

## Why you need to capture GPS data during enumeration



# GPS - Benefits

## Reasons for doing this are:

- Captured GPS locations can be used as a reference point for future Census activities
- Information captured with GPS locations has major benefits to other government departments such as:
  - Emergency Planning & Humanitarian Response
  - Flood plain modelling
  - Planning of social and Educational services
  - Poverty Analysis
  - Utility service Planning
  - Labour force analysis
  - Marketing analysis
  - Voting district delineation
  - Epidemiological analysis
  - Agriculture Planning



# Existing methods

Historically there have been 2 ways to associate census data to geographical locations

- PDA – Inbuilt GPS receiver
- Handheld GPS Devices

*(See below)*



## Implementing GPS Location capture

For implementation of both PDA or hand held GPS the following needs to be considered:

### *Significant costs (Time and money)*

- Purchase of hardware (PDA ~\$600USD/Each)
- Technical Training for enumerators
- Cost of Pre/Post Census mapping exercise
- Software development
- Logistical costs





## An alternative method from DRS.....

The DRS method allows you to continue to use paper based data collection for census enumeration.

It allows for GPS data to be captured at time of enumeration:

- Quickly
- Efficiently
- Effectively
- Timely
- Inexpensively

But how.....?



DRS has analysed the a need for a GPS device that shows an enumerator's current location and is:

Low cost

- Large quantities required

Accurate

- Within 5m
- Will only be used outside (to keep costs down)

Light weight

- Enumerator kits

Simple to use

- One switch
- No training

Non-consumer

- Application specific
- Will be returned

## Introducing the DRS 'Cense' device



**SAMPLE**  
123456(78)

GPS LATITUDE					
<input type="text"/>	<input type="text"/> <input type="text"/>	°	<input type="text"/> <input type="text"/>	'	<input type="text"/> <input type="text"/> <input type="text"/>

GPS LONGITUDE					
<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	°	<input type="text"/> <input type="text"/>	'	<input type="text"/> <input type="text"/> <input type="text"/>



## Enumerator's Clip board

**POPULATION CENSUS ORGANIZATION**  
**HOUSING AND POPULATION CENSUS 2008**

123456 (78)

Handwritten: + 51 23 458  
- 102 11 390

**FOR ALL PERSONS**

NAME AND SEX	DATE OF BIRTH	RELIGION	NATIONALITY	MARITAL STATUS	AGE	SEX	RESIDENTIAL STATUS	RELATIONSHIP TO HEAD OF HOUSEHOLD	NAME AND SEX OF HOUSEHOLD MEMBERS
1. Yes (Working)	2. Yes (Unemployed)	3. Yes (Student)	4. Yes (Housewife)	5. Yes (Other)	6. No	7. Male	8. Female	9. Head of Household	10. Other
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

**DECLARATION**  
I hereby declare that information given above is true.  
I know that provision of false information may result in criminal prosecution.

Signature of Respondent: \_\_\_\_\_  
Name of Respondent: \_\_\_\_\_  
N.U.C. No. \_\_\_\_\_

