ANALYSIS & IMPLICATIONS OF HANSCOM AVIATION NOISE COMPLAINTS GATHERED BY MASSPORT

REFERENCE:
MASSPORT'S 2000
ENVIRONMENTAL STATUS & PLANNING REPORT

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Submitted to:
Massachusetts Environmental Policy Act Office

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SUMMARY

BACKGROUND

- **In the 9/22/99 Noise Work Group Report, the Metrics Group**
  - ***Strongly criticized the use of DNL as an indicator of Significant Impact of Aviation Noise on Communities,***
  - ***Suggested alternate metrics for providing such information***
  - ***Massport has been reluctant to adopt/display most metrics***

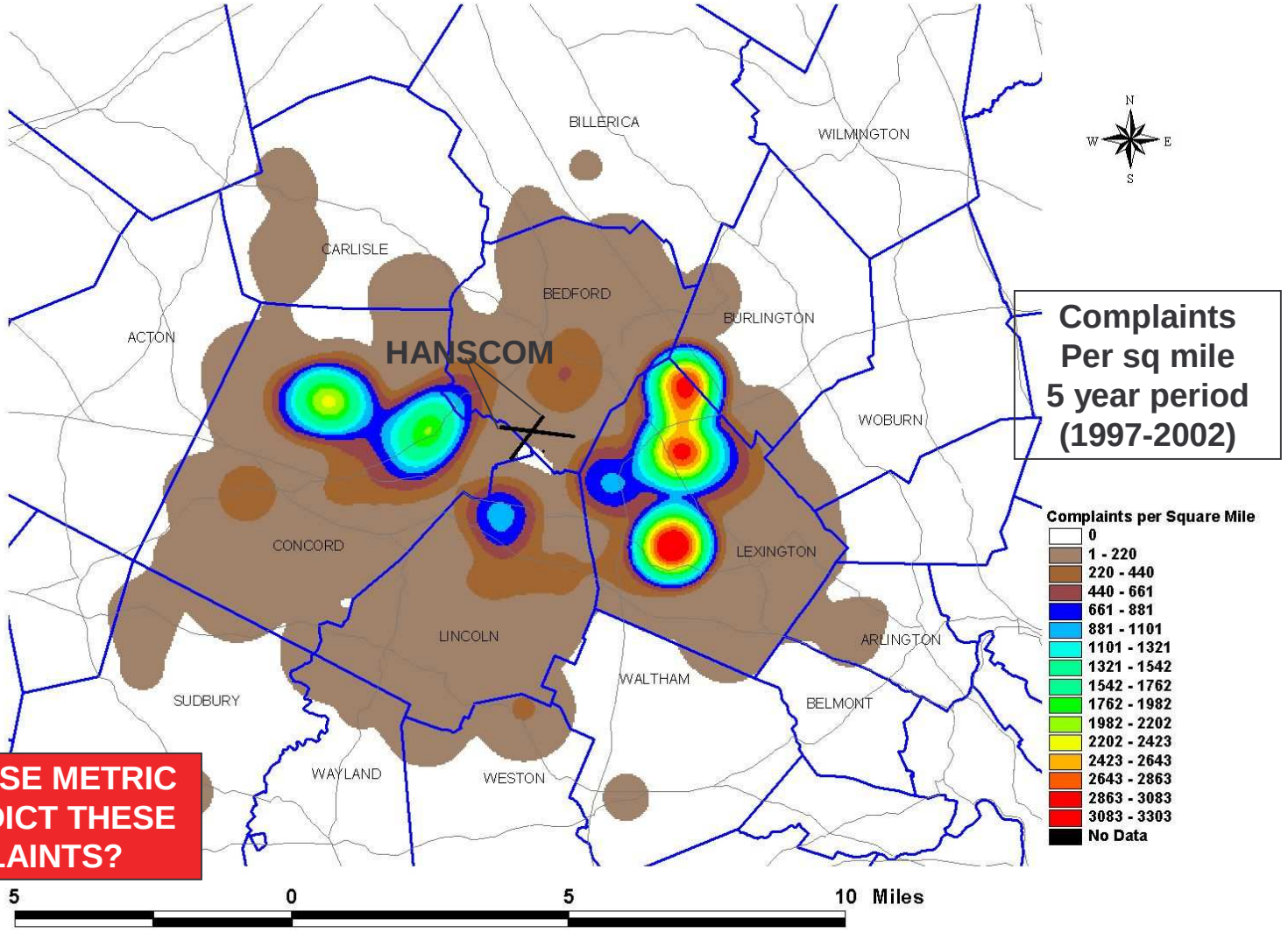
