

**Visual and Line of Sight Assessment Report
Reconstruct Housing and Infrastructure Destroyed by Fire
#316133
Rocky Mountain National Park
Grand County, Colorado
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Rocky Mountain National Park

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ON THE COVER

View southeast towards Shadow Mountain, Rocky Mountain National Park
Image credit: DHM Design, 2021

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Abstract

As Rocky Mountain National Park (ROMO) continues to serve as an opportunity for visitors to engage and experience the vast mountain and prairie environments of the mountain-west, it is imperative to understand and consider any visual experiences that may be impacted with any potential development within the park boundaries. ROMO conducted a Visual and Line of Sight Assessment for the proposed housing site selected for reconstruction of housing and infrastructure destroyed by the East Troublesome Fire. This assessment identified the area of visual effect, compiled a visual inventory, analyzed line of sight and determined any changes to the visual character of the landscape.

Park staff selected three (3) viewpoints for review at the west entrance of the park. Through several visual assessment methods including GIS mapping, digital elevation modeling (DEM) and photo documentation, this visual assessment determined impacts to the visual experience and overall scenery experienced by visitors, staff, and adjacent land owners are minimal for the proposed park housing development. From all three (3) viewpoints selected, the proposed project results in a neutral impact to the visual experience.



Figure 1. The project site within Rocky Mountain National Park. (Source: NPS Park Map; DHM Design, 2022)

1. Introduction

The mission of the National Park Service (NPS) aims to “preserve unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations” (NPS, ‘About Us’, accessed 07 February, 2022). It is through this framework that ROMO looks to evaluate the visual and experiential impacts of proposed housing buildings at the west entrance of the park. The purpose of the proposed project is to provide adequate housing to meet the seasonal staffing requirements for the park’s Colorado River District (CRD). The NPS is proposing to construct a new housing complex near the existing Colorado River District Housing Area. A combination of dormitories, one- and two-bedroom units, RV sites, and a residential support facility (22 bedrooms total) would meet immediate housing needs and replace housing and RV sites lost in the East Troublesome Fire in 2020. Proposed units will include utility infrastructure and site improvements including gathering space, trail connections and tree plantings just west of CR 491.

1a. Project Description as Written in the Scope of Services

In order to better understand the impact of reconstructing new housing structures within the park, ROMO will use this visual assessment as a means of evaluating the proposed housing site through a variety of different tools. These tools include photo documentation, GIS mapping, viewshed analysis and graphical renderings/photomontage of the proposed project (SOS Task Order, 52-53).

The specific objectives of the Visual and Line of Sight Assessment are to:

- Identify and map the location and extent of the project viewsheds on a map, along with the area of visual effect and provide a brief project description.
- Identify three key observations points and analyze the current conditions. Briefly identify visual resources of the natural, cultural and project environments as a description of the visual character of the project area, including:
 - Identify the viewing experience of travelers and neighbors;
 - Identify visual quality from a viewer’s perspective about the existing environment;
 - Describe the visual character including buildings and roofline form, scale, massing, exterior lighting, materials, color, architectural style, and detailing.
- Assess the visibility from the start of a line to the end of the line to assess the visibility of the rooflines from the three (3) viewpoints. Establish distance zones from the position of the viewer in relationship to the landscape along key views from the three (3) viewpoints.
- Define how the visual character of the landscape will change as a result of the project, including:
 - Describe potential impacts to visual resources and the experience of viewers from the viewpoints. Define the degree of impacts as beneficial, negative, or neutral.
- Prepare a visual quality impact matrix to analyze and develop a narrative description of the impacts to visual quality from the three (3) viewpoints.
- Describe how mitigation strategies to avoid, minimize, or compensate for potential negative visual impacts from the three (3) viewpoints will be implemented and how any beneficiary visual impacts could be incorporated into this project.

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2. Methods

2a. Identify the Area of Visual Effect

The visual assessment started with identifying the Area of Visual Effect, beginning with a geospatial study. Using GIS mapping tools, the visual assessment team created a map showing where the proposed buildings might be visible. The GIS map considered topography and height of the proposed buildings for the proposed site. Vegetation coverage data was not available for this study and was not incorporated in the mapping process. Using the GIS map of visibility, the team identified views from the proposed buildings to the surrounding park as well as views towards the proposed housing buildings and selected viewpoints for further analysis. These viewpoints and vistas were categorized into foreground, middleground and background view descriptions to help determine the degree of impact.

The visual assessment team assessed visibility from the proposed housing development from a 1-mile radius to evaluate potential new visible areas within and outside the park boundary (See Figure 2). There is no cultural landscape in the CRD, so the team looked for potentially key observation points in the park (for instance the view from Harbison Meadow Picnic Area). Since there were no major sites in the park potentially affected, the team focused on views from the perspective of adjacent neighbors.

Potential visible areas are prominent in most directions from the project site. Views to the northeast include expansive views towards Green Mountain and the Grand Lake Entrance Station. To the south, views open up towards the neighborhoods adjacent to Columbine Lake on the southwest and Tonahutu Creek Trail/ Grand Lake Lodge area to the southeast near the park boundary. Views surrounding the proposed housing units include the Kawuneeche Visitor Center to the east, barn and hay storage facilities to the south and surrounding wooded areas along the west border of the park. The buildings may be visible from Harbison Meadows and Green Mountain. To the south, neighbors outside the boundary at Columbine Lake to the southwest may see the buildings. People at the Kawuneeche Visitor Center to the east and the park's barn and hay storage facilities to the south may see the proposed housing development.

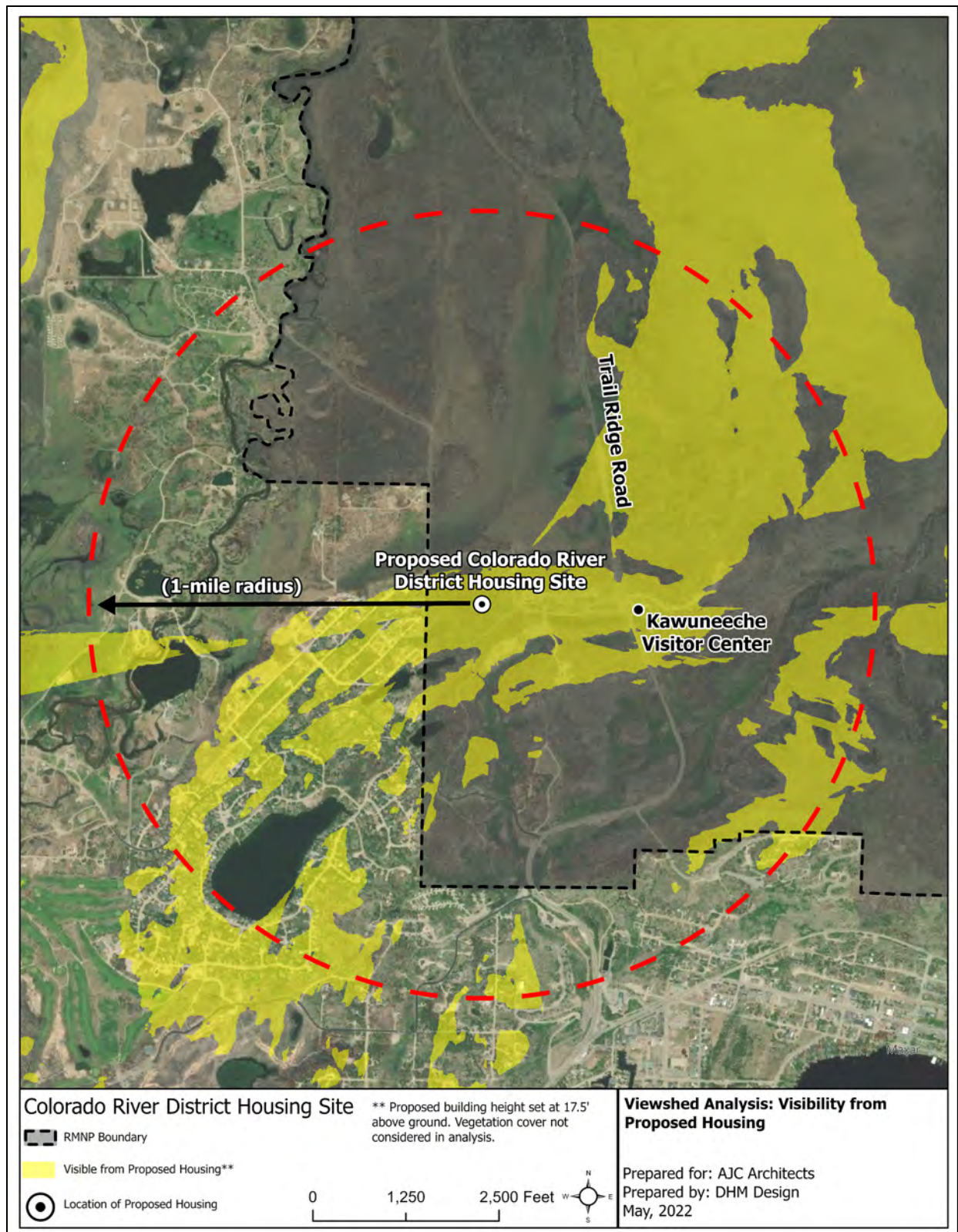


Figure 2. Viewshed Analysis, proposed housing development (Source: DHM Design, 2022)

