

Prescott Park Arts Festival Sound Management Study

PPPAC Meeting 9/13/17

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Acoustical Consultant – 19 years experience

Associate Professor, Acoustics – Berklee College of Music – 17 years

Board Certified – Institute of Noise Control Engineering

Vice President – National Council of Acoustical Consultants

Chair, Architectural Acoustics – Acoustical Society of America

Project Goal: Understand the Issue

Known: Performances generates noise complaints.

Unknown: What can be done to mitigate impacts?

Studies to date:

- Fall 2014 – calibrated offsite measurements
- Summer 2015 – offsite measurements during selected performances

Strategy: Control Variables

Unknown:

- What are the sound levels?
- How much do sound levels vary between events?
- Do louder events generate more complaints?

Self-monitoring has been ineffective:

- Uncalibrated equipment
- Untrained operators
- Uncooperative guest engineers

Scope of Work

Task 1: Continuous sound level monitoring

Task 2: Review of sound system

Task 3: Calibrated offsite measurements
(Not Completed)

Task 1: Sound Monitoring

Weatherproof microphone
mounted to PPAF Support
Building



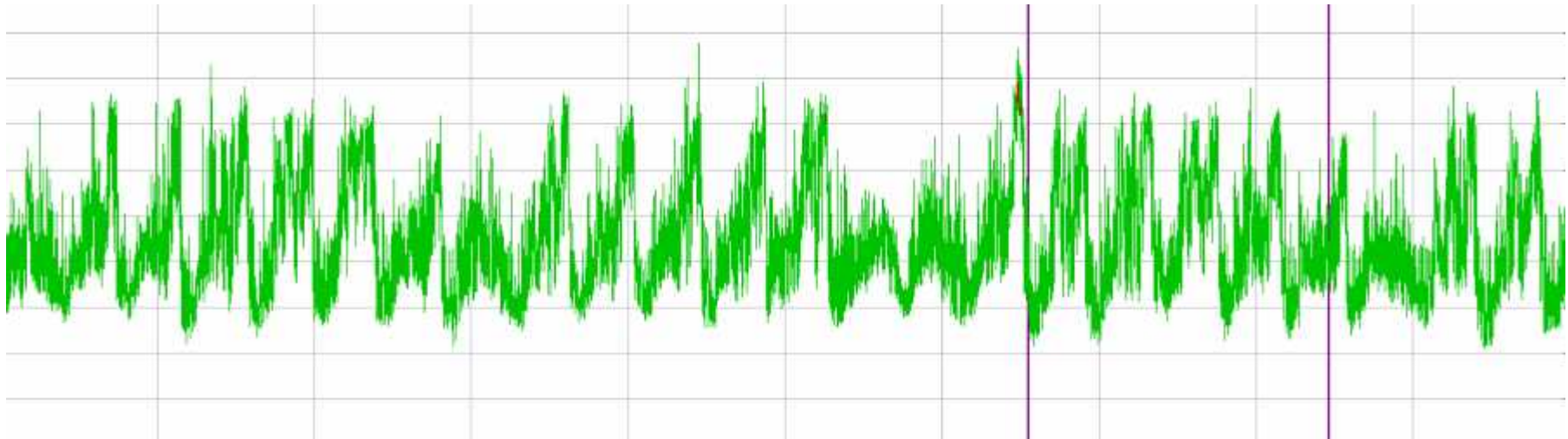
Task 1: Sound Monitoring

Real time visual feedback
for sound engineer at
either mixing position



Task 1: Sound Monitoring

Three weeks of 1-second data



Task 1: Sound Monitoring

Visual feedback provides consistency

Thresholds:

Yellow light: 90 dBA (5-sec average)

Red light: 95 dBA (instantaneous)