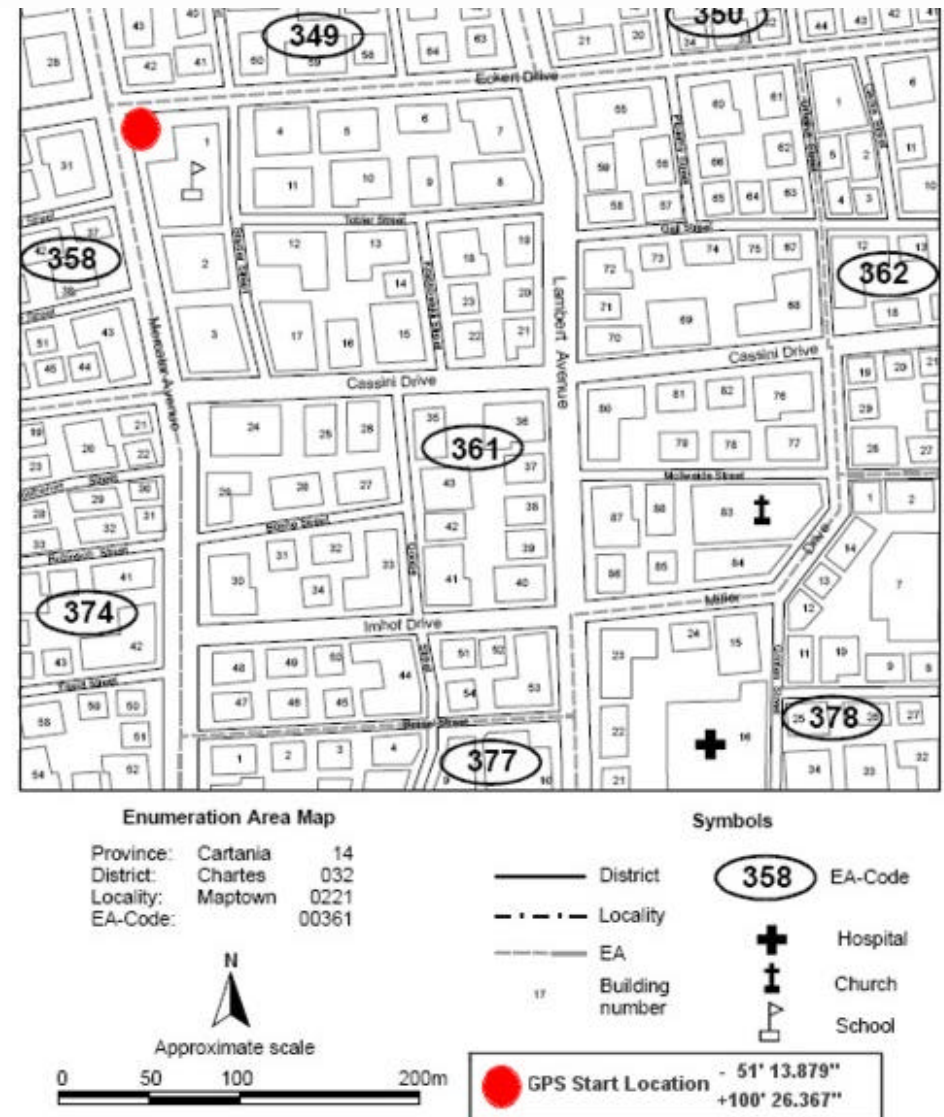
**HOUSING CHARACTERISTICS**

Roof - 17a: 1. Flat 2. Gable 3. Other  
Wall - 17b: 1. Brick 2. Concrete 3. Other  
Period of Construction - 18: 1. 1918-1929 2. 1930-1939 3. 1940-1949 4. 1950-1959 5. 1960-1969 6. 1970-1979 7. 1980-1989 8. 1990-1999 9. 2000-2009 10. 2010-2019 11. 2020-2029 12. 2030-2039 13. 2040-2049 14. 2050-2059 15. 2060-2069 16. 2070-2079 17. 2080-2089 18. 2090-2099 19. 2100-2109 20. 2110-2119 21. 2120-2129 22. 2130-2139 23. 2140-2149 24. 2150-2159 25. 2160-2169 26. 2170-2179 27. 2180-2189 28. 2190-2199 29. 2200-2209 30. 2210-2219 31. 2220-2229 32. 2230-2239 33. 2240-2249 34. 2250-2259 35. 2260-2269 36. 2270-2279 37. 2280-2289 38. 2290-2299 39. 2300-2309 40. 2310-2319 41. 2320-2329 42. 2330-2339 43. 2340-2349 44. 2350-2359 45. 2360-2369 46. 2370-2379 47. 2380-2389 48. 2390-2399 49. 2400-2409 50. 2410-2419 51. 2420-2429 52. 2430-2439 53. 2440-2449 54. 2450-2459 55. 2460-2469 56. 2470-2479 57. 2480-2489 58. 2490-2499 59. 2500-2509 60. 2510-2519 61. 2520-2529 62. 2530-2539 63. 2540-2549 64. 2550-2559 65. 2560-2569 66. 2570-2579 67. 2580-2589 68. 2590-2599 69. 2600-2609 70. 2610-2619 71. 2620-2629 72. 2630-2639 73. 2640-2649 74. 2650-2659 75. 2660-2669 76. 2670-2679 77. 2680-2689 78. 2690-2699 79. 2700-2709 80. 2710-2719 81. 2720-2729 82. 2730-2739 83. 2740-2749 84. 2750-2759 85. 2760-2769 86. 2770-2779 87. 2780-2789 88. 2790-2799 89. 2800-2809 90. 2810-2819 91. 2820-2829 92. 2830-2839 93. 2840-2849 94. 2850-2859 95. 2860-2869 96. 2870-2879 97. 2880-2889 98. 2890-2899 99. 2900-2909 100. 2910-2919 101. 2920-2929 102. 2930-2939 103. 2940-2949 104. 2950-2959 105. 2960-2969 106. 2970-2979 107. 2980-2989 108. 2990-2999 109. 3000-3009 110. 3010-3019 111. 3020-3029 112. 3030-3039 113. 3040-3049 114. 3050-3059 115. 3060-3069 116. 3070-3079 117. 3080-3089 118. 3090-3099 119. 3100-3109 120. 3110-3119 121. 3120-3129 122. 3130-3139 123. 3140-3149 124. 3150-3159 125. 3160-3169 126. 3170-3179 127. 3180-3189 128. 3190-3199 129. 3200-3209 130. 3210-3219 131. 3220-3229 132. 3230-3239 133. 3240-3249 134. 3250-3259 135. 3260-3269 136. 3270-3279 137. 3280-3289 138. 3290-3299 139. 3300-3309 140. 3310-3319 141. 3320-3329 142. 3330-3339 143. 3340-3349 144. 3350-3359 145. 3360-3369 146. 3370-3379 147. 3380-3389 148. 3390-3399 149. 