

MEMORANDUM

DATE May 22, 2015
TO Hillside and Ridgelines Steering Committee
FROM PlaceWorks
SUBJECT Moraga Hillside and Ridgelines Project Preliminary Options Memo

Introduction

During the initial stages of the Hillside and Ridgelines Project, a combination of research and public engagement was used to explore the diverse issues relating to the protection and potential development of Moraga's hillside, ridgeline, and other open spaces. These efforts culminated in the Hillside and Ridgelines Background Report, which was made public in 2014 and detailed the natural, technical, and legal concepts that underpin Moraga's regulatory approach to hillside and ridgeline protection and development.

As discussed in the Background Report, different community values can come into conflict when development is proposed or undertaken. This is particularly true with development in Moraga's hillside and ridgeline areas. The contentious nature of hillside development prompted voters to adopt the Moraga Open Space Ordinance (MOSO) in 1986. As development projects have continued to come forward, even with MOSO in place, each has been the subject of continued and on-going debate and controversy, lengthy and complex approval processes, and heated discussion on all sides.

This conflict is caused in part by disagreements over fundamental questions of growth and change in the community. However, much of the conflict is based on disagreements over the meaning of specific development rules and regulations. The Background Report, together with input from the community, Steering Committee, Planning Commission and Town Council, defined and explored a list of key issues and concerns with the current framework of regulations that need to be addressed.

The purpose of this Preliminary Options memo is to jumpstart the process of finding ways to resolve those issues. This memo explores preliminary options for revising Moraga's various planning documents and regulations, including the MOSO Guidelines, the General Plan, and the Municipal Code. In turn, the options will be brought forward for discussion by the community and decision-makers to determine the preferred ways in which each issue should be resolved.

Although the preliminary regulatory options presented in this memo are each associated with a particular issue, many of these options may impact multiple issues. Depending on the specific nature of the issue, the Town may face a more limited set of preliminary options, or a wide array of options, not all of which will be mutually exclusive. In many cases, not making any change at all may be a valid option; however, doing so may risk leaving the associated issue unresolved.

Preliminary regulatory options presented in this memo are organized around the following key issues that were identified by the Town Council, members of the Project Steering Committee, and members of the public:

1. MOSO Open Space Map
2. MOSO Ridgeline Map
3. Non-MOSO Ridgeline Definition and Map
4. Ridgeline Protection
5. Definition of Development
6. Calculation of Slope in MOSO Open Space
7. Development on Steep Slope Areas in MOSO Open Space
8. Hillside Development Permits
9. High-Risk Areas Map
10. Remediation of High-Risk Areas
11. Viewshed Protection
12. Building Size

The options presented in this memo are not final; they may be added to and revised as the Hillside and Ridgelines Project continues. Members of the public and decision makers will have opportunities to review, comment on, and recommend additions to this list of preliminary options.

The review and comment process will include focus groups, a public workshop, and meetings of the Steering Committee, Planning Commission, and Town Council. After these bodies and the public have had a chance to weigh in, a set of recommended draft amendments to the Town's planning and regulatory documents will be prepared. These draft amendments will then be reviewed by both the public and the decision making bodies listed above. The final amendments will then go before the Town Council for approval and adoption.

Issues and Preliminary Options

ISSUE 1: MOSO OPEN SPACE MAP

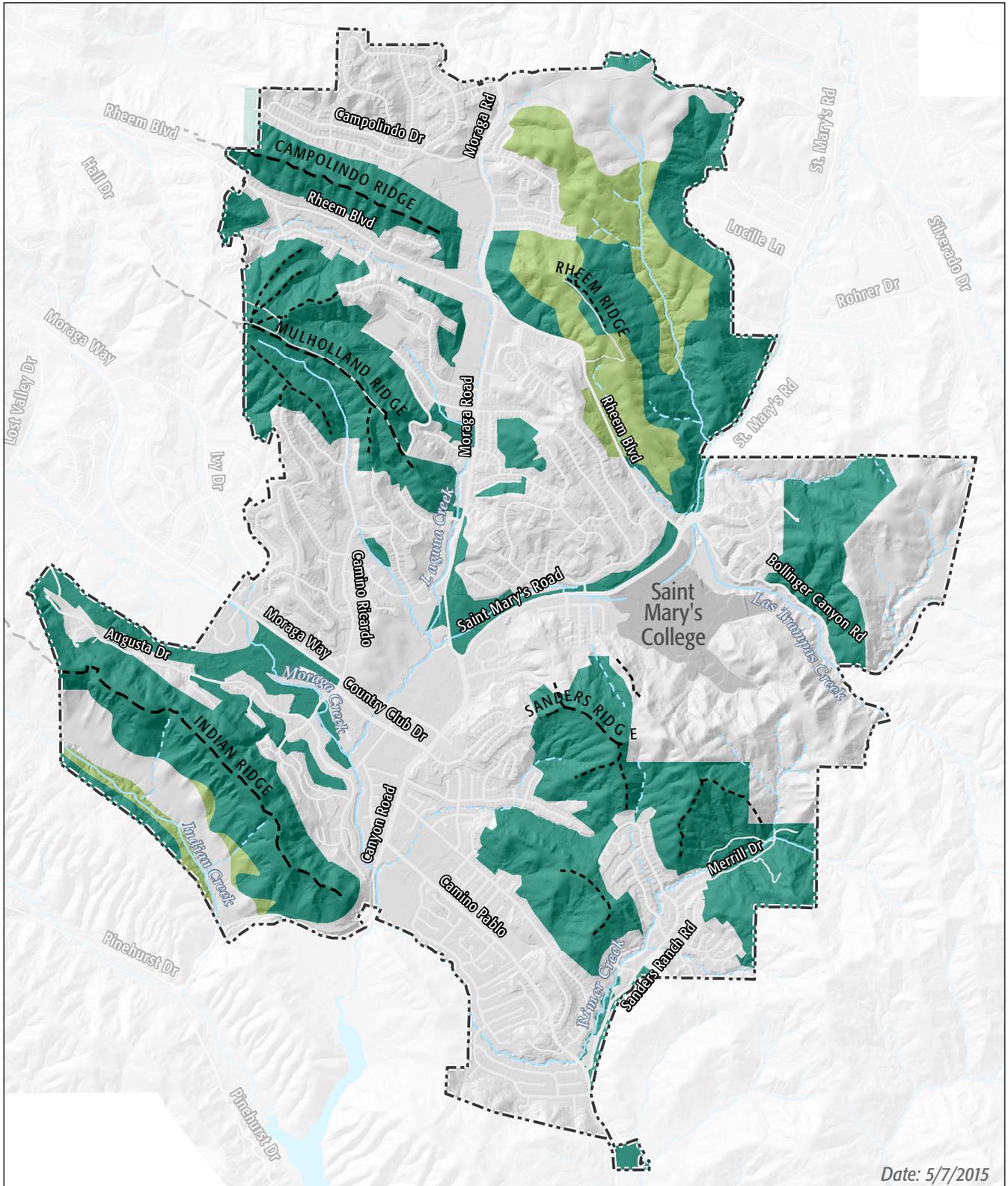
MOSO Open Space boundaries are shown differently on Moraga's Zoning Map and General Plan Land Use Map. The Town needs to clarify the boundaries of MOSO Open Space areas and make these maps consistent with one another.

Figure 1 shows the location of MOSO Open Space areas based on the Town's Zoning Map and current GIS data. Figure 2 is MOSO Guidelines Exhibit A showing MOSO Open Space Areas, and Figure 3 is the 1990 General Plan Land Use Map, showing MOSO Open Space areas.

Figure 4 identifies discrepancies between the Town's current Zoning Map and GIS data, the MOSO Guidelines Exhibit A, and the General Plan Map. The most important discrepancy is between the areas shown as MOSO Open Space in the Zoning Map but not in any of the other maps. For example, portions of the Bollinger property and areas along Moraga Road appear as MOSO Open Space in the Zoning Map but not in the MOSO Guidelines Exhibit A or the General Plan map.

Figure 4 also shows a few areas designated as MOSO Open Space in the General Plan map, but not in the Zoning Map, particularly near Indian Ridge and Sanders Ranch road. There are also a few areas where the MOSO boundaries in MOSO Guidelines Exhibit A do not precisely match the boundaries in the General Plan Map and/or the Zoning Map.

Questions about MOSO Open Space boundaries are further complicated by the Town's incomplete records of amendments made to these boundaries over time. Several amendments were made in prior years, but the resolutions approving these amendments do not include attachments with maps identifying the precise change. These incomplete records underscore the importance of clarifying the MOSO Open Space boundaries during the Hillsides and Ridgelines Project.



Date: 5/7/2015

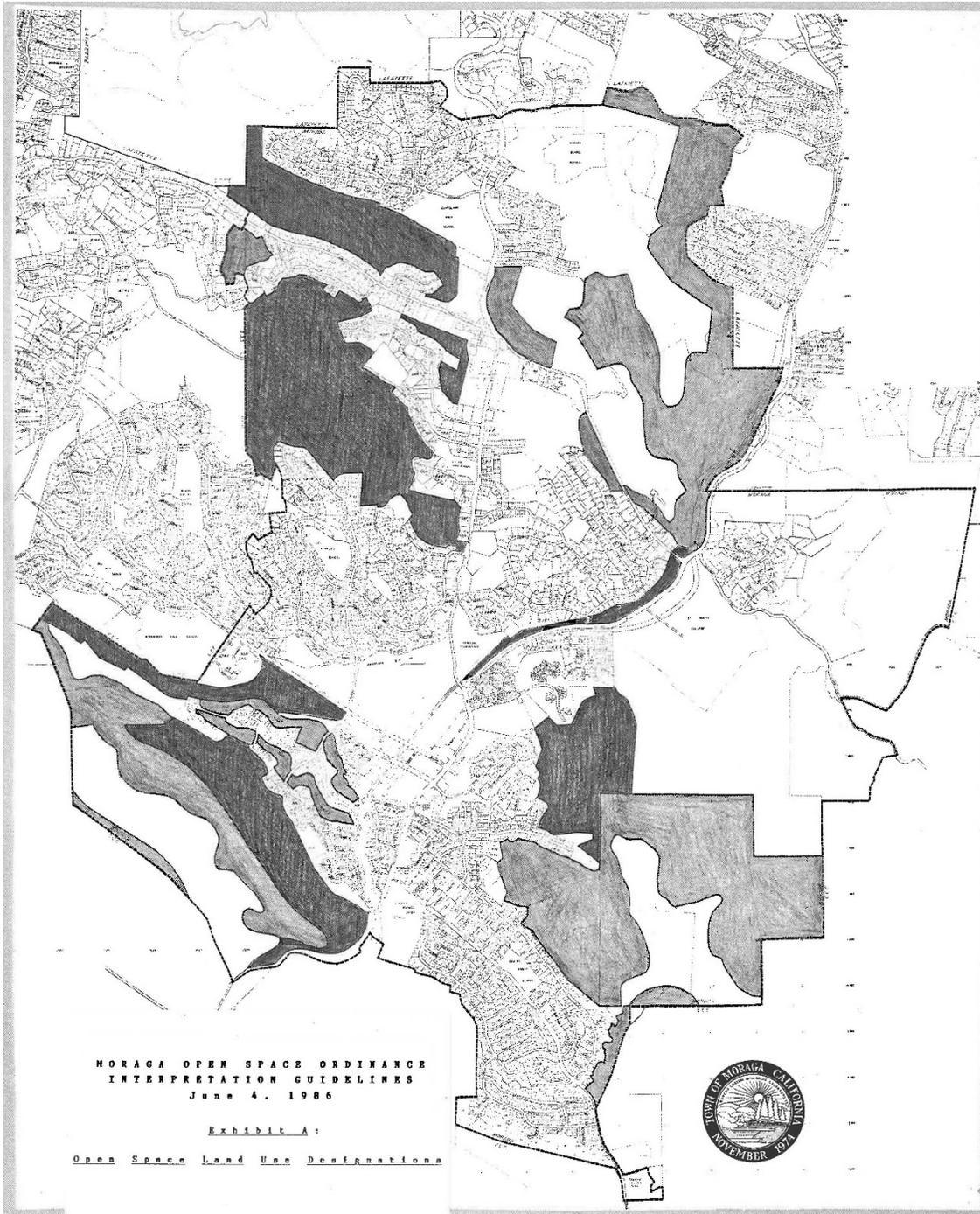
Data Sources: Town of Moraga, 2013; Contra Costa County, 2013; USGS, 2013; PlaceWorks, 2014.

