

1017 SOLAR ACCESS FOR NEW DEVELOPMENT

1017.01 PURPOSE

The purposes of the solar access ordinance for new development are to ensure that land is divided so that structures can be oriented to maximize solar access and to minimize shade on adjoining properties from structures and trees.

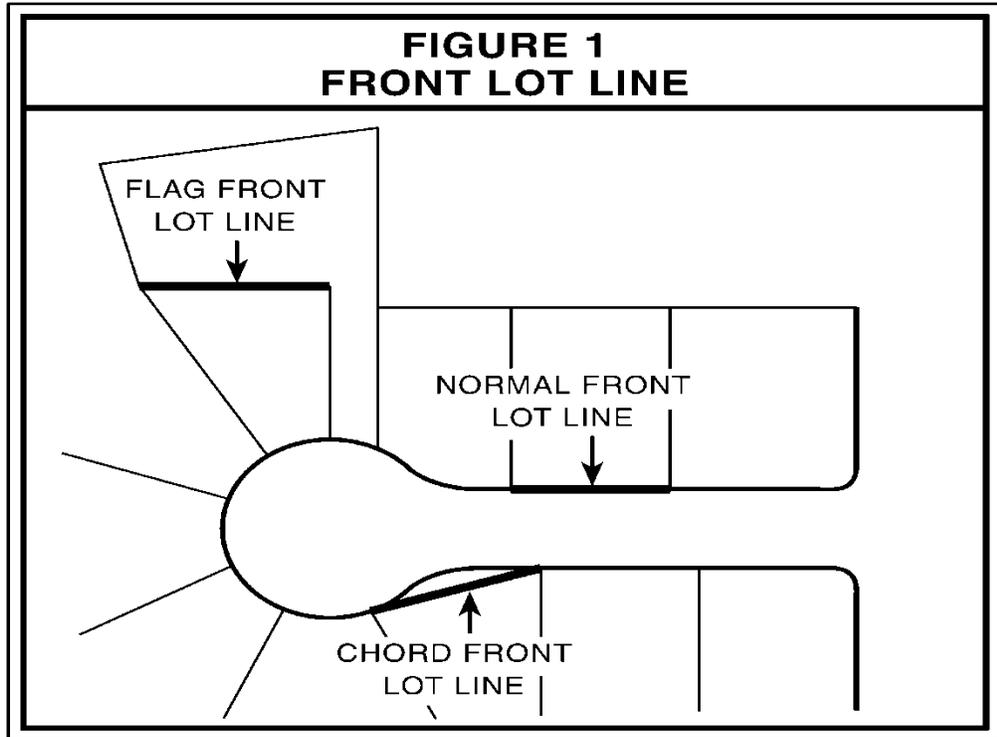
1017.02 APPLICATION OF SECTION

The solar design standard in Subsection 1017.04 shall apply to applications for a development to create lots in VR-4/5, VR-5/7, R-5, R-7, R-8.5, R-10, R-15, R-20, and R-30 zones and for dwellings in any zone, except to the extent the Planning Director finds the applicant has shown that one or more of the conditions listed in Subsections 1017.05 and 1017.06 exist, and exemptions or adjustments provided for therein are warranted.

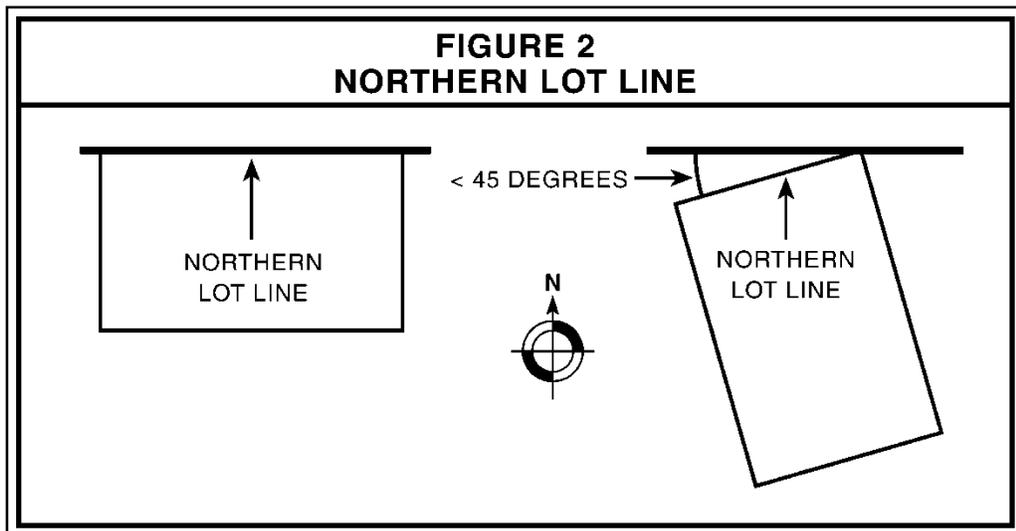
1017.03 DEFINITIONS

Words and terms used in Sections 1017, 1018, and 1019 are defined as follows:

