



DIVINITY CAMPUS
CITY OF ROCHESTER, MONROE COUNTY
STATE OF NEW YORK

SHADOW STUDY METHODOLOGY

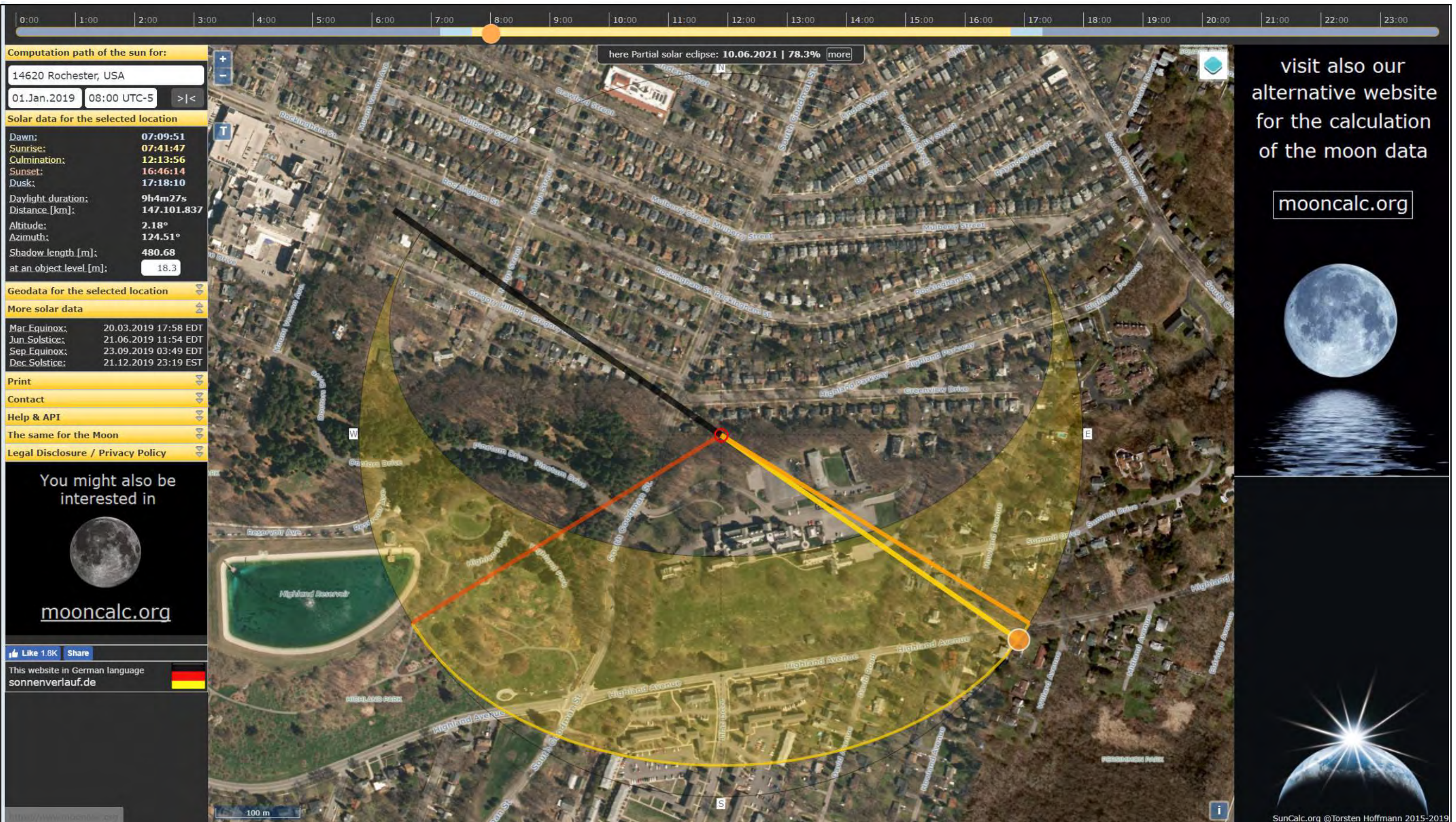
The following outlines the methodology utilized for preparing a “Shadow Study” for the development of two five-story apartment buildings proposed to be built in the northern portion of the Colgate Divinity School Campus.

The starting point of the analysis was to obtain information on the position of the sun in the sky throughout the calendar year and its effect on shadows during various times of the day. The analysis of the sun's position, movement of the sun, and effects on shadow length was performed utilizing on-line interactive software program, www.suncalc.org. The interactive program allows the user to select an area to evaluate, input the height of the object to evaluate, and specify times of day, month and day of the year. The onscreen data is displayed for sun positions for sunrise through sunset, the resulting shadow, and variation of the sun's path throughout the year.

The effects of the sun's position on shadows was evaluated through the entire calendar year. Shadow length is longer during the winter months than during the summer due to the lower position of the sun in the horizon. The effects of shadow length were evaluated for the months of January, March, May, July, September and November at 0800, 1200, 1600 & 1800 Eastern Standard Time.

A three-dimensional model of the site was generated to model the effects to the proposed structures. The model was prepared utilizing on-line interactive software program InfraWorks as developed by Autodesk. The program is a GIS based program. The GIS model was supplemented with the topographic survey information for the site, building locations, Architectural Sketch-up models for the proposed buildings and proposed building locations. Tree canopy heights were added to the model based on field obtained topographic information.

Three dimensional models were prepared for the times outlined above. The trees were removed from the model for the months of January, March, and November to simulate winter conditions of the trees having dropped their leaves. This approach is conservative in nature in that it does not simulate the shadowing effect of the mature tree trunks and branching.

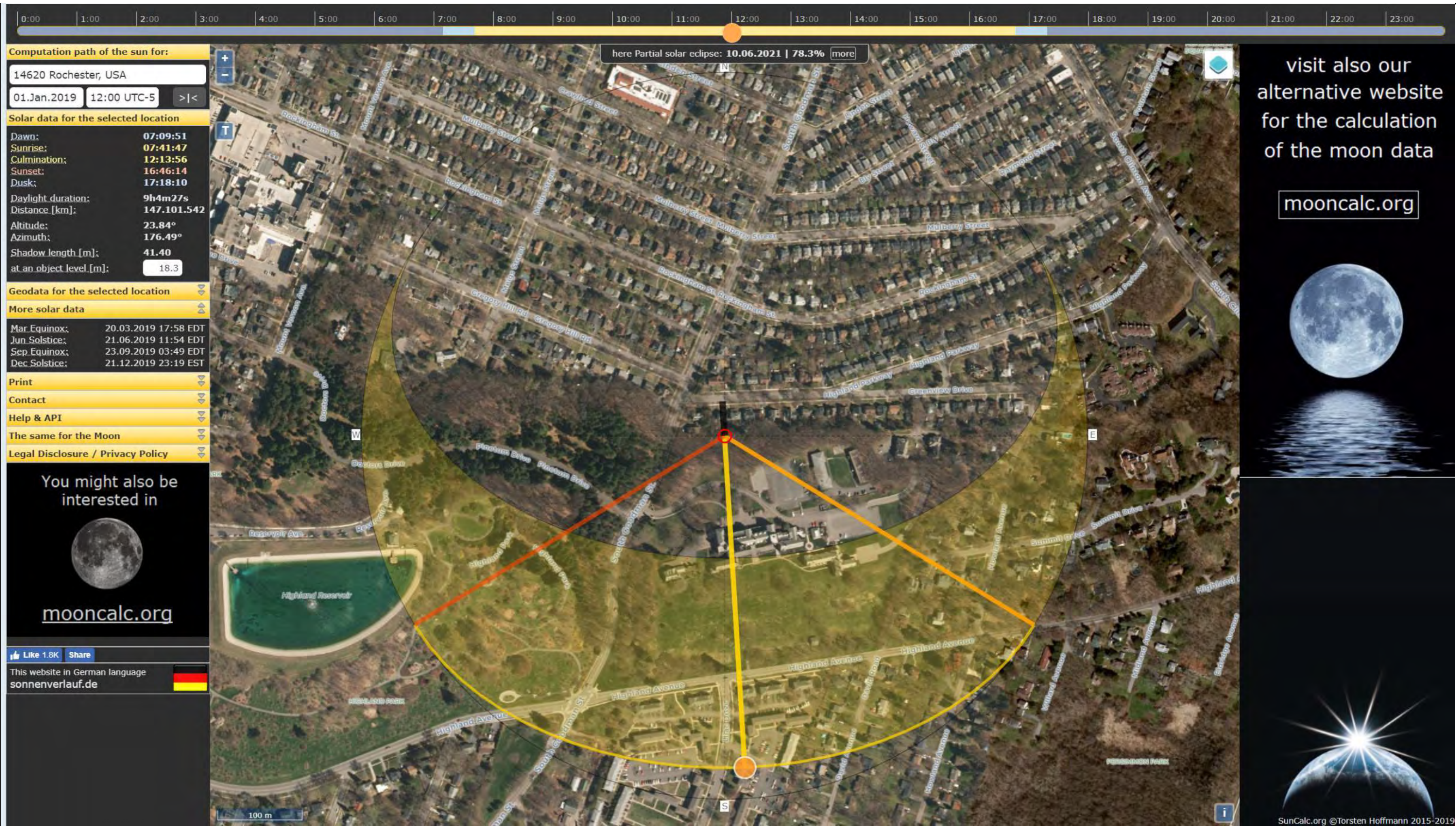


COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: January, Time 08:00 EST, Building Height 60 ft above existing grade (18.3m)





visit also our alternative website for the calculation of the moon data

mooncalc.org

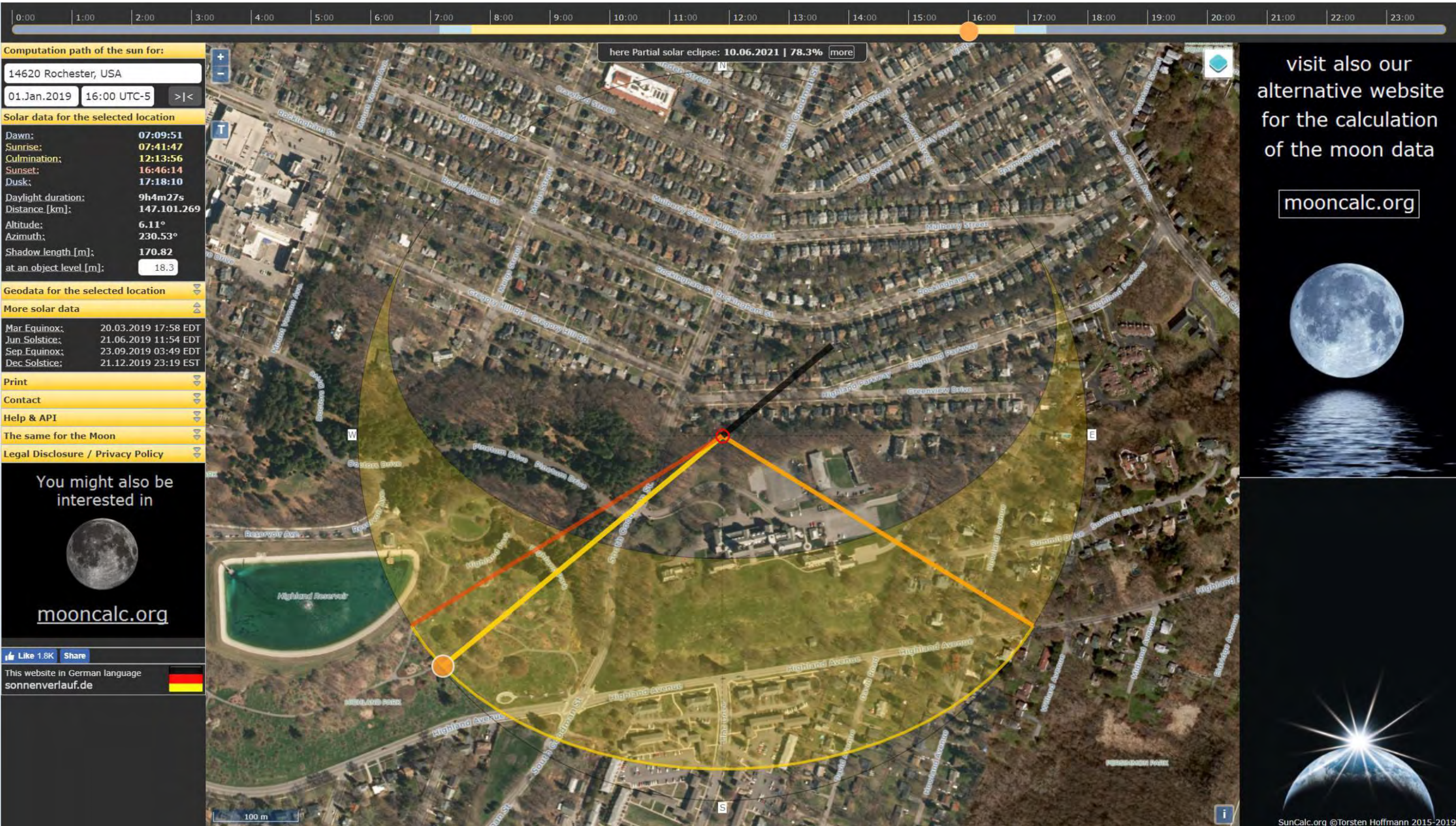


SunCalc.org ©Torsten Hoffmann 2015-2019

COLGATE DIVINITY DEVELOPMENT

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 Shadow Evaluation, Month: January, Time 12:00 EST, Building Height 60 ft above existing grade (18.3m)





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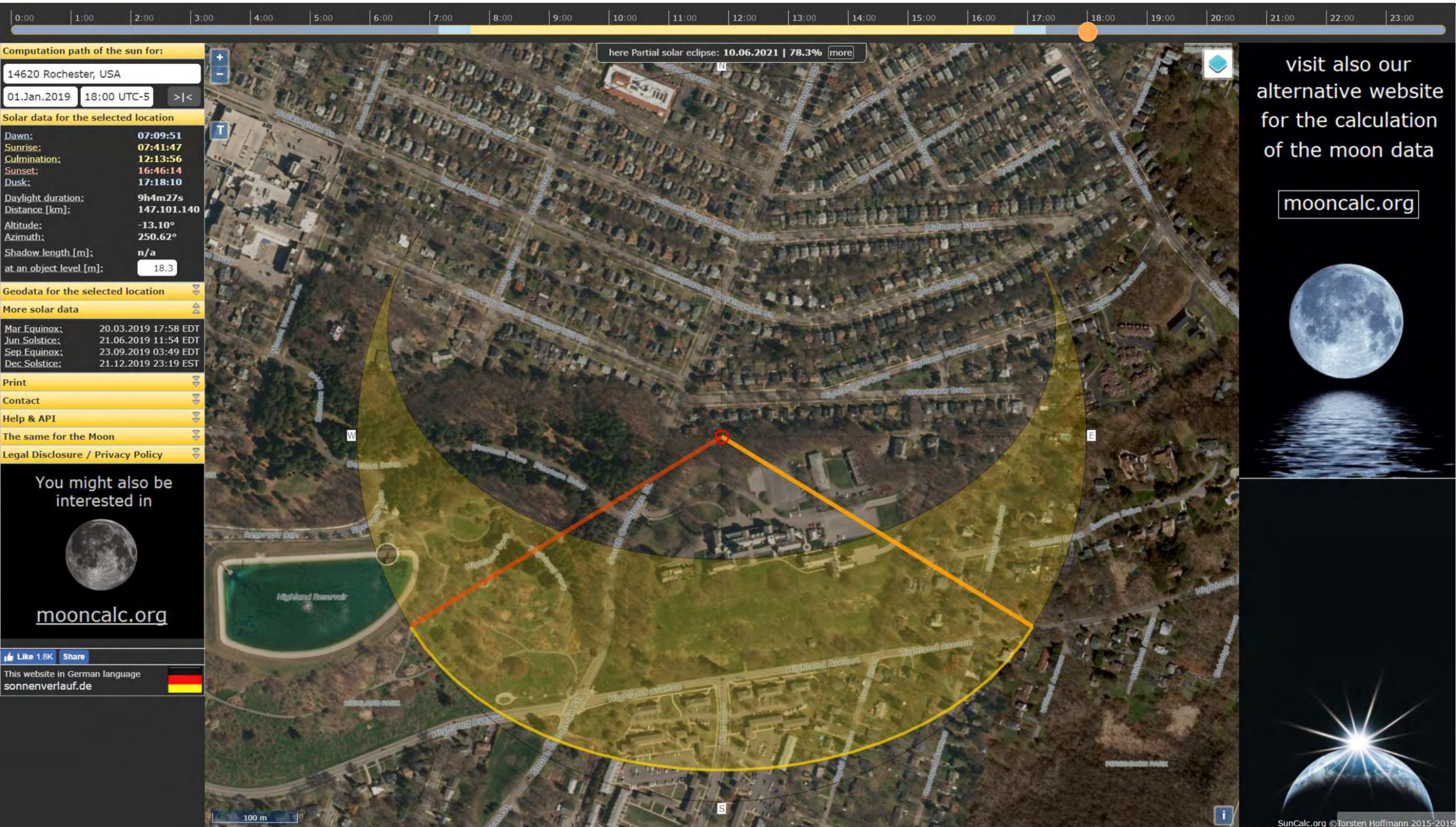


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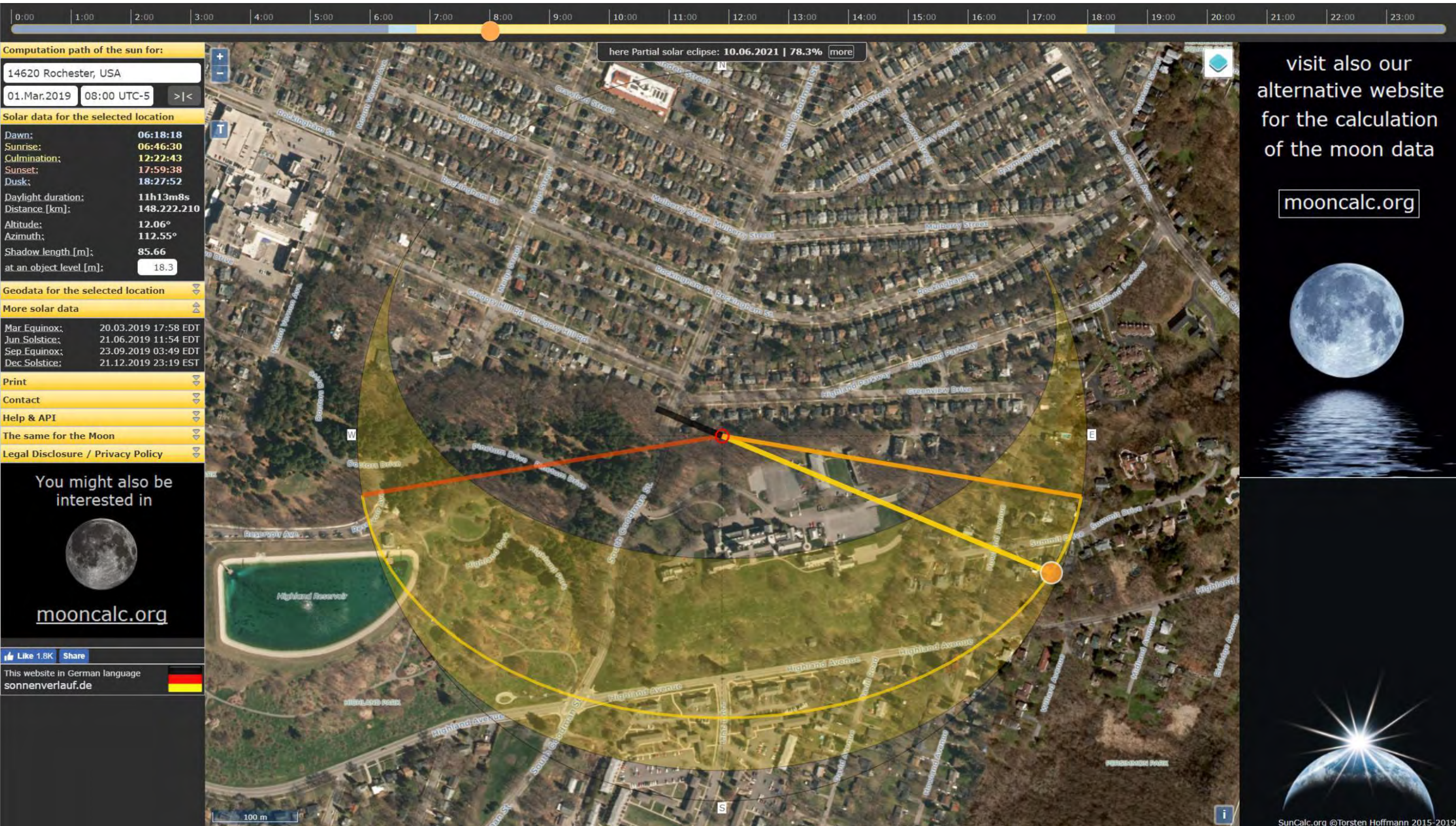




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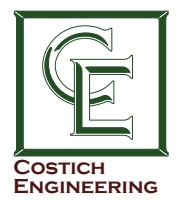
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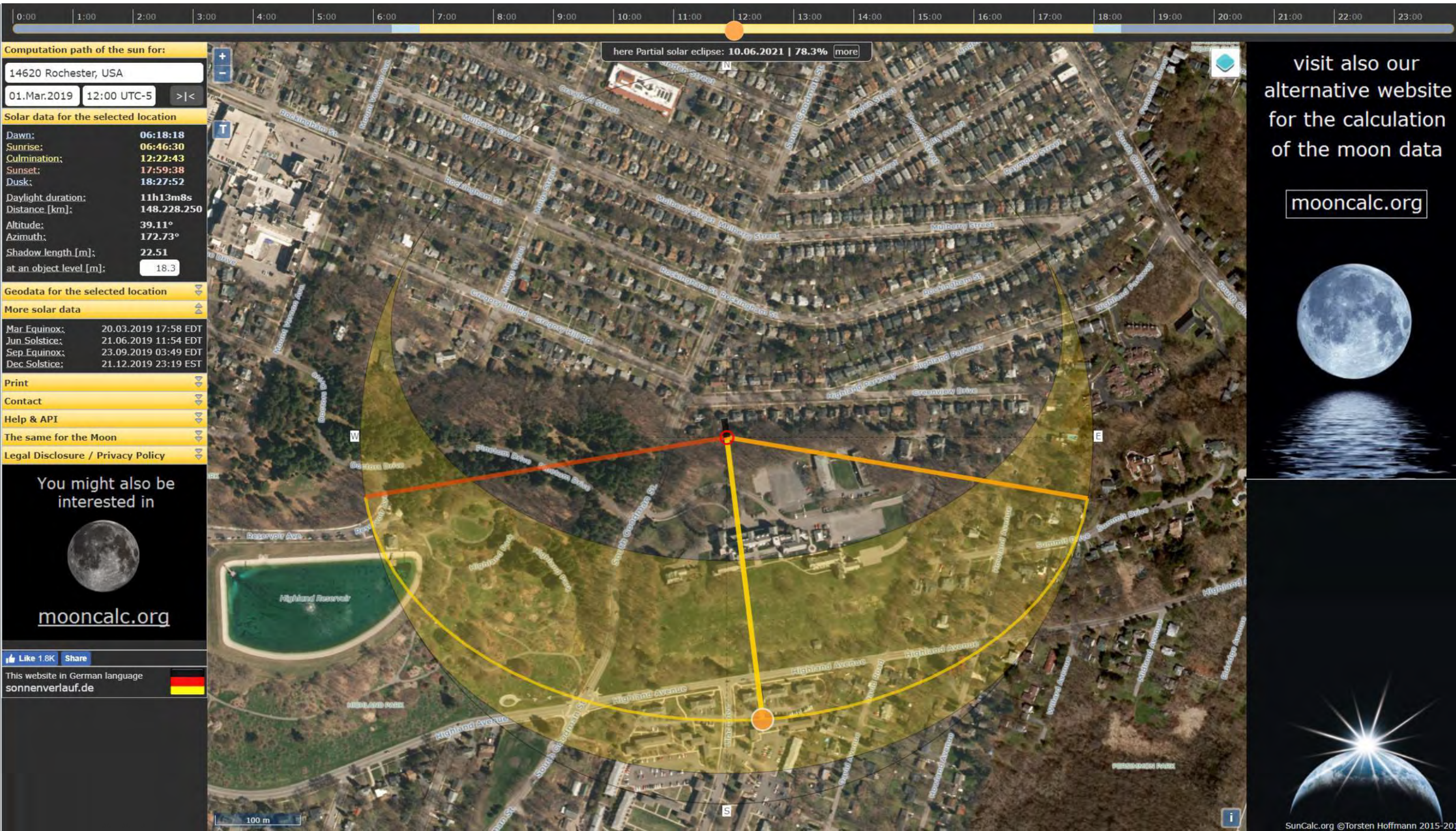




