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By Email

January 8, 2020

Mr. David Carlon
Chair
Massport Community Advisory Committee

with copy to
Mr. Anthony J. Gallagher
Massport Community Relations

Runway 4R RNAV Study Requests

Dear Mr. Carlon:

At your request, this letter reiterates the Town of Milton's specific RNAV study requests, namely, requested analysis of an added 4R dispersion path as previously submitted, as well as a request that, in the alternative, the MIT consultants provide a ranking in order of flyability of certain 4R paths that they previously illustrated.

Our principal dispersion slide was first presented at the April 18, 2018 Aviation Subcommittee meeting, reiterated in April 2019, and was a centerpiece of our July 2019 letter. It is attached as

slide (1) with two (zoomed-in and zoomed out) renditions (slides (2) and (3).

The MIT slides show other alternatives that MIT presented (slides (4) - (8)).

Dispersion Restoration

The dispersion slide (1,2,3) seeks analysis of an additional 4R RNAV path that mirrors the 4LJetBlue RNAV angle and its merging-in of flights (4LJetBlue RNAV merges-in flights from the northwest and west; the analysis of an additional 4R RNAV path would merge-in flights from the northeast and east similar to what occurred throughout the years prior to FAA's adoption of RNAV).

Two key issues are: flyability and a census block noise comparison with **pre-4R RNAV** overflights.

If the 4L JetBlue RNAV path, which merges-in planes approaching from the northwest and west is flyable and is assumed arguendo to be EA compliant (over densely populated West Milton, Mattapan and Dorchester), then an added 4R RNAV path to the east as illustrated in the dispersion slide with an equivalent (or lesser degree) angle (merging-in planes from the northeast and east) may be flyable and EA compliant. It would overfly areas overflown before imposition of the 4R RNAV path, thereby restoring an element of 4R dispersion. Restoring dispersion restores noise burden sharing. We have requested evaluation of a renewed "string in the harp" within that ambit.

The Requested Baseline Comparator is Pre-RNAV Overflights

We reiterate that a baseline noise comparator of noise impact on residents under the 4R approach paths **pre-RNAV** is important for the modeled RNAV path analysis. It will allow us to engage with affected residents' representatives in an informed way. It is also, for the same reason, important for discussion of the MIT slides showing other 4R dispersion alternatives.

FAA has implemented a "family" of three 4L/4R RNAV paths, but we submit that one family member is missing—an added 4R path that restores dispersion and shares noise burden more equitably.
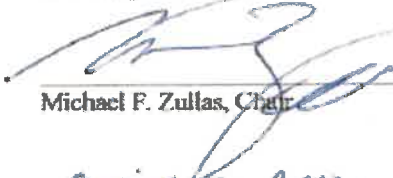
Flyability Ranking of MIT Slides

The MIT slides each show a modeled path shift and population affect count, but do not include the requested census block comparison of the modeled additional 4R RNAV path with noise effect upon the same residential areas under the **pre-RNAV** 4R overflights that previously affected them and no longer do. Restoring dispersion restores noise burden sharing. We recognize that pre-RNAV census block comparisons for all of the MIT slides would not be needed if the paths illustrated can first be ranked by the MIT consultants in order of flyability. Some 33L residents have sought similar baseline census block noise data for their dispersion analyses. Similarly, we request that the highest ranked MIT illustrated alternative 4R path(s) be compared with **pre-RNAV** overflights of the same respective areas, so that an alternative path can be pursued as a back-up to pursuit of the preferred dispersion path (slides 1,2,3) if need be.

Please convey this letter and attachments to Dr Hansman with our request that he discuss its content with our MCAC representative Tom Dougherty. Thank you.

Sincerely,

The Town of Milton, MA
By: The Milton Select Board,
as Issuing Authority

Michael F. Zullas, Chair

Melinda A. Collins, Vice-Chair

Anthony J. Farrington, Secretary

Kathleen M. Conlon

Richard G. Wells, Jr.

