

# 2024 Flight Procedure Changes at BWI Post-implementation Analysis

BWI Roundtable and Vianair  
March 2025

# The BWI Roundtable's Objectives

At the first Roundtable meeting, in March 2017, we asked the FAA to revert the Nextgen Flight Paths to what they were prior to Nextgen Implementation.

- This has been the Roundtable's primary objective ever since.
- The Roundtable has not sought to move aircraft noise from one community to another, except when it is necessary to revert to the state before Nextgen.
- The Roundtable recognizes that the technology used to implement Nextgen makes a full return to pre-Nextgen flight paths unachievable.

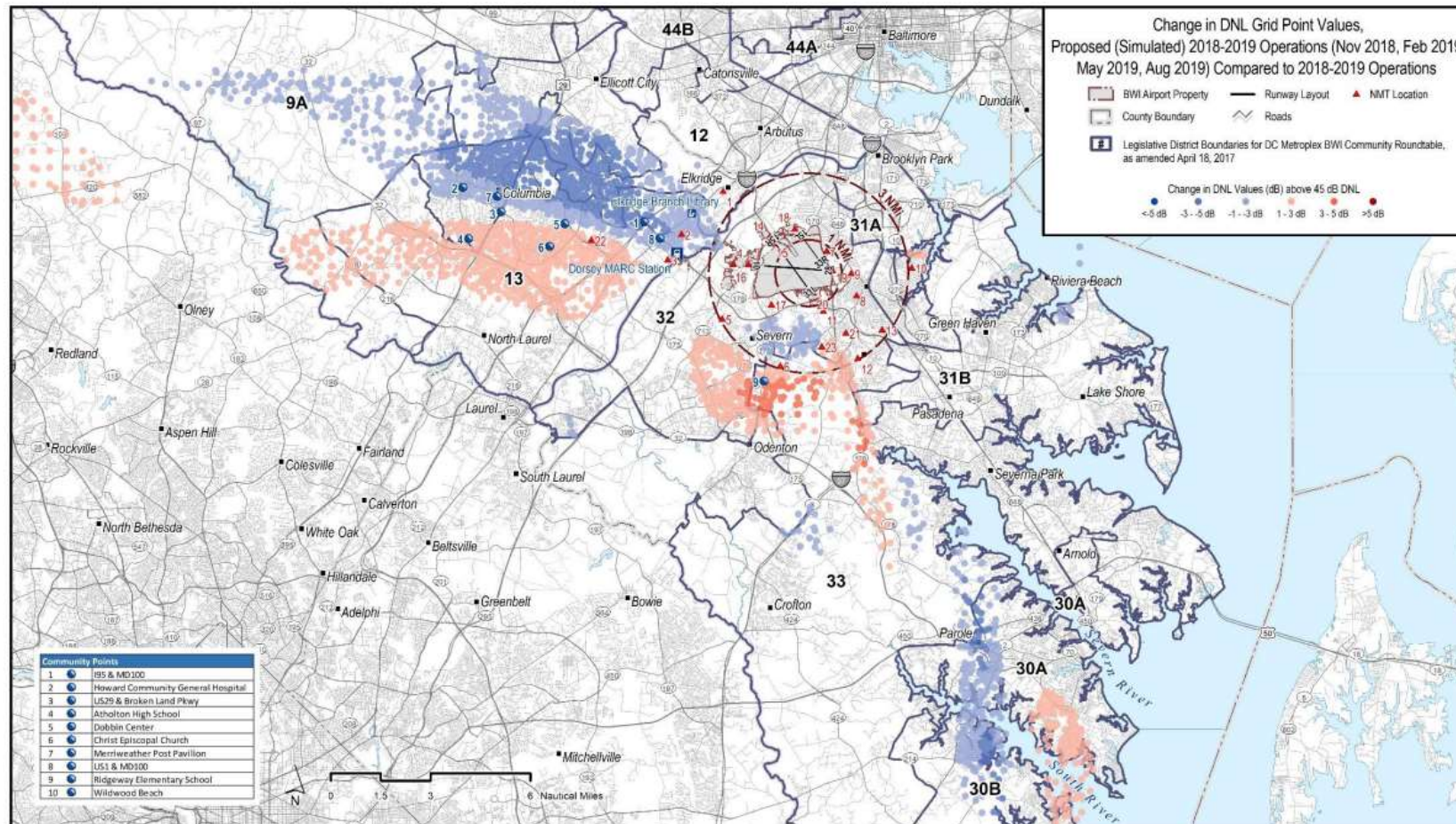
# Development of modified flight procedures

In 2019, the BWI Roundtable Technical Committee collaborated with the MAA and industry to propose modified flight procedures in pursuit of the objective of reversion to pre-Nextgen conditions.

- This effort was time-limited in order to meet the FAA's schedule for consideration by the Performance-Based Navigation Working Group. (PBNWG)
- The Technical Committee assessed that the resulting proposal was imperfect, but was likely the best possible given time and technical constraints.
- The Roundtable as a whole accepted these changes in November 2019. The MAA then sent the proposal to the PBNWG.

# Predicted Outcome from the 2019 Proposal

## Modeled DNL Grid Points – 2018-2019 Proposed (Simulated) Compared to 2018-2019



# Post Implementation Analysis

- The FAA implemented the new flight procedures in July and September 2024.
- Vianair, a consultant hired by Howard and Anne Arundel Counties, modeled the noise before and after the changes based on actual flight data.
- The period of analysis was the 4th quarter 2023 and 2024.
- In addition to modeling noise from all flights, Vianair independently modeled noise resulting from arrivals and departures, from both east flow and west flow operations.
- Vianair produced results using the standard DNL metric as well as Number Above counts for 45, 50, 55, 60, 65, 70, and 75 dB noise events.
- The Technical Committee assesses these results to be consistent with the predicted outcomes from the 2019 proposal.

# Landmarks

Vianair created virtual noise monitors at landmarks familiar to the communities surrounding the airport. The following slides show the changes in the number of noise events at these landmarks.

23-24

## Howard County

## Anne Arundel County

Name	Description	Name	Description
HOCO_VNM1	Howard Square Apartments	AAR_VNM1	RAVNN
HOCO_VNM2	HCPSS Administration Campus	AAR_VNM2	JETNA
HOCO_VNM3	Centennial Park	AAR_VNM3	Arden on the Severn
HOCO_VNM4	HoCo General Hospital	AAR_VNM4	London Public House
HOCO_VNM5	Merriweather Post Pavillion	AAR_VNM5	Annapolis Middle School
HOCO_VNM6	Oakland Mills HS	AAR_VNM6	West Annapolis Elementary
HOCO_VNM7	Long Reach HS	AAR_VNM7	Herald Harbor
HOCO_VNM8	Troy Park	AAR_VNM8	Eastport Terrace
HOCO_VNM9	Harwood Park N'hood	AAR_VNM9	Truxton Park
HOCO_VNM10	Abiding Savior Lutheran	AAR_VNM10	Shipleys Choice Elementary
HOCO_VNM11	Tridelphia Ridge ES	AAR_VNM11	Robinwood
HOCO_VNM12	Atholton HS	AAR_VNM12	Wordour Bluffs
HOCO_VNM13	Christ Church Episcopal	AAR_VNM13	Millersville Elementary School
HOCO_VNM14	Mayfield Woods MS	AAR_VNM14	Sherwood Forest
HOCO_VNM15	Manor Woods ES	AAR_VNM15	Brookeville, Montgomery County
HOCO_VNM16	Gateway Site	AAR_VNM16	Rolling Knolls
HOCO_VNM17	Oxford Square	AAR_VNM17	Maryland State House
HOCO_VNM18	St. Louis Catholic	AAR_VNM18	I-97 and MD 178 Crownsville