2b. Visual Analysis

Visual Character

The visual or landscape character of a place describes the various physical objects and patterns within the landscape that are recognizable to a spectator (Meyer, M. E., K. Taylor, and K. Grantham, 6). With elevations that range from 7,860 to 14,250 feet above sea level, ROMO includes a variety of landscapes that can be defined by ecosystem type (NPS, 'Montane Ecosystem' accessed 28 February, 2022). The proposed building site is within a transitional zone between Montane and Sub-alpine ecosystems at about 8,600 feet above sea level and typically includes large meadow valleys, adjacent hilly slopes and a large diversity of plant and animal species. The vicinity of the proposed housing development site hosts visitor services and park administrative facilities. The visual character of the proposed housing site includes existing low-density development including buildings, utility lines, roads and vehicles, trails, signs and parking areas. People and wildlife such as deer, moose, birds, coyotes and occasional black bears move through the scene.

A uniform aged lodgepole pine forest spreads throughout the landscape with dense tree stands, reducing visibility in the area. Exotic plants such as cheatgrass create a visual plane and can often dominate the spare natural understory. Native plants, including herbaceous graminoid and forbs such as sedges (*Carex*), bunchgrasses (*Fescue*) and Lupines, also comprise the visual components of the lodgepole forest. The proposed housing development (Figure 3) will be located adjacent to a previously established NPS housing area on the west side of the park. The proposed site is 0.30 miles from the Kawuneeche Visitor Center and 0.40 miles from Grand Lake Entrance Station along the CR 491 corridor of development which includes existing staff housing, maintenance yard and barn just west of Trail Ridge Road. Setback a minimum 100 feet from CR 491, the proposed development will be along a new drive spur which intersects the existing housing area road.

The approximate nine acre proposed development will be located in one of the areas impacted by the East Troublesome Fire where the majority of mature lodgepole pine and spruce were badly burned or have fallen (DHM, 2). The proposed buildings will be similar in scale, massing and materials to the existing residences just east. Proposed units will also be consistent in size with the private residences in the adjacent neighborhood to the west outside the park boundary. These building characteristics include one to one and a half-story structures, gable metal roofing with wood-seeming aesthetics and horizontal elements tucked behind existing berms and vegetation. Buildings will be sited appropriately to protect existing mature vegetation not impacted by the fire, as well as working around the high point in the middle of the site to maintain natural features and reduce visibility. The proposed buildings and site improvements will be limited to the area between two existing trails on the west and south and CR 491 to the east and north. Adjacent natural resources such as Harbison Meadows and the Colorado River will be protected and the visual experience for these resources will remain unchanged.

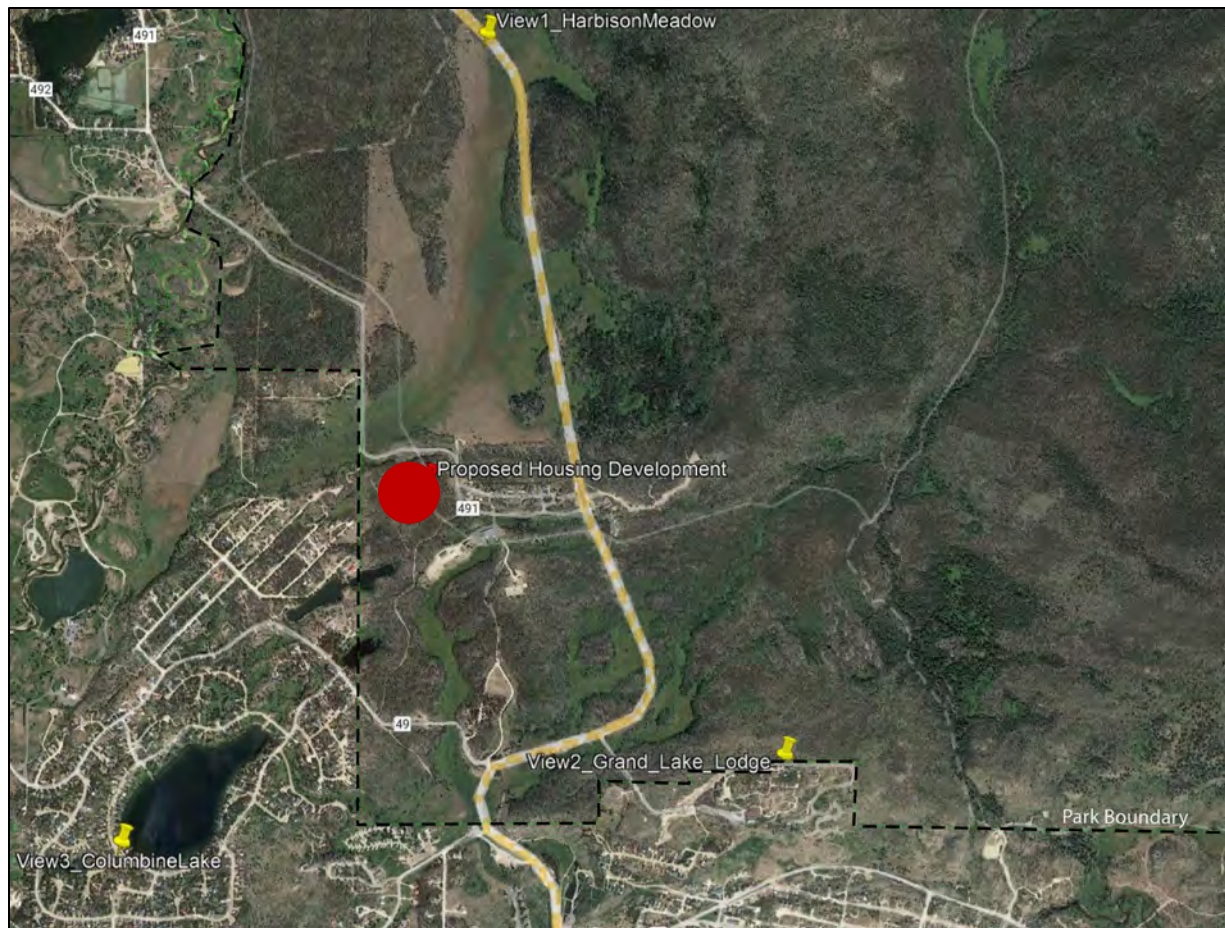


Figure 3. Proposed housing development at the west entrance of the park (Source: Google Earth, 2022)

2c. Line of Sight Analysis

In order to better understand the visual impacts of human-made features on the natural landscape, specific parameters can be established to evaluate spectator perception. One method for determination is using a line of sight analysis to define visual observation by the naked eye from select vantage points. Line of sight for this project will look to assess visibility of the rooflines of the proposed housing buildings from the three (3) NPS selected viewpoints. Distance between the observer and the feature is a key component in evaluating the overall visual impact and often defined in three zones: foreground, middleground and background (See Figure 22) (Strickfaden, Bennetts, Cowley, Frias-Sauter, 8). For this analysis, distance zones have been established as the following:

Foreground = 0.25 – 0.50 miles from vantage point

Middleground = 3.00 – 5.00 miles from vantage point

Background = 5.00 miles – beyond from vantage point

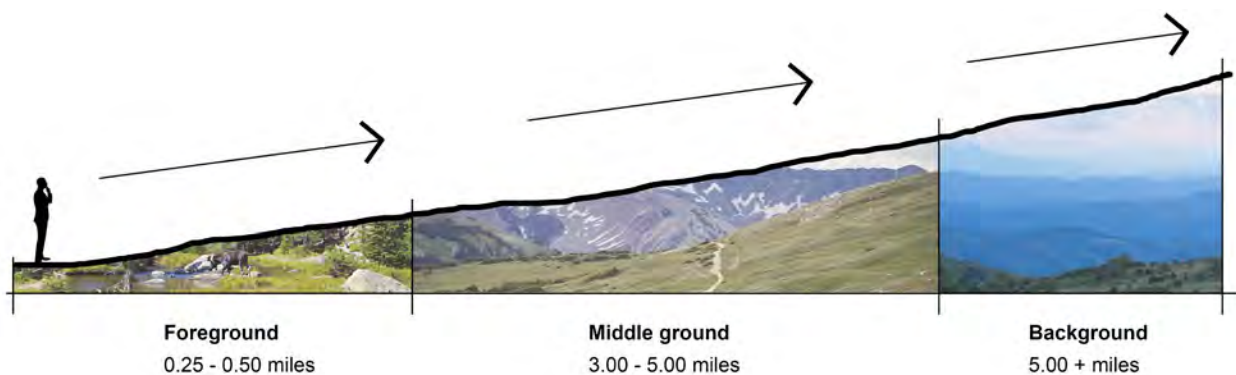


Figure 4. Distance Zones Diagram (Source: DHM Design, 2022)

Adapted from: 1995 USFS Landscape Aesthetics:
A Handbook for Scenery Management

Foreground

In the foreground zone, observers have the clearest perception and can easily identify variation in textures, colors, objects, movements and sounds. In natural environments individual tree branches, leaf clusters, wildflower clusters, and other detailed features are visible as well as human-built site features (Strickfaden, Bennetts, Cowley, Frias-Sauter, 9). Buildings or structures are prominent in line of sight and detailing of massing, rooflines, materials, and shadows are apparent.

Middleground

The middleground zone lends visibility to large groupings or masses of vegetation, however textures begin to disappear and colors neutralize (Strickfaden, Bennetts, Cowley, Frias-Sauter, 9). Some individual trees/ shrubs or birds may be visible. Building or structures are less prominent but still visible and may be limited to color and size in relationship to the surrounding landscape.

Background

The background zone typically limits detail visibility as objects become lumped together with some color distinction and sense of scale. An observer may be able to distinguish between a forest or open field however the type of vegetation may not be perceivable. Buildings or structures may be visible with roofline or color which contrasts surrounding natural environments.

2d. Degree of Impact

Through mapping, three-dimensional modeling, photo documentation and graphic rendering, a degree of impact for each vantage point assessed visual changes which would result from the proposed housing development. For this study, the primary visual resource identified is the surrounding natural landscape outside of the proposed housing development. The proposed building site is within a previously disturbed area impacted by the East Troublesome Fire in 2020. Three categories to determine the degree of impact were developed and can be defined as the following:

Beneficial

A beneficial degree of impact would consist of changes to visual resources that enhance or improve the visual experience of an observer. This may include the creation of new views that promote or encourage a visual resource that was previously non-visible or less emphasized. Another beneficial degree of impact may include restoration of previously impacted views by elements such as buildings, structures or overgrown vegetation.

Negative

A degree of impact considered negative would result in the harm, disruption or damaging impact to a visual resource. Alterations to views with contrasting elements (i.e. large-scale buildings in a natural environment) can result in the degradation of visual resources as an observer may experience obstructions or impairment of a previously unimpacted landscape.

Neutral

A neutral degree of impact typically results in a net zero change in experience towards a visual resource. Observers may experience minor changes to view however the overall character of the visual resource will be protected and maintain its quality.

3. Summary of Findings

3a. Visual Analysis of Proposed Project

After the Area of Visual Affect was established, the visual assessment team selected three (3) views for the visual resource inventory to determine potential visual impacts of the proposed housing units on the west side of the park. Three viewpoints, one within the park boundary and two in adjacent areas south outside the park, were selected for the proposed housing site. The proposed building units will be located immediately adjacent to an NPS housing area, however still in close proximity to high visitation areas like Grand Lake Entrance Station, Harbison Meadows and Kawuneeche Visitor Center. Visitors in this area include backpackers and trail users, horseback riders, snowmobilers and people in vehicles, some of which stop for views along the way. Residents in the adjacent neighborhood to the west are also in close proximity, with a housing density estimated at 1.6 houses/acre utilizing Grand County parcel GIS data. The team conducted an analysis to understand the visual impact of the proposed buildings from different perspectives such as the number of viewers, the viewer's distance from the site, the potential for vegetative change and the compatibility of the proposed buildings with the existing character of the landscape.

The team considered the distance the viewer would be from the proposed buildings. The area in yellow on the maps indicates potential visible area (See Figure 7 as an example). Areas indicated in yellow can have decreased visibility with larger distances between the viewpoint and proposed building site. As distance increases, objects begin to blend with one another and detail and texture are difficult to distinguish. Visibility typically becomes limited to objects through color and sense of scale, especially when objects contrast those around them. An additional consideration while reviewing the GIS mapping is potential changes in the natural landscape, specifically changes to vegetation over time. As evident with the East Troublesome Fire in 2020, natural disasters and other natural resources impacts like beetlekill can dramatically affect views of the natural landscape and should be considered while evaluating these viewpoints.

3b. Visual Analysis Tools

Maps have been compiled primarily with data available from open-source databases including Google Earth and the NRCS Geospatial Data Gateway (10m DEMs).

Line of sight analysis provided another visual mapping approach to understand both visible and non-visible aspects along a 'line' in a specific view. Each map indicates areas that may be blocked or screened by buildings, topography or vegetation from the viewpoint to the destination. This analysis was completed using GIS mapping line of sight tools.

Photo documentation and graphic renderings were another method used to illustrate potential changes in the visual experience for the viewer. Photos where proposed buildings may be visible include building models to indicate size, scale, and spatial organization only. For information on materiality, coloring, textures and other design considerations please refer to the visual building inventory section.

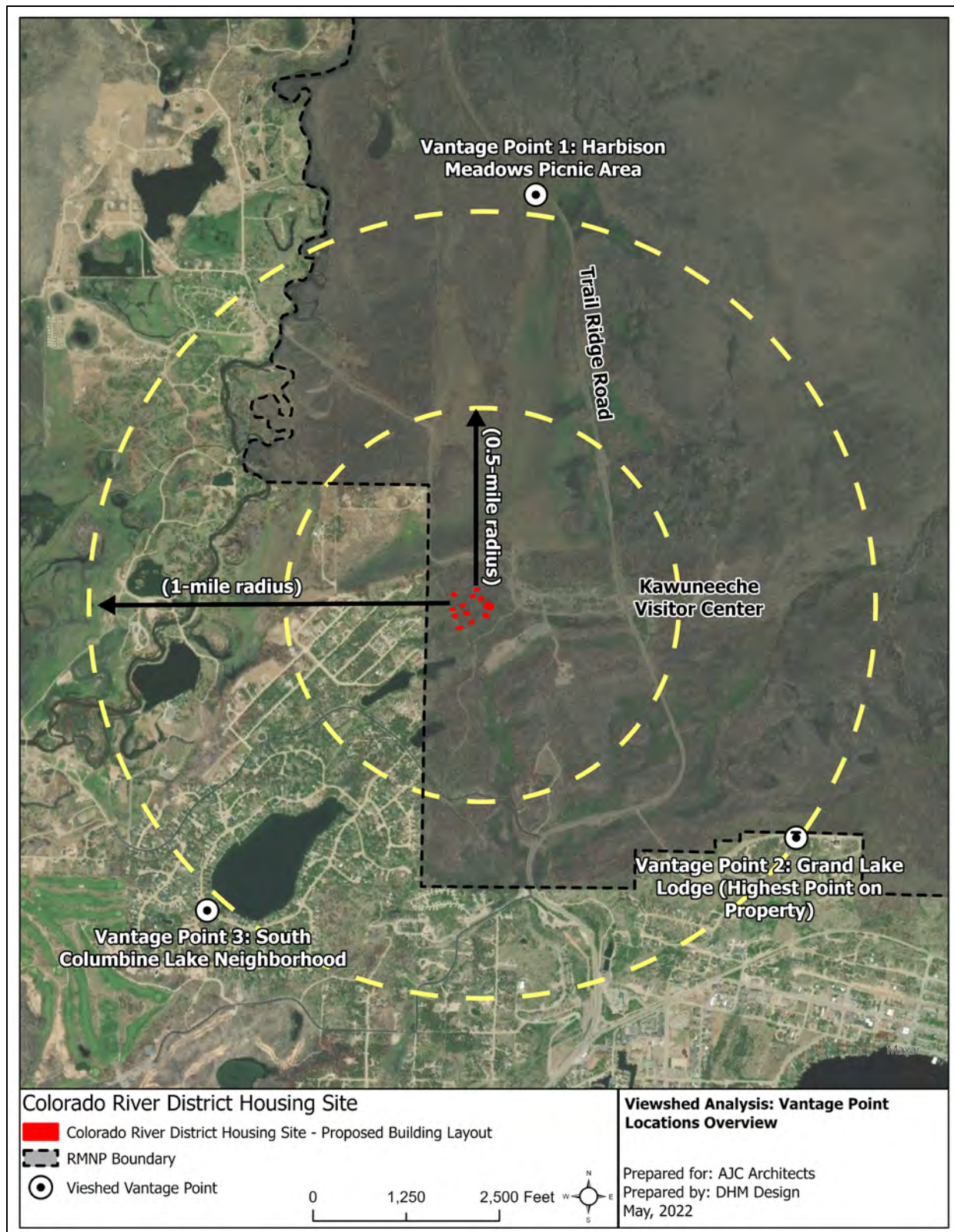


Figure 5. Proposed Housing Development Vantage Points (Source: DHM Design, 2022)

