



Rural Roadway Preservation



James City County Zoning Update
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Rural Roadway Preservation

Part 1. Visual Analysis of Viewsheds

Introduction

In 2021, the James City County Board of Supervisors approved a Resolution to initiate the amendment of the James City Zoning and Subdivision ordinances in order to consider additional requirements to protect and preserve scenic roadways such as Forge Road. As part of an analysis to consider new standards for protection of these scenic roadways, EPR, PC was asked to develop analytic visualizations of the visual impacts of the viewshed on Forge Road.

The results of this analysis are presented here in two parts:

1. **Ground Level Visualizations** - The first part is a series of photomontages that were developed based on alternative measured distances from the road.
2. **Aerial Visualizations** - The second part is a series of aerial photographs of the Forge Road corridor showing different distances from the road as colored buffers along the roadway, with existing structures highlighted to show where they fall within the distance buffers.

It is important to note that, even though these are illustrative visualizations, they are based on actual measured dimensions using computer mapping for the distances so they represent a reasonably accurate representation of what potential distance standards could look like in reality.

Ground Level Visualizations

Methodology

For the purposes of the visualizations, a photograph of a segment of Forge Road was used that represents a typical “view from the road” on a relatively level portion of the road without any existing screening or buffering along the roadway. Using computer mapping, house sites were located at the following distances from the edge of the roadway (which is also the edge of the Right of Way):

- 100 feet
- 200 feet
- 300 feet
- 400 feet



Figure 1. Existing photo of Forge Road with computer mapping of different setback distances

Secondly, photographs of two typical houses were selected at the same view angle as the “view from the road” photograph to be used in composing the photomontages. House A was a simple one story brick home with attached garage and minimal landscaping and House B was a more elaborate house with detached garage and extensive landscaping in the front yard.

These houses were then photo montaged into the existing Forge Road photograph precisely at each of the distance points to show a reasonably realistic view of the visual impact of the houses at each distance parameter.

Results

The images below show the final photomontages with each house at each of the distances from the road.

House A:



Figure 2. House A. 100 ft. distance



Figure 4. House A. 200 ft. distance



Figure 3. House A. 300 ft. distance



Figure 5. House A. 400 ft. distance

House B.



Figure 6. House B. 100 ft. distance



Figure 7. House B. 200 ft. distance



Figure 8. House B. 300 ft. distance



Figure 9. House B. 400 ft. distance

Conclusions

The use of computer aided photomontage visualizations is a practical way to assess the potential visual impacts of alternative provisions for distances from the road. However, it is important to recognize that many other factors can influence the perception of different distances to houses when viewed from the road. These include topography, the presence of existing vegetation, and the general architectural character of structures. The above visualizations are of course open to different interpretations regarding what distance standards should be developed. From the consultant's perspective, a few observations are offered for consideration from a professional planning perspective:

- The visual impact of both houses at the 100 foot distance is considerable. This scale of this distance is more reminiscent of a suburban development pattern than what is typically seen in a rural, farming based landscape.
- 300 to 400 foot distances are more similar to a typically rural context and view from the road, although houses on large lots are frequently set back even more than that. Often, homeowners who purchased large lots prefer a wide set back from the road to maintain their sense of private space and rural character.
- Particularly at the 400 foot distance line, there is an opportunity to create buffering and screening around the houses with vegetation that would be more reminiscent of a rural farm scape rather than a suburban landscape pattern.
- The architecture and landscaping around the house also influence the character of the view from the road. Large suburban houses with tall roofs and suburban style landscaping create more of a discontinuity with the rural landscape than a low ranch house with an attached garage.

