



Occoneechee Mountain ADM Burns

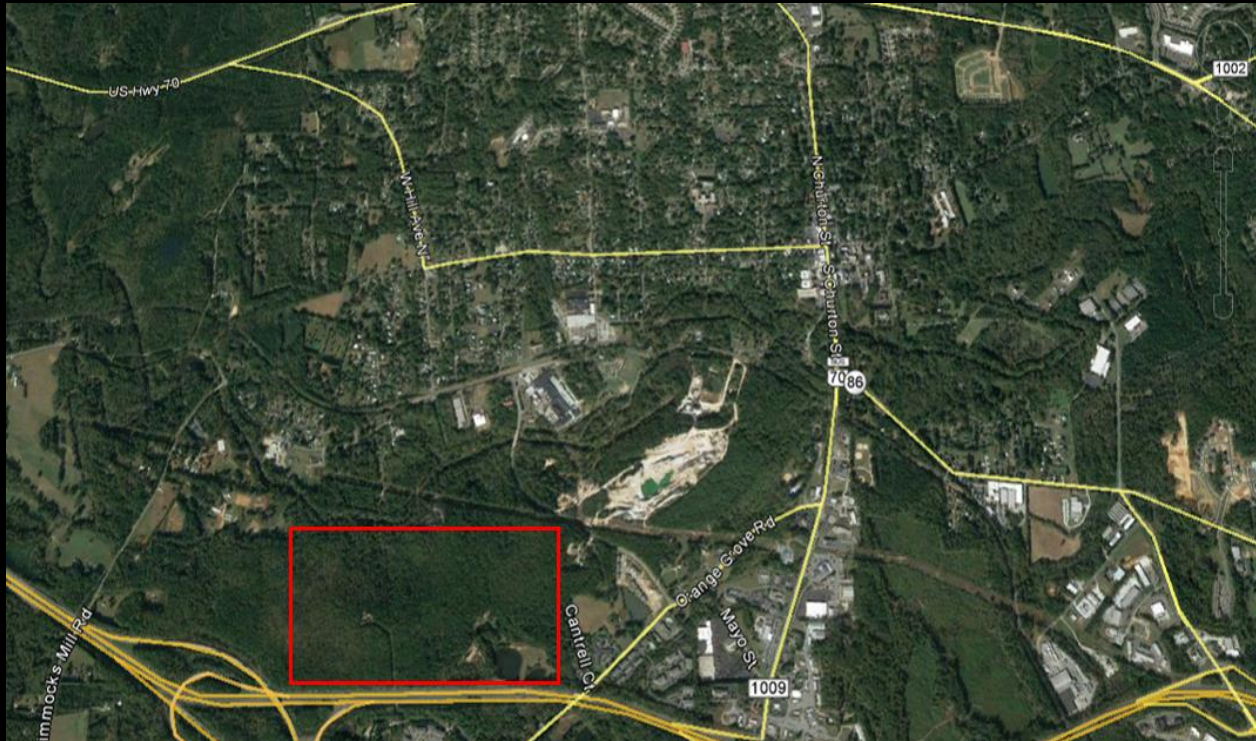
Kenny Griffin
D-11 District Ranger
NC Forest Service