- MOSO Major Ridgelines
- MOSO Minor Ridgelines
- Major/Permanent Stream
- Minor/Intermittent Stream
- Town Boundary
- Open Space Lands
- MOSO Open Space Land
- Non-MOSO Open Space Land

FIGURE 1
OPEN SPACE LANDS
AS IDENTIFIED BY THE ZONING MAP

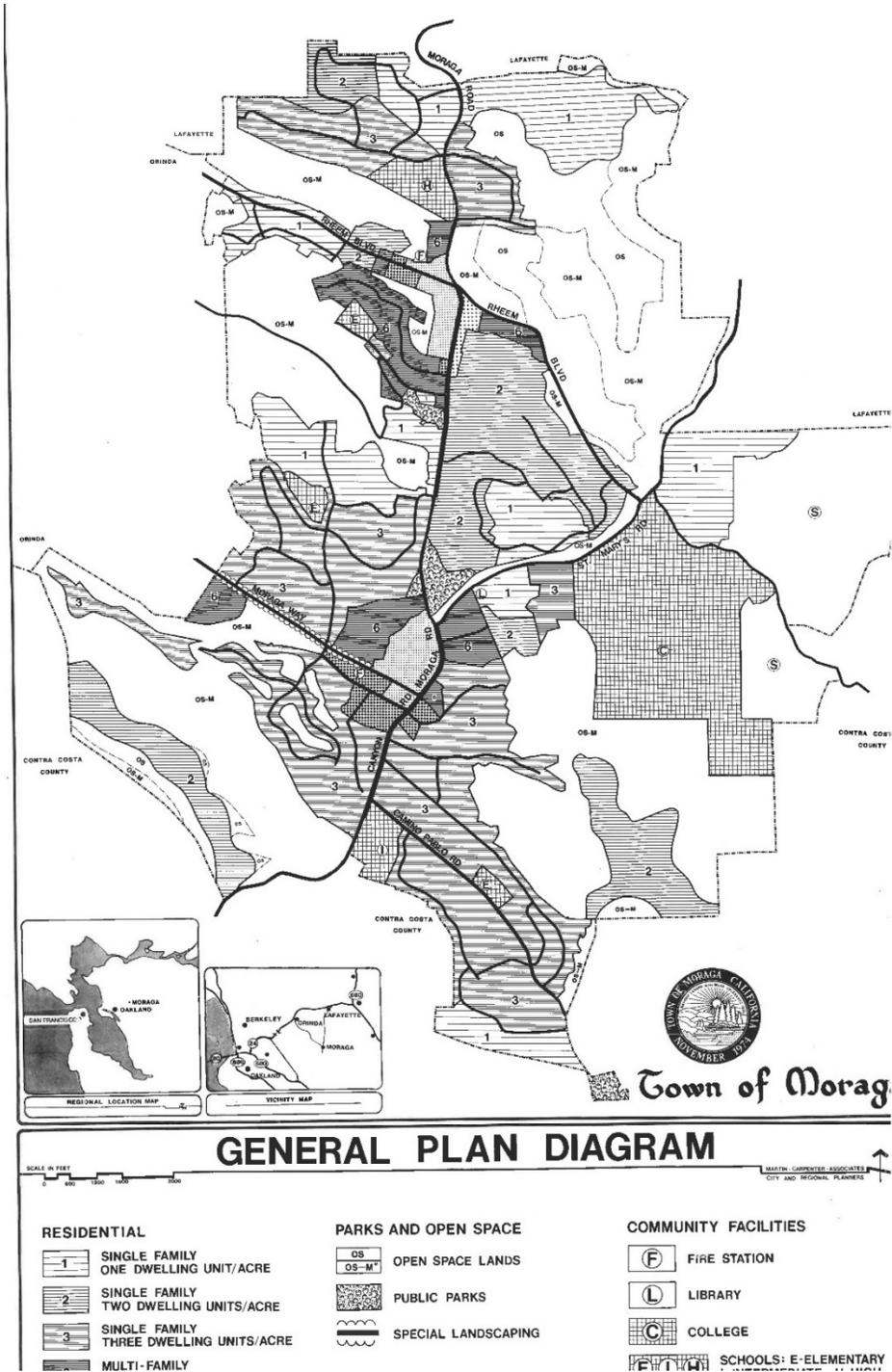
0 0.5 1 Miles

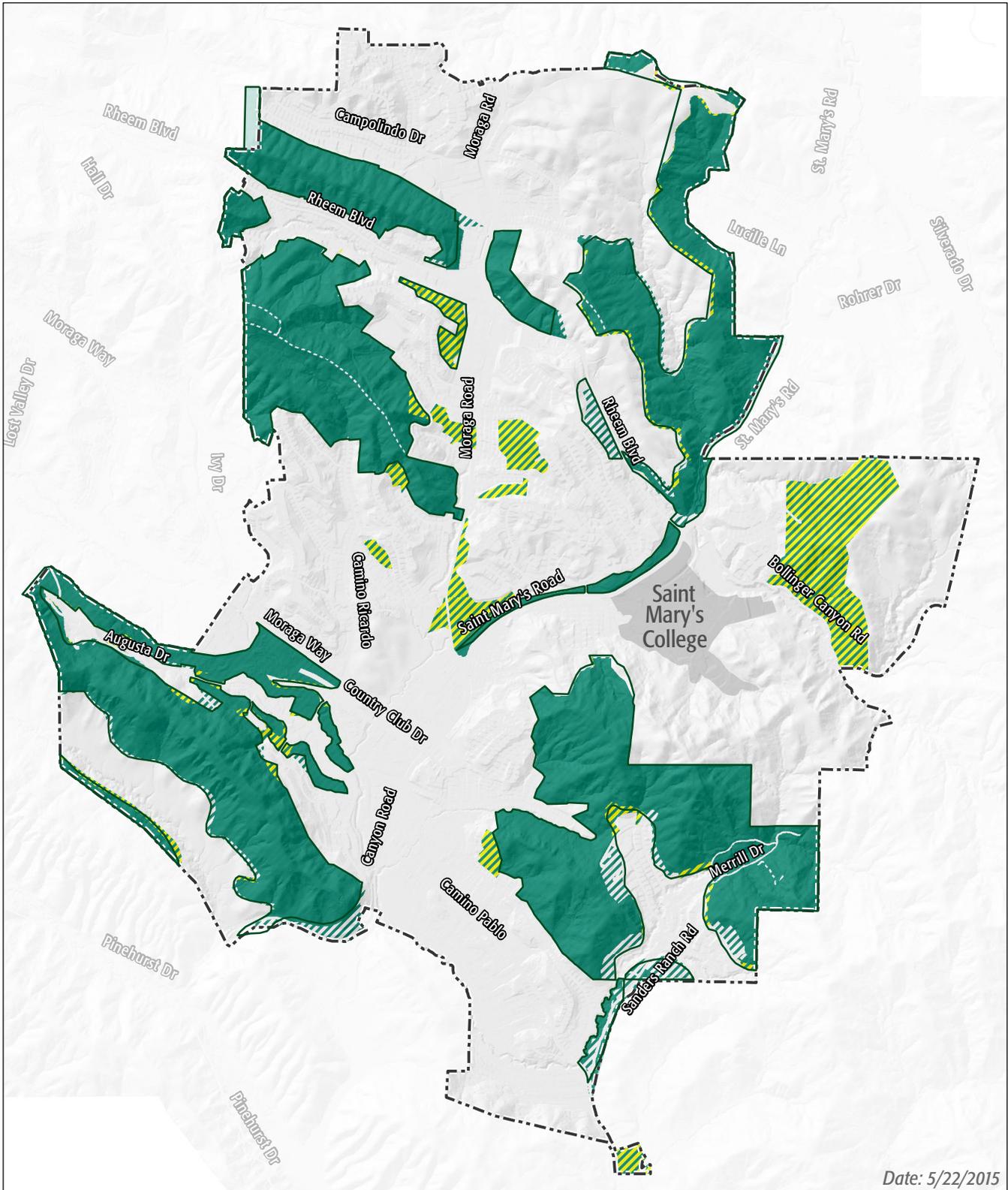
Figure 2: MOSO Guidelines Exhibit A



Note: No legend is currently available for this figure; however, dark areas indicate MOSO Open Space.

Figure 3: 1990 General Plan Diagram





Date: 5/22/2015

Data Sources: Town of Moraga, 2013; Contra Costa County, 2013; USGS, 2013; PlaceWorks, 2015.

-  MOSO Open Space in Zoning Map, but not in General Plan Map
-  MOSO Open Space in General Plan Map, but not in Zoning Map
-  MOSO Open Space Land in both General Plan Map and Zoning Map

-  Original MOSO Open Space Areas in MOSO Guidelines Exhibit A
-  Town Boundary

FIGURE 4
MOSO OPEN SPACE
MAP DISCREPANCIES



ISSUE 2: MOSO RIDGELINE MAP

Figure 5 presents MOSO Guidelines Exhibit B, which shows Major Ridgelines and Minor Ridgelines in MOSO Open Space. Figure 5 shows Major and Minor Ridgelines in MOSO Open Space based on existing Town GIS data, prepared as part of the current Hillsides and Ridgelines Project.

The MOSO Guidelines map (Figure 5) shows the furthest northwest extent of Indian Ridge as a Minor Ridgeline. Town GIS data (Figure 6) show this area as a Major Ridgeline.

The Town needs to clarify if all of Indian Ridge is a Major Ridgeline, or if the northwest portion should be designated as a Minor Ridgeline. The General Plan defines major and minor ridgelines as follows:

A major ridgeline means the centerline or crest of the ridges known as Indian Ridge, Sanders Ridge, Mulholland Ridge and Campolindo Ridge, where the crest is above 800 feet above mean sea level and within an area with a MOSO Open Space designation on the General Plan Diagram.

A minor ridgeline means the centerline or crest of any ridge other than those identified as ‘major ridgelines,’ where the crest is above 800 feet above mean sea level and within an area with a MOSO Open Space designation on the General Plan Diagram.

Figure 6 presents ridgeline locations that have been slightly adjusted from the Town’s most recent GIS data. These minor adjustments were made solely for the purpose of more accurately following ridge crests based on current topographic data. Regardless of the option selected below, Town staff and consultants recommend that the Town update its ridgeline GIS data and mapping to more accurately follow the true ridge centerlines, as shown in Figure 6.

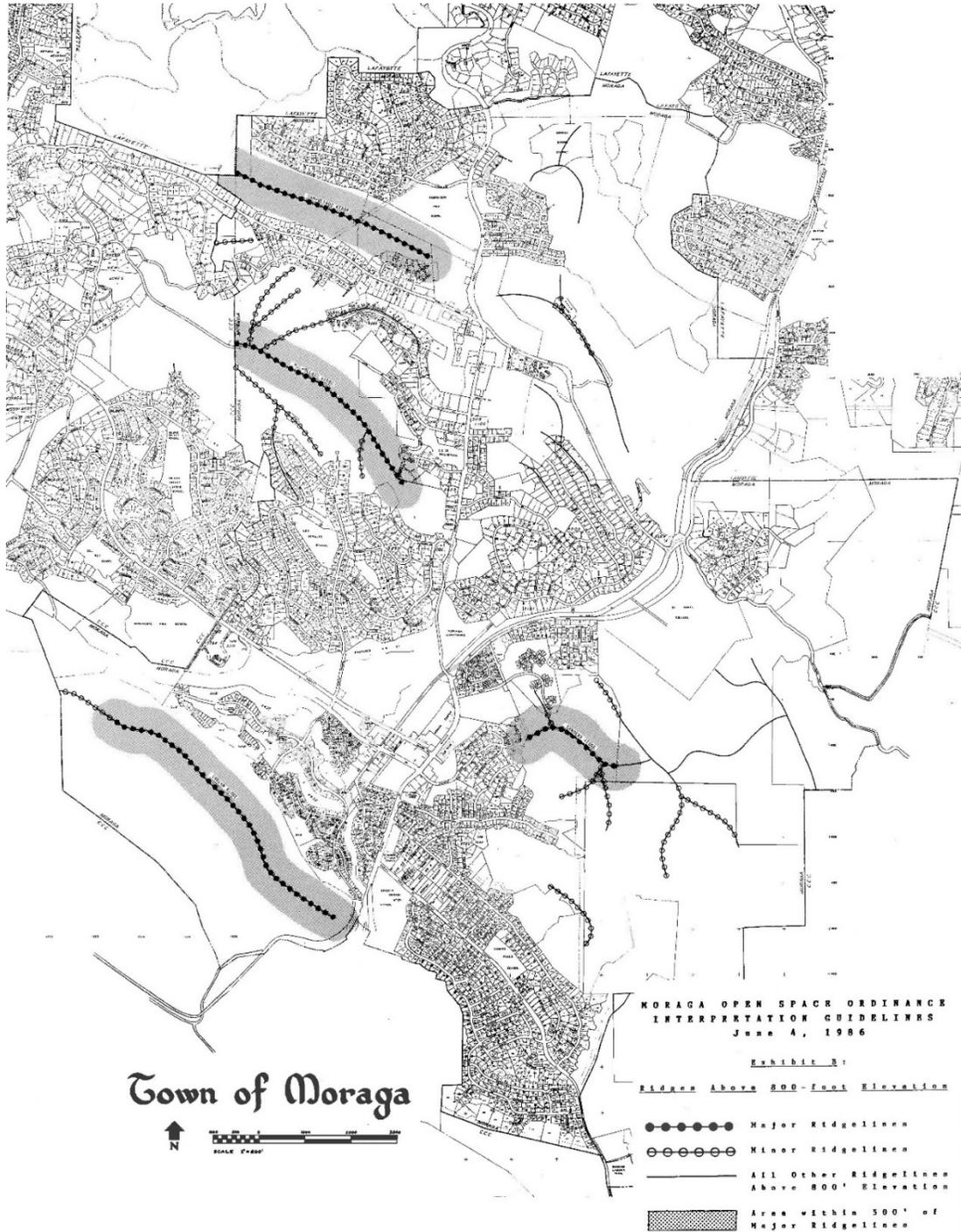
Option 2-A: Designate Full Extent of Indian Ridge as a Major Ridgeline