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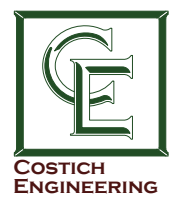
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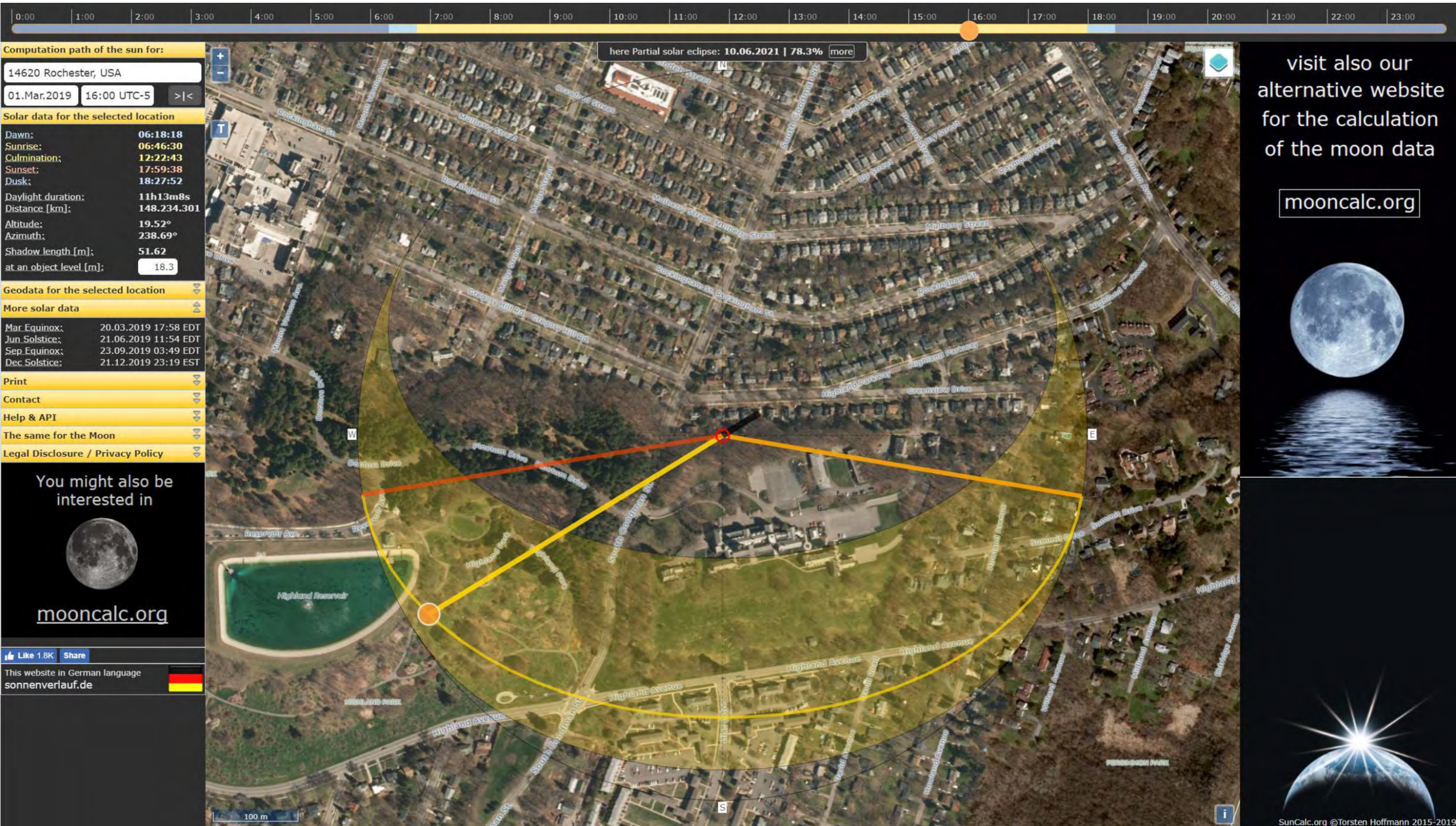




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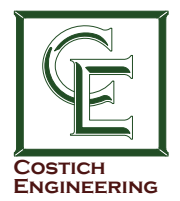
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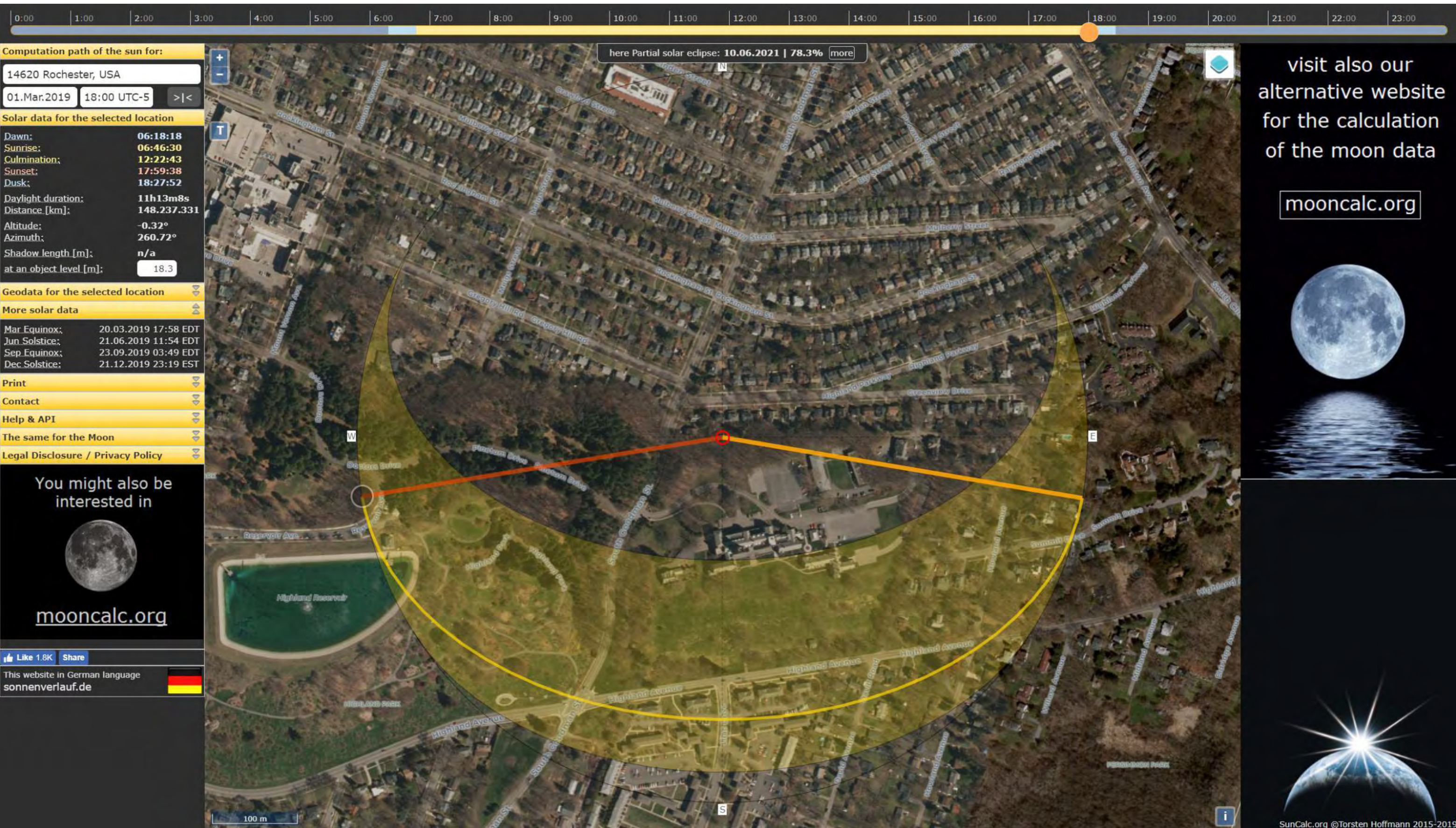




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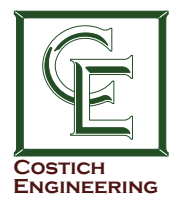
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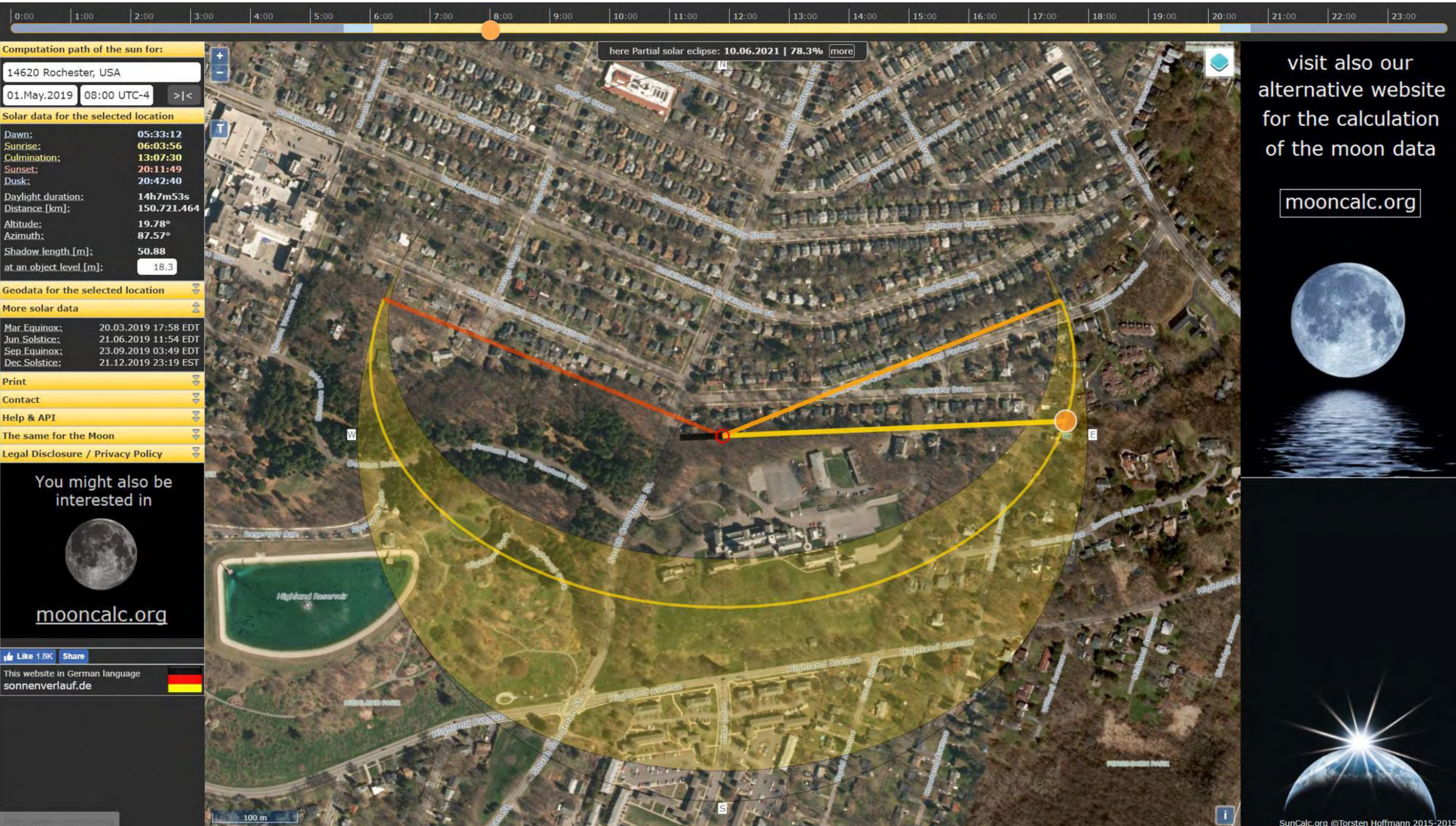




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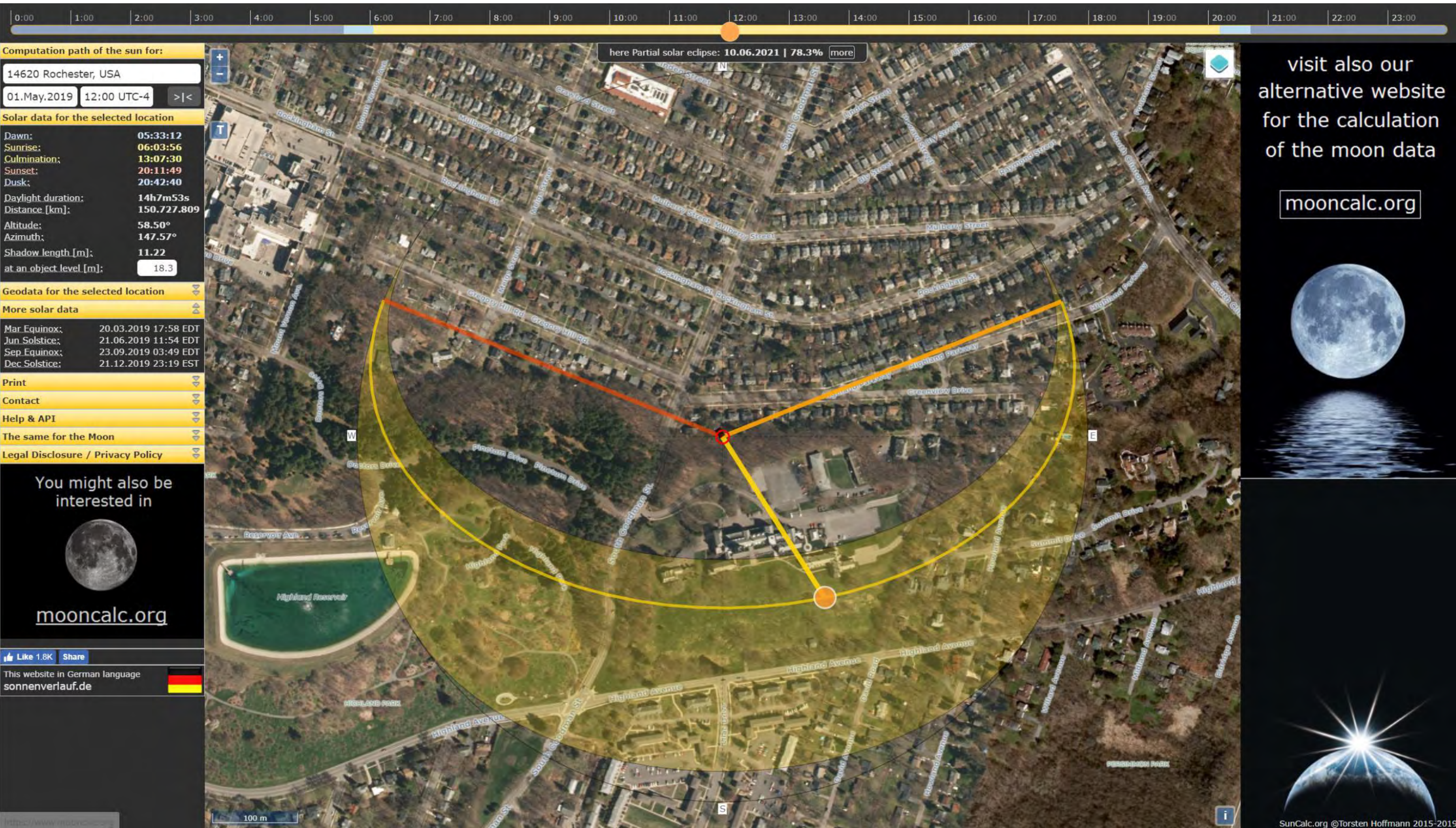
mooncalc.org



COLGATE DIVINITY DEVELOPMENT

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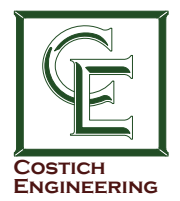
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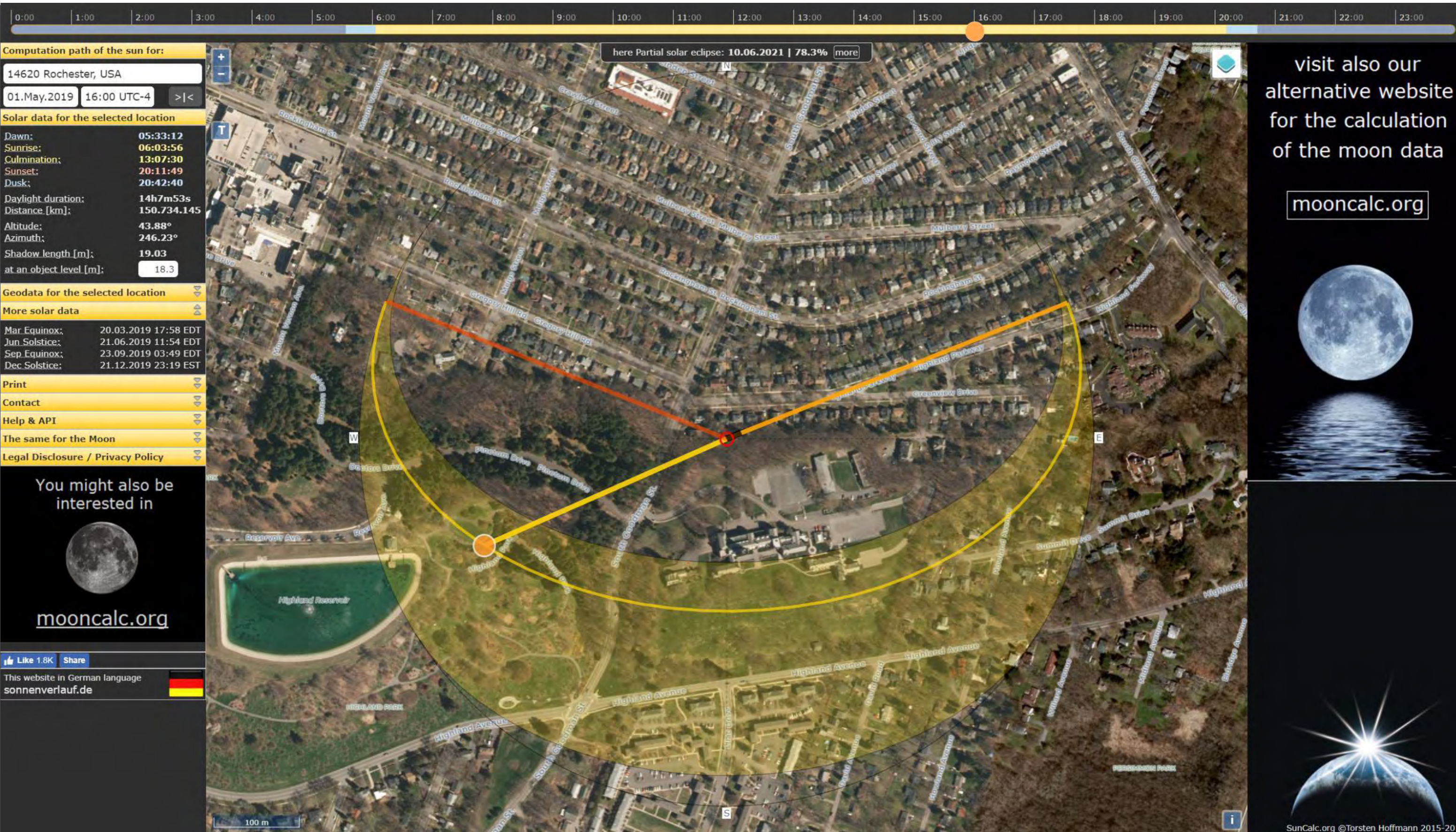
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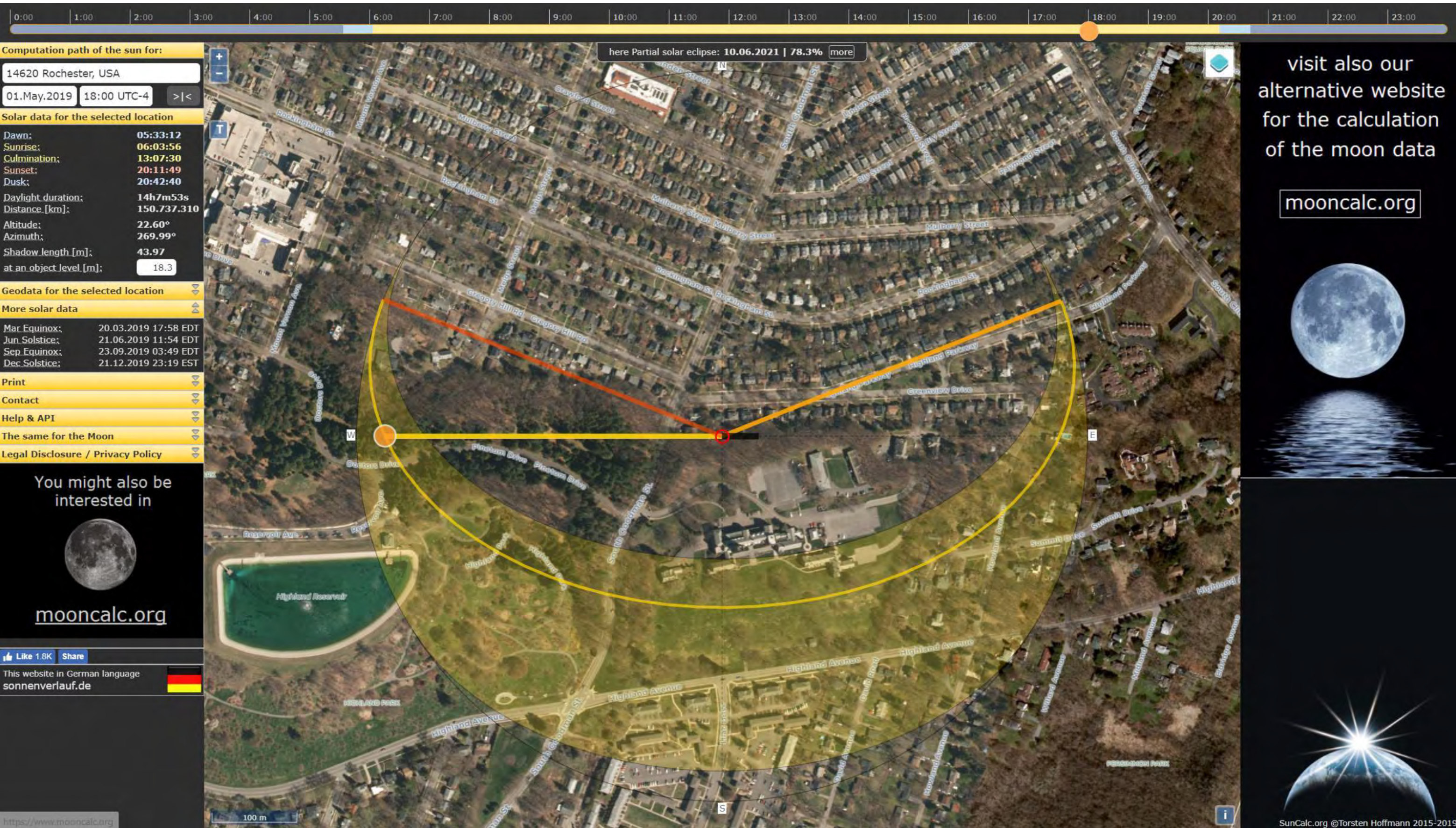
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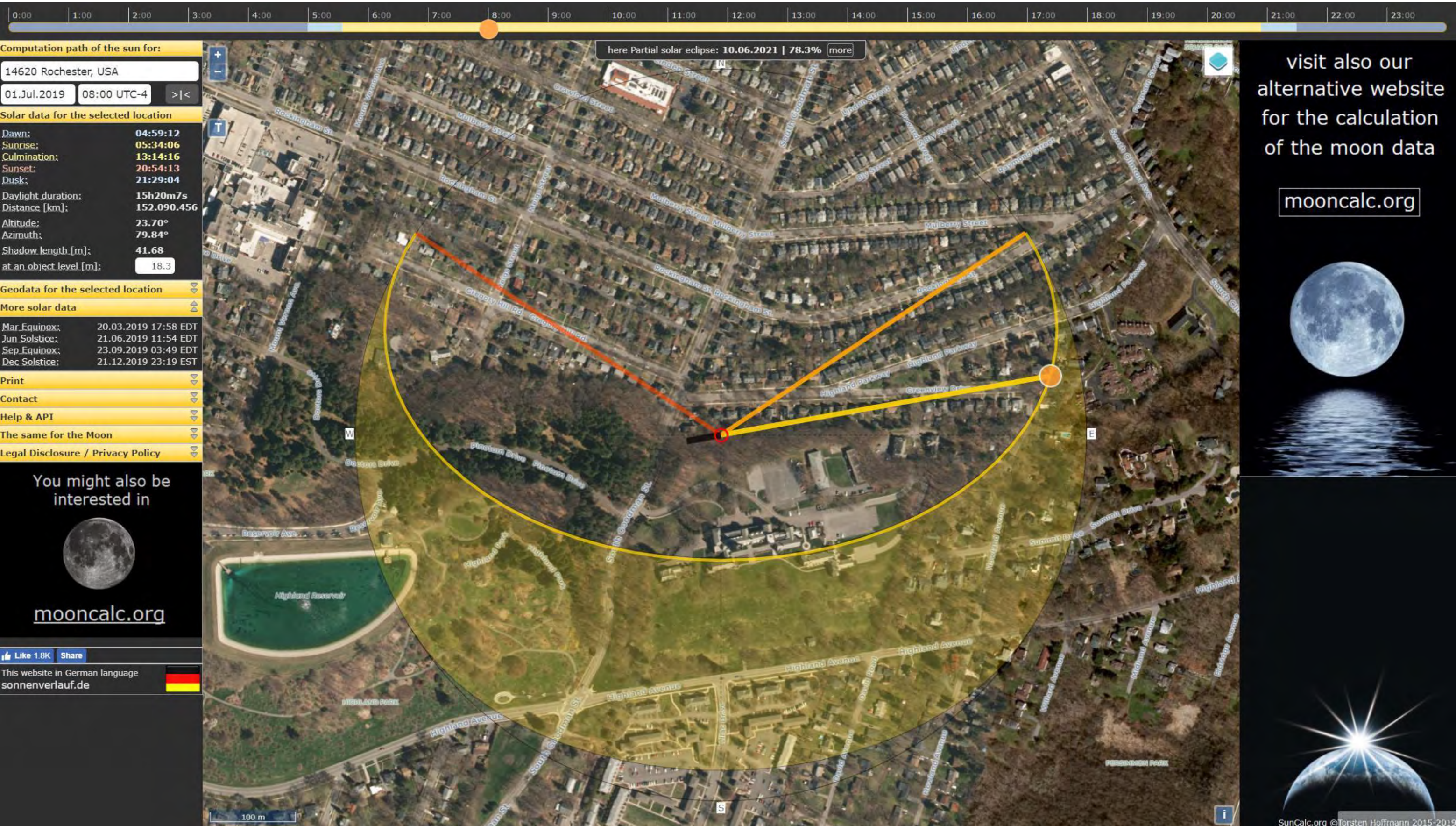
COSTICH ENGINEERING