CONCLUSIONS FROM NEW INFORMATION

- **Using Massport's data provided to HATS, it is proven beyond any reasonable doubt that**
  - ***65 dB DNL contour does not usefully represent direct, immediate effects of aircraft noise on Hanscom-area residents***
  - ***A single event metric, such as the Lmax=90 dBA contour accurately represents effects of aircraft noise on Hanscom-area residents***

RECOMMENDATIONS

- **Massport's projection of Aviation Noise Impact should**
  - ***No longer be based on 65 dB DNL contour***
  - ***Be based on Lmax=90 dB A-weighted contour***

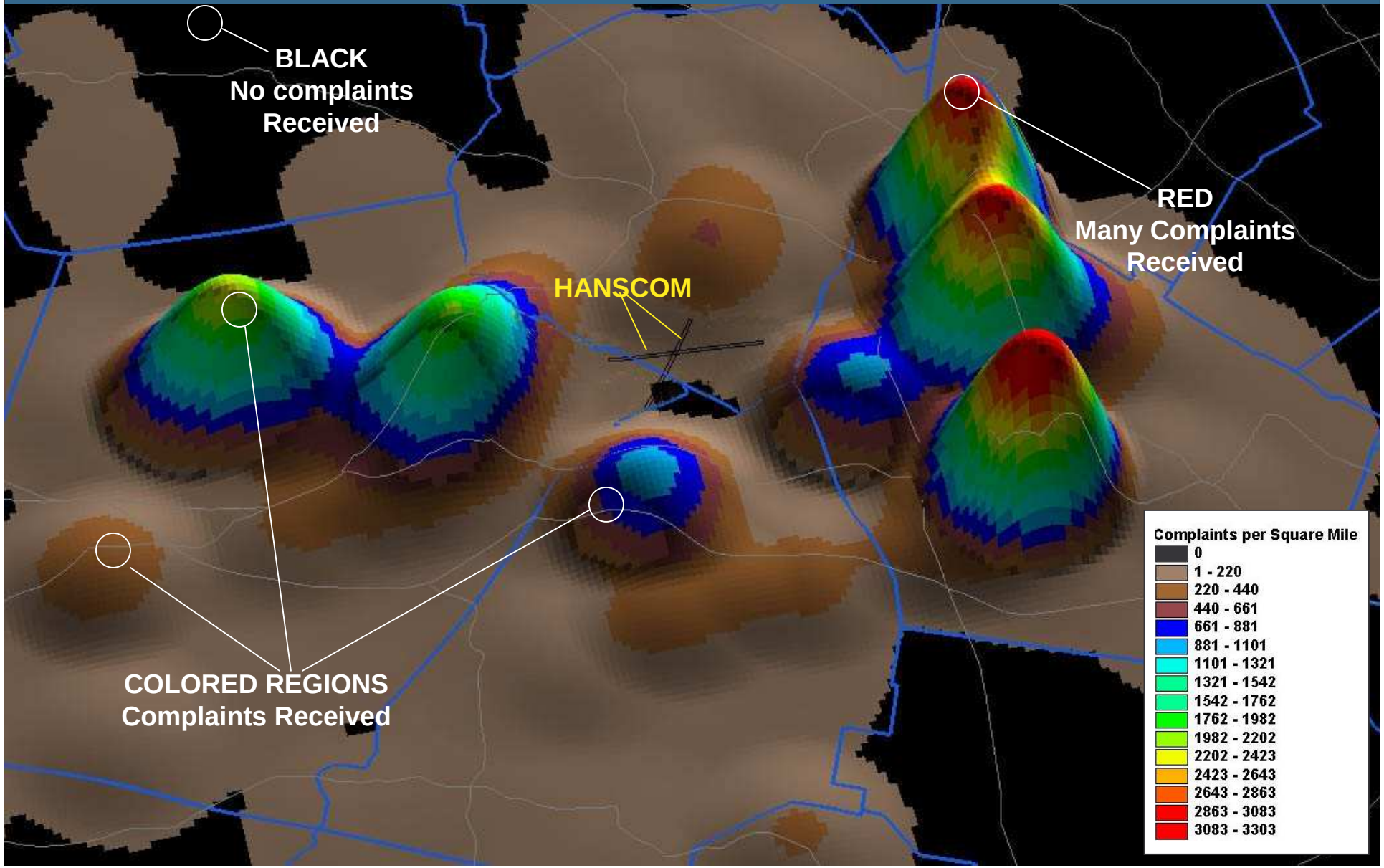
Complaint Density Contours
Constructed from Massport-provided Information†



