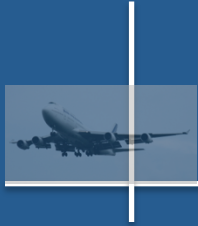


NEXT GENeration Noise Metric Considerations



N.O.I.S.E - 3/8/2015

Ambrose W. Clay, Councilman, College Park, GA



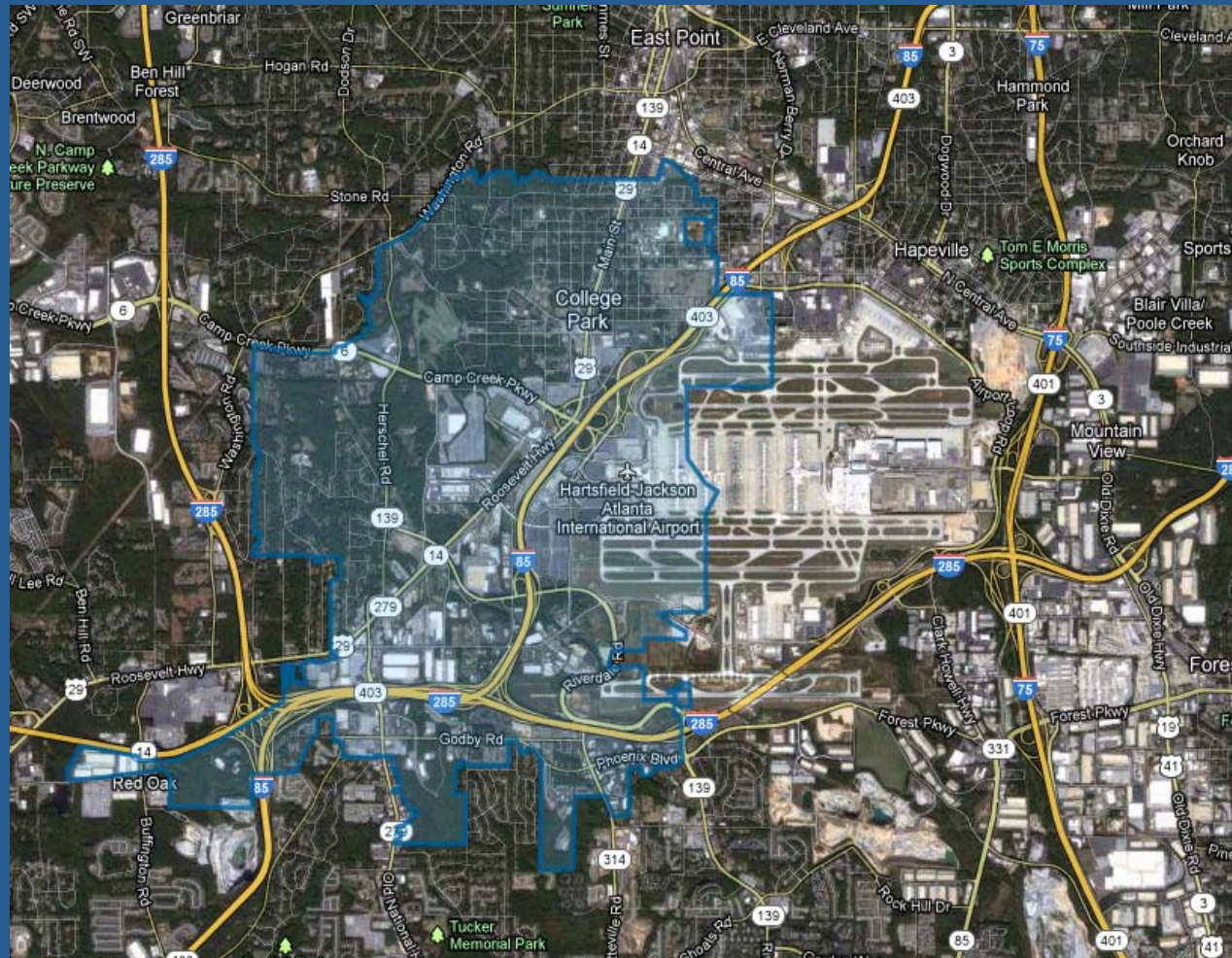
Agenda



- Where is College Park, GA?
- College Park's Noise Cases
- ATL West Departure Paths
- NextGen Flight Characteristics
- NextGen Noise Measurements
- FAA's Noise Annoyance Metric - DNL
- NextGen Noise Impacts on Quality of Life
- Conclusions



Where is College Park?