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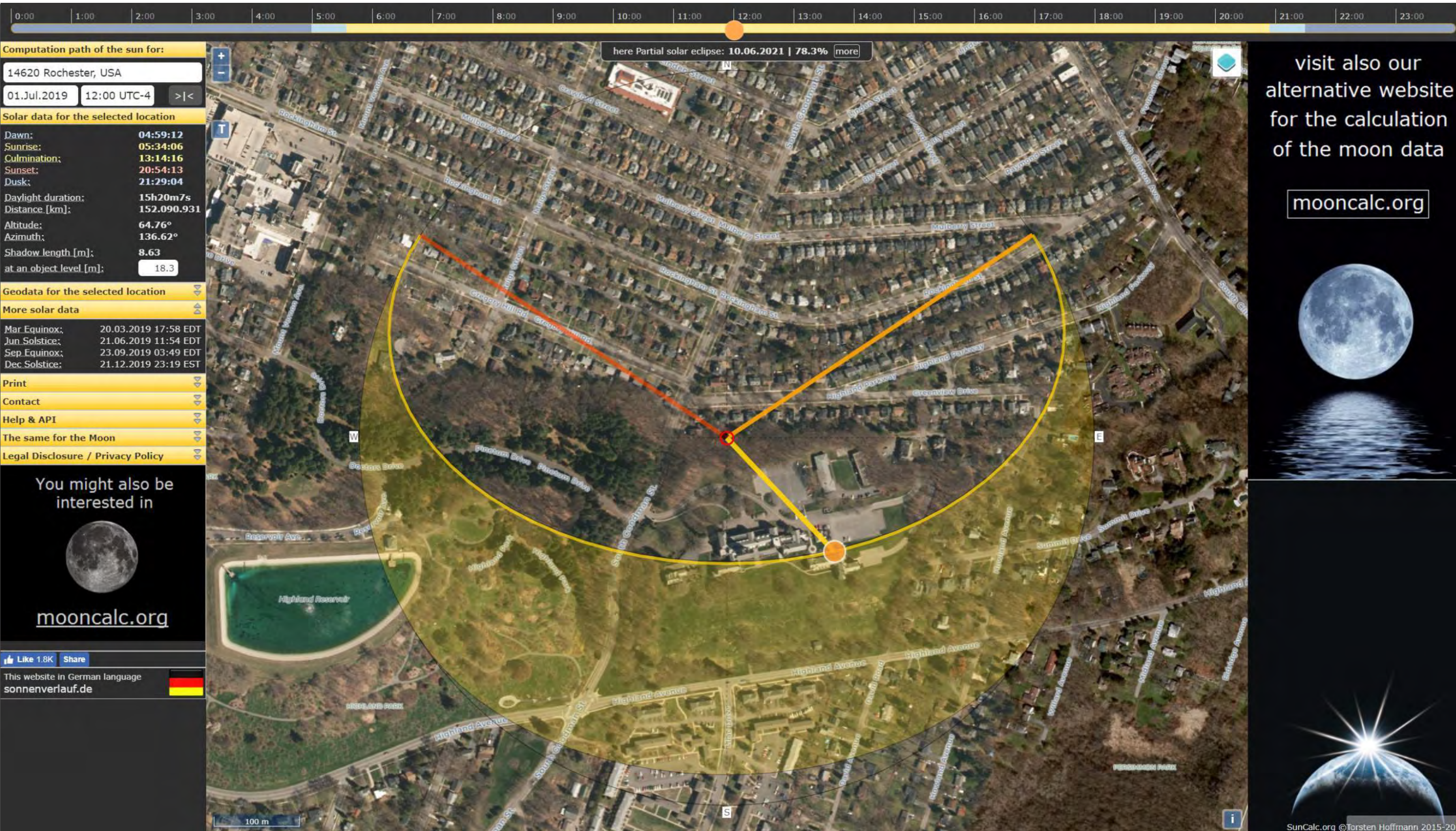
SunCalc.org © Torsten Hoffmann 2015-2019

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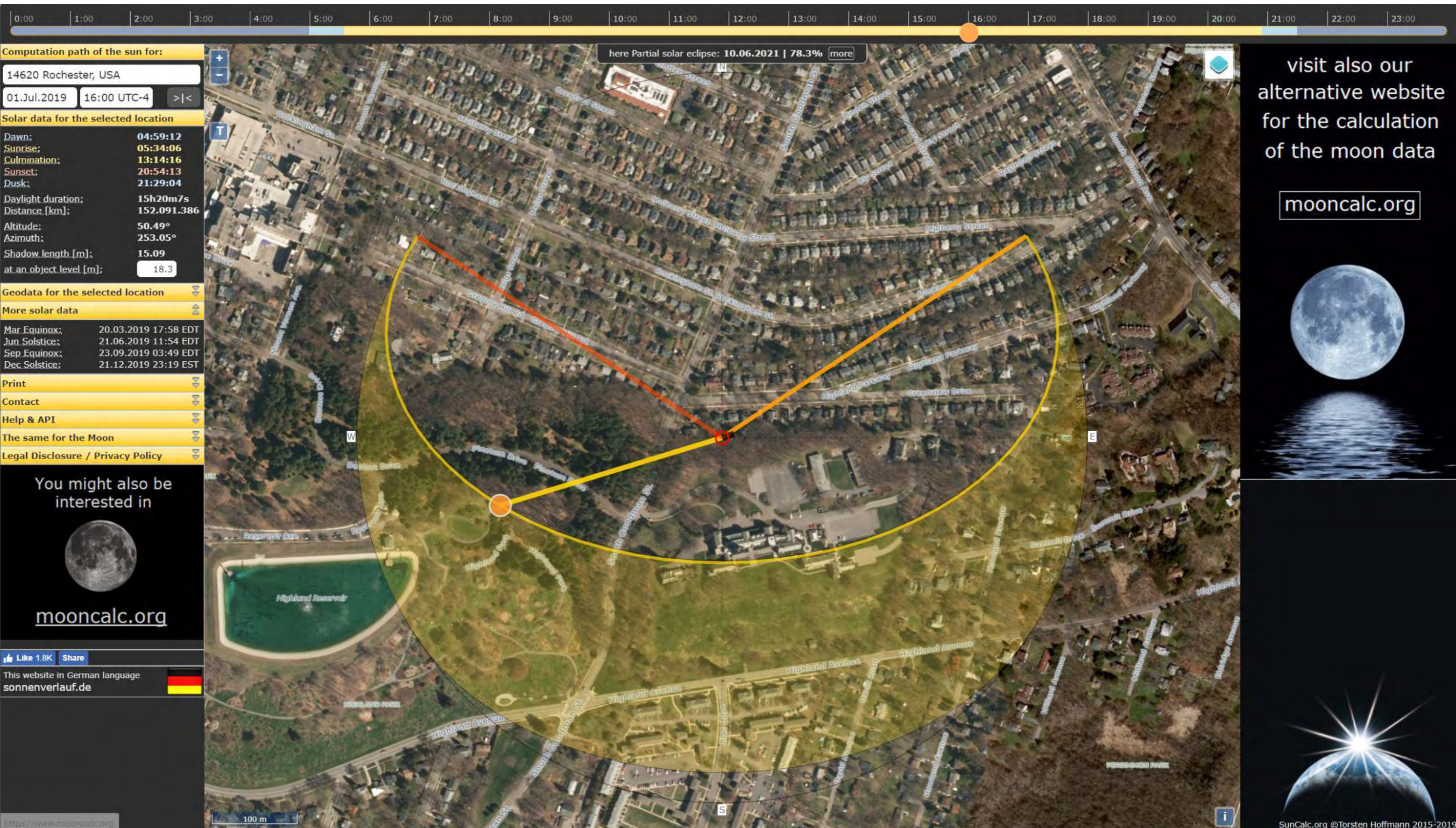


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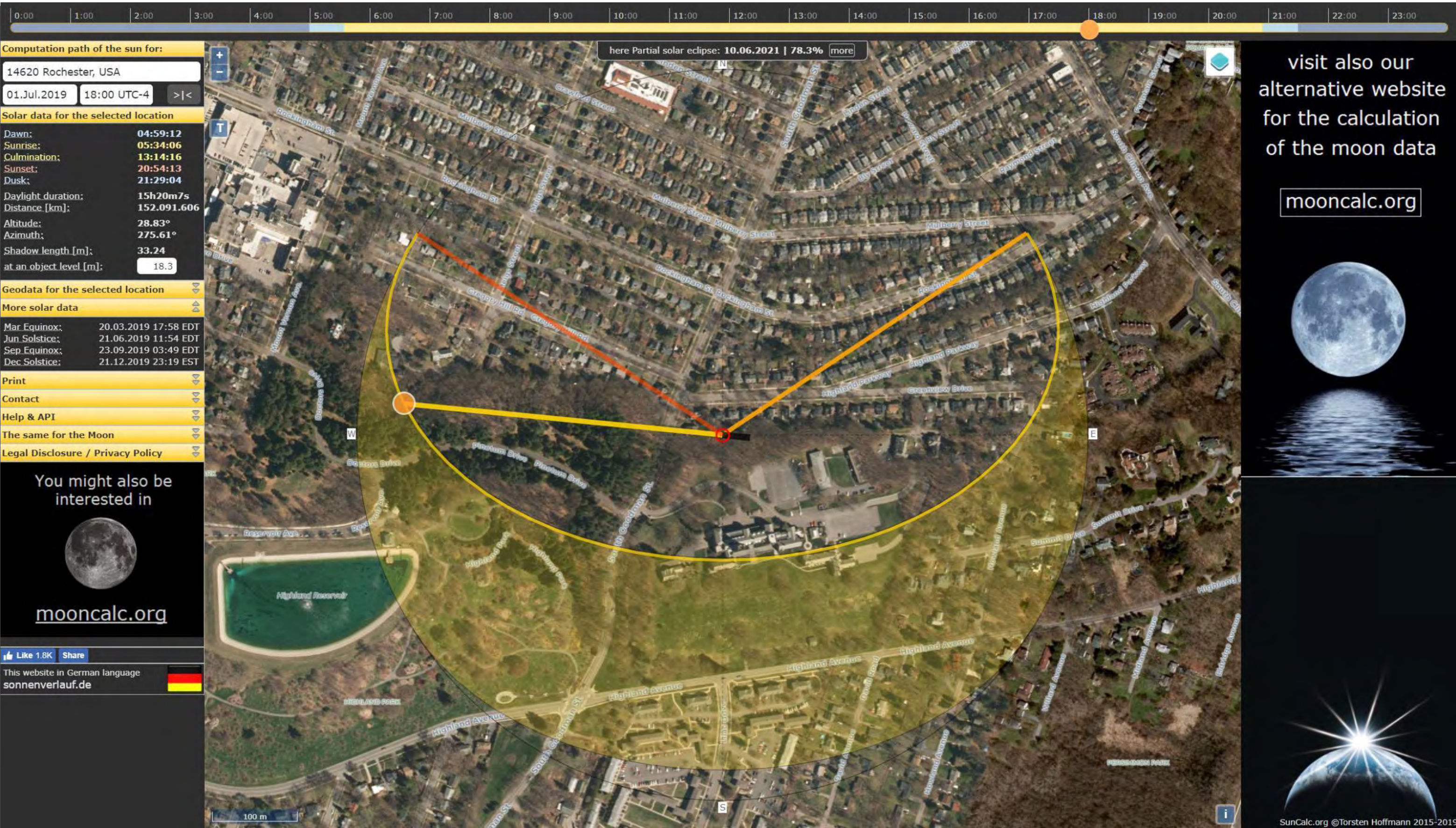
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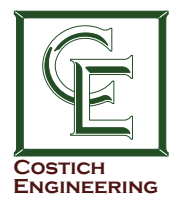
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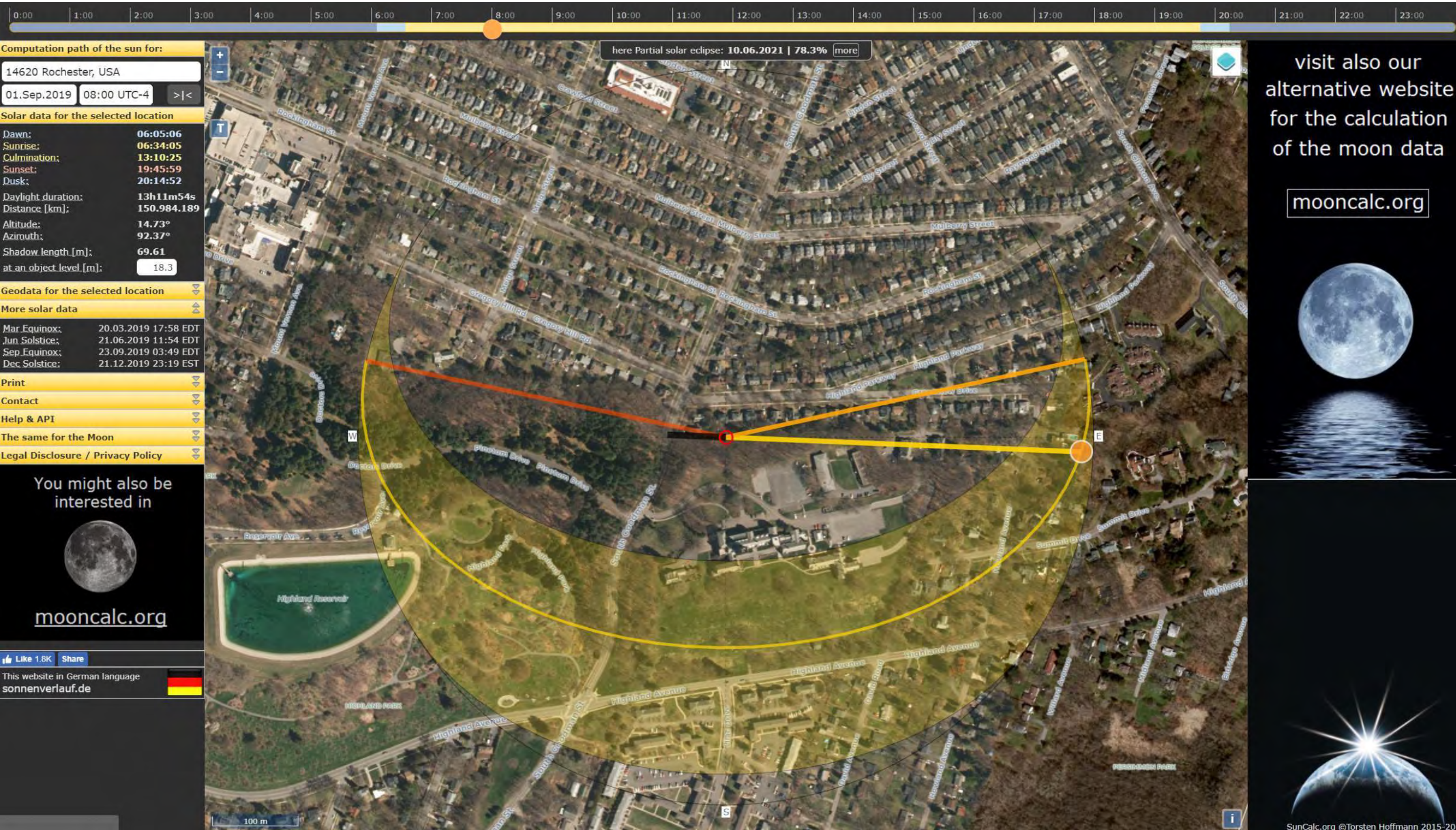