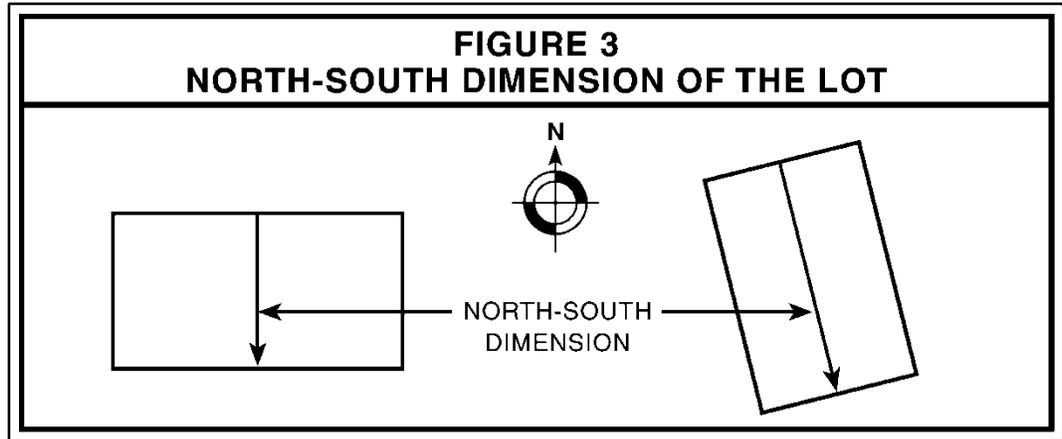
- A. **CROWN COVER:** The area within the drip line or perimeter of the foliage of a tree.
- B. **DEVELOPMENT:** Any short plat, partition, subdivision, or planned unit development created under the County's land division or zoning regulations.
- C. **EXEMPT TREE OR VEGETATION:** The full height and breadth of vegetation that the Planning Director has identified as "solar friendly"; and any vegetation listed as exempt on a plat map, a document recorded with the plat, or a solar access permit.
- D. **FRONT LOT LINE:** For the purposes of the solar access regulations, a lot line abutting a street. For corner lots, the front lot line is that with the narrowest frontage. When the lot line abutting a street is curved, the front lot line is the chord or straight line connecting the ends of the curve. For a flag lot, the front lot line is the lot line that is most parallel to and closest to the street, excluding the pole portion of the flag lot (see Figure 1).



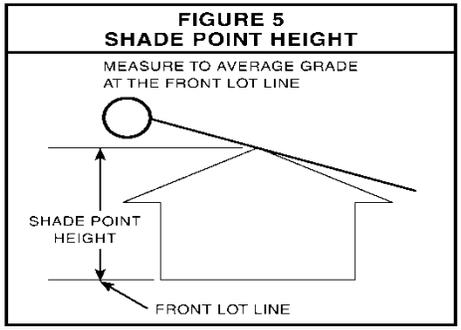
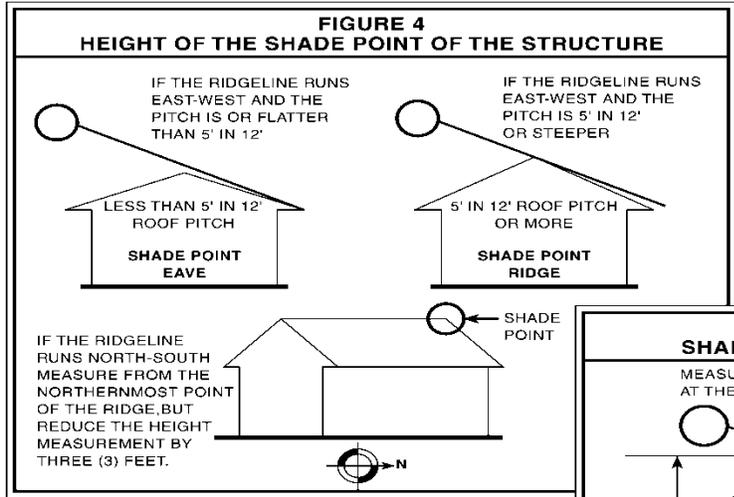
- E. **NONEXEMPT TREE OR VEGETATION:** Vegetation that is not exempt.
- F. **NORTHERN LOT LINE:** The lot line that is the smallest angle from a line drawn east-west and intersecting the northernmost point of the lot, excluding the pole portion of a flag lot. If the north line adjoins an undevelopable area other than a required yard area, the northern lot line shall be at the north edge of such undevelopable area. If two lot lines have an identical angle relative to a line drawn east-west, the northern lot line shall be a line 10 feet in length within the lot parallel with and at a maximum distance from the front lot line.