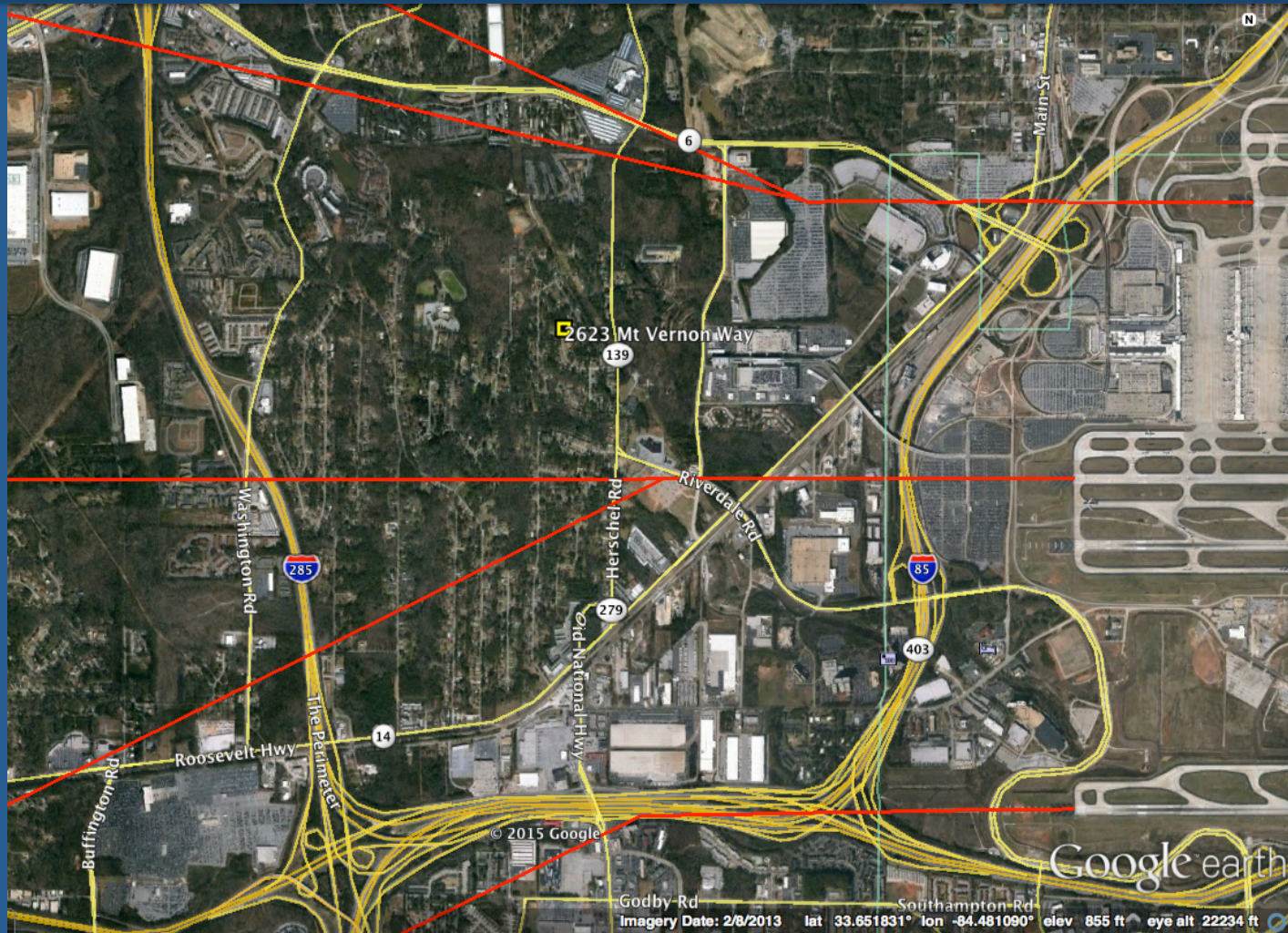


College Park's Noise Cases



- Over-flight Noise from Westward Take Offs
 - Over-flight Noise from Eastward Landings
 - Ground Noise from Eastward Landings
 - Ground Noise from Aircraft Taxiing
 - Ground Noise from Eastward Take Offs
-
- Focus Today is On Noise from Westward Over-flights