Aerial Visualizations

Methodology

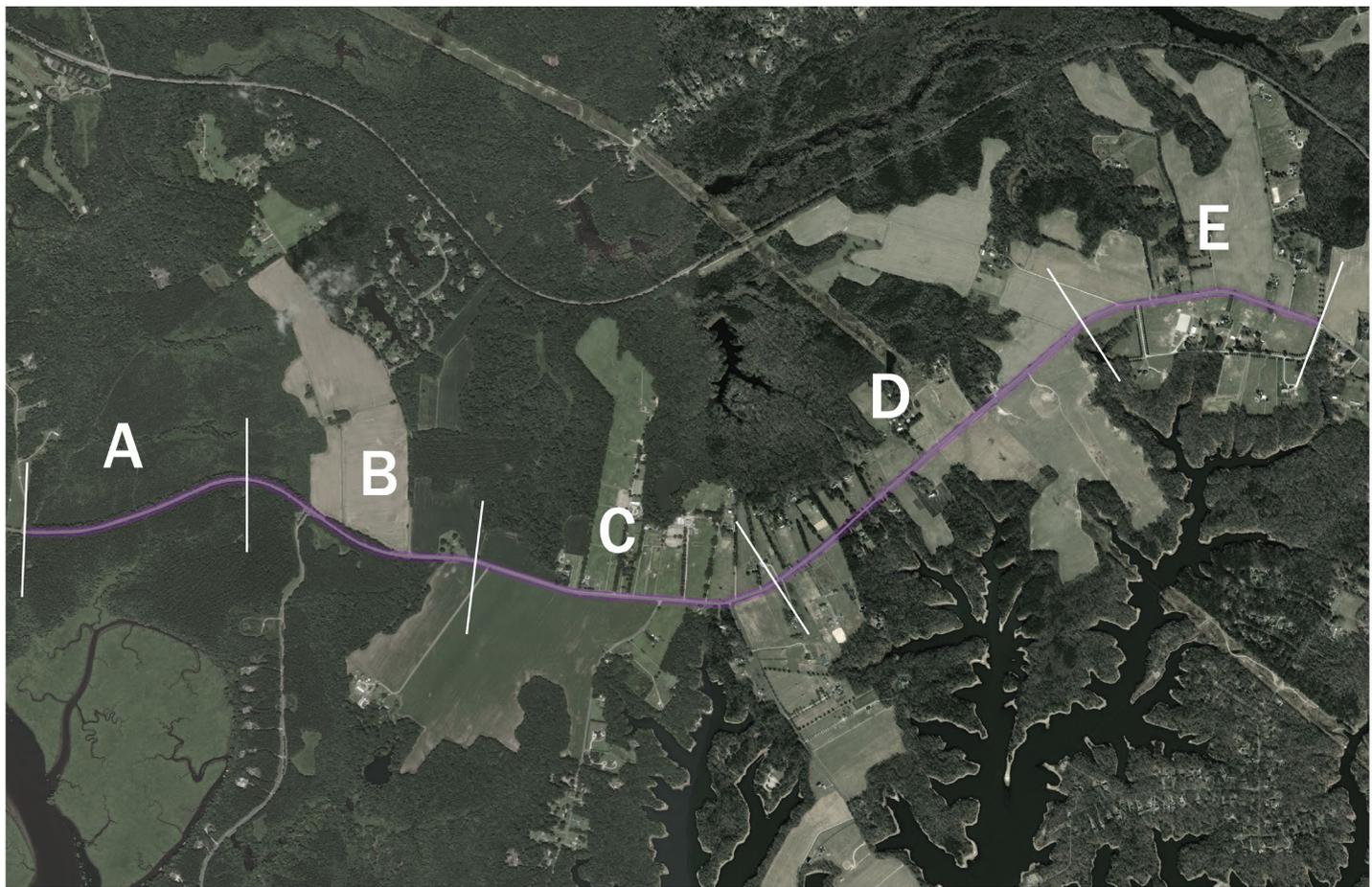
Based on County staff request, EPR developed an aerial mapping analysis of different distance widths applied to a section of Forge Road located outside of the PSA. The maps were presented as aerial photos with the distances shown as colored buffers on the photos and as oblique aerial views of segments of Forge Road showing existing structures.

The following maps were developed:

- **Baseline Setback Map.** This map shows the setback that currently applies under the existing zoning requirements for A-1.
- **Potential Alternate Distance Analysis Map:** This maps shows potential distances of 100', 200', 300' and 400'.
- **Oblique Aerials of Segments of Forge Road.** These maps show detailed oblique views of five segments of Forge Road with the potential distance ranges from 100' to 400' and highlight existing structures.