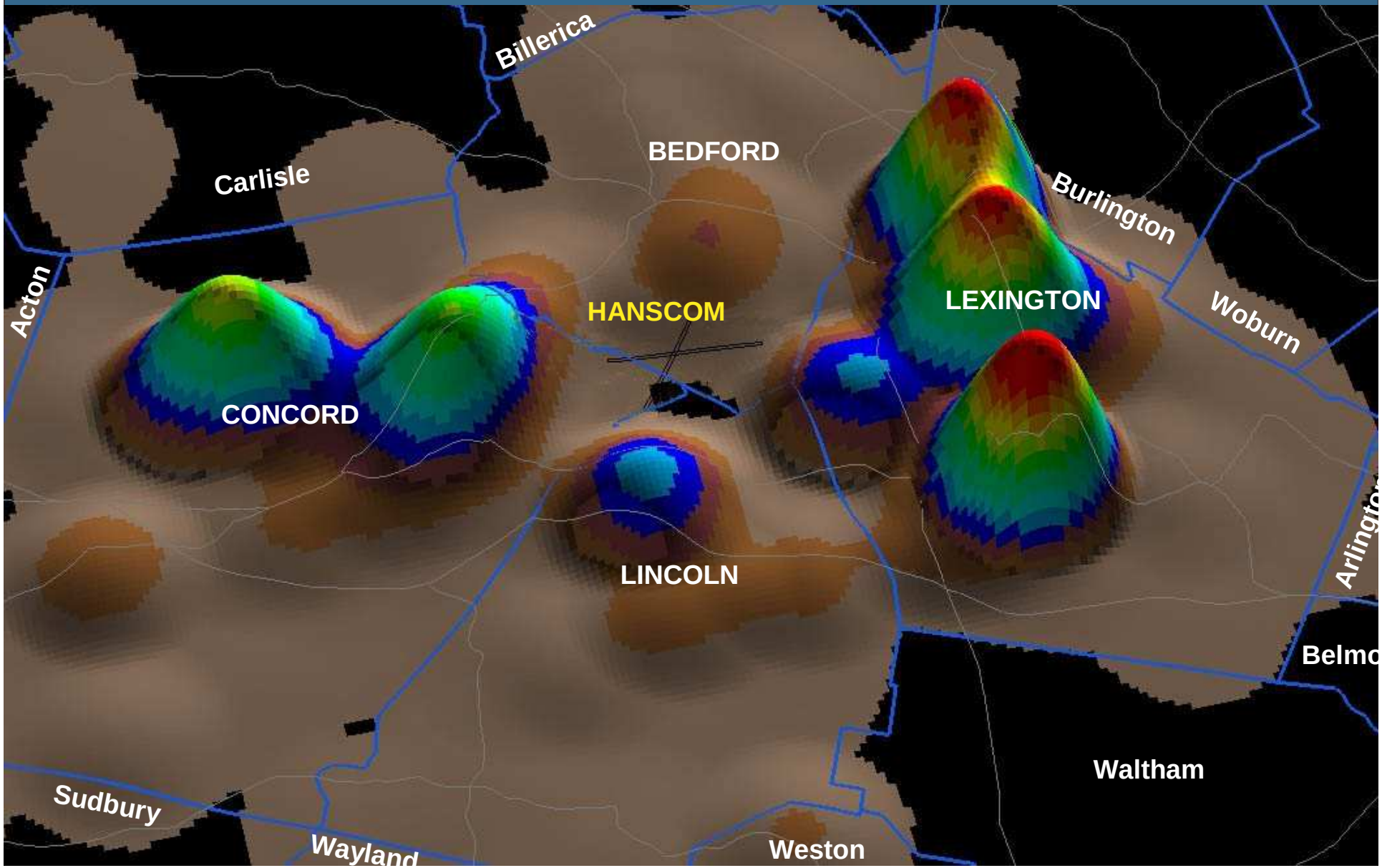
WHAT NOISE METRIC CAN PREDICT THESE COMPLAINTS?