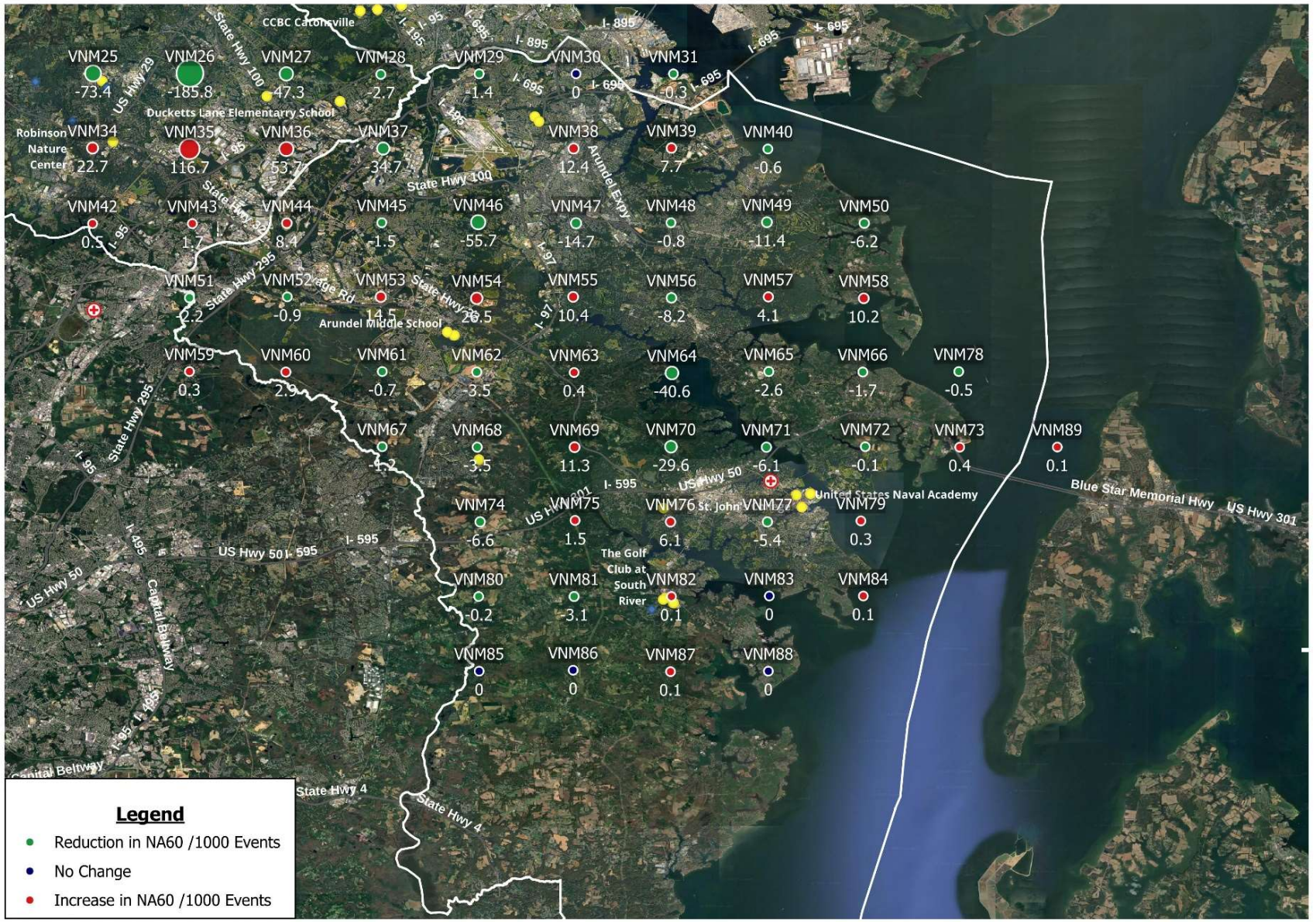


# Anne Arundel County - Grid Points



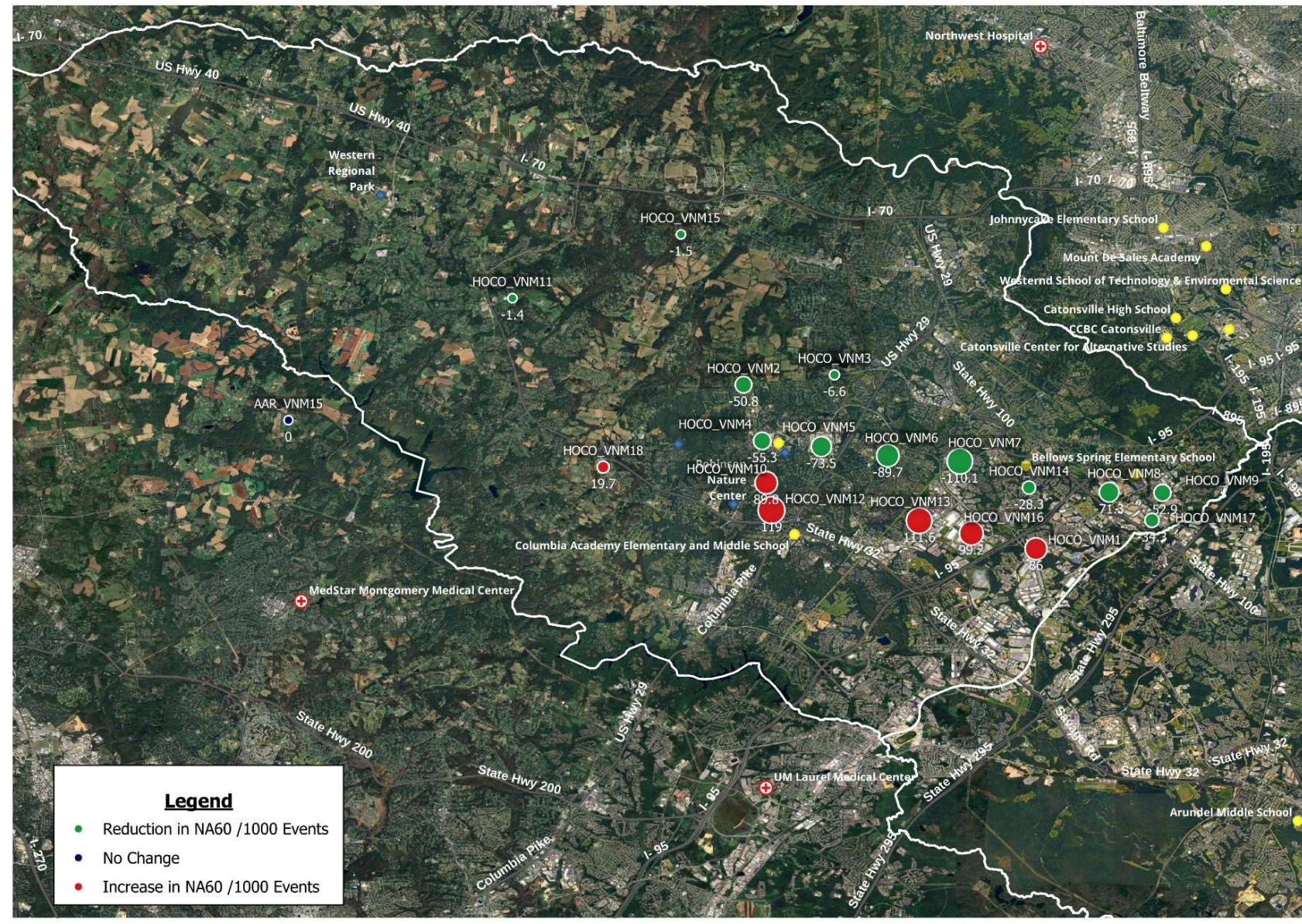
next generation software for the airport of the future.

## All Flights



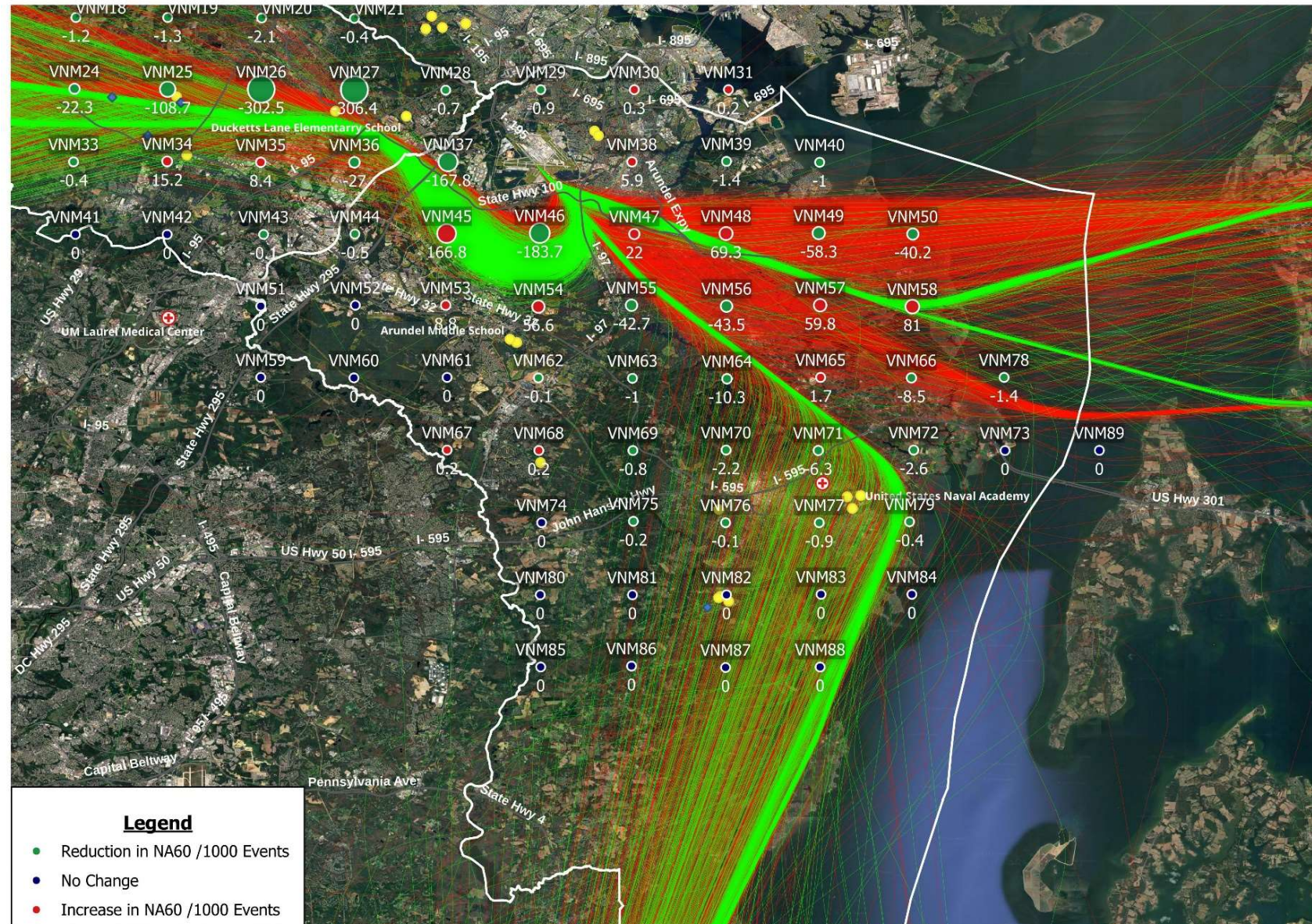
# Howard County - Landmarks

All Flights



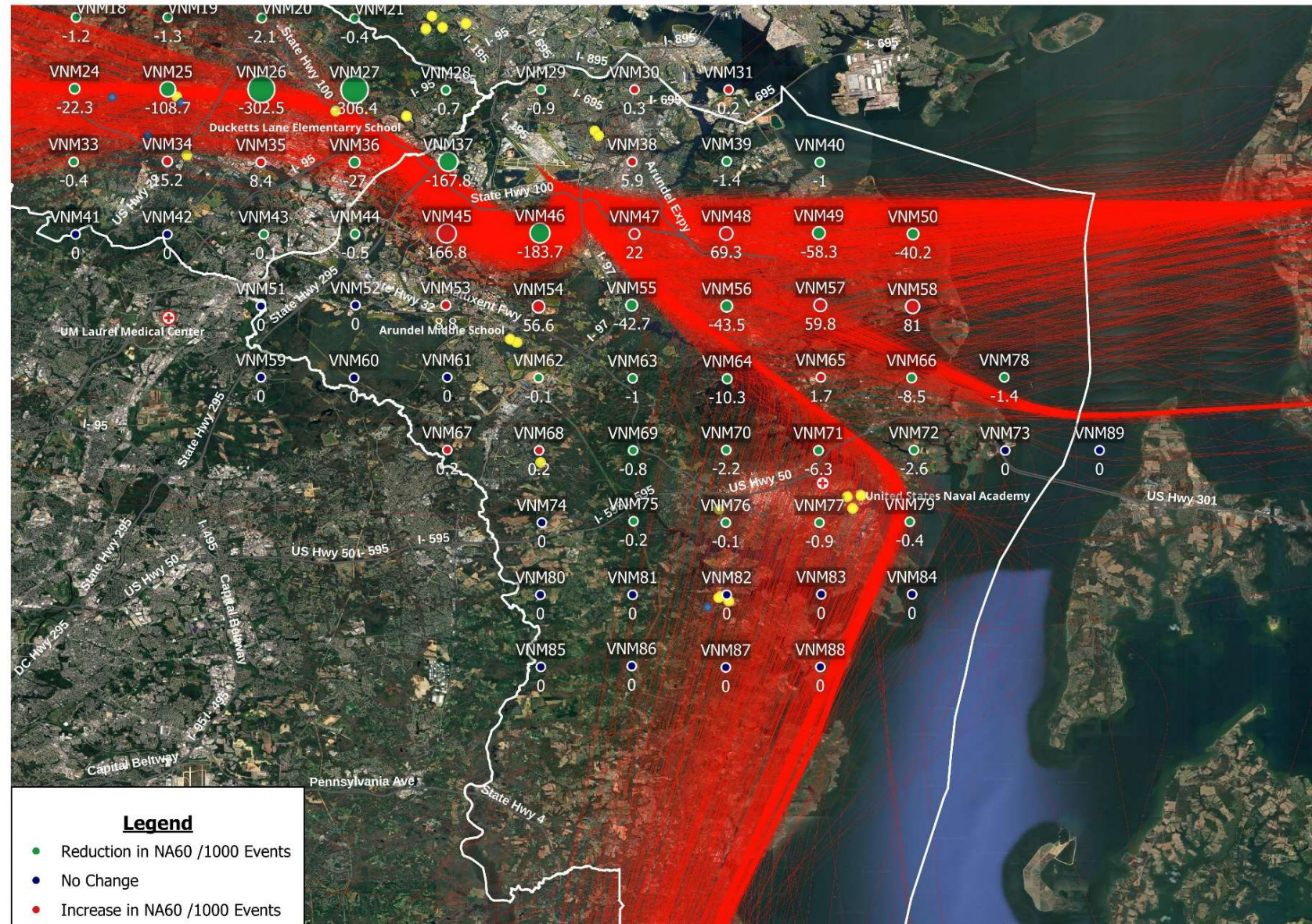
# Number Above 60 Db Events (NA60) Normalized Anne Arundel County – Grid Points

East Flow  
Departures  
Runway 15



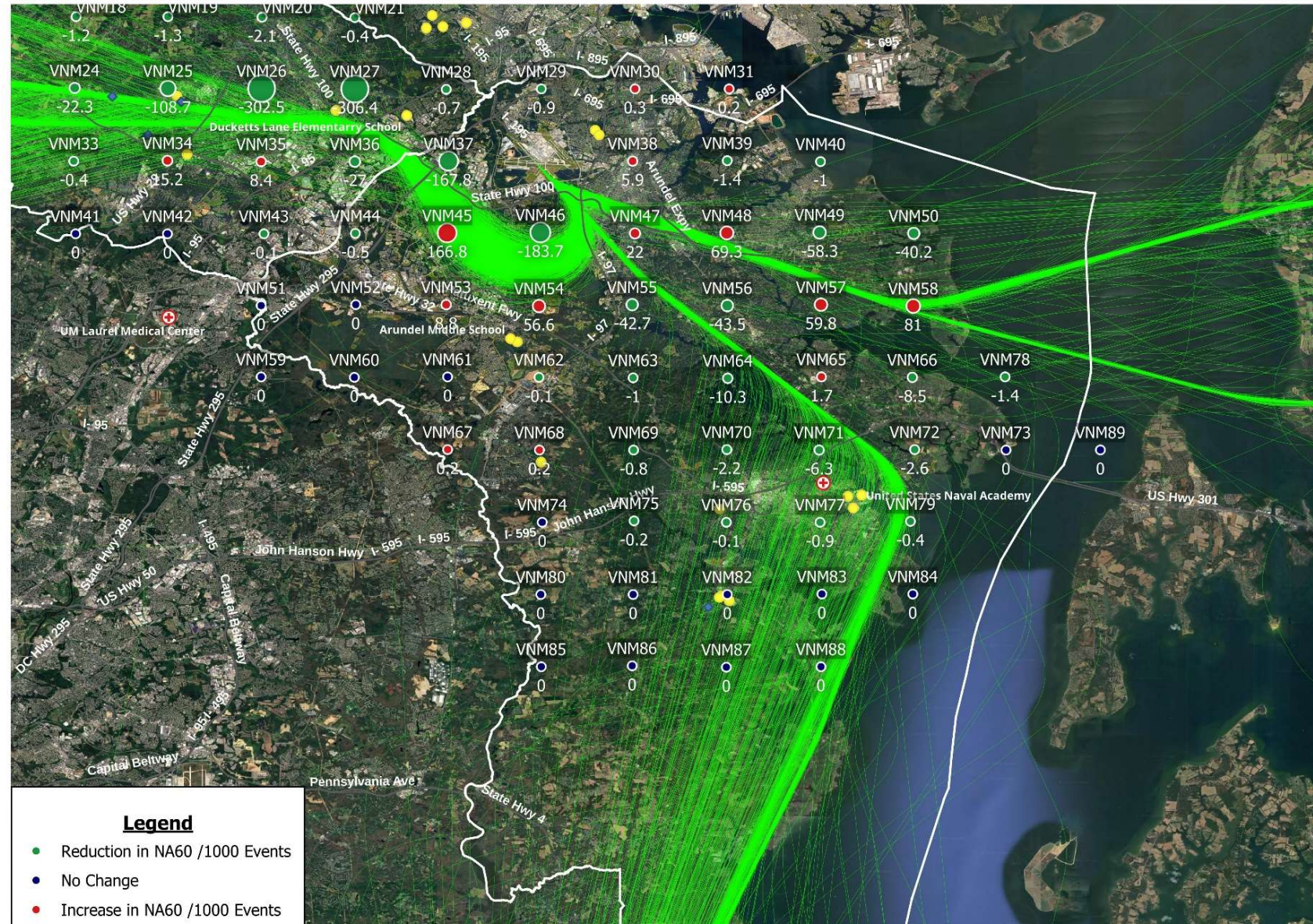
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Departures  
Runway 15