cc: T. Dougherty

DISPERSION

Why not "strings of the harp", i.e., a "family of RNAV paths" within this triangle? We know that the FAA thinks it can have the two 4L RNAV paths shown. If these two are possible, then so are others to the east of 4R. 4L(Visual) meets up with 4R(GPS) at about 3.0 nm from the runway end.
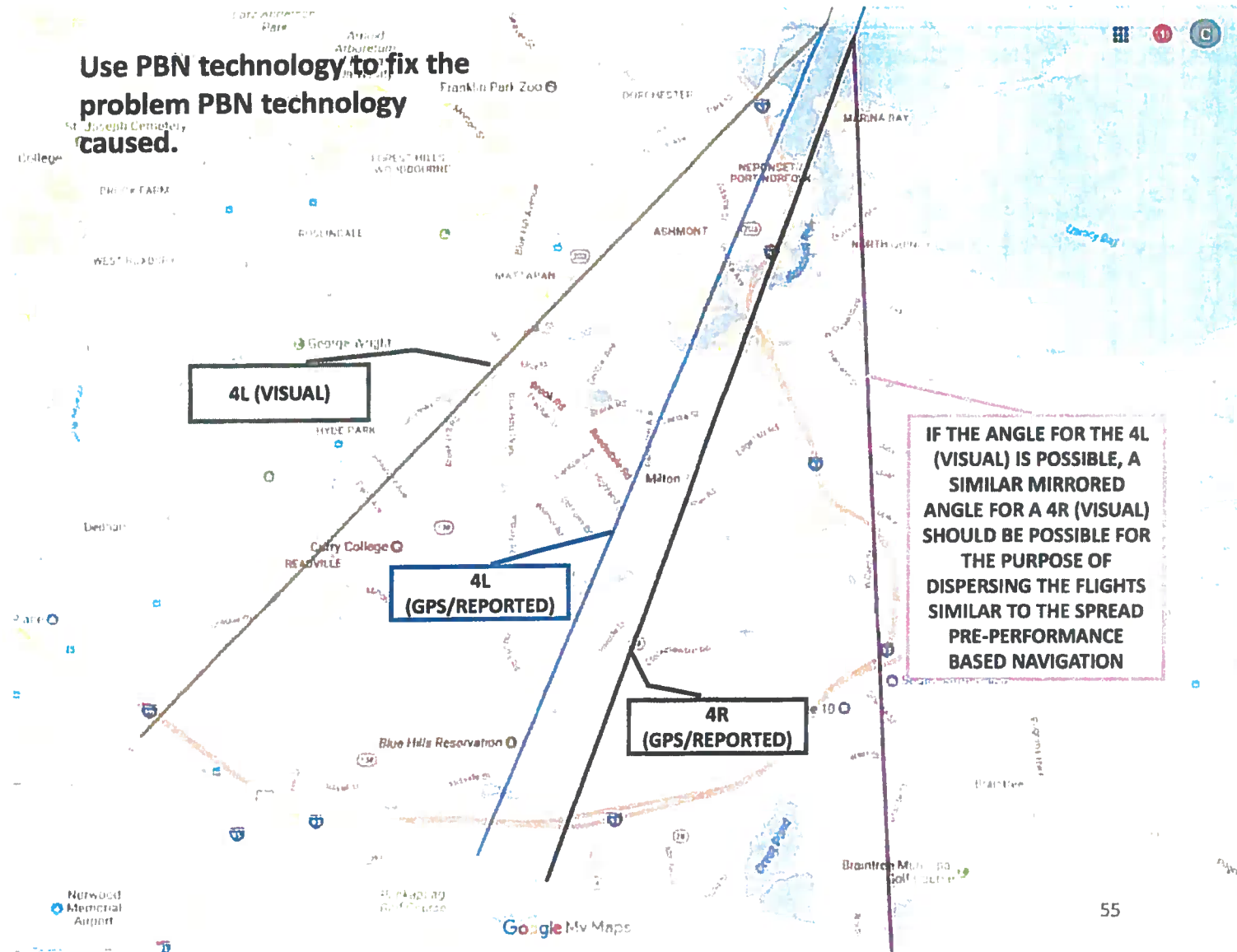
Are greater angles at the intersection possible? How many paths are possible? How can multiple paths to the same runway ends be rotated? Hourly? Daily?

Use PBN technology to fix the problem PBN technology caused.

