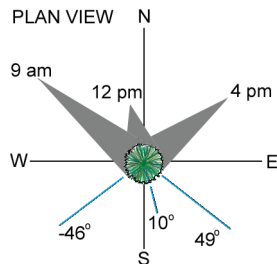


5.6 Managing shade

Shade cast by buffers can be a key design factor. For example, where roads are maintained to be free of snow and ice, buffers should be set back from the road to allow sunlight on the road surface. Where roads are maintained with snowpack, constant shade may be desirable to avoid ice. Buffers and their effect on drifting snow should also be considered (see section 5.7).

Use the formula $s = h / \tan A$ to calculate shadow length. See the table below for an example. Sun angle calculators, available on the Web, will provide the sun angle (A) and azimuth angle for a given location based on the date and time.

Example: December 21 Sun Path Data				
Longitude 100° West - Latitude 40° North Tree Height = 35 feet				
Time	Sun Angle (A)	tan A	Sun Azimuth (East of South)	Shadow Length (feet)
9:00 AM	9°	0.1584	49°	221
12:00 PM	26°	0.4877	10°	72
4:00 PM	11°	0.1944	-46°	180



The azimuth angle is used to plot the shadow direction on the ground. Plotting the shadows throughout the day for key times during a year will be useful for designing the buffer (e.g., sections 2.12, 4.4, and 4.7).

5.6 References

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