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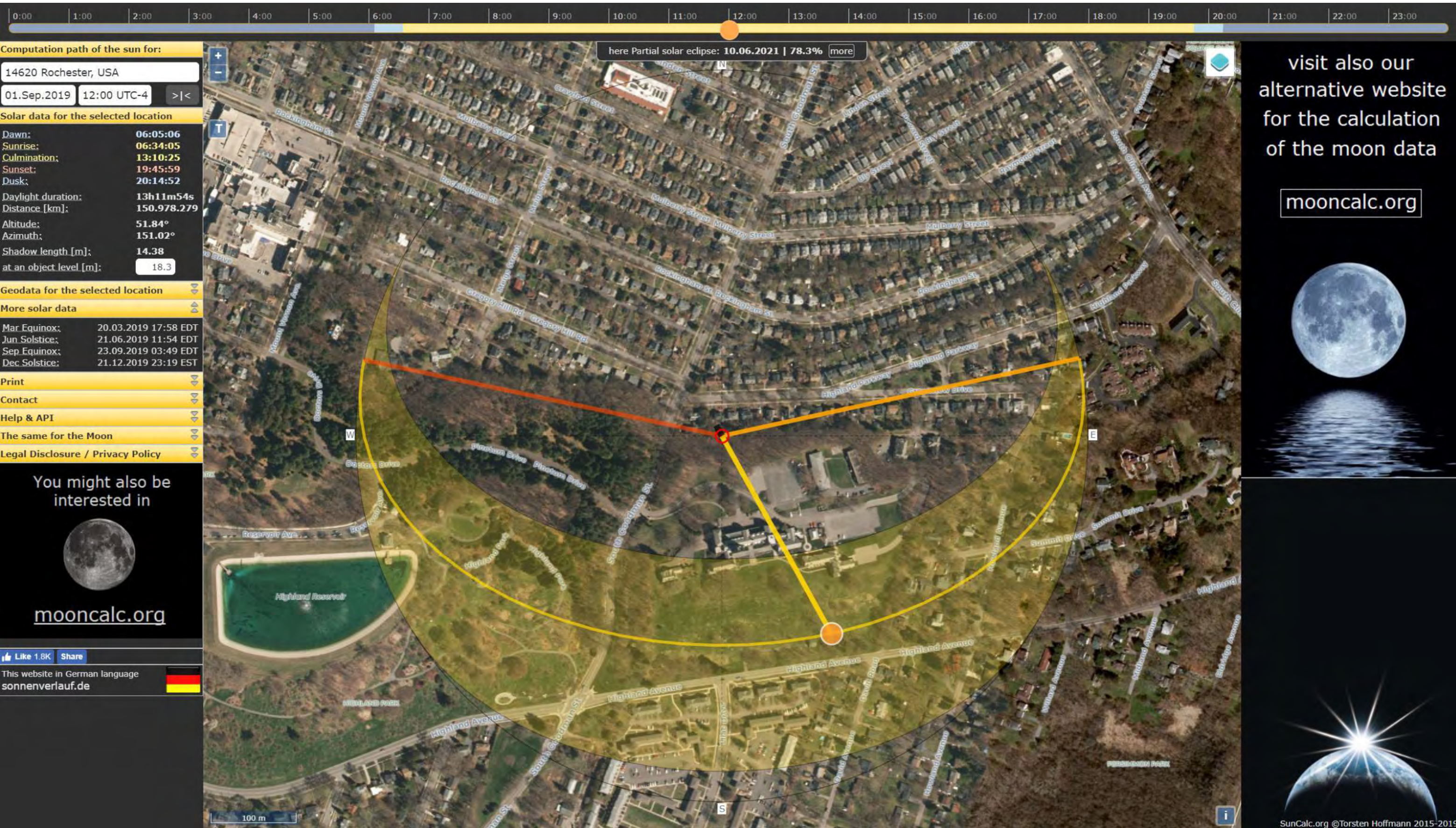
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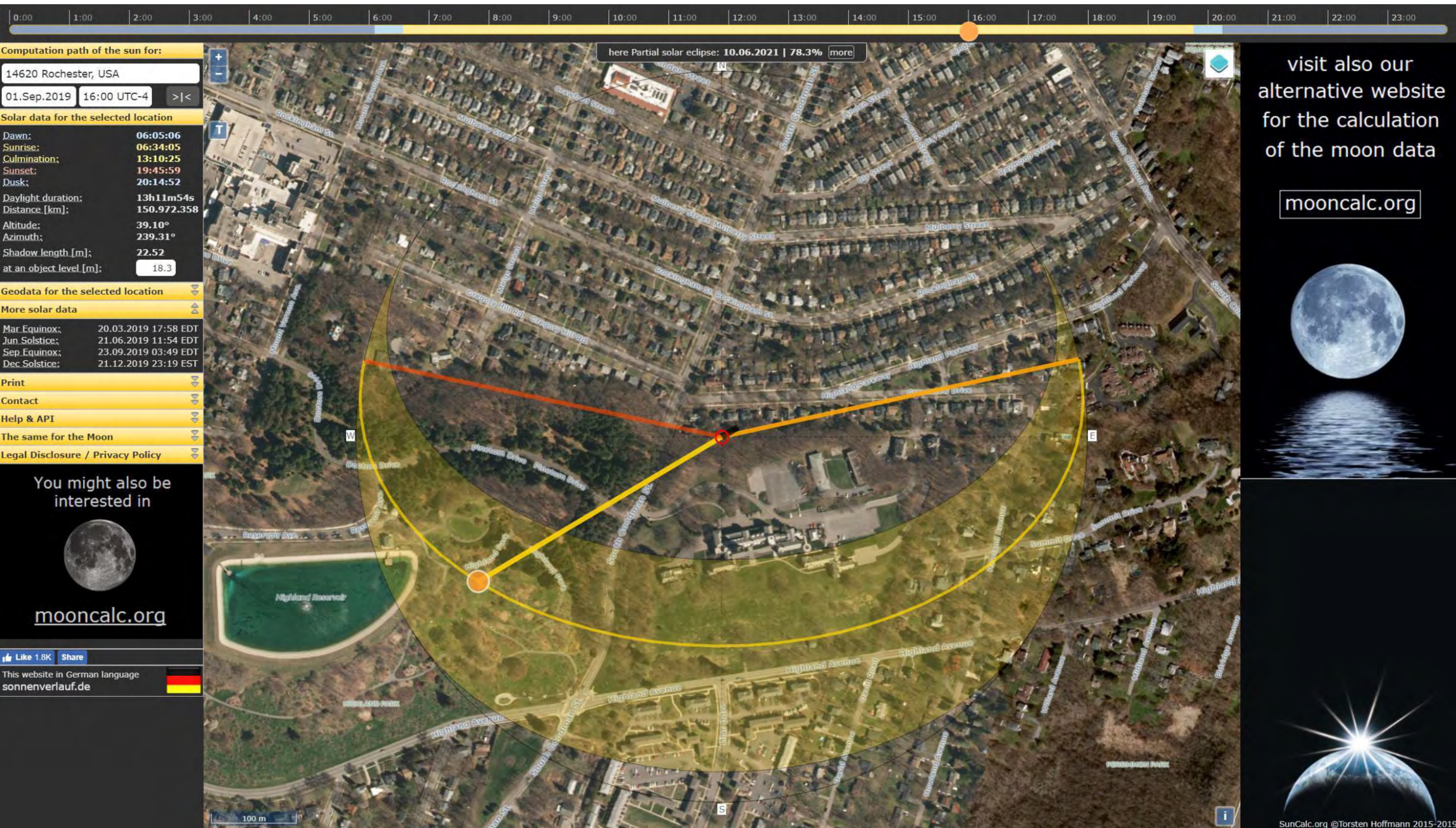
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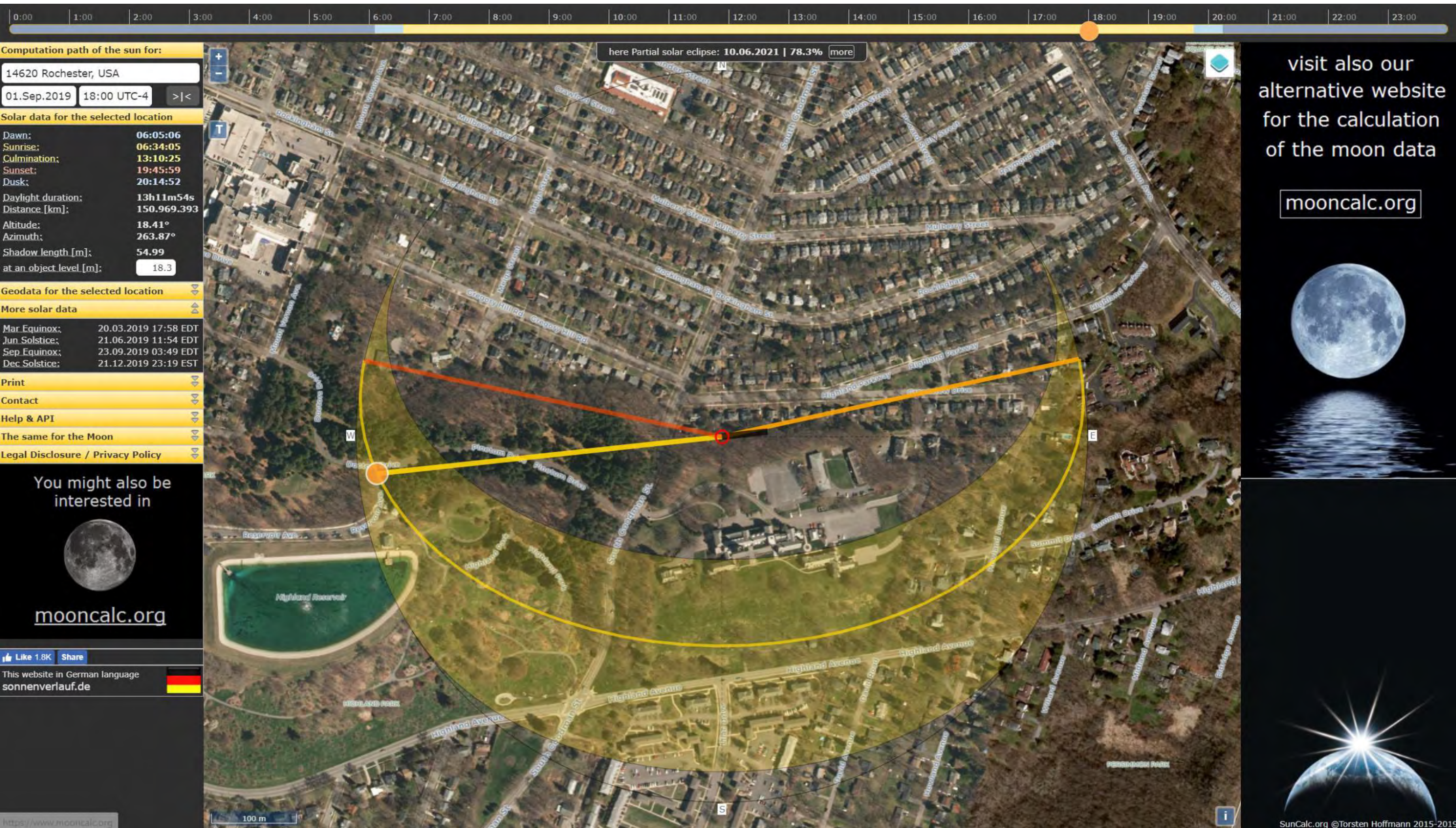




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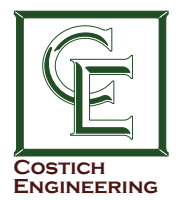
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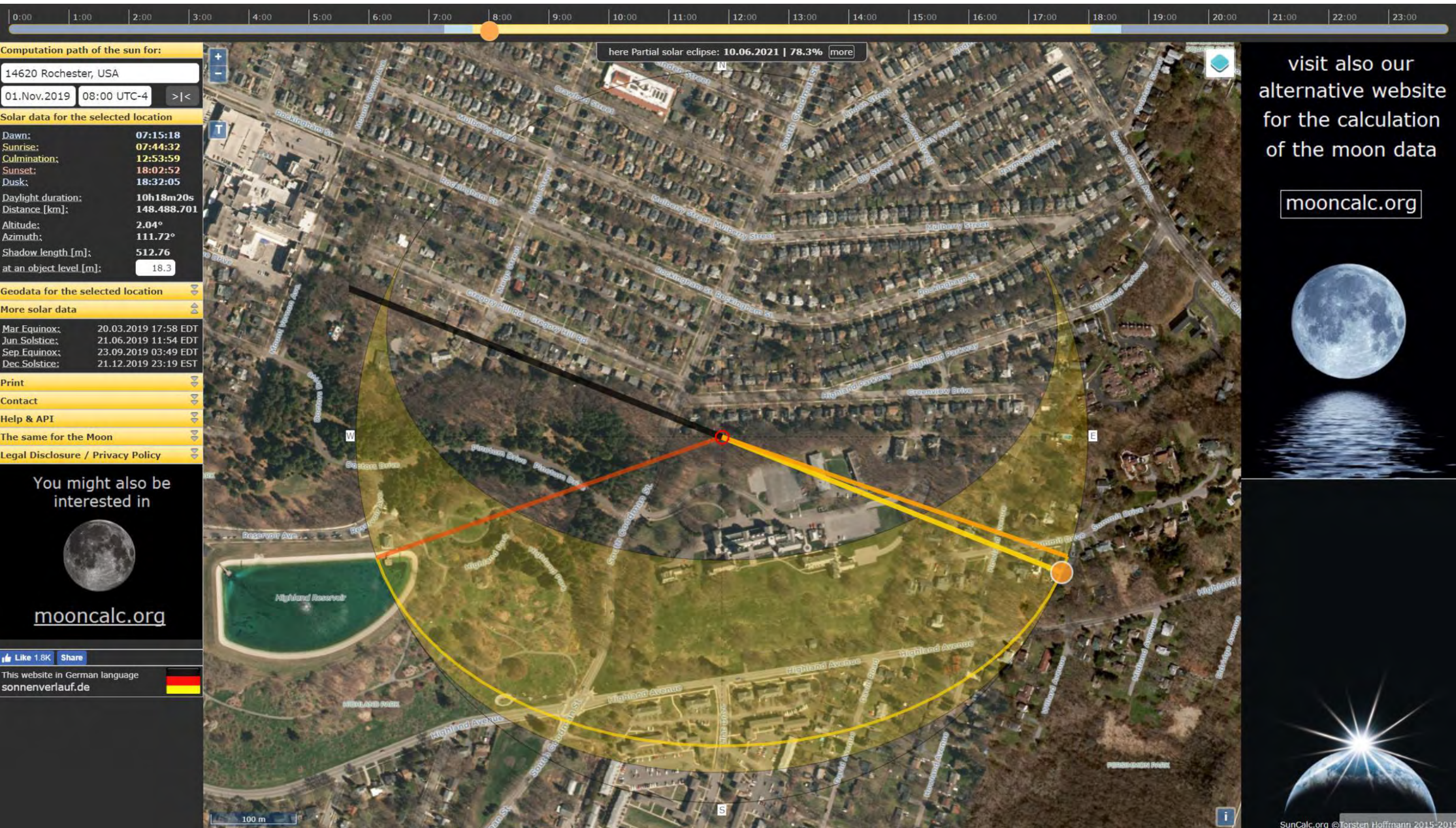
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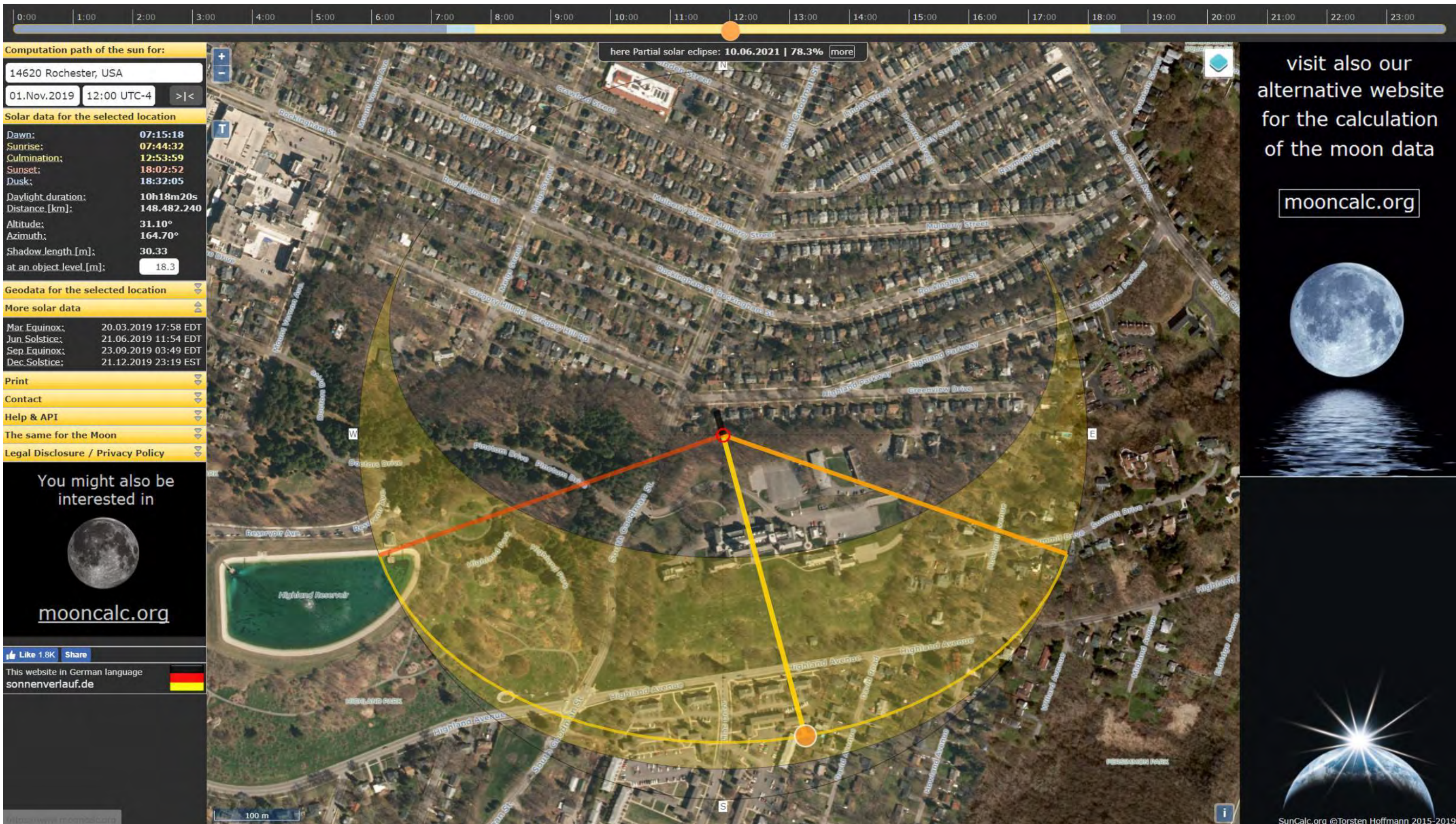
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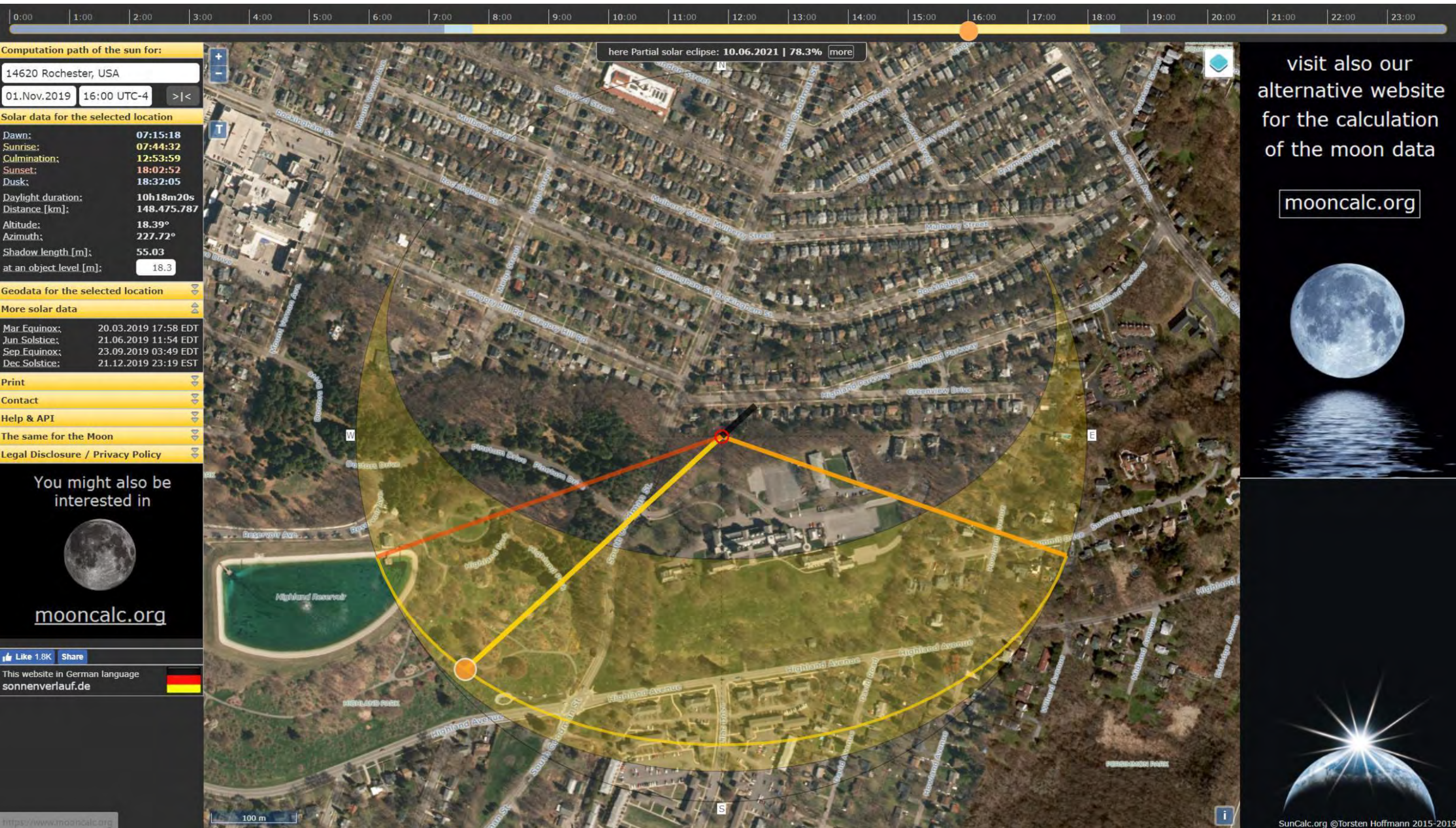




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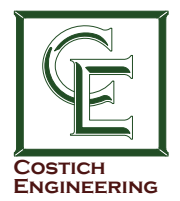
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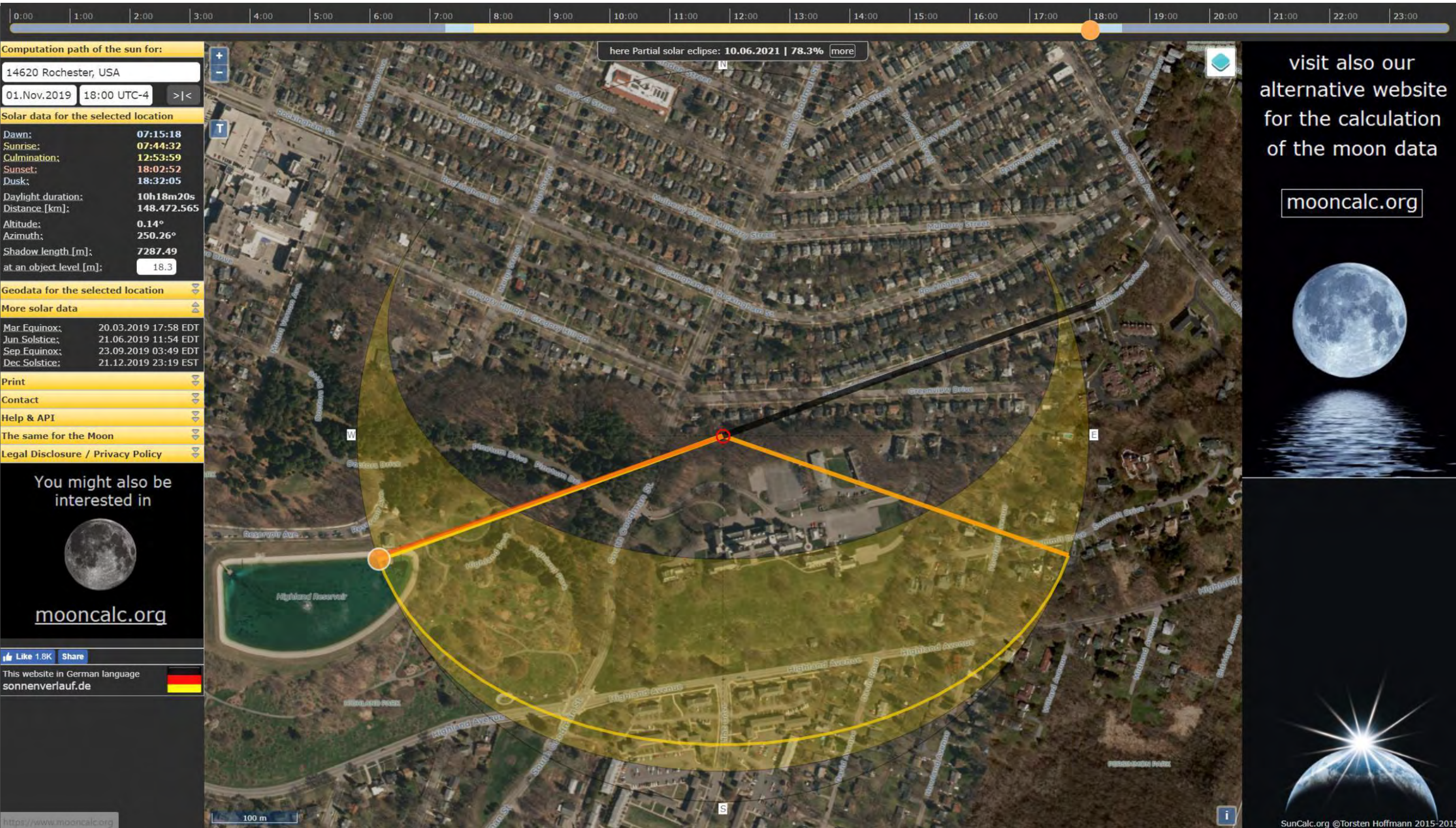




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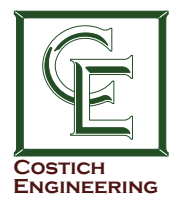
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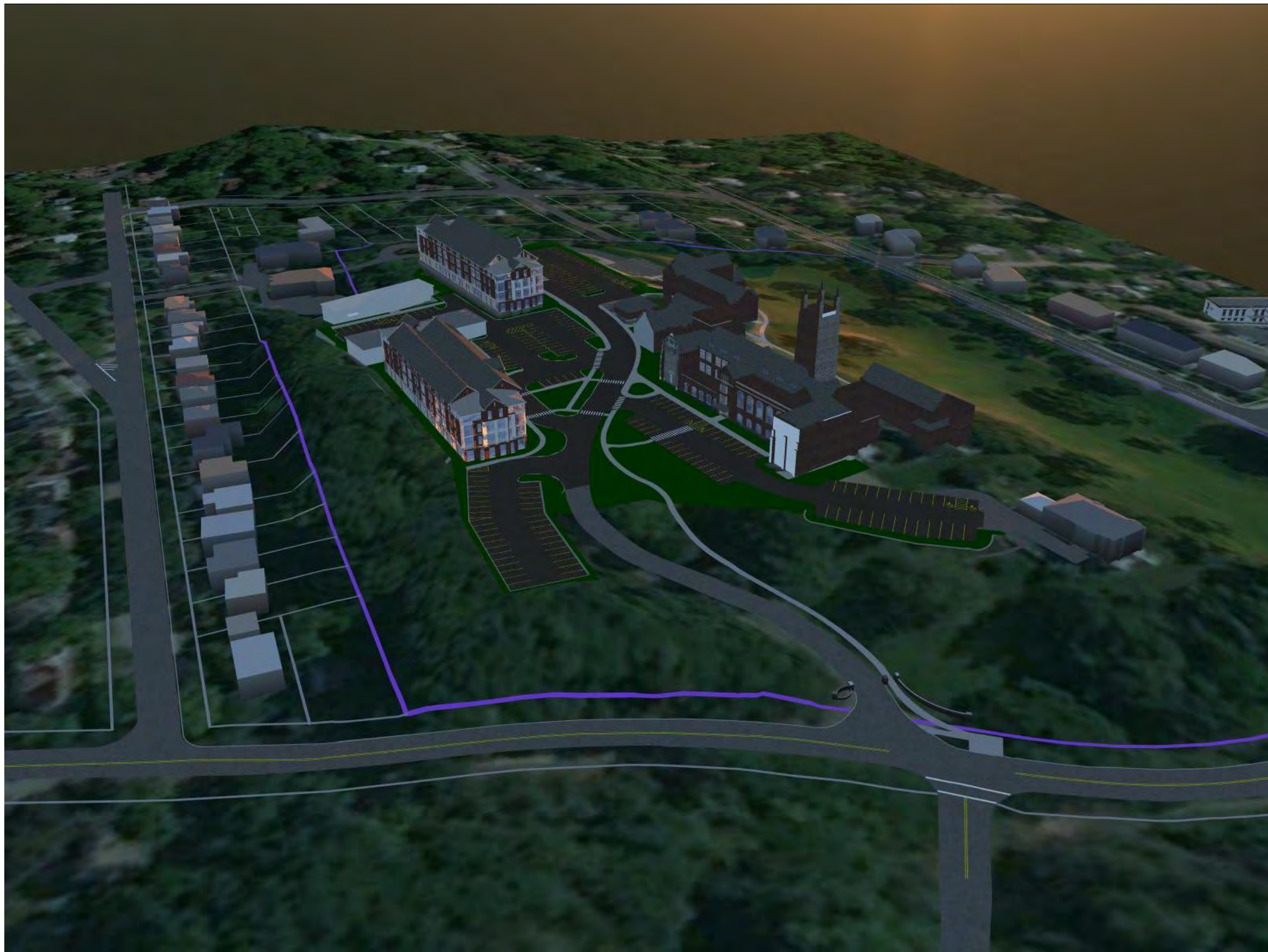


COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: January, Time 08:00 EST, Existing Site





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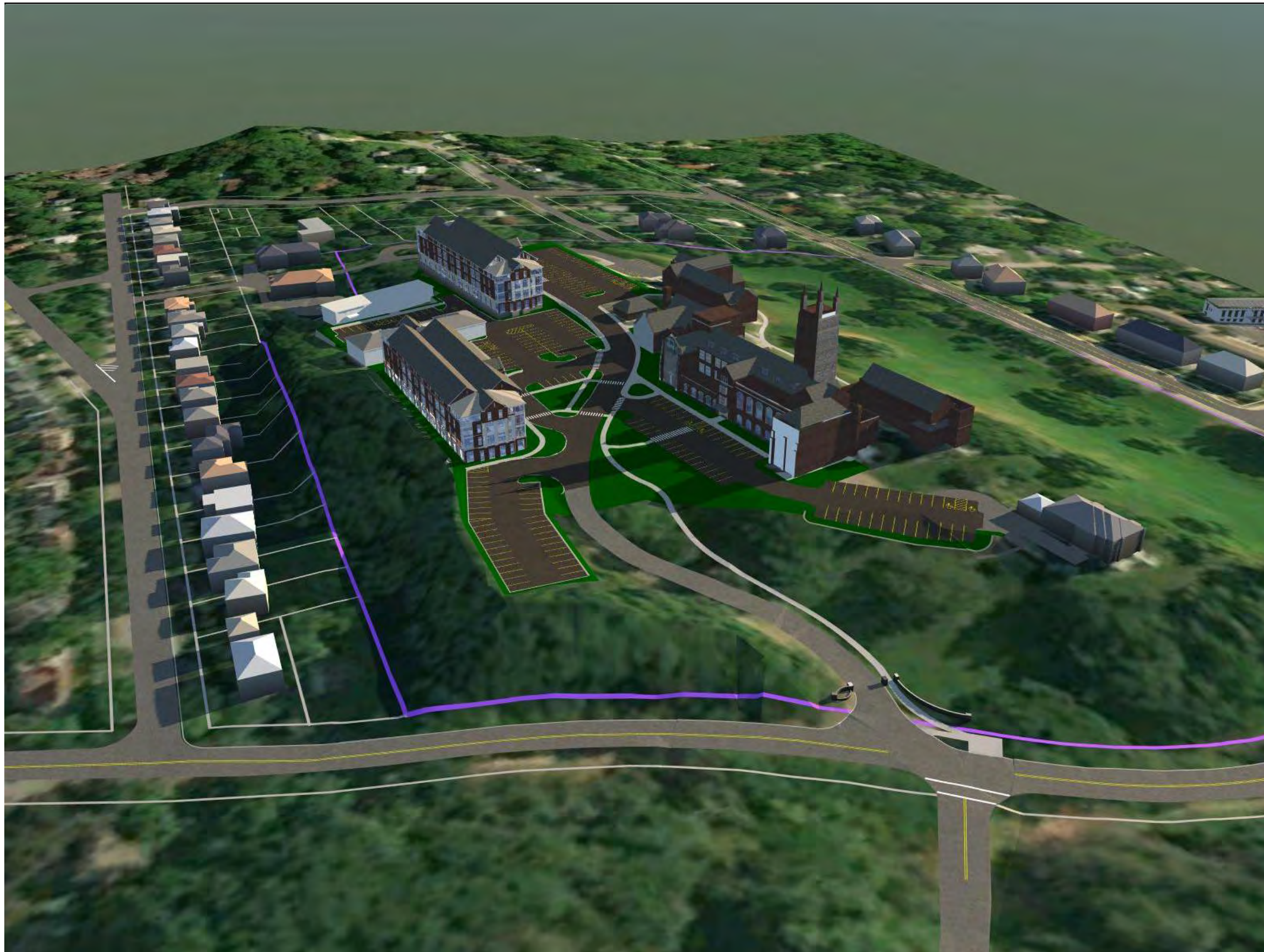


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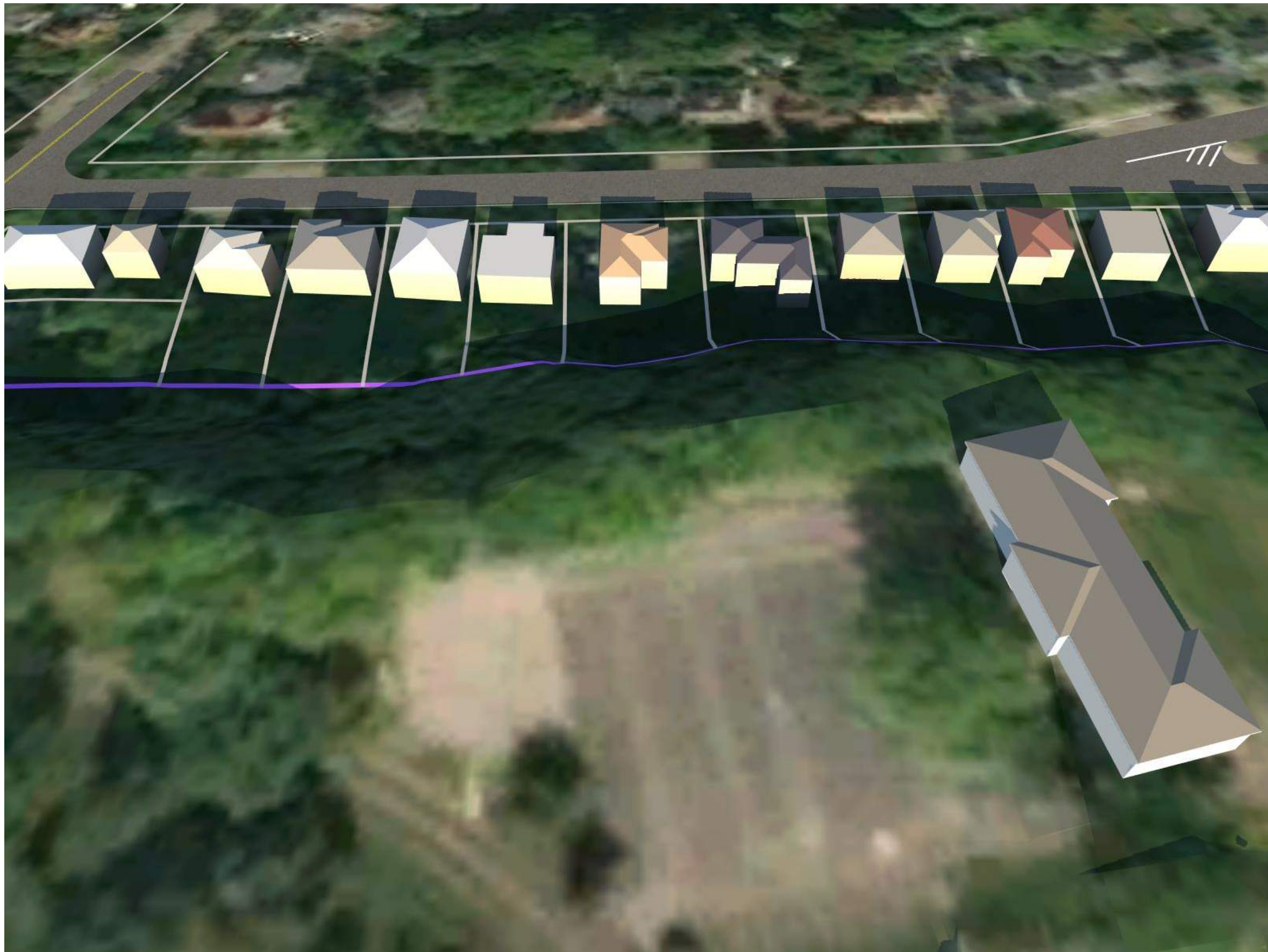




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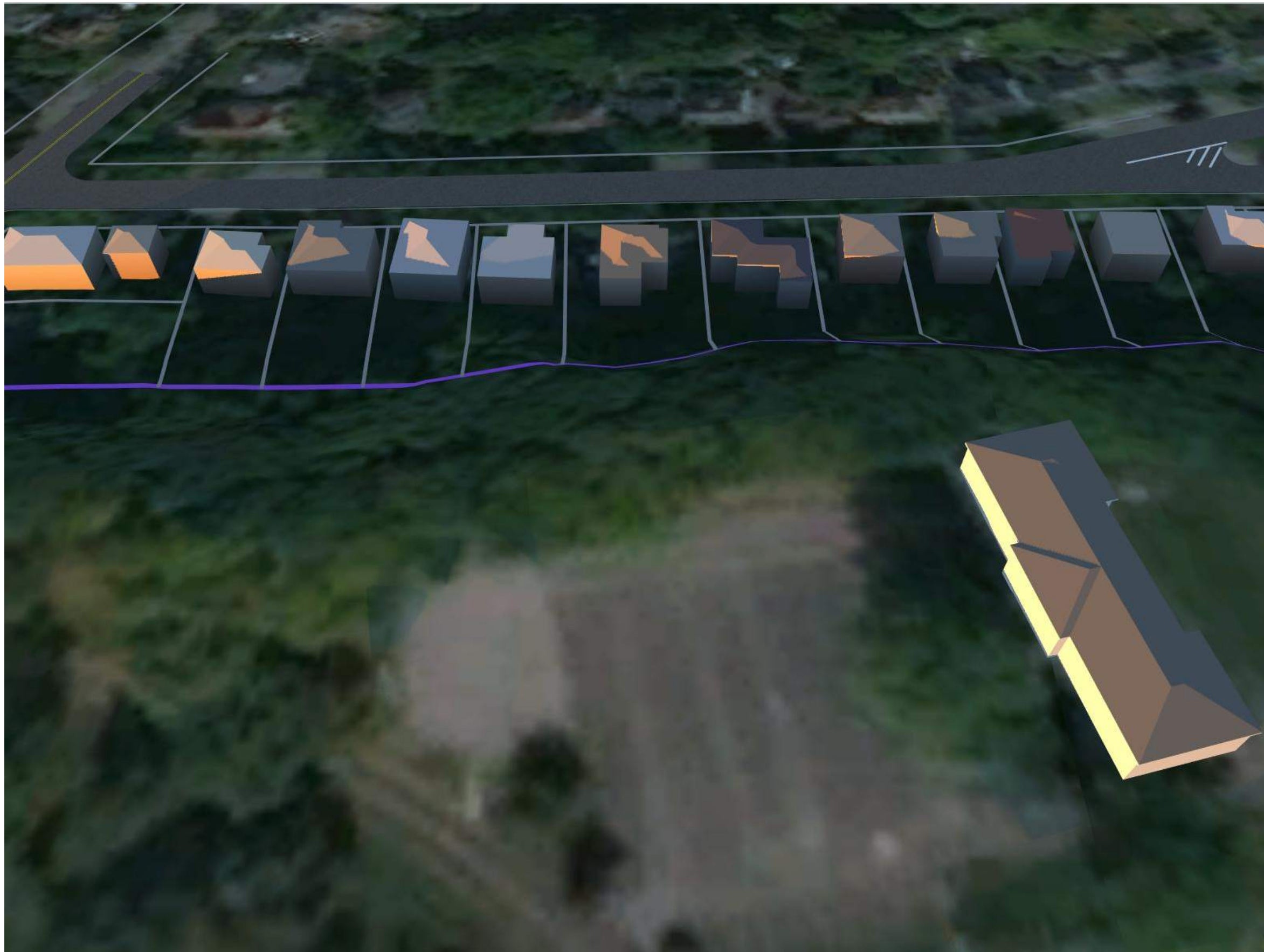




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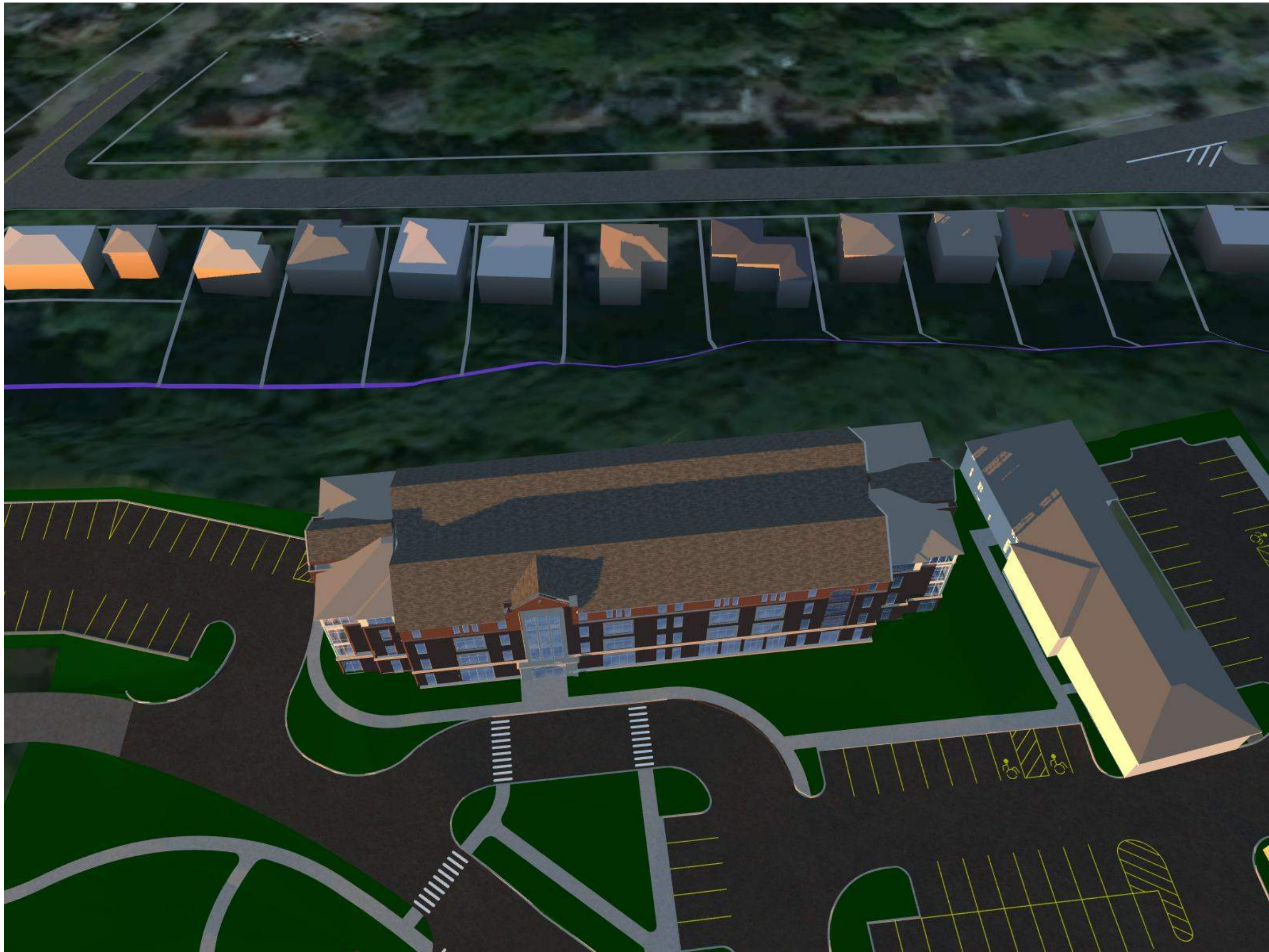


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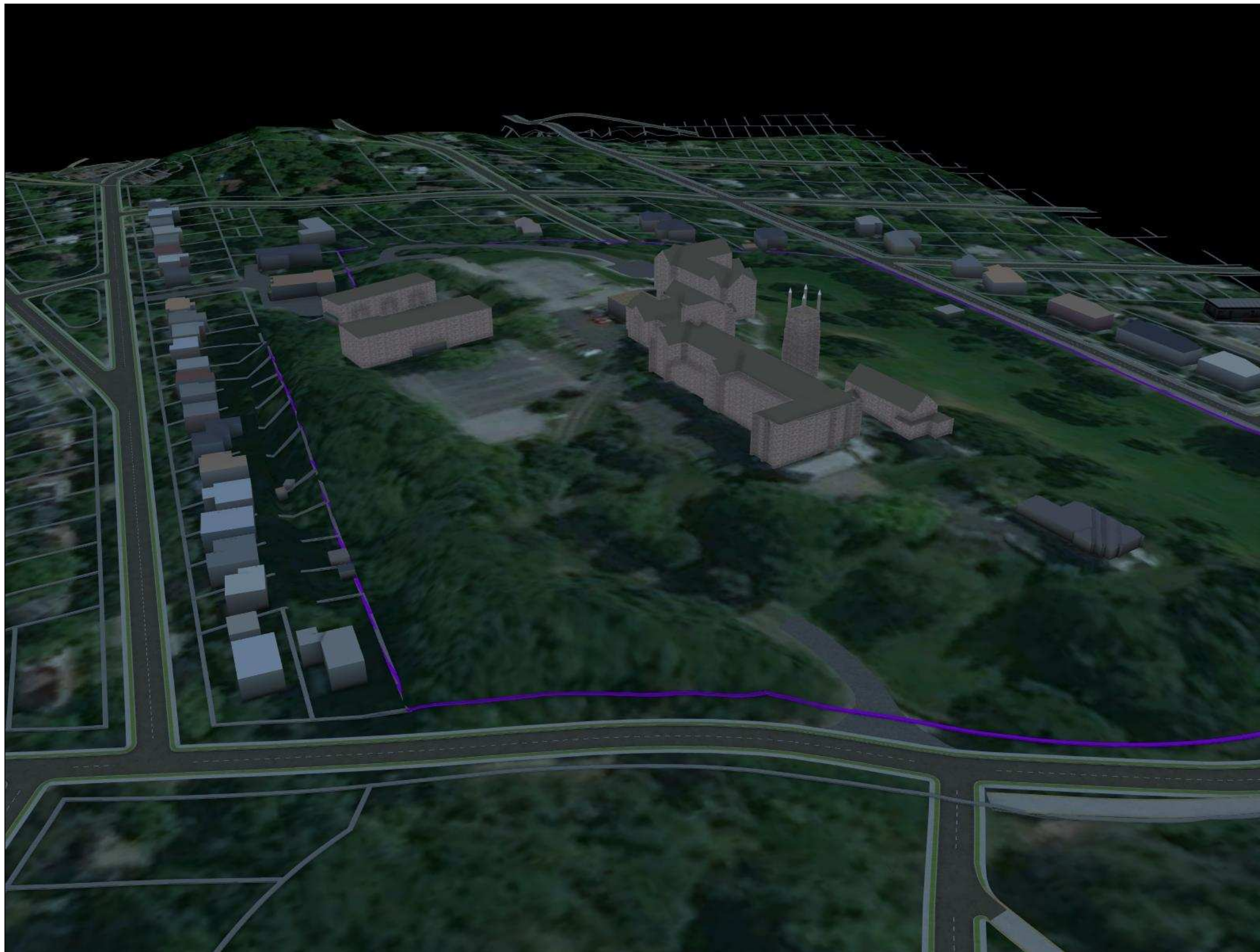




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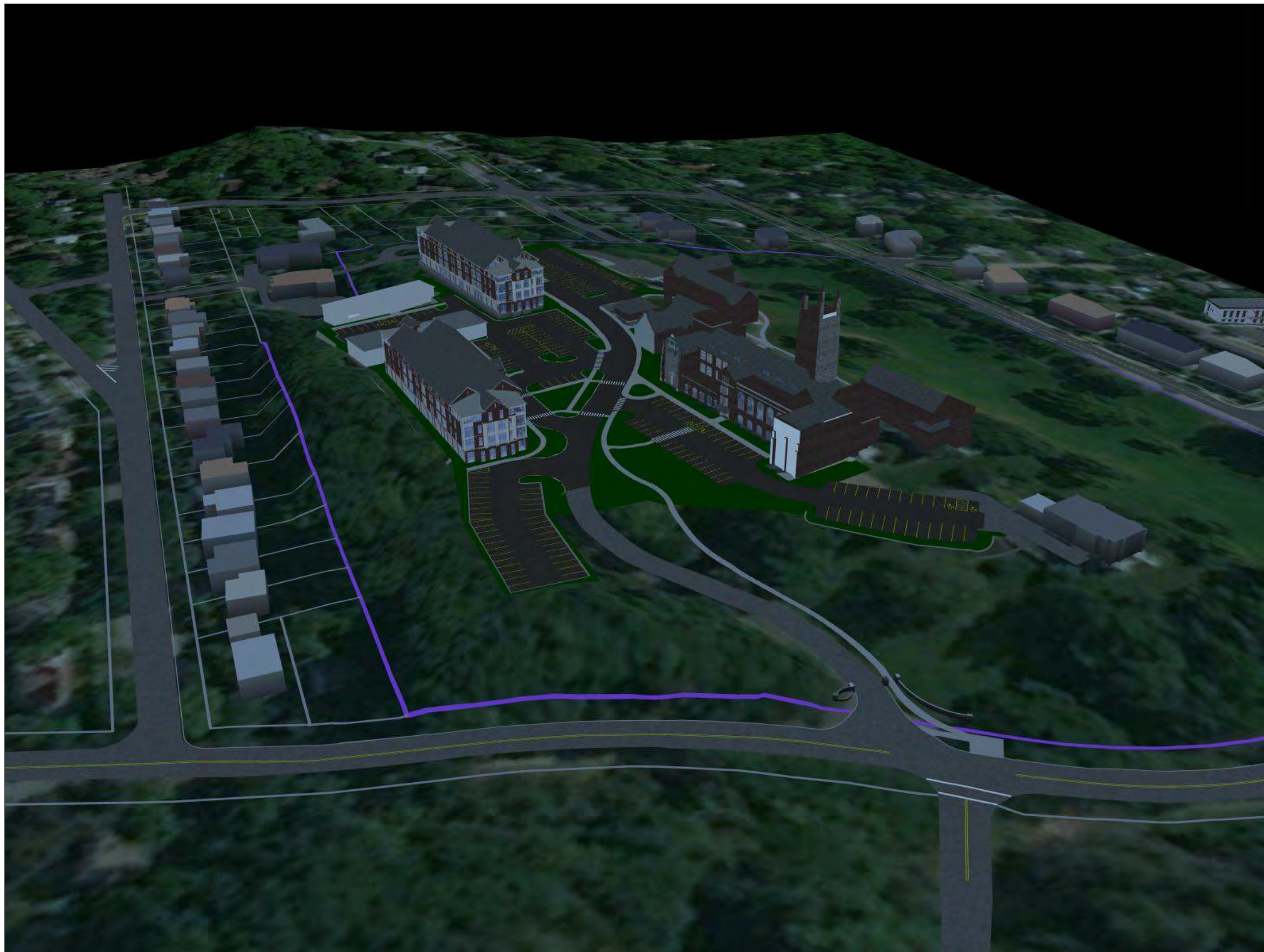