ATL West Departure Paths





NextGen Flight Characteristics



- NextGen with RNAV/RNP is creating well-defined departure tracks with dispersion about their ground level projection of 0.1 mile (1 city block), or less – i.e., ***Expressways in the Sky***.
- Precision flying and tracking enables controllers to reduce separation between aircraft. At ATL, for runway 26L, rush hour departures have been observed as frequently as every 45 seconds, with 60 seconds being more typical.
- Even if existing RNAV tracks are not relocated, Citizens located directly “beneath” departure tracks ***newly*** experience more frequent over-flights, at regular intervals, concentrated in very narrow corridors.

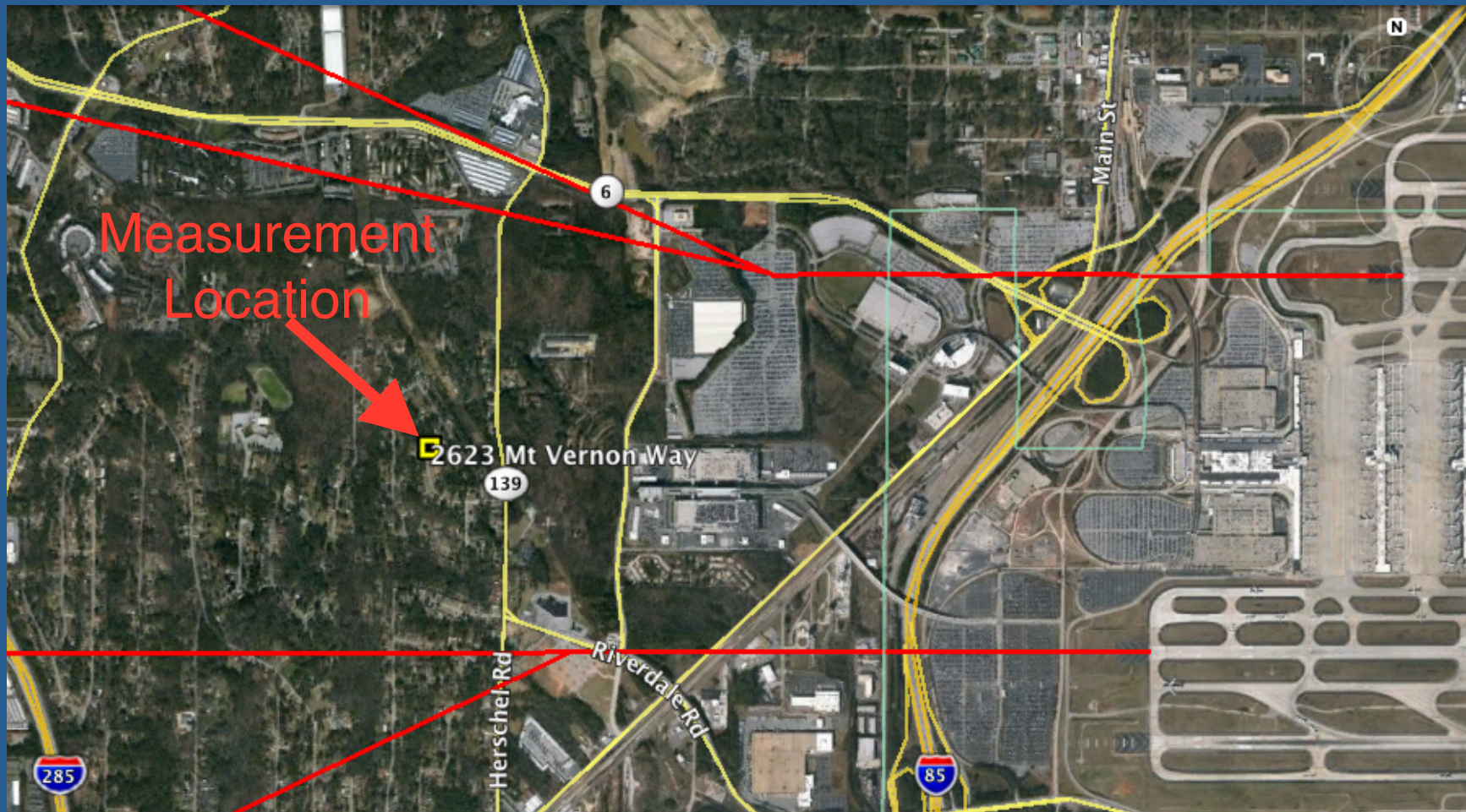
NextGen Noise Measurements (An Example)