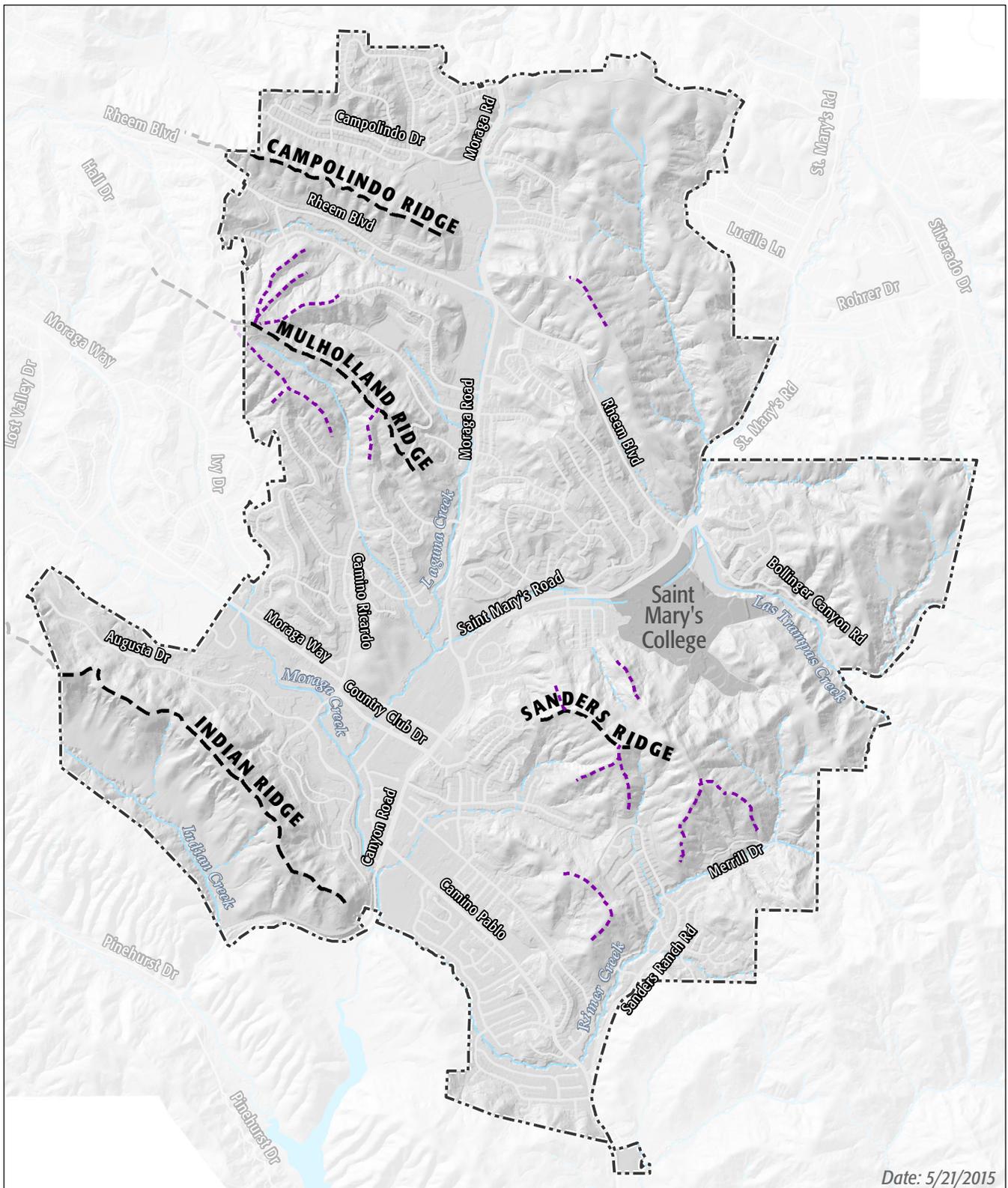
Amend MOSO Guidelines Exhibit B (Figure 5) to show the full extent of Indian Ridge as a Major Ridgeline, consistent with the Town’s existing GIS data (Figure 6). (While also updating the precise location of the ridgelines, as shown in Figure 6.)

Option 2-B: Designate Northwest portion of Indian Ridge as a Minor Ridgeline

Update Town GIS files and maps (Figure 6) to show the northwest portion of Indian Ridge as a Minor Ridgeline, consistent with MOSO Guidelines Exhibit B (Figure 5). (While also updating the precise location of the ridgelines, as shown in Figure 6.)

Figure 5: MOSO Guidelines Exhibit B





Date: 5/21/2015

Data Sources: Town of Moraga, 2013; Contra Costa County, 2013; USGS, 2006, 2013; PlaceWorks, 2014.

-  MOSO Major Ridgelines
-  MOSO Minor Ridgelines
-  Major/Permanent Stream
-  Minor/Intermittent Stream
-  Town Boundary

FIGURE 6
MOSO MAJOR AND MINOR RIDGELINES



ISSUE 3: NON-MOSO RIDGELINE DEFINITION AND MAP

Moraga’s General Plan defines Major and Minor Ridgelines in MOSO Open Space, but does not contain a general ridgeline definition that applies Town-wide. Because of this, some believe that Town policies to protect ridgelines from development (Policy CD1.5 and others) do not apply to Non-MOSO ridgelines, or apply in different ways. Clarifying the meaning of Moraga’s ridgeline protection policies therefore also requires establishing a clear town-wide definition of ridgelines and identifying the location of all ridgelines on a map.

MOSO Guidelines Exhibit B (Figure 5) shows the location of all ridgelines above 800 feet in elevation outside of MOSO Open Space, as well as Major and Minor Ridgelines in MOSO areas. The Town prepared this map in 1986 when the MOSO was adopted.

Figure 7 is an alternative map of ridgelines outside of MOSO Open Space created using current aerial photographs and topographic data. This map is based on a definition of ridgelines as the upper-most portion of a hill above 800 feet that rises to a crest. This map excludes developed ridgelines, since it is difficult to discern the precise location of ridgelines in developed areas.

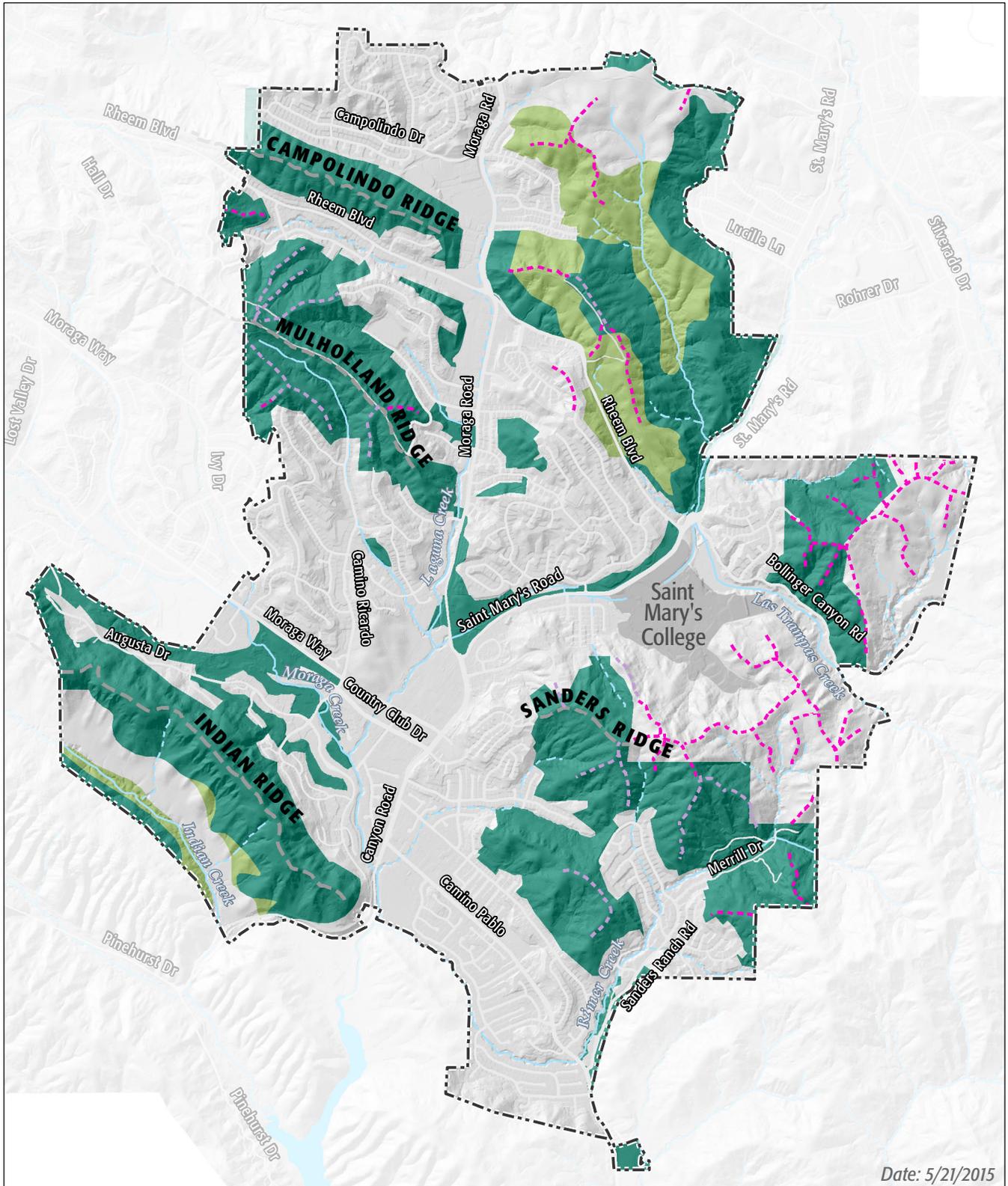
Figure 7 shows a number of ridgelines that do not appear in the MOSO Guidelines Exhibit B (Figure 5), particularly in the Bollinger area and south of Saint Mary’s College. Depending on the preferred approach to Issue 4 (Ridgeline Protection), showing additional ridgelines outside of MOSO areas could significantly increase development restrictions in these areas.

Option 3-A: Add a “General” Ridgeline Definition to the General Plan and Municipal Code

Amend the General Plan and Municipal Code to add a general ridgeline definition that applies throughout town, not just in MOSO Open Space areas. “Ridgeline” could be defined to mean “the upper-most portion of a hill that is at or above 800 feet in elevation, is in an undeveloped area, and which rises to a crest.” The General Plan and Municipal Code would retain existing definitions for Major and Minor Ridgelines that apply in MOSO areas.

Option 3-B: Add a Map of All Ridgelines to General Plan

Adopt a map of all ridgelines within the Moraga Town limits above 800 feet in elevation. The map would show the location of all ridgelines, including ridgelines outside of MOSO Open Space (see Figure 7). The map would show subsets of ridgelines, such as Major and Minor MOSO Ridgelines, for which specific policies and regulations apply.



Date: 5/21/2015

Data Sources: Town of Moraga, 2013; Contra Costa County, 2013; USGS, 2006, 2013; PlaceWorks, 2014.

- Town Boundary
- Newly Identified Ridgelines Above 800 feet
- Town-identified MOSO Minor Ridgelines
- MOSO Open Space Land
- Town-identified Major Ridgelines
- Non-MOSO Open Space Land
- Major/Permanent Stream
- Minor/Intermittent Stream

FIGURE 7
RIDGELINES INSIDE AND OUTSIDE
MOSO OPEN SPACE AREAS

0 0.5 1 Miles

ISSUE 4: RIDGELINE PROTECTION

General Plan Policy CD1.5 calls for the Town to “protect ridgelines from development.” The Town needs to clarify how this policy applies to ridgelines outside of MOSO Open Space. Clarifying this policy requires:

- » Defining and mapping Non-MOSO ridgelines;
- » Clarifying what is meant by “protect;” and
- » Clarifying the definition of “development.”

Issue 3 addresses the definition and mapping of Non-MOSO ridgelines. The definition of development is addressed in Issue 5. Options presented for Issue 4 focus on the meaning of “protect.” Options for all three of these issues are closely related to one another.

Option 4-A: Allow Development On and Near Non-MOSO Ridgelines; Clarify/Amplify Existing Design Guidelines

Add detail to the design guidelines for ridgeline and hillside development on page 10 of the Town of Moraga Design Guidelines. These guidelines already provide general guidance for how hillside and ridgeline development can minimize visual impacts and mitigate hazards. The Town would revise this section of the Design Guidelines to provide additional detail.