Results:

JAMES CITY COUNTY ZONING ANALYSIS | Forge Rd. Basemap (Existing Setback)



Gray: Forge Rd.
Purple: Existing 75' Setback



Figure 10. Base Map showing Existing Setback for A1 Zone

JAMES CITY COUNTY ZONING ANALYSIS | Forge Rd. Basemap (Proposed Setbacks)

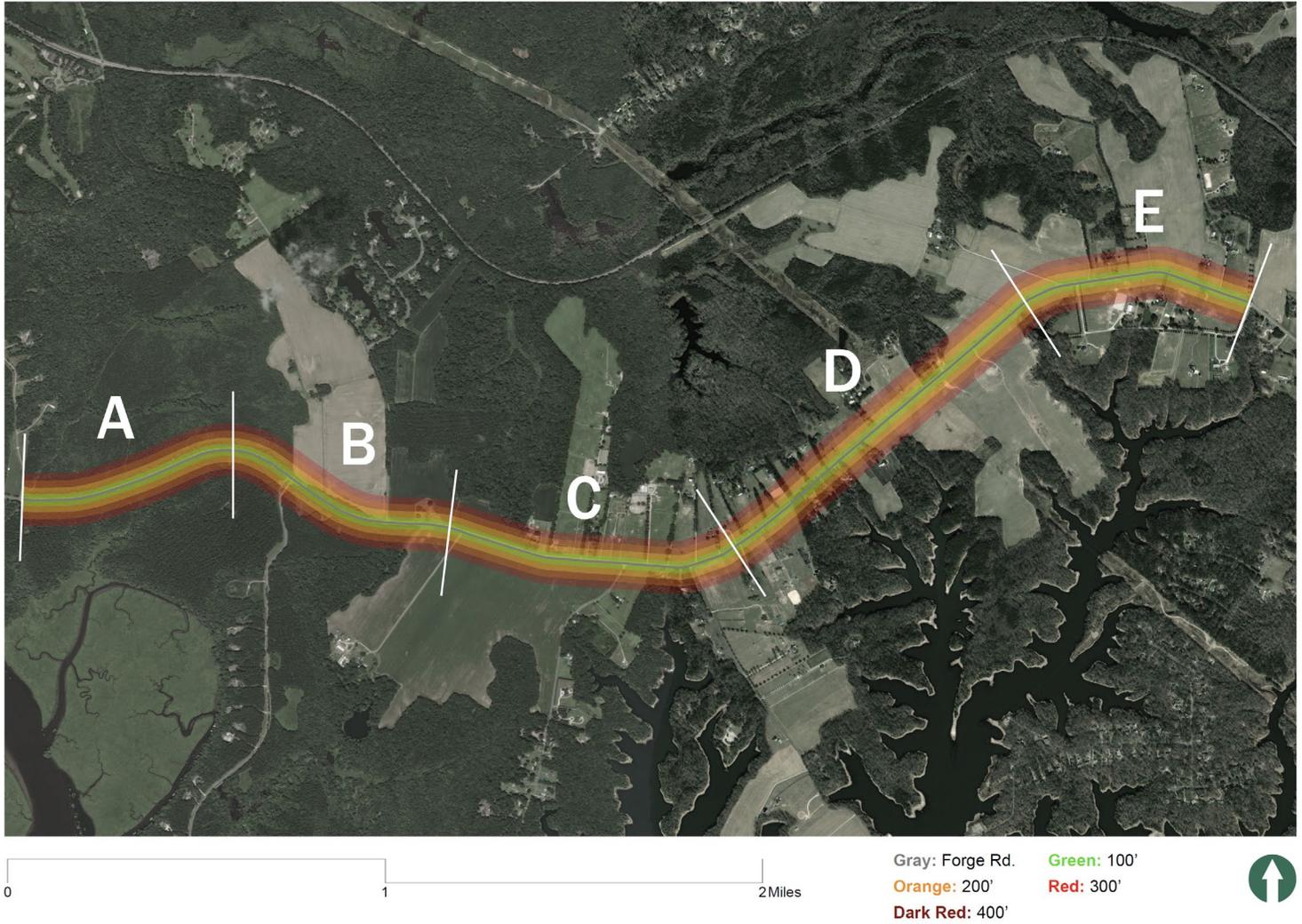


Figure 11. Base map showing alternate distances from the roadway

JAMES CITY COUNTY ZONING ANALYSIS | Forge Rd. Basemap (Proposed Setbacks) - Segment A