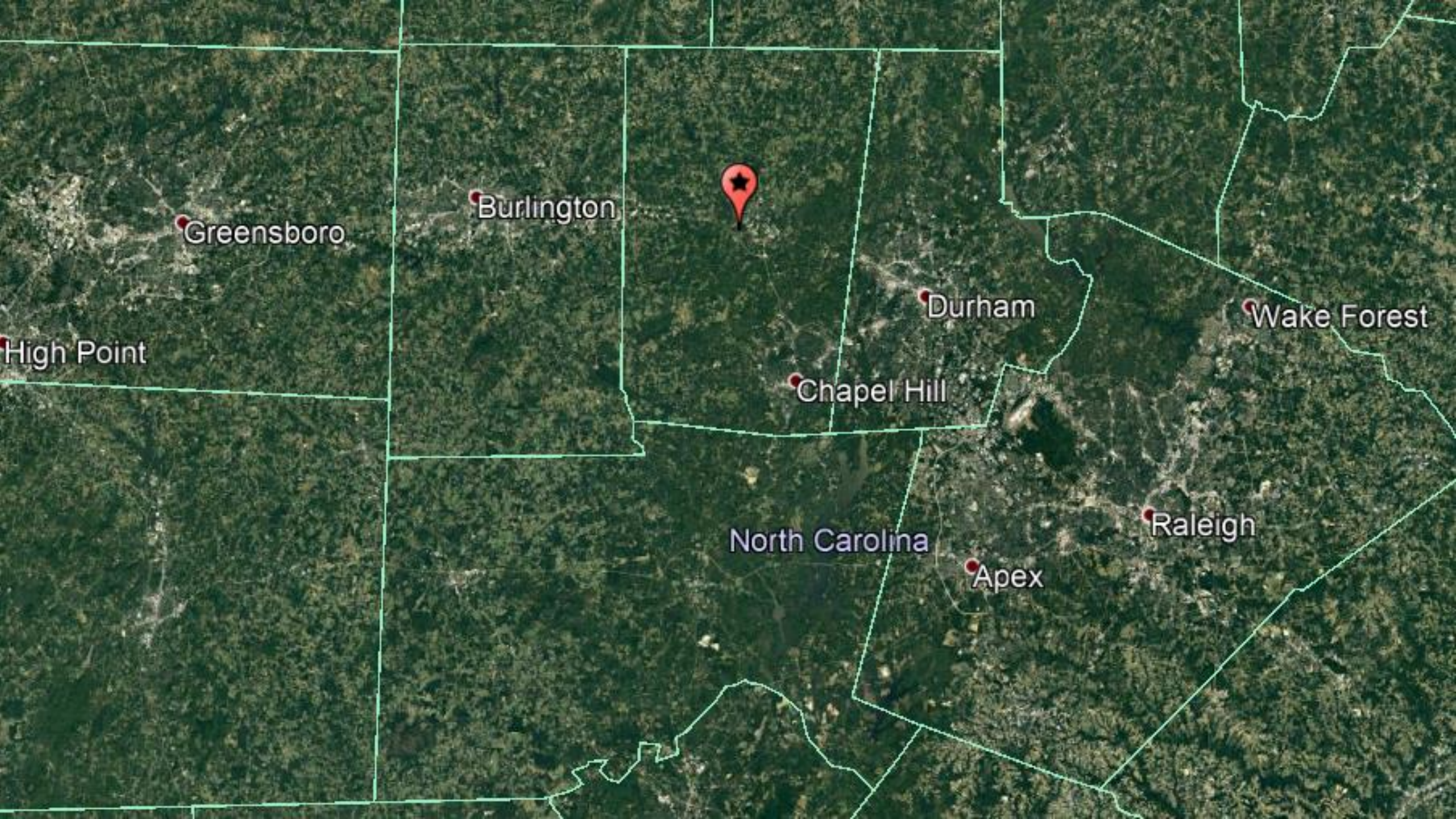


Hillsborough Demographics

Total Population: 6,256

45% (2,815) non-native Hillsborough citizens





Greensboro

Burlington

Durham

Wake Forest

High Point

Chapel Hill

North Carolina

Raleigh