3c. Proposed Housing Development

Visual Building Analysis – Proposed Buildings

The proposed building designs have been developed in coordination with NPS and follow the 2011 Rocky Mountain National Park Design Guidelines which provide recommendations for new buildings and structures. The buildings will be an NPS prototype with modifications specific to this project and are reflective of a high elevation building style found throughout national parks in the western part of the country. This includes a dominant horizontal massing with vertical sub elements that mimic vegetation of the montane/sub-alpine ecosystem and fit within the natural landscape. Added decks will help articulate the massing and provide overhangs with areas of shade. Each building will be maintained at one to one and a half-levels with standard size door and window elements. Windows will be vertical, paired together, and consider limiting large facades of glass that could increase reflectivity towards neighbors. Roofs will be standing seam metal with pitches at 6:12 to assist in snow shedding and will be simple continuous horizontal forms.

Additional visual components of the proposed one-bedroom, two-bedroom and dorm buildings will consider setting, orientation and materials. Buildings will be sited to reduce tree removal and be oriented with windows to the south to maximize energy efficiencies like capturing winter solar gain. The proposed units will be clustered together and adjacent to existing residences which will limit overall disturbance and reduce utility costs. All proposed buildings will be sited to take advantage of the hillside and existing berms, work around mature lodgepole pines, and oriented at different angles along the proposed road which will follow natural topography. Grading modifications will ensure positive drainage away from the buildings. The prototypes will be sided with fire resistant cementitious siding and include timber framing at exterior columns and beams. Exterior lighting will be shielded down lights. Final building color has not been selected during the current stage of design and will be assessed in future phases in coordination with NPS.

Vantage Point	Vantage Point Offset (Height of Observer at established vantage point above ground level)	Surface Offset (to represent building height)	Coordinates (NAD 1983 HARN UTM Zone 13N)
1 – Harbison Meadows Picnic Area	6 feet (6.096 meters)	17.5 feet (5.334 meters)	40.282102N 105.838241W
2 – Grand Lake Lodge (Highest Point)	6 feet (1.8288 meters)	17.5 feet (5.334 meters)	40.258512N 105.825424W
3 – South Columbine Lake Neighborhood	6 feet (1.8288 meters)	17.5 feet (5.334 meters)	40.255624N 105.853721W
Proposed Housing Development	17.5 feet (5.334 meters) (tallest proposed building)	0	40.266975N 105.840628W (tallest proposed building)

Table 1. Viewpoints Inventoried at the proposed housing development (Source: DHM Design, 2022)

Vantage Point 1 – Harbison Meadows Picnic Area

Existing View

The team selected this viewpoint because Harbison Meadows Picnic Area is the first destination a visitor sees upon entry to the park, receiving high levels of visitation and foot traffic. Views to the south from the parking lot at Harbison Meadows Picnic Area are expansive as an observer scans from foreground to background. The vantage point reflects general height of eyelevel at six feet above the ground. Interpretive signage and the edge of the asphalt parking lot is visible in the foreground, making way to the vast open meadow in the middleground. The Grand Lake Entrance Station is hidden behind the hillside to the southeast in the middleground while cars driving north allow the viewer to identify sections of Trail Ridge Road ascending into the park. Lodgepole pine and spruce trees – many of which were impacted by the East Troublesome Fire – line the perimeter of Harbison Meadows in the middleground and define the edges of the meadow. The meadow extends furthest south directly central to the viewer’s perspective, making it difficult to identify anything other than color change in the background. Background views to the southeast include Shadow Mountain and the adjacent foothills. Farther still in the background are the distant mountains of the Gore range, although detail and textures are significantly limited because of distance.

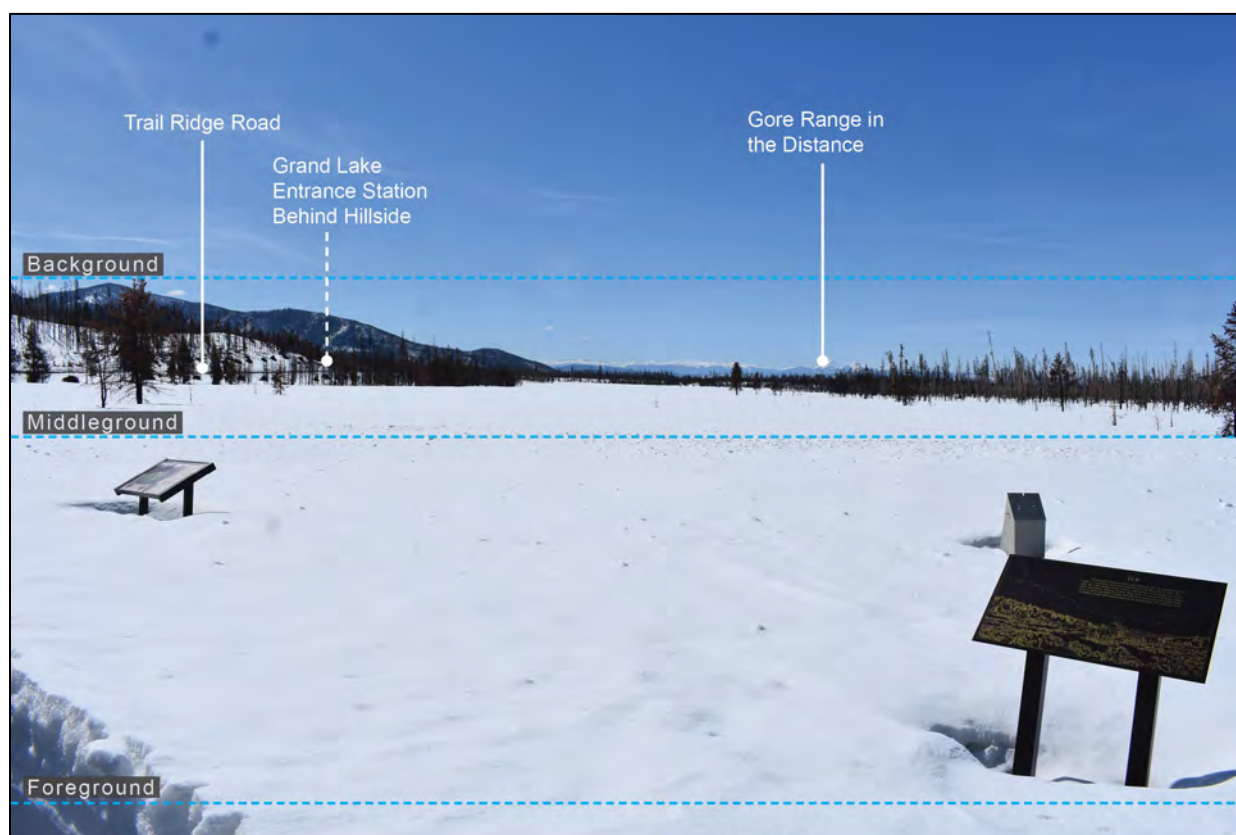


Figure 6. Existing view from Harbison Meadows Picnic Area looking south towards Grand Lake (Source: DHM Design, 2022)