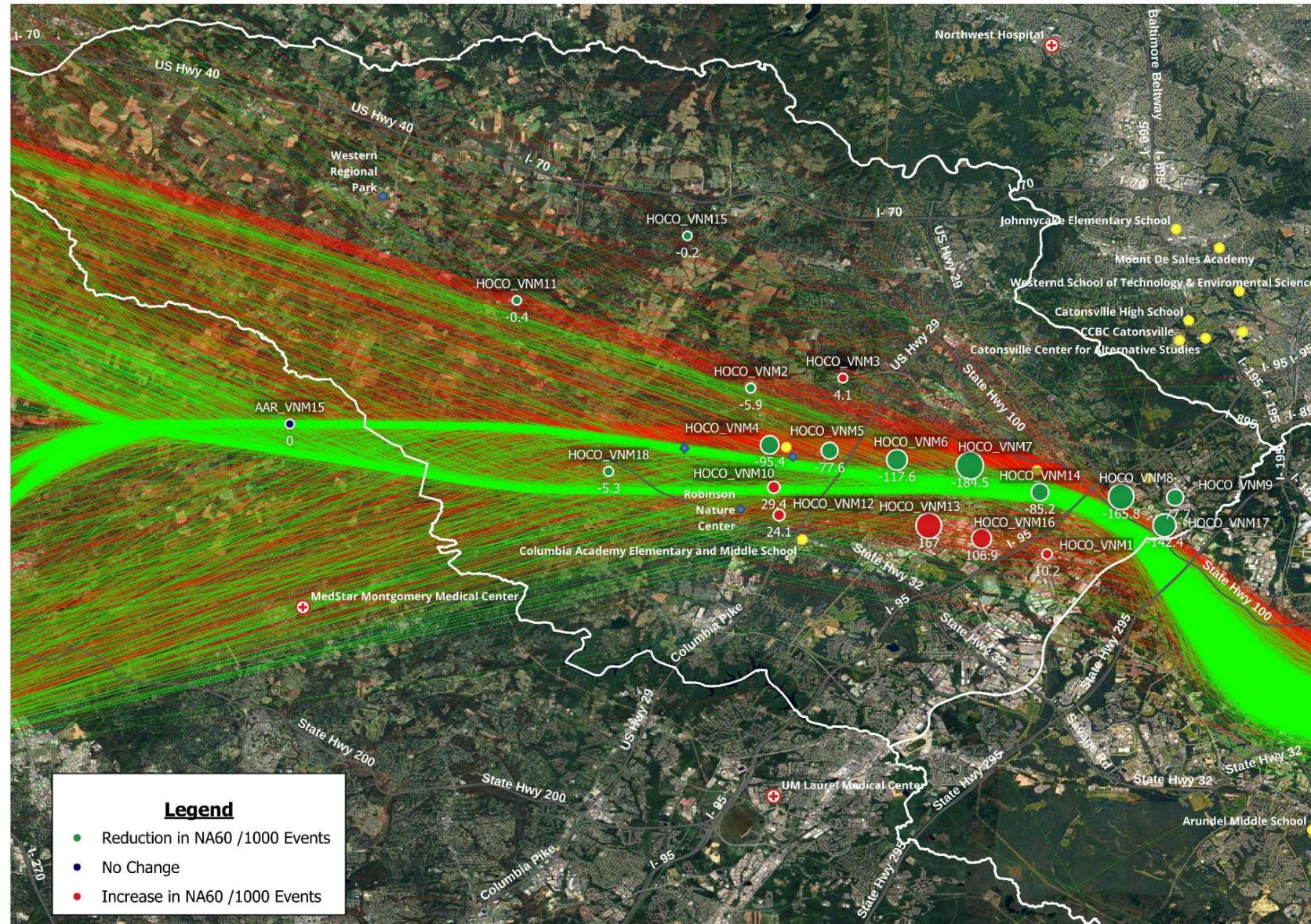
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Departures  
Runway 15



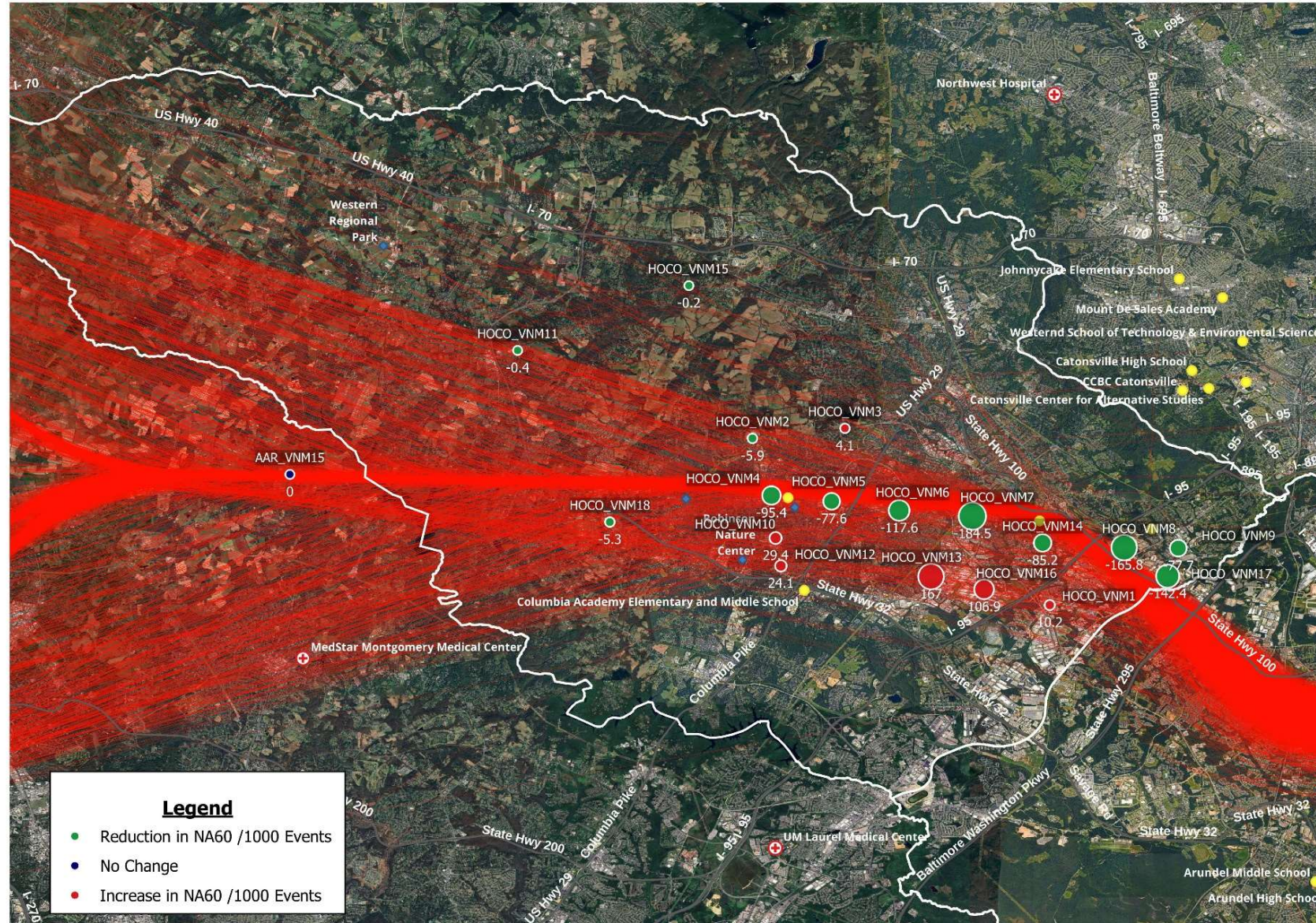
# Number Above 60 Db Events (NA60) Normalized Howard County – Landmark Locations Only

East Flow  
Departures  
Runway 15



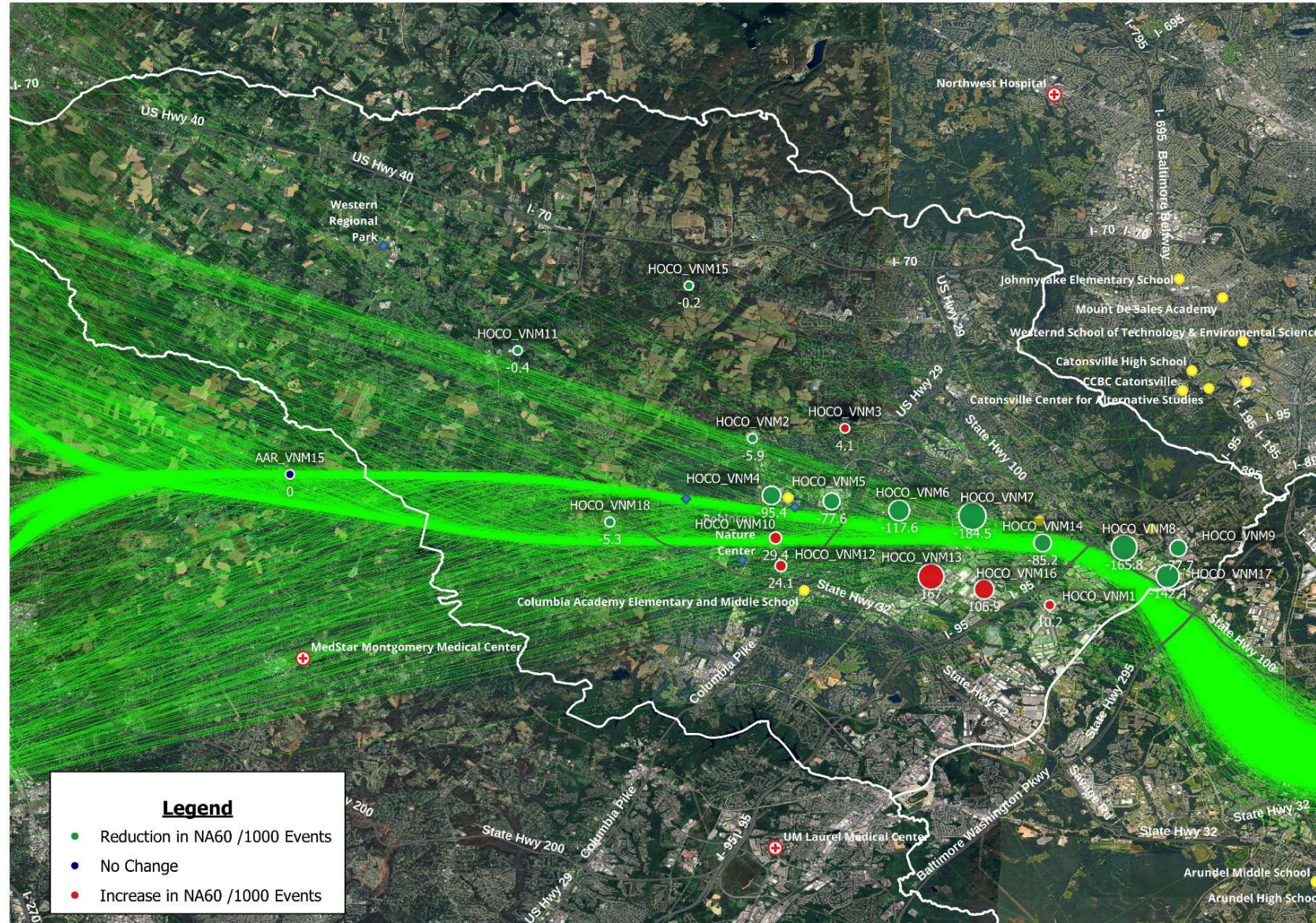
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East Flow  
Departures  
Runway 15