Apex

Overall Plan

- Hazard Reduction
- Ecological/Wildlife Benefits

Objectives

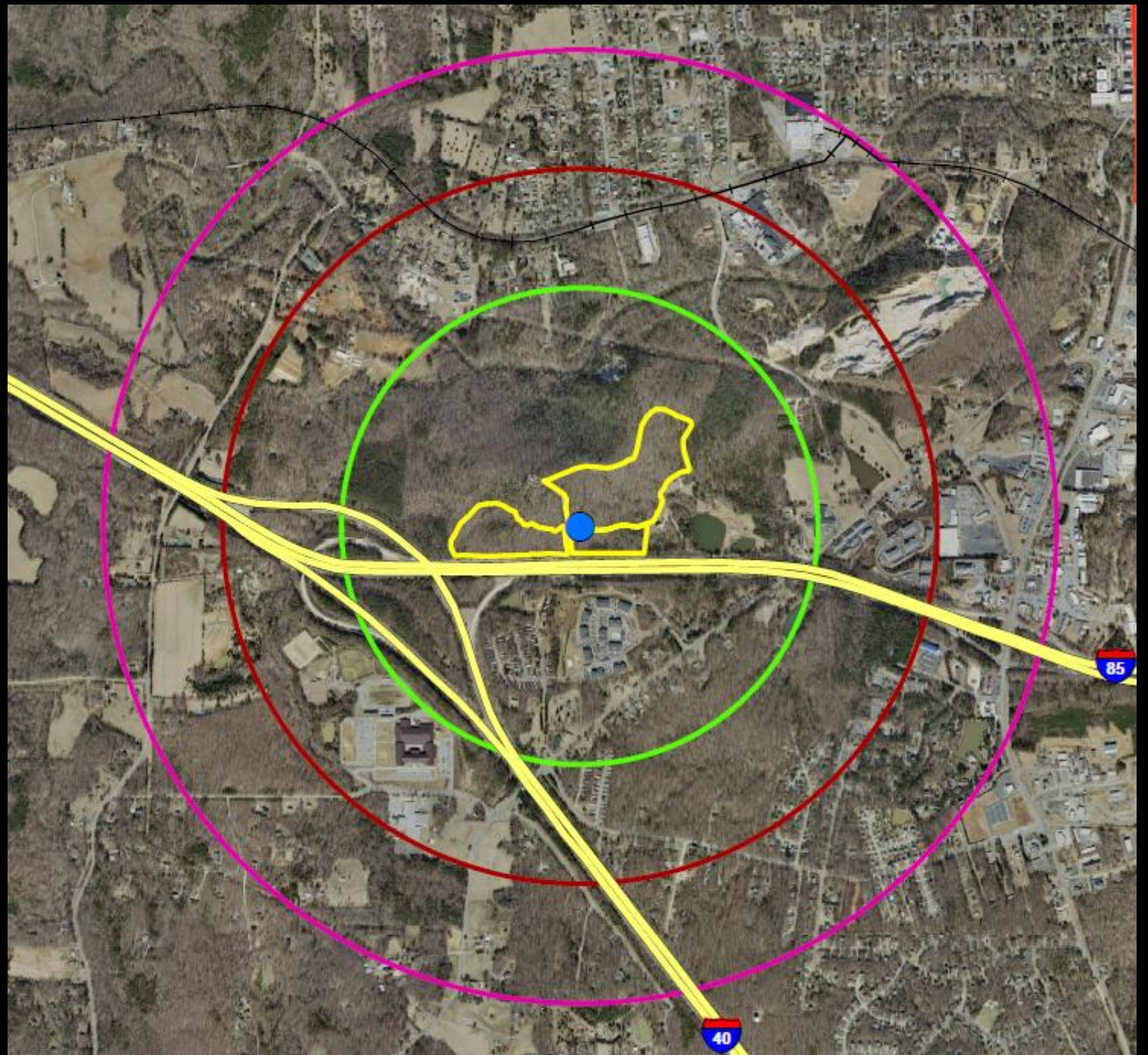
- remove 75% of 1 hour fuels
- remove 50% of 10 hour fuels
- top kill 40-50% hardwoods less than 6 inches in diameter

