

Appendix C: Traffic Modelling

**Nelson Arterial Traffic Study
Network Performance Summary Statistics**

| | | BASE 2006 | | | BASE 2016 | | | BASE 2036 | | | |
|----------------------|---|-------------------------------|----------|-----------|--------------|-----------|-----------|--------------|-----------|-----------|-----------|
| | | AMP | INP | PMP | AMP | INP | PMP | AMP | INP | PMP | |
| Whole Network | Total person trips | | | | | | | | | | |
| | Car driver | 37058 | 39414 | | 40881 | 43425 | | 45888 | 50427 | | |
| | Car passenger | 6811 | 12782 | | 7236 | 13873 | | 7805 | 15999 | | |
| | PT | 277 | 175 | | 351 | 307 | | 383 | 340 | | |
| | Walk / cycle | 14082 | 21601 | | 15106 | 23897 | | 16310 | 27613 | | |
| Whole Network | Private cars trips^(1hr) | | | | | | | | | | |
| | Total driver trips (incl. park) | 24636 | 20821 | 26255 | 27257 | 22893 | 29581 | 31035 | 26686 | 33970 | |
| Corridor Study Area | Vehicle kilometres | 109958 | 93596 | 122721 | 122841 | 105256 | 137895 | 144255 | 128665 | 163128 | |
| | Vehicle in-motion minutes | 123055 | 102218 | 138674 | 139259 | 115186 | 159839 | 163116 | 140347 | 186017 | |
| | Mean running speed (km/hr) | 53.61 | 54.94 | 53.10 | 52.93 | 54.83 | 51.76 | 53.06 | 55.01 | 52.62 | |
| | Vehicles subject to delay | 285103 | 240166 | 330582 | 310253 | 257512 | 361501 | 338039 | 287245 | 399251 | |
| | Total vehicle delay (mins) | 21295 | 16592 | 26324 | 27245 | 22263 | 33836 | 31964 | 27231 | 44466 | |
| | Delay per delayed vehicle | 4.5 | 4.1 | 4.8 | 5.3 | 5.2 | 5.6 | 5.7 | 5.7 | 6.7 | |
| | Total vehicle minutes (in-motion + delay) | 144350 | 118810 | 164998 | 166504 | 137449 | 193675 | 195080 | 167578 | 230483 | |
| | Mean network speed (km/hr) | 45.7 | 47.3 | 44.6 | 44.26582 | 45.9471 | 42.71949 | 44.36786 | 46.06755 | 42.46584 | |
| | Veh operating costs on links | \$34,516 | \$29,261 | \$38,477 | \$38,529 | \$32,831 | \$43,314 | \$45,328 | \$40,242 | \$51,306 | |
| | Veh operating costs of intersections | \$677 | \$528 | \$837 | \$866 | \$708 | \$1,076 | \$1,016 | \$866 | \$1,414 | |
| | Veh operating costs of speed changes | \$8,268 | \$6,965 | \$9,587 | \$8,997 | \$7,468 | \$10,484 | \$9,803 | \$8,330 | \$11,578 | |
| | Total vehicle operating costs | \$43,460 | \$36,753 | \$48,900 | \$48,392 | \$41,006 | \$54,873 | \$56,147 | \$49,437 | \$64,298 | |
| | Total in-vehicle occupant time cost | \$47,750 | \$39,302 | \$54,581 | \$55,079 | \$45,468 | \$64,067 | \$64,532 | \$55,434 | \$76,243 | |
| | Total additional congestion cost | \$1,854 | \$1,332 | \$2,114 | \$2,407 | \$1,790 | \$3,316 | \$2,740 | \$2,202 | \$3,843 | |
| | TOTAL ROAD USER COST | \$93,066 | \$77,389 | \$105,881 | \$105,879 | \$88,265 | \$122,257 | \$123,420 | \$107,074 | \$144,385 | |
| | | EXPANDED ROAD USER COST | \$93,066 | \$77,389 | \$105,881 | \$105,879 | \$88,265 | \$122,257 | \$123,420 | \$107,074 | \$144,385 |
| | Whole Network | Public transport trips | | | | | | | | | |
| | | Total person trips by PT | 235.9 | 155.3 | | 246.5 | 188.9 | | 251.6 | 200.9 | |
| | | Total passenger.minutes | 1319.66 | 705.7 | | 1613.26 | 1056.24 | | 1603.23 | 1026.19 | |
| | | Total passenger.kilometres | 716.91 | 382.45 | | 819.51 | 544.46 | | 806.28 | 516.07 | |
| Total passenger wait | | 2677.53 | 1084.99 | | 2853.35 | 1296.27 | | 2914.87 | 1369.47 | | |

| | | BASE 2006 | | | | | | BASE 2016 | | | | | | BASE 2036 | | | | | |
|--|---|--------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|
| | | AM Peak | | Inter Peak | | PM Peak | | AM Peak | | Inter Peak | | PM Peak | | AM Peak | | Inter Peak | | PM Peak | |
| Item | LINK TRAVEL TIMES | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h |
| CARS | | | | | | | | | | | | | | | | | | | |
| 1.1a | Nelson Cbd - Annesbrook via Tahunanui, Rocks | 469 | 45.2 | 454 | 46.7 | 450 | 47.1 | 482 | 43.7 | 464 | 45.5 | 466 | 45.2 | 475 | 44.3 | 471 | 44.8 | 472 | 45.0 |
| 1.1b | | 447 | 47.8 | 457 | 46.7 | 485 | 44 | 431 | 49.2 | 442 | 48.0 | 475 | 44.7 | 434 | 48.8 | 448 | 47.3 | 512 | 41.6 |
| 1.2a | via Waimea Rd | 470 | 39.4 | 404 | 45.9 | 389 | 47.6 | 533 | 34.5 | 447 | 41.1 | 440 | 41.8 | 526 | 35.0 | 465 | 39.6 | 461 | 40.0 |
| 1.2b | | 372 | 49.8 | 390 | 47.4 | 507 | 36.6 | 400 | 46.0 | 430 | 42.8 | 586 | 31.4 | 426 | 43.2 | 454 | 40.5 | 598 | 30.8 |
| 1.3a | Annesbrook - Richmond via Main Rd, Salisbury | 607 | 46 | 591 | 47.3 | 605 | 46.2 | 627 | 44.4 | 617 | 45.1 | 641 | 43.4 | 631 | 44.1 | 627 | 44.4 | 671 | 41.5 |
| 1.3b | | 645 | 43.3 | 643 | 43.5 | 687 | 40.7 | 684 | 40.7 | 686 | 40.6 | 717 | 38.8 | 718 | 38.8 | 705 | 39.5 | 742 | 37.5 |
| 1.4a | via Bypass, Deviation | 358 | 74.9 | 355 | 75.5 | 354 | 75.8 | 349 | 76.3 | 347 | 76.8 | 344 | 77.4 | 391 | 68.7 | 380 | 70.6 | 408 | 66.1 |
| 1.4b | | 372 | 72.3 | 371 | 72.4 | 432 | 62.2 | 395 | 67.5 | 395 | 67.5 | 498 | 53.6 | 405 | 65.8 | 403 | 66.3 | 422 | 63.3 |
| PT | | | | | | | | | | | | | | | | | | | |
| Richmond-Nelson CBD via Stoke Bypass, rocks | | | | | | | | | | | | | | | | | | | |
| 1.5a | Northbound | | | | | | | | | | | | | | | | | | |
| 1.5b | Southbound | | | | | | | | | | | | | | | | | | |
| via Main Rd Stoke, Waimea | | | | | | | | | | | | | | | | | | | |
| 1.6a | Northbound | | | | | | | | | | | | | | | | | | |
| 1.6b | Southbound | | | | | | | | | | | | | | | | | | |
| express route, via Main Rd Stoke, Waimea | | | | | | | | | | | | | | | | | | | |
| 1.7a | Northbound | | | | | | | | | | | | | | | | | | |
| 1.7b | Southbound | | | | | | | | | | | | | | | | | | |
| | | AM Peak | | Interpeak | | PM Peak | | AM Peak | | Interpeak | | PM Peak | | AM Peak | | Inter Peak | | PM Peak | |
| MAXIMUM FLOWS | | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b |
| 2.1a | Nelson to Atawhai | 357 | 807 | 478 | 521 | 783 | 453 | 385 | 903 | 529 | 588 | 853 | 500 | 444 | 1151 | 675 | 774 | 1050 | 589 |
| 2.2 | Screenline sub-total | 2883 | 1231 | 2075 | 1939 | 1792 | 3086 | 2966 | 1326 | 2189 | 2057 | 1896 | 3182 | 2770 | 1647 | 2337 | 2251 | 2265 | 3150 |
| 2.2a | Rocks Rd | 1138 | 479 | 862 | 783 | 686 | 1165 | 1077 | 480 | 828 | 813 | 689 | 1234 | 941 | 637 | 895 | 929 | 842 | 1193 |
| 2.2b | Waimea Rd | 1575 | 682 | 1113 | 1073 | 985 | 1762 | 1696 | 746 | 1252 | 1144 | 1053 | 1745 | 1646 | 875 | 1320 | 1198 | 1230 | 1741 |
| 2.2c | Princes Dr | 46 | 22 | 26 | 23 | 27 | 45 | 40 | 21 | 19 | 23 | 30 | 49 | 48 | 34 | 23 | 32 | 42 | 65 |
| 2.2d | Moana Ave | 124 | 48 | 74 | 60 | 94 | 114 | 153 | 79 | 90 | 77 | 124 | 154 | 135 | 101 | 99 | 92 | 151 | 151 |
| 2.2e | Princes Dr new link road to Waimea Rd (for reference) | - | - | - | - | - | - | 28 | 33 | 27 | 24 | 59 | 43 | 38 | 54 | 32 | 37 | 73 | 56 |
| 2.3 | Screenline sub-total | 2122 | 1190 | 1559 | 1469 | 1633 | 2437 | 2329 | 1430 | 1803 | 1712 | 1919 | 2683 | 2371 | 1962 | 2211 | 2154 | 2508 | 2880 |
| 2.3a | Main Rd Stoke | 1117 | 442 | 704 | 424 | 975 | 729 | 1083 | 460 | 622 | 293 | 994 | 729 | 1063 | 702 | 769 | 461 | 1315 | 686 |
| 2.3b | Stoke Bypass | 1005 | 748 | 855 | 1045 | 658 | 1708 | 1246 | 970 | 1181 | 1419 | 925 | 1954 | 1308 | 1260 | 1442 | 1693 | 1193 | 2194 |
| 2.4 | Screenline sub-total | 2362 | 1304 | 1625 | 1534 | 1735 | 2573 | 2587 | 1567 | 1876 | 1784 | 2085 | 2910 | 2787 | 2281 | 2403 | 2287 | 2899 | 3222 |
| 2.4a | Salisbury Rd Richmond | 1073 | 575 | 777 | 657 | 893 | 1137 | 1216 | 649 | 840 | 771 | 951 | 1388 | 1313 | 770 | 998 | 802 | 1203 | 1377 |
| 2.4b | Richmond Deviation | 1143 | 709 | 826 | 857 | 815 | 1376 | 1225 | 894 | 1016 | 994 | 1087 | 1414 | 1342 | 1476 | 1332 | 1471 | 1592 | 1790 |
| 2.4c | Hill St | 146 | 20 | 22 | 20 | 27 | 60 | 146 | 24 | 20 | 19 | 47 | 108 | 132 | 35 | 73 | 14 | 104 | 55 |
| 2.5 | Screenline sub-total | 2603 | 1363 | 1629 | 1555 | 1769 | 2658 | 2553 | 1228 | 1320 | 1216 | 1415 | 2539 | 3911 | 1701 | 2273 | 2079 | 2446 | 4239 |
| 2.5a | SH6 Gladstone Rd | 1363 | 670 | 883 | 823 | 771 | 1478 | 1113 | 571 | 638 | 578 | 567 | 1212 | 839 | 322 | 477 | 461 | 484 | 835 |
| 2.5b | SH60 | 288 | 328 | 284 | 299 | 509 | 253 | 376 | 260 | 168 | 162 | 315 | 259 | 1008 | 513 | 601 | 549 | 698 | 1156 |
| 2.5c | SH6 west of 3 Bros | 952 | 365 | 462 | 433 | 489 | 927 | 1064 | 397 | 514 | 476 | 533 | 1068 | 1225 | 457 | 652 | 595 | 649 | 1269 |
| 2.5d | Richmond Bypass | - | - | - | - | - | - | - | - | - | - | - | - | 839 | 409 | 543 | 474 | 615 | 979 |
| 2.6 | Screenline sub-total | 1778 | 1099 | 1425 | 1357 | 1313 | 1883 | 1717 | 1099 | 1488 | 1410 | 1441 | 1810 | 1746 | 1455 | 1748 | 1702 | 1783 | 1887 |
| 2.6a | Wakefield Quay | 528 | 225 | 402 | 357 | 334 | 600 | 515 | 259 | 438 | 421 | 411 | 630 | 474 | 347 | 510 | 519 | 471 | 628 |
| 2.6b | Russell St | 56 | 26 | 26 | 28 | 26 | 55 | 54 | 29 | 30 | 30 | 32 | 63 | 53 | 30 | 32 | 33 | 37 | 68 |
| 2.6c | Maori Rd | 70 | 92 | 85 | 84 | 94 | 78 | 84 | 138 | 120 | 122 | 141 | 97 | 106 | 215 | 181 | 189 | 221 | 127 |
| 2.6d | St Vincent St | 631 | 298 | 418 | 390 | 351 | 580 | 606 | 210 | 395 | 292 | 295 | 457 | 670 | 281 | 483 | 361 | 446 | 455 |
| 2.6e | Vanguard St | 170 | 141 | 158 | 165 | 165 | 161 | 137 | 227 | 130 | 272 | 180 | 278 | 111 | 233 | 121 | 262 | 264 | 285 |
| 2.6f | Rutherford St | 323 | 317 | 336 | 333 | 343 | 409 | 321 | 236 | 375 | 273 | 382 | 285 | 332 | 349 | 421 | 338 | 344 | 324 |

* Note route more direct in 2006 than in future years

**Nelson Arterial Traffic Study
Model Outputs Relevant to NZTS Objectives**

| Objective | Outcomes | Source Data | BASE 2006 | | | BASE 2016 | | | BASE 2036 | | | |
|-------------------------------|---|--|--------------|-------|--------|--------------|--------|--------|--------------|--------|--------|------------------------------------|
| | | | AMP | INP | PMP | AMP | INP | PMP | AMP | INP | PMP | |
| Assist Economic Development | Port Activity | | | | | | | | | | | |
| | Airport Activity | Average travel time, min | 10.87 | 11.11 | 11.30 | 11.48 | 11.36 | 11.87 | 11.51 | 11.40 | 11.89 | 1h, whole network |
| | Freight Movement Costs | | | | | | | | | | | |
| | Tourism | | | | | | | | | | | |
| | Employment | | | | | | | | | | | |
| Safety & Personal Security | Land Use | Average trip length, km | 6.96 | 6.88 | 7.28 | 6.90 | 6.89 | 7.14 | 6.84 | 7.01 | 7.04 | 1h, AM Peak, whole network |
| | Total Crashes | Predicted crash rate, crashes/10 ⁸ veh-km | 90.94 | 85.47 | 89.63 | 81.41 | 95.01 | 72.52 | 69.32 | 85.49 | 61.30 | 1 Hour, study area |
| Access & Mobility | Pedestrian & Cycle Crashes | | | | | | | | | | | |
| | Perceived Pedestrian & Cycle Safety | | | | | | | | | | | |
| | Public Transport Facilities | | | | | | | | | | | |
| | Affordability | | | | | | | | | | | |
| | Access to work | Average travel time, min | 7.99 | 8.10 | 9.46 | 8.03 | 8.22 | 9.51 | 7.79 | 8.13 | 9.29 | 1 hour, whole network |
| | Access to shopping facilities | | | | | | | | | | | |
| | Access to Community Facilities | Average travel time, min | 8.27 | 6.31 | 8.29 | 8.27 | 6.53 | 8.35 | 8.00 | 6.64 | 8.22 | 1 hour, whole network |
| | Public Transport Accessibility | | | | | | | | | | | |
| Public Health | Public Transport Quality | | | | | | | | | | | |
| | Transport Interchange | | | | | | | | | | | |
| | Network Vulnerability | | | | | | | | | | | |
| Environmental Sustainability | Severance | Total veh-km travelled | 109958 | 93596 | 122721 | 122841 | 105256 | 137895 | 144255 | 128665 | 163128 | 1 Hour, study area |
| | Physical Fitness | | | | | | | | | | | |
| | Transport noise | Total VKT | 109958 | 93596 | 122721 | 122841 | 105256 | 137895 | 144255 | 128665 | 163128 | Total VKT, 1 hour, study area |
| | Air Quality | CO tonnes | 1.51 | 0.94 | 1.32 | 1.30 | 1.06 | 1.49 | 1.50 | 1.29 | 1.72 | 1 Hour, study area |
| Network & Economic Efficiency | | Fuel Consumption in litres | 12 | 10 | 13 | 13 | 11 | 15 | 15 | 14 | 18 | 1 Hour, study area |
| | Climate Change | CO ₂ tonnes | 39.33 | 32.32 | 44.30 | 43.71 | 36.01 | 49.78 | 49.46 | 42.67 | 56.84 | 1 Hour, whole network |
| | Energy Efficiency | Number of Total Trips / Lites of Fuel Consumed | 1.41 | 1.45 | 1.34 | 1.41 | 1.44 | 1.35 | 1.42 | 1.42 | 1.37 | 1 Hour, whole network |
| | Bio-diversity | | | | | | | | | | | |
| | Land-Take | | | | | | | | | | | |
| Network & Economic Efficiency | Natural & Cultural, Heritage & Historic Resources | | | | | | | | | | | |
| | Capital Costs | | | | | | | | | | | |
| | Benefit-Cost (tangible) | | | | | | | | | | | |
| | Benefits (intangible) | | | | | | | | | | | |
| | Vehicle Occupancy | | | | | | | | | | | 2 hour, whole network |
| | Network Delays | Average delay, min | 0.96 | 0.87 | 1.11 | 1.10 | 1.05 | 1.25 | 1.12 | 1.09 | 1.40 | 1 hour, whole network, intrn delay |
| | Volume of Travel | | | | | | | | | | | |
| Network & Economic Efficiency | Peak Period Intensities | | | | | | | | | | | |
| | Travel Time Reliability | Link lengths affected by LOS E and LOS F | 2.7 | 0.0 | 6.8 | 3.1 | 1.1 | 9.8 | 2.3 | 1.9 | 2.7 | 1 hour, study area |
| | | Intersections affected by LOS E and LOS F | 1 | 0 | 2 | 1 | 1 | 2 | 2 | 1 | 8 | 1 hour, study area |