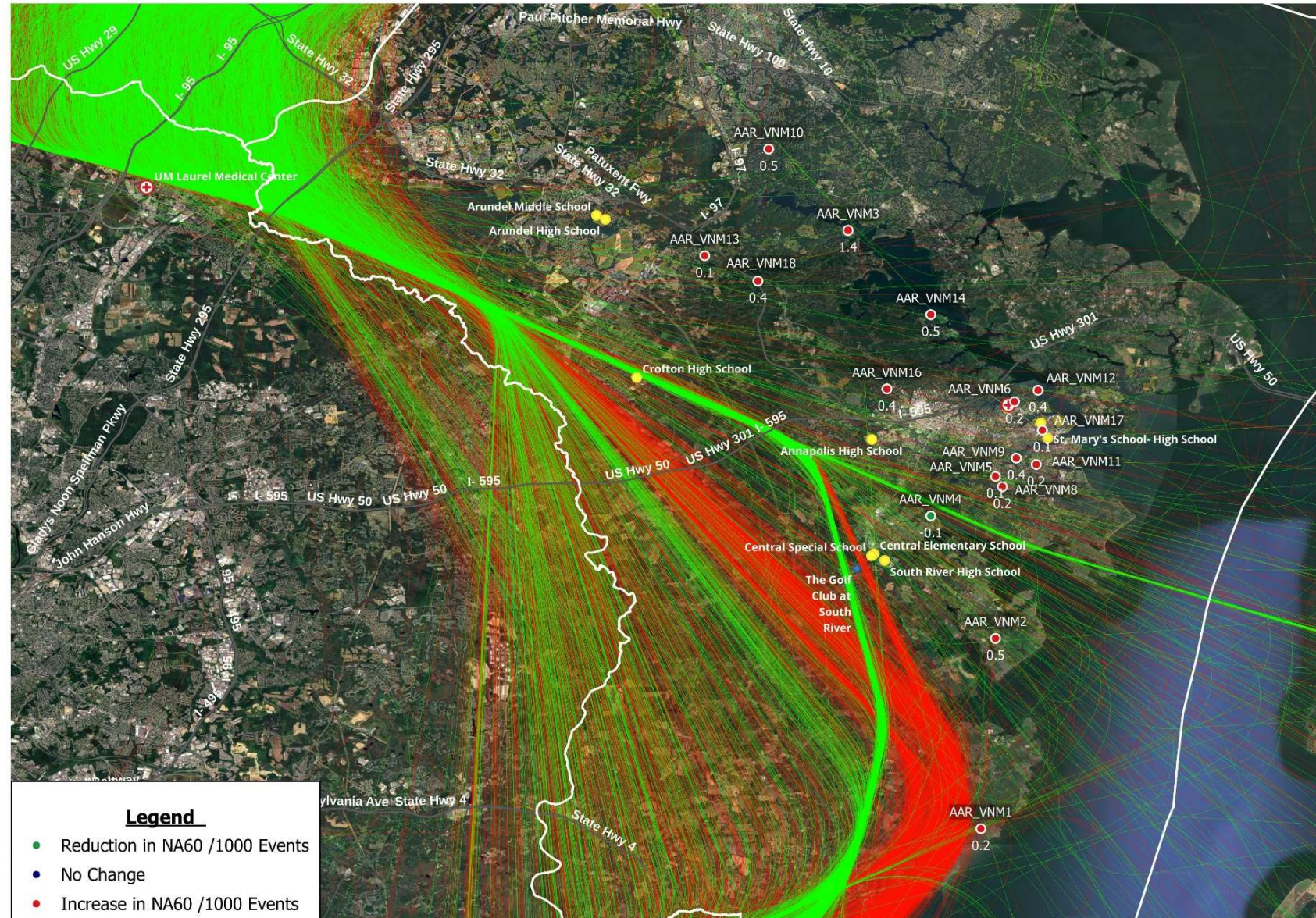
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East Flow  
Departures  
Runway 15



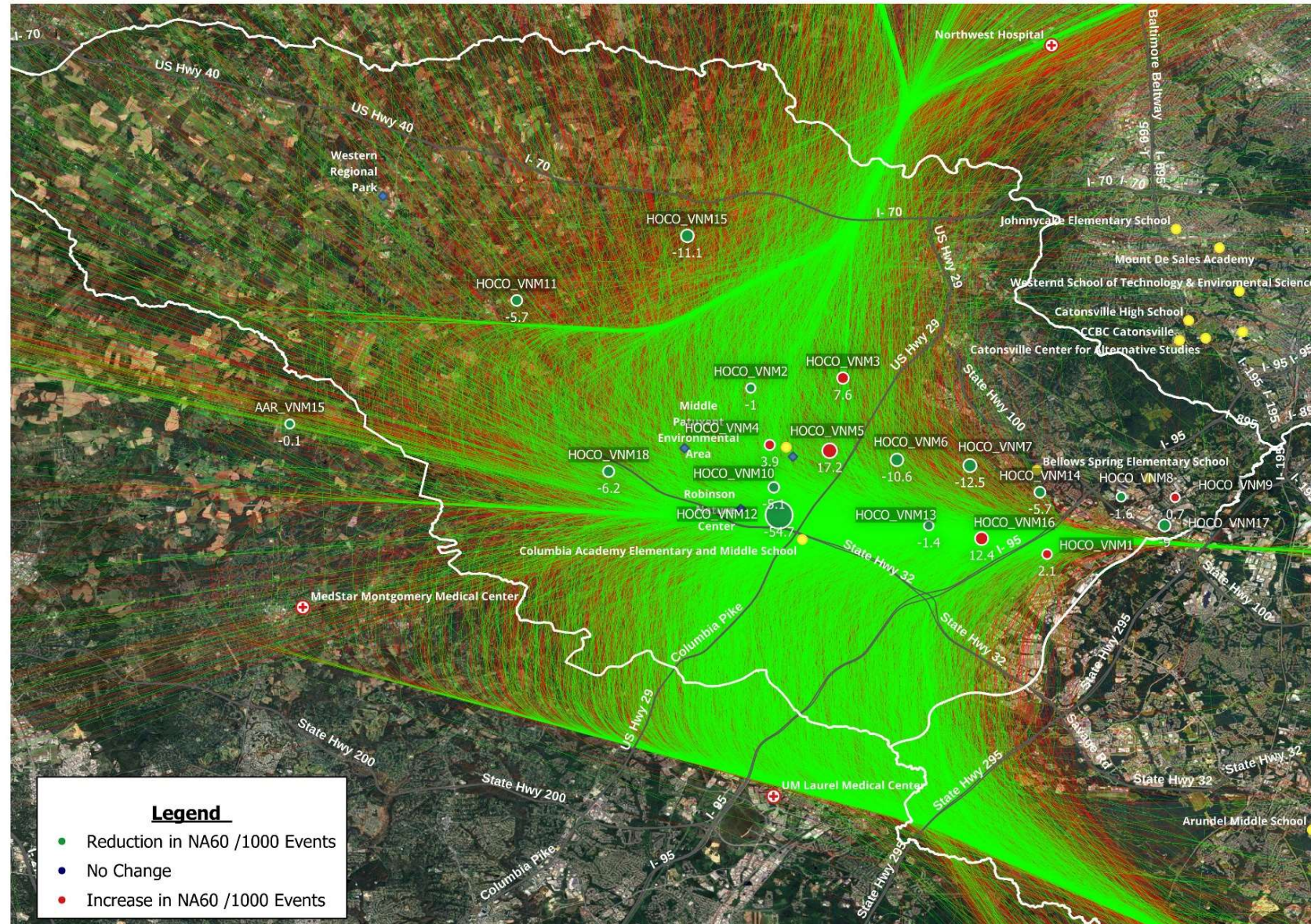
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East Flow  
Arrivals  
Runway 10



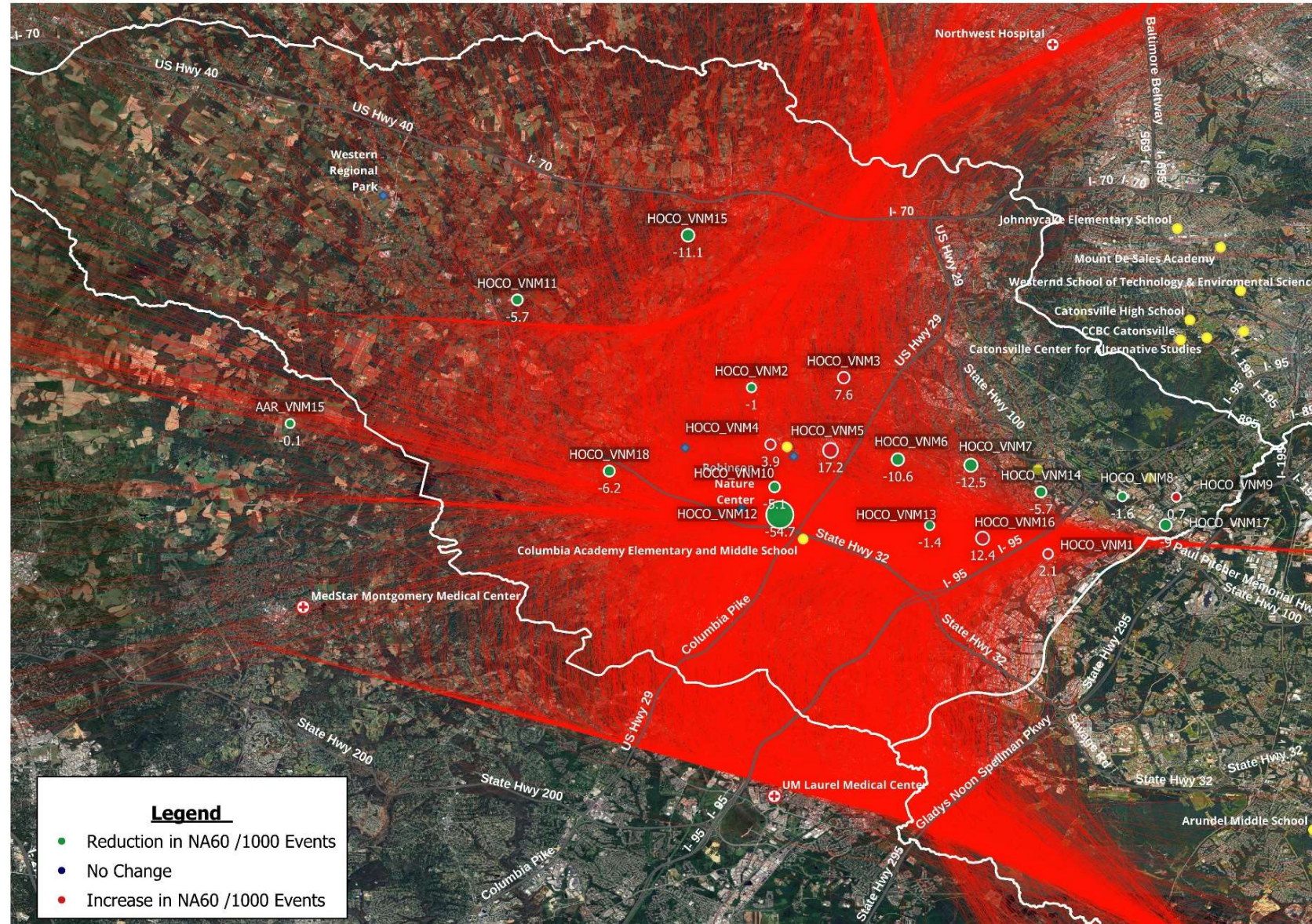
# Number Above 60 Db Events (NA60) Normalized Howard County – Landmark Locations Only