For example, guideline RH3 states that “building sites should be sited so that visual impacts are minimized.” The Town could revise this guideline to clarify unacceptable visual impacts. Guideline RH5 states that “Hillside buildings and other improvements should have a low visual profile.” Photographs and/or illustrations could be added to illustrate acceptable and unacceptable roof designs and examples of development with a “low visual profile.” Figures 8a and 8b show examples of the types of illustrations that could be added to the Design Guidelines to further clarify their meaning and intent.

Under this option, development would be permitted on and adjacent to Non-MOSO ridgelines. The Town would use clarified design guidelines to determine if a proposed ridgeline project is consistent with General Plan Policy CD1.5 and other goals and policies related to hillside and ridgeline development. Under this option, some text amendments may be needed to Policy CD1.5 to ensure that the Policy and implementing guidelines are clearly linked and consistent.

Option 4-B: Prohibit Development On Non-MOSO Ridgelines; Allow Development Near Non-MOSO Ridgelines Subject to New Development Standards.

Prohibit development on Non-MOSO Ridgelines but allow development near to Non-MOSO Ridgelines consistent with new development standards. These standards would implement General Plan Policy CD1.5 and would help to reduce unacceptable visual impacts resulting from hillside development. New standards would be objective and measurable and would primarily address the height, size, and placement of structures located in proximity to ridgelines. Below are examples of standards that could be applied to structures within a specified distance of a ridgeline:

- » **Maximum Height with Respect to Ridgeline.** A structure may not exceed the height of the portion of any ridgeline that falls within 100 feet of the proposed structure.
- » **Silhouetting.** Structures may not be placed so that they are silhouetted against the sky when viewed from a public street.
- » **Placement below Ridgeline.** Structures shall be located below the ridgeline so that a vertical separation of at least 25 feet is provided between the top of the structure and the lowest point(s) on the portion(s) of any ridgeline(s) within 100 feet of the proposed structure.
- » **Vision Plane.** Structures may not project outside of a plane sloping downward at 15 degree angle from the horizontal intercept of a ridgeline.

Figures 8-c and 8-d show example illustrations that could accompany such design standards.

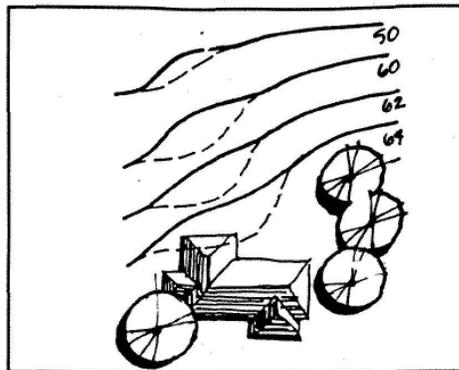
With this option, development consistent with these standards is permitted adjacent to non-MOSO ridgelines. A project that meets these standards and other applicable regulations would be considered to comply with General Plan Policy CD1.5. Similar to Option 4-A, amendments may be needed to Policy CD1.5 to ensure that the policy and implementing guidelines are clearly linked and consistent.

Option 4-C: Prohibit Development within 500 Feet of Non-MOSO Ridgelines

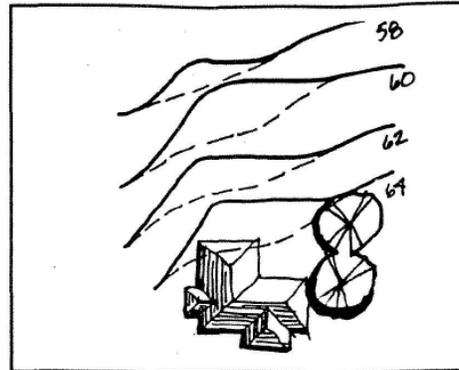
Amend the General Plan and Zoning Code to prohibit development within 500 feet (measured horizontally) of all non-MOSO ridgelines, as shown in Figure 9. This option would apply a similar setback to non-MOSO ridgelines as is required for MOSO Major Ridgelines. The Town could also adopt a different or reduced buffer requirement (300 feet, for example) for Non-MOSO ridgelines.

As a variation on this option, Moraga could prohibit primary structures within an established buffer distance of Non-MOSO ridgelines, but allow roads, grading, or certain limited forms of development within the buffer.

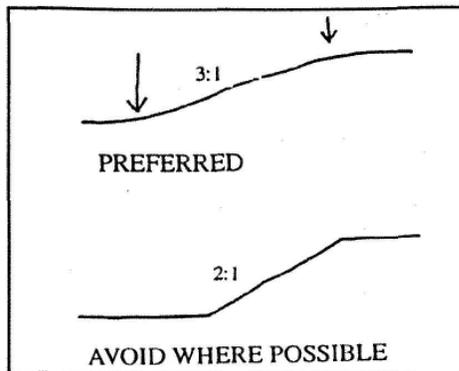
Figure 8-a: Example Hillside Grading Guideline Illustrations (County of San Luis Obispo)



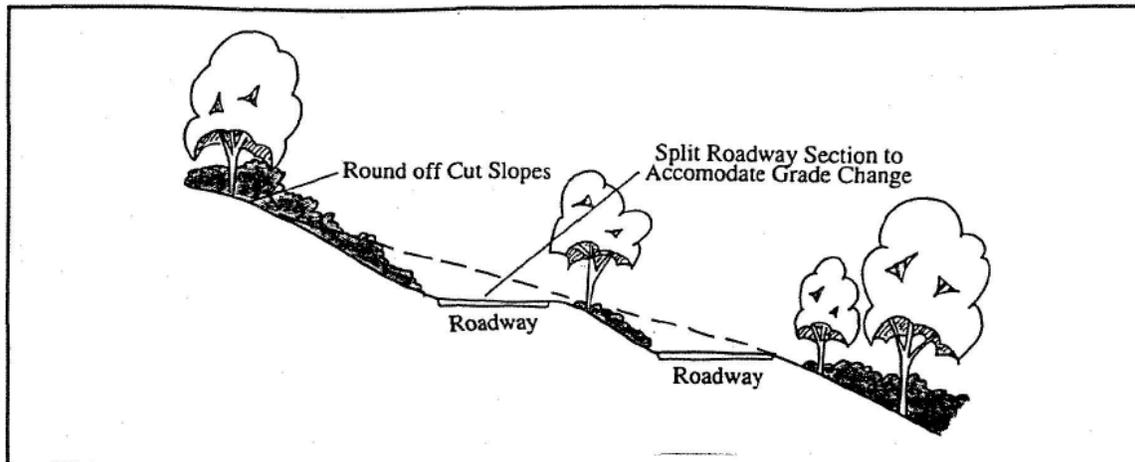
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142 NOT THIS



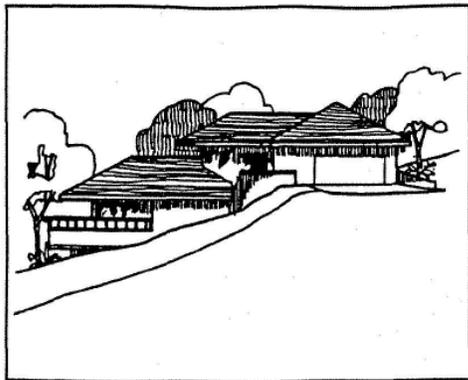
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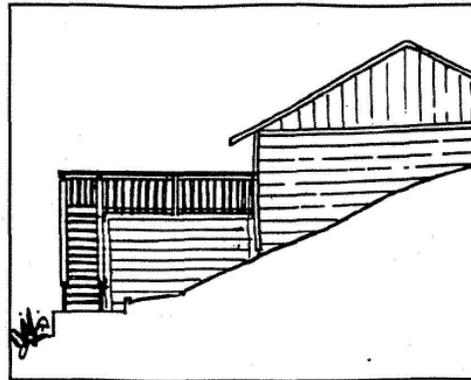
144

Source: San Luis Obispo County-wide Design Guidelines

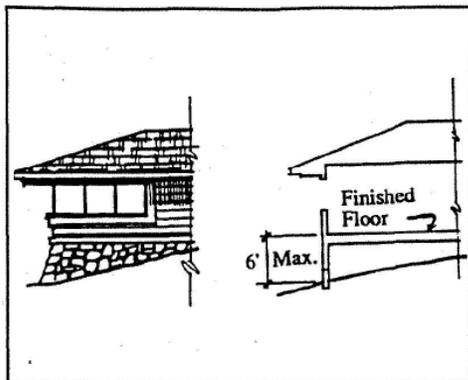
Figure 8-b: Example Hillside Structure Design Guideline Illustrations (San Luis Obispo)



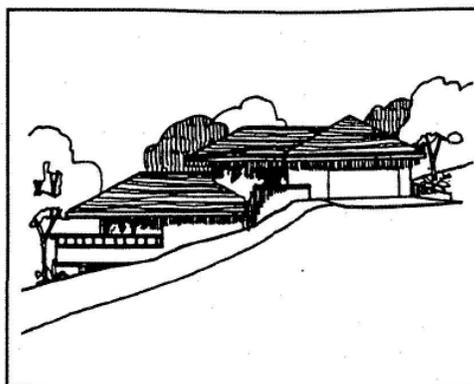
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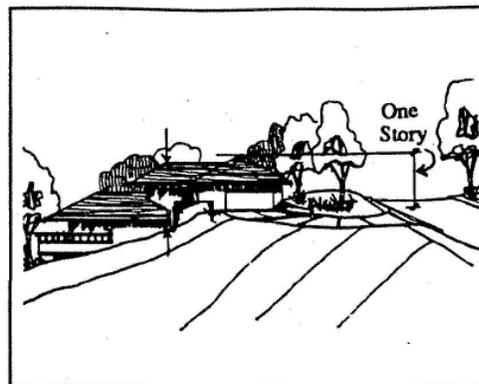
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122



139



140

Source: San Luis Obispo County-wide Design Guidelines

Figure 8-c: Example Illustration: Silhouetting (City of Novato)

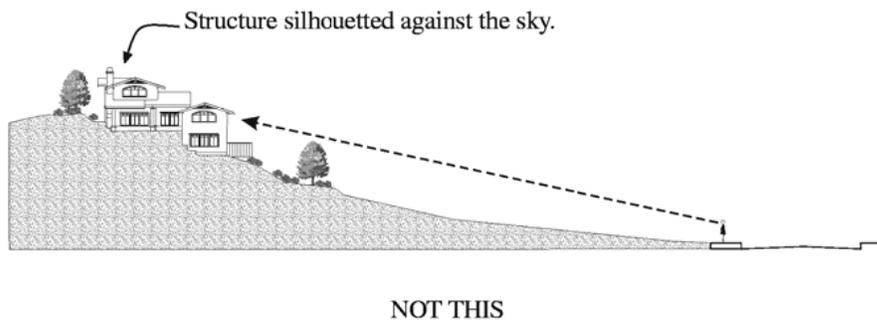
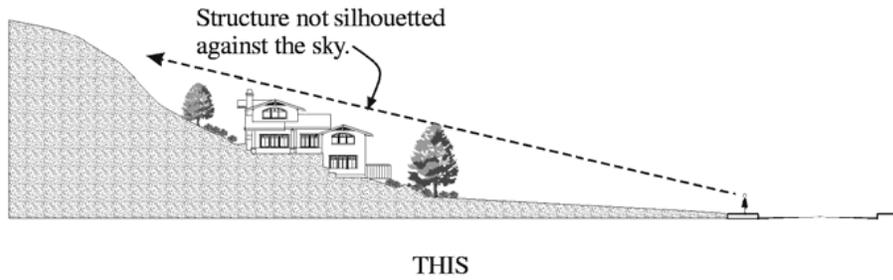
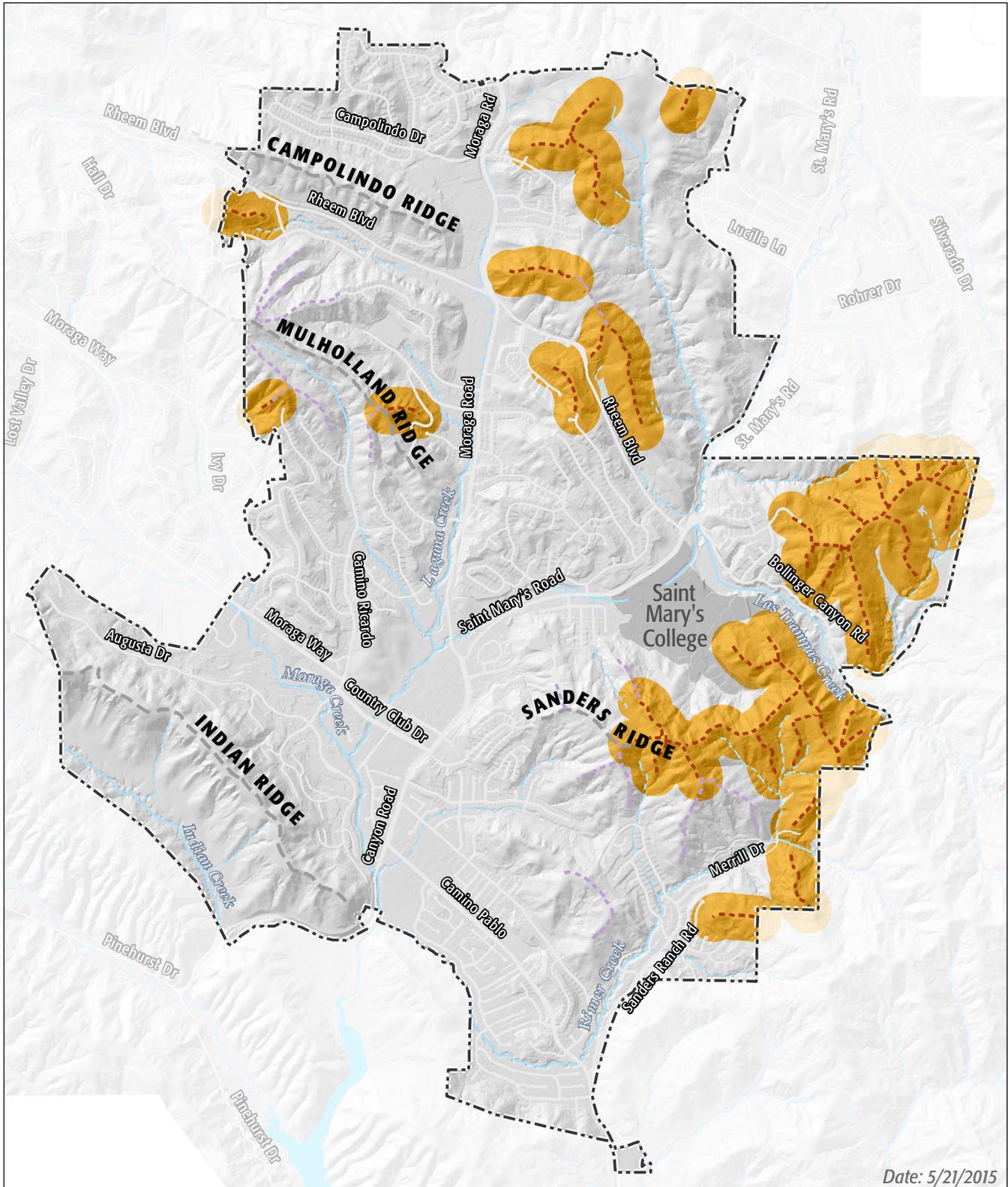