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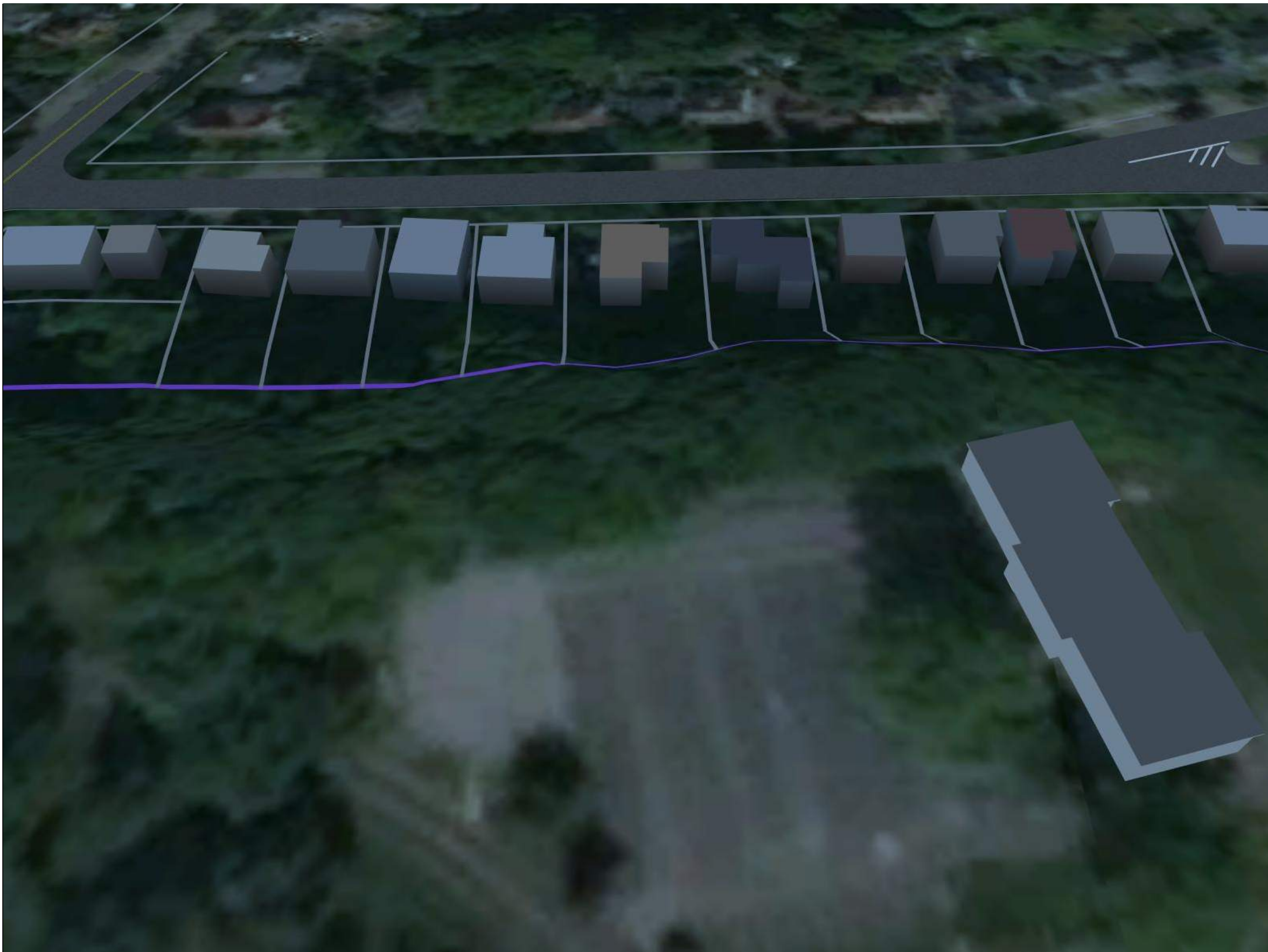


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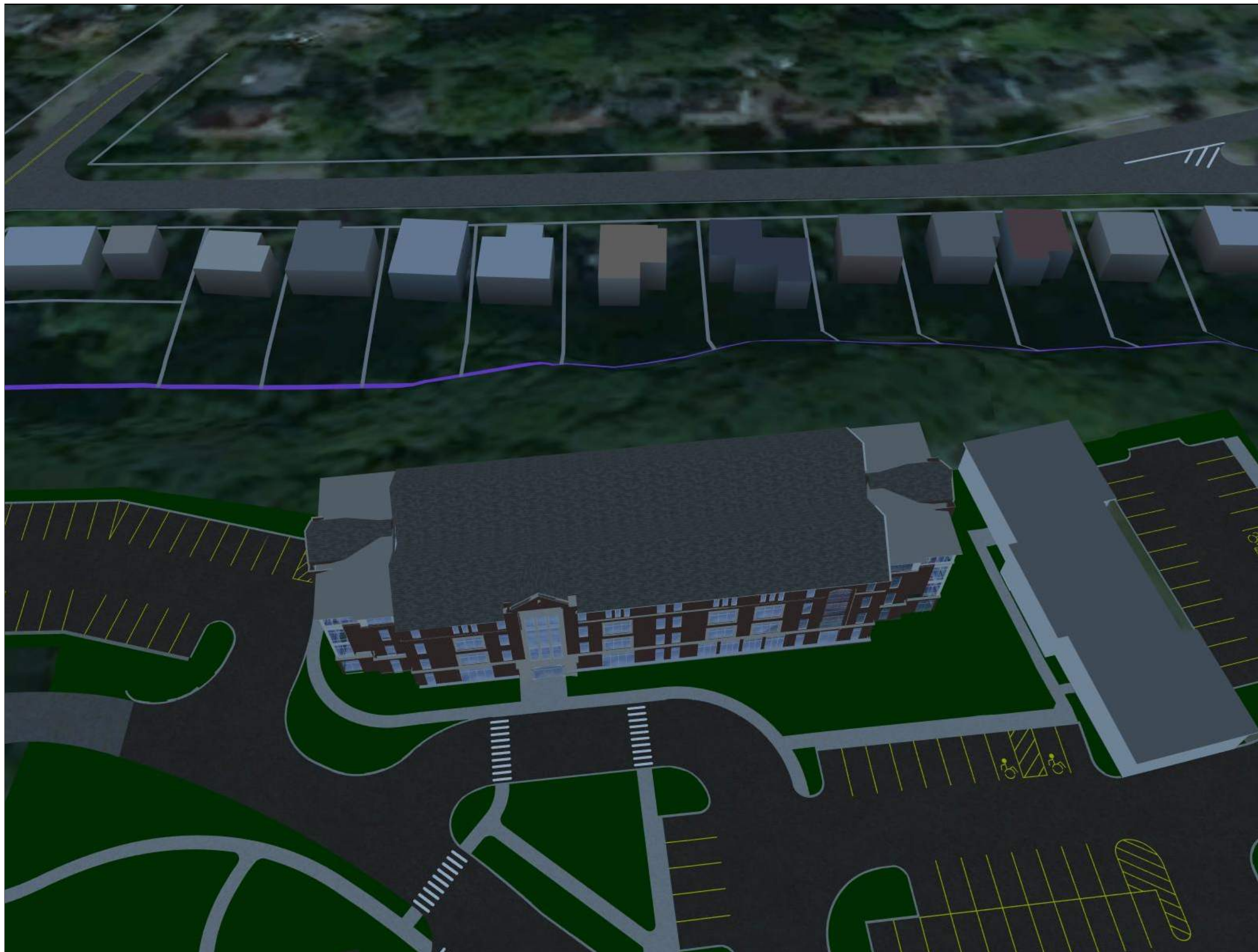


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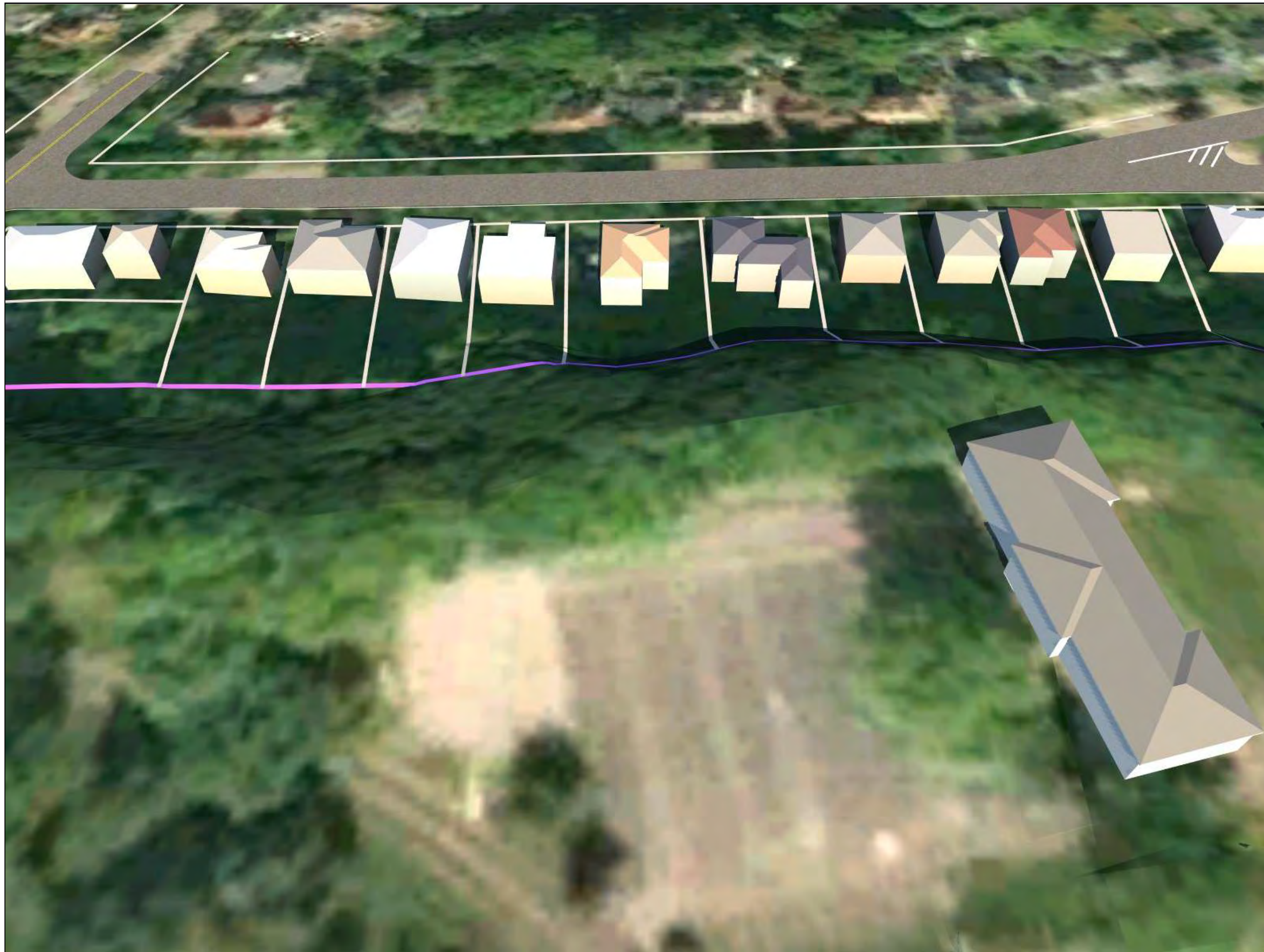




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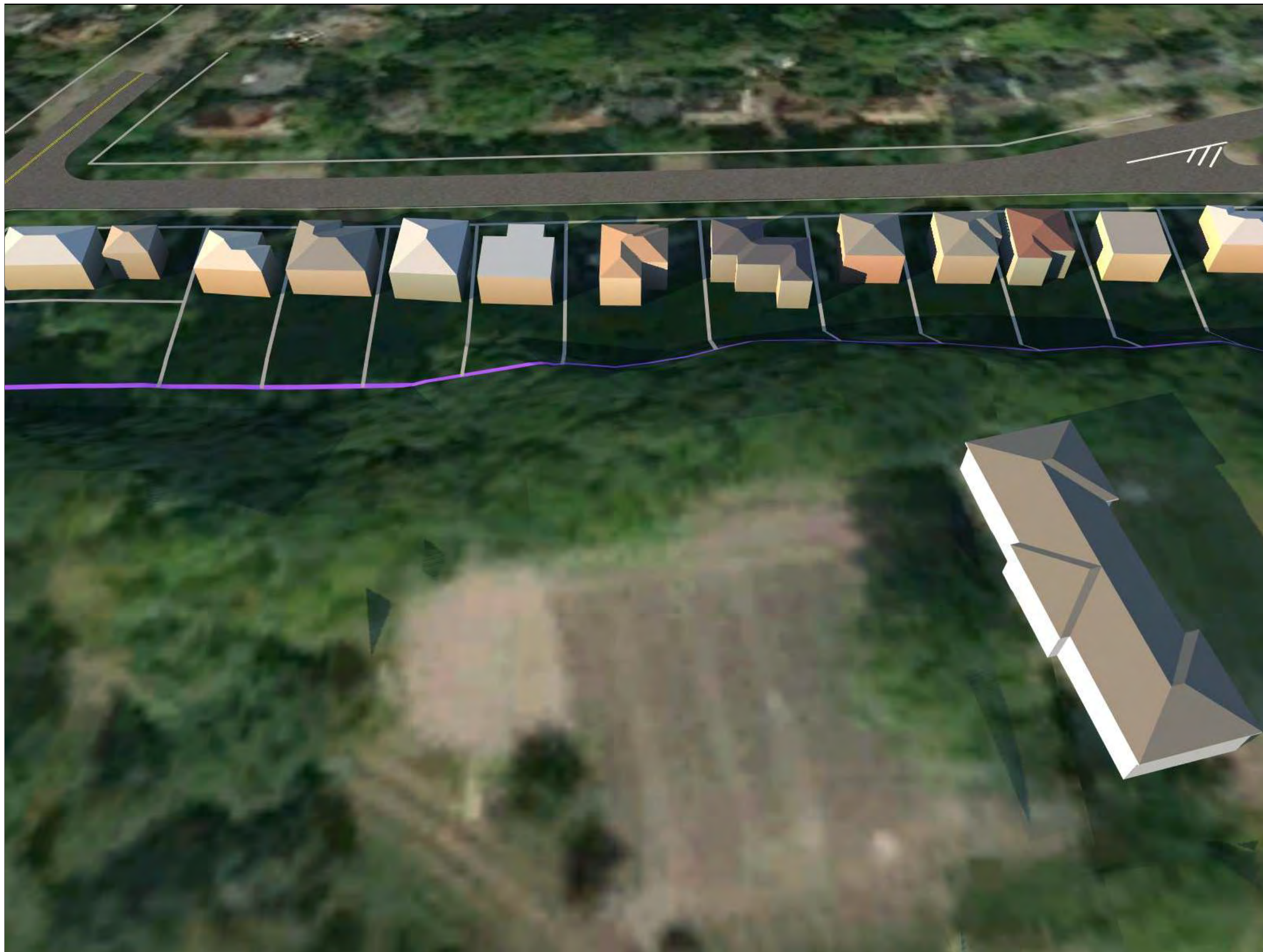


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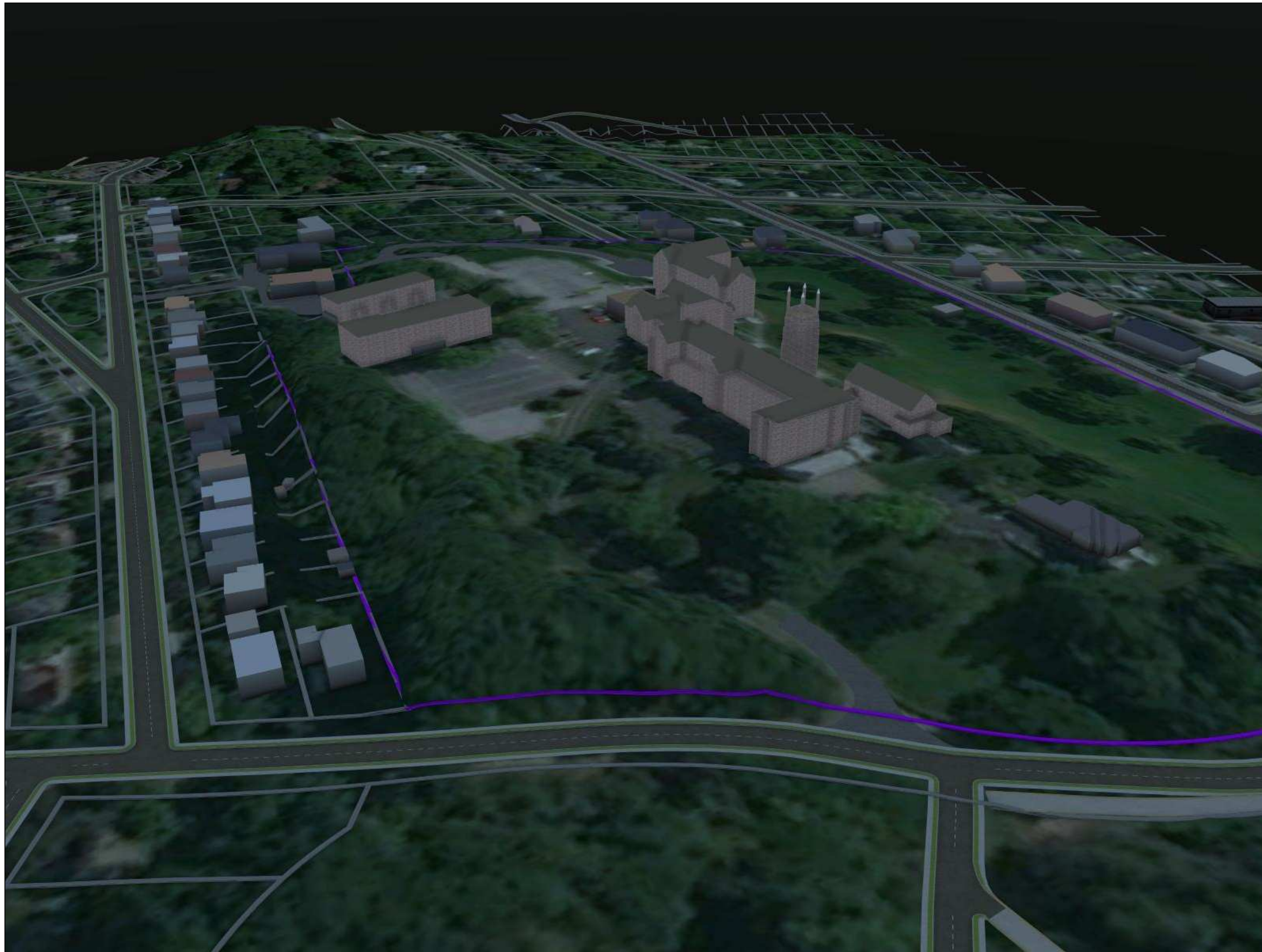




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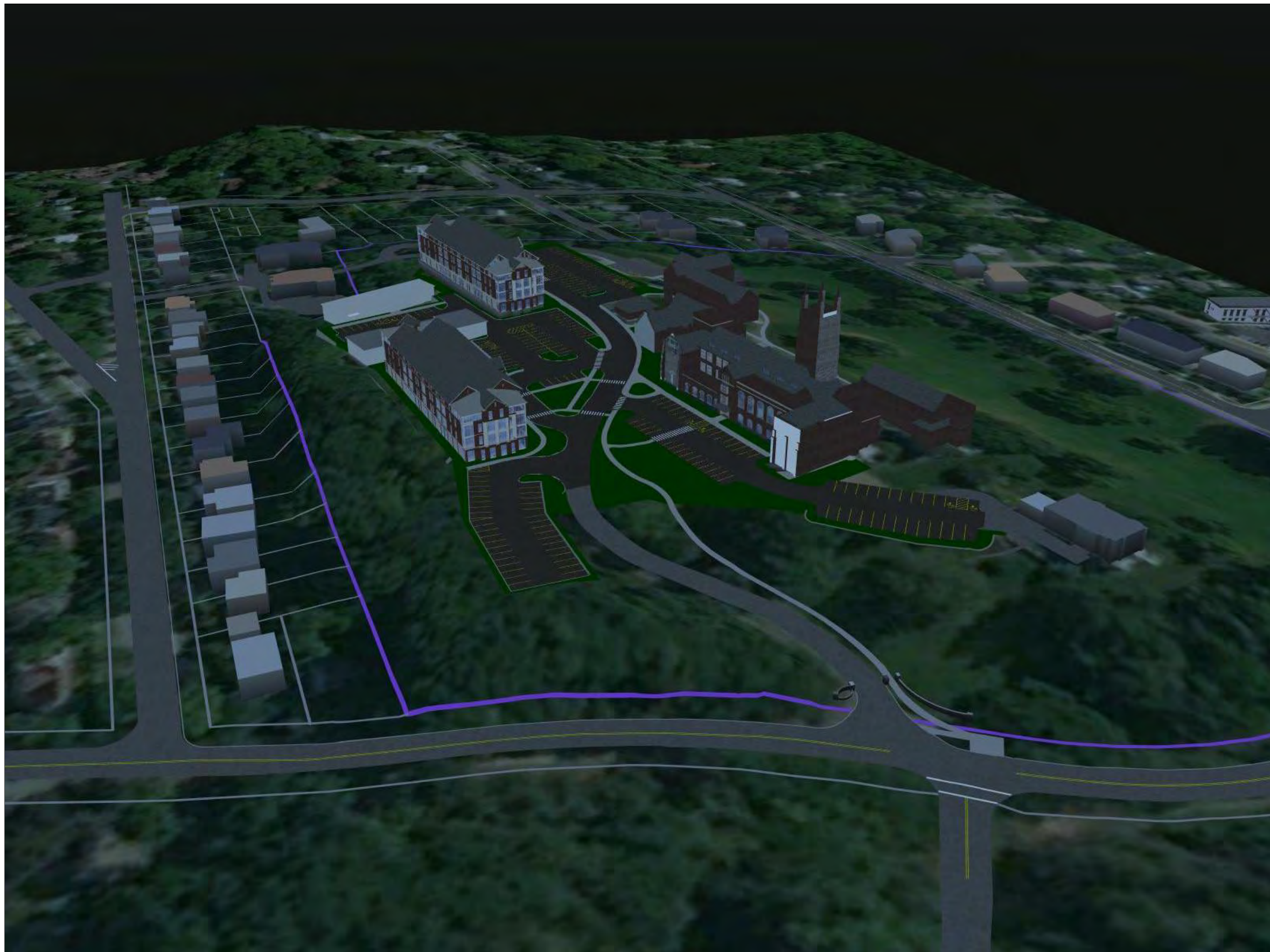


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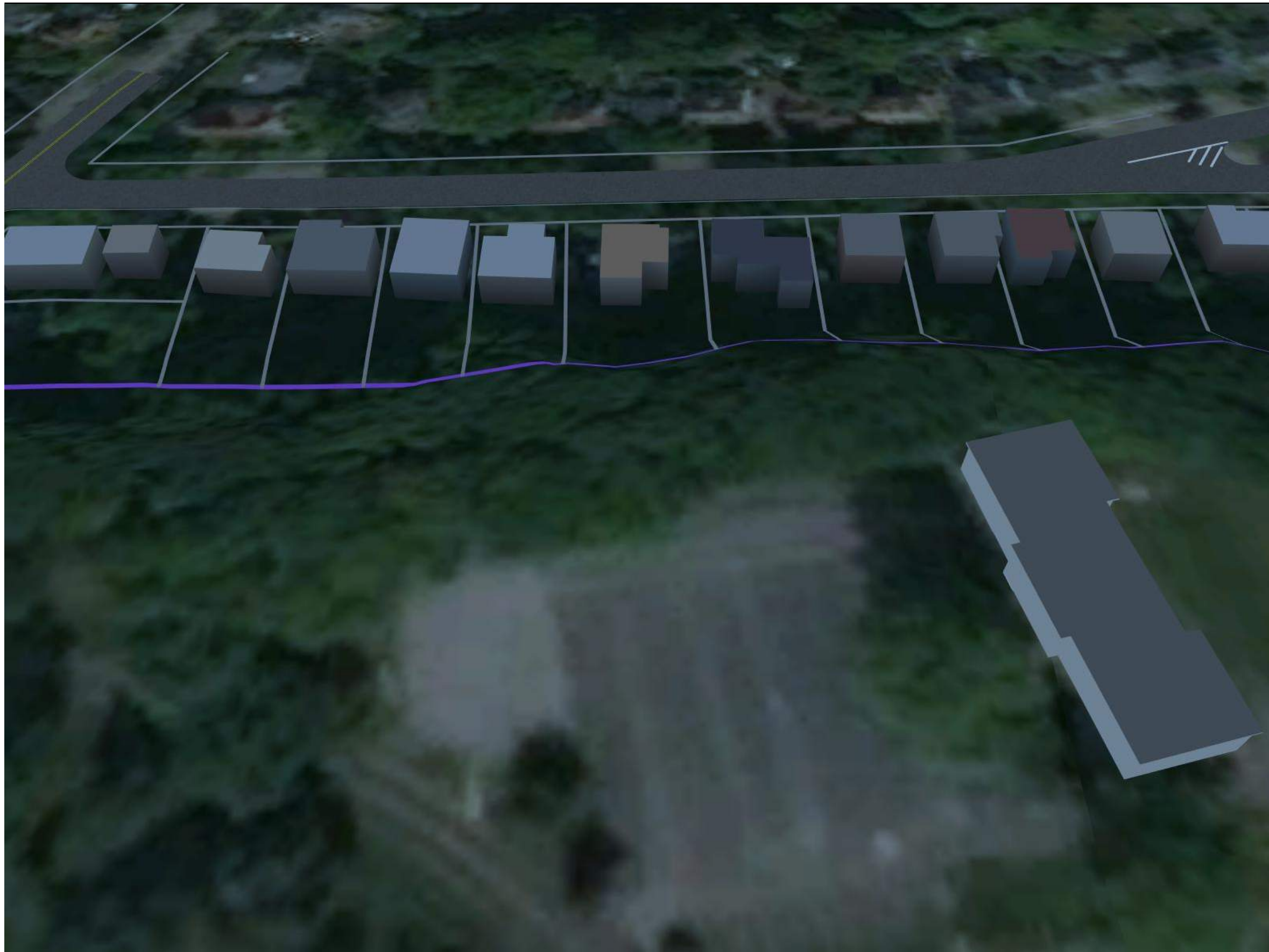