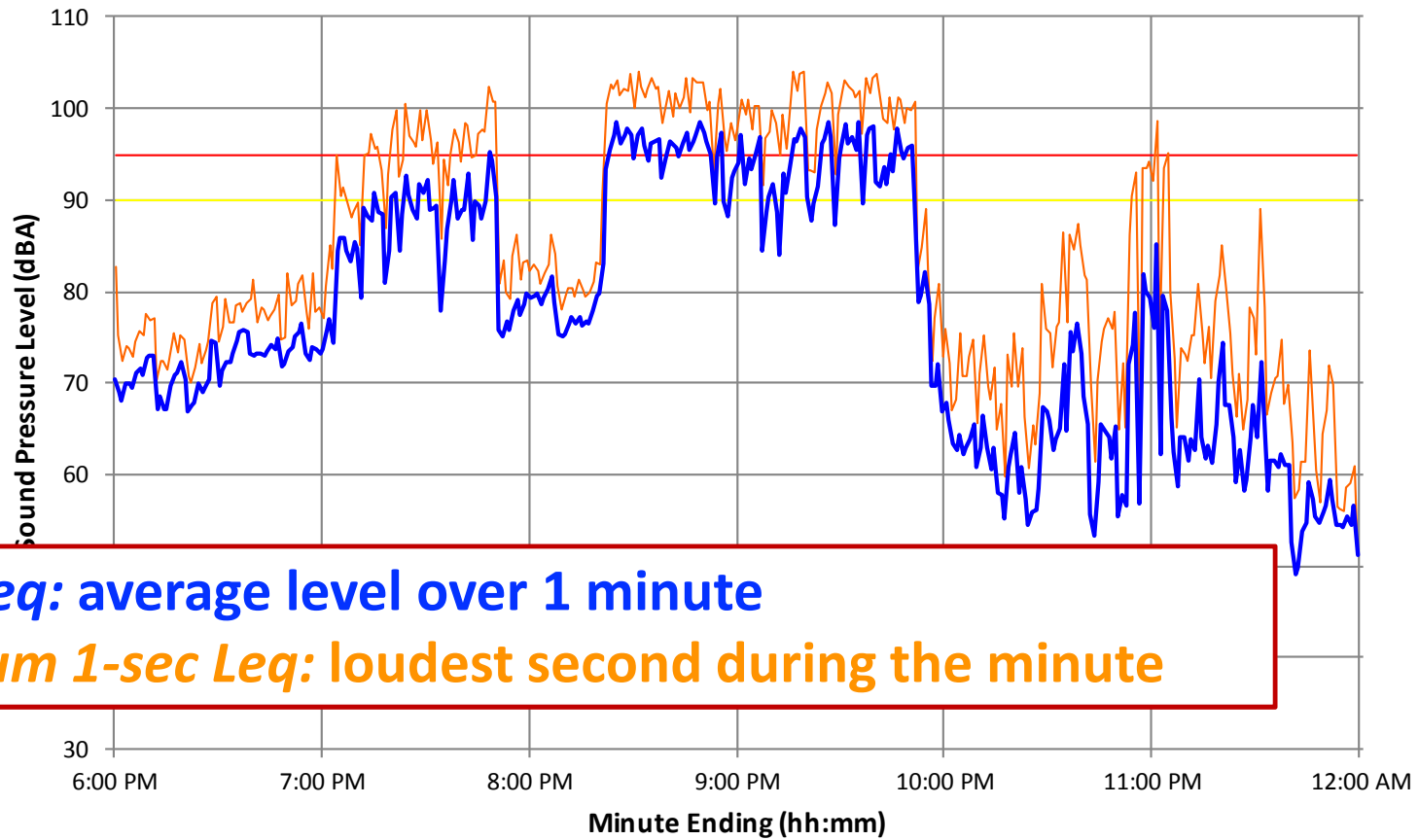
Task 1: Sound Monitoring

90 dBA threshold

- Consistency: 90 dBA has been used by PPAF for several seasons
- Practicality: PA system must overcome volume from stage
- Precedent: Portland ordinance is 92 dBA