4L (VISUAL)

4L (GPS/REPORTED)

4R (GPS/REPORTED)

IF THE ANGLE FOR THE 4L (VISUAL) IS POSSIBLE, A SIMILAR MIRRORED ANGLE FOR A 4R (VISUAL) SHOULD BE POSSIBLE FOR THE PURPOSE OF DISPERSING THE FLIGHTS SIMILAR TO THE SPREAD PRE-PERFORMANCE BASED NAVIGATION

Google My Maps

55

April 2019   July 2019

①

DISPERSION

A FAMILY OF RNAV AND CONTROLLER-BASED PATHS

FAA DEVELOPED TWO 4L RNAV PATHS AS SHOWN.
EQUIVALENT PATHS TO THE EAST OF 4R ARE REQUESTED
TO RESTORE THE DISPERSION OF FLIGHTS TO PRE-RNAV LEVELS

4L VISUAL PATH MEETS 4L(GPS) AT 3 NM FROM RUNWAY END.
A MIRRORED ANGLE FOR 4R (GPS OR CONTROLLER-BASED)
WOULD PROVIDE DISPERSION.
PATHS USE COULD BE ROTATED.

4L (Jet Blue)

4L (GPS)

4R (GPS)

Date: November 18, 2019
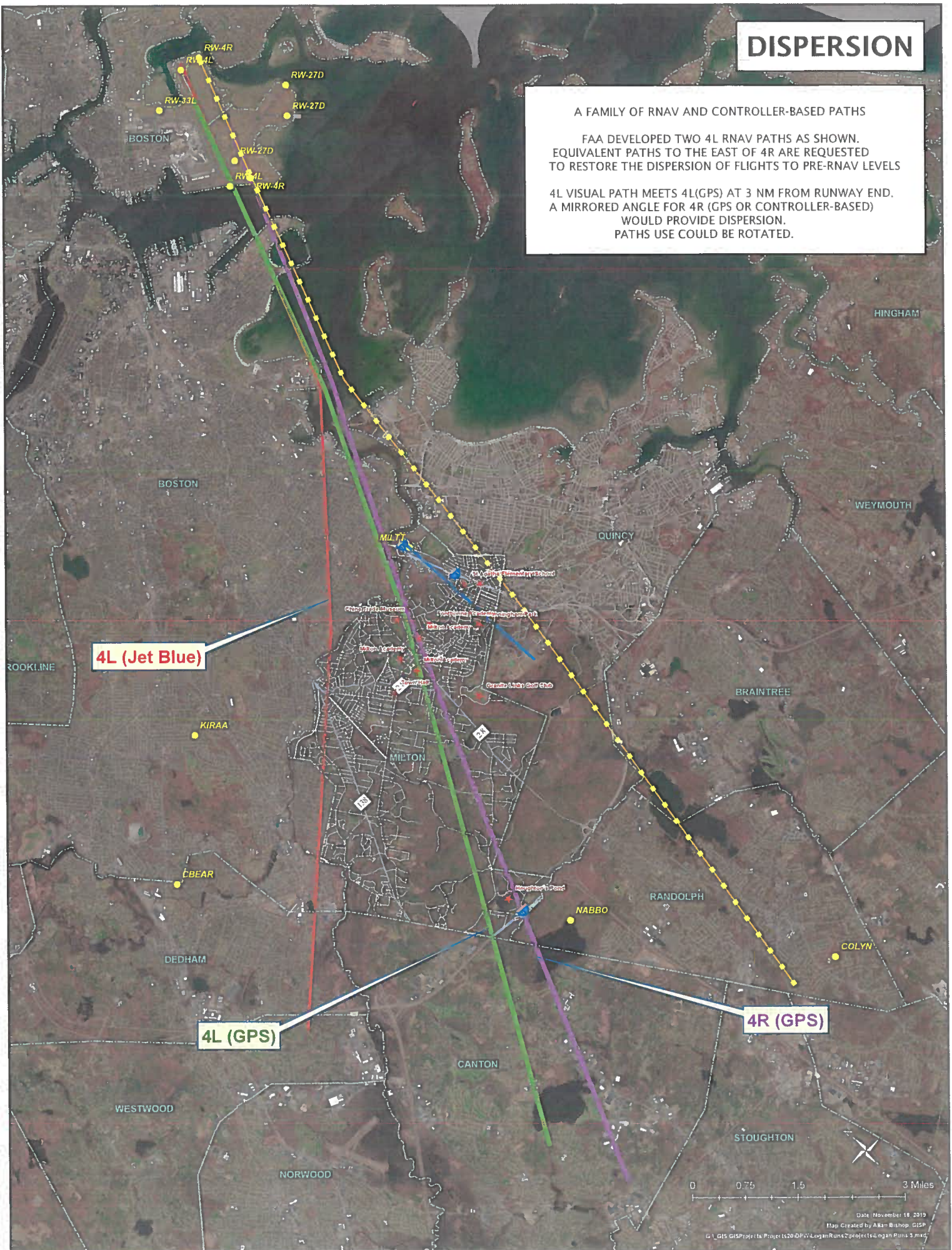Map Created by Allan Bishop, GISP