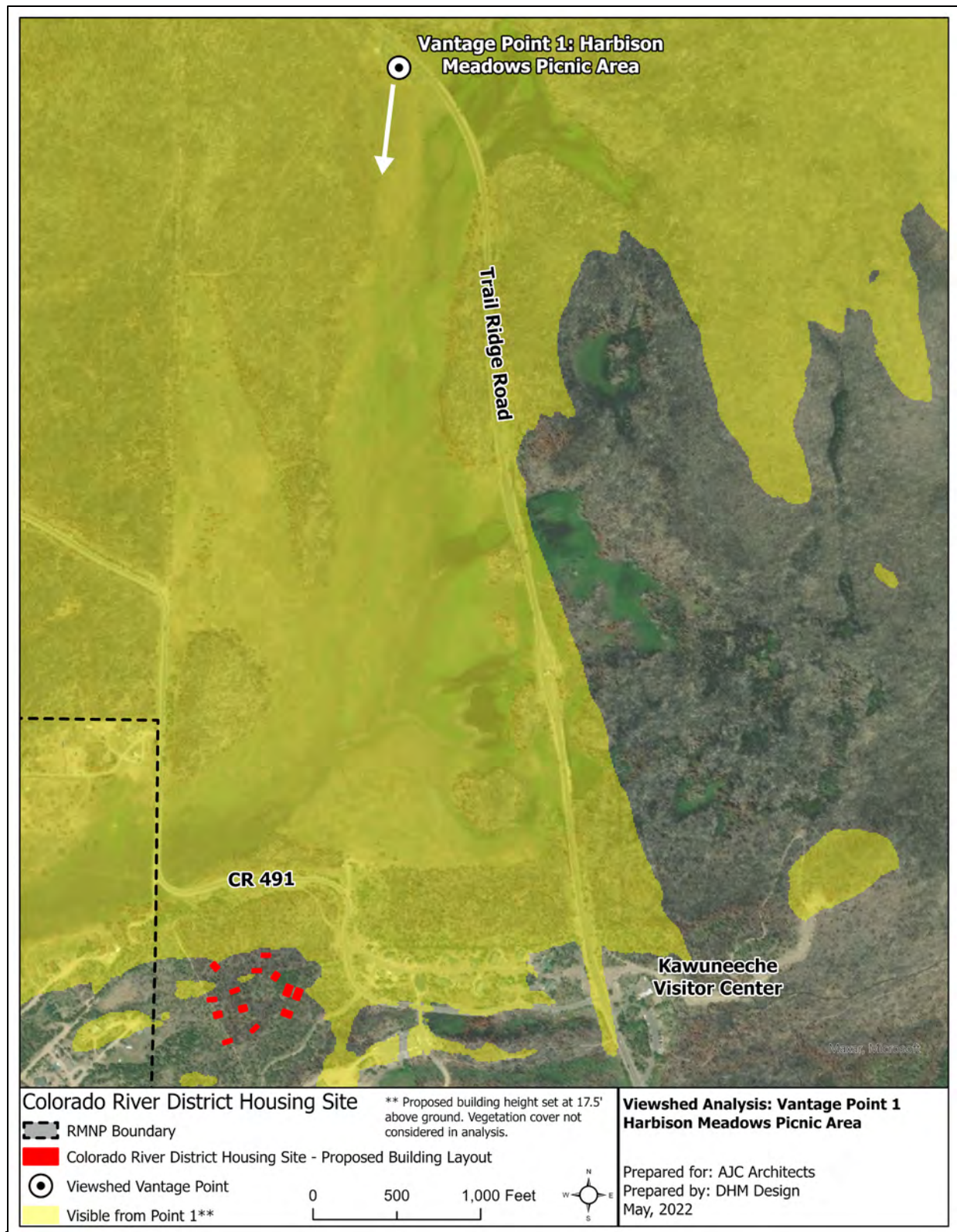


Figure 7. Viewshed Analysis Vantage Point 1, Harbison Meadows Picnic Area (Source: DHM Design, 2022)

Proposed View

Views to the foreground, middleground and background will be unchanged. From the Harbison Meadows Picnic Area, the viewer will not see the proposed housing as the steep hillside to the south is the initial point of obstruction. Distance from the vantage point and existing vegetation of the proposed housing site are additional limiting factors. Views of the foreground and adjacent area will remain the same, dominated by the large montane meadow and few site features other than the natural landscape. Middleground views will remain the same with the border of lodgepole pine and spruce trees defining the meadow edge. At this long-distance, the background view with the proposed housing development will remain unchanged as objects are not easily identified and color swaths continue to provide the only distinguishing characteristic. Views to natural resources such as Shadow Mountain and the surrounding Gore Range to the south will remain unimpacted.

The degree of impact for the proposed housing development from Vantage Point 1 is neutral. The proposed building location is far in the distance from the established viewpoint and completely screened by the adjacent topography. Views to the edge of Harbison Meadows in the south are limited without the assistance of visual aids such as binoculars or camera zoom. Even with changes to mature vegetation in this area from the East Troublesome Fire, the visual character of the natural landscape is unimpacted by views of buildings or structures.



Figure 8. Proposed view from Harbison Meadows Picnic Area looking south towards Grand Lake
(Source: DHM Design, 2022)

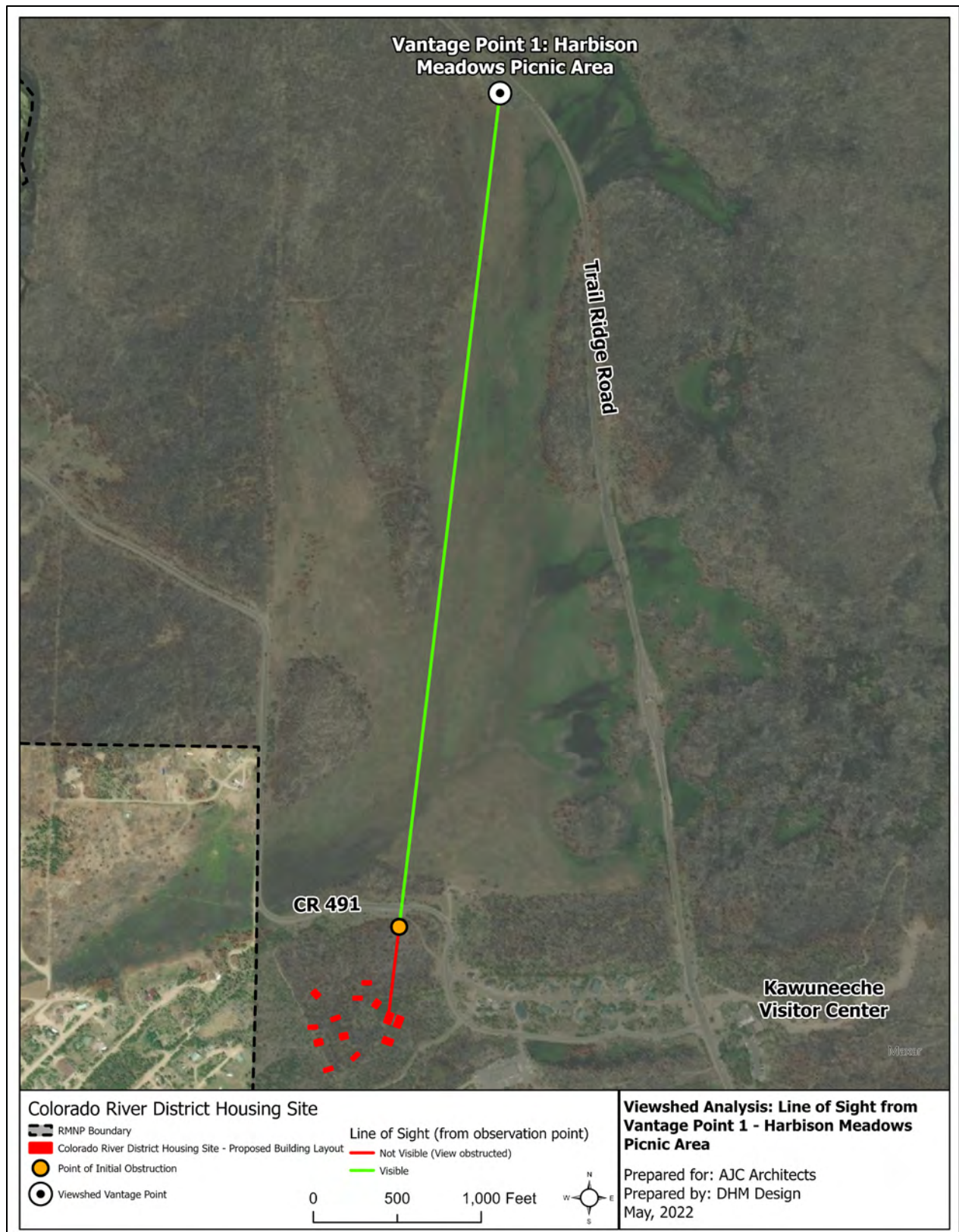


Figure 9. Line of Sight Vantage Point 1, Harbison Meadows Picnic Area (Source: DHM Design, 2022)