**Nelson Arterial Traffic Study
Network Performance Summary Statistics**

| | | Base | | | Option A | | | Option A | | | |
|----------------------------|---|-------------------------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | | 2006 | | | 2016 | | | 2036 | | | |
| | | AMP | INP | PMP | AMP | INP | PMP | AMP | INP | PMP | |
| Whole Network ¹ | Total person trips | | | | | | | | | | |
| | Car driver | 37058 | 39414 | | 40881 | 43425 | | 45888 | 50427 | | |
| | Car passenger | 6811 | 12782 | | 7236 | 13873 | | 7805 | 15999 | | |
| | PT | 277 | 175 | | 351 | 307 | | 383 | 340 | | |
| | Walk / cycle | 14082 | 21601 | | 15106 | 23897 | | 16310 | 27613 | | |
| Whole Network ¹ | Private cars trips^(1hr) | | | | | | | | | | |
| | Total driver trips (incl. park) | 24636 | 20821 | 26255 | 27257 | 22893 | 29581 | 31035 | 26686 | 33970 | |
| Corridor Study Area | Vehicle kilometres | 109958 | 93596 | 122721 | 123274 | 105662 | 138041 | 144701 | 129079 | 163223 | |
| | Vehicle in-motion minutes | 123055 | 102218 | 138674 | 139663 | 115834 | 155993 | 163720 | 141097 | 182338 | |
| | Mean running speed (km/hr) | 53.61 | 54.94 | 53.10 | 52.96 | 54.73 | 53.10 | 53.03 | 54.89 | 53.71 | |
| | Vehicles subject to delay | 285103 | 240166 | 330582 | 303612 | 250100 | 352419 | 331601 | 278606 | 388064 | |
| | Total vehicle delay (mins) | 21295 | 16592 | 26324 | 28339 | 23530 | 37055 | 32948 | 28229 | 47062 | |
| | Delay per delayed vehicle | 4.5 | 4.1 | 4.8 | 5.6 | 5.6 | 6.3 | 6 | 6.1 | 7.3 | |
| | Total vehicle minutes (in-motion + delay) | 144350 | 118810 | 164998 | 168002 | 139364 | 193048 | 196668 | 167167 | 229400 | |
| | Mean network speed (km/hr) | 45.7 | 47.3 | 44.6 | 44.03 | 45.49 | 42.9 | 44.15 | 46.02 | 42.69 | |
| | Veh operating costs on links | \$34,516 | \$29,261 | \$38,477 | \$38,678 | \$32,960 | \$43,116 | \$45,481 | \$40,386 | \$51,127 | |
| | Veh operating costs of intersections | \$677 | \$528 | \$837 | \$901 | \$748 | \$1,178 | \$1,048 | \$898 | \$1,497 | |
| | Veh operating costs of speed changes | \$8,268 | \$6,965 | \$9,587 | \$8,805 | \$7,253 | \$10,220 | \$9,616 | \$8,080 | \$11,254 | |
| | Total vehicle operating costs | \$43,460 | \$36,753 | \$48,900 | \$48,384 | \$40,961 | \$54,514 | \$56,145 | \$49,363 | \$63,877 | |
| | Total in-vehicle occupant time cost | \$47,750 | \$39,302 | \$54,581 | \$55,574 | \$46,101 | \$63,860 | \$65,057 | \$56,013 | \$75,885 | |
| | Total additional congestion cost | \$1,854 | \$1,332 | \$2,114 | \$2,490 | \$1,893 | \$3,396 | \$2,830 | \$2,284 | \$3,853 | |
| | TOTAL ROAD USER COST | \$93,066 | \$77,389 | \$105,881 | \$106,449 | \$88,956 | \$121,770 | \$124,033 | \$107,660 | \$143,616 | |
| | | EXPANDED ROAD USER COST | \$93,066 | \$77,389 | \$105,881 | \$106,449 | \$88,956 | \$121,770 | \$124,033 | \$107,660 | \$143,616 |
| | Whole Network ² | Public transport trips | | | | | | | | | |
| | | Total person trips by PT | 236 | 155 | | 247 | 189 | | 252 | 201 | |
| | | Total passenger.minutes | 1320 | 706 | | 1642 | 1092 | | 1617 | 1037 | |
| | | Total passenger.kilometres | 717 | 382 | | 834 | 556 | | 807 | 518 | |
| Total passenger wait | | 2678 | 1085 | | 2849 | 1320 | | 2897 | 1379 | | |

Notes: ¹ These are model convergence mode split trip distributions from the base models. Because options are assigned only, ie use same trip matrices, these distributions are unchanged.

² These PT trips are determined from the PT assignment which is run after the vehicle assignment.

| | | BASE | | | | | | OPTION A | | | | | | OPTION A | | | | | | |
|------|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---|
| | | 2006 | | 2016 | | 2016 | | 2016 | | 2016 | | 2016 | | 2016 | | 2016 | | 2016 | | |
| | | AM Peak | | Inter Peak | | PM Peak | | AM Peak | | Inter Peak | | PM Peak | | AM Peak | | Inter Peak | | PM Peak | | |
| Item | LINK TRAVEL TIMES | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | |
| | CARS | | | | | | | | | | | | | | | | | | | |
| 1.1a | Nelson Cbd - Annesbrook via Tahunanui, Rocks Northbound | 469 | 45.2 | 454 | 46.7 | 450 | 47.1 | 489 | 43.1 | 499 | 42.2 | 515 | 40.9 | 489 | 43.1 | 501 | 42.0 | 494 | 43.1 | |
| 1.1b | Southbound | 447 | 47.8 | 457 | 46.7 | 485 | 44 | 451 | 47.0 | 467 | 45.4 | 504 | 42.1 | 458 | 46.3 | 474 | 44.7 | 519 | 41.0 | |
| 1.2a | via Waimea Rd Northbound | 470 | 39.4 | 404 | 45.9 | 389 | 47.6 | 538 | 34.1 | 461 | 39.9 | 461 | 39.9 | 534 | 34.5 | 475 | 38.8 | 472 | 39.0 | |
| 1.2b | Southbound | 372 | 49.8 | 390 | 47.4 | 507 | 36.6 | 428 | 43.0 | 459 | 40.1 | 513 | 35.8 | 447 | 41.1 | 475 | 38.7 | 524 | 35.1 | |
| 1.3a | Annesbrook - Richmond via Main Rd, Salisbury Northbound | 607 | 46 | 591 | 47.3 | 605 | 46.2 | 627 | 44.4 | 616 | 45.1 | 640 | 43.5 | 631 | 44.1 | 627 | 44.4 | 669 | 41.6 | |
| 1.3b | Southbound | 645.1 | 43.3 | 643 | 43.5 | 687 | 40.7 | 684 | 40.7 | 688 | 40.4 | 715 | 38.9 | 719 | 38.7 | 705 | 39.5 | 738 | 37.7 | |
| 1.4a | via Bypass, Deviation Northbound | 358 | 74.9 | 355 | 75.5 | 354 | 75.8 | 348 | 76.4 | 346 | 76.8 | 344 | 77.4 | 391 | 68.7 | 380 | 70.6 | 408 | 66.0 | |
| 1.4b | Southbound | 372 | 72.3 | 371 | 72.4 | 432 | 62.2 | 395 | 67.5 | 395 | 67.6 | 503 | 53.0 | 405 | 65.8 | 402 | 66.4 | 421 | 63.3 | |
| | PT | | | | | | | | | | | | | | | | | | | |
| | | min | | min | | min | | min | | min | | min | | min | | min | | min | | min |
| 1.5a | Richmond-Nelson CBD via Stoke Bypass, rocks Northbound | | | | | | | | | | | | | | | | | | | |
| 1.5b | Southbound | | | | | | | | | | | | | | | | | | | |
| 1.6a | via Main Rd Stoke, Waimea Northbound | | | | | | | | | | | | | | | | | | | |
| 1.6b | Southbound | | | | | | | | | | | | | | | | | | | |
| 1.7a | express route, via Main Rd Stoke, Waimea Northbound | | | | | | | | | | | | | | | | | | | |
| 1.7b | Southbound | | | | | | | | | | | | | | | | | | | |
| | | AM Peak | | Interpeak | | PM Peak | | AM Peak | | Interpeak | | PM Peak | | AM Peak | | Inter Peak | | PM Peak | | |
| | MAXIMUM FLOWS | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | |
| 2.1a | Nelson to Atawhai | 357 | 807 | 478 | 521 | 783 | 453 | 385 | 903 | 529 | 588 | 853 | 501 | 444 | 1151 | 676 | 774 | 1050 | 589 | Nodes 3840-5477 |
| 2.2 | Screenline sub-total | 2883 | 1231 | 2075 | 1939 | 1792 | 3086 | 2964 | 1326 | 2189 | 2057 | 1895 | 3182 | 2771 | 1648 | 2337 | 2250 | 2265 | 3150 | |
| 2.2a | Rocks Rd | 1138 | 479 | 862 | 783 | 686 | 1165 | 1042 | 452 | 789 | 797 | 629 | 1078 | 902 | 583 | 849 | 891 | 819 | 1043 | 4967-1800 Nth of Bisley |
| 2.2b | Waimea Rd | 1575 | 682 | 1113 | 1073 | 985 | 1762 | 1693 | 751 | 1270 | 1151 | 1092 | 1902 | 1666 | 902 | 1348 | 1221 | 1241 | 1888 | 4989-5480 Nth of Beatson/Sth of Princes Drive Ext |
| 2.2c | Princes Dr | 46 | 22 | 26 | 23 | 27 | 45 | 44 | 28 | 24 | 25 | 41 | 52 | 53 | 41 | 33 | 36 | 60 | 66 | 4273-4798 Sth of Toi Toi new link |
| 2.2d | Moana Ave | 124 | 48 | 74 | 60 | 94 | 114 | 185 | 95 | 106 | 84 | 133 | 150 | 150 | 122 | 107 | 102 | 145 | 153 | 4868-4158 Btwn Stansell Ave and Moncrieff |
| 2.2e | Princes Dr new link road to Waimea Rd (for reference) | - | - | - | - | - | - | 33 | 37 | 33 | 26 | 78 | 43 | 45 | 59 | 43 | 40 | 100 | 57 | 4987-6211 |
| 2.3 | Screenline sub-total | 2122 | 1190 | 1559 | 1469 | 1633 | 2437 | 2329 | 1431 | 1802 | 1712 | 1919 | 2683 | 2371 | 1962 | 2211 | 2154 | 2509 | 2880 | |
| 2.3a | Main Rd Stoke | 1117 | 442 | 704 | 424 | 975 | 729 | 1099 | 461 | 627 | 294 | 998 | 722 | 1070 | 703 | 775 | 462 | 1319 | 692 | 5176-5485 |
| 2.3b | Stoke Bypass | 1005 | 748 | 855 | 1045 | 658 | 1708 | 1230 | 970 | 1175 | 1418 | 921 | 1961 | 1301 | 1259 | 1436 | 1692 | 1190 | 2188 | 5464-5466 |
| 2.4 | Screenline sub-total | 2362 | 1304 | 1625 | 1534 | 1735 | 2573 | 2588 | 1567 | 1875 | 1783 | 2085 | 2911 | 2786 | 2282 | 2395 | 2287 | 2899 | 3221 | |
| 2.4a | Salisbury Rd Richmond | 1073 | 575 | 777 | 657 | 893 | 1137 | 1216 | 649 | 840 | 761 | 952 | 1391 | 1310 | 771 | 1000 | 803 | 1204 | 1377 | 1130-5188 |
| 2.4b | Richmond Deviation | 1143 | 709 | 826 | 857 | 815 | 1376 | 1226 | 894 | 1015 | 1003 | 1086 | 1411 | 1346 | 1476 | 1330 | 1470 | 1591 | 1789 | 1288-1119 |
| 2.4c | Hill St | 146 | 20 | 22 | 20 | 27 | 60 | 146 | 24 | 20 | 19 | 47 | 109 | 130 | 35 | 65 | 14 | 104 | 55 | 1003-1011 |
| 2.5 | Screenline sub-total | 2603 | 1363 | 1629 | 1555 | 1769 | 2658 | 2553 | 1230 | 1320 | 1217 | 1424 | 2539 | 3900 | 1704 | 2254 | 2056 | 2436 | 4245 | |
| 2.5a | SH6 Gladstone Rd | 1363 | 670 | 883 | 823 | 771 | 1478 | 1113 | 570 | 638 | 577 | 570 | 1212 | 821 | 324 | 461 | 439 | 474 | 842 | 1460-1275 |
| 2.5b | SH60 | 288 | 328 | 284 | 299 | 509 | 253 | 376 | 263 | 168 | 164 | 321 | 259 | 1011 | 514 | 600 | 548 | 698 | 1155 | 1518-1523 2016 |
| 2.5c | SH6 west of 3 Bros | 952 | 365 | 462 | 433 | 489 | 927 | 1064 | 397 | 514 | 476 | 533 | 1068 | 1225 | 457 | 652 | 595 | 649 | 1269 | 6170-1523 |
| 2.5d | Richmond Bypass | - | - | - | - | - | - | - | - | - | - | - | - | 843 | 409 | 541 | 474 | 615 | 979 | 6202-5600 |
| 2.6 | Screenline sub-total | 1778 | 1099 | 1425 | 1357 | 1313 | 1883 | 1725 | 1095 | 1502 | 1401 | 1448 | 1801 | 1755 | 1446 | 1740 | 1682 | 1774 | 1862 | |
| 2.6a | Wakefield Quay | 528 | 225 | 402 | 357 | 334 | 600 | 460 | 267 | 386 | 425 | 349 | 554 | 406 | 366 | 448 | 514 | 442 | 561 | 3866-3872 Nth of Poynters Cres |
| 2.6b | Russell St | 56 | 26 | 26 | 28 | 26 | 55 | 76 | 29 | 36 | 30 | 48 | 63 | 70 | 30 | 41 | 33 | 47 | 68 | 3885-4910 Sth of Haven |
| 2.6c | Maori Rd | 70 | 92 | 85 | 84 | 94 | 78 | 84 | 138 | 120 | 122 | 141 | 97 | 106 | 215 | 181 | 189 | 221 | 127 | 4902-4903 West of Haven |
| 2.6d | St Vincent St | 631 | 298 | 418 | 390 | 351 | 580 | 637 | 207 | 444 | 272 | 315 | 470 | 701 | 254 | 518 | 353 | 456 | 484 | 4905-4959 Sth of Haven/Nth of Hastings |
| 2.6e | Vanguard St | 170 | 141 | 158 | 165 | 165 | 161 | 132 | 241 | 122 | 309 | 180 | 277 | 108 | 237 | 123 | 266 | 262 | 249 | 5542-6127 Sth of Bridge Ext |
| 2.6f | Rutherford St | 323 | 317 | 336 | 333 | 343 | 409 | 336 | 213 | 394 | 243 | 415 | 340 | 364 | 344 | 429 | 327 | 346 | 373 | 3986-4893 Sth of Bridge |