† Complaint contours constructed by Fidell Associates, Inc.

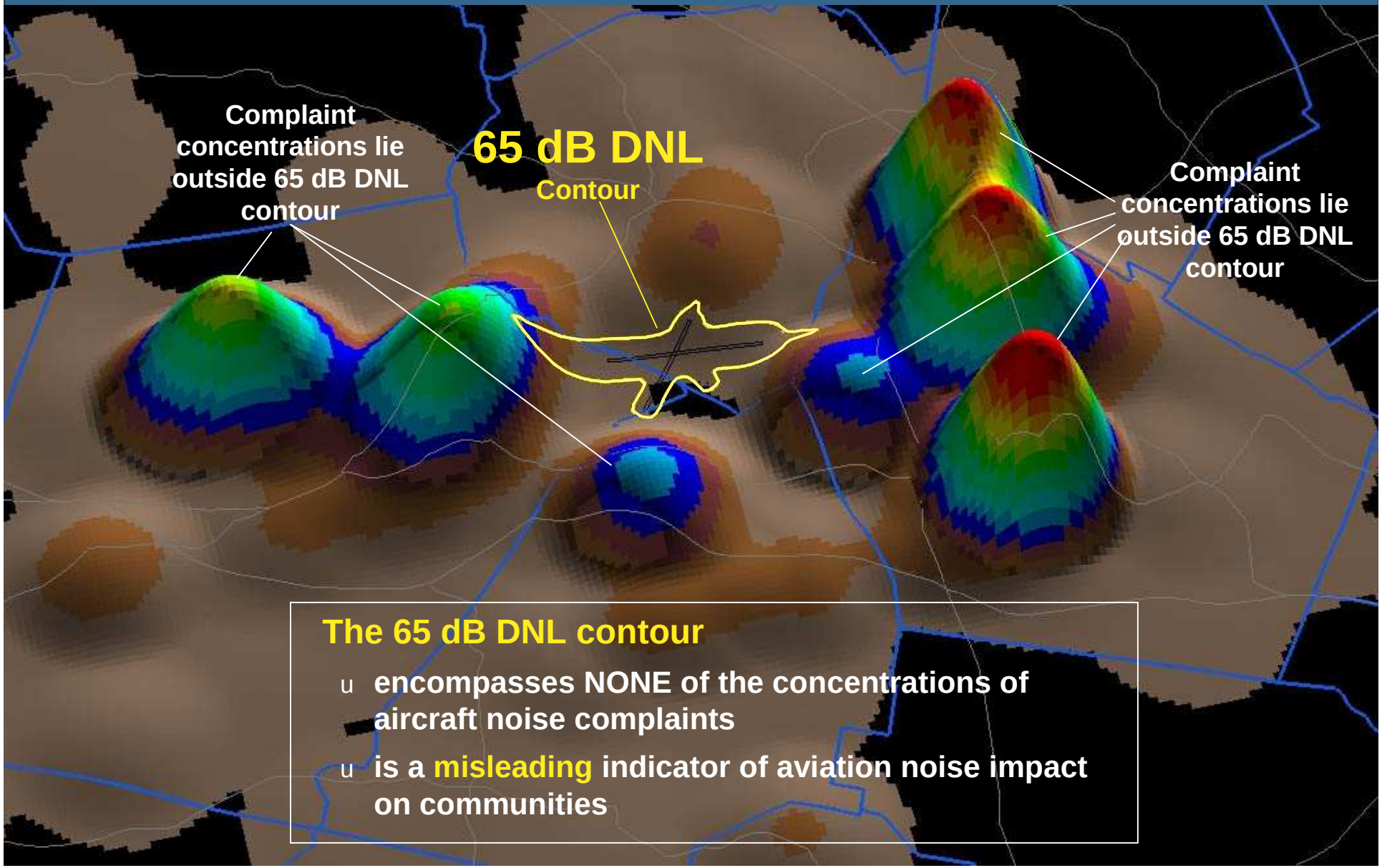
Hanscom Field Noise Complaints 1997-2002 (3-D Representation)