(2)

DISPERSION

A FAMILY OF RNAV AND CONTROLLER-BASED PATHS

FAA DEVELOPED TWO 4L RNAV PATHS AS SHOWN.
EQUIVALENT PATHS TO THE EAST OF 4R ARE REQUESTED
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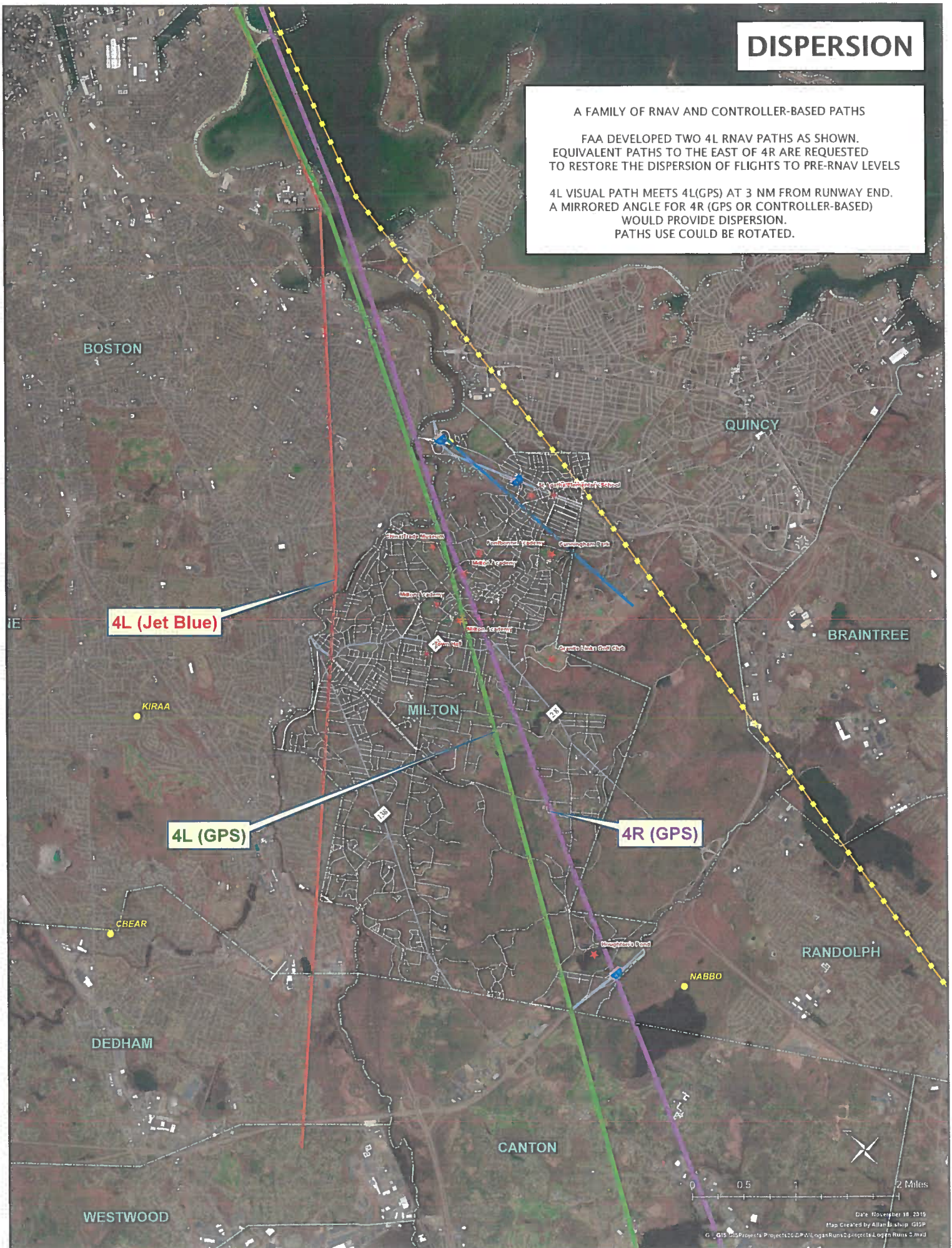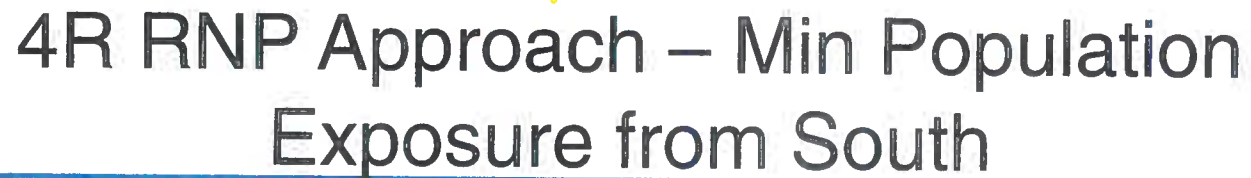WOULD PROVIDE DISPERSION.
PATHS USE COULD BE ROTATED.