Data:
Music

Lake Street Dive 06-18-2017

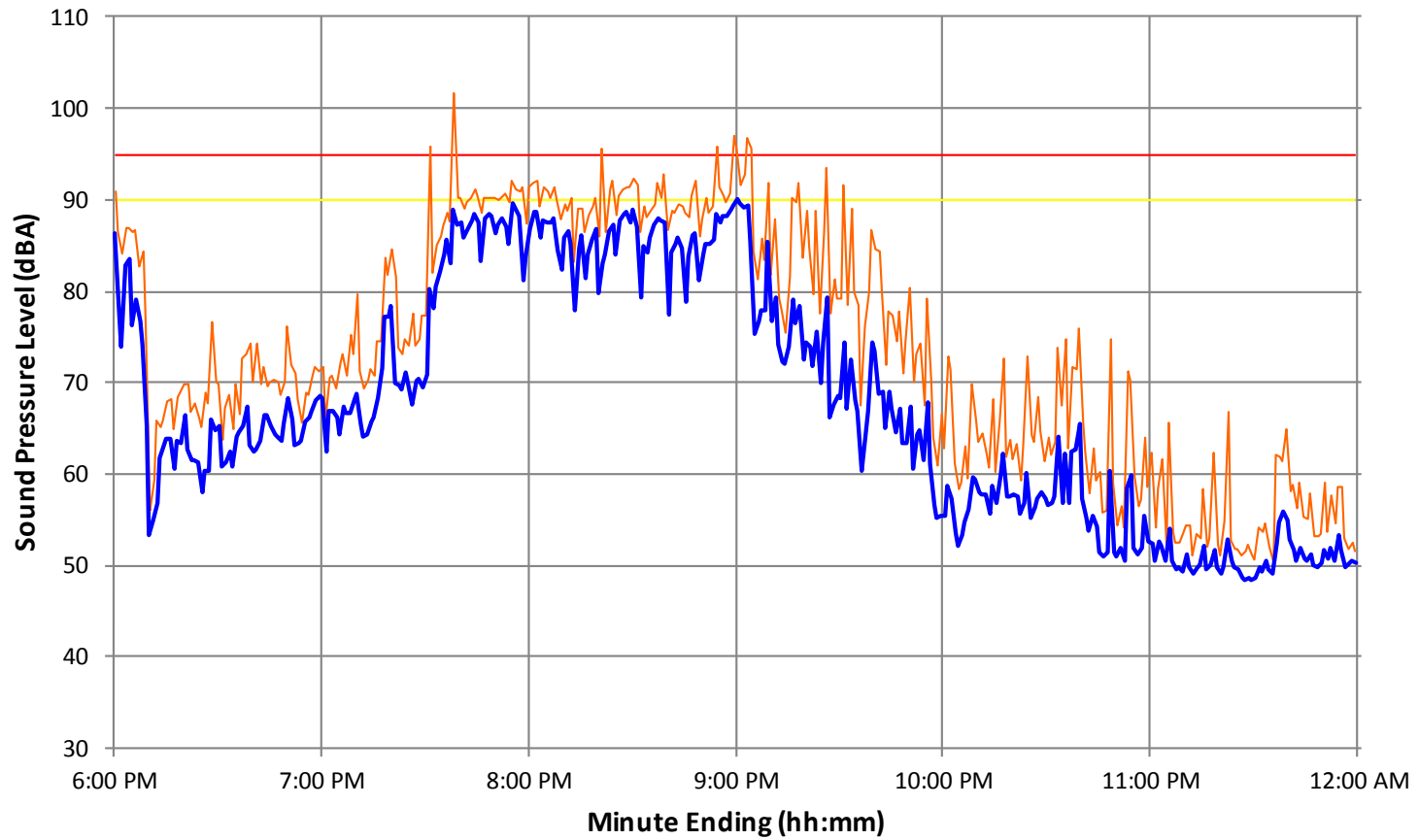


1-min Leq: average level over 1 minute

Maximum 1-sec Leq: loudest