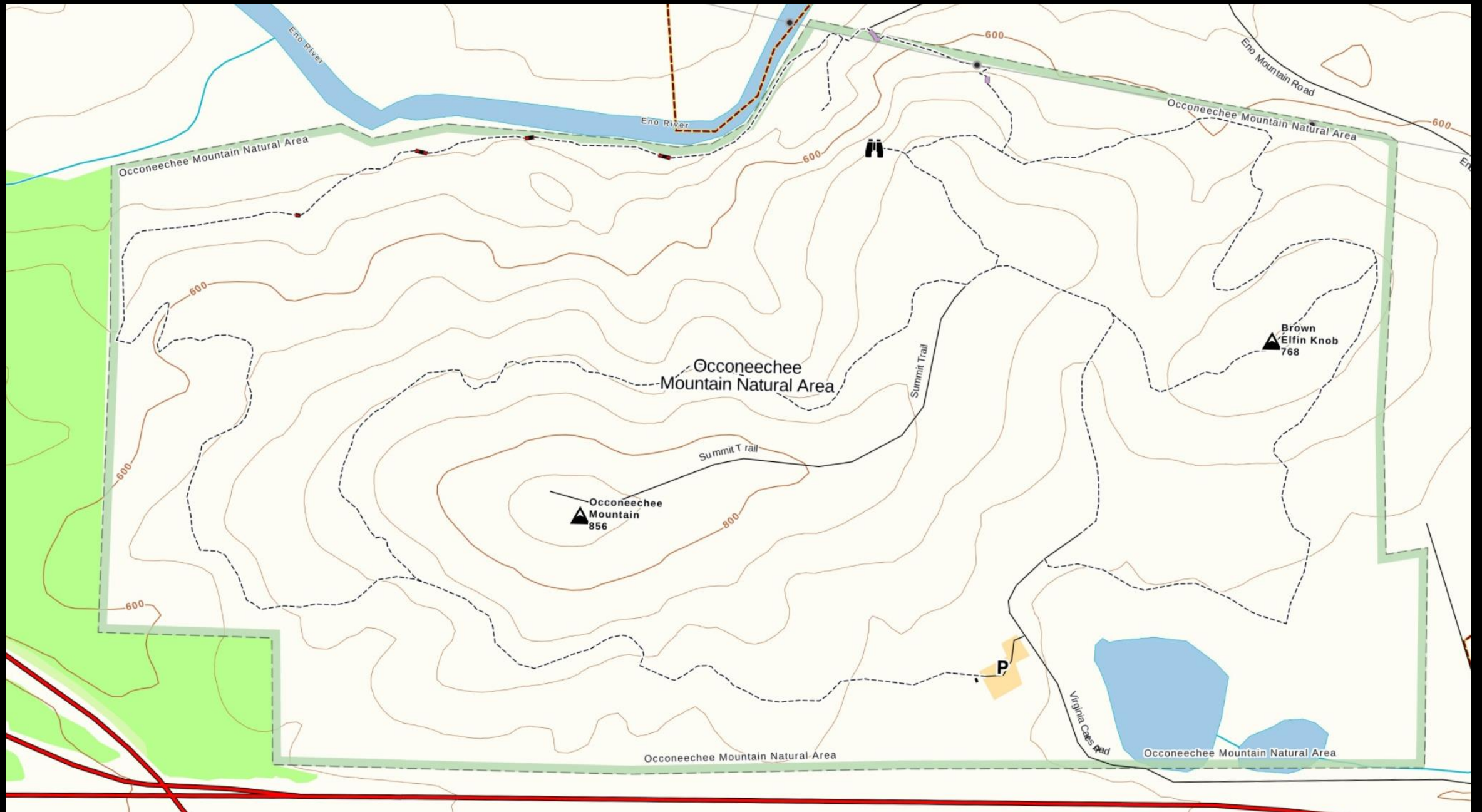


Total acres to potentially burn within 5 years: 96 acres

4 burns completed to date: total of 71 acres

Why ADM?





2016 Burn Area



PART 2 PRE-BURN PLANNING

Specific Objectives: Reduce fuel loading by removing 75% of 1hour and 50% of 10 hour fuels. Top Kill 40-50% of hdwd <6" diam.

Overstory Species: Upland hardwoods – chestnut oak Avg. Hgt. (ft.): 50-70 Avg. DBH(in.): 10-20

Age of Dominant Species: 80 Understory Species: Maple, gum, cedar, dogwood, holly, sourwood, various oaks

Fine Fuels: Hardwood leaf litter Litter Depth (in.): 3-6 Fuel Type(Model): 9 ☒ Continuous ☐ Patchy

% Slope: 5-20 Aspect: S Elevation (ft): 600 Soil: Clay loam ☒ Mineral ☐ Organic

For In-Stand

Burning: Basal Area (sq ft): 120-180 Ht. to Live Crown (ft): 30' Allowable Scorch Height (ft): 6'

Smoke Management:

Direction to Smoke Sensitive Area (SSA)	N	NE	E	SE	S	SW	W	NW
Distance to SSA (miles)	.5	.5	.1	.1	.1	.1	.1	.5