BOSTON

QUINCY

4L (Jet Blue)

BRAINTREE

KIRAA

MILTON

4L (GPS)

4R (GPS)

CBEAR

RANDOLPH

NABBO

DEDHAM

CANTON

0   0.5   1   2 Miles

Date November 18 2015
Map Created by Allan Bishop GISP

WESTWOOD

(3)

4R RNP Approach – Min Population Exposure from South

MIT ICAT

B737-800 60dB $L_{A,max}$ Noise Exposure

Flight Tracks & LAMAX Noise Contours (dB)
- · 1 nm Spacing Marker
- —— Baseline Flight Track
- —— Baseline AEDT B738 Contours
- – – – Alternate Flight Track
- —— Alternate AEDT B738 Contours
- ● Population Benefited
- ○ Population No Change
- ● Population Disbenefited

Preliminary example for consideration only. May be modified or eliminated.

B737-800 Population Exposure ($L_{A,MAX}$)

	60dB
Straight In	32,232
RNP	11,682
Difference (Straight In – RNP)	20,550

1.5nmi final segment
90° 2nmi radius-to-fix turn
5nmi straight segment
45° 2nmi radius-to-fix turn

- Procedure within RNP criteria.
- Community support unclear.
- Possible flyability issues need to be tested.
- Air traffic merging concern with straight-in traffic.

25

(4)

4R RNP Approach – Offset Initial

B737-800 60dB $L_{A,max}$ Noise Exposure


Flight Tracks & LAMAX Noise Contours (dB)
- 1 nm Spacing Marker
- Baseline Flight Track
- Baseline AEDT B738 Contours
- Alternate Flight Track
- Alternate AEDT B738 Contours
- Population Benefited
- Population No Change
- Population Disbenefited

Preliminary example for consideration only. May be modified or eliminated.

B737-800
Population Exposure ($L_{A,MAX}$)

	60dB
Straight In	32,232
RNP	25,106
Difference (Straight In – RNP)	7,126

1.5nmi final segment
90° 2nmi radius-to-fix turn
90° 2nmi radius-to-fix turn

- Procedure within RNP criteria.
- Community support unclear.