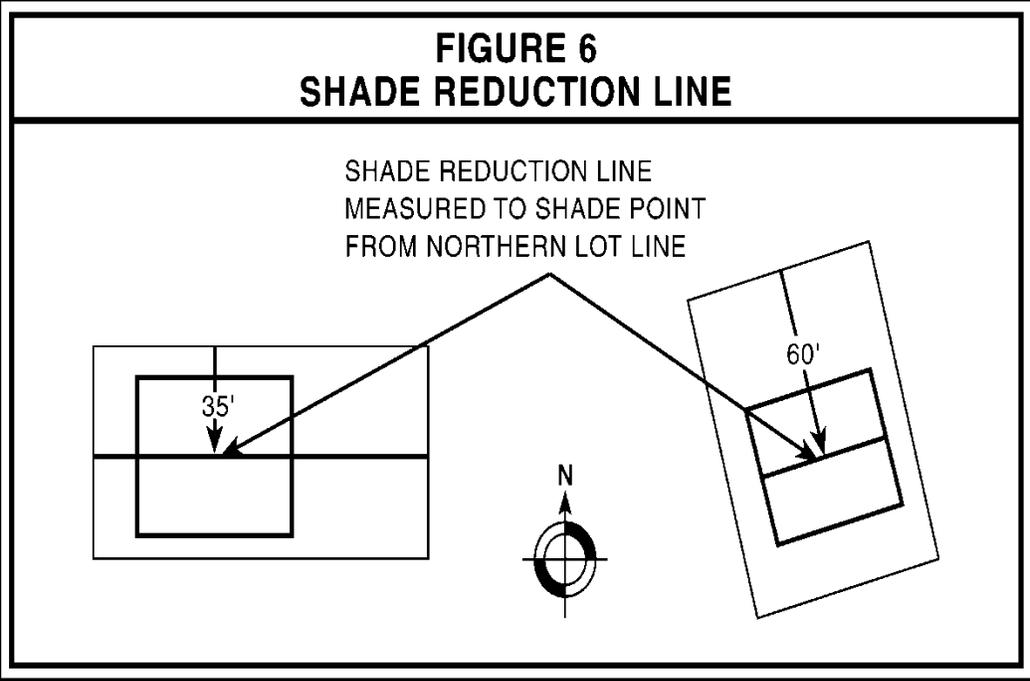
- G. **NORTH-SOUTH DIMENSION:** The length of a line beginning at the midpoint of the northern lot line and extending in a southerly direction perpendicular to the northern lot line until it reaches a property boundary (see Figure 3).



- H. **PROTECTED SOLAR BUILDING LINE:** A line on a plat or map recorded with the plat that identifies the location on a lot where a point two feet above may not be shaded by structures or nonexempt trees (see Figure 10).
- I. **SHADE:** A shadow cast by the shade point of a structure or vegetation when the sun is at an altitude of 21.3 degrees and an azimuth ranging from 22.7 degrees east and west of true south.
- J. **SHADE POINT:** The part of a structure or nonexempt tree that casts the longest shadow onto the adjacent northern lot(s) when the sun is at an altitude of 21.3 degrees and an azimuth ranging from 22.7 degrees east and west of true south, except a shadow cause by a narrow object such as a mast or whip antenna, a dish antenna with a diameter of 3 feet or less, a chimney, utility pole, or wire. The height of the shade point shall be measured from the shade point to either the average elevation at the front lot line or the elevation at the midpoint of the front lot line. If the shade point is located at the north end of a ridgeline of a structure oriented within 45 degrees of a true north-south line, the shade point height computed according to the preceding sentence may be reduced by 3 feet. If a structure has a roof oriented within 45 degrees of a true east-west line with a pitch that is flatter than 5 feet (vertical) in 12 feet (horizontal), the shade point will be the eaves of the roof. If such a roof has a pitch that is 5 feet in 12 feet or steeper, the shade point will be the peak of the roof (see Figures 4 and 5).