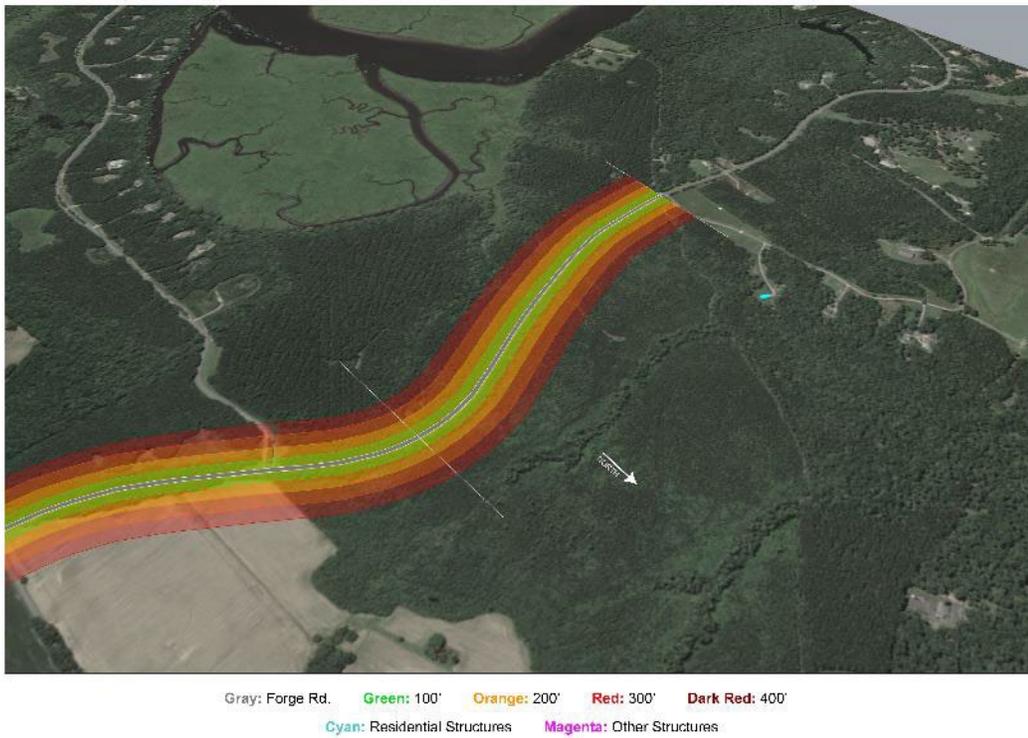


Figure 13. Potential distances - Segment A.

JAMES CITY COUNTY ZONING ANALYSIS | Forge Rd. Basemap (Proposed Setbacks) - Segment B



Figure 12. Potential distances - Segment B.

JAMES CITY COUNTY ZONING ANALYSIS | Forge Rd. Basemap (Proposed Setbacks) - Segment C

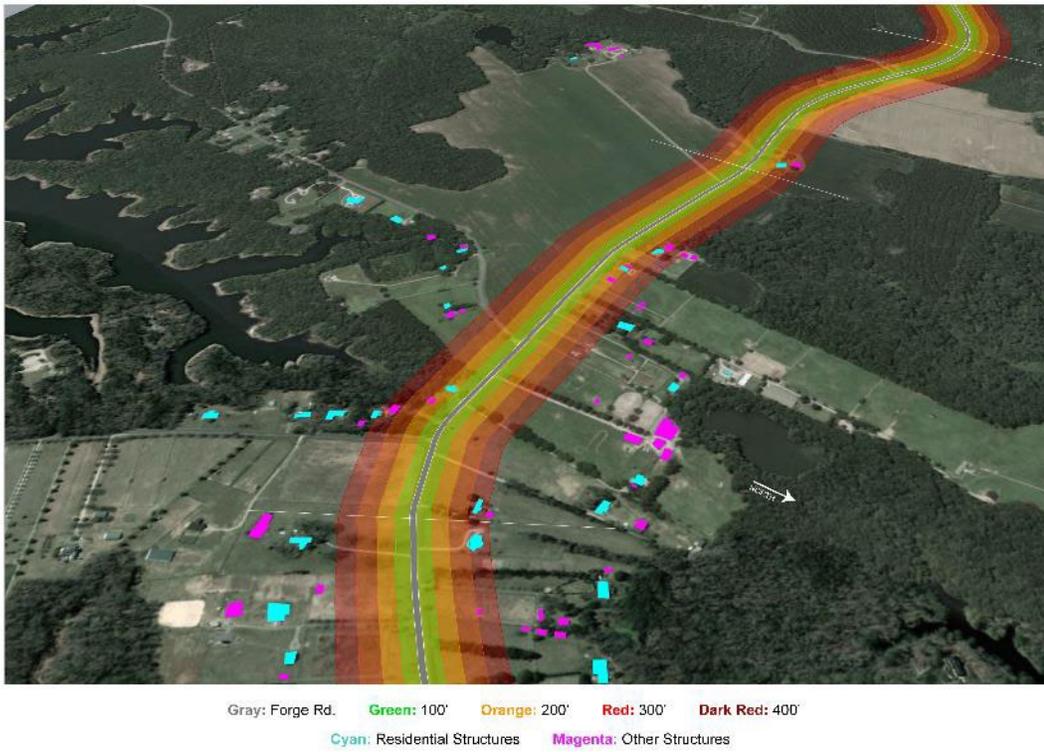


Figure 15. Potential distances - Segment C.