* Note route more direct in 2006 than in future years

**Nelson Arterial Traffic Study
Model Outputs Relevant to NZTS Objectives**

| Objective | Outcomes | Source Data | Base | | | Option A | | | Option A | | | |
|-------------------------------|---|--|--------|-------|--------|----------|--------|--------|----------|--------|--------|------------------------------------|
| | | | 2006 | | | 2016 | | | 2036 | | | |
| | | | AMP | INP | PMP | AMP | INP | PMP | AMP | INP | PMP | |
| Assist Economic Development | Port Activity | | | | | | | | | | | |
| | Airport Activity | Average travel time, min | 10.87 | 11.11 | 11.30 | 11.48 | 11.41 | 11.84 | 11.54 | 11.45 | 11.85 | 1h, whole network |
| | Freight Movement Costs | | | | | | | | | | | |
| | Tourism | | | | | | | | | | | |
| Assist Economic Development | Employment | | | | | | | | | | | |
| | Land Use | Average trip length, km | 6.96 | 6.88 | 7.28 | 6.92 | 6.91 | 7.13 | 6.86 | 7.02 | 7.04 | 1h, AM Peak, whole network |
| Safety & Personal Security | Total Crashes | Predicted crash rate, crashes/10 ⁸ veh-km | 90.94 | 85.47 | 89.63 | 89.23 | 94.64 | 94.17 | 69.11 | 77.47 | 61.27 | 1 Hour, study area |
| | Pedestrian & Cycle Crashes | | | | | | | | | | | |
| | Perceived Pedestrian & Cycle Safety | | | | | | | | | | | |
| | Public Transport Facilities | | | | | | | | | | | |
| Access & Mobility | Affordability | | | | | | | | | | | |
| | Access to work | Average travel time, min | 7.99 | 8.10 | 9.46 | 8.08 | 8.29 | 9.59 | 7.83 | 8.19 | 9.32 | 1 hour, whole network |
| | Access to shopping facilities | | | | | | | | | | | |
| | Access to Community Facilities | Average travel time, min | 8.27 | 6.31 | 8.29 | 8.38 | 6.66 | 8.36 | 8.10 | 6.76 | 8.22 | 1 hour, whole network |
| | Public Transport Accessibility | | | | | | | | | | | |
| | Public Transport Quality | | | | | | | | | | | |
| | Transport Interchange | | | | | | | | | | | |
| | Network Vulnerability | | | | | | | | | | | |
| Access & Mobility | Severance | Total veh-km travelled | 109958 | 93596 | 122721 | 123274 | 105662 | 138041 | 144701 | 129079 | 163223 | 1 Hour, study area |
| | Physical Fitness | | | | | | | | | | | |
| Public Health | Transport noise | Total VKT | 109958 | 93596 | 122721 | 123274 | 105662 | 138041 | 144701 | 129079 | 163223 | Total VKT, 1 hour, study area |
| | Air Quality | CO tonnes | 1.51 | 0.94 | 1.32 | 1.28 | 1.06 | 1.44 | 1.48 | 1.28 | 1.66 | 1 Hour, study area |
| | | Fuel Consumption in litres | 12 | 10 | 13 | 13 | 11 | 15 | 16 | 14 | 18 | 1 Hour, study area |
| Environmental Sustainability | Climate Change | CO ₂ tonnes | 39.33 | 32.32 | 44.30 | 43.91 | 36.24 | 49.84 | 49.63 | 42.92 | 56.83 | 1 Hour, whole network |
| | Energy Efficiency | Number of Total Trips / Lites of Fuel Consumed | 1.41 | 1.45 | 1.34 | 1.41 | 1.43 | 1.36 | 1.42 | 1.41 | 1.37 | 1 Hour, whole network |
| | Bio-diversity | | | | | | | | | | | |
| | Land-Take | | | | | | | | | | | |
| Network & Economic Efficiency | Natural & Cultural, Heritage & Historic Resources | | | | | | | | | | | |
| | Capital Costs | | | | | | | | | | | |
| | Benefit-Cost (tangible) | | | | | | | | | | | |
| | Benefits (intangible) | | | | | | | | | | | |
| | Vehicle Occupancy | | | | | | | | | | | 2 hour, whole network |
| | Network Delays | Average delay, min | 0.96 | 0.87 | 1.11 | 1.14 | 1.10 | 1.36 | 1.15 | 1.12 | 1.48 | 1 hour, whole network, intrn delay |
| | Volume of Travel | | | | | | | | | | | |
| | Peak Period Intensities | | | | | | | | | | | |
| Network & Economic Efficiency | Travel Time Reliability | Link lengths affected by LOS E and LOS F | 2.7 | 0.0 | 6.8 | 3.2 | 1.8 | 7.7 | 2.4 | 1.9 | 5.0 | 1 hour, study area |
| | | Intersections affected by LOS E and LOS F | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 1 hour, study area |

**Nelson Arterial Traffic Study
Network Performance Summary Statistics**

| | | Base | | | Option B | | | Option B | | | |
|---------------------------------|---|-------------------------------|-----------------|------------------|------------------|-----------------|------------------|------------------|------------------|------------------|--|
| | | 2006 | | | 2016 | | | 2036 | | | |
| | | AMP | INP | PMP | AMP | INP | PMP | AMP | INP | PMP | |
| Whole Network ¹ | Total person trips | | | | | | | | | | |
| | Car driver | 37058 | 39414 | | 40881 | 43425 | | 45888 | 50427 | | |
| | Car passenger | 6811 | 12782 | | 7236 | 13873 | | 7805 | 15999 | | |
| | PT | 277 | 175 | | 351 | 307 | | 383 | 340 | | |
| | Walk / cycle | 14082 | 21601 | | 15106 | 23897 | | 16310 | 27613 | | |
| | Private cars trips^(1hr) | | | | | | | | | | |
| Total driver trips (incl. park) | 24636 | 20821 | 26255 | 27257 | 22893 | 29581 | 31035 | 26686 | 33970 | | |
| Corridor Study Area | Vehicle kilometres | 109958 | 93596 | 122721 | 122544 | 104834 | 137165 | 143995 | 128199 | 162405 | |
| | Vehicle in-motion minutes | 123055 | 102218 | 138674 | 135280 | 113020 | 153690 | 159859 | 137969 | 180627 | |
| | Mean running speed (km/hr) | 53.61 | 54.94 | 53.10 | 54.35 | 55.65 | 53.55 | 54.05 | 55.75 | 53.95 | |
| | Vehicles subject to delay | 285103 | 240166 | 330582 | 298855 | 247515 | 348814 | 332100 | 281027 | 385564 | |
| | Total vehicle delay (mins) | 21295 | 16592 | 26324 | 27418 | 21979 | 33581 | 31852 | 27059 | 44316 | |
| | Delay per delayed vehicle | 4.5 | 4.1 | 4.8 | 5.5 | 5.3 | 5.8 | 5.8 | 5.8 | 6.9 | |
| | Total vehicle minutes (in-motion + delay) | 144350 | 118810 | 164998 | 162698 | 134999 | 187271 | 191711 | 165028 | 224943 | |
| | Mean network speed (km/hr) | 45.7 | 47.3 | 44.6 | 45.2 | 46.6 | 44.0 | 45.1 | 46.6 | 43.3 | |
| | Veh operating costs on links | \$34,516 | \$29,261 | \$38,477 | \$38,302 | \$32,662 | \$42,815 | \$45,141 | \$40,044 | \$50,856 | |
| | Veh operating costs of intersections | \$677 | \$528 | \$837 | \$872 | \$699 | \$1,068 | \$1,013 | \$860 | \$1,409 | |
| | Veh operating costs of speed changes | \$8,268 | \$6,965 | \$9,587 | \$8,667 | \$7,178 | \$10,116 | \$9,631 | \$8,150 | \$11,181 | |
| | Total vehicle operating costs | \$43,460 | \$36,753 | \$48,900 | \$47,840 | \$40,538 | \$53,998 | \$55,785 | \$49,054 | \$63,446 | |
| | Total in-vehicle occupant time cost | \$47,750 | \$39,302 | \$54,581 | \$53,820 | \$44,657 | \$61,949 | \$63,418 | \$54,591 | \$74,411 | |
| | Total additional congestion cost | \$1,854 | \$1,332 | \$2,114 | \$2,217 | \$1,767 | \$3,029 | \$2,568 | \$2,179 | \$3,661 | |
| | TOTAL ROAD USER COST | \$93,066 | \$77,389 | \$105,881 | \$103,878 | \$86,963 | \$118,977 | \$121,771 | \$105,825 | \$141,518 | |
| | EXPANDED ROAD USER COST | \$93,066 | \$77,389 | \$105,881 | \$103,878 | \$86,963 | \$118,977 | \$121,771 | \$105,825 | \$141,518 | |
| | Whole Network ² | Public transport trips | | | | | | | | | |
| | | Total person trips by PT | 236 | 155 | | 247 | 189 | | 252 | 201 | |
| | | Total passenger.minutes | 1320 | 706 | | 1556 | 1043 | | 1573 | 1022 | |
| | | Total passenger.kilometres | 717 | 382 | | 815 | 539 | | 805 | 515 | |
| Total passenger wait | | 2678 | 1085 | | 2877 | 1305 | | 2921 | 1422 | | |

Notes: ¹ These are model convergence mode split trip distributions from the base models. Because options are assigned only, ie use same trip matrices, these distributions are unchanged.

² These PT trips are determined from the PT assignment which is run after the vehicle assignment.

| | | BASE | | | | | | OPTION B | | | | | | OPTION B | | | | | | |
|------|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
| | | 2006 | | 2016 | | 2036 | | 2006 | | 2016 | | 2036 | | 2006 | | 2016 | | 2036 | | |
| | | AM Peak | | Inter Peak | | PM Peak | | AM Peak | | Inter Peak | | PM Peak | | AM Peak | | Inter Peak | | PM Peak | | |
| Item | LINK TRAVEL TIMES | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | |
| | CARS | | | | | | | | | | | | | | | | | | | |
| 1.1a | Nelson Cbd - Annesbrook via Tahunanui, Rocks | | | | | | | | | | | | | | | | | | | |
| 1.1b | Northbound | 469 | 45.2 | 454 | 46.7 | 450 | 47.1 | 469 | 44.9 | 461 | 45.8 | 460 | 45.8 | 465 | 45.3 | 468 | 45.4 | 465 | 45.3 | |
| | Southbound | 447 | 47.8 | 457 | 46.7 | 485 | 44 | 431 | 49.2 | 433 | 48.9 | 444 | 47.8 | 431 | 49.2 | 461 | 46.3 | 443 | 47.9 | |
| | via Waimea Rd | | | | | | | | | | | | | | | | | | | |
| 1.2a | Northbound | 470 | 39.4 | 404 | 45.9 | 389 | 47.6 | 469 | 39.4 | 443 | 41.7 | 436 | 42.4 | 477 | 38.8 | 457 | 40.5 | 447 | 41.4 | |
| 1.2b | Southbound | 372 | 49.8 | 390 | 47.4 | 507 | 36.6 | 412 | 44.7 | 420 | 43.9 | 454 | 40.5 | 458 | 40.2 | 445 | 41.4 | 484 | 38.1 | |
| | Annesbrook - Richmond | | | | | | | | | | | | | | | | | | | |
| 1.3a | Northbound | 607 | 46 | 591 | 47.3 | 605 | 46.2 | 626 | 44.4 | 620 | 44.9 | 642 | 43.3 | 632 | 44.0 | 664 | 42.0 | 674 | 41.3 | |
| 1.3b | Southbound | 645.1 | 43.3 | 643 | 43.5 | 687 | 40.7 | 682 | 40.8 | 685 | 40.7 | 717 | 38.8 | 716 | 38.9 | 709 | 39.5 | 741 | 37.6 | |
| | via Main Rd, Salisbury | | | | | | | | | | | | | | | | | | | |
| 1.4a | Northbound | 358 | 74.9 | 355 | 75.5 | 354 | 75.8 | 349 | 76.3 | 346 | 77.0 | 343 | 77.6 | 390 | 68.8 | 380 | 70.7 | 411 | 65.5 | |
| 1.4b | Southbound | 372 | 72.3 | 371 | 72.4 | 432 | 62.2 | 395 | 67.5 | 395 | 67.5 | 482 | 55.3 | 406 | 65.8 | 402 | 66.3 | 422 | 63.2 | |
| | via Bypass, Deviation | | | | | | | | | | | | | | | | | | | |
| | PT | | | | | | | | | | | | | | | | | | | |
| | Richmond-Nelson CBD | | | | | | | | | | | | | | | | | | | |
| 1.5a | via Stoke Bypass, rocks | | | | | | | | | | | | | | | | | | | |
| 1.5b | Northbound | | | | | | | | | | | | | | | | | | | |
| | Southbound | | | | | | | | | | | | | | | | | | | |
| 1.6a | via Main Rd Stoke, Waimea | | | | | | | | | | | | | | | | | | | |
| 1.6b | Northbound | | | | | | | | | | | | | | | | | | | |
| | Southbound | | | | | | | | | | | | | | | | | | | |
| 1.7a | express route, via Main Rd Stoke, Waimea | | | | | | | | | | | | | | | | | | | |
| 1.7b | Northbound | | | | | | | | | | | | | | | | | | | |
| | Southbound | | | | | | | | | | | | | | | | | | | |
| | MAXIMUM FLOWS | | | | | | | | | | | | | | | | | | | |
| 2.1a | Nelson to Atawhai | 357 | 807 | 478 | 521 | 783 | 453 | 385 | 903 | 529 | 588 | 852 | 500 | 444 | 1151 | 675 | 774 | 1050 | 589 | |
| 2.2 | Screenline sub-total | 2883 | 1231 | 2075 | 1939 | 1792 | 3086 | 1900 | 864 | 1337 | 1222 | 1266 | 2088 | 1911 | 1122 | 1556 | 1411 | 1631 | 2140 | |
| 2.2a | Rocks Rd | 1138 | 479 | 862 | 783 | 686 | 1165 | 659 | 339 | 534 | 483 | 508 | 757 | 621 | 493 | 631 | 593 | 672 | 770 | |
| 2.2b | Waimea Rd | 1575 | 682 | 1113 | 1073 | 985 | 1762 | 1097 | 455 | 726 | 668 | 657 | 1182 | 1148 | 546 | 846 | 750 | 840 | 1230 | |
| 2.2c | Princes Dr | 46 | 22 | 26 | 23 | 27 | 45 | 27 | 11 | 13 | 11 | 18 | 28 | 36 | 14 | 16 | 14 | 25 | 38 | |
| 2.2d | Moana Ave | 124 | 48 | 74 | 60 | 94 | 114 | 117 | 59 | 64 | 60 | 83 | 121 | 106 | 69 | 63 | 54 | 94 | 102 | |
| 2.2e | Princes Dr new link road to Waimea Rd (for reference) | - | - | - | - | - | - | 27 | 45 | 23 | 20 | 56 | 32 | 32 | 51 | 26 | 27 | 64 | 42 | |
| 2.3 | Screenline sub-total | 2122 | 1190 | 1559 | 1469 | 1633 | 2437 | 2329 | 1431 | 1802 | 1712 | 1919 | 2683 | 2371 | 1962 | 2210 | 2154 | 2508 | 2880 | |
| 2.3a | Main Rd Stoke | 1117 | 442 | 704 | 424 | 975 | 729 | 1068 | 462 | 684 | 298 | 1064 | 749 | 1091 | 704 | 854 | 464 | 1397 | 691 | |
| 2.3b | Stoke Bypass | 1005 | 748 | 855 | 1045 | 658 | 1708 | 1261 | 969 | 1118 | 1414 | 855 | 1934 | 1280 | 1258 | 1356 | 1690 | 1111 | 2189 | |
| 2.4 | Screenline sub-total | 2362 | 1304 | 1625 | 1534 | 1735 | 2573 | 2587 | 1567 | 1875 | 1783 | 2085 | 2911 | 2786 | 2282 | 2406 | 2288 | 2900 | 3222 | |
| 2.4a | Salisbury Rd Richmond | 1073 | 575 | 777 | 657 | 893 | 1137 | 1223 | 650 | 853 | 771 | 967 | 1385 | 1311 | 771 | 1000 | 802 | 1208 | 1379 | |
| 2.4b | Richmond Deviation | 1143 | 709 | 826 | 857 | 815 | 1376 | 1218 | 893 | 1002 | 993 | 1071 | 1417 | 1345 | 1476 | 1330 | 1472 | 1588 | 1788 | |
| 2.4c | Hill St | 146 | 20 | 22 | 20 | 27 | 60 | 146 | 24 | 20 | 19 | 47 | 109 | 130 | 35 | 76 | 14 | 104 | 55 | |
| 2.5 | Screenline sub-total | 2603 | 1363 | 1629 | 1555 | 1769 | 2658 | 2547 | 1226 | 1316 | 1215 | 1418 | 2543 | 3891 | 1706 | 2262 | 2070 | 2441 | 4237 | |
| 2.5a | SH6 Gladstone Rd | 1363 | 670 | 883 | 823 | 771 | 1478 | 1107 | 570 | 634 | 577 | 570 | 1215 | 813 | 326 | 469 | 450 | 479 | 835 | |
| 2.5b | SH60 | 288 | 328 | 284 | 299 | 509 | 253 | 376 | 259 | 168 | 162 | 315 | 259 | 1011 | 514 | 600 | 549 | 698 | 1155 | |
| 2.5c | SH6 west of 3 Bros | 952 | 365 | 462 | 433 | 489 | 927 | 1064 | 397 | 514 | 476 | 533 | 1069 | 1224 | 457 | 652 | 596 | 649 | 1269 | |
| 2.5d | Richmond Bypass | - | - | - | - | - | - | - | - | - | - | - | - | 843 | 409 | 541 | 475 | 615 | 978 | |
| 2.6 | Screenline sub-total | 1778 | 1099 | 1425 | 1357 | 1313 | 1883 | 1779 | 1140 | 1432 | 1370 | 1342 | 1844 | 1743 | 1462 | 1715 | 1681 | 1859 | 1951 | |
| 2.6a | Wakefield Quay | 528 | 225 | 402 | 357 | 334 | 600 | 401 | 161 | 331 | 265 | 291 | 451 | 400 | 261 | 423 | 347 | 414 | 461 | |
| 2.6b | Russell St | 56 | 26 | 26 | 28 | 26 | 55 | 61 | 29 | 37 | 32 | 37 | 69 | 63 | 31 | 40 | 36 | 45 | 71 | |
| 2.6c | Maori Rd | 70 | 92 | 85 | 84 | 94 | 78 | 84 | 138 | 120 | 122 | 141 | 97 | 106 | 215 | 181 | 189 | 221 | 127 | |
| 2.6d | St Vincent St | 631 | 298 | 418 | 390 | 351 | 580 | 757 | 331 | 451 | 507 | 381 | 691 | 672 | 436 | 520 | 633 | 515 | 728 | |
| 2.6e | Vanguard St | 170 | 141 | 158 | 165 | 165 | 161 | 165 | 297 | 296 | 321 | 378 | 370 | 153 | 258 | 284 | 274 | 367 | 309 | |
| 2.6f | Rutherford St | 323 | 317 | 336 | 333 | 343 | 409 | 311 | 184 | 197 | 123 | 114 | 166 | 349 | 261 | 267 | 202 | 297 | 255 | |