- A measurement location was established about 2 miles from the DER (Departure End of Runway) of runway 26L, and 1 ½ miles from DER of 27R, roughly midway between the departure flight paths (about ½ mile from each).
- “A-weighted” measurements were made for 20 minutes with a Type 2 calibrated microphone. The minimum sound level was about 45 dB when background “roar” from overall operations was lowest (Without aircraft this would be a quiet neighborhood.). 26 aircraft were recorded in 20 minutes.
- During a moderately busy departure period, some over-flights produced 30 dB sound level shifts from about 55 dB to 85 dB.
- For one 100-second period there were noise excursions every 25 seconds (Due to departures from both runways).

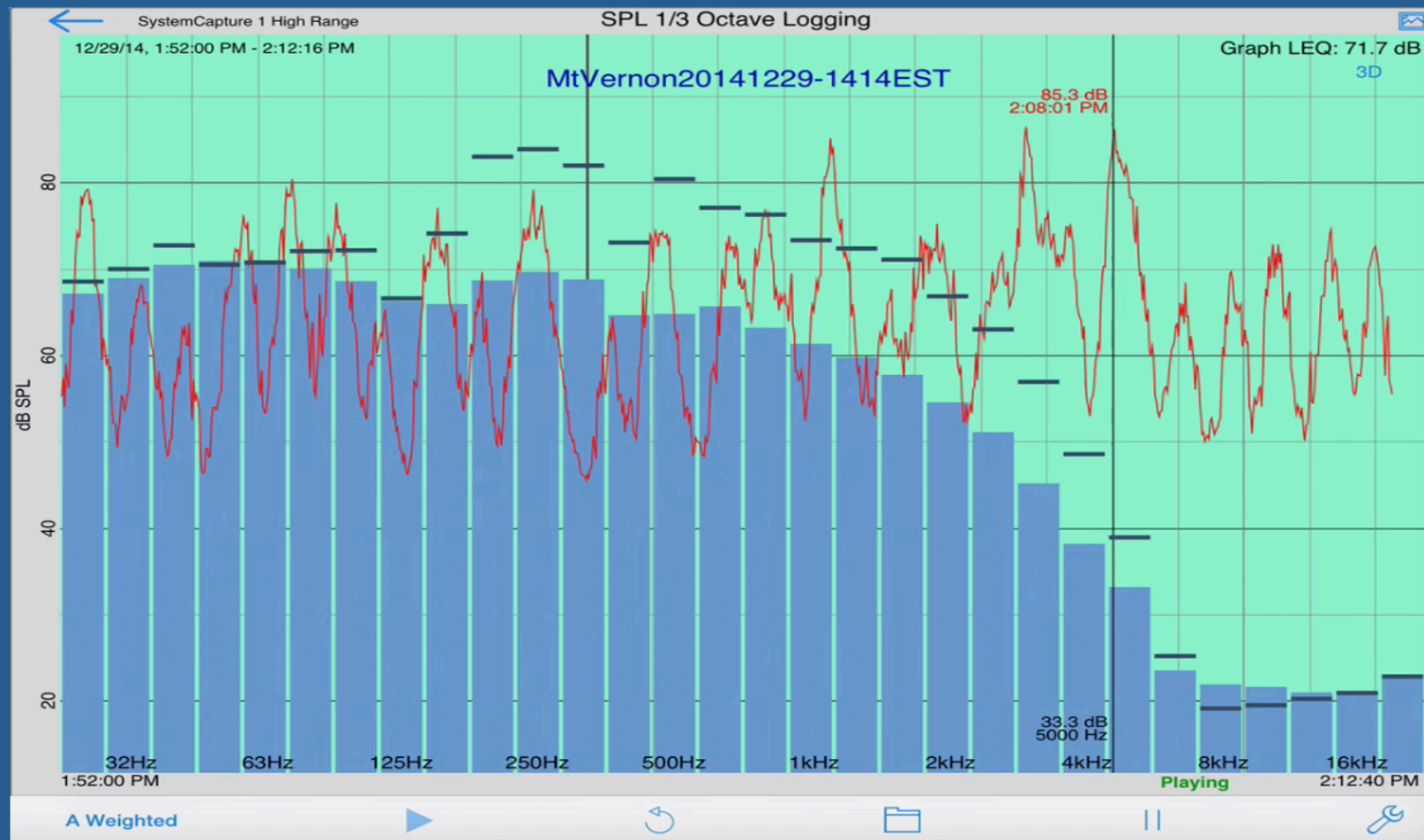


NextGen Noise Measurements (cont)





NextGen Noise Measurements (cont)





FAA's Noise Annoyance Metric - DNL



- FAA's current metric for aircraft noise annoyance “averages” dB levels for a simulated mix of flights throughout a 24 hour day, with a 10 dB penalty added for noise from flights after 10 PM and before 7 AM.
- Peak levels of noise are accounted for only by their effect on the average. The amount of change in noise level during noise events (i.e., during over-flights) is not considered.
- The “A Weighting” aspect of the DNL metric discounts low frequency noise that nonetheless is palpable and that also can induce audible noise through structural vibration (rattling the teacup on the shelf).

NextGen Noise Impacts On Quality of Life



- During waking hours, significant changes in sound level, repeated frequently at a regular interval during a rush-hour, are perceived like a **Noise Blitz** by those beneath it.
- At night, infrequent, significant changes in sound level interfere with sleep, yet they have very little impact on the average dB level described by the FAA DNL noise metric.