East Flow  
Arrivals  
Runway 10



# Number Above 60 Db Events (NA60) Normalized *Howard County – Landmark Locations Only*

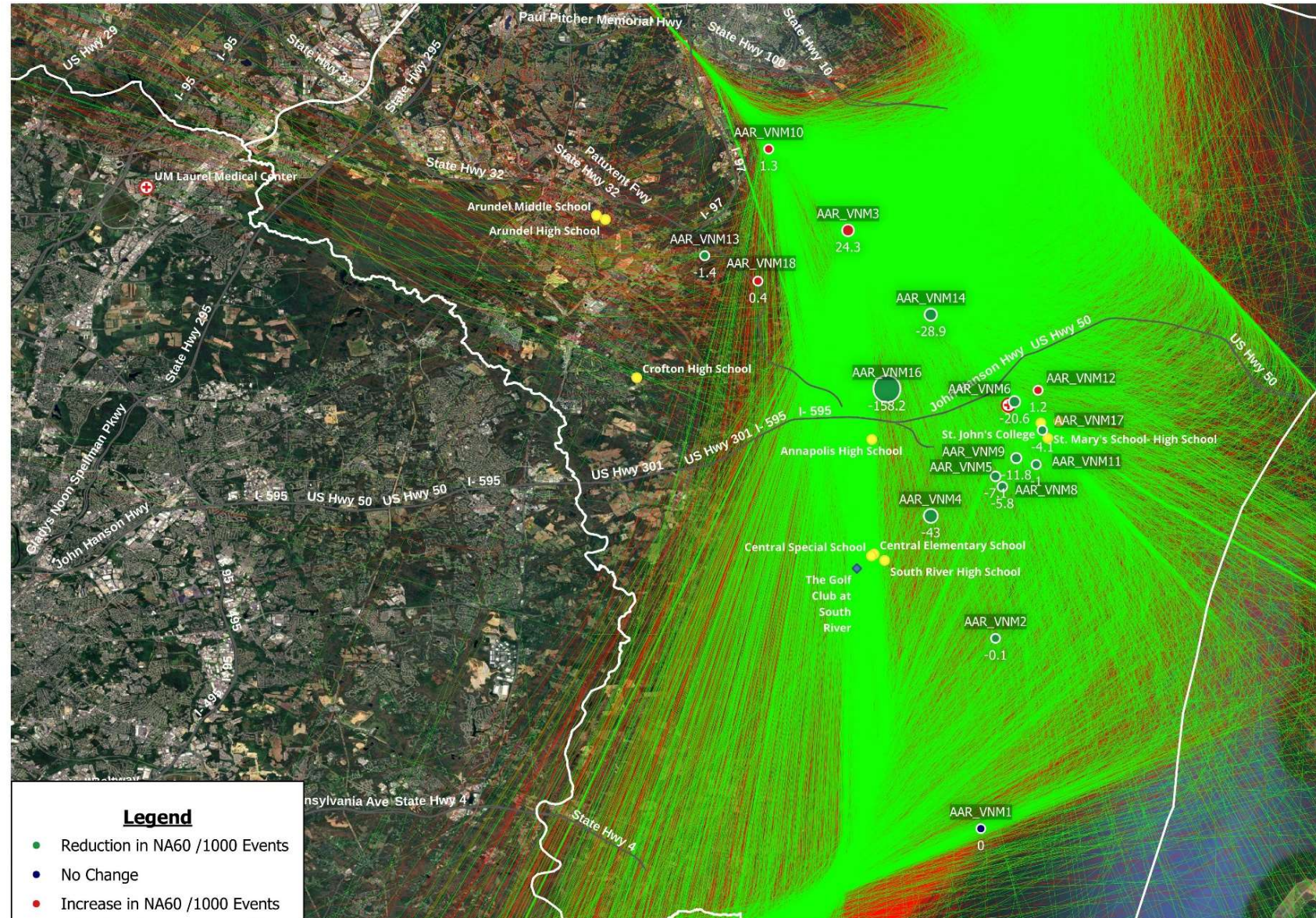
East Flow  
Arrivals  
Runway 10





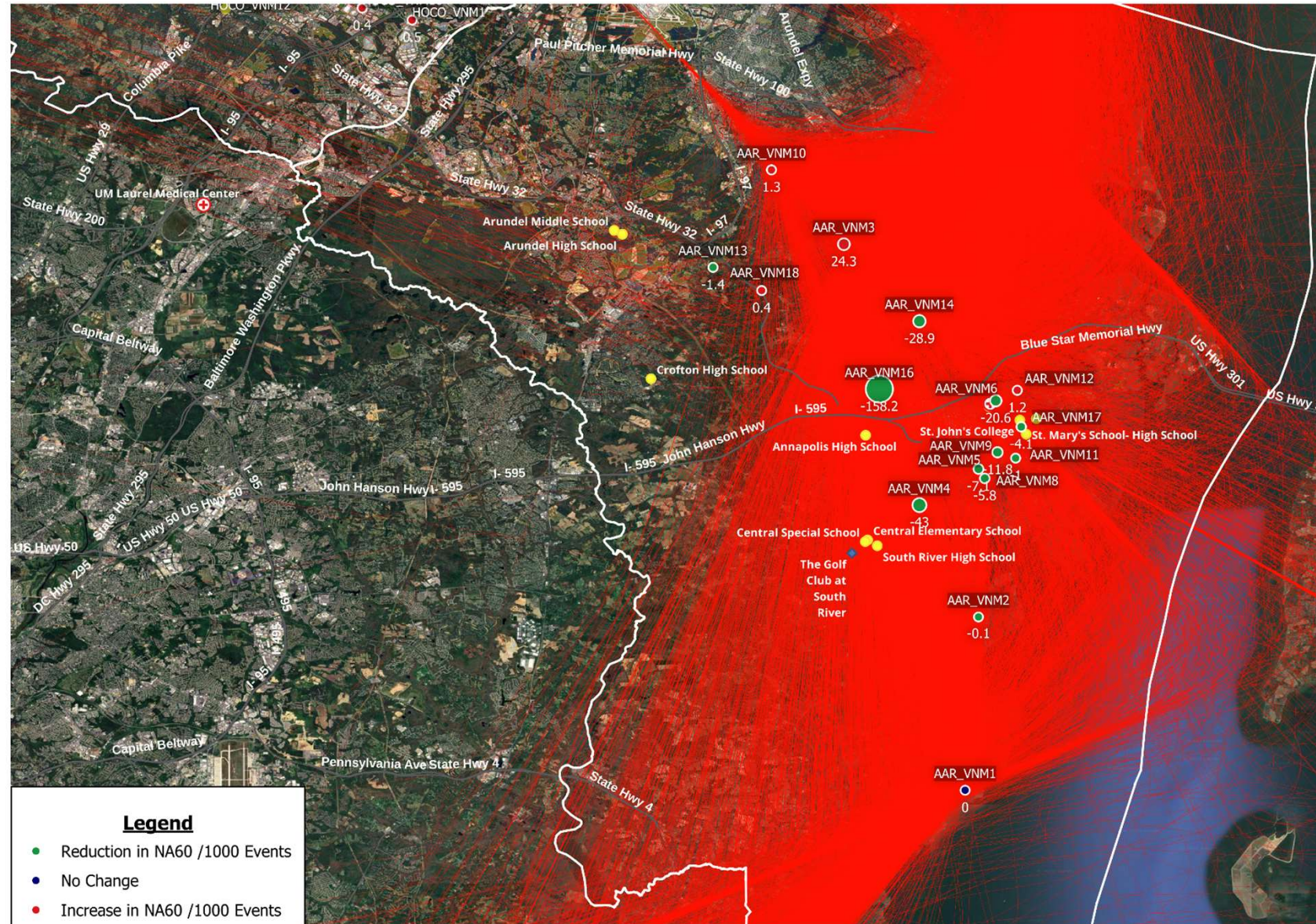
# Number Above 60 Db Events (NA60) Normalized Anne Arundel County – Landmark Locations Only

West Flow  
Arrivals  
Runway 33L



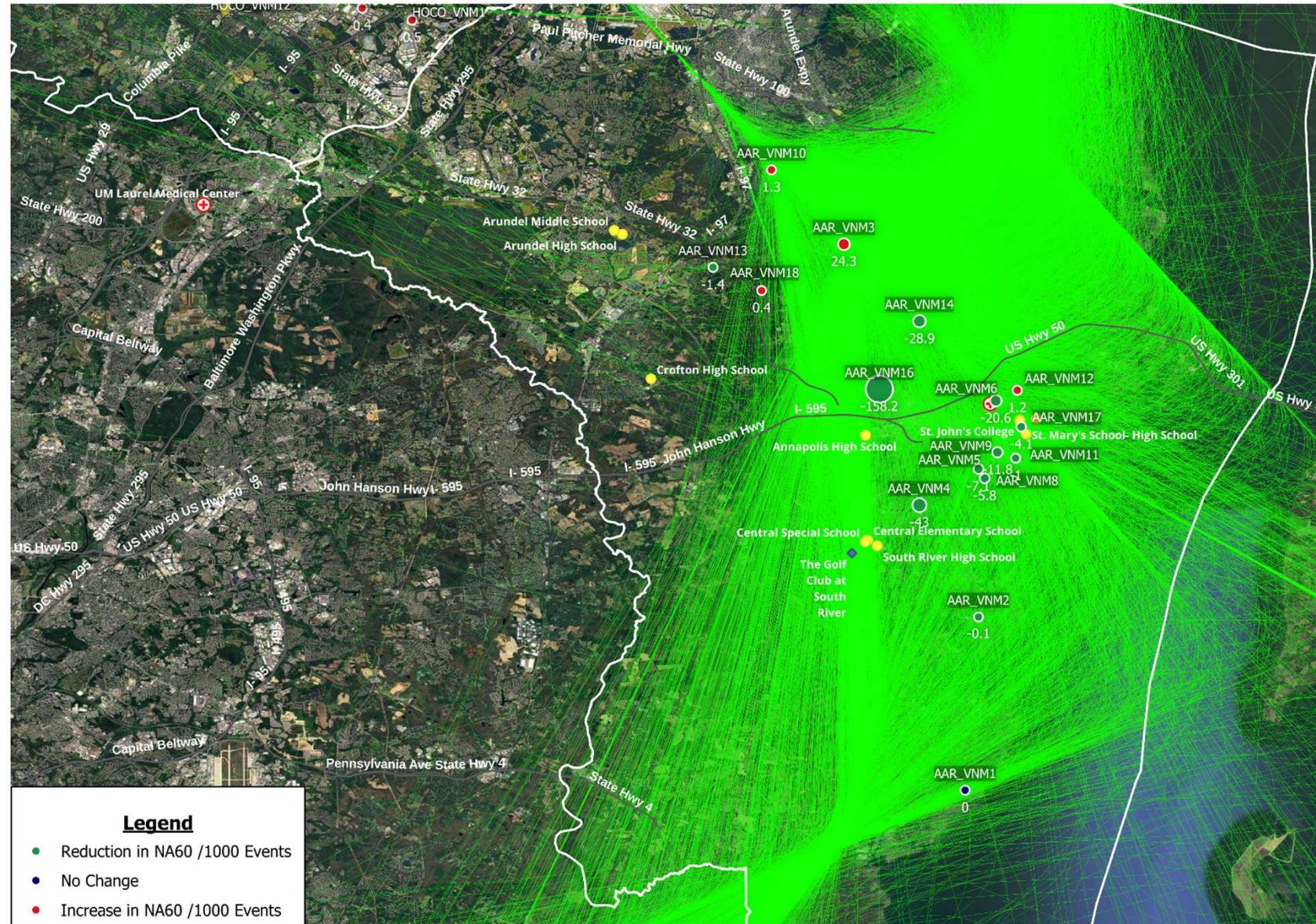
# Number Above 60 Db Events (NA60) Normalized Anne Arundel County – Landmark Locations Only

West Flow  
Arrivals  
Runway 33L



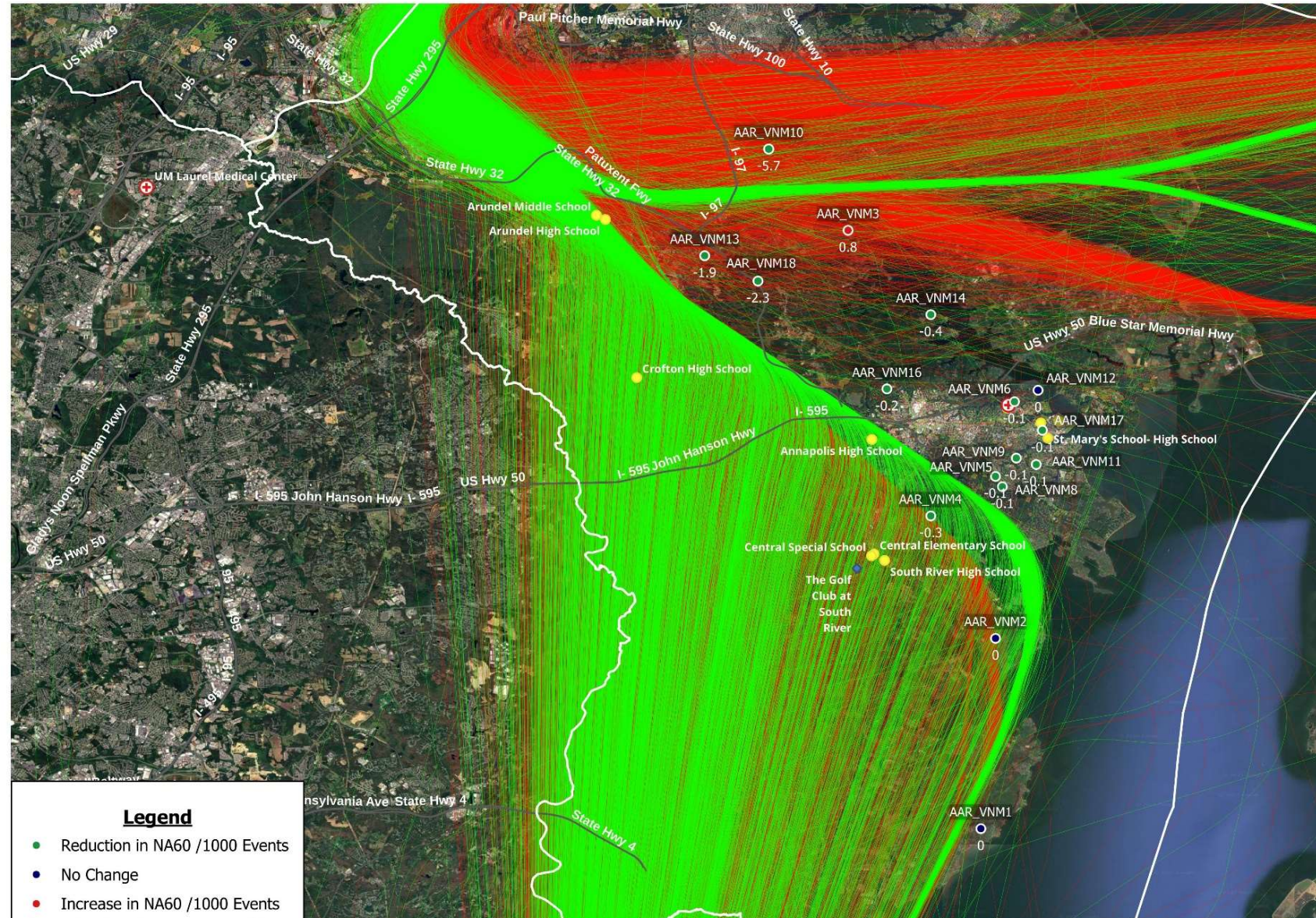
# Number Above 60 Db Events (NA60) Normalized Anne Arundel County – Landmark Locations Only

