

| A = Algebraic Difference of Grades in Percent | When S > L: $S = \frac{1546.362}{A} + \frac{L}{2}$ | | | | | | | | | | | | | | | | | | | | When S < L: $S = 55.612 \sqrt{\frac{L}{A}}$ | | | | | | | | | | | | | | | | | | | | SD-3 Algebraic Difference of Grades in Percent |
|---|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|
| | S = Sight Distance in Feet | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | L = Length of Vertical Curve in Feet | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1050 | 1100 | 1150 | 1200 | 1250 | 1300 | 1350 | 1400 | 1450 | 1500 | 1550 | 1600 | 1650 | 1700 | 1750 | 1800 | 1850 | 1900 | 1950 | 2000 | | | | | | | | | | | | | | | | | | | | | |
| 2.0 | 1298 | 1323 | 1348 | 1373 | 1398 | 1423 | 1448 | 1473 | 1498 | 1523 | 1548 | 1573 | 1597 | 1621 | 1645 | 1668 | 1691 | 1714 | 1736 | 1759 | 2.0 | | | | | | | | | | | | | | | | | | | | |
| 2.5 | 1144 | 1169 | 1194 | 1219 | 1244 | 1268 | 1292 | 1316 | 1339 | 1362 | 1385 | 1407 | 1429 | 1450 | 1471 | 1492 | 1513 | 1533 | 1553 | 1573 | 2.5 | | | | | | | | | | | | | | | | | | | | |
| 3.0 | 1040 | 1065 | 1089 | 1112 | 1135 | 1158 | 1180 | 1201 | 1223 | 1244 | 1264 | 1284 | 1304 | 1324 | 1343 | 1362 | 1381 | 1400 | 1418 | 1436 | 3.0 | | | | | | | | | | | | | | | | | | | | |
| 3.5 | 963 | 986 | 1008 | 1030 | 1051 | 1072 | 1092 | 1112 | 1132 | 1151 | 1170 | 1189 | 1207 | 1226 | 1244 | 1261 | 1279 | 1296 | 1313 | 1329 | 3.5 | | | | | | | | | | | | | | | | | | | | |
| 4.0 | 901 | 922 | 943 | 963 | 983 | 1003 | 1022 | 1040 | 1059 | 1077 | 1095 | 1112 | 1129 | 1146 | 1163 | 1180 | 1196 | 1212 | 1228 | 1244 | 4.0 | | | | | | | | | | | | | | | | | | | | |
| 4.5 | 849 | 869 | 889 | 908 | 927 | 945 | 963 | 981 | 998 | 1015 | 1032 | 1049 | 1065 | 1081 | 1097 | 1112 | 1128 | 1143 | 1158 | 1172 | 4.5 | | | | | | | | | | | | | | | | | | | | |
| 5.0 | 806 | 825 | 843 | 862 | 879 | 897 | 914 | 931 | 947 | 963 | 979 | 995 | 1010 | 1025 | 1040 | 1055 | 1070 | 1084 | 1098 | 1112 | 5.0 | | | | | | | | | | | | | | | | | | | | |
| 5.5 | 768 | 786 | 804 | 821 | 838 | 855 | 871 | 887 | 903 | 918 | 934 | 949 | 963 | 978 | 992 | 1006 | 1020 | 1034 | 1047 | 1060 | 5.5 | | | | | | | | | | | | | | | | | | | | |
| 6.0 | 736 | 753 | 770 | 786 | 803 | 819 | 834 | 849 | 865 | 879 | 894 | 908 | 922 | 936 | 950 | 963 | 977 | 990 | 1003 | 1015 | 6.0 | | | | | | | | | | | | | | | | | | | | |
| 6.5 | 707 | 723 | 740 | 756 | 771 | 786 | 801 | 816 | 831 | 845 | 859 | 873 | 886 | 899 | 912 | 925 | 938 | 951 | 963 | 975 | 6.5 | | | | | | | | | | | | | | | | | | | | |
| 7.0 | 681 | 697 | 713 | 728 | 743 | 758 | 772 | 786 | 800 | 814 | 828 | 841 | 854 | 867 | 879 | 892 | 904 | 916 | 928 | 940 | 7.0 | | | | | | | | | | | | | | | | | | | | |
| 7.5 | 658 | 673 | 689 | 703 | 718 | 732 | 746 | 760 | 773 | 786 | 799 | 812 | 825 | 837 | 849 | 862 | 873 | 885 | 897 | 908 | 7.5 | | | | | | | | | | | | | | | | | | | | |
| 8.0 | 637 | 652 | 667 | 681 | 695 | 709 | 722 | 736 | 749 | 761 | 774 | 786 | 799 | 811 | 823 | 834 | 846 | 857 | 868 | 879 | 8.0 | | | | | | | | | | | | | | | | | | | | |
| 8.5 | 618 | 633 | 647 | 661 | 674 | 688 | 701 | 714 | 726 | 739 | 751 | 763 | 775 | 786 | 798 | 809 | 820 | 831 | 842 | 853 | 8.5 | | | | | | | | | | | | | | | | | | | | |