Figure 8-d: Example Illustration: Placement below Ridgeline (City of Novato)



Source: City of Novato Municipal Code



Date: 5/21/2015

Data Sources: Town of Moraga, 2013; Contra Costa County, 2013; USGS, 2006, 2013; PlaceWorks, 2014.

- Town Boundary
- Town-identified MOSO Minor Ridgelines
- Town-identified Major Ridgelines
- Major/Permanent Stream
- Minor/Intermittent Stream
- Newly Identified Ridgelines Above 800 feet
- 500-foot buffer of newly identified ridgelines

FIGURE 9
500-FOOT BUFFER OF
NEWLY IDENTIFIED RIDGELINES



ISSUE 5: DEFINITION OF DEVELOPMENT

The General Plan and MOSO Guidelines broadly define development as any alteration to the land, construction, or change in land use. In MOSO areas, “development” is prohibited within 500 feet of a major ridgeline, on minor ridgelines, and on slopes of 20 percent or greater.

The Town needs to clarify exactly what types of structures, improvements, and changes to the landscapes should be included in the definition of “development” and are thus prohibited in these areas. As noted, the definition of development has a close relationship with the definition of “protection” as it applies to Non-MOSO ridgelines (Issue 4), and the options explored here could also be applied to those ridgelines.

Options:

Below is a list of aspects of development or activities that could occur in MOSO areas. The Town should decide which of these should be included in a definition of development and thus be prohibited within 500 feet of a major ridgeline, on minor ridgelines, and on slopes of 20 percent or greater.

Structures

- » Principal structures (e.g., new single-family home)
- » Accessory buildings (e.g., second unit, garage, shed)
- » Fences and walls
- » Free-standing solar panels
- » Free-standing signs

Other Improvements

- » Accessory structures (e.g. pergolas, arbors, outdoor kitchens, wine caves)
- » Patios and decks
- » Pools and hot tubs
- » Exterior lighting

Landscaping

- » Removal of trees and other vegetation
- » Planting of new trees, shrubs, grass, and other vegetation
- » Landscape walls, stairs and similar structures

Infrastructure and Utilities

- » Streets
- » Sidewalks
- » Paved pathways or trails
- » Unpaved pathways or trails

- » Below-ground utilities (e.g., water and sewer pipes, underground wiring)
- » Above-ground utilities (e.g., utility boxes, power lines)
- » Stormwater management improvements (e.g., detention basins)
- » Telecommunication facilities, including cell towers and associated ground-mounted equipment

Earthwork

- » Any grading
- » Retaining walls and earth retention/remediation structures
- » Grading requiring a grading permit under Municipal Code Title 14 (Grading Ordinance)
- » Grading to remediate a geologic hazard

Agriculture

- » Row crops
- » Vineyards
- » Fruit and nut trees
- » Animal grazing

Recreational and Open Space Uses

- » Developed/active parks
- » Dog parks
- » Motorized recreational uses
- » Passive open space/parks
- » Sports fields or playing fields
- » Playgrounds
- » Commercial equestrian facilities (e.g., stables, riding arenas)
- » Private recreational clubs or facilities
- » Golf courses
- » Campgrounds/day camps

Other

- » Subdivisions
- » Change in land use

ISSUE 6: CALCULATION OF SLOPE IN MOSO OPEN SPACE

Issues 6 and 7 are closely related – both address issues associated with high slope areas in MOSO Open Space. Issue 6 addresses the method for calculating the average existing slope within a cell. Issue 7 addresses how to regulate development within cells with variable steepness.

In MOSO Open Space, average existing slope is calculated for a series of polygonal areas of at least 10,000 sq. ft. each, known as a “cells,” the boundaries of which are defined by an applicant. Some project applicants have drawn cell boundaries to be highly irregular or much larger than the expected area of disturbance. This approach can enable applicants to achieve an average slope less than 20 percent even if the development area itself has a much steeper slope. There is a need to consider if alternative approaches to calculating slope on a development site would better implement the intent of the MOSO Initiative.

Options to address calculation of slope in MOSO Open Space can be grouped into three categories:

- » **Options 6-A and 6-B** maintain the cell concept but improve the rules to address problems with contorted cells.
- » **Options 6-C and 6-D** replace cells with an alternative approach to calculating average slope for a development site.
- » **Option 6-E** uses slope categories as the method to calculate slope, potentially eliminating the need to use average slope to determine development capability on a site.

Option 6-A: Create General Policy Statement for Cell Boundaries

Maintain the use of cells to calculate average slope in MOSO areas, but add a general statement that clarifies the desired shape and location of cells. For example, the Town could add a statement to the MOSO Guidelines which states that a cell shall feature regular boundaries and generally contain the expected area of disturbance. Project applicants and the Town would apply this general guidance to projects on a case-by-case basis.

Option 6-B: Create Objective Standards for Cell Boundaries

Maintain the use of cells to calculate average slope in MOSO areas, but add new requirements for drawing cell boundaries. These requirements would be quantifiable and measurable, so compliance would not be subject to interpretation and debate. Example new cell requirements might include the following:

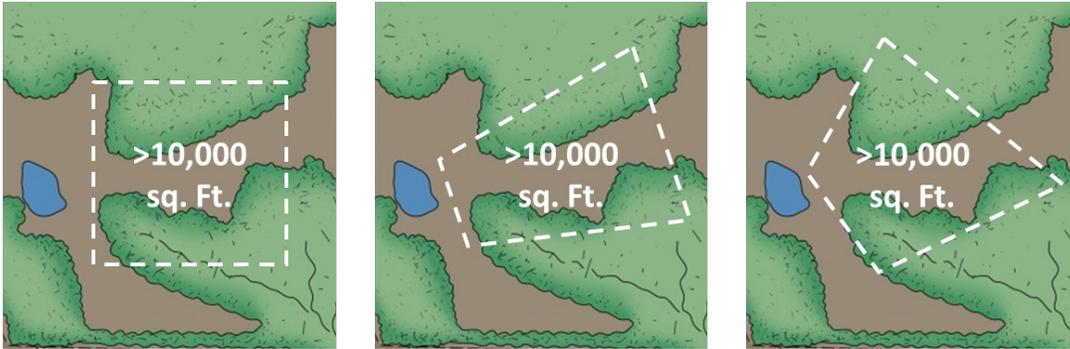
- » Example 1: A cell is a four-sided polygon of at least 10,000 sq. ft. (Figure 10-a)
- » Example 2: A cell is the minimum four-sided polygon containing the area of disturbance.
- » Example 3: A cell is the minimum polygonal area containing the area of disturbance.

The term “building pads” could also replace “area of disturbance” in the above examples, which would affect the size of the polygon, since it would encompass fewer features. New cell standards could also disallow the use of concave cell shapes and regulate the number or acuteness of angles within a cell.

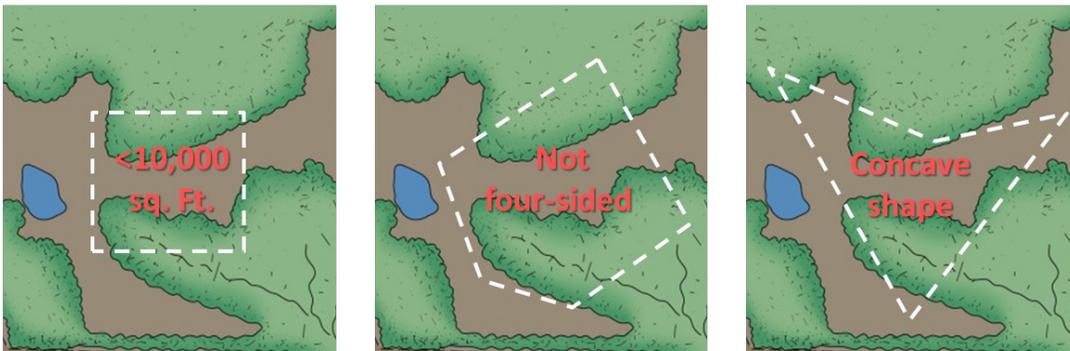
Option 6-C: Replace Cells with Grids

Calculate average slopes in hillside areas by dividing a development site into a grid of 100-foot by 100-foot squares. For each square, average slope would be calculated by averaging three slope measurements corresponding to the right and left edges of the square, plus a parallel measurement through the center of the square. The City of San Ramon uses this approach, but with 200-foot by 200-foot squares. MOSO Guidelines Exhibit C calculates average slope based on a 200-foot by 200-foot grid. This approach is illustrated in Figure 11 below. If a project applicant does not calculate average slope for defined cells, the Town defines the average slope of a development site using Exhibit C. The precise methodology for this option would be specified to enable automatic calculation using a Digital Elevation Model of sufficient accuracy and precision within GIS or CAD.

Figure 10-a: Cells as a four-sided polygon of at least 10,000 sq. ft. (Example 1)

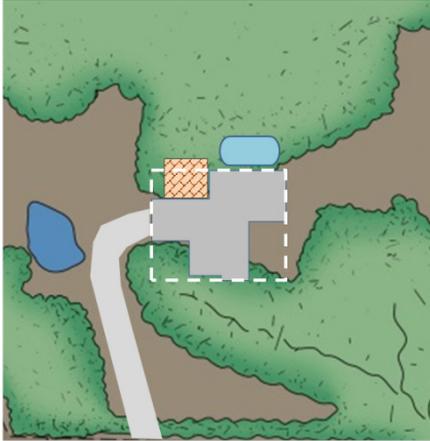


Acceptable cell configurations.



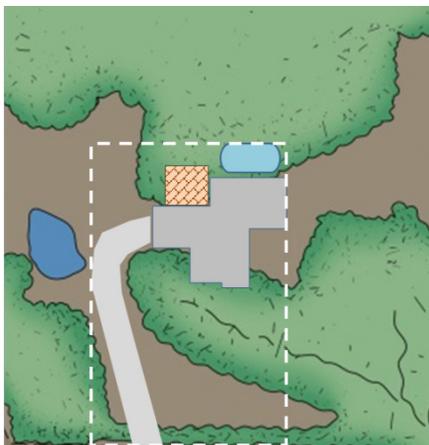
Unacceptable cell configurations.