Towns that Produced Hanscom Noise Complaints



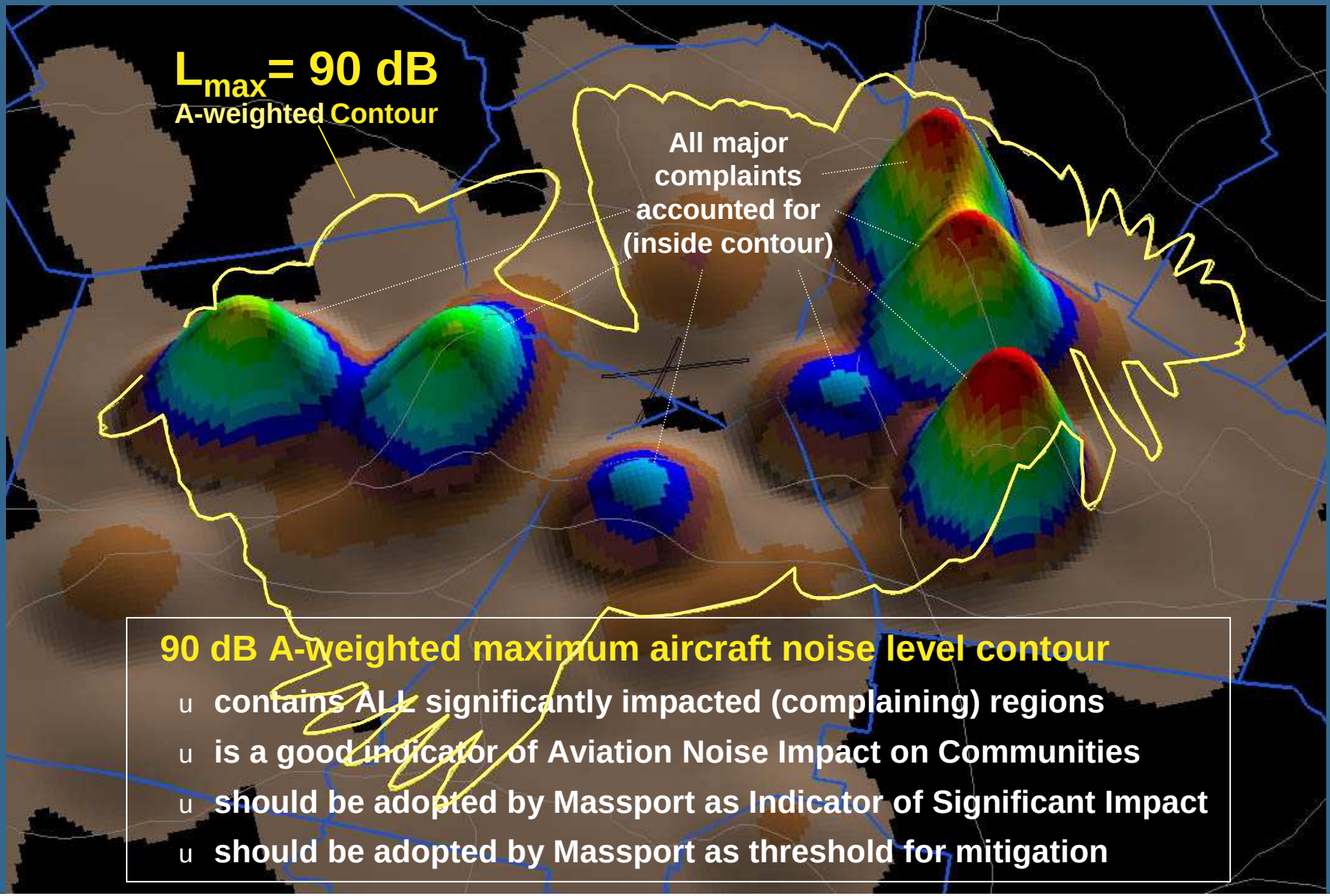
65 dB DNL Contour is a Poor Predictor of Complaints