Nodes
3840-5477

4967-1800 Nth of Bisley
4989-5480 Nth of Beatson/Sth of Princes Drive Ext
4273-4798 Sth of Toi Toi new link
4968-4158 Btwn Stansell Ave and Moncrieff
4987-6211

5176-5485
5464-5466

1130-5188
1288-1119
1003-1011

1460-1275
1518-1523 2016
6170-1523
6202-5600

3866-3872 Nth of Poynters Cres
3885-4910 Sth of Haven
4902-4903 West of Haven
4905-4959 Sth of Haven/Nth of Hastings
5542-6127 Sth of Bridge Ext
3986-4893 Sth of Bridge

* Note route more direct in 2006 than in future years

**Nelson Arterial Traffic Study
Model Outputs Relevant to NZTS Objectives**

| Objective | Outcomes | Source Data | 2006 | | | 2016 | | | 2036 | | | |
|-------------------------------|---|--|--------|-------|--------|--------|--------|--------|--------|--------|--------|------------------------------------|
| | | | AMP | INP | PMP | AMP | INP | PMP | AMP | INP | PMP | |
| Assist Economic Development | Port Activity | | | | | | | | | | | |
| | Airport Activity | Average travel time, min | 10.87 | 11.11 | 11.30 | 11.20 | 11.22 | 11.68 | 11.30 | 11.28 | 11.75 | 1h, whole network |
| | Freight Movement Costs | | | | | | | | | | | |
| | Tourism | | | | | | | | | | | |
| | Employment | | | | | | | | | | | |
| Safety & Personal Security | Land Use | Average trip length, km | 6.96 | 6.88 | 7.28 | 6.89 | 6.87 | 7.10 | 6.83 | 6.99 | 7.01 | 1h, AM Peak, whole network |
| | Total Crashes | Predicted crash rate, crashes/10 ⁸ veh-km | 90.94 | 85.47 | 89.63 | 89.76 | 95.39 | 72.90 | 90.28 | 85.80 | 61.57 | 1 Hour, study area |
| Access & Mobility | Pedestrian & Cycle Crashes | | | | | | | | | | | |
| | Perceived Pedestrian & Cycle Safety | | | | | | | | | | | |
| | Public Transport Facilities | | | | | | | | | | | |
| | Affordability | | | | | | | | | | | |
| | Access to work | Average travel time, min | 7.99 | 8.10 | 9.46 | 7.90 | 8.12 | 9.38 | 7.70 | 8.05 | 9.19 | 1 hour, whole network |
| | Access to shopping facilities | | | | | | | | | | | |
| | Access to Community Facilities | Average travel time, min | 8.27 | 6.31 | 8.29 | 8.14 | 6.45 | 8.15 | 7.89 | 6.56 | 8.06 | 1 hour, whole network |
| | Public Transport Accessibility | | | | | | | | | | | |
| Public Health | Public Transport Quality | | | | | | | | | | | |
| | Transport Interchange | | | | | | | | | | | |
| | Network Vulnerability | | | | | | | | | | | |
| Environmental Sustainability | Severance | Total veh-km travelled | 109958 | 93596 | 122721 | 122544 | 104834 | 137165 | 143995 | 128199 | 162405 | 1 Hour, study area |
| | Physical Fitness | | | | | | | | | | | |
| | Transport noise | Total VKT | 109958 | 93596 | 122721 | 122544 | 104834 | 137165 | 143995 | 128199 | 162405 | Total VKT, 1 hour, study area |
| | Air Quality | CO tonnes | 1.51 | 0.94 | 1.32 | 1.26 | 1.04 | 1.44 | 1.47 | 1.23 | 1.67 | 1 Hour, study area |
| Network & Economic Efficiency | | Fuel Consumption in litres | 12 | 10 | 13 | 13 | 11 | 15 | 15 | 13 | 17 | 1 Hour, study area |
| | Climate Change | CO ₂ tonnes | 39.33 | 32.32 | 44.30 | 43.33 | 35.67 | 49.13 | 49.08 | 42.36 | 56.21 | 1 Hour, whole network |
| | Energy Efficiency | Number of Total Trips / Lites of Fuel Consumed | 1.41 | 1.45 | 1.34 | 1.43 | 1.45 | 1.37 | 1.44 | 1.43 | 1.38 | 1 Hour, whole network |
| | Bio-diversity | | | | | | | | | | | |
| | Land-Take | | | | | | | | | | | |
| Network & Economic Efficiency | Natural & Cultural, Heritage & Historic Resources | | | | | | | | | | | |
| | Capital Costs | | | | | | | | | | | |
| | Benefit-Cost (tangible) | | | | | | | | | | | |
| | Benefits (intangible) | | | | | | | | | | | |
| | Vehicle Occupancy | | | | | | | | | | | 2 hour, whole network |
| | Network Delays | Average delay, min | 0.96 | 0.87 | 1.11 | 1.11 | 1.03 | 1.24 | 1.11 | 1.08 | 1.40 | 1 hour, whole network, intrn delay |
| | Volume of Travel | | | | | | | | | | | |
| Network & Economic Efficiency | Peak Period Intensities | | | | | | | | | | | |
| | Travel Time Reliability | Link lengths affected by LOS E and LOS F | 2.7 | 0.0 | 6.8 | 1.1 | 1.0 | 7.7 | 0.5 | 0.2 | 2.7 | 1 hour, study area |
| | | Intersections affected by LOS E and LOS F | 1 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 5 | 1 hour, study area |

**Nelson Arterial Traffic Study
Network Performance Summary Statistics**

| | | Base | | | Option H | | | Option H | | | |
|----------------------------|---|--------------------------------|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | | 2006 | | | 2016 | | | 2036 | | | |
| | | AMP | INP | PMP | AMP | INP | PMP | AMP | INP | PMP | |
| Whole Network ¹ | Total person trips | | | | | | | | | | |
| | Car driver | 37058 | 39414 | | 40881 | 43425 | | 45888 | 50427 | | |
| | Car passenger | 6811 | 12782 | | 7236 | 13873 | | 7805 | 15999 | | |
| | PT | 277 | 175 | | 351 | 307 | | 383 | 340 | | |
| | Walk / cycle | 14082 | 21601 | | 15106 | 23897 | | 16310 | 27613 | | |
| | Private cars trips^(1hr) | | | | | | | | | | |
| | Total driver trips (incl. park) | 24636 | 20821 | 26255 | 27257 | 22893 | 29581 | 31035 | 26686 | 33970 | |
| Corridor Study Area | Vehicle kilometres | 109958 | 93596 | 122721 | 122968 | 105337 | 138017 | 144365 | 128762 | 163212 | |
| | Vehicle in-motion minutes | 123055 | 102218 | 138674 | 139448 | 115343 | 159876 | 163325 | 140388 | 186187 | |
| | Mean running speed (km/hr) | 53.61 | 54.94 | 53.10 | 52.91 | 54.80 | 51.80 | 53.03 | 55.03 | 52.60 | |
| | Vehicles subject to delay | 285103 | 240166 | 330582 | 305867 | 255417 | 360896 | 333757 | 283800 | 397603 | |
| | Total vehicle delay (mins) | 21295 | 16592 | 26324 | 28087 | 23415 | 35550 | 32900 | 28462 | 46331 | |
| | Delay per delayed vehicle | 4.5 | 4.1 | 4.8 | 5.5 | 5.5 | 5.9 | 5.9 | 6 | 7 | |
| | Total vehicle minutes (in-motion + delay) | 144350 | 118810 | 164998 | 167535 | 138758 | 195426 | 196225 | 168850 | 232518 | |
| | Mean network speed (km/hr) | 45.7 | 47.3 | 44.6 | 44.04 | 45.55 | 42.37 | 44.14 | 45.75 | 42.12 | |
| | Veh operating costs on links | \$34,516 | \$29,261 | \$38,477 | \$38,580 | \$32,872 | \$43,336 | \$45,378 | \$40,291 | \$51,356 | |
| | Veh operating costs of intersections | \$677 | \$528 | \$837 | \$893 | \$745 | \$1,130 | \$1,046 | \$905 | \$1,473 | |
| | Veh operating costs of speed changes | \$8,268 | \$6,965 | \$9,587 | \$8,870 | \$7,407 | \$10,466 | \$9,679 | \$8,230 | \$11,530 | |
| | Total vehicle operating costs | \$43,460 | \$36,753 | \$48,900 | \$48,343 | \$41,023 | \$54,932 | \$56,102 | \$49,426 | \$64,360 | |
| | Total in-vehicle occupant time cost | \$47,750 | \$39,302 | \$54,581 | \$55,420 | \$45,901 | \$64,646 | \$64,911 | \$55,855 | \$76,916 | |
| | Total additional congestion cost | \$1,854 | \$1,332 | \$2,114 | \$2,499 | \$1,890 | \$3,488 | \$2,837 | \$2,306 | \$4,030 | |
| | TOTAL ROAD USER COST | \$93,066 | \$77,389 | \$105,881 | \$106,263 | \$88,814 | \$123,068 | \$123,851 | \$107,588 | \$145,307 | |
| | | EXPANDED ROAD USER COST | \$93,066 | \$77,389 | \$105,881 | \$106,263 | \$88,814 | \$123,068 | \$123,851 | \$107,588 | \$145,307 |
| | Whole Network ² | Public transport trips | | | | | | | | | |
| Total person trips by PT | | 236 | 155 | | 246 | 189 | | 252 | 201 | | |
| Total passenger.minutes | | 1320 | 706 | | 1643 | 1095 | | 1634 | 1057 | | |
| Total passenger.kilometres | | 717 | 382 | | 833 | 561 | | 819 | 528 | | |
| Total passenger wait | | 2678 | 1085 | | 2855 | 1324 | | 2900 | 1414 | | |

Notes: ¹ These are model convergence mode split trip distributions from the base models. Because options are assigned only, ie use same trip matrices, these distributions are unchanged.

² These PT trips are determined from the PT assignment which is run after the vehicle assignment.

| | | BASE | | | | | | OPTION H | | | | | | OPTION H | | | | | | |
|------|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
| | | 2006 | | 2016 | | 2016 | | 2016 | | 2016 | | 2016 | | 2016 | | 2016 | | 2016 | | |
| | | AM Peak | | Inter Peak | | PM Peak | | AM Peak | | Inter Peak | | PM Peak | | AM Peak | | Inter Peak | | PM Peak | | |
| Item | LINK TRAVEL TIMES | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | |
| | CARS | | | | | | | | | | | | | | | | | | | |
| 1.1a | Nelson Cbd - Annesbrook via Tahunanui, Rocks Northbound | 469 | 45.2 | 454 | 46.7 | 450 | 47.1 | 492 | 42.8 | 497 | 42.4 | 528 | 39.9 | 490 | 43.0 | 500 | 42.1 | 543 | 39.2 | |
| 1.1b | via Waimea Rd Southbound | 447 | 47.8 | 457 | 46.7 | 485 | 44 | 447 | 47.4 | 469 | 45.2 | 499 | 42.5 | 450 | 47.1 | 472 | 44.9 | 538 | 39.6 | |
| 1.2a | Northbound | 470 | 39.4 | 404 | 45.9 | 389 | 47.6 | 543 | 33.9 | 457 | 40.2 | 445 | 41.3 | 536 | 34.3 | 473 | 38.9 | 470 | 39.2 | |
| 1.2b | Southbound | 372 | 49.8 | 390 | 47.4 | 507 | 36.6 | 401 | 45.9 | 440 | 41.8 | 603 | 30.5 | 427 | 43.1 | 463 | 39.8 | 614 | 29.9 | |
| 1.3a | Annesbrook - Richmond via Main Rd, Salisbury Northbound | 607 | 46 | 591 | 47.3 | 605 | 46.2 | 626 | 44.4 | 615 | 45.2 | 640 | 43.4 | 630 | 44.1 | 626 | 44.4 | 670 | 41.5 | |
| 1.3b | Southbound | 645.1 | 43.3 | 643 | 43.5 | 687 | 40.7 | 684 | 40.7 | 686 | 40.6 | 719 | 38.7 | 718 | 38.7 | 705 | 39.5 | 740 | 37.6 | |
| 1.4a | via Bypass, Deviation Northbound | 358 | 74.9 | 355 | 75.5 | 354 | 75.8 | 349 | 76.3 | 347 | 76.8 | 344 | 77.4 | 391 | 68.8 | 380 | 70.6 | 404 | 66.6 | |
| 1.4b | Southbound | 372 | 72.3 | 371 | 72.4 | 432 | 62.2 | 395 | 67.5 | 395 | 67.6 | 498 | 53.5 | 406 | 65.7 | 402 | 66.3 | 422 | 63.2 | |
| | PT | min | | min | | min | | min | | min | | min | | min | | min | | min | | |
| 1.5a | Richmond-Nelson CBD via Stoke Bypass, rocks Northbound | | | | | | | | | | | | | | | | | | | |
| 1.5b | Southbound | | | | | | | | | | | | | | | | | | | |
| 1.6a | via Main Rd Stoke, Waimea Northbound | | | | | | | | | | | | | | | | | | | |
| 1.6b | Southbound | | | | | | | | | | | | | | | | | | | |
| 1.7a | express route, via Main Rd Stoke, Waimea Northbound | | | | | | | | | | | | | | | | | | | |
| 1.7b | Southbound | | | | | | | | | | | | | | | | | | | |
| | MAXIMUM FLOWS | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | |
| 2.1a | Nelson to Atawhai | 357 | 807 | 478 | 521 | 783 | 453 | 385 | 903 | 529 | 588 | 852 | 500 | 444 | 1151 | 675 | 774 | 1048 | 589 | |
| 2.2 | Screenline sub-total | 2883 | 1231 | 2075 | 1939 | 1792 | 3086 | 2965 | 1327 | 2189 | 2058 | 1896 | 3183 | 2770 | 1648 | 2337 | 2250 | 2266 | 3151 | |
| 2.2a | Rocks Rd | 1138 | 479 | 862 | 783 | 686 | 1165 | 1005 | 442 | 754 | 737 | 596 | 1199 | 874 | 584 | 839 | 877 | 754 | 1128 | |
| 2.2b | Waimea Rd | 1575 | 682 | 1113 | 1073 | 985 | 1762 | 1726 | 767 | 1304 | 1213 | 1124 | 1778 | 1679 | 906 | 1357 | 1243 | 1297 | 1800 | |
| 2.2c | Princes Dr | 46 | 22 | 26 | 23 | 27 | 45 | 46 | 26 | 25 | 25 | 43 | 58 | 54 | 39 | 34 | 36 | 63 | 76 | |
| 2.2d | Moana Ave | 124 | 48 | 74 | 60 | 94 | 114 | 188 | 92 | 106 | 83 | 133 | 148 | 163 | 119 | 107 | 94 | 152 | 147 | |
| 2.2e | Princes Dr new link road to Waimea Rd (for reference) | - | - | - | - | - | - | 44 | 40 | 37 | 27 | 76 | 50 | 48 | 64 | 46 | 45 | 96 | 68 | |
| 2.3 | Screenline sub-total | 2122 | 1190 | 1559 | 1469 | 1633 | 2437 | 2329 | 1431 | 1803 | 1712 | 1919 | 2682 | 2371 | 1961 | 2210 | 2154 | 2508 | 2880 | |
| 2.3a | Main Rd Stoke | 1117 | 442 | 704 | 424 | 975 | 729 | 1078 | 461 | 606 | 294 | 1008 | 727 | 1063 | 703 | 752 | 461 | 1332 | 689 | |
| 2.3b | Stoke Bypass | 1005 | 748 | 855 | 1045 | 658 | 1708 | 1251 | 970 | 1197 | 1418 | 911 | 1955 | 1308 | 1258 | 1458 | 1693 | 1176 | 2191 | |
| 2.4 | Screenline sub-total | 2362 | 1304 | 1625 | 1534 | 1735 | 2573 | 2587 | 1567 | 1875 | 1783 | 2085 | 2911 | 2788 | 2281 | 2410 | 2288 | 2896 | 3219 | |
| 2.4a | Salisbury Rd Richmond | 1073 | 575 | 777 | 657 | 893 | 1137 | 1218 | 650 | 842 | 771 | 956 | 1387 | 1315 | 771 | 998 | 802 | 1203 | 1377 | |
| 2.4b | Richmond Deviation | 1143 | 709 | 826 | 857 | 815 | 1376 | 1223 | 893 | 1013 | 993 | 1082 | 1415 | 1341 | 1475 | 1332 | 1472 | 1589 | 1787 | |
| 2.4c | Hill St | 146 | 20 | 22 | 20 | 27 | 60 | 146 | 24 | 20 | 19 | 47 | 109 | 132 | 35 | 80 | 14 | 104 | 55 | |
| 2.5 | Screenline sub-total | 2603 | 1363 | 1629 | 1555 | 1769 | 2658 | 2551 | 1227 | 1319 | 1214 | 1414 | 2541 | 3907 | 1697 | 2256 | 2059 | 2448 | 4232 | |
| 2.5a | SH6 Gladstone Rd | 1363 | 670 | 883 | 823 | 771 | 1478 | 1111 | 570 | 637 | 576 | 567 | 1214 | 836 | 318 | 461 | 440 | 481 | 832 | |
| 2.5b | SH60 | 288 | 328 | 284 | 299 | 509 | 253 | 376 | 260 | 168 | 162 | 315 | 259 | 1008 | 513 | 601 | 549 | 700 | 1154 | |
| 2.5c | SH6 west of 3 Bros | 952 | 365 | 462 | 433 | 489 | 927 | 1064 | 397 | 514 | 476 | 532 | 1068 | 1224 | 457 | 652 | 595 | 649 | 1269 | |
| 2.5d | Richmond Bypass | - | - | - | - | - | - | - | - | - | - | - | - | 839 | 409 | 542 | 475 | 618 | 977 | |
| 2.6 | Screenline sub-total | 1778 | 1099 | 1425 | 1357 | 1313 | 1883 | 1717 | 1105 | 1464 | 1371 | 1446 | 1777 | 1744 | 1445 | 1730 | 1691 | 1761 | 1869 | |
| 2.6a | Wakefield Quay | 528 | 225 | 402 | 357 | 334 | 600 | 452 | 265 | 390 | 416 | 332 | 580 | 402 | 373 | 471 | 512 | 418 | 576 | |
| 2.6b | Russell St | 56 | 26 | 26 | 28 | 26 | 55 | 77 | 29 | 41 | 29 | 46 | 64 | 73 | 30 | 41 | 34 | 48 | 68 | |
| 2.6c | Maori Rd | 70 | 92 | 85 | 84 | 94 | 78 | 84 | 138 | 120 | 122 | 141 | 97 | 106 | 215 | 181 | 189 | 221 | 127 | |
| 2.6d | St Vincent St | 631 | 298 | 418 | 390 | 351 | 580 | 627 | 199 | 419 | 253 | 292 | 480 | 701 | 250 | 507 | 340 | 447 | 479 | |
| 2.6e | Vanguard St | 170 | 141 | 158 | 165 | 165 | 161 | 135 | 222 | 132 | 265 | 170 | 277 | 109 | 230 | 122 | 264 | 255 | 280 | |
| 2.6f | Rutherford St | 323 | 317 | 336 | 333 | 343 | 409 | 342 | 252 | 372 | 286 | 465 | 279 | 353 | 347 | 408 | 352 | 372 | 339 | |