Smoke Mngt./Tonnage: Estimated Acres 26 X Est. Total Available Tons/Acre 5 = 130 Est. Total Tons to be Burned

Acceptable Range of Weather parameters (To Be Completed By, Or In Consultation With, A Burn Boss):

Temp. (°F): 40 to 70 RH(%): 25 to 45 NWS 20' Wind Speed (MPH): 2 to 15

Wind Direction (Surface): ☐ N ☐ NE ☐ E ☒ SE ☒ S ☒ SW ☐ W ☐ NW

Mix Height (ft): 2000 to 5000 Wind Direction (Transport): ☐ N ☐ NE ☐ E ☒ SE ☒ S ☒ SW ☐ W ☐ NW

Night-time Smoke Dispersion (minimum): VP Acceptable Burn Categories: ☐ 1 ☐ 2 ☒ 3 ☒ 4 ☒ 5

KBDI: 20 to 300 Fine Fuel Moisture (%): 6 to 20

Type of Burn: ☒ VIS Burn ☒ ADM Burn ☐ FEPS with other ADM docs

Note: ADM Burns can be conducted outside VIS parameters except Mix Ht. must be ≥ 1640 ft

Other Weather Considerations: Run ADM to verify no smoke impacts on town of Hillsborough. Do not burn with combination of min RH and Max winds.

Special Situations or Instructions: (note on map) Coordinate local P.R. with State Park prior to and day of burn. Place smoke signs on 85 N and S of burn due to visibility of burn/smoke. Do not burn with LVORI >7 or if winds are predicted to be from the N, NW or NE within 24 hours of burn.

Note: ADM Burns: 1. They are permissible by those persons who have attended the DFR's Advanced Smoke Modeling WS. 2. Presently they cannot be approved or disapproved by DFR persons who review District Burn Plans. 3. Project File needs to be complete.