3400-3409 150. 3410-3419 151. 3420-3429 152. 3430-3439 153. 3440-3449 154. 3450-3459 155. 3460-3469 156. 3470-3479 157. 3480-3489 158. 3490-3499 159. 3500-3509 160. 3510-3519 161. 3520-3529 162. 3530-3539 163. 3540-3549 164. 3550-3559 165. 3560-3569 166. 3570-3579 167. 3580-3589 168. 3590-3599 169. 3600-3609 170. 3610-3619 171. 3620-3629 172. 3630-3639 173. 3640-3649 174. 3650-3659 175. 3660-3669 176. 3670-3679 177. 3680-3689 178. 3690-3699 179. 3700-3709 180. 3710-3719 181. 3720-3729 182. 3730-3739 183. 3740-3749 184. 3750-3759 185. 3760-3769 186. 3770-3779 187. 3780-3789 188. 3790-3799 189. 3800-3809 190. 3810-3819 191. 3820-3829 192. 3830-3839 193. 3840-3849 194. 3850-3859 195. 3860-3869 196. 3870-3879 197. 3880-3889 198. 3890-3899 199. 3900-3909 200. 3910-3919 201. 3920-3929 202. 3930-3939 203. 3940-3949 204. 3950-3959 205. 3960-3969 206. 3970-3979 207. 3980-3989 208. 3990-3999 209. 4000-4009 210. 4010-4019 211. 4020-4029 212. 4030-4039 213. 4040-4049 214. 4050-4059 215. 4060-4069 216. 4070-4079 217. 4080-4089 218. 4090-4099 219. 4100-4109 220. 4110-4119 221. 4120-4129 222. 4130-4139 223. 4140-4149 224. 4150-4159 225. 4160-4169 226. 4170-4179 227. 4180-4189 228. 4190-4199 229. 4200-4209 230. 4210-4219 231. 4220-4229 232. 4230-4239 233. 4240-4249 234. 4250-4259 235. 4260-4269 236. 4270-4279 237. 4280-4289 238. 4290-4299 239. 4300-4309 240. 4310-4319 241. 4320-4329 242. 4330-4339 243. 4340-4349 244. 4350-4359 245. 4360-4369 246. 4370-4379 247. 4380-4389 248. 4390-4399 249. 4400-4409 250. 4410-4419 251. 4420-4429 252. 4430-4439 253. 4440-4449 254. 4450-4459 255. 4460-4469 256. 4470-4479 257. 4480-4489 258. 4490-4499 259. 4500-4509 260. 4510-4519 261. 4520-4529 262. 4530-4539 263. 4540-4549 264. 4550-4559 265. 4560-4569 266. 4570-4579 267. 4580-4589 268. 4590-4599 269. 4600-4609 270. 4610-4619 271. 4620-4629 272. 4630-4639 273. 4640-4649 274. 4650-4659 275. 4660-4669 276. 4670-4679 277. 4680-4689 278. 4690-4699 279. 4700-4709 280. 4710-4719 281. 4720-4729 282. 4730-4739 283. 4740-4749 284. 4750-4759 285. 4760-4769 286. 4770-4779 287. 4780-4789 288. 4790-4799 289. 4800-4809 290. 4810-4819 291. 4820-4829 292. 4830-4839 293. 4840-4849 294. 4850-4859 295. 4860-4869 296. 4870-4879 297. 4880-4889 298. 4890-4899 299. 4900-4909 300. 4910-4919 301. 4920-4929 302. 