Figure 10-b: A cell as the minimum four-sided polygon containing the area of disturbance (Example 2)



Creation of minimum cell to contain building footprint

Figure 10-c: A cell as the minimum polygonal area containing the area of disturbance (Example 3)



Creation of minimum cell to contain disturbed area

Figure 11: Example Grid Slope Calculation

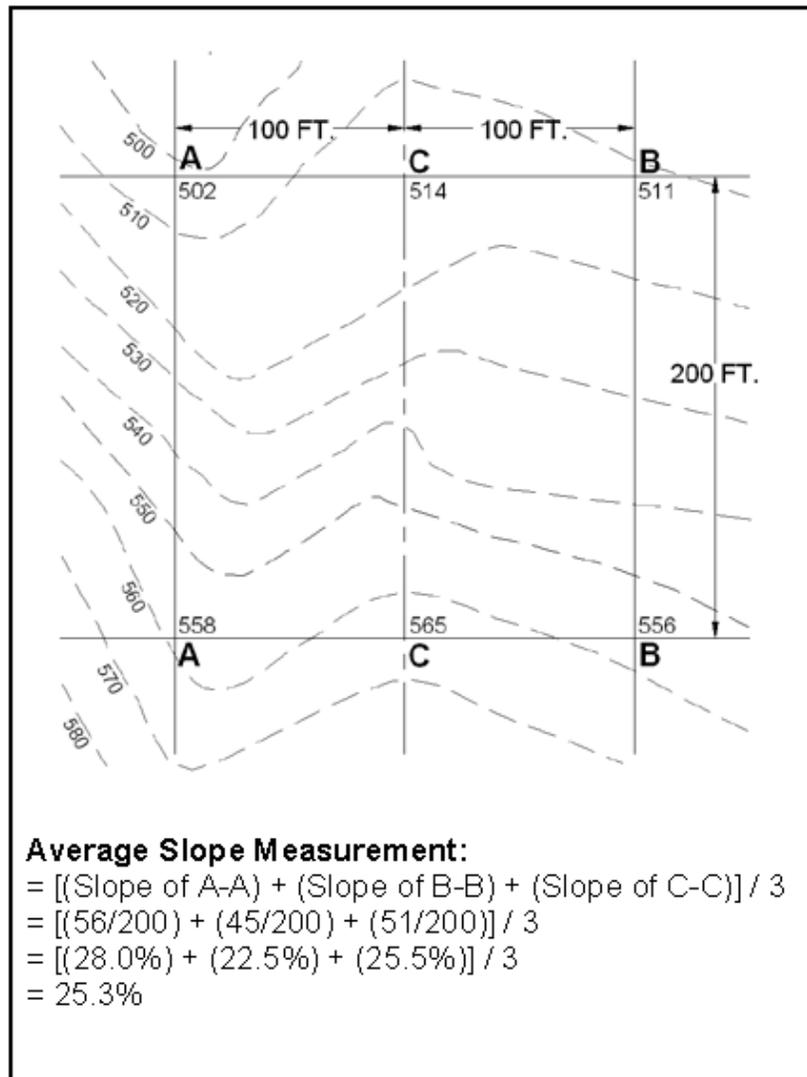


Figure 5-2 – Example Average Slope Calculation

Source: San Ramon Zoning Ordinance Section D5-6 - Slope Methodology

Option 6-D: Establish Requirement for “Fine-Grain” Slope Category Mapping

Require project applicants to prepare a slope category map that shows the location of areas on a property with slopes of 20 percent or more. Although many applicants do currently provide this information, it is not a required element of an application for development on MOSO, and there is no standard method by which it is to be developed. Applicants would prepare the slope category map using the Town’s slope data set developed during the Hillside and Ridgeline Project. Figure 12 shows an example of a slope category map prepared for the Painted Rock site.

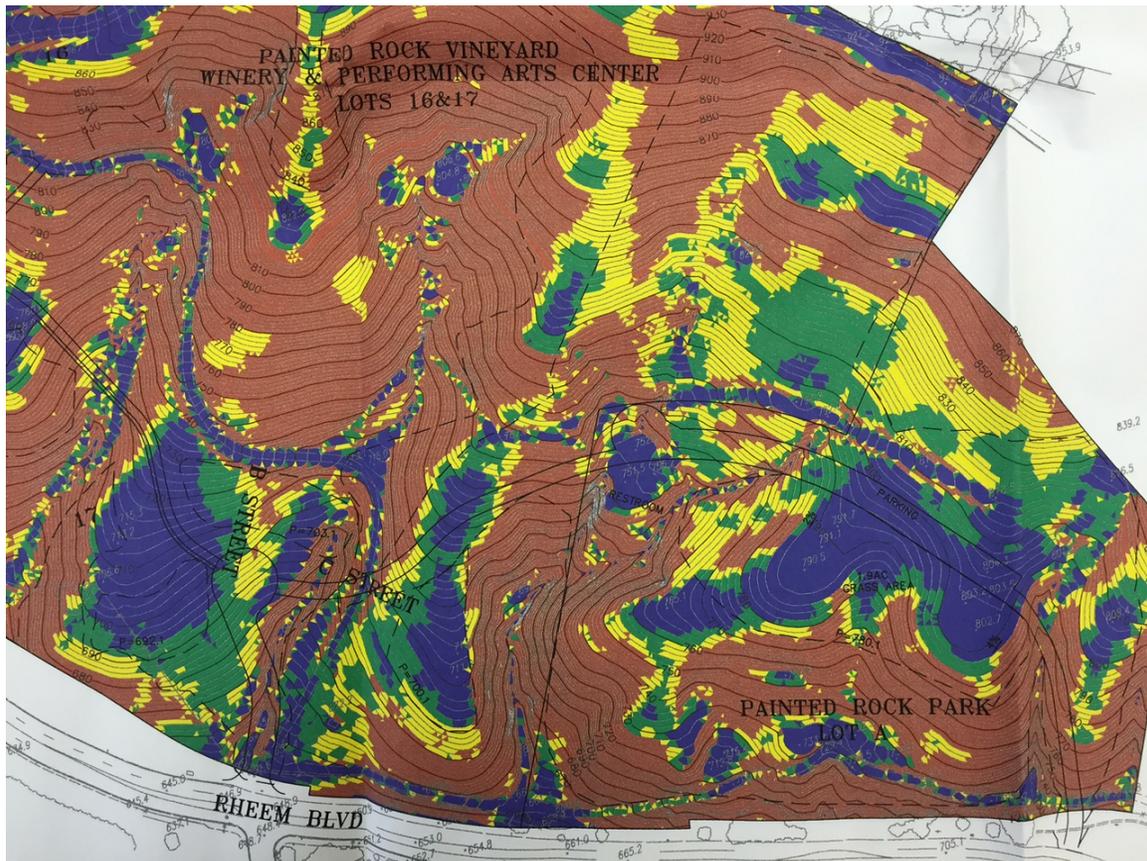
As presented in Option 7-D, The slope category map could be used to prohibit development in steep slope areas even if the average slope of the site is less than 20 percent, or allow development in relatively flat areas on sites with an average slope of 20 percent or more. The slope category map could supplement the current system for calculating average slope of a cell or site, or replace it.

Option 6-E: Calculate Slope for Entire Property; Exclude Undevelopable Areas

Calculate the average slope for an entire unsubdivided property, excluding undevelopable areas. This approach to calculating average slope is used by the Cities of Lafayette and Larkspur. With this option, Moraga will define allowable exclusions from slope calculation area, similar to those in Lafayette. In Lafayette, exclusions must comply with the following rules:

- » The excluded area must consist of a distinct topographical feature of the parcel such as a deep ravine, creek bank, or steep cut and fill bank for a street, the slope of which varies substantially from and is inconsistent with the topography of the remainder of the parcel;
- » The total excluded area may not exceed 25 percent of the total area of the unsubdivided parcel;
- » The unexcluded area must meet the maximum density requirements of the applicable zoning district;
- » The total excluded area may not be used in a calculation for density;
- » Excluding an area that would be subject to regulations or restrictions relating to hillsides and ridgelines may not be used to exempt the unexcluded area from these requirements;
- » The total excluded area is precluded from further development and, when appropriate, shall be protected by an open space, scenic or conservation easement.

Figure 12: Example Slope Category Map Prepared for Painted Rock Property



Color	EX. GROUND SLOPE (%)	Area (A.)	% TOTAL AREA
	0 - 20	13.3	15.6
	20 - 25	9.6	11.2
	25 - 30	10.4	12.2
	> 30	52.1	61.0
TOTAL		85.4	100

ISSUE 7: DEVELOPMENT ON STEEP SLOPES IN MOSO OPEN SPACE

The Town currently prohibits development in MOSO Open Space on sites with an average slope of 20 percent or greater. There is a need to clarify how the Town applies this rule on lots containing slopes of varying steepness in different locations (e.g., slope greater than 20 percent in one area and less than 20 percent in another area).

Option 7-A: Prohibit Development in Steep Areas of Cells with an Average Slope of Less than 20 Percent

In cells with an average slope of less than 20 percent, prohibit development in areas of the cell with a slope of 20 percent or more.

Option 7-B: Allow Development in Steep Areas of Cells with an Average Slope of Less than 20 Percent

In cells with an average slope of less than 20 percent, allow development in all areas of the cell, including in areas with a slope of 20 percent or more.

Option 7-C: Eliminate Cells and Limit Development Using Fine-Grained Slope Calculation

Eliminate the use of average cell slope to determine if development is permitted. Instead, use a slope category map, described in Option 6-D, to identify more fine-grained areas with slopes of 20 percent or more, and prohibit development in these areas. Allow development in fine-grain areas with a slope of less than 20 percent if the project complies with all other applicable standards.

This option requires amendments to the MOSO Guidelines, which requires the use of cells to determine average existing slope, and prohibits development in cells with an average slope of 20 percent or more. The MOSO Initiative, however, does not reference cells or the average slope of a cell or development site. Instead, the Initiative simply states that “Development shall be prohibited on grades with a slope of 20% or greater.” Option 7-C, while a significant departure from the MOSO Guidelines and current practice, appears to be consistent with language in the MOSO Initiative.

ISSUE 8: HILLSIDE DEVELOPMENT PERMITS

The Town currently requires a Hillside Development Permit (HDP) to “clear, construct upon, or alter” land with a slope of 20 percent or greater. This requirement was established before the MOSO Initiative and the adoption of the Grading Ordinance, which also limits or requires special approval of grading activity on steep slopes, including hillsides. There is a need to consider if the Town should modify the Hillside Development Permit requirement given the other regulations and permit requirements that also apply to hillside development projects. The Town also needs to consider if HDPs should continue to be required for minor projects (e.g., retaining walls, small accessory buildings, or additions) on developed single-family lots.

It is important to note that projects requiring a Hillside Development Permit almost always also require Design Review, a Grading Permit, or some other discretionary approval. According to available Town records, of the recent projects that required an HDP, all but one required Design Review or some other type of discretionary approval.

Option 8-A: Eliminate the Hillside Development Permit

Amend the Municipal Code to delete Chapter 8.136 (Slope Density) from the Zoning Code. Deleting the Slope Density Chapter would eliminate the requirement for projects to obtain an HDP to “clear, construct upon, or alter” land with a slope of 20 percent or greater.

As noted above, almost all projects that would have required an HDP would still be subject to Design Review or some other discretionary approval. The Town would continue to review these projects relative to the criteria for these other permits and would continue to analyze projects under the California Environmental Quality Act (CEQA). This would enable the Town to continue reviewing the project relative to all of the HDP review criteria (Section 8.136.070) and to attach mitigation measures and conditions of approval as needed.

Option 8-B: Exempt Developed Single-Family Lots from HDP Requirement

Amend Chapter 8.136 (Slope Density) to waive the HDP requirement for most or all projects on lots with an existing single-family home. This would mean that small projects, such as a new retaining wall, accessory structure, or a small addition, on a developed single-family hillside lot would no longer require an HDP. These small projects would continue to require other types of permits as applicable, such as Design Review and Grading Permits, as described under Option 8-A. Such an exemption would need to clearly define what is meant by a “developed single family lot.”

Option 8-C: Exempt Projects Requiring Other Discretionary Permit from HDP Requirement

Amend Chapter 8.136 (Slope Density) to exempt projects subject to other discretionary approval(s) from also requiring a separate HDP. Projects subject to Design Review, a Grading Permit, or some other type of discretionary permit would not also need to obtain an HDP. Given that almost all recent projects required Design Review in addition to an HDP, few projects would require an HDP. All would continue to require other types of permits as applicable, such as Design Review and Grading Permits, as described under Option 8-A.