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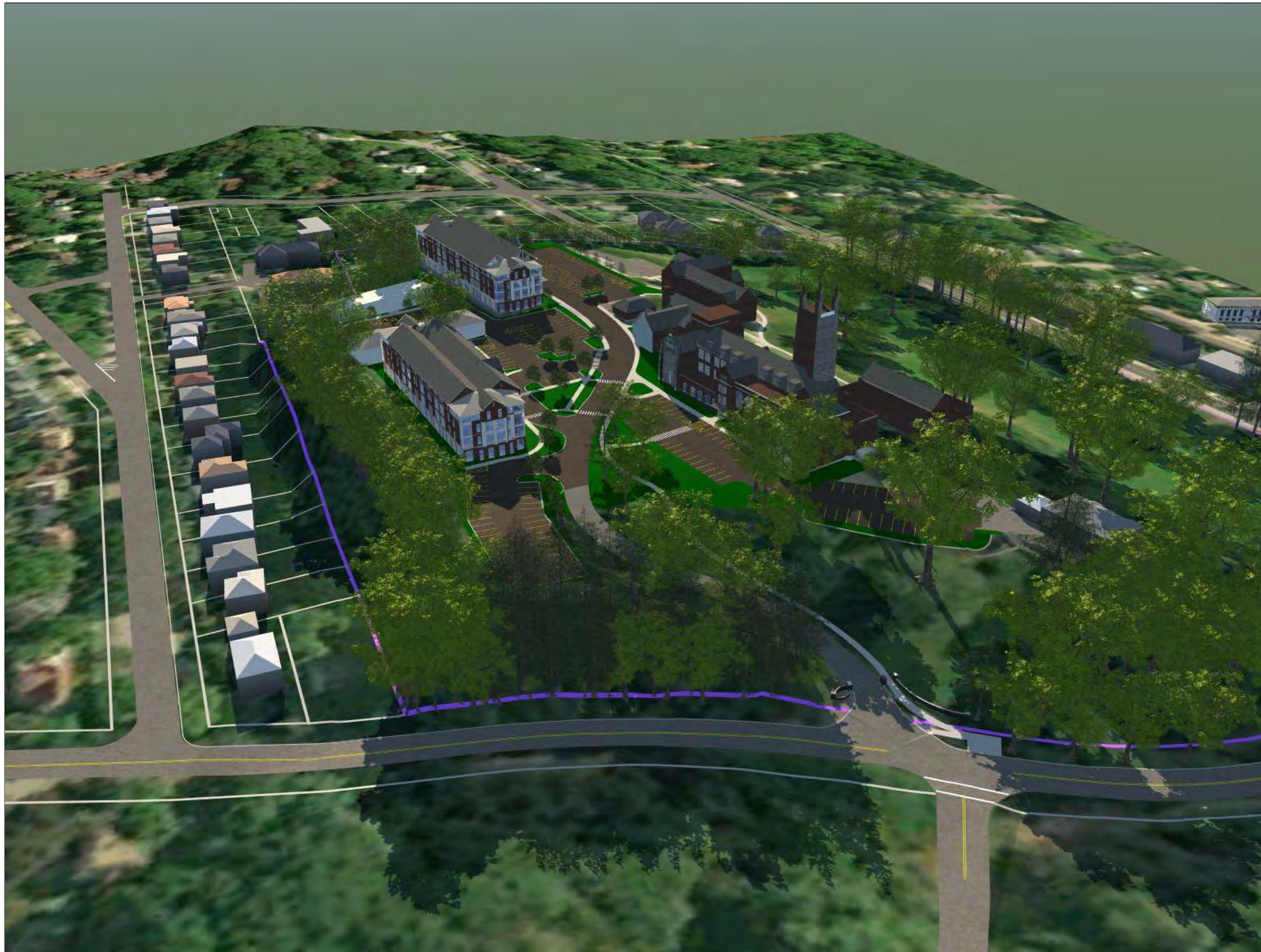




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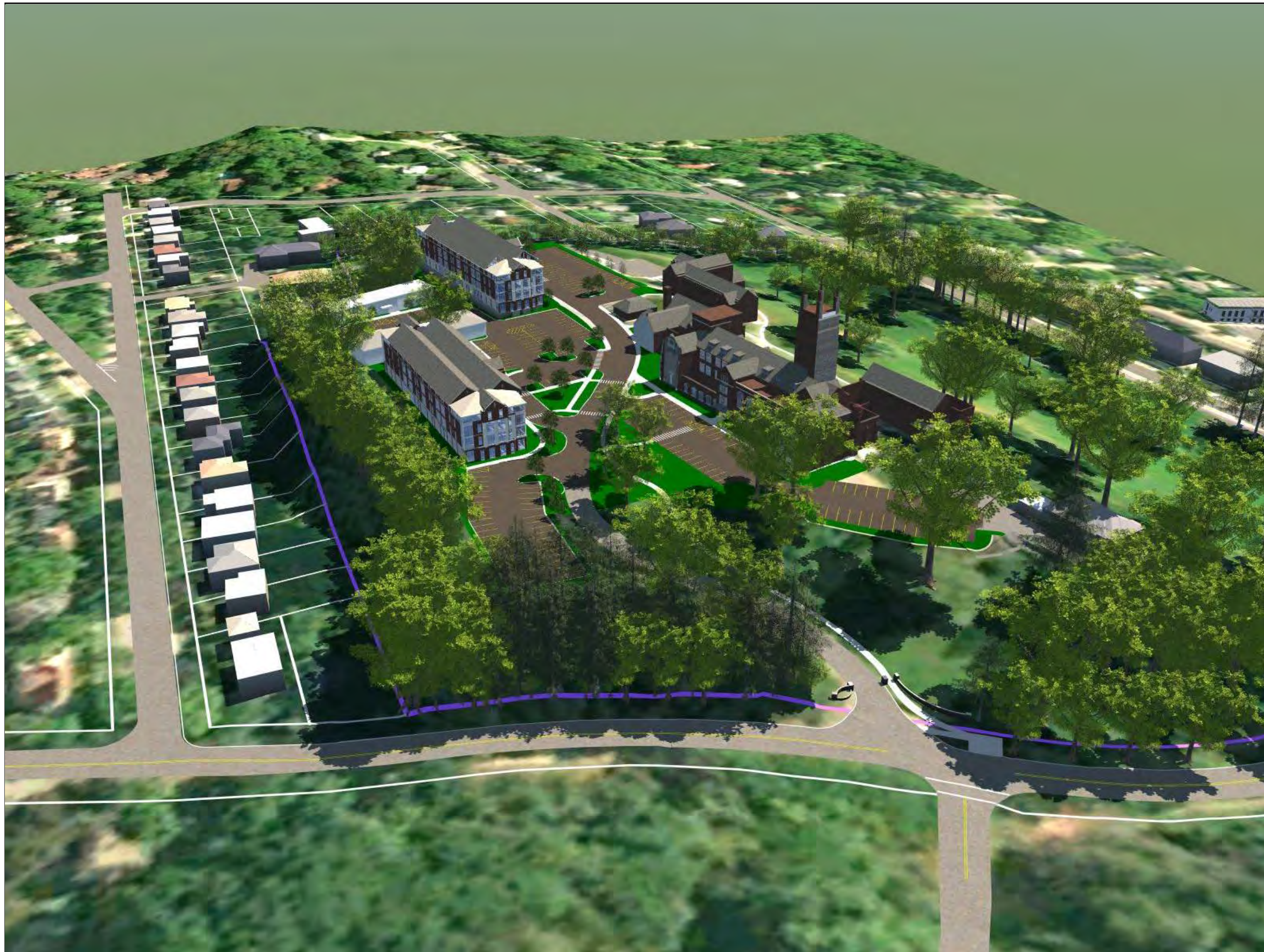
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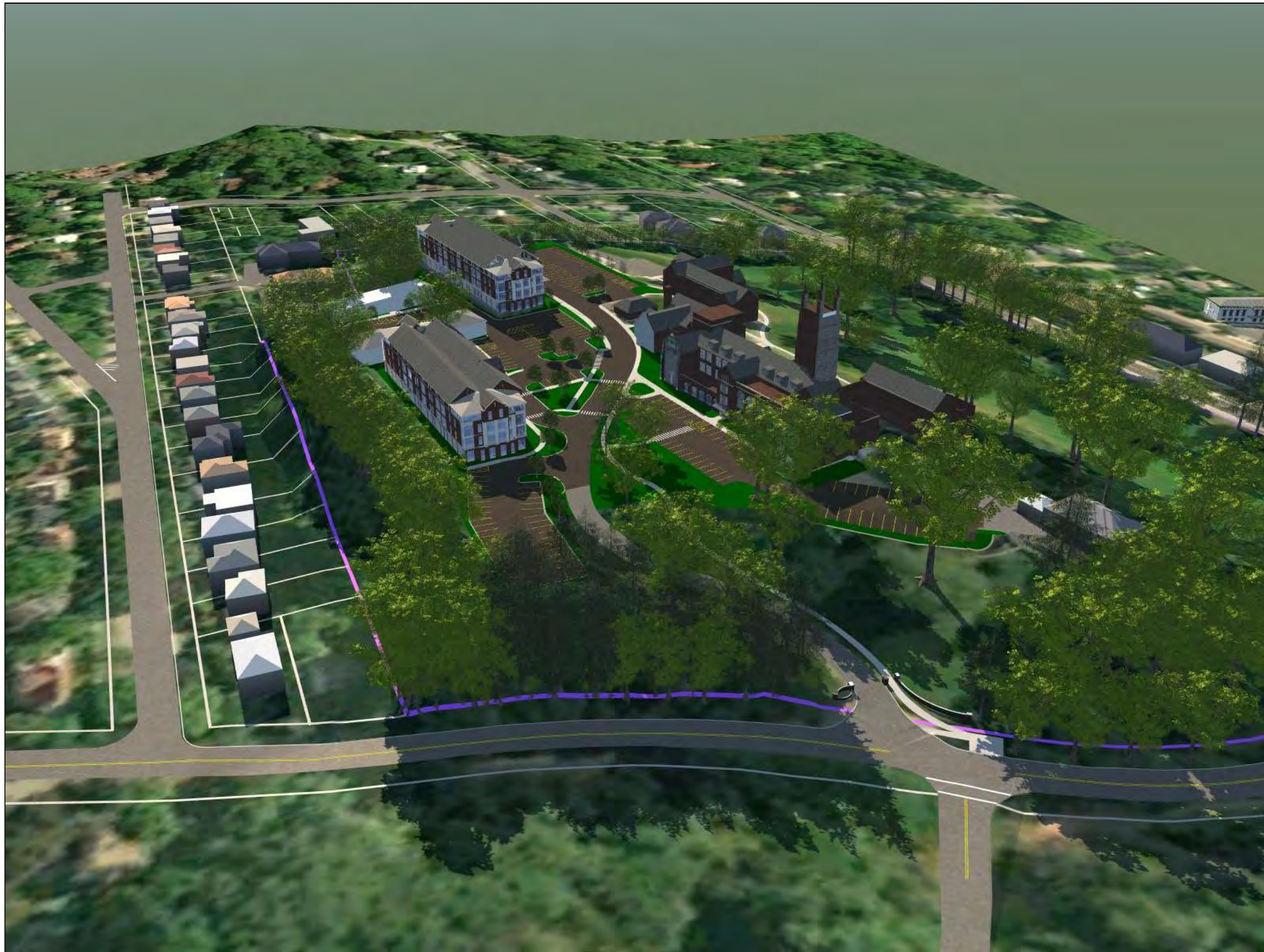


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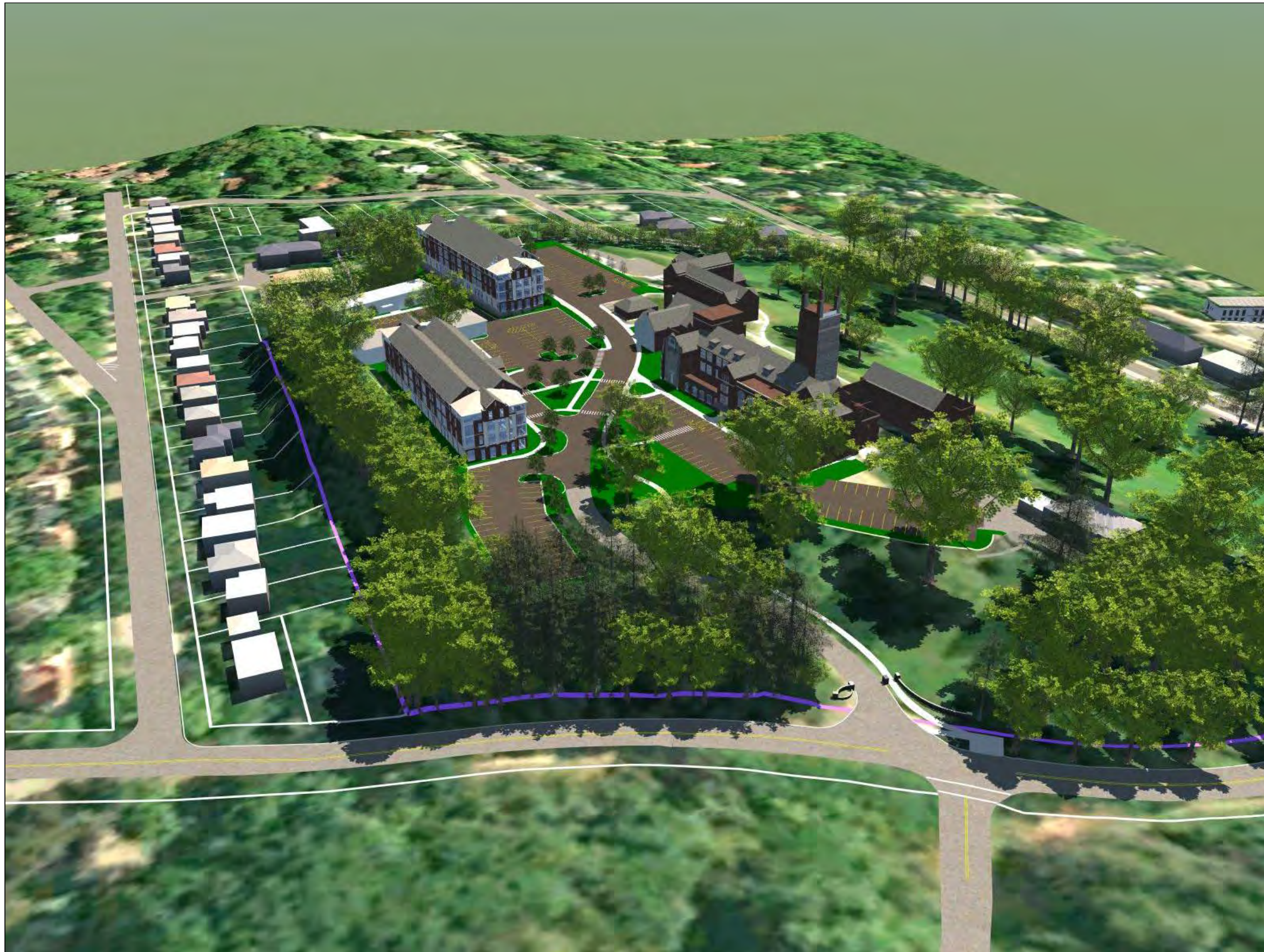




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Shadow Evaluation, Month: July, Time 16:00 EST, Building Height 60 ft above existing grade (18.3m)

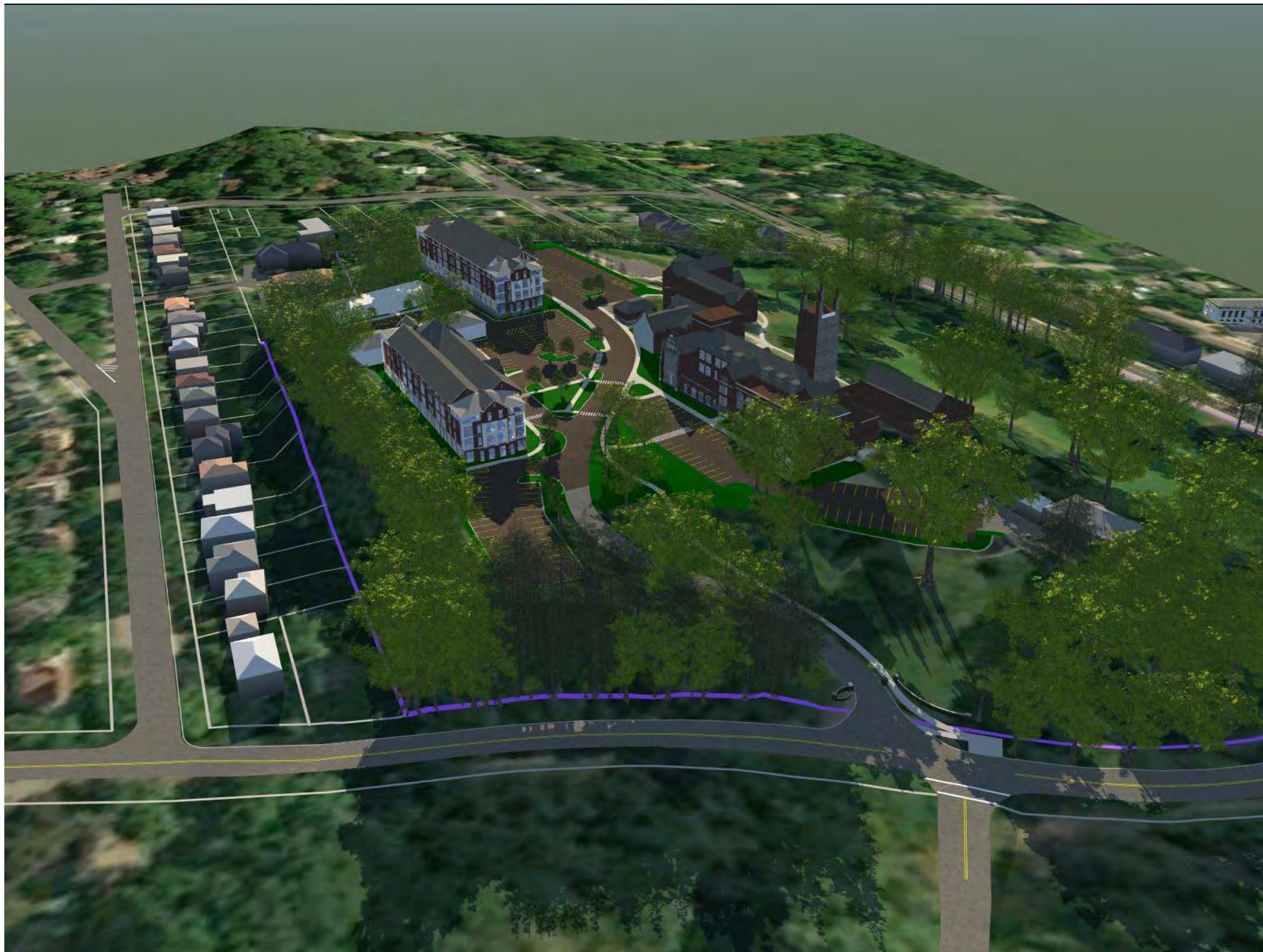


COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: July, Time 18:00 EST, Building Height 60 ft above existing grade (18.3m)

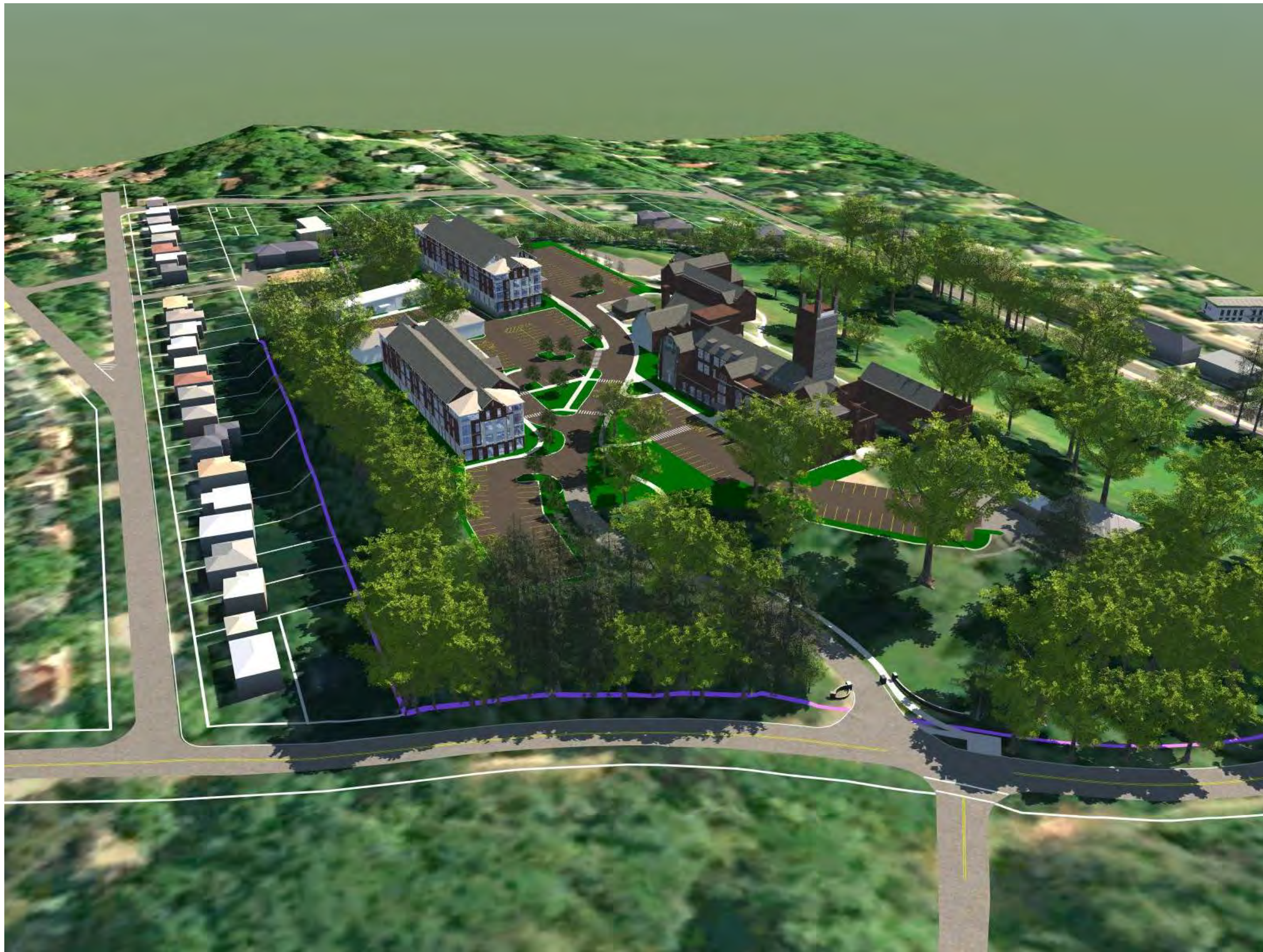




COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: September, Time 08:00 EST, Building Height 60 ft above existing grade (18.3m)



COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: September, Time 12:00 EST, Building Height 60 ft above existing grade (18.3m)





COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: September, Time 16:00 EST, Building Height 60 ft above existing grade (18.3m)



COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: September, Time 18:00 EST, Building Height 60 ft above existing grade (18.3m)





COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: November, Time 08:00 EST, Existing Site

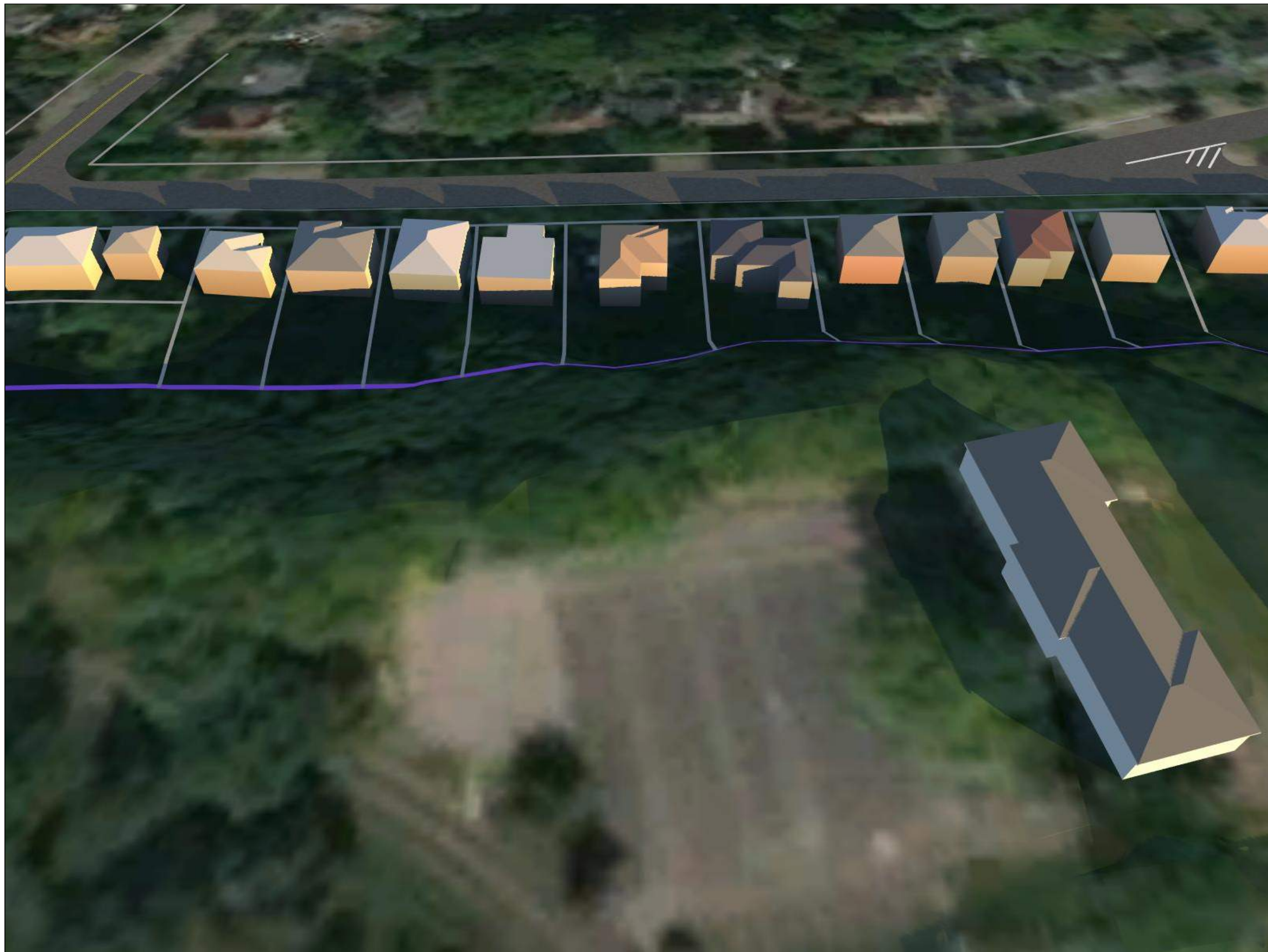




COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: November, Time 08:00 EST, Building Height 60 ft above existing grade (18.3m)



COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: November, Time 08:00 EST, Building Height 60 ft above existing grade (18.3m)





COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: November, Time 08:00 EST, Building Height 60 ft above existing grade (18.3m)



COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: November, Time 12:00 EST, Existing Site



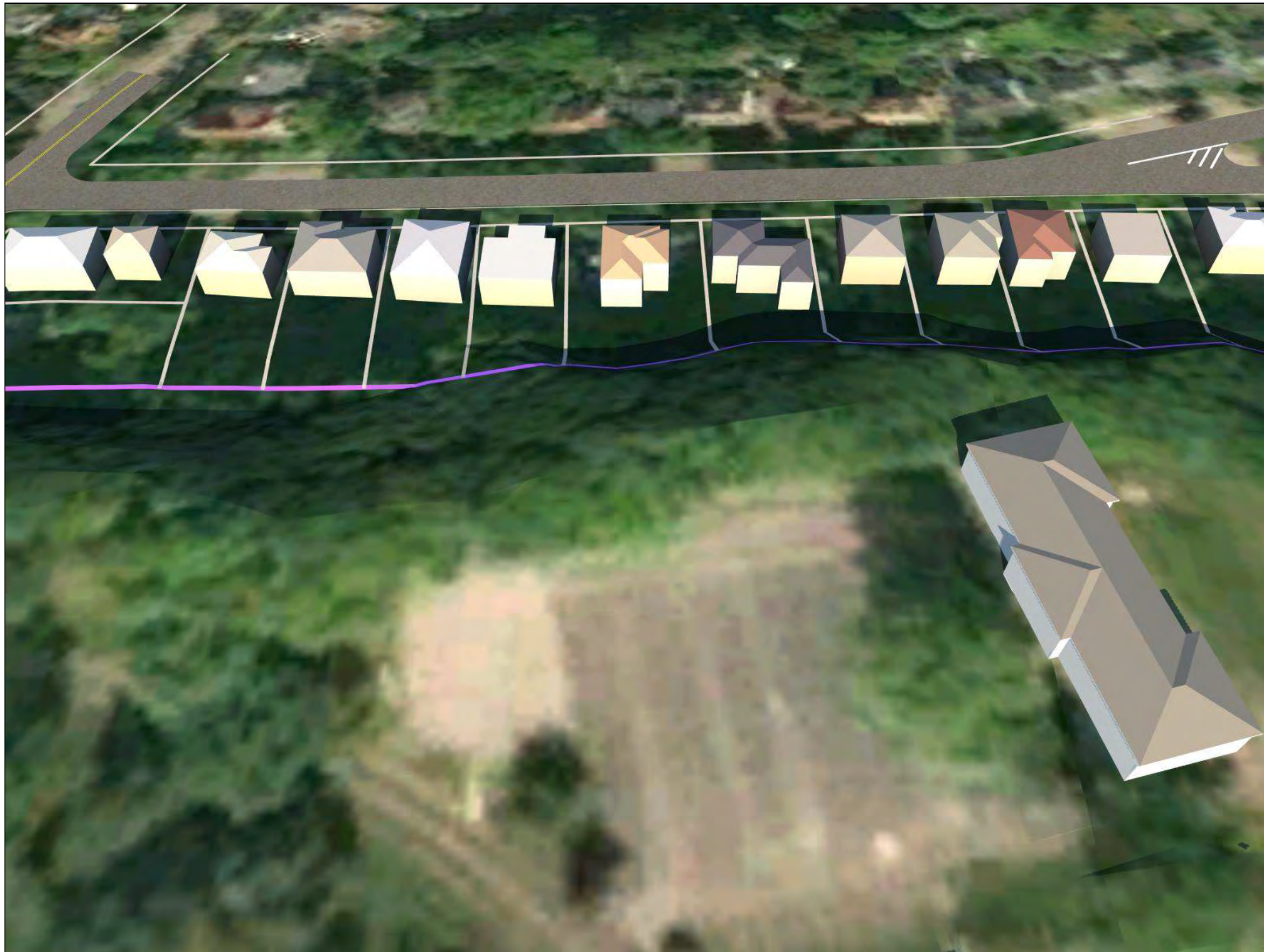


COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: November, Time 12:00 EST, Existing Site





COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: November, Time 12:00 EST, Building Height 60 ft above existing grade (18.3m)





COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: November, Time 12:00 EST, Building Height 60 ft above existing grade (18.3m)



COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK
Shadow Evaluation, Month: November, Time 16:00 EST, Existing Site

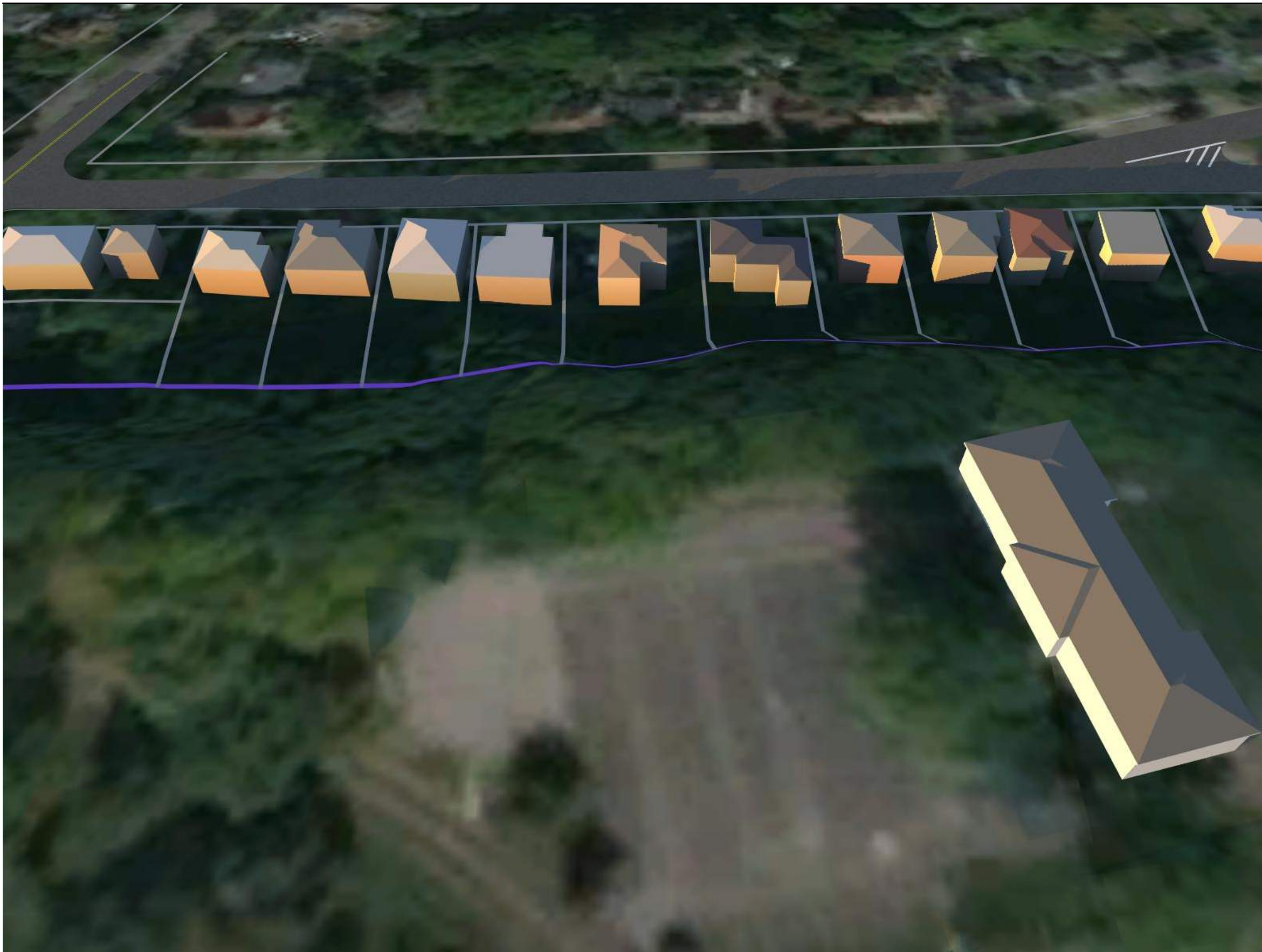




COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: November, Time 16:00 EST, Building Height 60 ft above existing grade (18.3m)



COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: November, Time 16:00 EST, Building Height 60 ft above existing grade (18.3m)

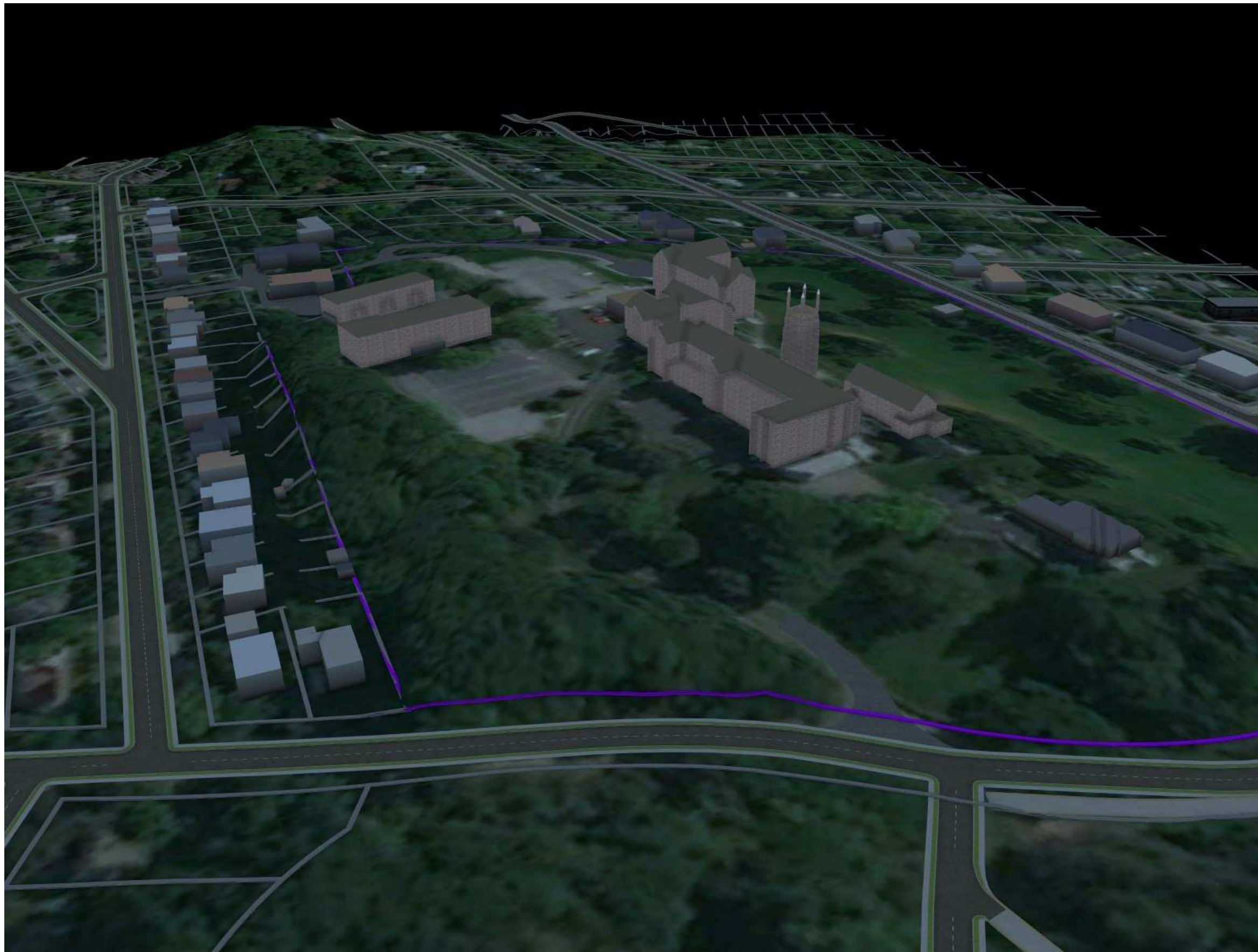




COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: November, Time 16:00 EST, Building Height 60 ft above existing grade (18.3m)

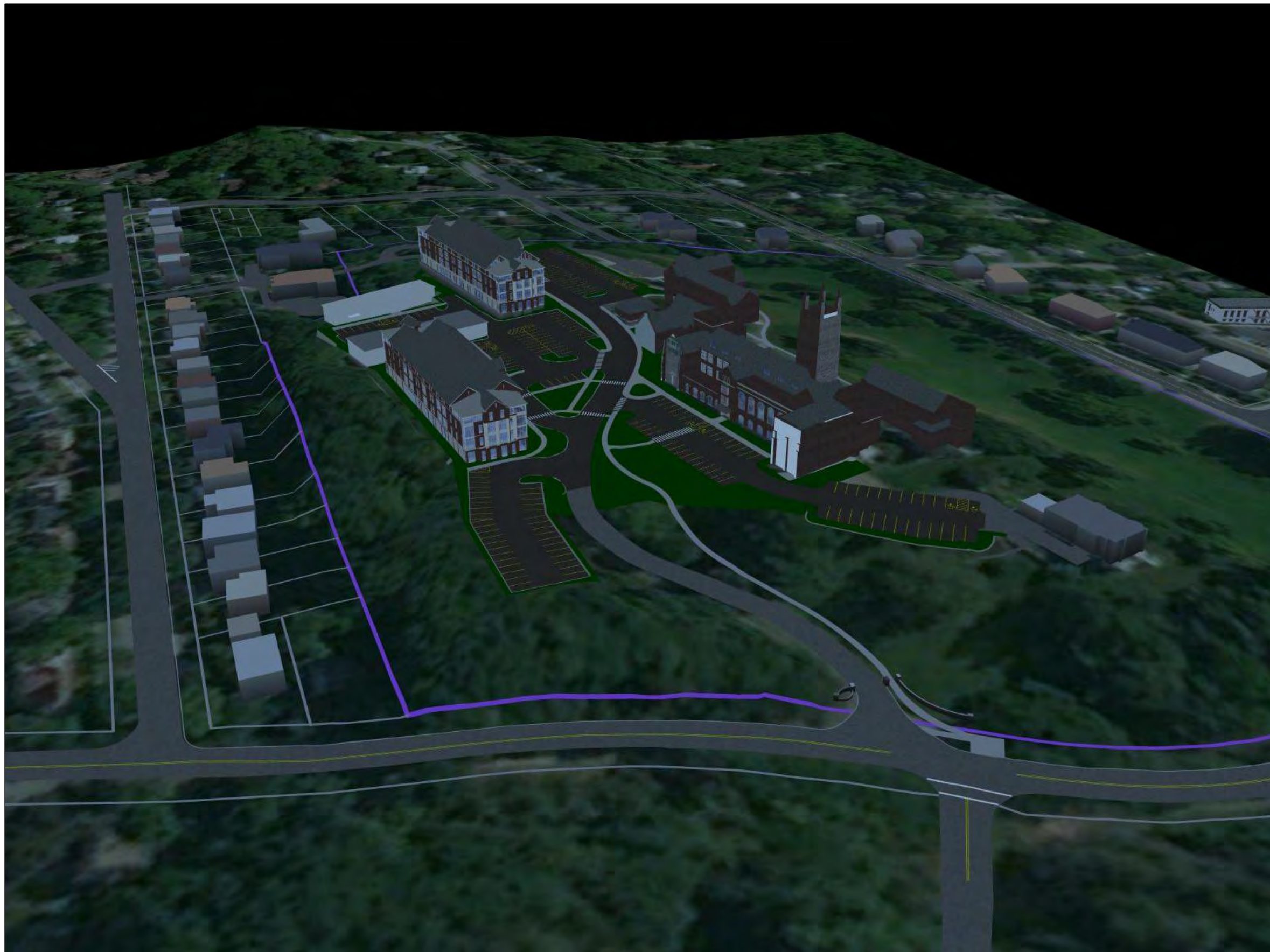


COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: November, Time 18:00 EST, Existing Site



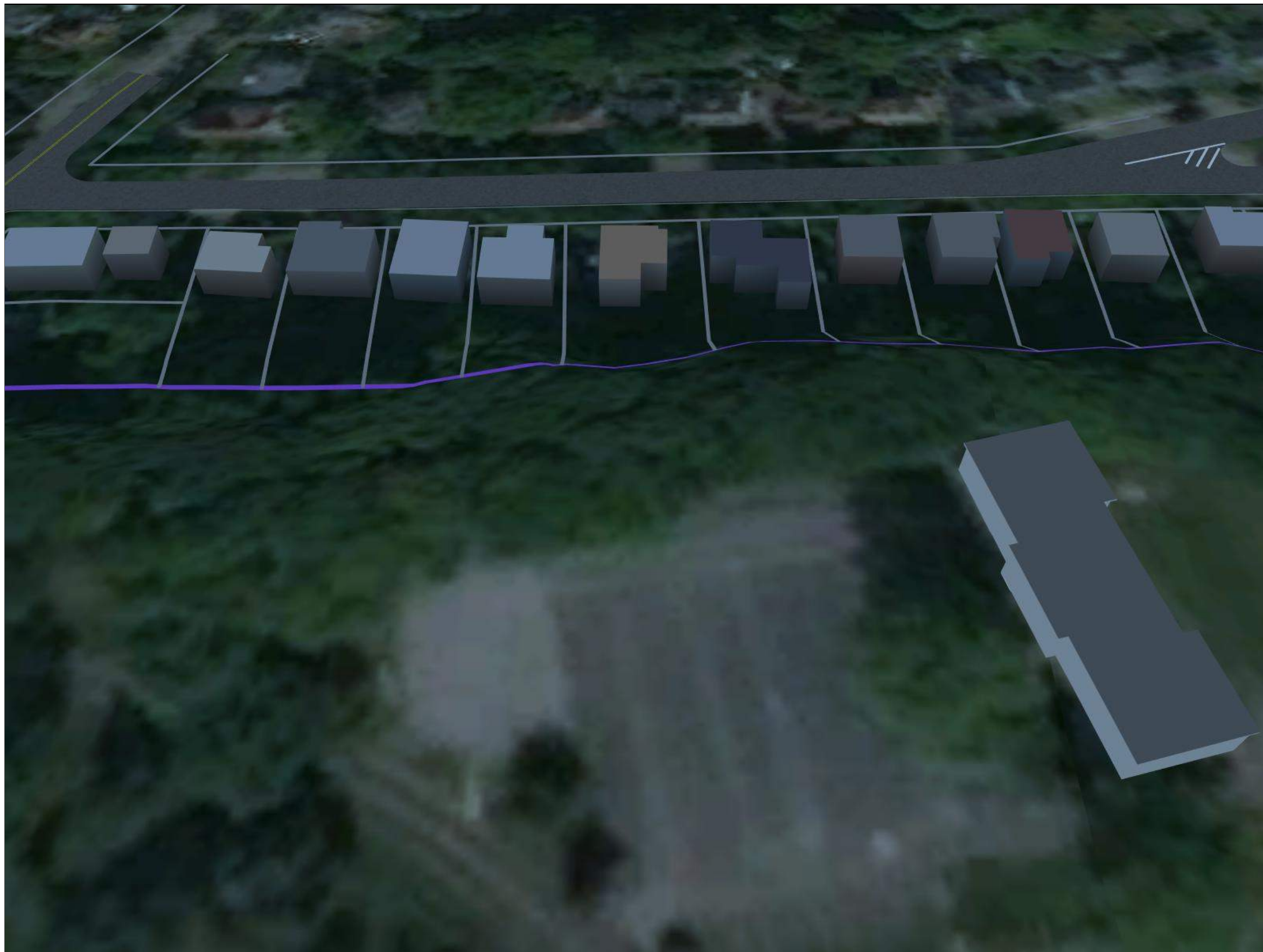


COLGATE DIVINITY DEVELOPMENT

ROCHESTER, NEW YORK

Shadow Evaluation, Month: November, Time 18:00 EST, Building Height 60 ft above existing grade (18.3m)





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