West Flow  
Arrivals  
Runway 33L



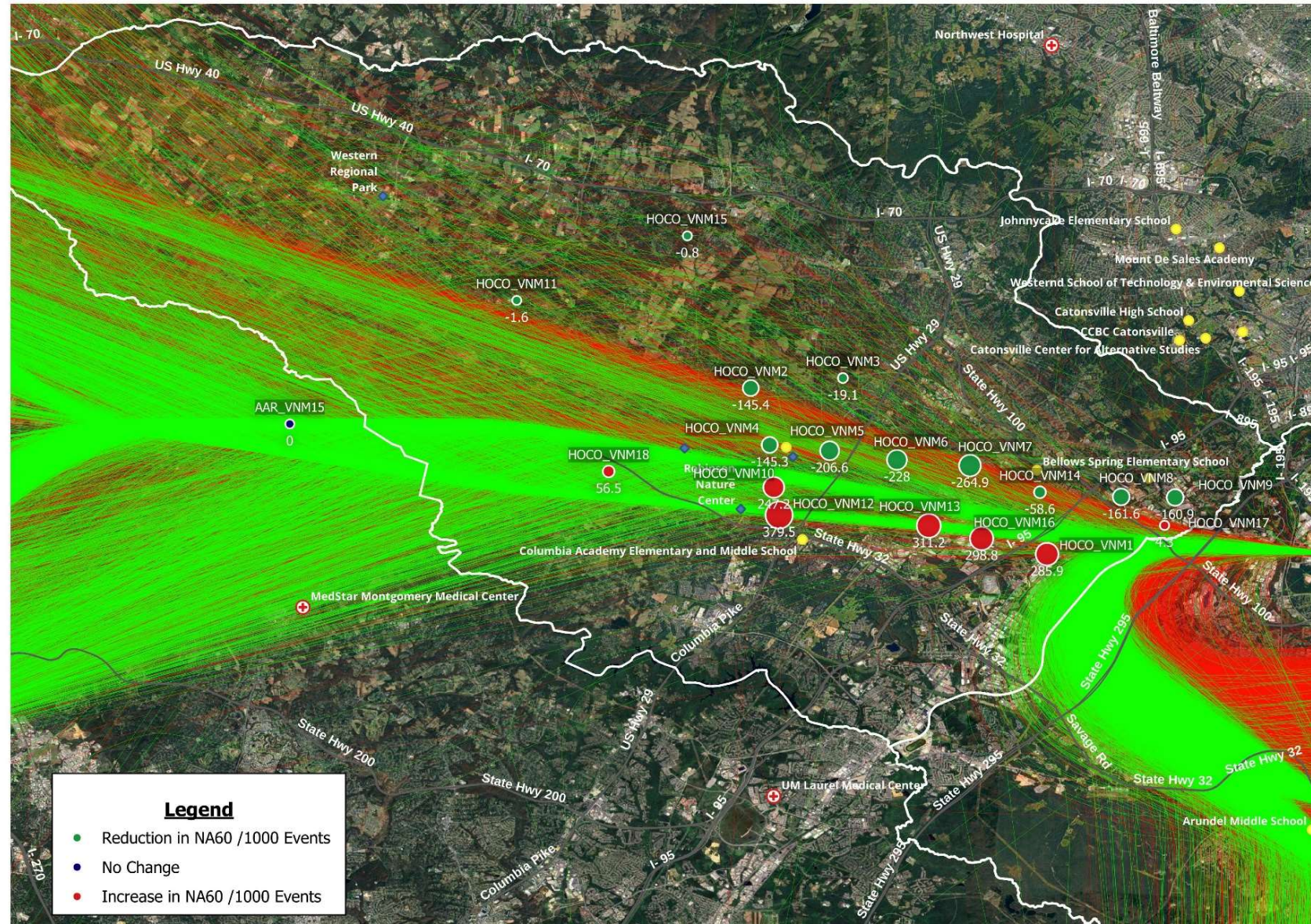
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West Flow  
Departures  
Runway 28



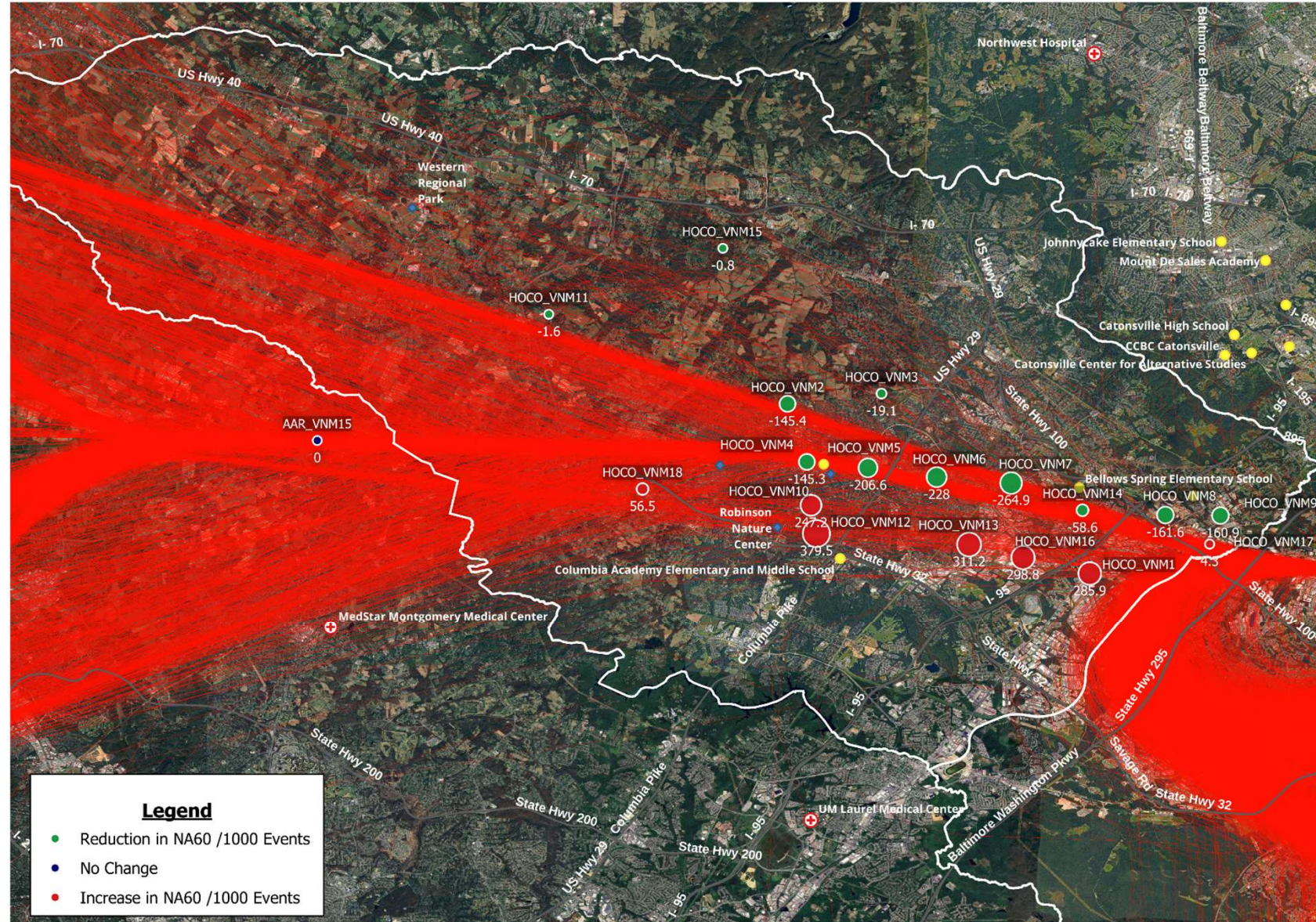
# Number Above 60 Db Events (NA60) Normalized Howard County – Landmark Locations Only

West Flow  
Departures  
Runway 28



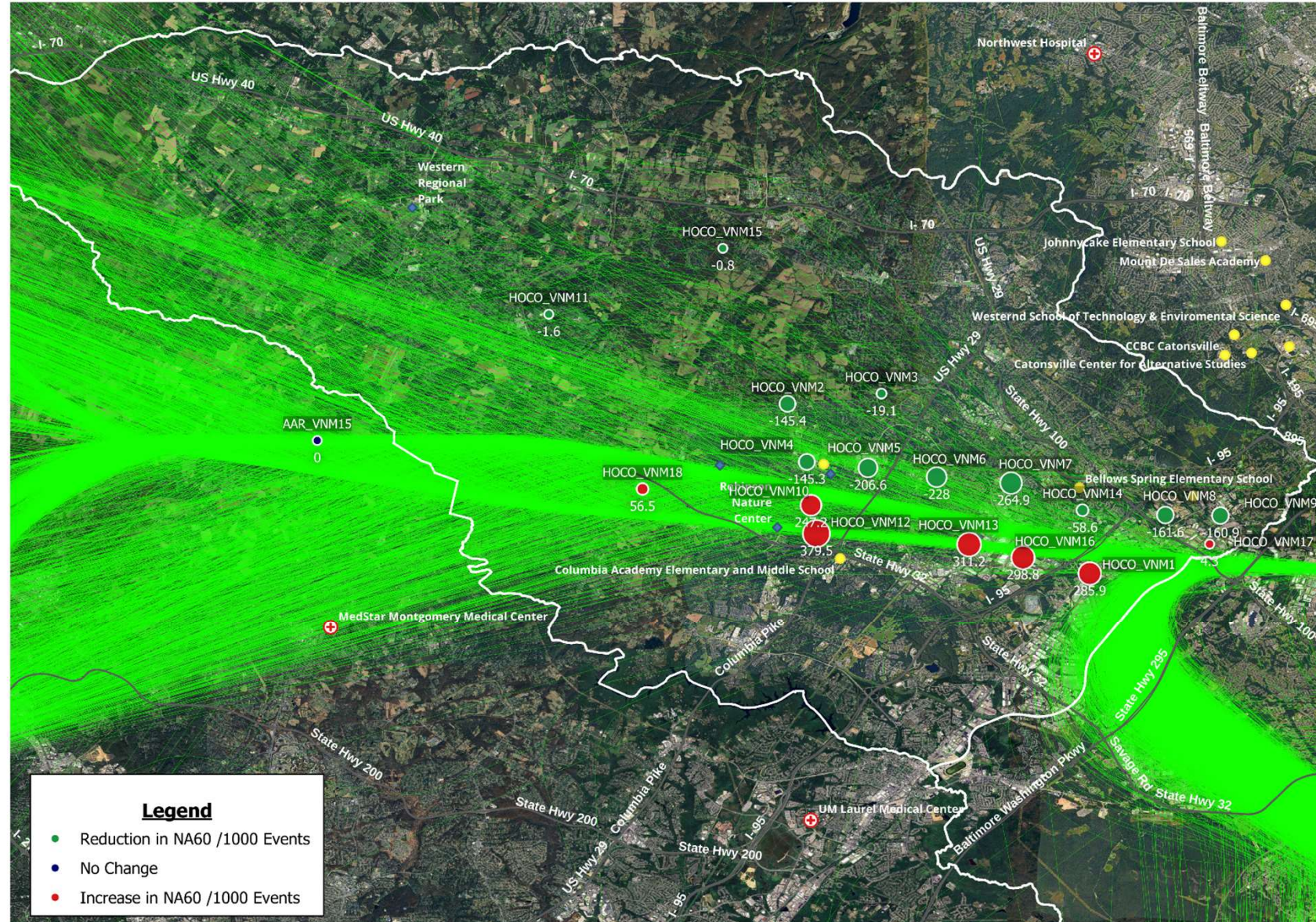
# Number Above 60 Db Events (NA60) Normalized *Howard County – Landmark Locations Only*

West Flow  
Departures  
Runway 28



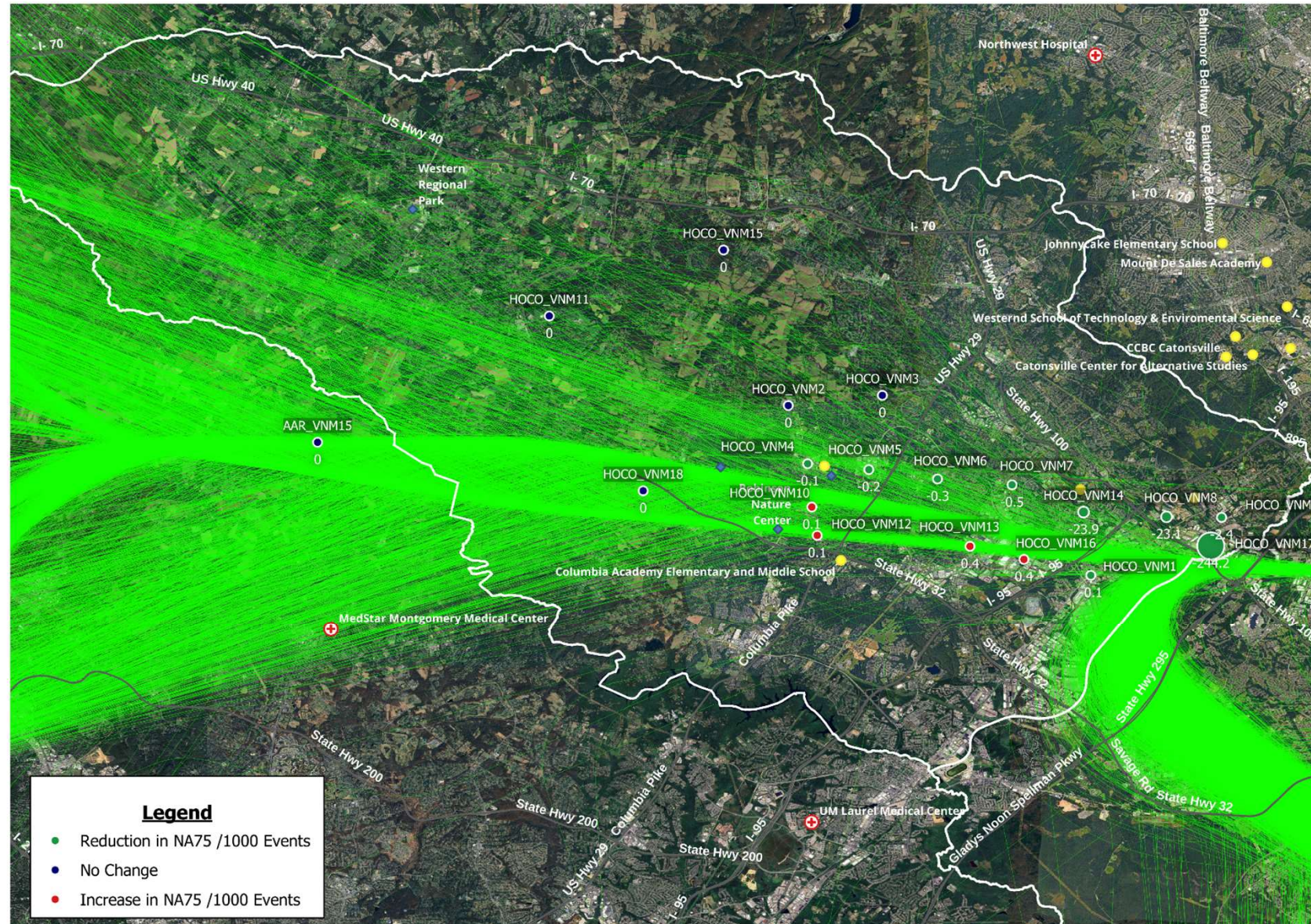
# Number Above 60 Db Events (NA60) Normalized Howard County – Landmark Locations Only