4930-4939 303. 4940-4949 304. 4950-4959 305. 4960-4969 306. 4970-4979 307. 4980-4989 308. 4990-4999 309. 5000-5009 310. 5010-5019 311. 5020-5029 312. 5030-5039 313. 5040-5049 314. 5050-5059 315. 5060-5069 316. 5070-5079 317. 5080-5089 318. 5090-5099 319. 5100-5109 320. 5110-5119 321. 5120-5129 322. 5130-5139 323. 5140-5149 324. 5150-5159 325. 5160-5169 326. 5170-5179 327. 5180-5189 328. 5190-5199 329. 5200-5209 330. 5210-5219 331. 5220-5229 332. 5230-5239 333. 5240-5249 334. 5250-5259 335. 5260-5269 336. 5270-5279 337. 5280-5289 338. 5290-5299 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472. 6630-6639 473. 6640-6649 474. 6650-6659 475. 6660-6669 476. 6670-6679 477. 6680-6689 478. 6690-6699 479. 6700-6709 480. 6710-6719 481. 6720-6729 482. 6730-6739 483. 6740-6749 484. 6750-6759 485. 6760-6769 486. 6770-6779 487. 6780-6789 488. 6790-6799 489. 6800-6809 490. 6810-6819 491. 6820-6829 492. 6830-6839 493. 6840-6849 494. 6850-6859 495. 6860-6869 496. 6870-6879 497. 6880-6889 498. 6890-6899 499. 6900-6909 500. 6910-6919 501. 6920-6929 502. 6930-6939 503. 6940-6949 504. 6950-6959 505. 6960-6969 506. 6970-6979 507. 6980-6989 508. 6990-6999 509. 7000-7009 510. 7010-7019 511. 7020-7029 512. 7030-7039 513. 7040-7049 514. 7050-7059 515. 7060-7069 516. 7070-7079 517. 7080-7089 518. 7090-7099 519. 7100-7109 520. 7110-7119 521. 7120-7129 522. 7130-7139 523. 7140-7149 524. 7150-7159 525. 7160-7169 526. 7170-7179 527. 7180-7189 528. 7190-7199 529. 7200-7209 530. 7210-7219 531. 7220-7229 532. 7230-7239 533. 7240-7249 534. 7250-7259 535. 7260-7269 536. 7270-7279 537. 7280-7289 538. 7290-7299 539. 7300-7309 540. 7310-7319 541. 7320-7329 542. 7330-7339 543. 7340-7349 544. 7350-7359 545. 7360-7369 546. 7370-7379 547. 7380-7389 548. 7390-7399 549. 7400-7409 550. 7410-7419 551. 7420-7429 552. 7430-7439 553. 7440-7449 554. 7450-7459 555. 7460-7469 556. 7470-7479 557. 7480-7489 558. 7490-7499 559. 7500-7509 560. 7510-7519 561. 7520-7529 562. 7530-7539 563. 7540-7549 564. 7550-7559 565. 7560-7569 566. 7570-7579 567. 7580-7589 568. 7590-7599 569. 7600-7609 570. 7610-7619 571. 7620-7629 572. 7630-7639 573. 7640-7649 574. 7650-7659 575. 7660-7669 576. 7670-7679 577. 7680-7689 578. 7690-7699 579. 7700-7709 580. 7710-7719 581. 7720-7729 582. 7730-7739 583. 7740-7749 584. 7750-7759 585. 