WEATHER FIRST BURN

ORANGE-

INCLUDING THE CITIES OF...CHAPEL HILL...CARRBORO

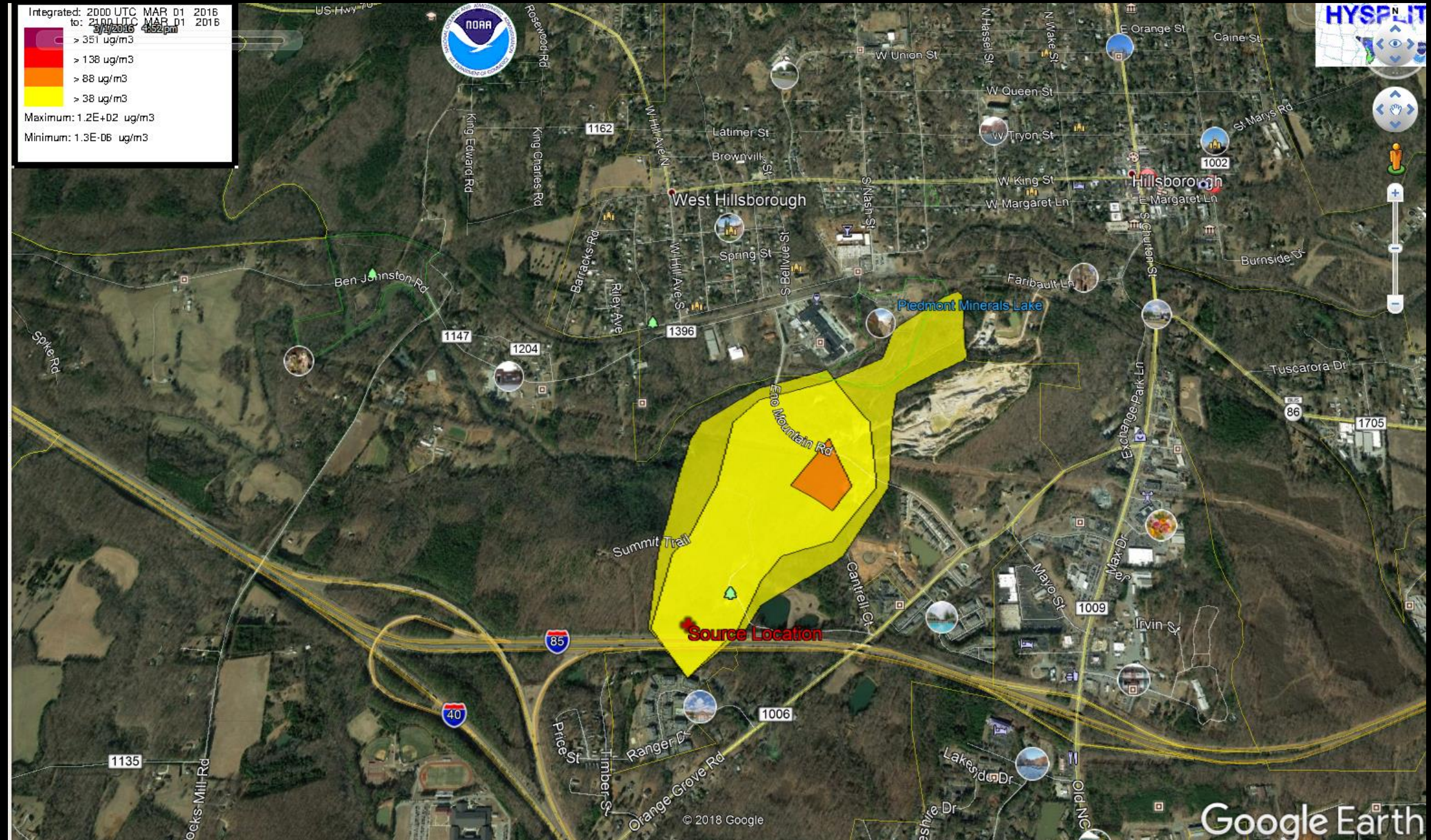
713 AM EST WED MAR 9 2016

	TODAY	TONIGHT	THU
CLOUD COVER	MCLEAR	PCLDY	PCLDY
PRECIP TYPE	NONE	NONE	NONE
CHANCE PRECIP (%)	0	0	0
MIN/MAX TEMP	80	54	79
MAX/MIN RH %	33	91	42
AM 20-FT WIND (MPH)	SW 4-8		SW 4-8
PM 20-FT WIND (MPH)	SW 8-12	SW 3-7	SW 9-13 G18
PRECIP AMOUNT	0.00	0.00	0.00
MIXING HGT (FT-AGL)	3700	300	3800
TRANSPORT WND (MPH)	SW 18	SW 12	SW 21
VENT RATE (FT-MPH)	66600	3600	79800
DISPERSION		POOR	
LAL	1	1	1
HAINES INDEX	4	5	4
ADI EARLY	37 FAIR	4 VERY POOR	52 GEN GOOD
ADI LATE	43 GEN GOOD	7 POOR	62 GOOD
MAX LVORI EARLY	3	3	4
MAX LVORI LATE	1	5	1

Integrated: 2000 UTC MAR 01 2016
to: 2100 UTC MAR 01 2016
3/1/2016 4:52pm

> 351 ug/m3
> 138 ug/m3
> 88 ug/m3
> 38 ug/m3

Maximum: 1.2E+02 ug/m3
Minimum: 1.3E-06 ug/m3



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Google Earth

Smoke Impacts?

-Smell of smoke was in the air
in city of Hillsborough

-One complaint from a
homeowner to the NW of
burn. Only house impacted in
that subdivision??

-Light drift smoke – as ADM
run predicted





Drift Smoke (YELLOW) in town of Hillsborough

2018 Burn Area

Area 4 - 22 Ac.