Nodes
3840-5477

4967-1800 Nth of Bisley
4989-5480 Nth of Beatson/Sth of Princes Drive Ext
4273-4798 Sth of Toi Toi new link
4968-4158 Btwn Stansell Ave and Moncrieff
4987-6211

5176-5485
5464-5466

1130-5188
1288-1119
1003-1011

1460-1275
1518-1523 2016
6170-1523
6202-5600

3866-3872 Nth of Poynters Cres
3885-4910 Sth of Haven
4902-4903 West of Haven
4905-4959 Sth of Haven/Nth of Hastings
5542-6127 Sth of Bridge Ext
3986-4893 Sth of Bridge

* Note route more direct in 2006 than in future years

**Nelson Arterial Traffic Study
Model Outputs Relevant to NZTS Objectives**

| Objective | Outcomes | Source Data | 2006 | | | 2016 | | | 2036 | | | |
|-------------------------------|---|--|--------|-------|--------|--------|--------|--------|--------|--------|--------|------------------------------------|
| | | | AMP | INP | PMP | AMP | INP | PMP | AMP | INP | PMP | |
| Assist Economic Development | Port Activity | | | | | | | | | | | |
| | Airport Activity | Average travel time, min | 10.87 | 11.11 | 11.30 | 11.49 | 11.40 | 11.89 | 11.54 | 11.45 | 11.90 | 1h, whole network |
| | Freight Movement Costs | | | | | | | | | | | |
| | Tourism | | | | | | | | | | | |
| | Employment | | | | | | | | | | | |
| Safety & Personal Security | Land Use | Average trip length, km | 6.96 | 6.88 | 7.28 | 6.91 | 6.89 | 7.15 | 6.85 | 7.01 | 7.05 | 1h, AM Peak, whole network |
| | Total Crashes | Predicted crash rate, crashes/10 ⁸ veh-km | 90.94 | 85.47 | 89.63 | 81.32 | 94.93 | 72.45 | 96.98 | 77.66 | 61.27 | 1 Hour, study area |
| Access & Mobility | Pedestrian & Cycle Crashes | | | | | | | | | | | |
| | Perceived Pedestrian & Cycle Safety | | | | | | | | | | | |
| | Public Transport Facilities | | | | | | | | | | | |
| | Affordability | | | | | | | | | | | |
| | Access to work | Average travel time, min | 7.99 | 8.10 | 9.46 | 8.07 | 8.27 | 9.58 | 7.82 | 8.18 | 9.35 | 1 hour, whole network |
| | Access to shopping facilities | | | | | | | | | | | |
| | Access to Community Facilities | Average travel time, min | 8.27 | 6.31 | 8.29 | 8.31 | 6.58 | 8.39 | 8.03 | 6.68 | 8.26 | 1 hour, whole network |
| | Public Transport Accessibility | | | | | | | | | | | |
| Public Health | Public Transport Quality | | | | | | | | | | | |
| | Transport Interchange | | | | | | | | | | | |
| Environmental Sustainability | Network Vulnerability | | | | | | | | | | | |
| | Severance | Total veh-km travelled | 109958 | 93596 | 122721 | 122968 | 105337 | 138017 | 144365 | 128762 | 163212 | 1 Hour, study area |
| Public Health | Physical Fitness | | | | | | | | | | | |
| | Transport noise | Total VKT | 109958 | 93596 | 122721 | 122968 | 105337 | 138017 | 144365 | 128762 | 163212 | Total VKT, 1 hour, study area |
| | Air Quality | CO tonnes | 1.51 | 0.94 | 1.32 | 1.28 | 1.06 | 1.47 | 1.49 | 1.27 | 1.70 | 1 Hour, study area |
| Environmental Sustainability | | Fuel Consumption in litres | 12 | 10 | 13 | 13 | 11 | 15 | 15 | 14 | 18 | 1 Hour, study area |
| | Climate Change | CO ₂ tonnes | 39.33 | 32.32 | 44.30 | 43.83 | 36.16 | 49.99 | 49.55 | 42.82 | 57.09 | 1 Hour, whole network |
| | Energy Efficiency | Number of Total Trips / Lites of Fuel Consumed | 1.41 | 1.45 | 1.34 | 1.41 | 1.44 | 1.35 | 1.42 | 1.42 | 1.37 | 1 Hour, whole network |
| | Bio-diversity | | | | | | | | | | | |
| | Land-Take | | | | | | | | | | | |
| Network & Economic Efficiency | Natural & Cultural, Heritage & Historic Resources | | | | | | | | | | | |
| | Capital Costs | | | | | | | | | | | |
| | Benefit-Cost (tangible) | | | | | | | | | | | |
| | Benefits (intangible) | | | | | | | | | | | |
| | Vehicle Occupancy | | | | | | | | | | | 2 hour, whole network |
| | Network Delays | Average delay, min | 0.96 | 0.87 | 1.11 | 1.13 | 1.10 | 1.31 | 1.15 | 1.13 | 1.46 | 1 hour, whole network, intrn delay |
| | Volume of Travel | | | | | | | | | | | |
| | Peak Period Intensities | | | | | | | | | | | |
| Network & Economic Efficiency | Travel Time Reliability | Link lengths affected by LOS E and LOS F | 2.7 | 0.0 | 6.8 | 3.1 | 2.5 | 9.7 | 2.3 | 2.4 | 4.2 | 1 hour, study area |
| | | Intersections affected by LOS E and LOS F | 1 | 0 | 2 | 2 | 1 | 2 | 2 | 1 | 7 | 1 hour, study area |

**Nelson Arterial Traffic Study
Network Performance Summary Statistics**

| | | Option I | | | Option I | | | | | |
|----------------------------|---|-----------------|-----------------|------------------|------------------|-----------------|------------------|------------------|------------------|------------------|
| | | 2006 | | | 2016 | | | 2036 | | |
| | | AMP | INP | PMP | AMP | INP | PMP | AMP | INP | PMP |
| Whole Network ¹ | Total person trips | | | | | | | | | |
| | Car driver | 37058 | 39414 | | 40881 | 43425 | | 45888 | 50427 | |
| | Car passenger | 6811 | 12782 | | 7236 | 13873 | | 7805 | 15999 | |
| | PT | 277 | 175 | | 351 | 307 | | 383 | 340 | |
| | Walk / cycle | 14082 | 21601 | | 15106 | 23897 | | 16310 | 27613 | |
| | Private cars trips^(1hr) | | | | | | | | | |
| | Total driver trips (incl. park) | 24636 | 20821 | 26255 | 27257 | 22893 | 29581 | 31035 | 26686 | 33970 |
| Corridor Study Area | Vehicle kilometres | 109958 | 93596 | 122721 | 123115 | 105649 | 137988 | 144586 | 129026 | 163168 |
| | Vehicle in-motion minutes | 123055 | 102218 | 138674 | 136659 | 114740 | 155880 | 161150 | 139815 | 182188 |
| | Mean running speed (km/hr) | 53.61 | 54.94 | 53.10 | 54.05 | 55.25 | 53.11 | 53.83 | 55.37 | 53.74 |
| | Vehicles subject to delay | 285103 | 240166 | 330582 | 300718 | 246561 | 347258 | 327047 | 276336 | 383637 |
| | Total vehicle delay (mins) | 21295 | 16592 | 26324 | 27246 | 22382 | 35125 | 31676 | 27075 | 45550 |
| | Delay per delayed vehicle | 4.5 | 4.1 | 4.8 | 5.4 | 5.4 | 6.1 | 5.8 | 5.9 | 7.1 |
| | Total vehicle minutes (in-motion + delay) | 144350 | 118810 | 164998 | 163905 | 137121 | 191005 | 192827 | 166890 | 227738 |
| | Mean network speed (km/hr) | 45.7 | 47.3 | 44.6 | 45.07 | 46.23 | 43.35 | 44.99 | 46.39 | 42.99 |
| | Veh operating costs on links | \$34,516 | \$29,261 | \$38,477 | \$38,472 | \$32,909 | \$43,103 | \$45,320 | \$40,306 | \$51,107 |
| | Veh operating costs of intersections | \$677 | \$528 | \$837 | \$866 | \$712 | \$1,117 | \$1,007 | \$861 | \$1,448 |
| | Veh operating costs of speed changes | \$8,268 | \$6,965 | \$9,587 | \$8,721 | \$7,150 | \$10,070 | \$9,484 | \$8,014 | \$11,125 |
| | Total vehicle operating costs | \$43,460 | \$36,753 | \$48,900 | \$48,059 | \$40,770 | \$54,290 | \$55,812 | \$49,181 | \$63,680 |
| | Total in-vehicle occupant time cost | \$47,750 | \$39,302 | \$54,581 | \$54,219 | \$45,359 | \$63,184 | \$63,787 | \$55,207 | \$75,335 |
| | Total additional congestion cost | \$1,854 | \$1,332 | \$2,114 | \$2,217 | \$1,800 | \$3,224 | \$2,554 | \$2,178 | \$3,735 |
| | TOTAL ROAD USER COST | \$93,066 | \$77,389 | \$105,881 | \$104,496 | \$87,930 | \$120,698 | \$122,153 | \$106,567 | \$142,751 |
| | EXPANDED ROAD USER COST | \$93,066 | \$77,389 | \$105,881 | \$104,496 | \$87,930 | \$120,698 | \$122,153 | \$106,567 | \$142,751 |
| Whole Network ² | Public transport trips | | | | | | | | | |
| | Total person trips by PT | 236 | 155 | | 247 | 189 | | 252 | 201 | |
| | Total passenger.minutes | 1320 | 706 | | 1542 | 1040 | | 1530 | 1012 | |
| | Total passenger.kilometres | 717 | 382 | | 817 | 540 | | 793 | 515 | |
| | Total passenger wait | 2678 | 1085 | | 2854 | 1298 | | 2910 | 1410 | |

Notes: ¹ These are model convergence mode split trip distributions from the base models. Because options are assigned only, ie use same trip matrices, these distributions are unchanged.

² These PT trips are determined from the PT assignment which is run after the vehicle assignment.

| | | BASE | | | | | | OPTION I | | | | | | OPTION I | | | | | | |
|------|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
| | | 2006 | | 2016 | | 2036 | | 2006 | | 2016 | | 2036 | | 2006 | | 2016 | | 2036 | | |
| | | AM Peak | | Inter Peak | | PM Peak | | AM Peak | | Inter Peak | | PM Peak | | AM Peak | | Inter Peak | | PM Peak | | |
| Item | LINK TRAVEL TIMES | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | sec | km/h | |
| | CARS | | | | | | | | | | | | | | | | | | | |
| 1.1a | Nelson Cbd - Annesbrook via Tahunanui, Rocks Northbound | 469 | 45.2 | 454 | 46.7 | 450 | 47.1 | 472 | 44.6 | 461 | 45.7 | 463 | 45.5 | 471 | 44.7 | 469 | 44.9 | 469 | 45.3 | |
| 1.1b | Southbound | 447 | 47.8 | 457 | 46.7 | 485 | 44 | 431 | 49.2 | 441 | 48.1 | 460 | 46.1 | 435 | 48.8 | 446 | 47.5 | 493 | 43.2 | |
| | via Waimea Rd | | | | | | | | | | | | | | | | | | | |
| 1.2a | Northbound | 470 | 39.4 | 404 | 45.9 | 389 | 47.6 | 428 | 43.0 | 421 | 43.7 | 427 | 43.1 | 434 | 42.4 | 431 | 42.7 | 434 | 42.4 | |
| 1.2b | Southbound | 372 | 49.8 | 390 | 47.4 | 507 | 36.6 | 394 | 46.7 | 414 | 44.4 | 486 | 37.9 | 409 | 45.0 | 425 | 43.3 | 500 | 36.8 | |
| | Annesbrook - Richmond via Main Rd, Salisbury | | | | | | | | | | | | | | | | | | | |
| 1.3a | Northbound | 607 | 46 | 591 | 47.3 | 605 | 46.2 | 623 | 44.7 | 615 | 45.2 | 641 | 43.4 | 630 | 44.2 | 626 | 44.4 | 668 | 41.7 | |
| 1.3b | Southbound | 645.1 | 43.3 | 643 | 43.5 | 687 | 40.7 | 682 | 40.8 | 687 | 40.5 | 717 | 38.8 | 718 | 38.8 | 703 | 39.6 | 738 | 37.7 | |
| | via Bypass, Deviation | | | | | | | | | | | | | | | | | | | |
| 1.4a | Northbound | 358 | 74.9 | 355 | 75.5 | 354 | 75.8 | 349 | 76.3 | 347 | 76.7 | 344 | 77.4 | 391 | 68.7 | 380 | 70.6 | 409 | 65.9 | |
| 1.4b | Southbound | 372 | 72.3 | 371 | 72.4 | 432 | 62.2 | 395 | 67.5 | 395 | 67.6 | 501 | 53.3 | 406 | 65.7 | 402 | 66.3 | 422 | 63.2 | |
| | PT | | | | | | | | | | | | | | | | | | | |
| | | min | | min | | min | | min | | min | | min | | min | | min | | min | | |
| | Richmond-Nelson CBD via Stoke Bypass, rocks | | | | | | | | | | | | | | | | | | | |
| 1.5a | Northbound | | | | | | | | | | | | | | | | | | | |
| 1.5b | Southbound | | | | | | | | | | | | | | | | | | | |
| | via Main Rd Stoke, Waimea | | | | | | | | | | | | | | | | | | | |
| 1.6a | Northbound | | | | | | | | | | | | | | | | | | | |
| 1.6b | Southbound | | | | | | | | | | | | | | | | | | | |
| | express route, via Main Rd Stoke, Waimea | | | | | | | | | | | | | | | | | | | |
| 1.7a | Northbound | | | | | | | | | | | | | | | | | | | |
| 1.7b | Southbound | | | | | | | | | | | | | | | | | | | |
| | MAXIMUM FLOWS | | | | | | | | | | | | | | | | | | | |
| | | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | n/b | s/b | |
| 2.1a | Nelson to Atawhai | 357 | 807 | 478 | 521 | 783 | 453 | 386 | 904 | 529 | 588 | 854 | 501 | 445 | 1152 | 676 | 774 | 1050 | 589 | |
| | 2.2 Screenline sub-total | 2883 | 1231 | 2075 | 1939 | 1792 | 3086 | 2964 | 1327 | 2189 | 2057 | 1895 | 3181 | 2771 | 1648 | 2337 | 2250 | 2264 | 3149 | |
| 2.2a | Rocks Rd | 1138 | 479 | 862 | 783 | 686 | 1165 | 897 | 471 | 790 | 790 | 673 | 1114 | 806 | 619 | 841 | 882 | 816 | 1071 | |
| 2.2b | Waimea Rd | 1575 | 682 | 1113 | 1073 | 985 | 1762 | 1893 | 757 | 1295 | 1171 | 1070 | 1880 | 1797 | 900 | 1377 | 1250 | 1257 | 1883 | |
| 2.2c | Princes Dr | 46 | 22 | 26 | 23 | 27 | 45 | 35 | 19 | 18 | 22 | 30 | 43 | 42 | 31 | 22 | 31 | 41 | 56 | |
| 2.2d | Moana Ave | 124 | 48 | 74 | 60 | 94 | 114 | 139 | 80 | 86 | 74 | 122 | 144 | 126 | 98 | 97 | 87 | 150 | 139 | |
| 2.2e | Princes Dr new link road to Waimea Rd (for reference) | - | - | - | - | - | - | 26 | 36 | 23 | 23 | 68 | 36 | 33 | 56 | 34 | 37 | 81 | 49 | |
| | 2.3 Screenline sub-total | 2122 | 1190 | 1559 | 1469 | 1633 | 2437 | 2329 | 1431 | 1803 | 1712 | 1919 | 2683 | 2371 | 1961 | 2211 | 2154 | 2509 | 2880 | |
| 2.3a | Main Rd Stoke | 1117 | 442 | 704 | 424 | 975 | 729 | 1033 | 461 | 580 | 294 | 994 | 726 | 1034 | 703 | 751 | 462 | 1318 | 693 | |
| 2.3b | Stoke Bypass | 1005 | 748 | 855 | 1045 | 658 | 1708 | 1296 | 970 | 1223 | 1418 | 925 | 1957 | 1337 | 1258 | 1460 | 1692 | 1191 | 2187 | |
| | 2.4 Screenline sub-total | 2362 | 1304 | 1625 | 1534 | 1735 | 2573 | 2588 | 1567 | 1875 | 1784 | 2085 | 2911 | 2787 | 2281 | 2396 | 2287 | 2899 | 3221 | |
| 2.4a | Salisbury Rd Richmond | 1073 | 575 | 777 | 657 | 893 | 1137 | 1217 | 650 | 840 | 772 | 951 | 1391 | 1313 | 771 | 998 | 802 | 1203 | 1378 | |
| 2.4b | Richmond Deviation | 1143 | 709 | 826 | 857 | 815 | 1376 | 1225 | 893 | 1015 | 993 | 1087 | 1411 | 1342 | 1475 | 1332 | 1471 | 1592 | 1788 | |
| 2.4c | Hill St | 146 | 20 | 22 | 20 | 27 | 60 | 146 | 24 | 20 | 19 | 47 | 109 | 132 | 35 | 66 | 14 | 104 | 55 | |
| | 2.5 Screenline sub-total | 2603 | 1363 | 1629 | 1555 | 1769 | 2658 | 2552 | 1228 | 1320 | 1215 | 1420 | 2540 | 3907 | 1701 | 2272 | 2071 | 2447 | 4238 | |
| 2.5a | SH6 Gladstone Rd | 1363 | 670 | 883 | 823 | 771 | 1478 | 1112 | 570 | 638 | 577 | 572 | 1213 | 837 | 323 | 478 | 453 | 485 | 836 | |
| 2.5b | SH60 | 288 | 328 | 284 | 299 | 509 | 253 | 376 | 261 | 168 | 162 | 315 | 259 | 1007 | 513 | 600 | 549 | 698 | 1155 | |
| 2.5c | SH6 west of 3 Bros | 952 | 365 | 462 | 433 | 489 | 927 | 1064 | 397 | 514 | 476 | 533 | 1068 | 1224 | 457 | 652 | 595 | 649 | 1269 | |
| 2.5d | Richmond Bypass | - | - | - | - | - | - | - | - | - | - | - | - | 839 | 408 | 542 | 474 | 615 | 978 | |
| | 2.6 Screenline sub-total | 1778 | 1099 | 1425 | 1357 | 1313 | 1883 | 1723 | 1142 | 1492 | 1415 | 1441 | 1816 | 1722 | 1449 | 1735 | 1687 | 1790 | 1882 | |
| 2.6a | Wakefield Quay | 528 | 225 | 402 | 357 | 334 | 600 | 467 | 254 | 445 | 416 | 410 | 578 | 422 | 342 | 497 | 507 | 464 | 567 | |
| 2.6b | Russell St | 56 | 26 | 26 | 28 | 26 | 55 | 54 | 28 | 31 | 29 | 33 | 63 | 52 | 30 | 32 | 34 | 37 | 68 | |
| 2.6c | Maori Rd | 70 | 92 | 85 | 84 | 94 | 78 | 84 | 138 | 120 | 122 | 141 | 97 | 106 | 215 | 181 | 189 | 221 | 127 | |
| 2.6d | St Vincent St | 631 | 298 | 418 | 390 | 351 | 580 | 579 | 213 | 351 | 298 | 285 | 462 | 636 | 285 | 438 | 346 | 419 | 494 | |
| 2.6e | Vanguard St | 170 | 141 | 158 | 165 | 165 | 161 | 123 | 282 | 130 | 302 | 179 | 293 | 107 | 286 | 124 | 303 | 256 | 264 | |
| 2.6f | Rutherford St | 323 | 317 | 336 | 333 | 343 | 409 | 416 | 227 | 415 | 248 | 393 | 323 | 399 | 291 | 463 | 308 | 393 | 362 | |