7760-7769 586. 7770-7779 587. 7780-7789 588. 7790-7799 589. 7800-7809 590. 7810-7819 591. 7820-7829 592. 7830-7839 593. 7840-7849 594. 7850-7859 595. 7860-7869 596. 7870-7879 597. 7880-7889 598. 7890-7899 599. 7900-7909 600. 7910-7919 601. 7920-7929 602. 7930-7939 603. 7940-7949 604. 7950-7959 605. 7960-7969 606. 7970-7979 607. 7980-7989 608. 7990-7999 609. 8000-8009 610. 8010-8019 611. 8020-8029 612. 8030-8039 613. 8040-8049 614. 8050-8059 615. 8060-8069 616. 8070-8079 617. 8080-8089 618. 8090-8099 619. 8100-8109 620. 8110-8119 621. 8120-8129 622. 8130-8139 623. 8140-8149 624. 8150-8159 625. 8160-8169 626. 8170-8179 627. 8180-8189 628. 8190-8199 629. 8200-8209 630. 8210-8219 631. 8220-8229 632. 8230-8239 633. 8240-8249 634. 8250-8259 635. 8260-8269 636. 8270-8279 637. 8280-8289 638. 8290-8299 639. 8300-8309 640. 8310-8319 641. 8320-8329 642. 8330-8339 643. 8340-8349 644. 8350-8359 645. 8360-8369 646. 8370-8379 647. 8380-8389 648. 8390-8399 649. 8400-8409 650. 8410-8419 651. 8420-8429 652. 8430-8439 653. 8440-8449 654. 8450-8459 655. 8460-8469 656. 8470-8479 657. 8480-8489 658. 8490-8499 659. 8500-8509 660. 8510-8519 661. 8520-8529 662. 8530-8539 663. 8540-8549 664. 8550-8559 665. 8560-8569 666. 8570-8579 667. 8580-8589 668. 8590-8599 669. 8600-8609 670. 8610-8619 671. 8620-8629 672. 8630-8639 673. 8640-8649 674. 8650-8659 675. 8660-8669 676. 8670-8679 677. 8680-8689 678. 8690-8699 679. 8700-8709 680. 8710-8719 681. 8720-8729 682. 8730-8739 683. 8740-8749 684. 8750-8759 685. 8760-8769 686. 8770-8779 687. 8780-8789 688. 8790-8799 689. 8800-8809 690. 8810-8819 691. 8820-8829 692. 8830-8839 693. 8840-8849 694. 8850-8859 695. 8860-8869 696. 8870-8879 697. 8880-8889 698. 8890-8899 699. 8900-8909 700. 8910-8919 701. 8920-8929 702. 8930-8939 703. 8940-8949 704. 8950-8959 705. 8960-8969 706. 8970-8979 707. 8980-8989 708. 8990-8999 709. 9000-9009 710. 9010-9019 711. 9020-9029 712. 9030-9039 713. 9040-9049 714. 9050-9059 715. 9060-9069 716. 9070-9079 717. 9080-9089 718. 9090-9099 719. 9100-9109 720. 9110-9119 721. 9120-9129 722. 9130-9139 723. 9140-9149 724. 9150-9159 725. 9160-9169 726. 9170-9179 727. 9180-9189 728. 9190-9199 729. 9200-9209 730. 9210-9219 731. 9220-9229 732. 9230-9239 733. 9240-9249 734. 9250-9259 735. 9260-9269 736. 9270-9279 737. 9280-9289 738.