ISSUE 9: HIGH-RISK AREAS MAP

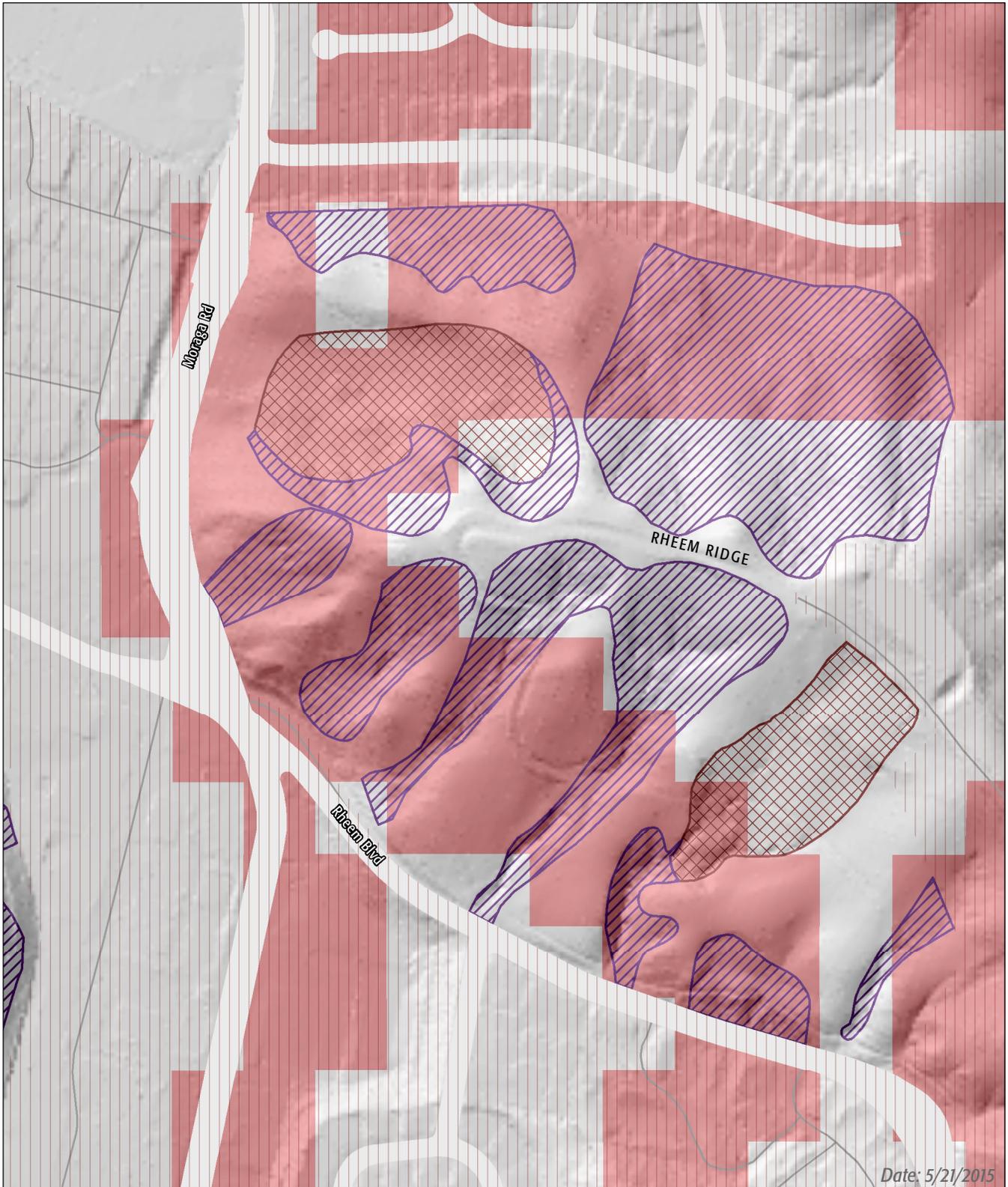
MOSO Guidelines Exhibit D (Development Capability Map), developed and adopted in 1989, establishes a preliminary determination of high-risk areas in Moraga. This map, which is based on data available at that time, divides Moraga into a grid of 200 foot by 200 foot squares, and assigns each square a numerical value between 0 and 9. A value of 0 means the square has the least development capability (i.e., is most constrained), and 9 means the square has most development capability (i.e. is least constrained). Per the MOSO Guidelines, squares designated 1, 2, 3, or 4 are determined, on a preliminary basis, to be “high-risk”.

The underlying data and methodology that were used to create the original map are no longer available, but the basic premise of the mapping is understood, whereby development capability within squares was assigned based on six physical attributes: ridgelines, landslide susceptibility, slope, flood hazard, vegetation, and soil erosion. The MOSO Guidelines state that this capability determination is preliminary and governs until more accurate data are submitted to and approved by the Town. The MOSO Guidelines also identify the following criteria for completing more comprehensive determinations of “high-risk” areas:

- a. Whether the area has the potential to be adversely impacted by a landslide [originating onsite or off-site], unstable soil, soil with a history of slippage or a slope subject to severe surface erosion or deterioration;
- b. Whether it serves as a natural drainage way or swale, with a drainage basin of 50 acres or more or crossed by a perennial or ephemeral (intermittent) drainage channel;
- c. Within 50 feet of a known active or dormant fault trace;
- d. Containing a regular or intermittent spring or adverse ground water conditions;
- e. Within 100 yards upstream or 500 yards downstream of a reservoir, detention basin or pond of one acre or more in surface area;
- f. Within an area subject to enhanced seismically induced ground shaking or a seismically induced ground failure such as a landslide, lateral spread, rockfall, ground lurching, liquefaction, soil settlement, differential compaction and compression;
- g. Within an area subject to the effect of seismically induced flooding and/or dam or stock pond failure.

Under current application of the MOSO Guidelines, these considerations are applied at the site, parcel, and/or “cell” level. Individual project applications must submit to the Town evaluations of site conditions that allow for final determinations of risk and therefore development capacity and/or the need for remediation.

The Town has the opportunity to decide whether and how to update the high-risk areas shown in this map, since no updates have occurred since the map was first created in 1989. Figure 13 illustrates areas where previous development capability mapping does not appear to correspond with more recent landslide hazard mapping efforts undertaken as part of the Hillsides and Ridgelines Project.



Data Sources: Town of Moraga, 2013; Cotton Shires, 2014; Contra Costa County, 2013; USGS, 2006, 2013; PlaceWorks, 2014.

Date: 5/21/2015

FIGURE 13

**EXAMPLE COMPARISON OF
1992 DEVELOPMENT CAPABILITY
FROM TOWN OF MORAGA EXHIBIT D
AND 2014 LANDSLIDE MAPPING**

1992 Development
Compatibility

Low capability

Areas not included in landslide mapping

Shallow unstable, unconsolidated material on gentle to steep slopes, commonly less than 10 feet in thickness, subject to shallow landsliding (includes identified shallow landslides and potentially unstable colluvium).

Deep unstable, unconsolidated or detached materials on moderate to steep slopes, commonly more than 10 feet in thickness, subject to more significant landsliding (includes identified deep landslides and earth materials susceptible to deep failure).



Option 9-A: Continue to Use the 1989 Development Capability Map for Preliminary Risk Determination

Continue to use the existing Development Capability Map (Exhibit D from the MOSO Guidelines) for the initial assessment of risk in order to guide development and make determinations regarding permissible residential densities. Individual project applicants would continue to conduct site-level assessments for the purpose of making final risk determinations.

Option 9-B: Develop a New Development Capability/High-Risk Areas Map for Preliminary Risk Determination

Develop and adopt a new high-risk areas map using updated data and methodologies that mirror those used in the creation of the 1989 Development Capability Map. Under this option, the Town would decide what factors to consider when determining high-risk status and also identify the appropriate size for the cells used in the map. The Town would use recent data to create the new high-risk areas map, and integrate detailed source data and methodology information with the incorporation of the new map into the MOSO Guidelines. Project applicants would continue to be required to provide information to the Town in order to complete a final, site-level risk assessment for the determination of residential densities and need for remediation.

Option 9-C: Eliminate the Use of Preliminary Risk Determination. Develop a New High-Risk Areas Map for Use in Risk Determination.

Adopt a new high-risk areas map based on data at a sufficient level of detail such that the Town can eliminate requirements for project-level reassessment of risk levels. The Town would amend the MOSO Guidelines to create a single process for assessing risk on a project site. Determinations regarding maximum allowable residential density and the need for remediation would be based on this single risk assessment. Project applicants would be allowed to conduct site-level assessment if they choose, but would be required to meet certain standards for methodology and data quality that mirror those used by the Town-wide map. Project applicants that perform an approved site-level study of high-risk areas would be allowed to use their assessment to request removal of the high-risk designation from appropriate areas of the project site.

ISSUE 10: REMEDIATION OF HIGH-RISK AREAS

High-risk areas are areas in MOSO Open Space where development potential may be limited due to the physical characteristics of the site that may create hazards. Section 3.a of MOSO and Section D of the MOSO Guidelines address high-risk areas and the resulting limitations on development potential. Residential development is allowed in high-risk areas, provided the residential density does not exceed 1 unit per 20 acres. Per current regulations, these restrictions related to high-risk areas do not apply outside of MOSO Open Space areas. However, in practice, the Town has often required similar analysis of landslide hazards and other risk factors when considering development proposals in non-MOSO Open Space, since the Zoning Ordinance allows discretion in determining allowable density for these sites, including consideration of geotechnical constraints.

The Town needs to decide whether landslide hazard remediation in a high-risk may allow an increase in density to greater than 1 unit per 20 acres. Also, the Town needs to clarify if regrading associated with hazard remediation may produce new slopes greater than 20 percent, either individually or on average within a cell.

Existing language in the MOSO Guidelines Section D.2 permits the removal of the high-risk designation through appropriate remediation that complies with CEQA, as well as Town regulations and policies. Nevertheless, neither the General Plan, the MOSO Guidelines, nor the Municipal Code currently address the specific question of whether remediation associated with a development project can be used to change this designation in a way that permits increased residential densities.

There is disagreement as to the purposes for which remediation and reclassification are allowed. Some believe the remediation should only occur as a means to remove hazards that threaten public health and safety (e.g. stabilization of a landslide that threatens existing homes or a road). Some feel that if geologic hazards are removed, densities on that portion of a site should be allowed to increase, at least partially, because remediation is costly and allowing more development to occur on remediated lands is necessary to pay for remediation. The issue is further complicated by the fact that a clear distinction cannot always be drawn between grading for public safety (or to allow minimal development), versus grading and remediation that removes hazards and thereby makes more of a site developable.

Options to address these issues should consider one of the basic purposes of the MOSO Initiative and implementing regulations, which is to protect the general health, safety, and welfare of Town residents. If the Town selects an option that either directly or indirectly discourages remediation of landslide hazards, this could run counter to the basic purpose of the MOSO Initiative and possibly create legal vulnerabilities for the Town.

As part of the potential revisions taking place under the Hillsides and Ridgelines Project, the Town of Moraga could decide to clarify this aspect of MOSO, the MOSO Guidelines, and the Municipal Code.

As a separate but related issue, to ensure consistency with State law, the Town would need to consider and adopt an amendment to the General Plan to establish a maximum permitted development intensity in non-MOSO Open Space lands.

Option 10-A: Prohibit Remediation for the Sole Purpose of Increasing Residential Density

Amend the MOSO Guidelines and Municipal Code to prohibit remediation that is solely for the purpose of increasing potential residential density for a development project.

Option 10-B: Allow Increases to Residential Density as a Result of Remediation

Amend the MOSO Guidelines and Municipal Code to clarify that remediation that is solely for the purpose of increasing potential residential density for a development project is more explicitly allowed.

Option 10-C: Conditionally Allow Increases to Residential Density as a Result of Remediation

Amend the MOSO Guidelines and Municipal Code to clarify under what circumstances increases to residential density is permitted as a result of remediation associated with a development project, subject to requisite findings, related discretionary approvals, and conformance with other aspects of MOSO. Under this option, the Town would specify how the purpose of remediation (e.g. for public safety, for a development project, or for both) would affect the ability of that remediation to increase potential residential densities.

If the Town elected to more explicitly permit increases to residential density as a result of remediation associated with development, the Town could continue to require applicants to conduct geotechnical studies, seek peer review, and or receive discretionary approval from a Town official or decision-making body. Some of the factors that could be considered for conditionally permitting increased development include:

- » Geotechnical findings
- » Final landslide risk
- » Conformity between engineered and natural slopes
- » Impacts to views and vistas
- » Final slope values

ISSUE 11: VIEWSHED PROTECTION

The General Plan and the MOSO Guidelines discuss the importance and need for protection of important views and viewsheds. However, neither of these documents currently establish specific standards for evaluating views or regulating development that may impact those views.

Moraga currently has several roadways designated as scenic corridors. Scenic corridors are roadways with a visual character important to Moraga’s identity and semi-rural feel. St. Mary’s Road, Canyon Road, Moraga Way, Moraga Road, Rheem Boulevard, Camino Pablo, and Bollinger Canyon Road are all identified as scenic corridors by the Town’s General Plan, with Donald Drive (along ridgeline of Mulholland Hill) additionally identified as a scenic corridor by the Zoning Ordinance.

General Plan Policy CD1.3 directs the Town to protect viewsheds along Town’s scenic corridors, but the Town has not adopted any detailed standards or criteria for evaluating the visual effects of development on these viewsheds. Moraga Design Guidelines Section 6: Enhance the Town’s Scenic Corridors, further specifies a series of 17 guidelines for development in scenic corridors. Additional guidelines related to views are included in Design Guidelines Section 3: Maintain the Town’s Semi-Rural Character and Section 4: Protect Ridgelines and Hillside Areas. Nevertheless, many of these guidelines are subjective in nature, and there is disagreement as to what is meant by terms such as “preserve” or “protect” in the context of views of hillsides and ridgelines.