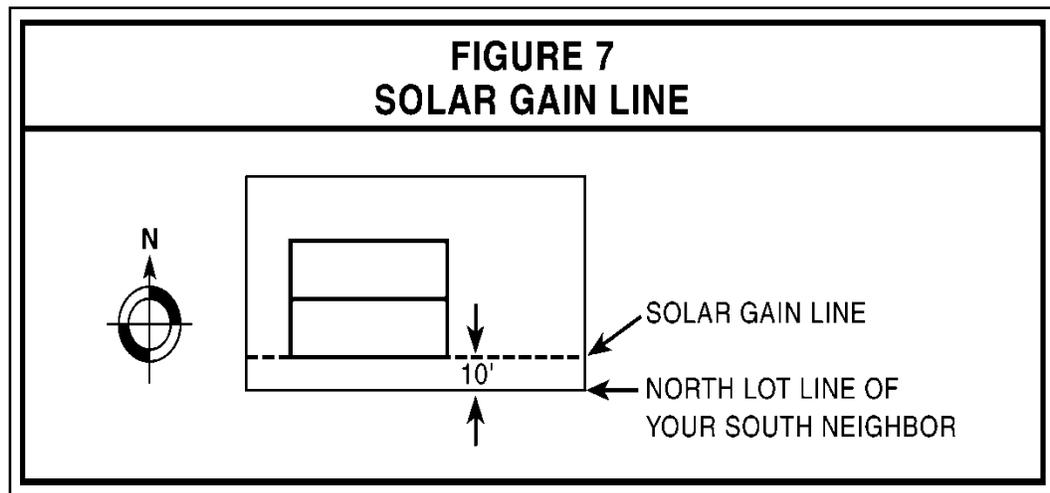


K. SHADE REDUCTION LINE: A line drawn parallel to the northern lot line that intersects the shade point (see Figure 6).



L. SHADOW PATTERN: A graphic representation of an area that would be shaded by the shade point of a structure or vegetation when the sun is at an altitude of 21.3 degrees and an azimuth ranging between 22.7 degrees east and west of true south (see Figure 12).

- M. **SOLAR ACCESS HEIGHT LIMIT:** A series of contour lines establishing the maximum permitted height for nonexempt vegetation on lots affected by a Solar Access Permit (see Figure 11).
- N. **SOLAR ACCESS PERMIT:** A document issued by the County that describes the maximum height that nonexempt vegetation is allowed to grow on lots to which a solar access permit applies.
- O. **SOLAR FEATURE:** A device or combination of devices or elements that use or will use direct sunlight as a source of energy for such purposes as heating or cooling a structure, heating or pumping water, or generating electricity. Examples of a solar feature include a solar greenhouse, a solar hot water heater, or a window that contains at least 20 square feet of glazing oriented within 45 degrees east and west of true south. A solar feature may be used for purposes in addition to collecting solar energy, including but not limited to serving as a structural member or part of a roof, wall, or window. A south-facing wall without windows and without other features that use solar energy is not a solar feature for purposes of this ordinance.
- P. **SOLAR GAIN LINE:** A line parallel to the northern property line(s) of the lot(s) south of and adjoining a given lot, including lots separated only by a street, that intersects the solar feature on that lot.



- Q. **SOUTH OR SOUTH-FACING:** True south, or 20 degrees east of magnetic south.
- R. **SUNCHART:** One or more photographs that plot the position of the sun between 10:30 a.m. and 1:30 p.m. on January 21, prepared pursuant to guidelines issued by the Planning Director (?). The sunchart shall show the southern skyline through a transparent grid on which is imposed solar altitude for a 45-degree and 30-minute northern latitude in 10-degree increments and solar azimuth from true south in 15-degree increments.