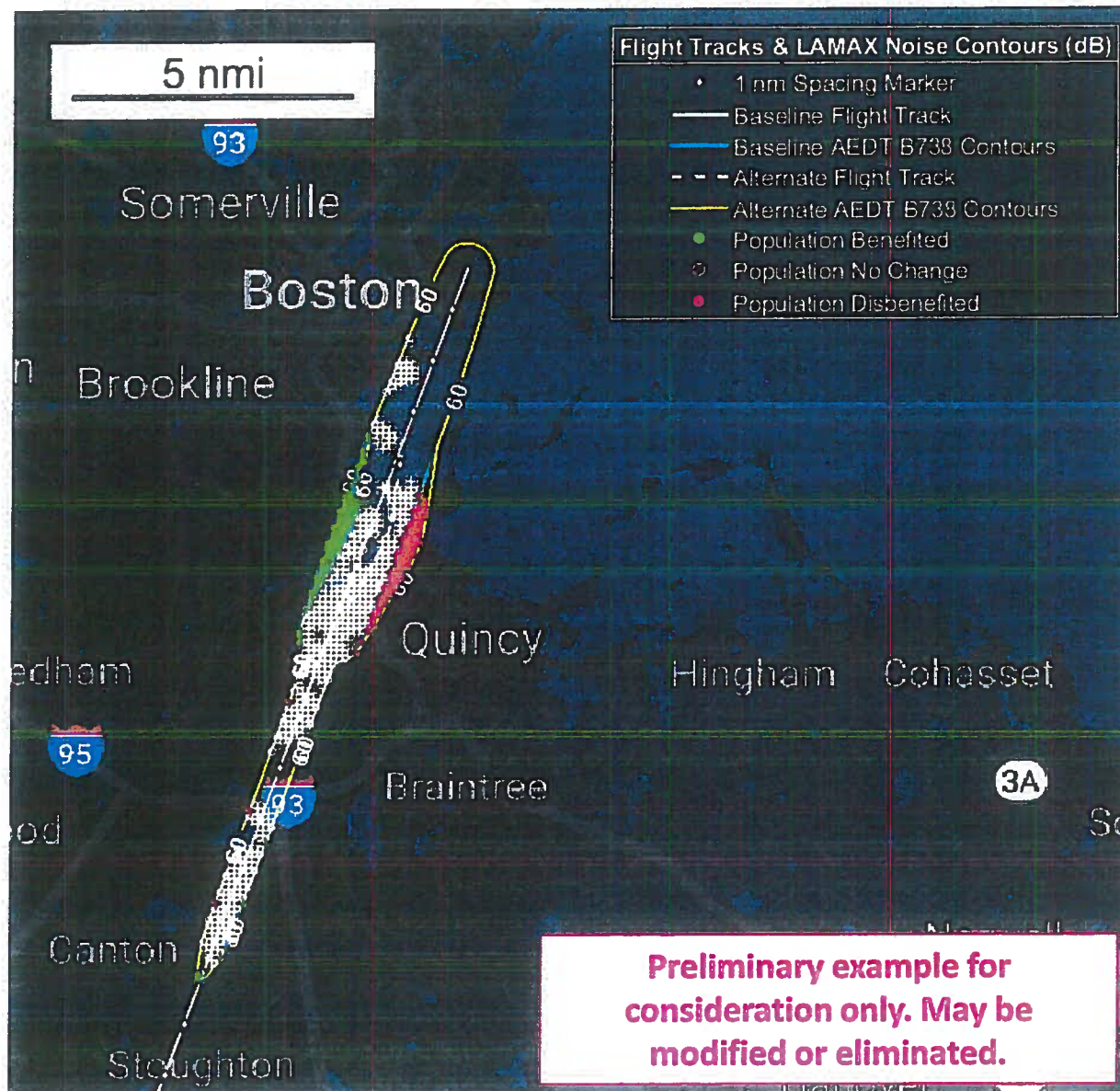# Example of Deterministic 4R Arrival Dispersion Change in N Above
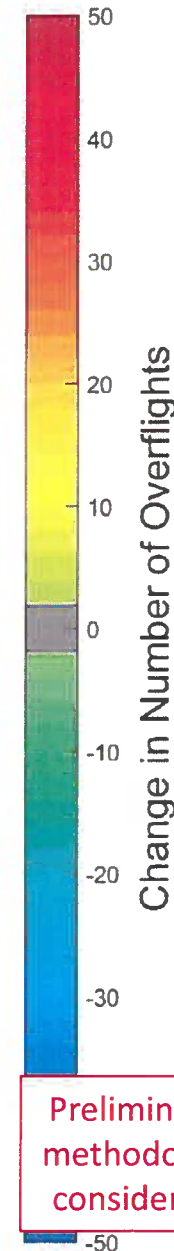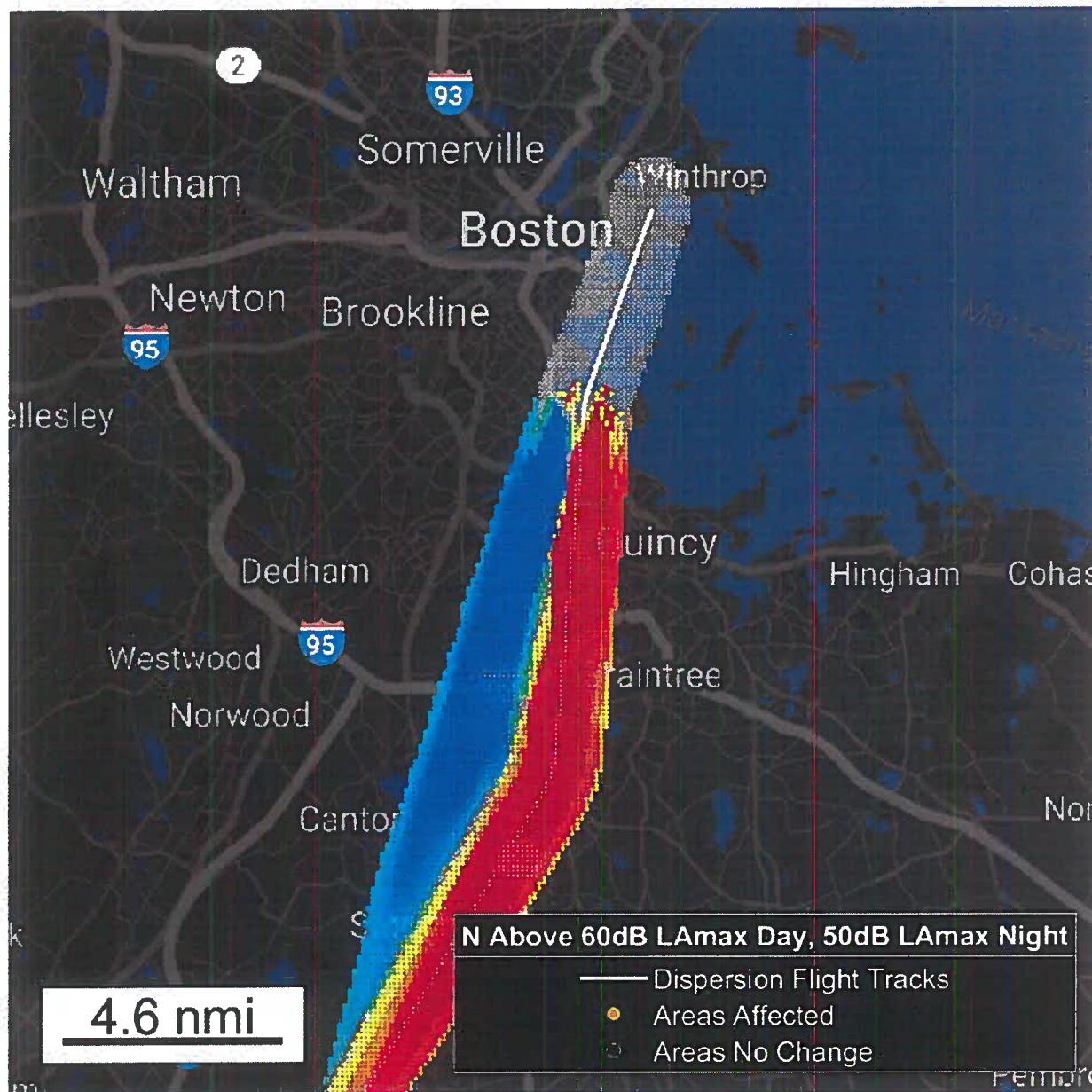
N Above Levels:
60dB $L_{A,max}$ Day
50dB $L_{A,max}$ Night

