territory
urbanArea	A geographic entity defined to represent the extent of urban development, according to agency- or organization-specified criteria
urbanCluster (UC)	A geographic entity defined by the U.S. Census Bureau to identify a densely settled area having a population of 2,500 to 49,999
urbanizedArea (UA)	A geographic entity defined by the U.S. Census Bureau to identify a densely settled area having a population of at least 50,000
zipCodeTabulationArea (ZCTA)	A statistical entity developed by the U.S. Census Bureau to approximate the delivery area for a U.S. Postal Service 5-digit or 3-digit ZIP Code in the United States and Puerto Rico. A ZCTA is an aggregation of census blocks that have the same predominant ZIP Code associated with the mailing addresses in the Census Bureau's Master Address File
zonaUrbana	In Puerto Rico, a census designated place consisting of the municipio seat of government and the adjacent built-up area. A zona urbana cannot extend across its municipio's boundary. See census designated place, comunidad

630

631 **8.11.2 SpatialRelationshipList enumeration**

632 SpatialRelationshipList is an enumeration of values for the attribute fromToSpatialRelationship.

633

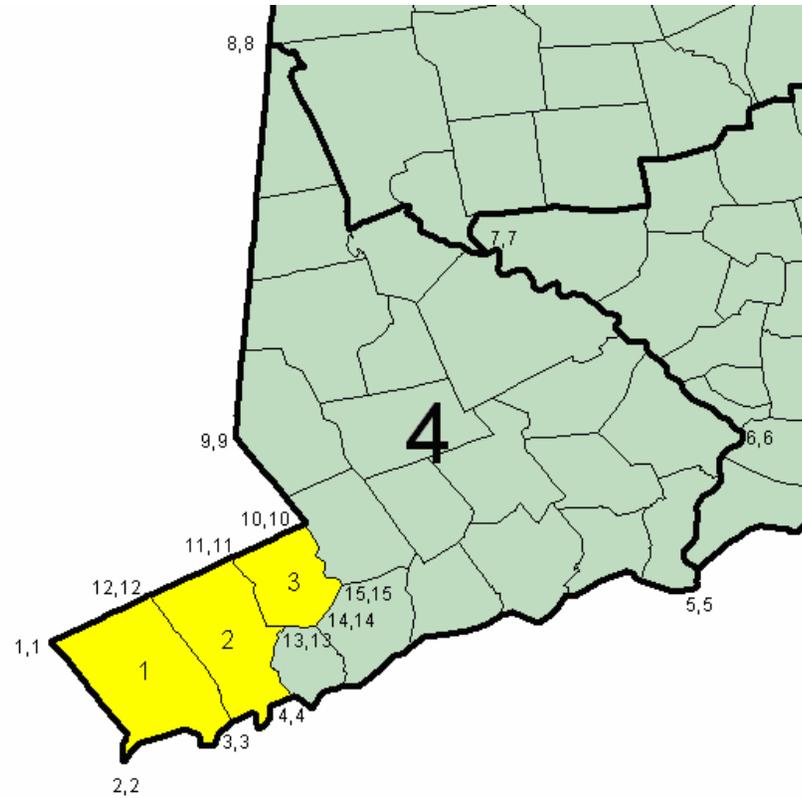
634

**Table 16 – SpatialRelationshipList enumeration**

Name	Definition
contains	The interior of one geographic area completely includes and encompasses the interior and boundary of the other geographic area, so that their boundaries do not intersect
covers	The interior and boundary of one geographic area completely include the interior of the other geographic area and their boundaries intersect
coveredBy	The interior of one geographic area is completely included in the interior or the boundary of the other governmental unit and their boundaries intersect. This is the opposite of and reciprocal condition to "covers"
disjoint	The boundaries and interiors of two geographic areas do not intersect
equal	The two geographic areas have the same boundary and interior
inside	The interior and boundary of one geographic area is completely included in the interior of the other geographic area, so that their boundaries do not intersect. This is the opposite of and reciprocal condition to "contains"
overlap	The boundaries and interiors of the two geographic areas intersect
touch	The boundaries of two geographic areas intersect but the interiors do not intersect

635  
636  
637

### Annex A (informative) Sample map extraction and associated attribute table



638  
639  
640

Figure A.1 – Sample map

Information Technology – Geographic Information Framework Data Content Standard  
 Part 5: Governmental unit and other geographic area boundaries

641

**Table A.1 – Sample associated attribute table**

unitId	instanceName	instanceCode	codingSystemReference	codingSystemReference	governmentalUnitType	statisticalUnitType	typeDefinition	geometry
1	Greenwich	0256	General Services Administration Geographic Location Codes - City		town		A governmental unit that is a functioning minor civil division found in the New England States, New York, and Wisconsin; and a type of incorporated place in 30 States and the U.S. Virgin Islands.	1,1 2, 2 3,3 12,12 1,1
2	Stamford	0700	General Services Administration Geographic Location Codes - City		town		A governmental unit that is a functioning minor civil division found in the New England States, New York, and Wisconsin; and a type of incorporated place in 30 States and the U.S. Virgin Islands.	3,3 4,4 13,13 11,11 12,12 3,3
3	New Canaan	0425	General Services Administration Geographic Location Codes - City		town		A governmental unit that is a functioning minor civil division found in the New England States, New York, and Wisconsin; and a type of	13,13 14,14 15,15 10,10 11,11 13,13

Information Technology – Geographic Information Framework Data Content Standard  
 Part 5: Governmental unit and other geographic area boundaries

unitId	instanceName	instanceCode	codingSystemReference	codingSystemReference	governmentalUnitType	statisticalUnitType	typeDefinition	geometry
							incorporated place in 30 States and the U.S. Virgin Islands.	
4	Fairfield County	09001	INCITS 38 - Information Systems - Codes - Identification of the States, the District of Columbia, and the Outlying Areas of the United States For Information Interchange	INCITS 31 - Information Systems - Codes -Structure for the Identification of Counties and County Equivalents of the United States and its Outlying and Associated Areas for Information Interchange		county	The primary legal division of every State except Alaska and Louisiana.	1,1 2,2 3,3 4,4 5,5 6,6 7,7 8,8 9,9 10,10 11,11 12,12 1,1

642

643

**Table A.2 – Sample spatial relationships**

fromSpUnit	toSpUnit	fromToSpatialRelationship
4	1	covers
4	2	covers
4	3	covers
1	2	touch
2	3	touch

644

645

646

**Table A.3 – Sample maintenance and change types**

<b>fromMaintUnit</b>	<b>toMaintUnit</b>	<b>DeterminationType</b>	<b>ChangeType</b>
1	2	coDetermined	All
2	3	coDetermined	All
1	4	coDetermined	All
2	4	coDetermined	All
3	4	coDetermined	All

647