The 65 dB DNL contour

- encompasses NONE of the concentrations of aircraft noise complaints
- is a misleading indicator of aviation noise impact on communities

90 dB A-weighted maximum aircraft noise level accounts for all major concentrations of complaints



90 dB A-weighted maximum aircraft noise level contour

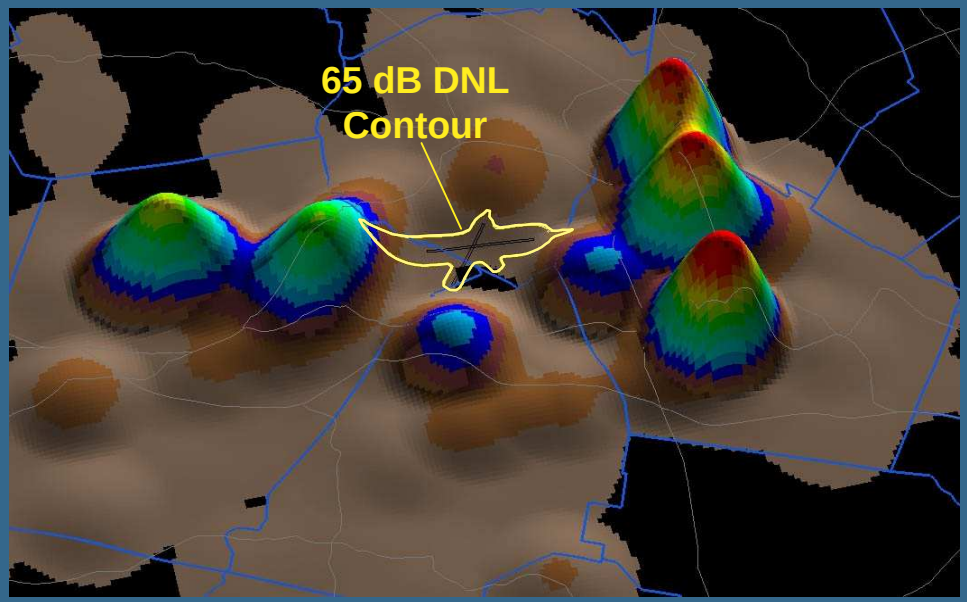
- contains ALL significantly impacted (complaining) regions
- is a good indicator of Aviation Noise Impact on Communities
- should be adopted by Massport as Indicator of Significant Impact
- should be adopted by Massport as threshold for mitigation