Nodes
3840-5477

4967-1800 Nth of Bisley
4989-5480 Nth of Beatson/Sth of Princes Drive Ext
4273-4798 Sth of Toi Toi new link
4968-4158 Btwn Stansell Ave and Moncrieff
4987-6211

5176-5485
5464-5466

1130-5188
1288-1119
1003-1011

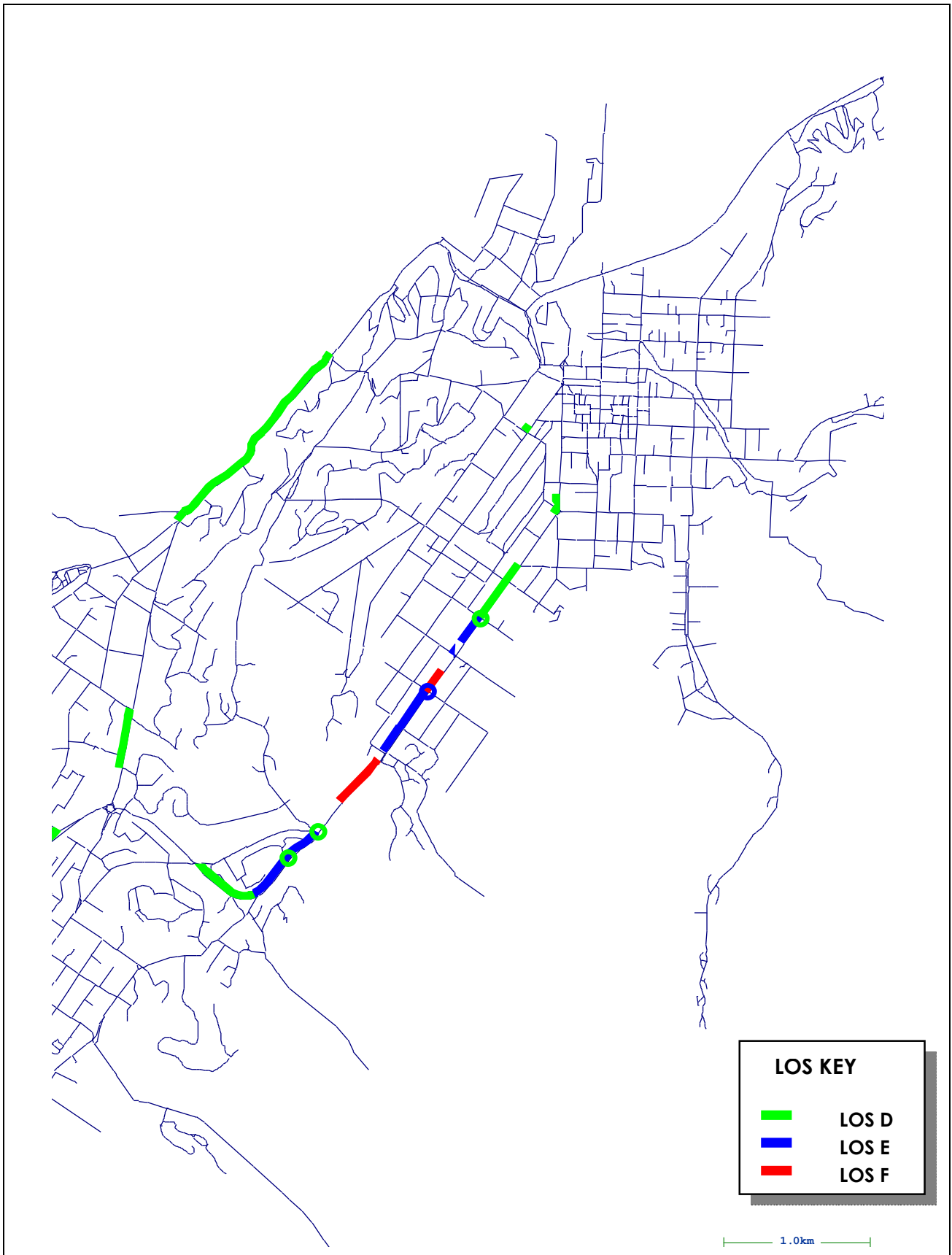
1460-1275
1518-1523 2016
6170-1523
6202-5600

3866-3872 Nth of Poynters Cres
3885-4910 Sth of Haven
4902-4903 West of Haven
4905-4959 Sth of Haven/Nth of Hastings
5542-6127 Sth of Bridge Ext
3986-4893 Sth of Bridge

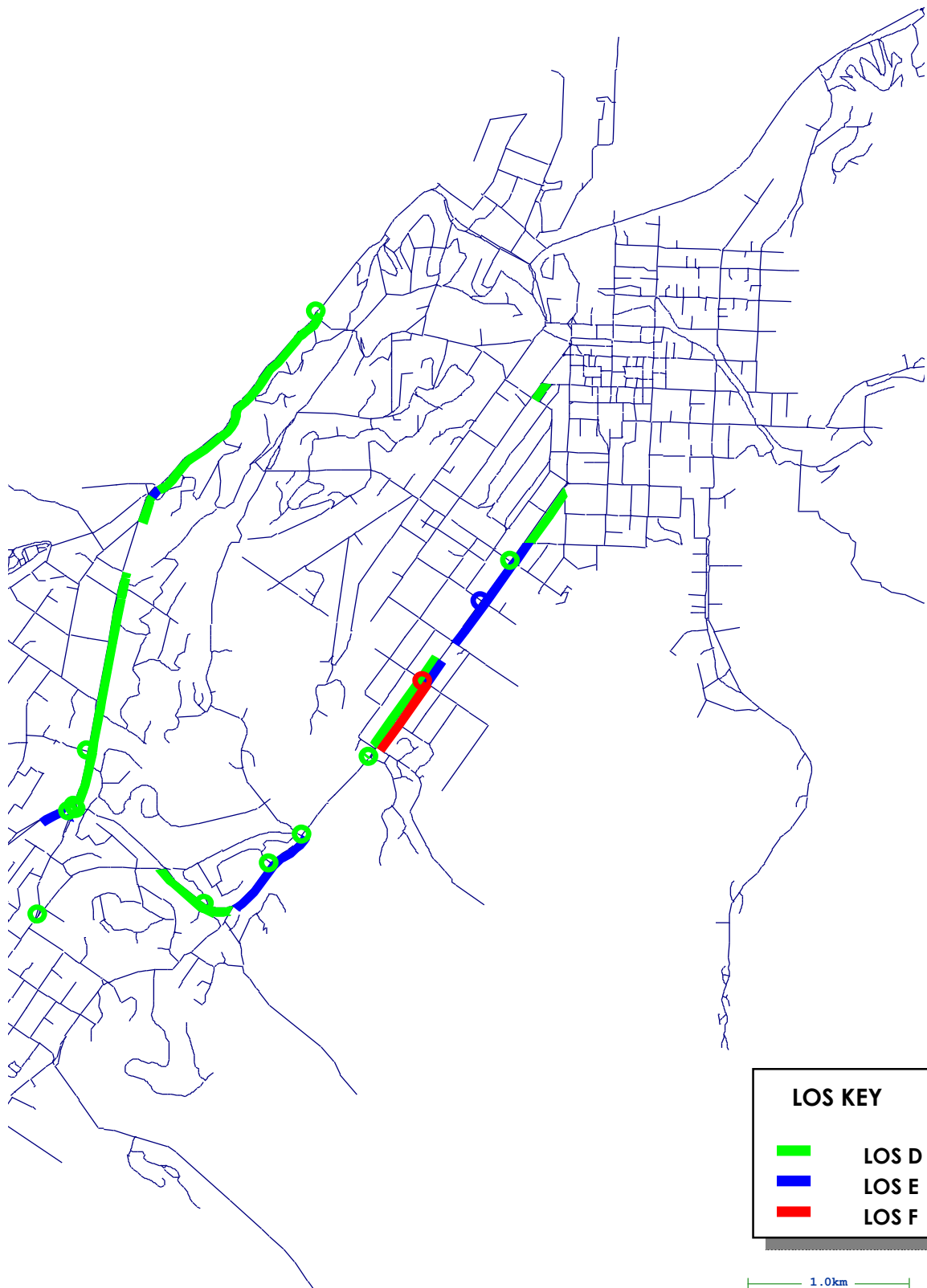
* Note route more direct in 2006 than in future years

**Nelson Arterial Traffic Study
Model Outputs Relevant to NZTS Objectives**

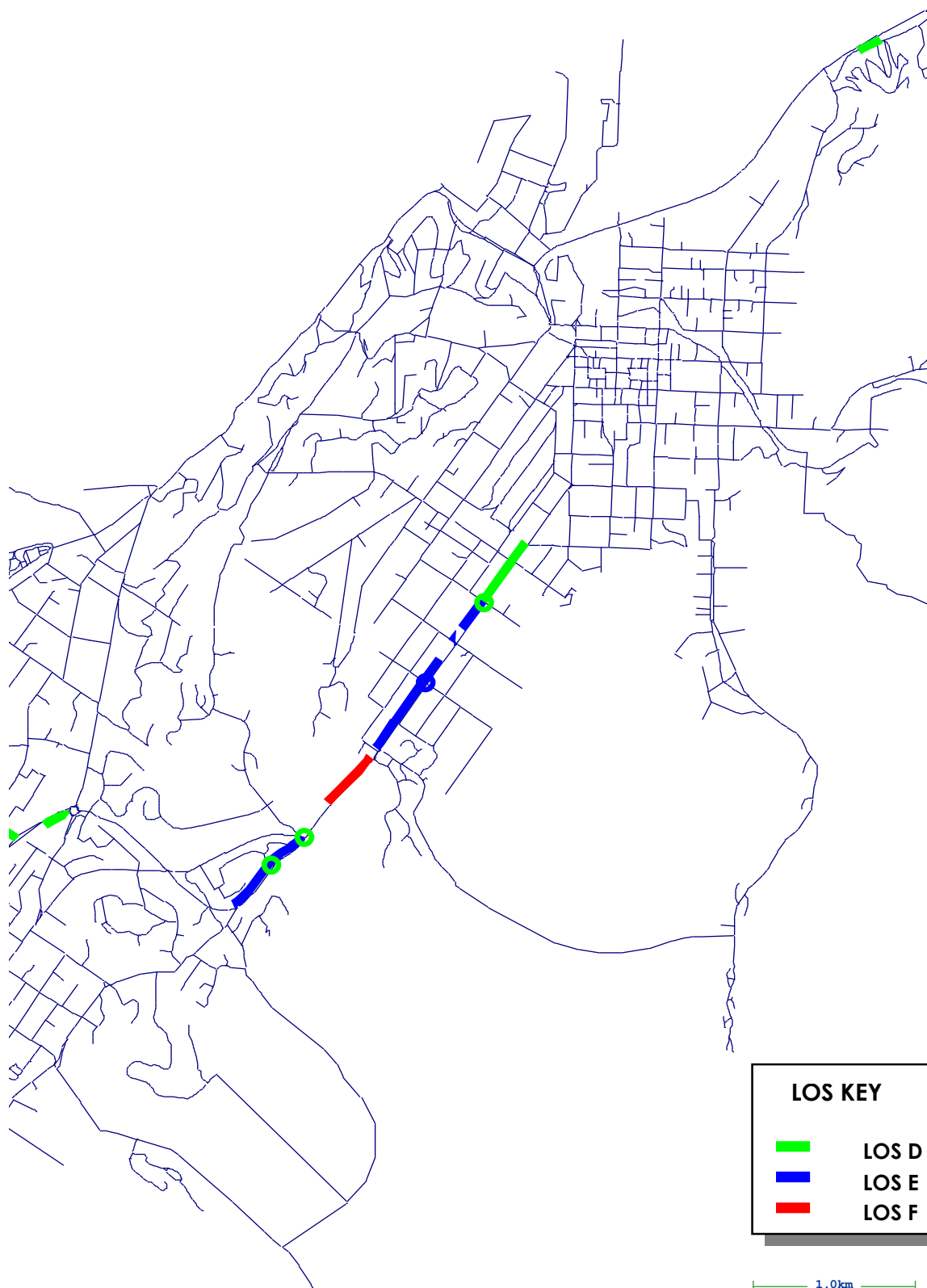
| Objective | Outcomes | Source Data | 2006 | | | 2016 | | | 2036 | | | |
|-------------------------------|---|--|--------|--------|--------|--------|--------|--------|--------|--------|--------------------|------------------------------------|
| | | | AMP | INP | PMP | AMP | INP | PMP | AMP | INP | PMP | |
| Assist Economic Development | Port Activity | | | | | | | | | | | |
| | Airport Activity | Average travel time, min | 10.87 | 11.11 | 11.30 | 11.34 | 11.34 | 11.81 | 11.41 | 11.38 | 11.84 | 1h, whole network |
| | Freight Movement Costs | | | | | | | | | | | |
| | Tourism | | | | | | | | | | | |
| | Employment | | | | | | | | | | | |
| Safety & Personal Security | Land Use | Average trip length, km | 6.96 | 6.88 | 7.28 | 6.91 | 6.90 | 7.12 | 6.85 | 7.02 | 7.03 | 1h, AM Peak, whole network |
| | Total Crashes | Predicted crash rate, crashes/10 ⁸ veh-km | 90.94 | 85.47 | 89.63 | 89.35 | 94.65 | 72.47 | 69.16 | 85.25 | 61.29 | 1 Hour, study area |
| | Pedestrian & Cycle Crashes | | | | | | | | | | | |
| Access & Mobility | Perceived Pedestrian & Cycle Safety | | | | | | | | | | | |
| | Public Transport Facilities | | | | | | | | | | | |
| | Affordability | | | | | | | | | | | |
| | Access to work | Average travel time, min | 7.99 | 8.10 | 9.46 | 7.95 | 8.20 | 9.50 | 7.73 | 8.11 | 9.26 | 1 hour, whole network |
| | Access to shopping facilities | | | | | | | | | | | |
| | Access to Community Facilities | Average travel time, min | 8.27 | 6.31 | 8.29 | 8.23 | 6.57 | 8.32 | 7.97 | 6.68 | 8.19 | 1 hour, whole network |
| | Public Transport Accessibility | | | | | | | | | | | |
| | Public Transport Quality | | | | | | | | | | | |
| Transport Interchange | | | | | | | | | | | | |
| Network Vulnerability | | | | | | | | | | | | |
| Severance | Total veh-km travelled | 109958 | 93596 | 122721 | 123115 | 105649 | 137988 | 144586 | 129026 | 163168 | 1 Hour, study area | |
| Public Health | Physical Fitness | | | | | | | | | | | |
| | Transport noise | Total VKT | 109958 | 93596 | 122721 | 123115 | 105649 | 137988 | 144586 | 129026 | 163168 | Total VKT, 1 hour, study area |
| | Air Quality | CO tonnes | 1.51 | 0.94 | 1.32 | 1.26 | 1.02 | 1.44 | 1.47 | 1.22 | 1.66 | 1 Hour, study area |
| Environmental Sustainability | | Fuel Consumption in litres | 12 | 10 | 13 | 13 | 11 | 15 | 15 | 14 | 18 | 1 Hour, study area |
| | Climate Change | CO ₂ tonnes | 39.33 | 32.32 | 44.30 | 43.51 | 36.01 | 49.62 | 49.24 | 42.66 | 56.61 | 1 Hour, whole network |
| | Energy Efficiency | Number of Total Trips / Lites of Fuel Consumed | 1.41 | 1.45 | 1.34 | 1.42 | 1.44 | 1.36 | 1.43 | 1.42 | 1.38 | 1 Hour, whole network |
| | Bio-diversity | | | | | | | | | | | |
| | Land-Take | | | | | | | | | | | |
| Network & Economic Efficiency | Natural & Cultural, Heritage & Historic Resources | | | | | | | | | | | |
| | Capital Costs | | | | | | | | | | | |
| | Benefit-Cost (tangible) | | | | | | | | | | | |
| | Benefits (intangible) | | | | | | | | | | | |
| | Vehicle Occupancy | | | | | | | | | | | 2 hour, whole network |
| | Network Delays | Average delay, min | 0.96 | 0.87 | 1.11 | 1.10 | 1.05 | 1.30 | 1.11 | 1.08 | 1.44 | 1 hour, whole network, intrn delay |
| | Volume of Travel | | | | | | | | | | | |
| | Peak Period Intensities | | | | | | | | | | | |
| Travel Time Reliability | Link lengths affected by LOS E and LOS F | 2.7 | 0.0 | 6.8 | 1.1 | 1.0 | 7.7 | 0.3 | 0.2 | 0.9 | 1 hour, study area | |
| | Intersections affected by LOS E and LOS F | 1 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 3 | 1 hour, study area | |