West Flow  
Departures  
Runway 28



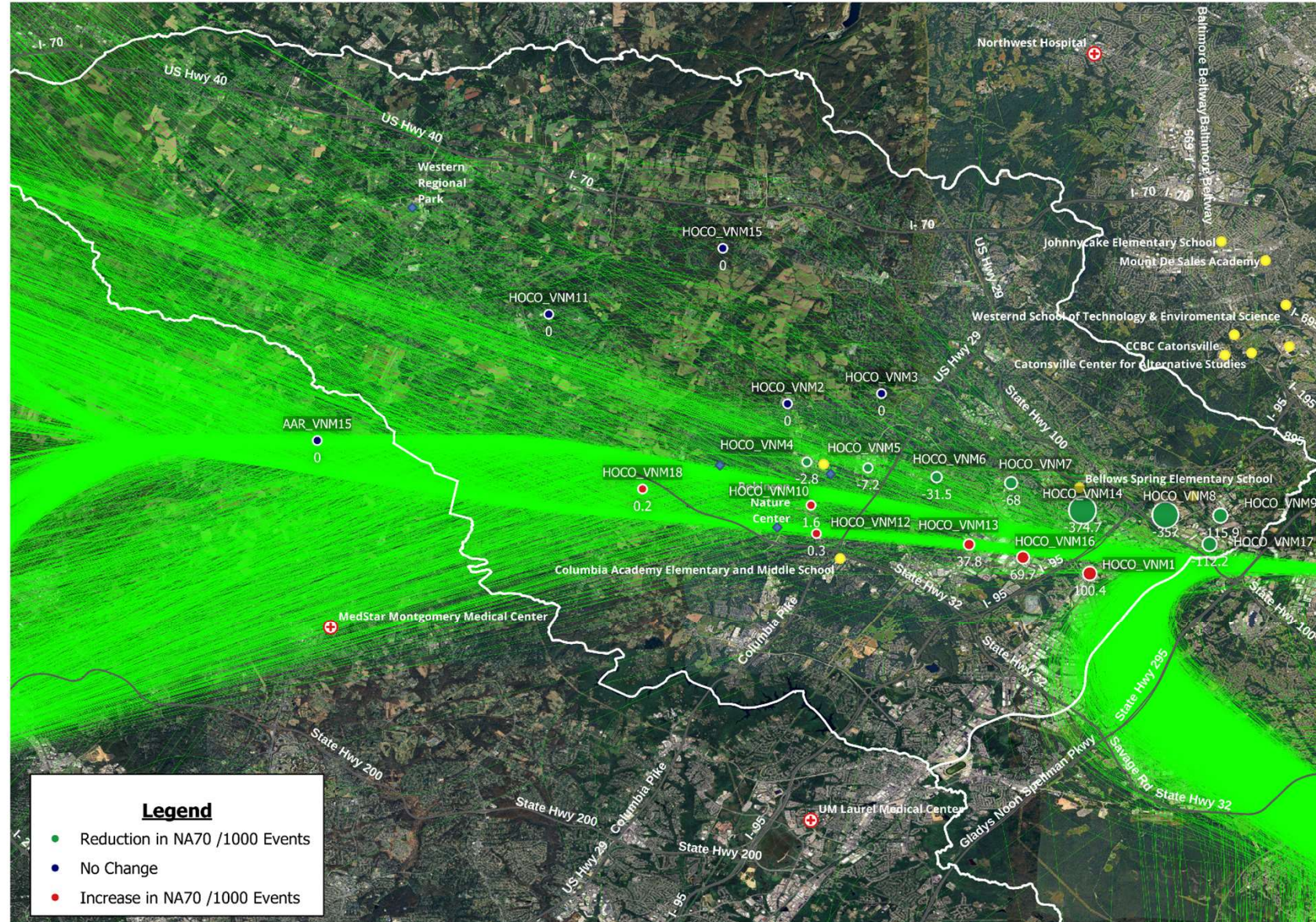
# Number Above 75 Db Events (NA75) Normalized *Howard County – Landmark Locations Only*

West Flow  
Departures  
Runway 28



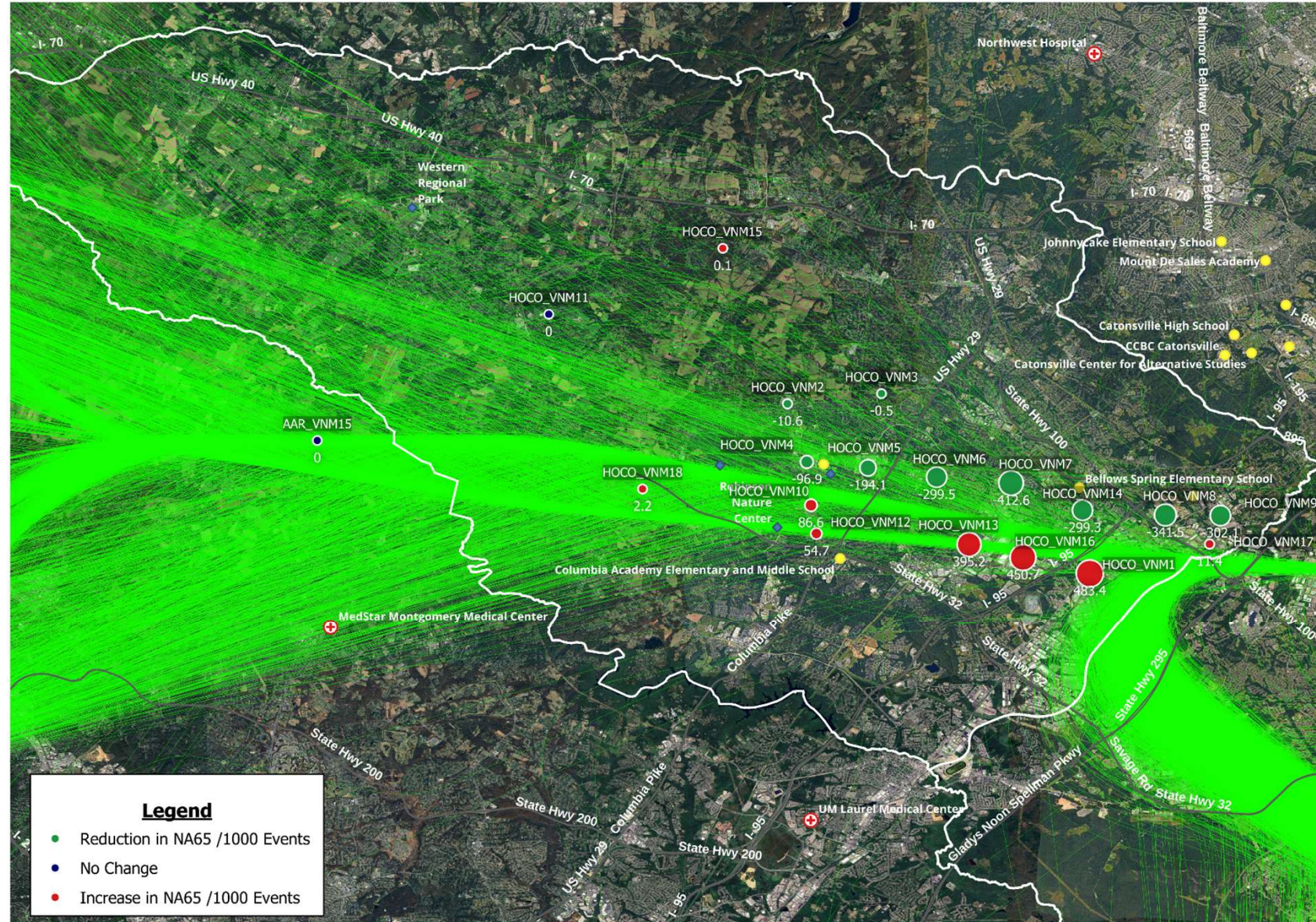
# Number Above 70 Db Events (NA70) Normalized Howard County – Landmark Locations Only

West Flow  
Departures  
Runway 28



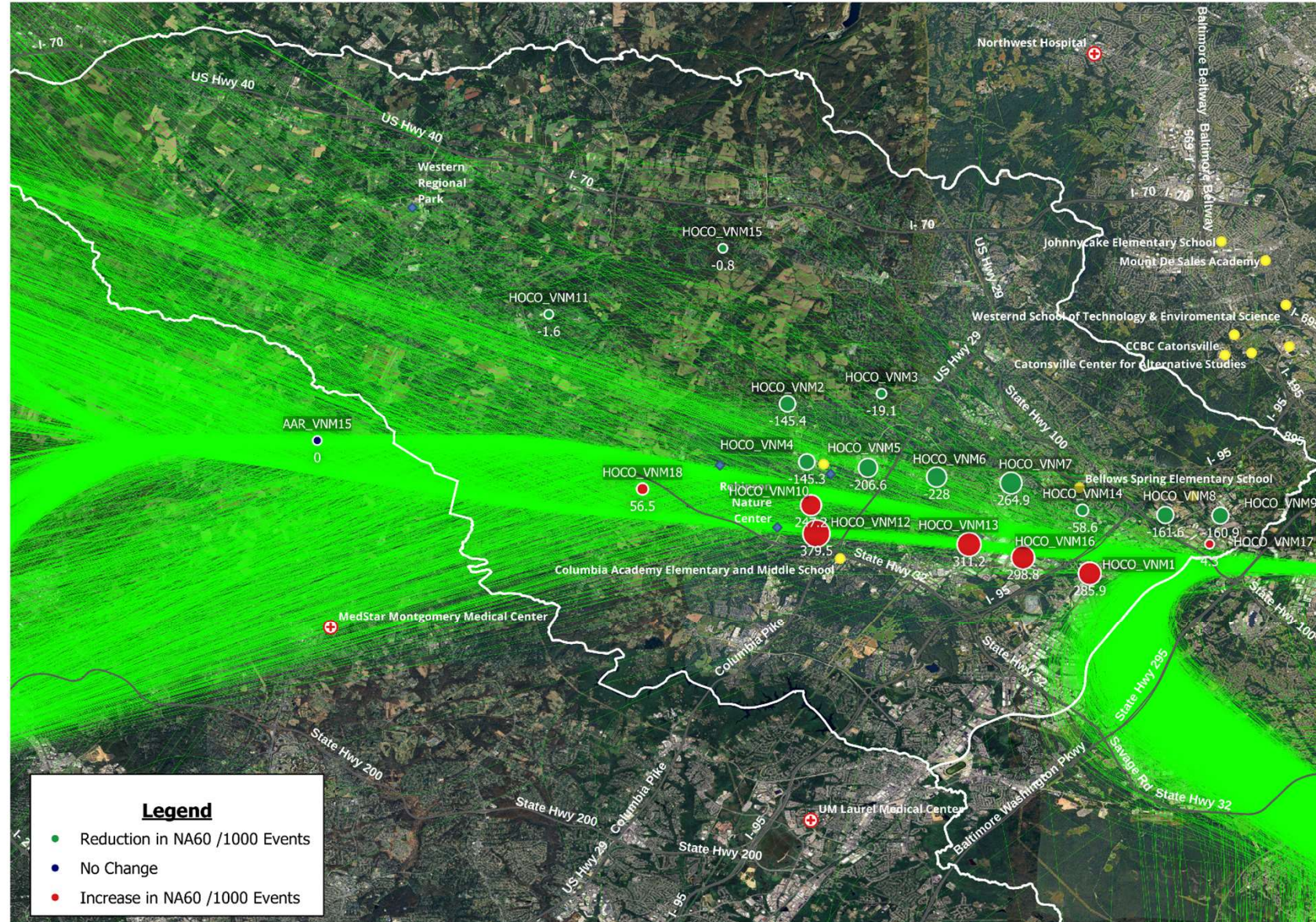
# Number Above 65 Db Events (NA65) Normalized Howard County – Landmark Locations Only