Vantage Point 2 – Grand Lake Lodge

Existing View

The team selected this viewpoint outside the park boundary because the Grand Lake Lodge is an historic property. The view from the front porch of the Grand Lake Lodge is spectacular and well known to locals and guests. This viewpoint, however, is from the rear of the lodge at the property's highest point. From just outside the park boundary, Vantage Point 2 has scattered views to the northwest toward the proposed housing development. The viewpoint was established at approximately six feet above ground level to reflect typical eye-level of a viewer. Views in the foreground include several structures on the Grand Lake Lodge property used for laundry services and winter season rentals for guests. Old Tonahutu Ridge Road is prominent in the foreground and connects to the adjacent gravel parking areas by the buildings. The middleground is dominated by a mature forest of lodgepole pine and spruce which screen views to the north and northwest, however large portions appear dead as a result of burn or beetlekill. Background views toward Bowen Mountain are filtered by the pine and spruce forest, which is also burned. To the west, views of Cascade Mountain and the surrounding mountains becomes visible as the hillside descends from the viewpoint and vegetation recedes. Grand Lake Lodge staff and visitors frequent this area to use the residential amenities, maintaining viewers throughout the year.



Figure 10. Existing view from the highest point at Grand Lake Lodge, looking northwest towards Cascade Mountain (Source: DHM Design, 2022)

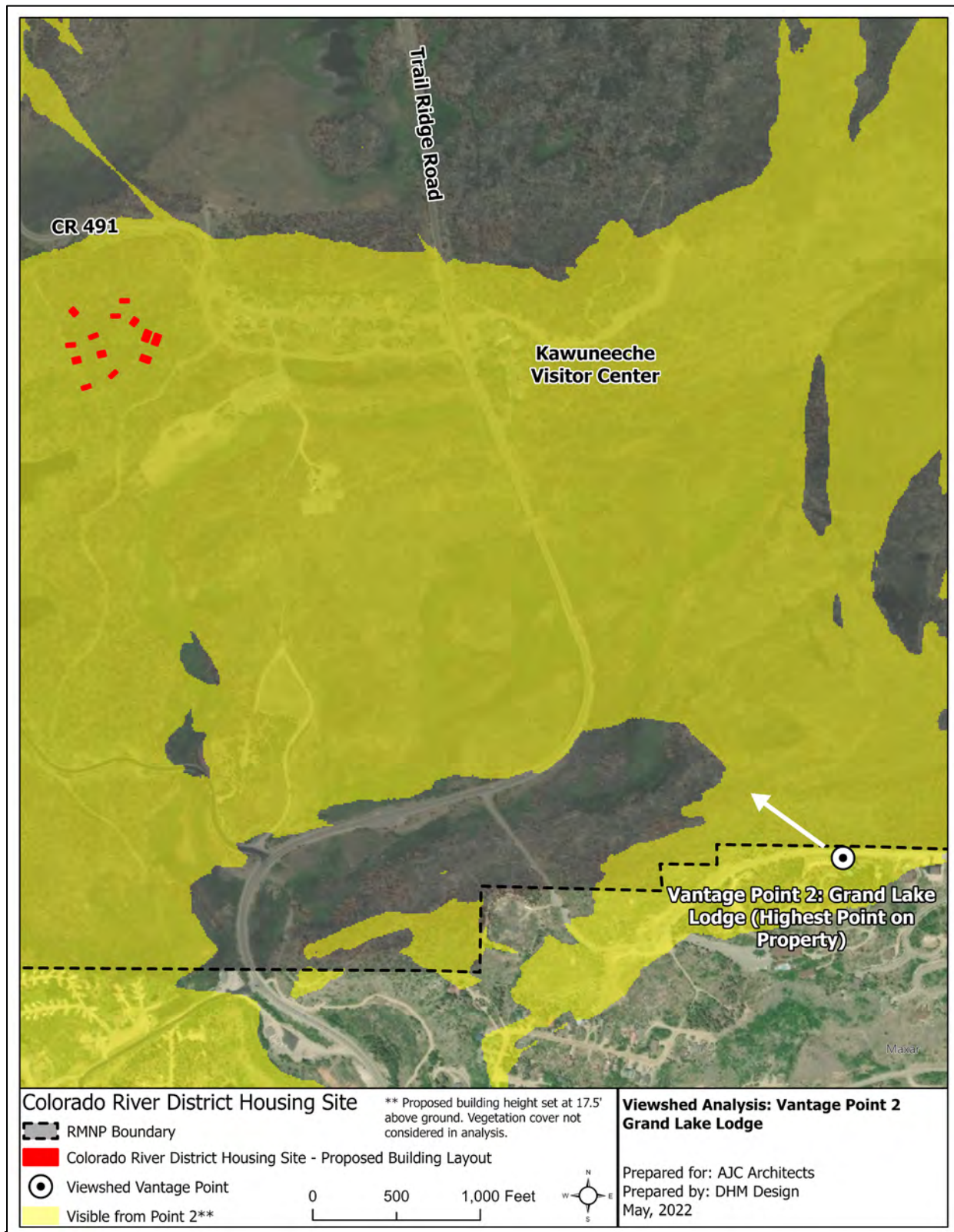


Figure 11. Viewshed Analysis Vantage Point 2, Grand Lake Lodge (Source: DHM Design, 2022)

Proposed View

Views to the foreground and middleground will be unchanged. Background views of the proposed housing development from Vantage Point 2 will be heavily screened and difficult to identify to the observer from the established viewpoint. The primary factors reducing visibility are long-distance proximity (approximately one-mile) and significant screening by the forest in the middleground. Foreground views of buildings and structures at the Grand Lake Lodge will remain the same. Although closer to the proposed site than Vantage Point 1, views from the highest point at the Grand Lake Lodge property retain similar visual limitations such as lack of detail, color distinction and sense of scale to the background zone. Views towards Cascade and Bowen Mountains in the background remain the same.

The degree of impact for the proposed housing development from Vantage Point 2 is neutral. The proposed building location is far in the distance at a lower elevation than the established viewpoint which allows screening by middleground vegetation. Changes to existing vegetation (i.e. burn/scarring) in this area are similar to Vantage Point 1, however background views to visual resources remain unimpacted. Scattered views through treeline are limited without the assistance of visual aids as variations in the natural landscape create visual complexity in colors, patterns and textures. It may be possible to see the proposed buildings if vegetation in the foreground and middleground is removed, although distance will limit visibility primarily to identifying scale and color massings.



Figure 12. Proposed view from the highest point at Grand Lake Lodge looking northwest towards Cascade Mountain (Source: DHM Design, 2022)