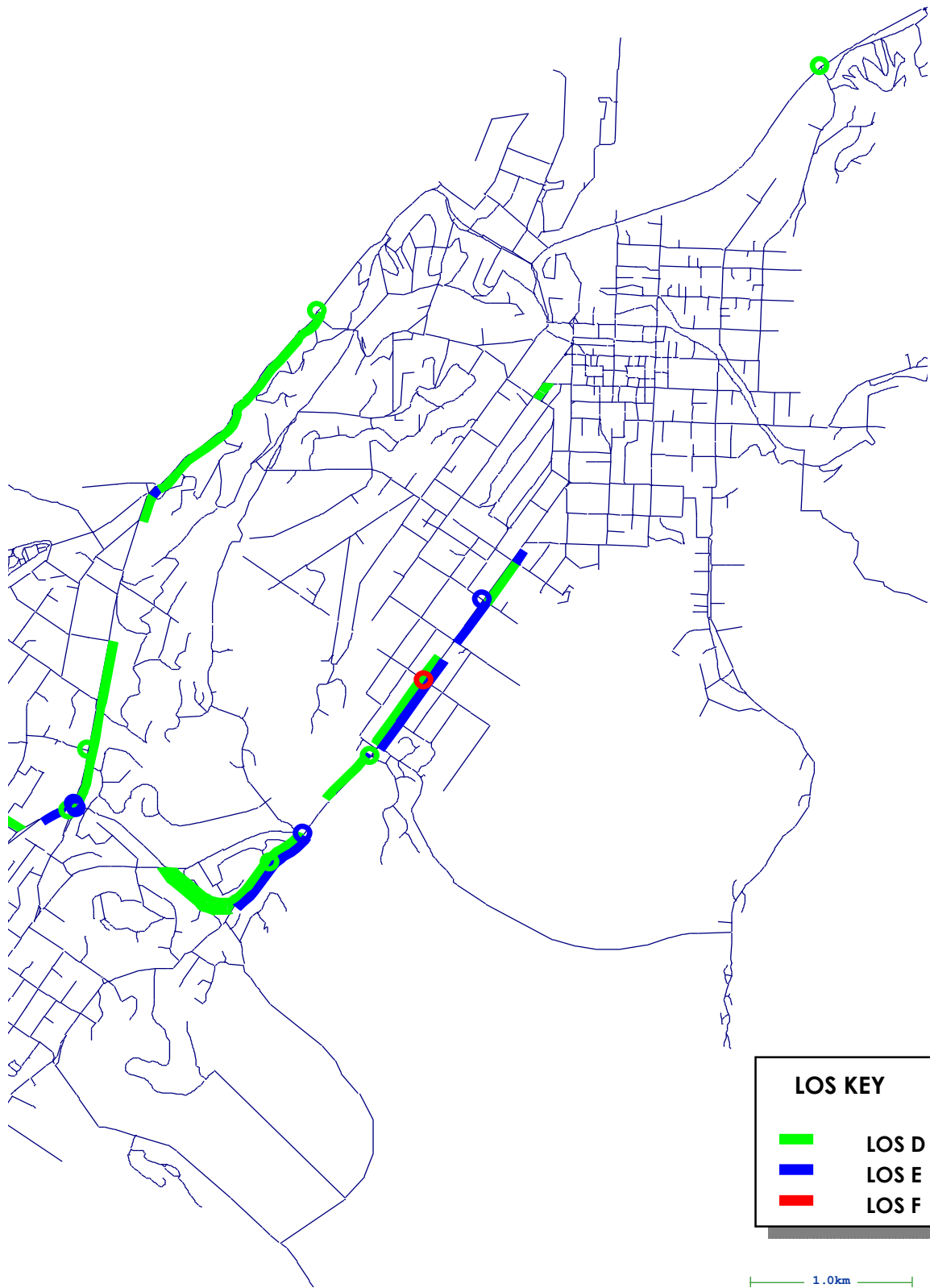
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|-----------------------------|--|-----------------|
| Nelson Transportation Model | 2016 Level of Service AMP Stage 3 Base Nelson | Figure 1 |
| Gabites Porter Consultants | | |



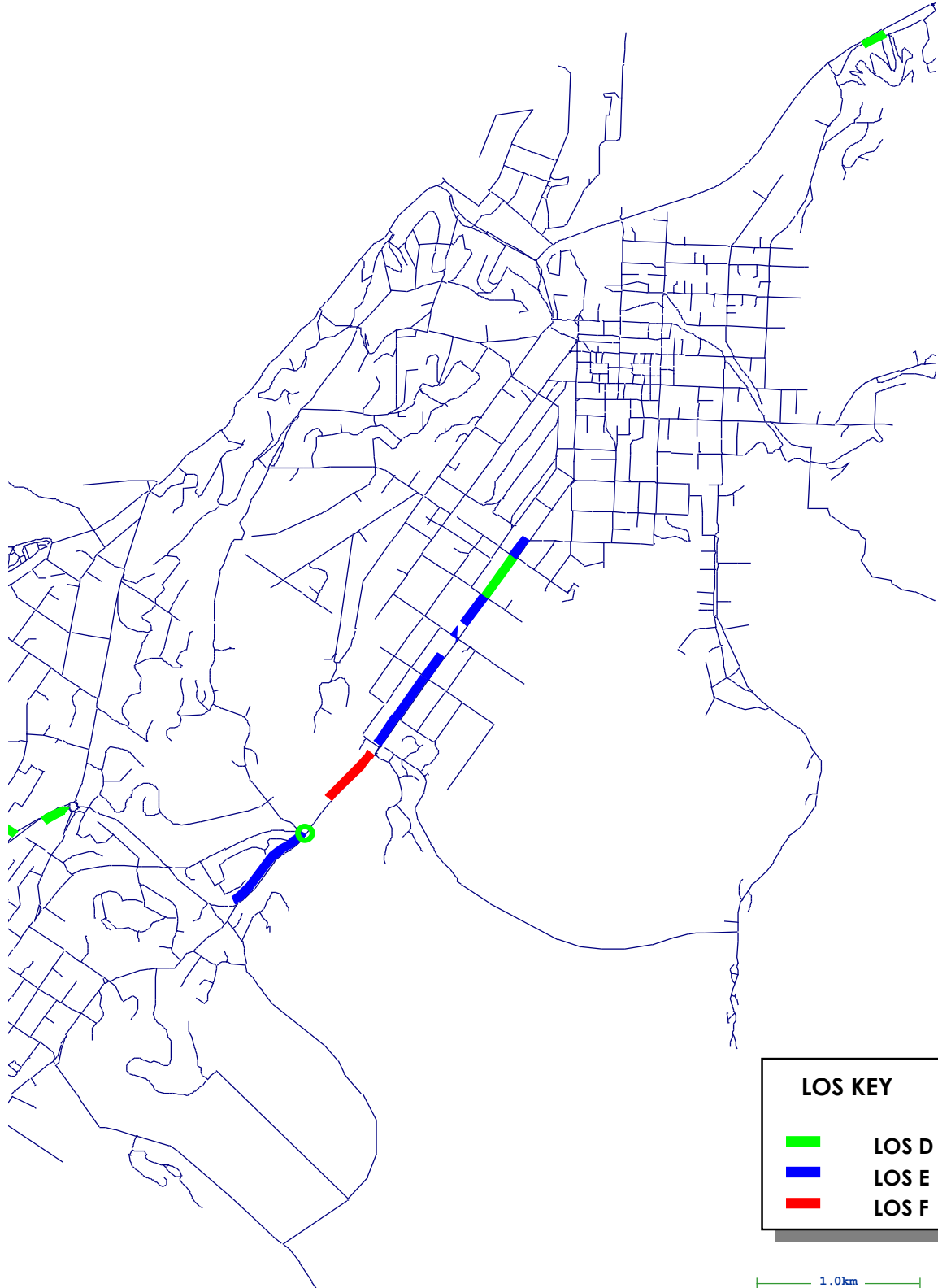
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| Nelson Transportation Model | 2016 Level of Service PMP Stage 3 Base Nelson | Figure 4 |
| Gabites Porter Consultants | | |



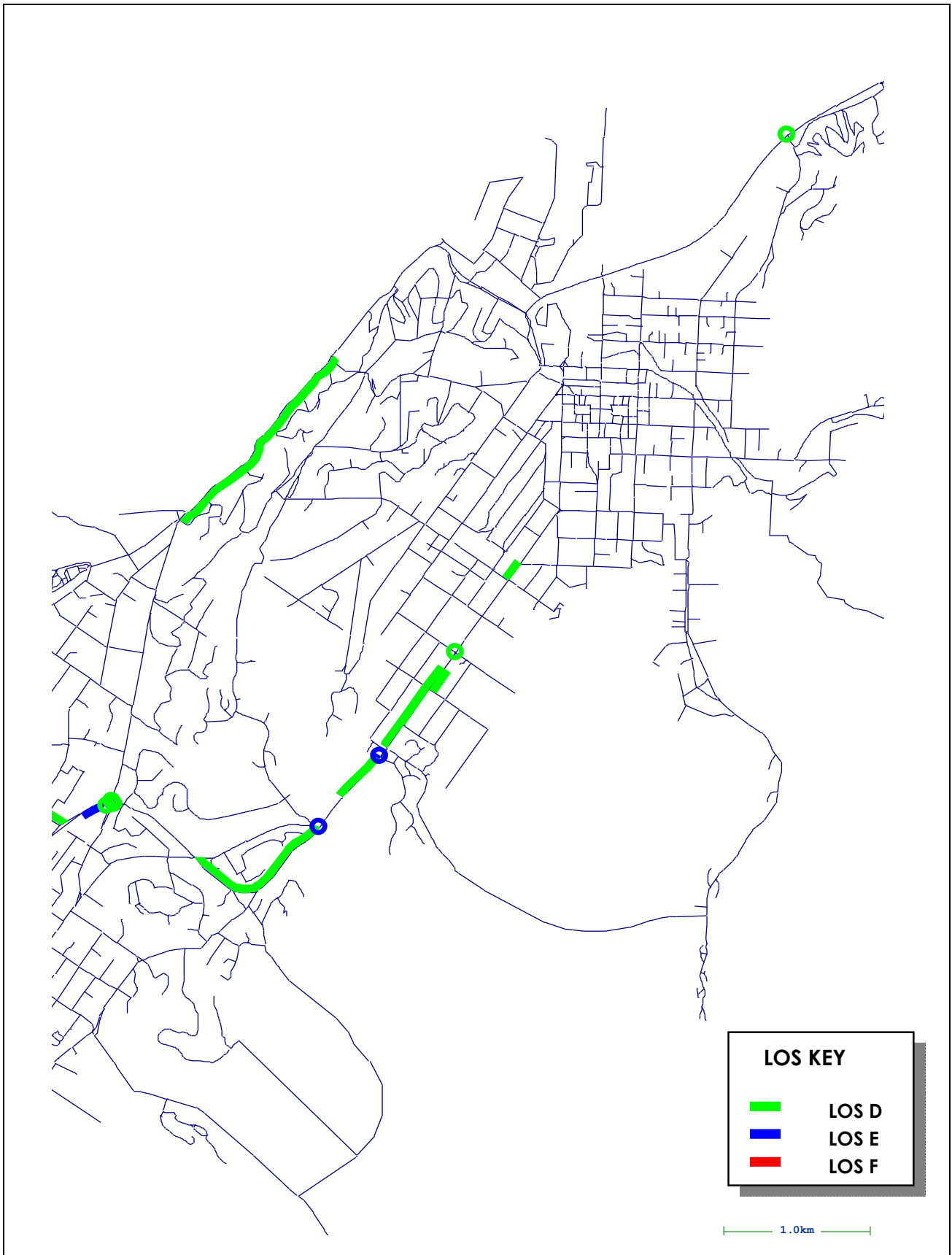
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| Nelson Transportation Model | 2036 Level of Service AMP Stage 3 Base Nelson | Figure 7 |
| Gabites Porter Consultants | | |



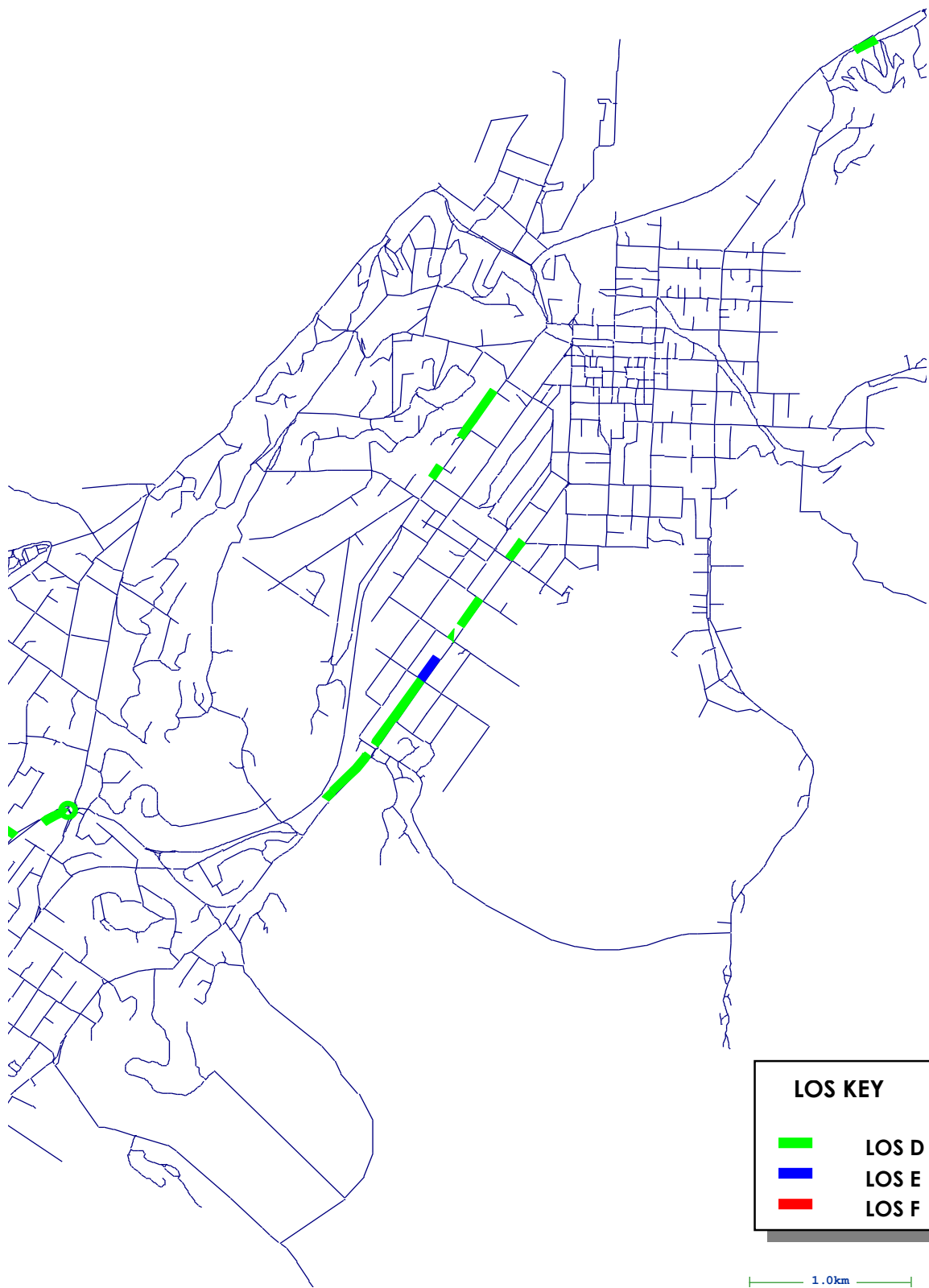
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| Nelson Transportation Model | 2036 Level of Service PMP Stage 3 Base Nelson | Figure 10 |
| Gabites Porter Consultants | | |