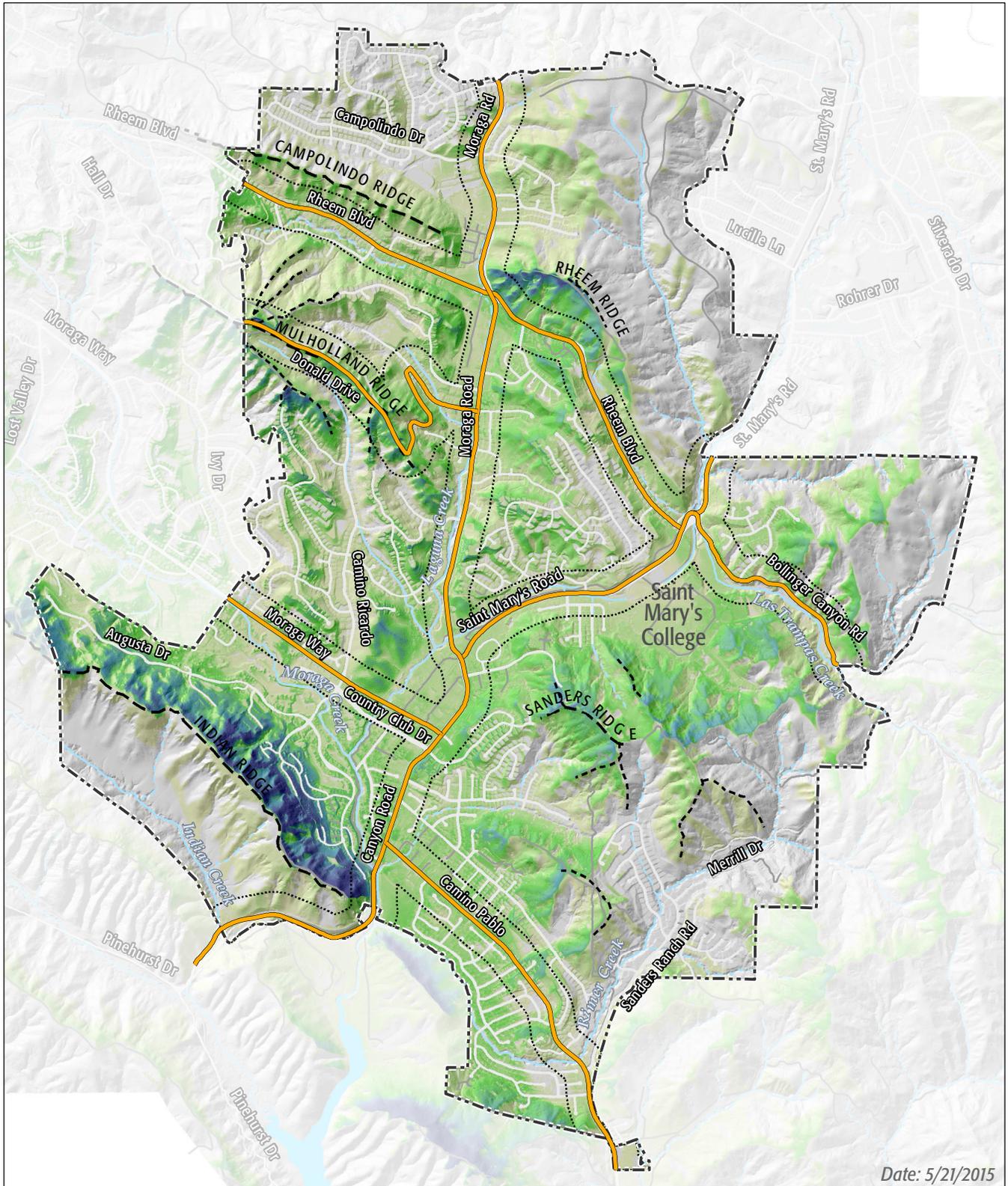
Many communities define or map their most important viewsheds or visual resources to help guide this type of evaluation. Figure 14 shows a quantitative, elevation-based evaluation of the overall visibility of Hillsides and Ridgelines in Moraga. This analysis was performed using GIS, and could serve as a basis for regulations discussed under the options below.

As part of the Hillsides and Ridgeline Project, the Town may consider the following issues and questions relating to scenic corridors, views, and viewsheds:

- » What criteria should the Town use to determine compliance with General Plan Policy CD1.3 and applicable provisions of the Design Guidelines?
- » What standards should the Town use to determine if a project has a significant adverse impact on a visual resource?
- » What are the Town’s most important viewsheds?

Option 11-A: Exclude Development from Designated View Areas

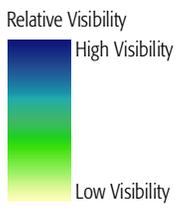
Amend the General Plan maps, MOSO Guidelines, and the Zoning Ordinance to prohibit or limit development in specific areas in order to protect critical views. The Town would use a combination of objective criteria, such as technical measures of visibility, and subjective, publicly-guided selection of key views, in order to designate the areas where new development is constrained.



Date: 5/21/2015

Data Sources: Town of Moraga, 2013; Contra Costa County, 2013; USGS, 2006, 2013; PlaceWorks, 2014.

- Town Boundary
- MOSO Minor Ridgelines
- MOSO Major Ridgelines
- Major/Permanent Stream
- Minor/Intermittent Stream



- Town-designated Scenic Corridors
- 500-foot Buffer of Scenic Corridors

FIGURE 14 SCENIC CORRIDORS AND HILLSIDE VISIBILITY

Visibility determined using view-points every 200 feet along Town-designated scenic corridors.



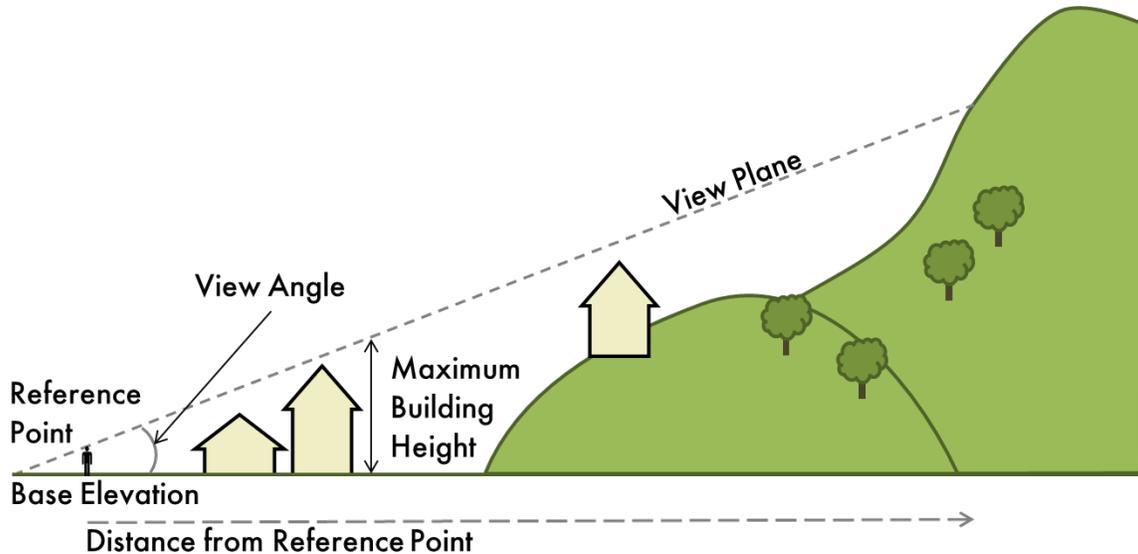
Option 11-B: Adopt Town-wide or Site-Specific Design Guidelines to Protect Views

Amend the MOSO Guidelines and the Zoning Ordinance to require adherence to design guidelines either Town-wide or in specific areas within selected viewsheds. The Town would develop and implement guidelines that serve to eliminate or lessen impacts of new development on views. Such guidelines could include height and bulk restrictions, landscaping requirements, materials palettes, and/or requirements that buildings conform to natural slopes, among other options. This could encompass similar guidance as suggested in options 4-A and 4-B for ridgeline protection.

Option 11-C: Adopt Height Restrictions

Amend the MOSO Guidelines and the Zoning Ordinance to establish building height limitations that are either absolute or location-dependent, with the latter allowing only for heights that do not obscure critical views. As discussed under Issue 4, Ridgeline Protection, such requirements could include prohibitions on structures that are “silhouetted” against the sky. The Town could also adopt restrictions on structures within a certain vertical distance of ridgelines or other features. Alternatively or in addition to the previous requirements, structures could be prohibited from projecting above a “view plane” established using a particular angle, elevation, and/or location. This approach is similar to provisions of Option 4-B and has been used by the city of Denver, CO to protect views of the Rocky Mountains.

Figure 15: Illustration of View Plane



Source: PlaceWorks

ISSUE 12: BUILDING SIZE

Chapter 8.52 of the Municipal Code currently establishes limits on the density of residential development in MOSO and non-MOSO Open Space areas, but does not include limits on building footprints or overall building size. Decision makers and some community members have expressed a desire to limit the size and bulk of structures in MOSO and non-MOSO Open Space areas. The Town's Design Guidelines include Floor Area Ratio (FAR) standards that limit maximum building floor area based on lot size; however, lots that are over 20,000 square feet are not subject to an FAR limit. Figure 16 illustrates the concept of FARs.

Amending the Floor Area Ratios (FAR) standards to encompass lots over 20,000 square feet, and/or establishing an absolute maximum building size for lots on MOSO and/or non-MOSO Open Space, regardless of lot size, could be used to address this issue.

Option 12-A: Establish FAR Limits

Amend Chapter 8.52 of the Municipal Code, and/or Design Guidelines to limit the FAR of new structures in MOSO or non-MOSO Open Space. Such FAR limits could be standard for all parcels, or they could vary based upon criteria including but not limited to average slope, parcel size, site visibility, and/or site hazard level. Limiting FARs based on land use or other site-specific factors is an approach employed a diverse array of municipalities in California and elsewhere throughout the country.

Option 12-B: Establish Absolute Square-Footage Limits

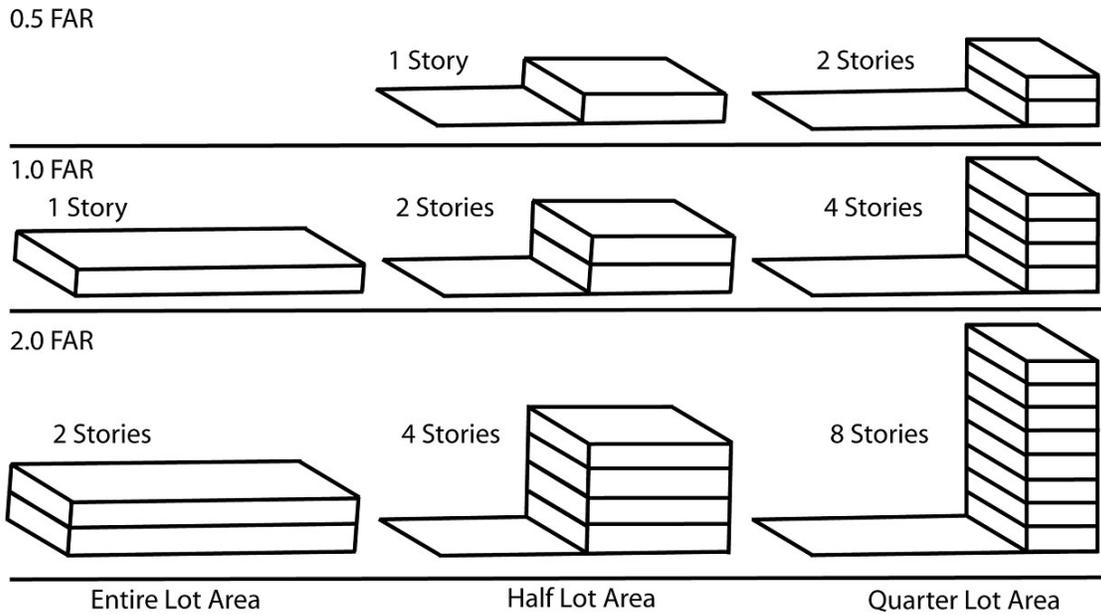
Amend Chapter 8.52 of the Municipal Code and/or Design Guidelines to limit the absolute total square footage of new structures in MOSO or non-MOSO Open Space. Such square footage limits could be standard for all parcels or could vary based upon criteria including but not limited to average slope, parcel size, site visibility, and/or site hazard level.

Option 12-C: Do Nothing

Make no change to Chapter 8.52 of the Municipal Code or Design Guidelines with respect to building size or FAR. The size of residential buildings would continue to be determined by existing limitations and/or discretionary review of proposed projects.

Figure 16: Illustration of FAR

Exhibit 23.84A.012 A
Floor Area Ratio



Source: City of Seattle, WA Land Use Code