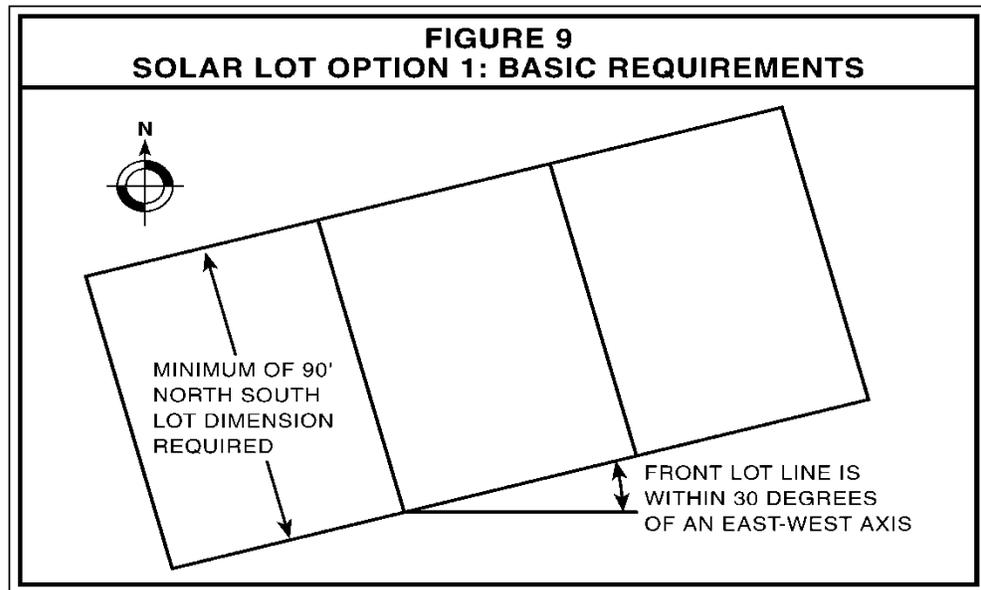
- S. UNDEVELOPABLE AREA: An area that cannot be used practicably for a habitable structure because of natural conditions, such as slopes exceeding 20 percent in a direction greater than 45 degrees east or west of true south, severe topographic relief, water bodies, or conditions that isolate one portion of a property from another portion so that access is not practicable to the unbuildable portion; or man-made conditions, such as existing development which isolates a portion of the site and prevents its further development; setbacks or development restrictions that prohibit development of a given area of a lot by law or private agreement; or existence or absence of easements or access rights that prevent development of a given area.

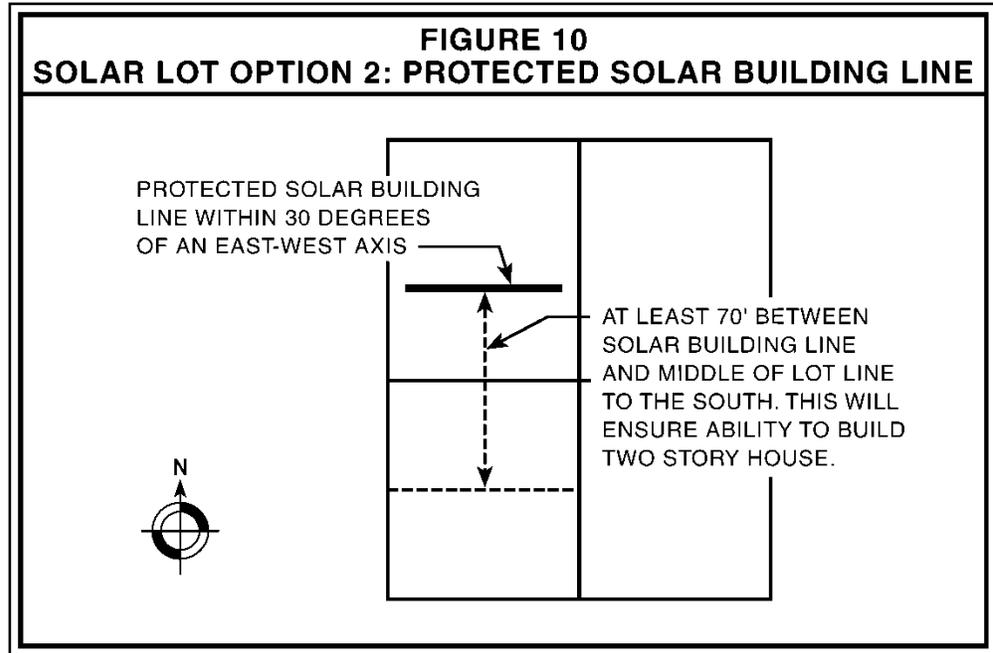
1017.04 DESIGN STANDARD

At least 80 percent of the lots in a development subject to this ordinance shall comply with one or more of the options in this subsection.