NextGen Noise Impacts On Quality of Life (cont)



- A Phoenix resident, returning from vacation after the 9/18/2014 major departure track change, was astonished by the noise and thought the military was holding maneuvers – a **Noise Blitz**
- Another Phoenix resident noted the impact of noise at night awakening her mentally handicapped child, who then couldn't sleep.
- Recent research appears to show a relationship between sleep disturbance and a number of illnesses.



Conclusions



- Congress is pressing the FAA to deploy NextGen much more rapidly and has facilitated that rollout by enabling exclusions from environmental impact review.
- The deployment is being met in several parts of the country with a public outcry and threats of legal action, and Congress has responded positively in some cases.



Conclusions (cont)



- Now is the time to recommend changes to the current FAA noise [dose-response] metric that is used to predict annoyance, so as to account for:
 - The psychological impact of extended periods of frequent, significant noise spikes occurring at regular intervals.
 - The physiological impact of infrequent, significant noise spikes occurring when people are trying to sleep.



Conclusions (cont)



- Considerations for a revised annoyance metric:
 - “C” (Vs “A”) Weighted dB level measurements (so as not to discount low frequency noise)
 - The length of each period (“rush hour”) of frequent, regular noise spikes (due to over-flights)
 - The number of rush hours per day
 - The average dB (LEQ) of a rush hour’s noise
 - The intensity (change in dB) of spikes above the average dB (LEQ) of a rush hour’s noise
 - The intensity and number of spikes above the LEQ, for non-rush hours from 10 PM to 7 AM



Contact Information



Ambrose W. Clay, Councilman Ward 1

City of College Park

P.O. Box 87137

College Park, GA 30337

clayoncouncil@mac.com

Office: (404) 669-3755