JAMES CITY COUNTY ZONING ANALYSIS | Forge Rd. Basemap (Proposed Setbacks) - Segment D

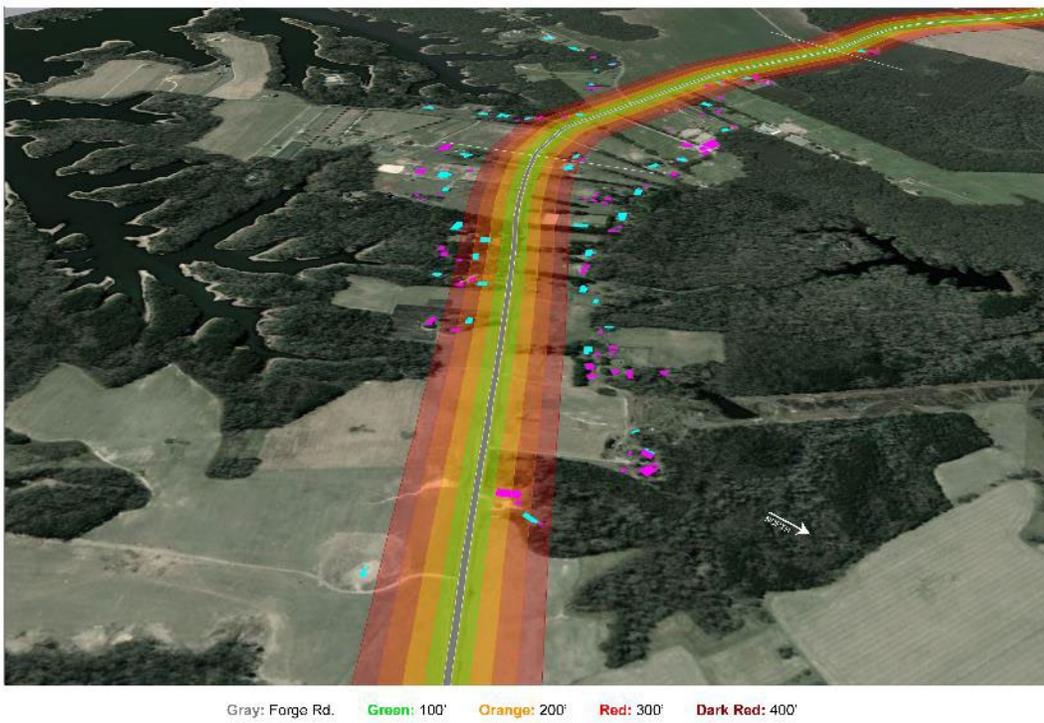


Figure 14. Potential distances - Segment D.

JAMES CITY COUNTY ZONING ANALYSIS | Forge Rd. Basemap (Proposed Setbacks) - Section E



Figure 16. Potential distances - Segment E.

Conclusions

The analysis of existing and potential distances through aerial photography provides a useful assessment of the existing conditions along Forge Rd and the existing setbacks of existing structures. A few summary findings from this analysis include:

- Very few existing structures are built right up to the existing setback line of 75 feet for the A1 zoning district.
- Only one residential structure in segment C and one residential structure in segment D approach the 100 foot distance line. Also, one nonresidential structure in segment D is also built at the 100 foot distance line.
- The majority of structures that fall within the potential distance buffers range from 200 to 400 foot distances.
- a great number of structures are set back well beyond the 400 foot distance line. Segments C and D show a wide variety of structures set well back from the road up to 1000 feet or more.
- In general, both the diversity of setbacks of existing structures and the extensive average distance from the road contribute to the scenic character of Forge Rd and ensure that view sheds are not dominated by views of houses or other structures.
- In addition, the rolling terrain and pattern of existing trees and vegetation break up the views of the structures and contribute to the overall pastoral viewsheds from the road.