- A. Basic Requirement: (See Figure 9). A lot complies with Subsection 1017.04 if it

1. Has a north-south dimension of 90 feet or more; and





2. Has a front lot line that is oriented within 30 degrees of a true east-west axis.
- B. Protected Solar Building Line Option: (See Figure 10). In the alternative, a lot complies with Subsection 1017.04 if a solar building line is used to protect solar access as follows:
1. A protected solar building line for the lot to the north is designated on the plat or documents recorded with the plat; and
 2. The protected solar building line for the lot to the north is oriented within 30 degrees of a true east-west axis; and
 3. There is at least 70 feet between the protected solar building line on the lot to the north and the middle of the north-south dimension of the lot to the south, measured along a line perpendicular to the protected solar building line; and
 4. There is at least 45 feet between the protected solar building line and the northern edge of the buildable area of the lot, or habitable structures are situated so that at least 80 percent of their south-facing wall will not be shaded by structures or nonexempt vegetation.
- C. Performance Option: In the alternative, a lot complies with Subsection 1017.04 if:
1. Habitable structures built on that lot will have their long axis oriented within 30 degrees of a true east-west axis and at least 80 percent of their ground floor south wall protected from the shade of structures and nonexempt trees; or

2. Habitable structures built on that lot will have at least 32 percent of their glazing and 500 square feet of their roof area facing within 30 degrees of south and protected from the shade of structures and nonexempt trees.

1017.05 EXEMPTIONS FROM DESIGN STANDARD

A development is exempt from Subsection 1017.04 if the Planning Director finds the applicant has shown that one or more of the following conditions apply to the site. A development is partially exempt from Subsection 1017.04 to the extent the Planning Director finds the applicant has shown that one or more of the following conditions apply to a corresponding portion of the site.

If a partial exemption is granted for a given development, the remainder of the development shall comply with Subsection 1017.04.

- A. Slopes: The site, or a portion of the site for which the exemption is sought, is sloped 20 percent or more in a direction greater than 45 degrees east or west of true south, based on a topographic survey by a licensed professional land surveyor.
- B. Off-site Shade: The site, or a portion of the site for which the exemption is sought, is within the shadow of off-site features such as, but not limited to, structures, topography, or nonexempt vegetation, which will remain after development occurs on the site from which the shade is originating.
 1. Shade from an existing or approved off-site dwelling in a single family residential zone and from topographic features is assumed to remain after development of the site.
 2. Shade from an off-site structure in a zone other than a single family residential zone is assumed to be the shadow pattern of the existing or approved development thereon or the shadow pattern that would result from the largest structure allowed at the closest setback on adjoining land, whether or not that structure now exists.
 3. Shade from off-site vegetation is assumed to remain after development of the site if: the trees that cause it are situated in a required setback; or they are part of a developed area, public park, or legally reserved open space; or they are in or separated from the developable remainder of a parcel by an undevelopable area or feature; or they are part of landscaping required pursuant to local law.
 4. Shade from other off-site sources is assumed to be shade that exists or that will be cast by development for which applicable local permits have been approved on the date a complete application for the development is filed.

- C. On-site Shade: The site, or a portion of the site for which the exemption is requested:
1. Is within the shadow pattern of on-site features such as, but not limited to, structures and topography which will remain after the development occurs; or
 2. Contains nonexempt trees at least 30 feet tall and, when measured 4 feet above the ground, more than 6 inches in diameter, which have a crown cover over at least 80 percent of the site or relevant portion. The applicant can show such crown cover exists using a scaled survey or an aerial photograph. If granted, the exemption shall be approved subject to the condition that the applicant preserve at least 50 percent of the trees that cause the shade that warrants the exemption. The applicant shall file a note on the plat or other documents in the office of the County Recorder binding the applicant to comply with this requirement. The County shall be made a party of any covenant or restriction created to enforce any provision of this ordinance. The covenant or restriction shall not be amended without written County approval.
 3. Compliance with Subsection 1017.04 would prevent the development from meeting the minimum density provisions in Section 1012.

1017.06 ADJUSTMENT TO DESIGN STANDARD

The Planning Director shall reduce the percentage of lots that must comply with Subsection 1017.04 to the minimum extent necessary if he/she finds the applicant has shown that one or more of the following site characteristics apply:

- A. Density and Cost: If the design standard in Subsection 1017.04 is applied, either the resulting density is less than that proposed, the minimum density is less than that required in Section 1012, or on-site site development costs (e.g., grading, water, storm drainage and sanitary systems, and roads) and solar related off-site site development costs are at least 5 percent more per lot than if the standard is not applied. The following conditions, among others, could constrain the design of a development in such a way that compliance with Subsection 1017.04 would reduce density or increase per-lot costs in this manner. The applicant shall show which, if any, of these or other similar site characteristics apply in an application for a development.
1. The portion of the site for which the adjustment is sought has a natural grade that is sloped 10 percent or more and is oriented greater than 45 degrees east or west of true south, based on a topographic survey of the site by a professional land surveyor.
 2. There is a significant natural feature on the site, identified as such in the Comprehensive Plan or development ordinance, that prevents given streets or lots from being oriented for solar access, and it will exist after the site is developed.