Summit Trail

Eno-Mo

Virginia-Gates



PART 2 PRE-BURN PLANNINGSpecific Objectives: Reduce fuel loading by removing 75% of 1hour and 50% of 10 hour fuels. Top Kill 40-50% of hdwd <6" diam.Overstory Species: Upland hardwoods – chestnut oak Avg. Hgt. (ft.): 50-70 Avg. DBH(in.): 10-20Age of Dominant Species: 80 Understory Species: Maple, cedar, dogwood, holly, sourwood, mtn. laurel on north facing.Fine Fuels: Hardwood leaf litter Litter Depth (in.): 3-6 Fuel Type(Model): 9 ☒ Continuous ☐ Patchy% Slope: 10-40 Aspect: S, W, N Elevation (ft): 600 Soil: Clay loam ☒ Mineral ☐ Organic**For In-Stand****Burning:** Basal Area (sq ft): 100-160 Ht. to Live Crown (ft): 30' Allowable Scorch Height (ft): 6'**Smoke Management:**Direction to Smoke
Sensitive Area (SSA)

N	NE	E	SE	S	SW	W	NW
.5	.5	.1	.1	.1	.1	.1	.5

Distance to SSA (miles)

Smoke Mngt./Tonnage: Estimated Acres 22 X Est. Total Available Tons/Acre 4 = 88 Est. Total Tons to be Burned**Acceptable Range of Weather parameters (To Be Completed By, Or In Consultation With, A Burn Boss):**Temp. (°F): 40 to 80 RH(%): 25 to 50 NWS 20' Wind Speed (MPH): 2 to 15Wind Direction (Surface): ☐ N ☐ NE ☐ E ☒ SE ☒ S ☒ SW ☐ W ☐ NWMix Height (ft): 1640 to 6000 Wind Direction (Transport): ☐ N ☐ NE ☐ E ☒ SE ☒ S ☒ SW ☐ W ☐ NWNight-time Smoke Dispersion (minimum): VP Acceptable Burn Categories: ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5KBDI: 10 to 300 Fine Fuel Moisture (%): 6 to 20Type of Burn: ☒ VIS Burn ☒ ADM Burn ☐ FEPS with other ADM docsOther Weather Considerations: Run ADM to verify no smoke impacts on town of Hillsborough. Do not burn with combination of min RH and Max winds.Special Situations or Instructions: Coordinate local P.R. with State Park prior to and day of burn.
(note on map) Do not burn with LVORI >7.

Note: Tracts may be burned outside of VIS parameters by using Atmospheric Dispersion Modeling(ADM). ADM may only be used by those certified as an Atmospheric Dispersion Modeler by the NCFS. Model run data must be submitted to NCFS prior to ignition. Refer to the Smoke Management Program for details