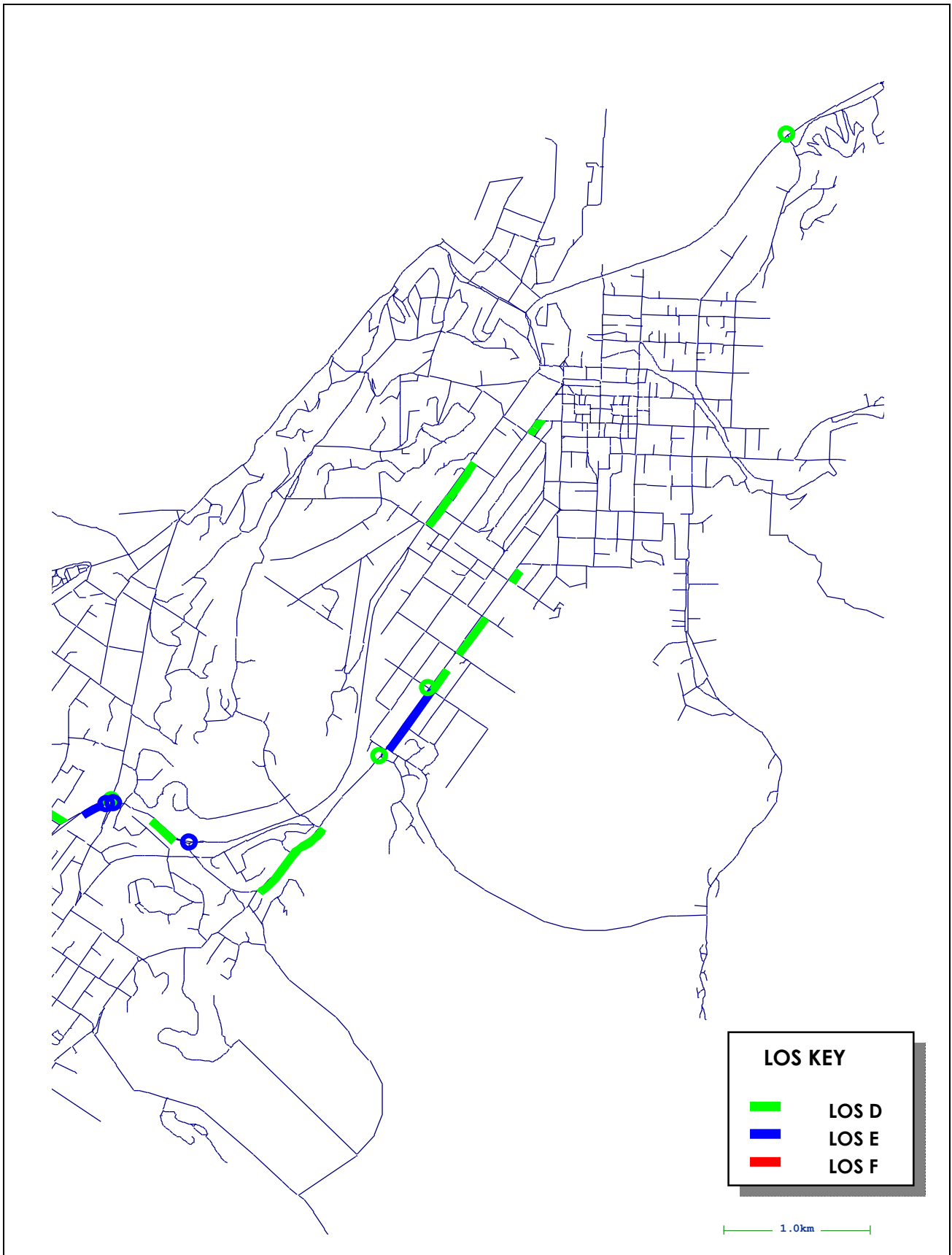
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| Nelson Transportation Model | 2036 Level of Service AMP Option A Nelson | Figure 7 |
| Gabites Porter Consultants | | |



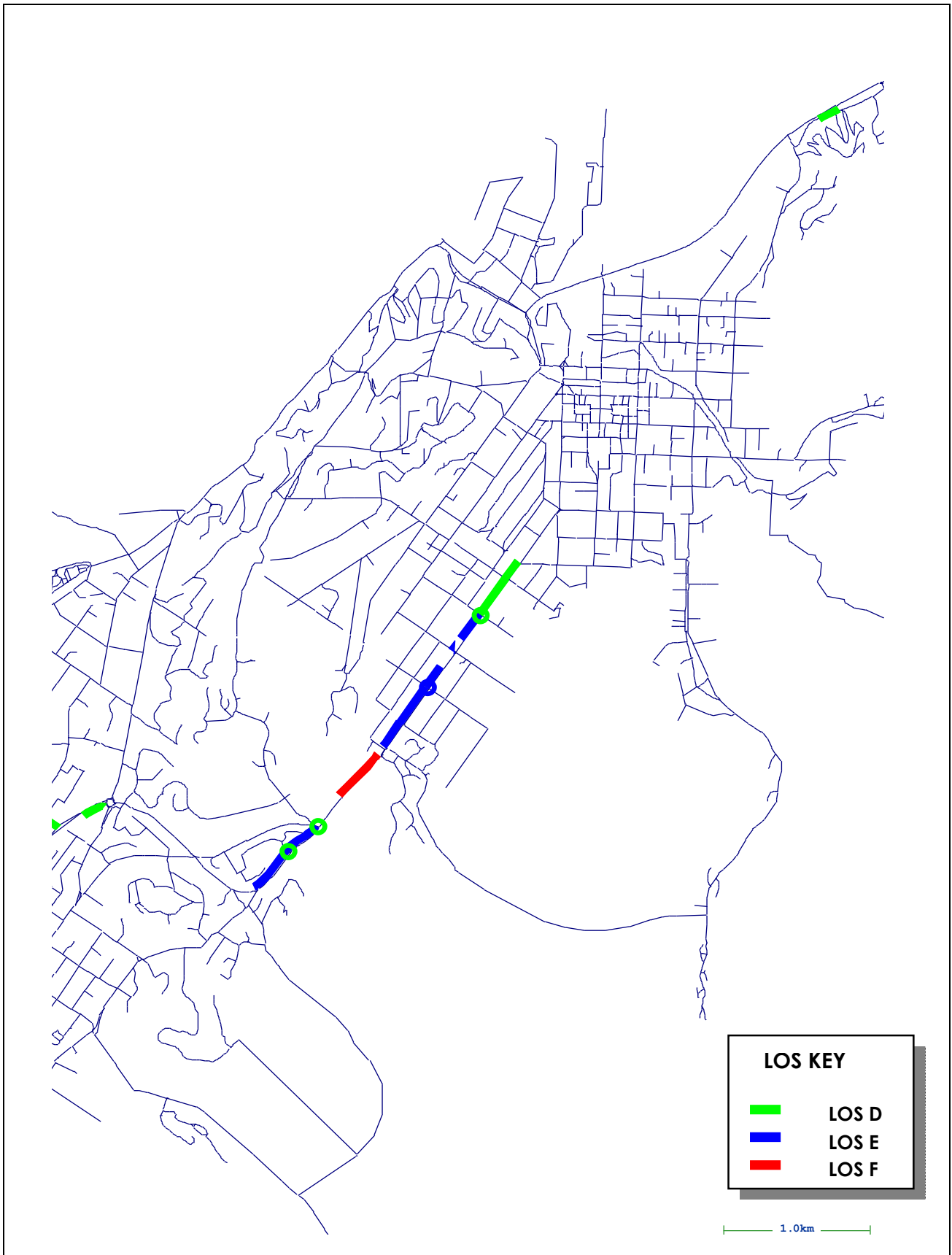
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| Nelson Transportation Model | 2036 Level of Service PMP Option A Nelson | Figure 10 |
| Gabites Porter Consultants | | |



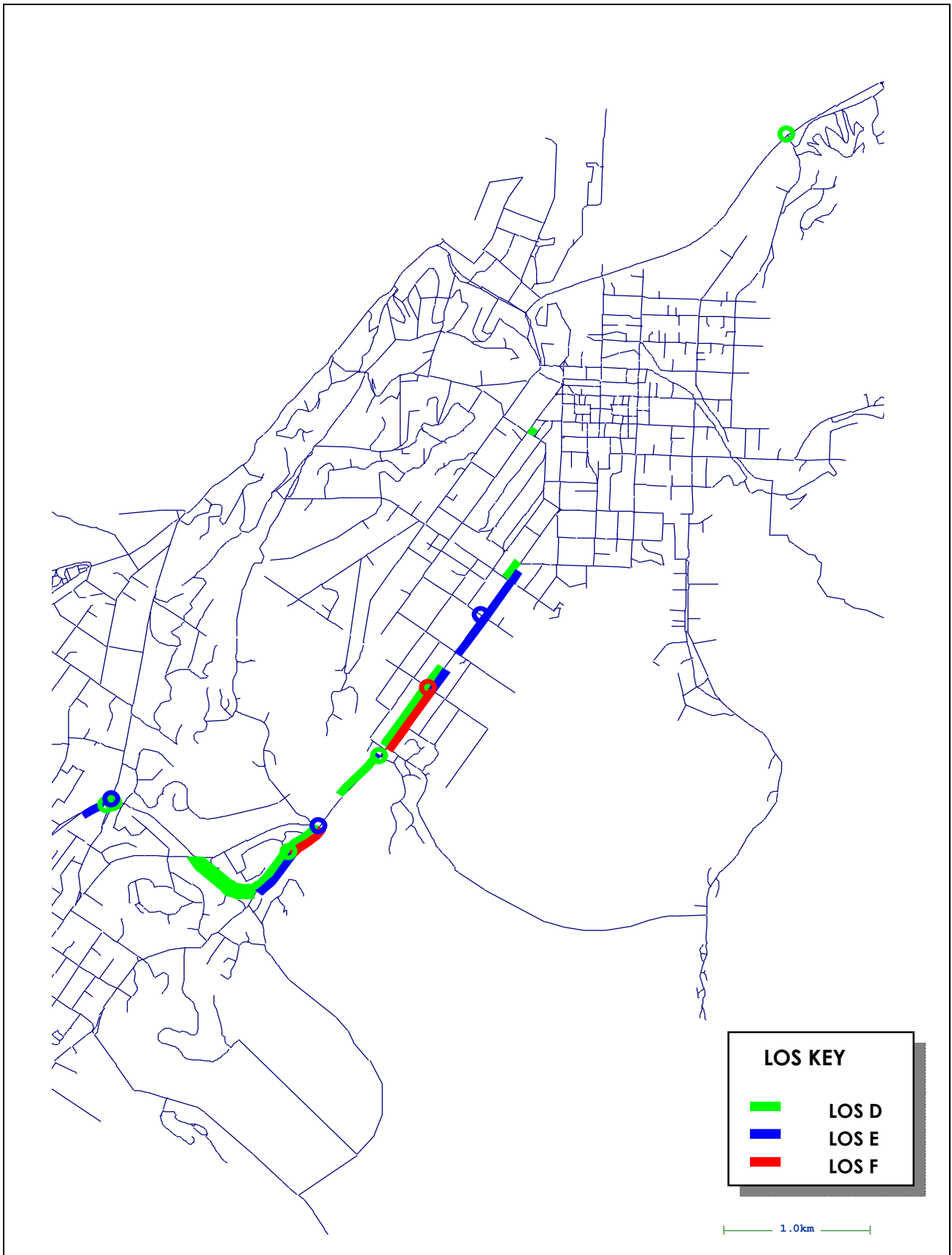
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| Nelson Transportation Model | 2036 Level of Service AMP Option B Nelson | Figure 7 |
| Gabites Porter Consultants | | |



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| Nelson Transportation Model | 2036 Level of Service PMP Option B Nelson | Figure 10 |
| Gabites Porter Consultants | | |



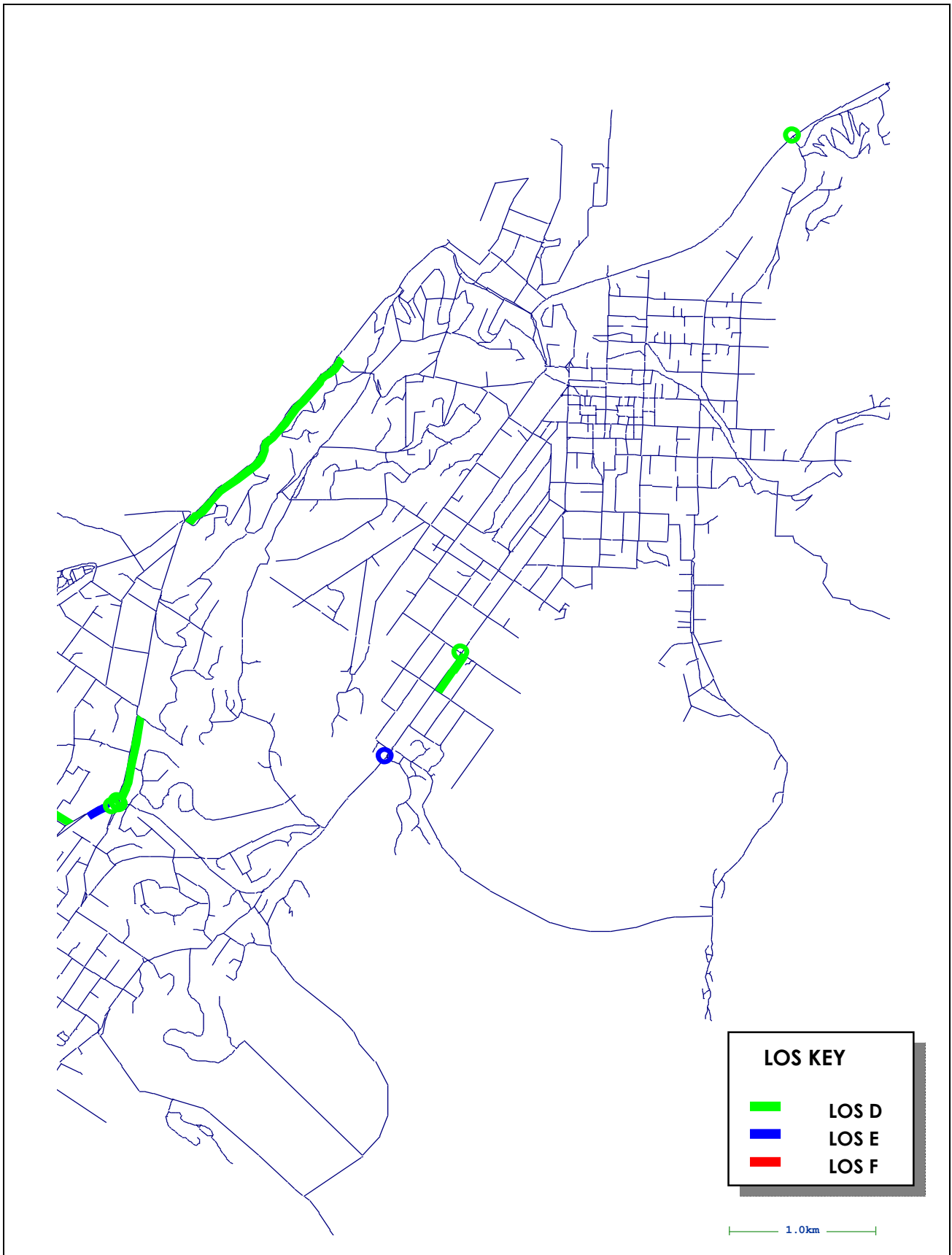
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| Nelson Transportation Model | 2036 Level of Service AMP Option H Nelson | Figure 7 |
| Gabites Porter Consultants | | |



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| Nelson Transportation Model | 2036 Level of Service PMP Option H Nelson | Figure 10 |
| Gabites Porter Consultants | | |



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| Nelson Transportation Model | 2036 Level of Service AMP Option I Nelson | Figure 7 |
| Gabites Porter Consultants | | |



| | | |
|-----------------------------|--|------------------|
| Nelson Transportation Model | 2036 Level of Service PMP Option I Nelson | Figure 10 |
| Gabites Porter Consultants | | |