- Single button operation
- No training required
- No software required
- No technical support required
- No Reliance on mobile phone networks
- Lower price point than PDA
- Uses commonly available batteries (9v)

# 'Cense' - Benefits

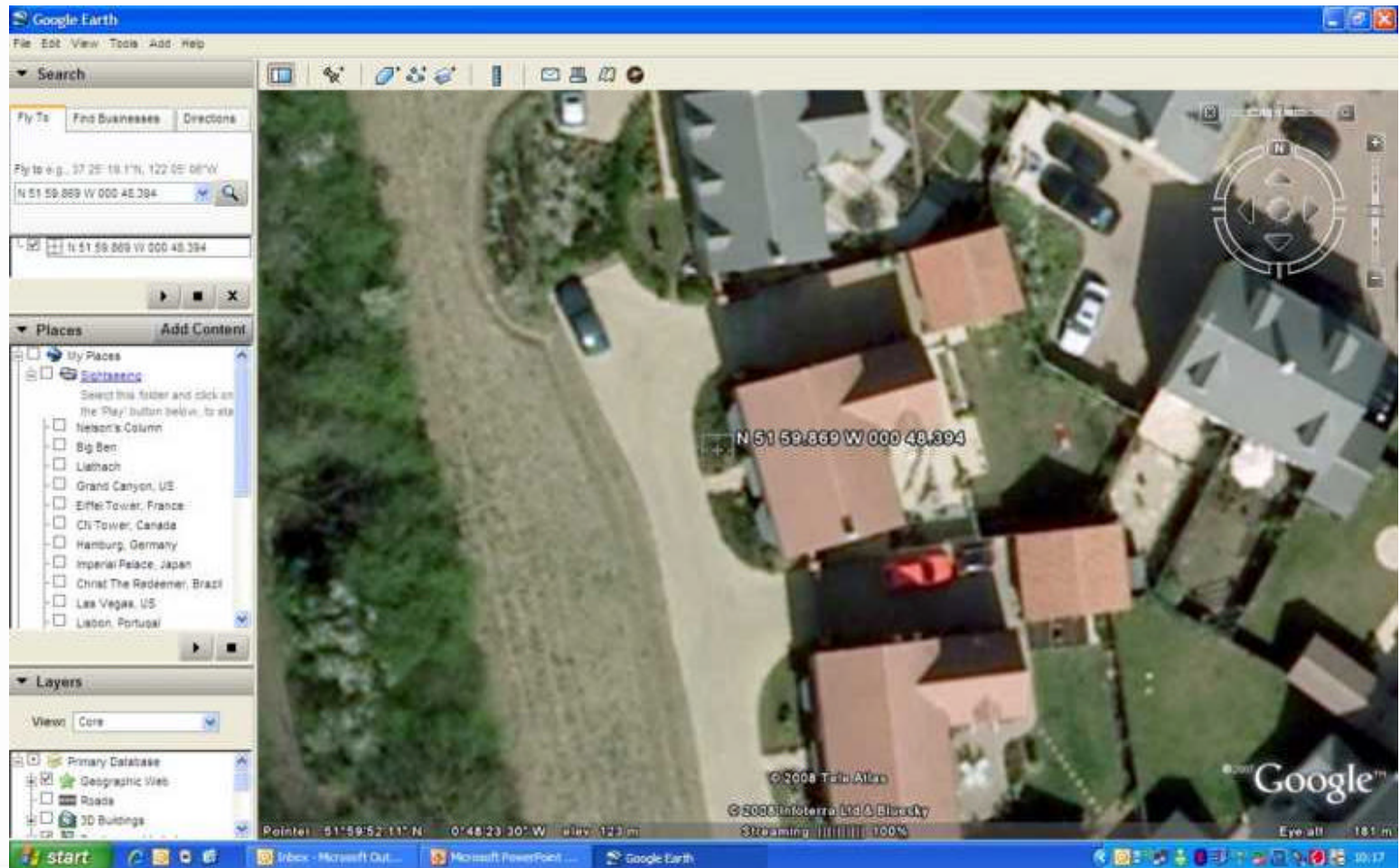
- Can be used to confirm start location for each enumerator
- Help ensure enumerator goes to the correct position on EA Map





Census data captured can now be associated with a geographical location

- ESRI
- Intergraph
- + Others





**DRS will be pleased to discuss with you any requirement for GPS location capture and offer a comprehensive portfolio of Census solutions**

**[www.drs.co.uk](http://www.drs.co.uk)**

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