Population Exposure

Change In N Above	Population Exposure
+50x	46,562
+25x	79,528
-25x	47,964
-50x	20,180

Preliminary example to evaluate methodology only. Should not be considered representative case.

52

(6)

4R RNAV Approach – Minimum Population Exposure From South

B737-800 60dB $L_{A,max}$ Noise Exposure

Flight Tracks & LAMAX Noise Contours (dB)
- • 1 nm Spacing Marker
- —— Baseline Flight Track
- —— Baseline AEDT B738 Contours
- – – – Alternate Flight Track
- —— Alternate AEDT B738 Contours
- • Population Benefited
- ◯ Population No Change
- • Population Disbenefited

B737-800 Population Exposure ($L_{A,MAX}$)

	60dB
Straight In	32,232
RNP	32,018
Difference (Straight In – RNP)	214

- Procedure within RNAV criteria.
- Community support unclear.

Preliminary example for consideration only. May be modified or eliminated.

(7)

23

Example of Deterministic 4R Arrival Dispersion N Above Exposure

Population Exposure

N Above	25x	50x	100x
Baseline	104,460	56,419	30,665
Dispersion	138,826	91,372	44,803
Baseline - Dispersion	-34,366	-34,953	-14,138

N Above Levels:
60dB $L_{A,max}$ Day
50dB $L_{A,max}$ Night

25 N Above

50 N Above

100 N Above

Preliminary example to evaluate methodology only. Should not be considered representative case.

53

(8)