WEATHER Second BURN



NC2024-032100-

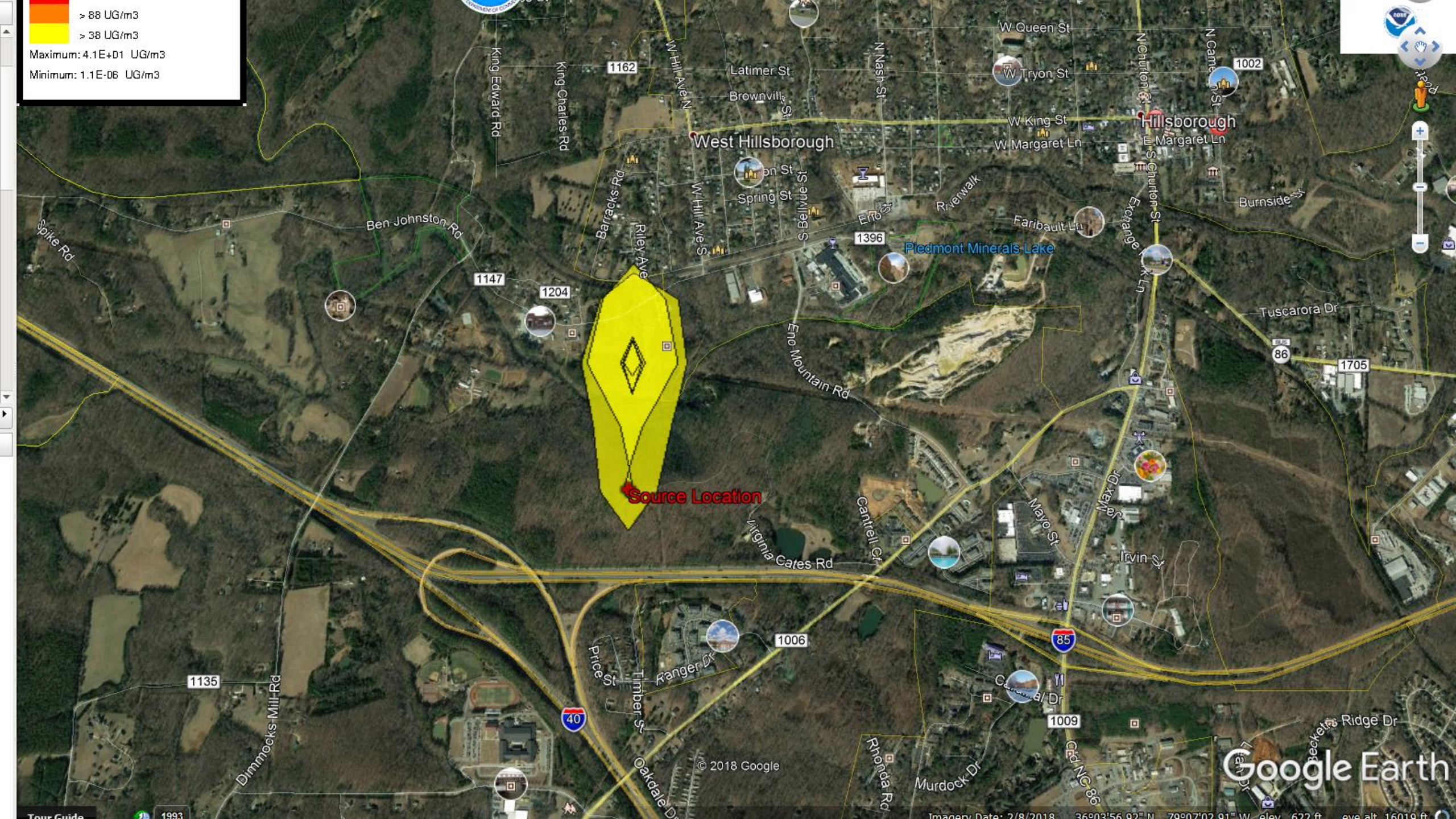
Orange-

Including the cities of Chapel Hill and Carrboro

718 AM EDT Tue Apr 3 2018

	Today	Tonight	Wed
Cloud Cover	MCldy	PCldy	MCldy
Precip Type	None	None	Tstms
Chance Precip (%)	0	0	70
Temp (24h trend)	76 (-3)	61 (+14)	69
RH % (24h trend)	50 (+14)	89 (+1)	30
20ft Wnd-Val/AM(mph)	Lgt/Var		SW 10-14 G28
20ft Wnd-Rdg/PM(mph)	SW 5-9	S 5-9	NW 11-15 G26
Precip Amount	0.00	0.00	0.14
Precip Duration			3
Precip Begin			8 AM
Precip End			5 PM
Mixing Hgt(ft-agl/msl)	2900	500	5000
Transport Wnd (mph)	SW 17	S 7	NW 25
Vent Rate (mph-ft)	49300	3500	125000
Dispersion		Poor	
LAL	1	1	4
Haines Index	3	3	3
RH Recovery	Excellent	Excellent	Excellent
Stability Class	D	D	D
ADI early	5 Very Poor	34 Fair	29 Fair
ADI late	33 Fair	17 Gen Poor	75 Good
Max LVORL early	6	3	4
Max LVORL late	3	4	1

 > 88 UG/m3
 > 38 UG/m3
Maximum: 4.1E+01 UG/m3
Minimum: 1.1E-06 UG/m3





Were Objectives Met?

- Reduce Fuel Load
- Promote Hardwood Sprouting
- Improve Wildlife Habitat



Pre Burn




1 Year Post Burn



40% desirable stump sprouting on hardwood





Sourwood
sprouting
browsed
by deer.



Pre Burn



1 Year Post Burn



2 Years Post Burn



Created Receptive Seed Bed

Other ADM burns in D-11:

- Sara P. Duke Gardens
- East Chapel Hill High School
 - Chapel Hill Library
 - Hemlock Bluffs
- Plant Cons. Program burns

ADM is a tool that will:

- enable you to identify smoke impacts or lack thereof
 - burn more tonnage
- open your burning window
 - increase your burning opportunities.





Kenny Griffin
D-11 District Ranger
NC Forest Service
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