West Flow  
Departures  
Runway 28



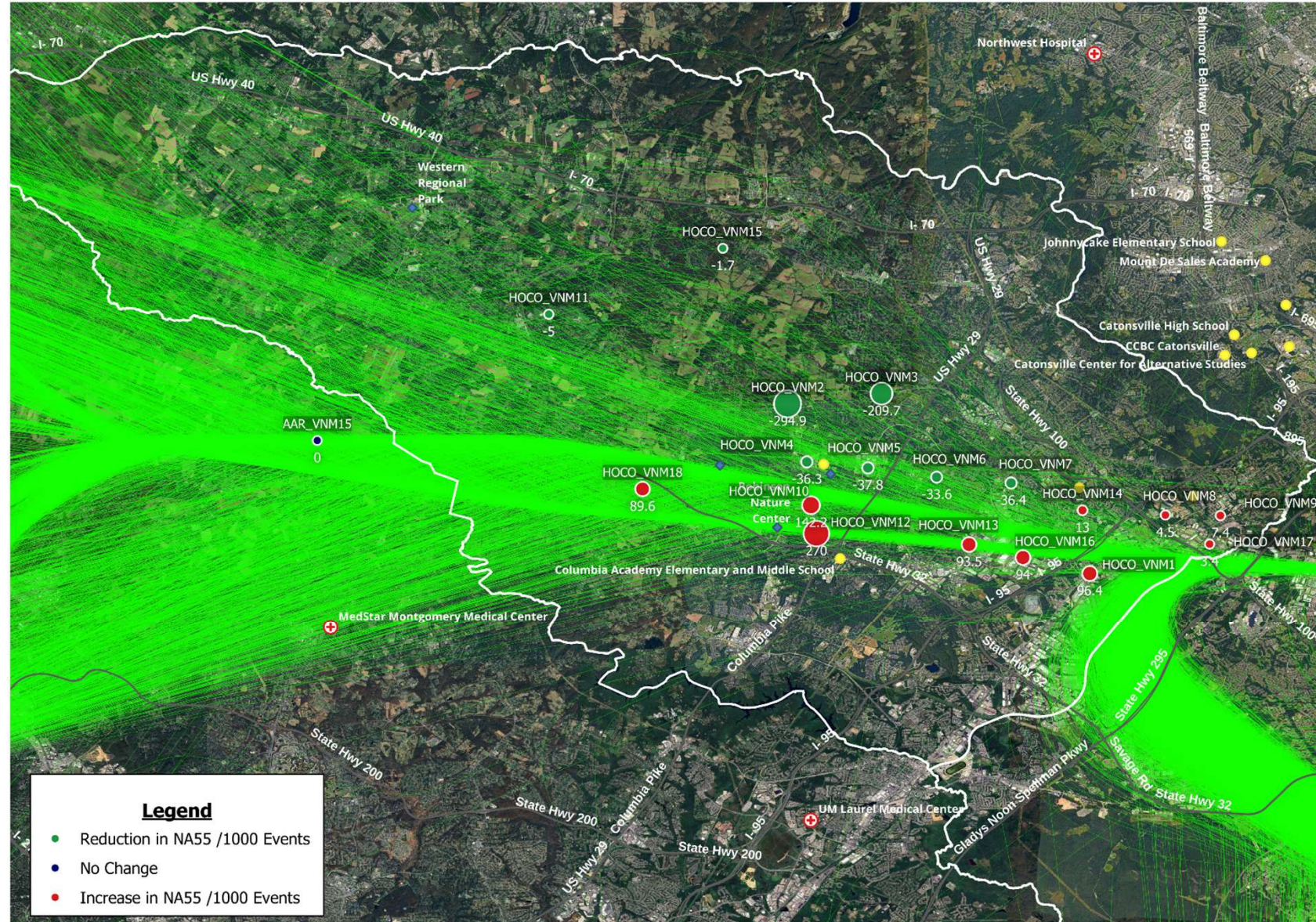
# Number Above 60 Db Events (NA60) Normalized Howard County – Landmark Locations Only

West Flow  
Departures  
Runway 28



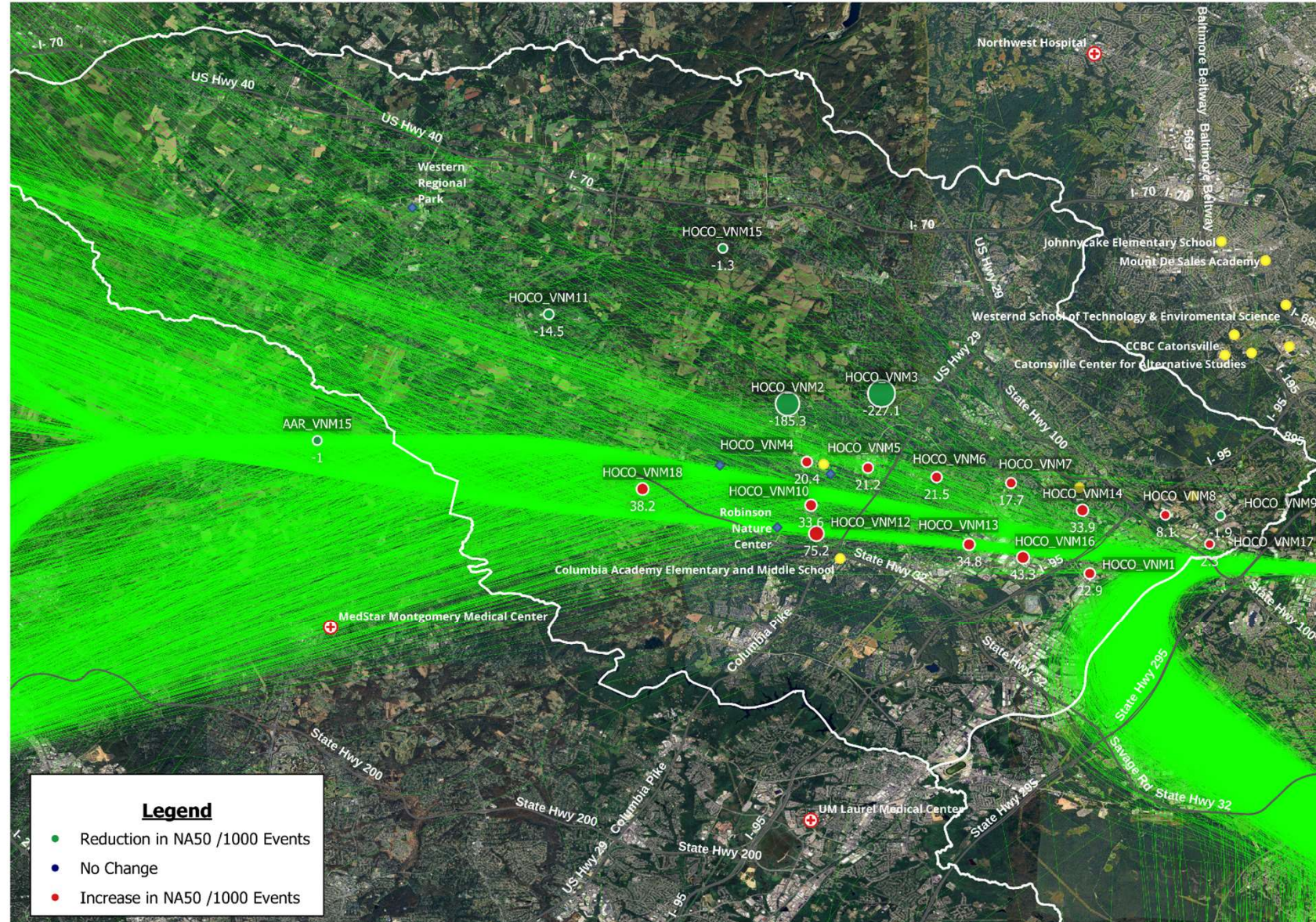
# Number Above 55 Db Events (NA55) Normalized Howard County – Landmark Locations Only

West Flow  
Departures  
Runway 28



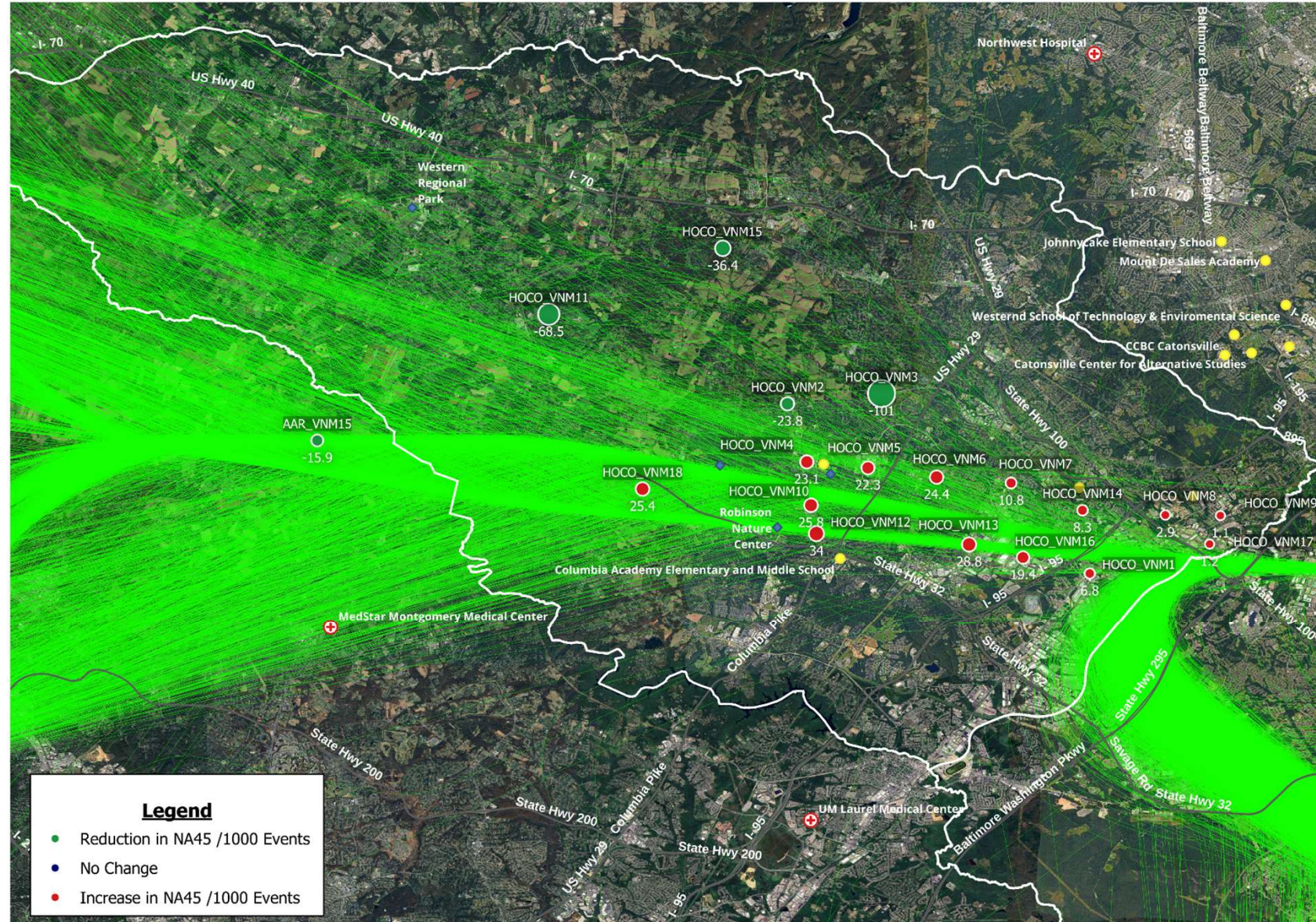
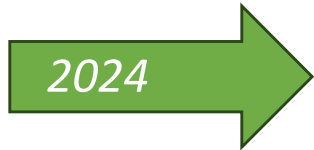
# Number Above 50 Db Events (NA50) Normalized Howard County – Landmark Locations Only

West Flow  
Departures  
Runway 28



# Number Above 45 Db Events (NA45) Normalized Howard County – Landmark Locations Only

West Flow  
Departures  
Runway 28



# Conclusions

- The Vianair modeling, based on actual flight data, was very effective in validating that the flight procedure changes achieved the results predicted in the initial modeling.
- Breaking out the data by runway usage effectively shows the relative noise impacts of east flow and west flow operations.
- Use of the Number Above metric at a range of noise event levels provides a high resolution view of how noise impacts shifted after the flight procedure changes.

# Recommendations

- Modeling on a runway by runway basis should be a standard part of any development of new or changed flight procedures.
- Use of a range of Number Above metrics should also be a part of any noise modeling and analysis.
- Validation of procedure changes using modeling should be based on actual before and after flight data.
- Similar analysis should be performed to describe community noise impacts during periods of atypical runway usage, such as runway closures for construction and maintenance.