3. Existing road patterns must be continued through the site or must terminate on-site to comply with applicable road standards or public road plans in a way that prevents given streets or lots in the development from being oriented for solar access.
 4. An existing public easement or right-of-way prevents given streets or lots in the development from being oriented for solar access.
- B. Development Amenities: If the design standard in Subsection 1017.04 is applied to a given lot or lots, significant development amenities that would otherwise benefit the lot(s) will be lost or impaired. Evidence that a significant diminution in the market value of the lot(s) would result from having the lot(s) comply with Subsection 1017.04 is relevant to whether a significant development amenity is lost or impaired.
- C. Existing Shade: Nonexempt trees at least 30 feet tall and, when measured 4 feet above the ground, more than 6 inches in diameter, have a crown cover over at least 80 percent of the lot and at least 50 percent of the crown cover will remain after development of the lot. The applicant can show such crown cover exists using a scaled survey of nonexempt trees on the site or using an aerial photograph.
1. Shade from nonexempt trees is assumed to remain if: the trees are situated in a required setback; or they are part of an existing or proposed park, open space, or recreational amenity; or they are separated from the developable remainder of their parcel by an undevelopable area or feature; or they are part of landscaping required pursuant to local law; and the trees do not need to be removed for a driveway or other development.
 2. Also, to the extent the shade is caused by on-site trees or off-site trees on land owned by the applicant, the shade is assumed to remain if the applicant files in the office of the County Recorder a covenant binding the applicant to retain the trees causing the shade on the affected lots.

1017.07 PROTECTION FROM FUTURE SHADE

Structures and nonexempt vegetation must comply with the Solar Balance Point Ordinance for existing lots (Section 1018) if located on a lot that is subject to the solar design standard in Subsection 1017.04 or if located on a lot south of and adjoining a lot that complies with Subsection 1017.04.

The applicant shall file a note on the plat or other documents in the office of the County Recorder binding the applicant and subsequent purchasers to comply with the future shade protection standards in Subsection 1017.07. The County shall be made a party of any covenant or restriction created to enforce any provision of this ordinance. The covenant or restriction shall not be amended without written County approval.