| 9.0 | 601 | 615 | 629 | 642 | 655 | 668 | 681 | 694 | 706 | 718 | 730 | 741 | 753 | 764 | 775 | 786 | 797 | 808 | 819 | 829 | 9.0 | | | | | | | | | | | | | | | | | | | | |
| 9.5 | 585 | 598 | 612 | 625 | 638 | 651 | 663 | 675 | 687 | 699 | 710 | 722 | 733 | 744 | 755 | 765 | 776 | 786 | 797 | 807 | 9.5 | | | | | | | | | | | | | | | | | | | | |
| 10.0 | 570 | 583 | 596 | 609 | 622 | 634 | 646 | 658 | 670 | 681 | 692 | 703 | 714 | 725 | 736 | 746 | 756 | 767 | 777 | 786 | 10.0 | | | | | | | | | | | | | | | | | | | | |
| 10.5 | 556 | 569 | 582 | 595 | 607 | 619 | 631 | 642 | 654 | 665 | 676 | 686 | 697 | 708 | 718 | 728 | 738 | 748 | 758 | 768 | 10.5 | | | | | | | | | | | | | | | | | | | | |
| 11.0 | 543 | 556 | 569 | 581 | 593 | 605 | 616 | 627 | 638 | 649 | 660 | 671 | 681 | 691 | 701 | 711 | 721 | 731 | 740 | 750 | 11.0 | | | | | | | | | | | | | | | | | | | | |
| 11.5 | 531 | 544 | 556 | 568 | 580 | 591 | 603 | 614 | 624 | 635 | 646 | 656 | 666 | 676 | 686 | 696 | 705 | 715 | 724 | 733 | 11.5 | | | | | | | | | | | | | | | | | | | | |
| 12.0 | 520 | 532 | 544 | 556 | 568 | 579 | 590 | 601 | 611 | 622 | 632 | 642 | 652 | 662 | 672 | 681 | 691 | 700 | 709 | 718 | 12.0 | | | | | | | | | | | | | | | | | | | | |
| 12.5 | 510 | 522 | 533 | 545 | 556 | 567 | 578 | 589 | 599 | 609 | 619 | 629 | 639 | 649 | 658 | 667 | 677 | 686 | 695 | 703 | 12.5 | | | | | | | | | | | | | | | | | | | | |
| 13.0 | 500 | 512 | 523 | 534 | 545 | 556 | 567 | 577 | 587 | 597 | 607 | 617 | 627 | 636 | 645 | 654 | 663 | 672 | 681 | 690 | 13.0 | | | | | | | | | | | | | | | | | | | | |
| 13.5 | 490 | 502 | 513 | 524 | 535 | 546 | 556 | 566 | 576 | 586 | 596 | 605 | 615 | 624 | 633 | 642 | 651 | 660 | 668 | 677 | 13.5 | | | | | | | | | | | | | | | | | | | | |
| 14.0 | 482 | 493 | 504 | 515 | 525 | 536 | 546 | 556 | 566 | 576 | 585 | 595 | 604 | 613 | 622 | 631 | 639 | 648 | 656 | 665 | 14.0 | | | | | | | | | | | | | | | | | | | | |
| 14.5 | 473 | 484 | 495 | 506 | 516 | 527 | 537 | 546 | 556 | 566 | 575 | 584 | 593 | 602 | 611 | 620 | 628 | 637 | 645 | 653 | 14.5 | | | | | | | | | | | | | | | | | | | | |
| 15.0 | 465 | 476 | 487 | 497 | 508 | 518 | 528 | 537 | 547 | 556 | 565 | 574 | 583 | 592 | 601 | 609 | 618 | 626 | 634 | 642 | 15.0 | | | | | | | | | | | | | | | | | | | | |
| 16.0 | 451 | 461 | 471 | 482 | 492 | 501 | 511 | 520 | 529 | 538 | 547 | 556 | 565 | 573 | 582 | 590 | 598 | 606 | 614 | 622 | 16.0 | | | | | | | | | | | | | | | | | | | | |
| 17.0 | 437 | 447 | 457 | 467 | 477 | 486 | 496 | 505 | 514 | 522 | 531 | 540 | 548 | 556 | 564 | 572 | 580 | 588 | 596 | 603 | 17.0 | | | | | | | | | | | | | | | | | | | | |
| 18.0 | 425 | 435 | 445 | 454 | 463 | 473 | 482 | 490 | 499 | 508 | 516 | 524 | 532 | 540 | 548 | 556 | 564 | 571 | 579 | 586 | 18.0 | | | | | | | | | | | | | | | | | | | | |
| 19.0 | 413 | 423 | 433 | 442 | 451 | 460 | 469 | 477 | 486 | 494 | 502 | 510 | 518 | 526 | 534 | 541 | 549 | 556 | 563 | 571 | 19.0 | | | | | | | | | | | | | | | | | | | | |
| 20.0 | 403 | 412 | 422 | 431 | 440 | 448 | 457 | 465 | 474 | 482 | 490 | 497 | 505 | 513 | 520 | 528 | 535 | 542 | 549 | 556 | 20.0 | | | | | | | | | | | | | | | | | | | | |

SIGHT DISTANCE ON VERTICAL CURVES

HEIGHT OF EYE = 3.5 FEET

HEIGHT OF OBJECT = 4.25 FEET

VIRGINIA DEPARTMENT OF TRANSPORTATION