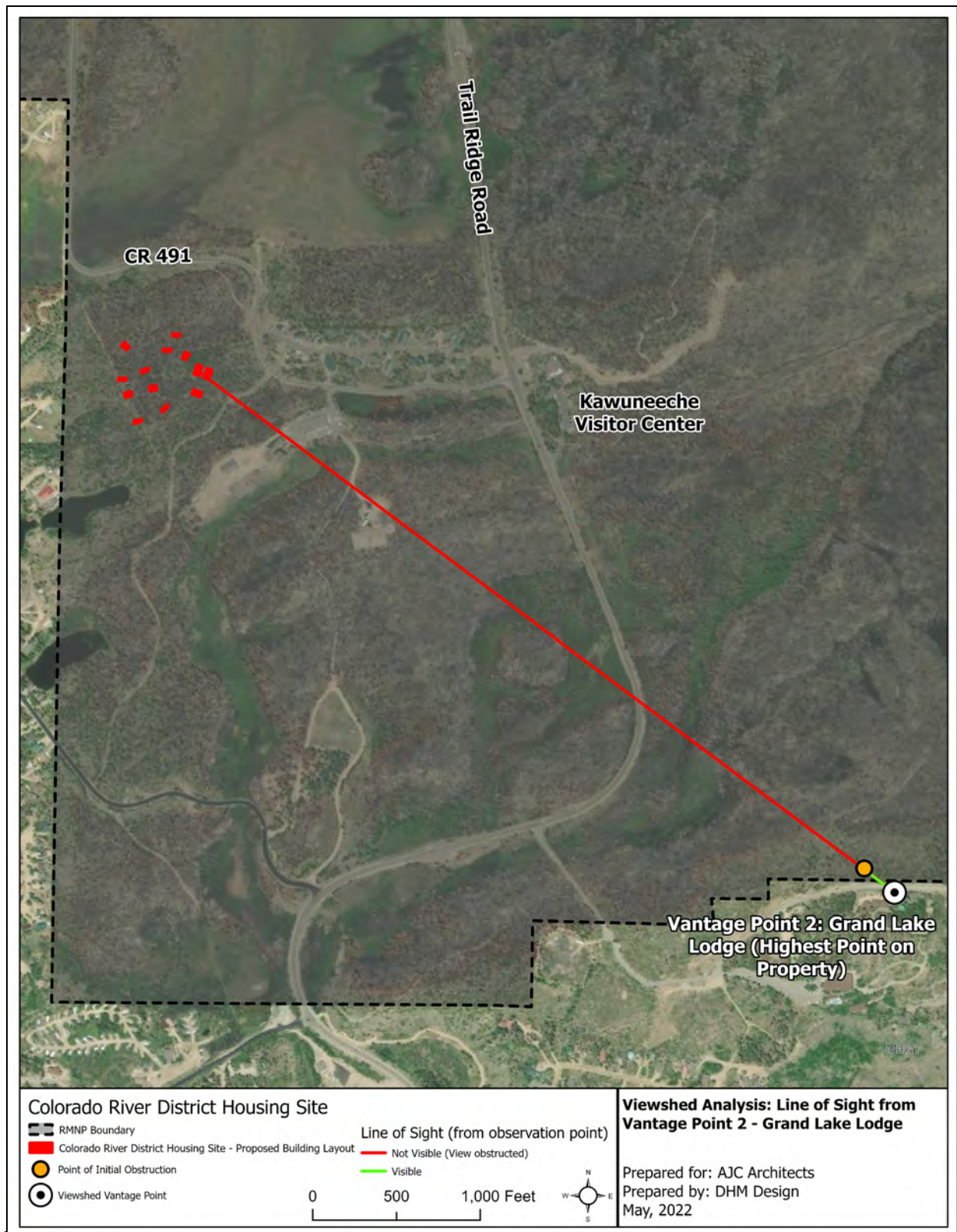


Figure 13. Line of Sight Vantage Point 2, Grand Lake Lodge (Source: DHM Design, 2022)

Vantage Point 3 – South Columbine Lake Neighborhood

Existing View

The team selected this view to represent what neighbors outside the park boundary would see to the southwest. Vantage Point 3 provides expansive views to the northeast from the south side of Columbine Lake just outside the park boundary. Located approximately one mile west of Trail Ridge Road, the viewpoint considers a six-foot eye-level perspective at the highest point within the South Columbine Lake Neighborhood. Views in the immediate foreground include private residences set below Columbine Drive which include gravel drives, deciduous and evergreen vegetation and other residential amenities. Just beyond the structures in the middleground is Columbine Lake. Additional buildings are visible on the far side of the lake, mixed with existing vegetation. Background views to the northeast include open views of Green Mountain and the adjacent foothills at the west entrance of the park. Located off a private drive, the viewpoint in the South Columbine Lake Neighborhood includes over 150 residences, some which are seasonally rented (Google Earth). Houses are densely located around Columbine Lake, taking advantage of views to the Lake and towards the larger mountain east in the park.



Figure 14. Existing view from South Columbine Lake Neighborhood looking northeast towards Green Mountain, the snow-covered lake is in the middleground. (Source: DHM Design, 2022)

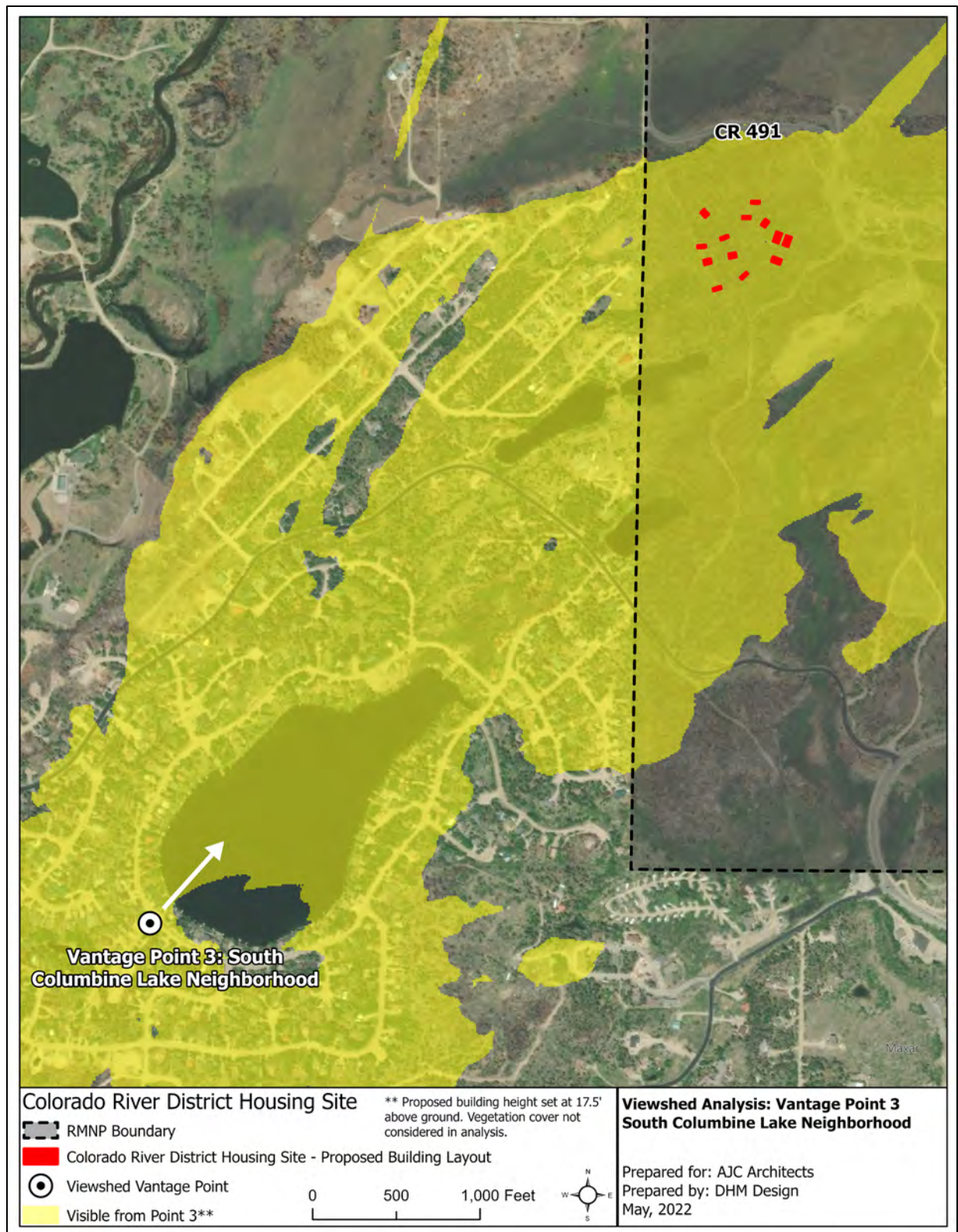


Figure 15. Viewshed Analysis Vantage Point 3, South Columbine Lake Neighborhood (Source: DHM Design, 2022)

Proposed View

Views to the foreground and middleground will be unchanged. Columbine Lake neighbors might see the proposed housing in the background, however visibility will be low as the proposed development is partially screened by a hillside south of the proposed site. Long-distance proximity, screening vegetation and buildings on both sides of Columbine Lake are additional physical elements limiting views. Views of the foreground and adjacent internal area will remain the same of the existing residences. Middleground views of Columbine Lake and the surrounding vegetation will be unchanged. Located at an elevation slightly lower than the proposed site, Vantage Point 3 is impacted by topography and existing vegetation north of Columbine Lake which further reduce long-distance visibility. Background views to Green Mountain and the adjacent foothills in the park remain unchanged.

The degree of impact for the proposed housing development from Vantage Point 3 is neutral. Significant distance between the observation point and proposed site contributes to reduced visibility in material, texture, and color swaths. As seen in the middleground north of Columbine Lake, a combination of mature vegetation and houses begin to blend together as the viewer's perspective fades into the background.