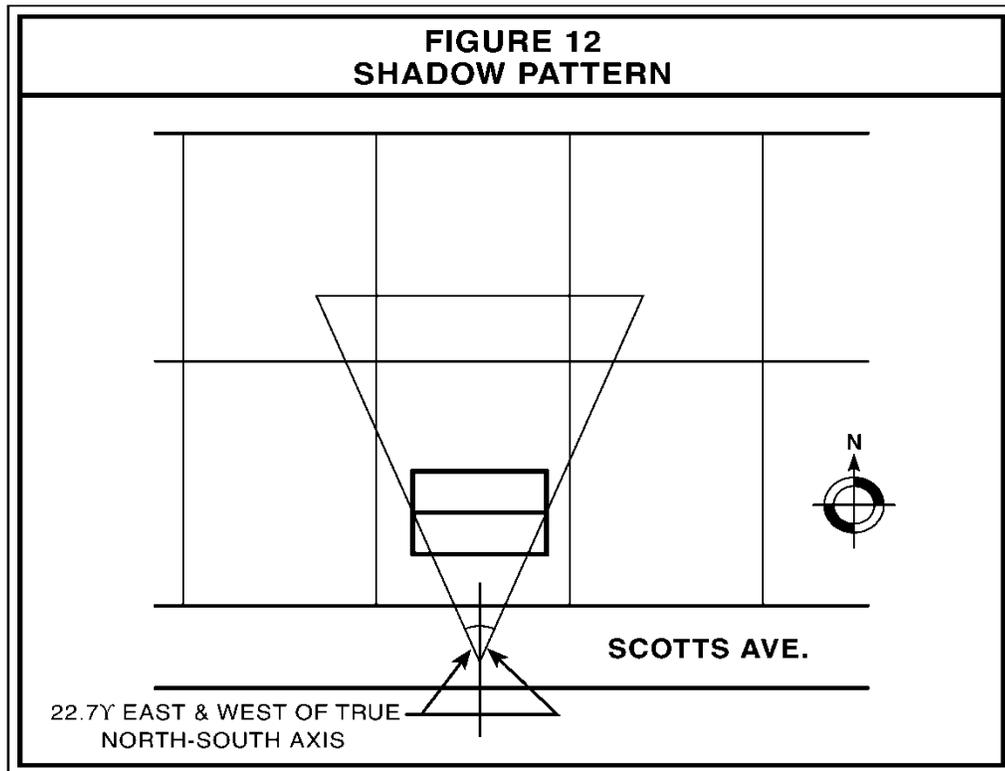
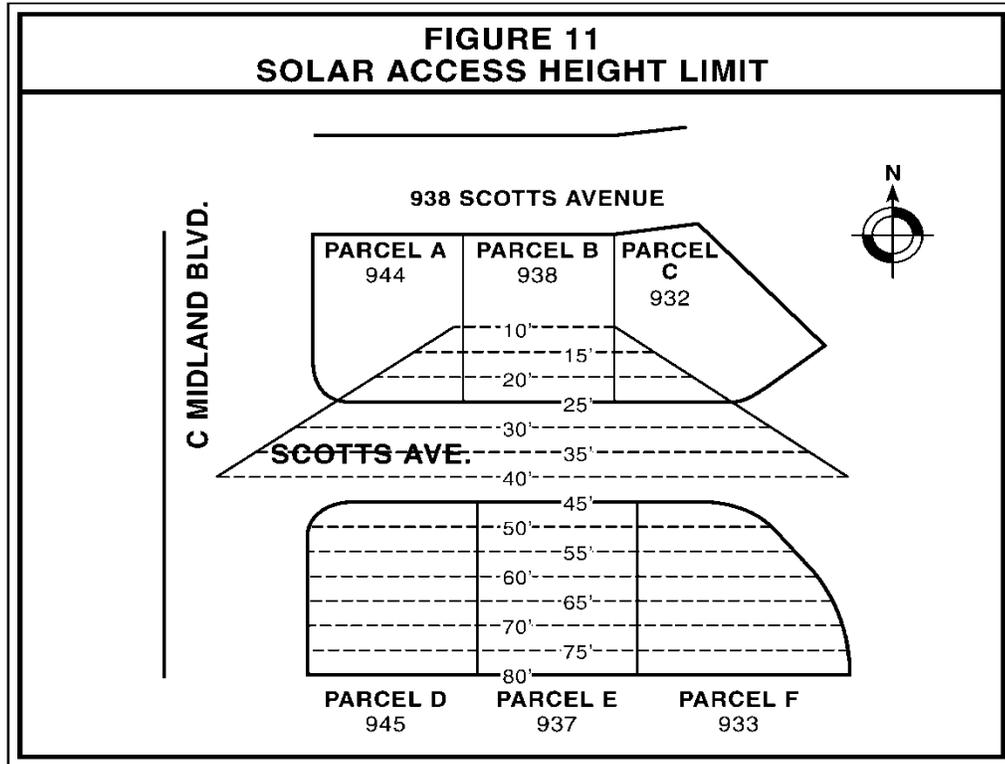
1017.08 APPLICATION

An application for approval of a development subject to this ordinance shall include:

- A. Maps and text sufficient to show the development complies with the solar design standard of Subsection 1017.04, except for lots for which an exemption or adjustment from Subsection 1017.04 is requested, including at least:
 - 1. The north-south lot dimension and front lot line orientation of each proposed lot.
 - 2. Protected solar building lines and relevant building site restrictions, if applicable.
 - 3. For the purpose of identifying trees exempt from Subsection 1017.07, a map showing existing trees at least 30 feet tall and over 6 inches diameter at a point 4 feet above grade, indicating their height, diameter, and species, and stating that they are to be retained and are exempt.
 - 4. Copies of all private restrictions relating to solar access.
- B. If an exemption or adjustment to Subsection 1017.04 is requested, maps and text sufficient to show that given lots or areas in the development comply with the standards for such an exemption or adjustment in Subsection 1017.05 and 1017.06, respectively.

1017.09 REVIEW PROCESS

Review of new developments for compliance with these standards shall be a part of the review process stipulated in Section 1105, *Subdivisions, Partitions, Replats, Condominium Plats, and Vacations of Recorded Plats*.



[Amended by Ord. ZDO-253, 6/1/15]