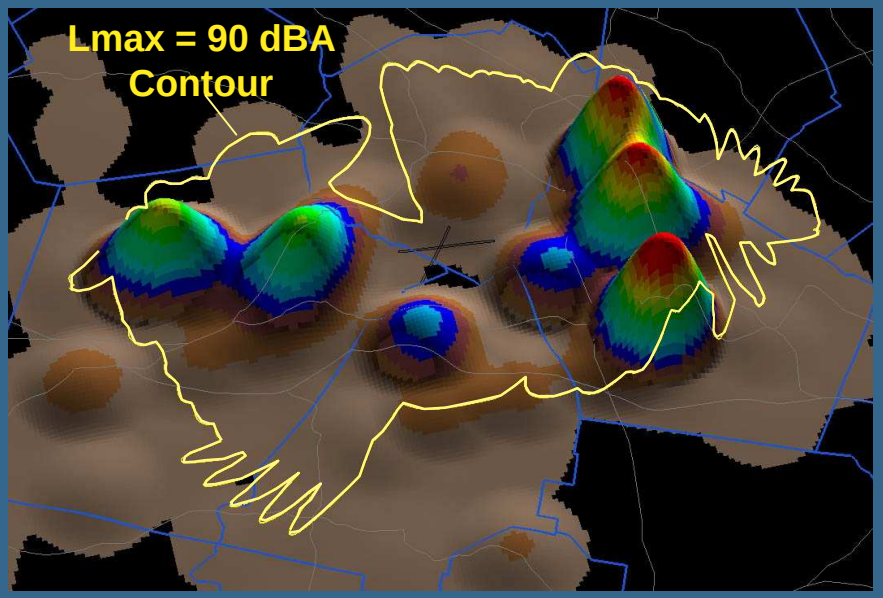
DEMOS

727 Take off (Hush kitted)

Nail-on-the-Head Analogy

Which noise metric is a better predictor of aircraft noise impacts?





- **MASSPORT's own data clear shows that**
  - **The 65 dB DNL contour contains NONE of major Hanscom noise complaints (diluting short-term human reactions to noise with long-term noise averaging)**
  - **The L_{max} = 90 dB A-weighted contour explains ALL major Hanscom Noise complaints (accounting for human reaction to short-term noise events)**
- **Ignoring these facts would be an irresponsible misinterpretation of data**

SUPPORTING STATEMENT

- **Position by an interested party**

  "Individual aircraft noise events by jet and other noisy aircraft can be above the ambient level, particularly in neighborhoods under or near flight tracks. These individual noise events, are the source of greatest community concern rather than the noise levels resulting from total Hanscom operations."

- **The above position was documented in writing by:**
  - **By Massachusetts Port Authority**
  - **In 1978 Hanscom Field Master Plan, page 9**

CONCLUSIONS

- **The 65 dB DNL contour**
  - **contains NONE of severely impacted (complaining) regions**
  - **is poorly correlated to complaints**
  - **65 dB DNL contour is insufficient indicator of Aviation Noise Impact on Communities**
- **The Lmax=90 dB A-weighted contour**
  - **contains ALL significantly impacted (complaining) regions**
  - **is a good indicator of Aviation Noise Impact on Communities**
- **Based on Massport's own data, continued adherence to 65 dB DNL contour as the sole criterion of significant aircraft noise impact would be a conscious and intentional act of misleading the public.**

RECOMMENDATIONS

- **In order to truly address community Aviation Noise concerns, EOEA (MEPA) should require MASSPORT to**
  - **Stop relying almost exclusively on the 65 dB DNL contour as a measure of Significant Aviation Noise Impact on Communities**
  - **Adopt Lmax=90 dB A-weighted contour**
    - **as measure of Significant Aviation Noise Impact**
    - **as threshold for mitigation of Aviation Noise Impact**