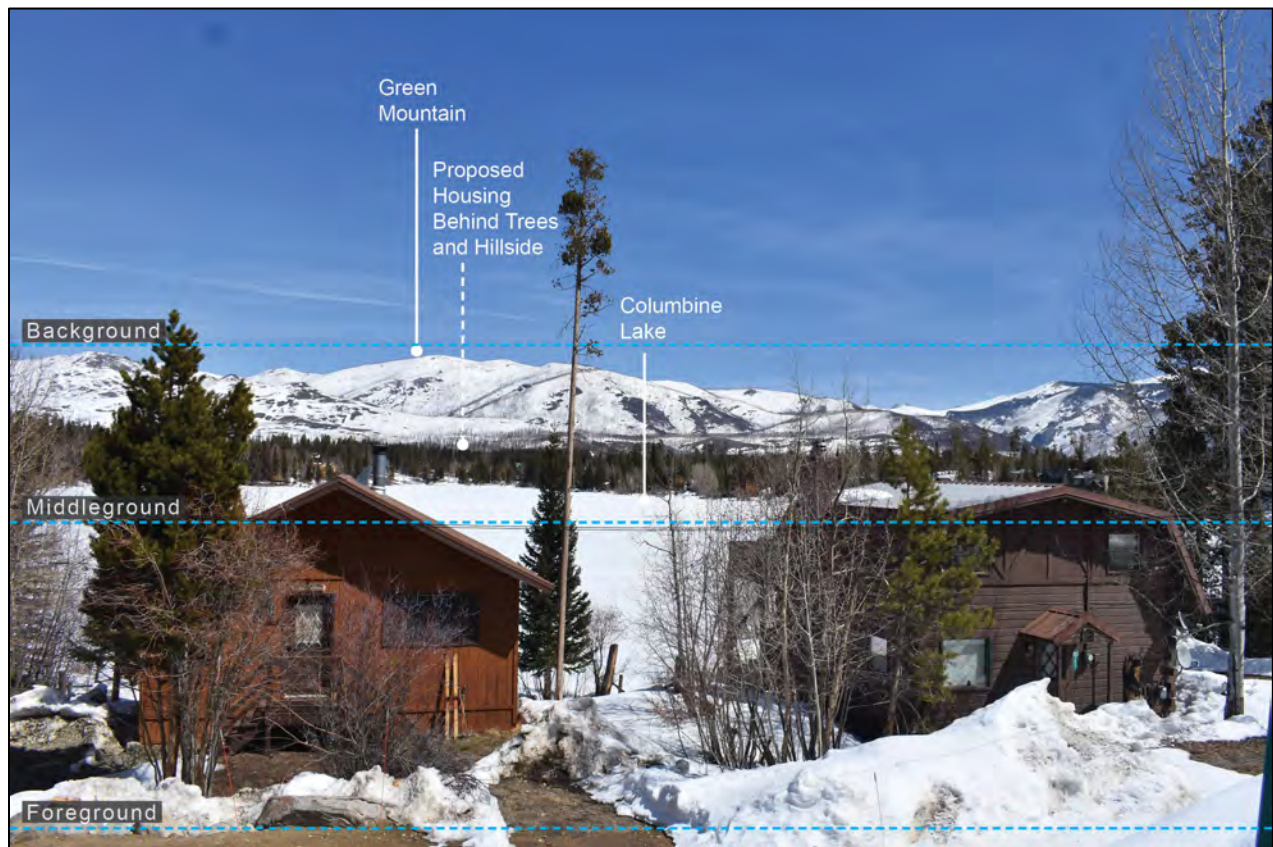


Figure 16. Proposed view from South Columbine Lake Neighborhood looking northeast towards Green Mountain, the snow-covered lake is in the middleground (Source: DHM Design, 2022)

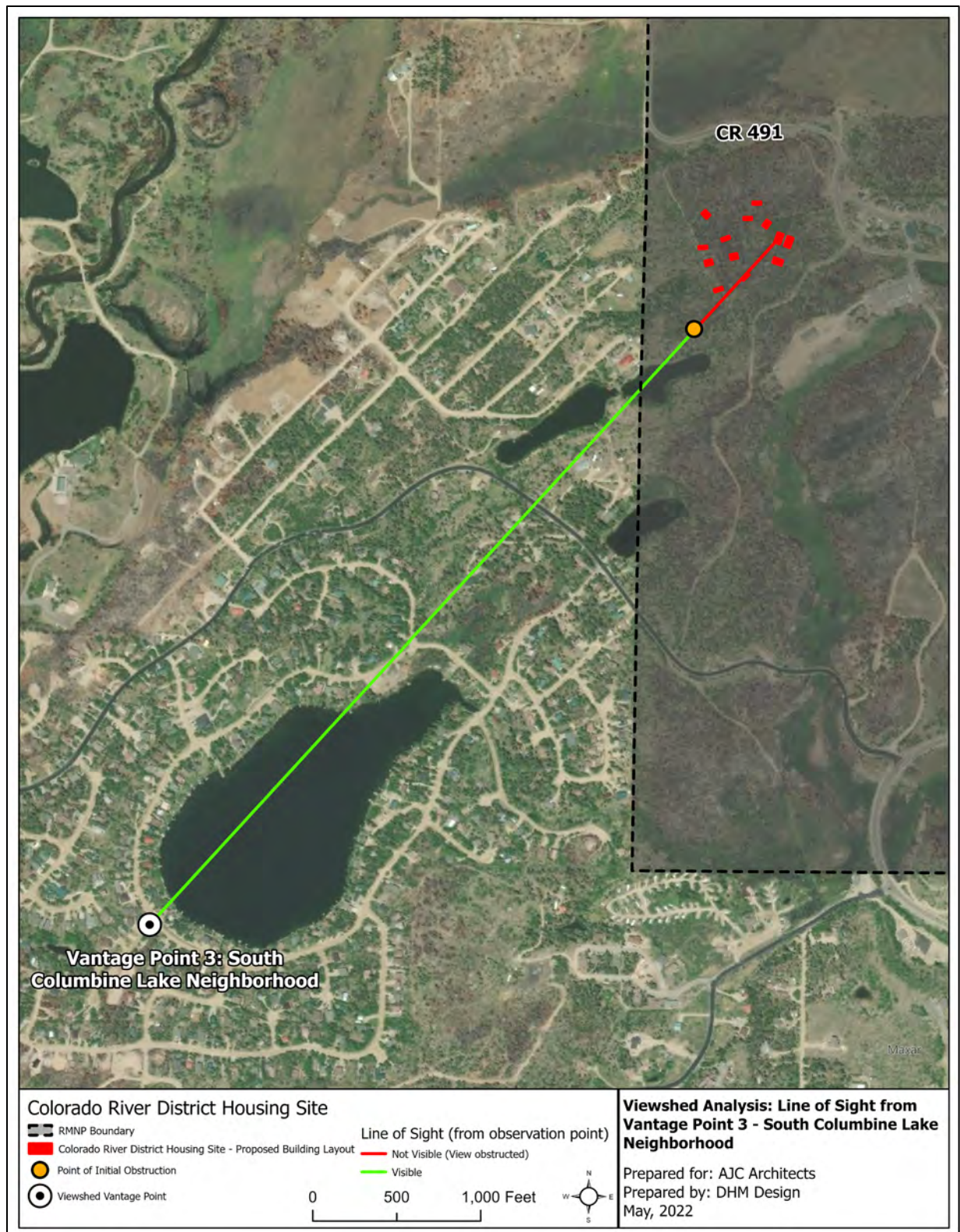


Figure 17. Line of Sight Vantage Point 3, South Columbine Lake Neighborhood (Source: DHM Design, 2022)

Summary

Through GIS spatial analysis, photo documentation/rendering and in-field observation, the visual assessment was able to analyze potential viewshed impacts for the proposed housing development from the three (3) NPS selected viewpoints. It was determined that all three viewpoints will result in a neutral degree of impact. This classification takes into consideration distance, vegetation cover, topography and building design and siting. The proposed designs will reduce visual impact as the housing units will be consistent with the visual character of the adjacent existing residences in scale, size, massing, color, orientation and site layout.

Vantage Point	Coordinates (NAD 1983 HARN UTM Zone 13N)	Elevation	Degree of Impact	Mitigation Strategies
1 – Harbison Meadows Picnic Area	40.282102N 105.838241W	8,703'	Neutral	None recommended
2 – Grand Lake Lodge (Highest Point)	40.258512N 105.825424W	8,730'	Neutral	
3 – South Columbine Lake Neighborhood	40.255624N 105.853721W	8,637'	Neutral	
Proposed Housing Development	40.266975N 105.840628W (tallest proposed building)	8,676'		

Table 2. Summary of Vantage Point Analysis (Source: DHM Design, 2022)

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