second during the minute

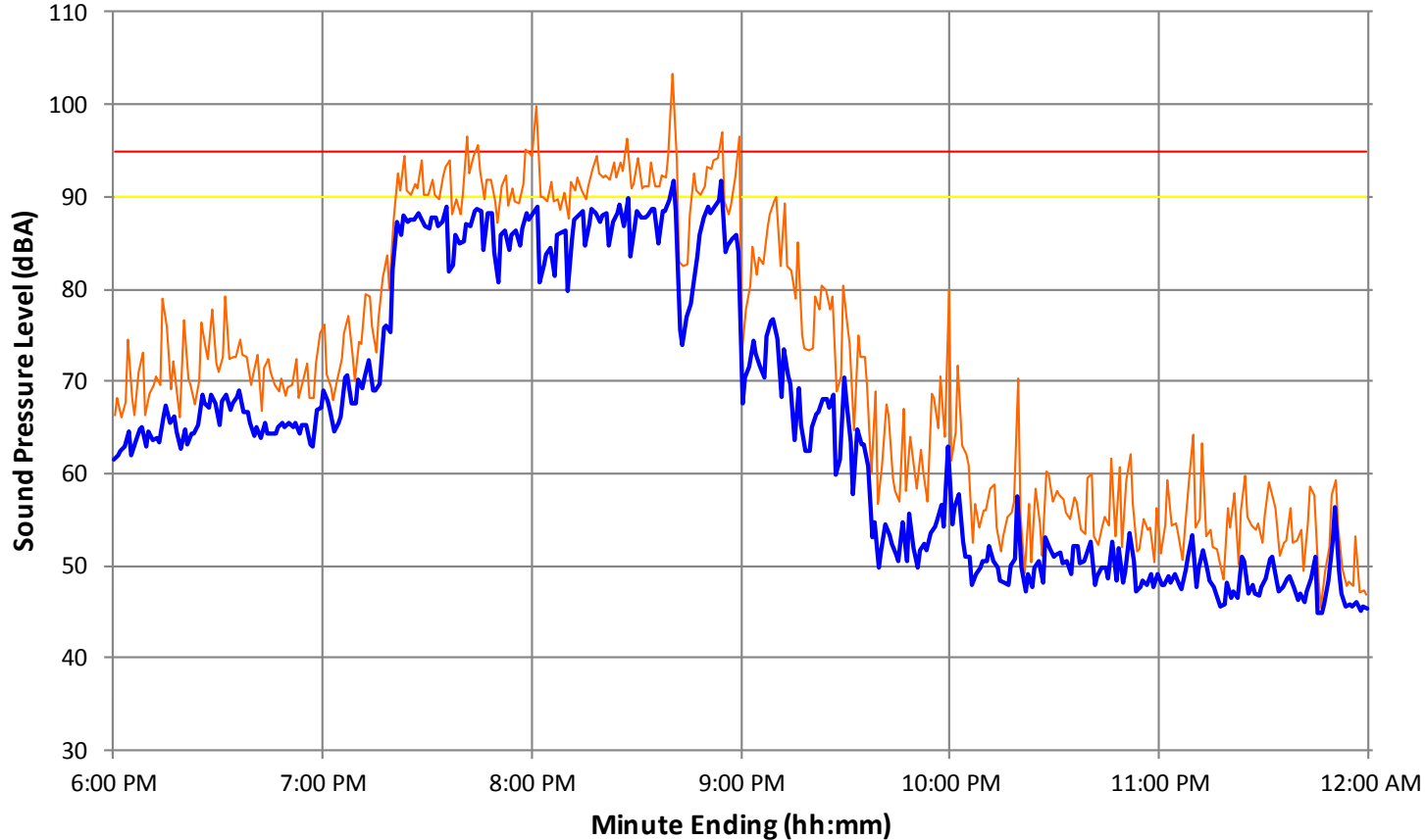
— Yellow Light — Red Light — Maximum 1-sec Leq — 1-minute Leq

Deer Tick 07-07-2017



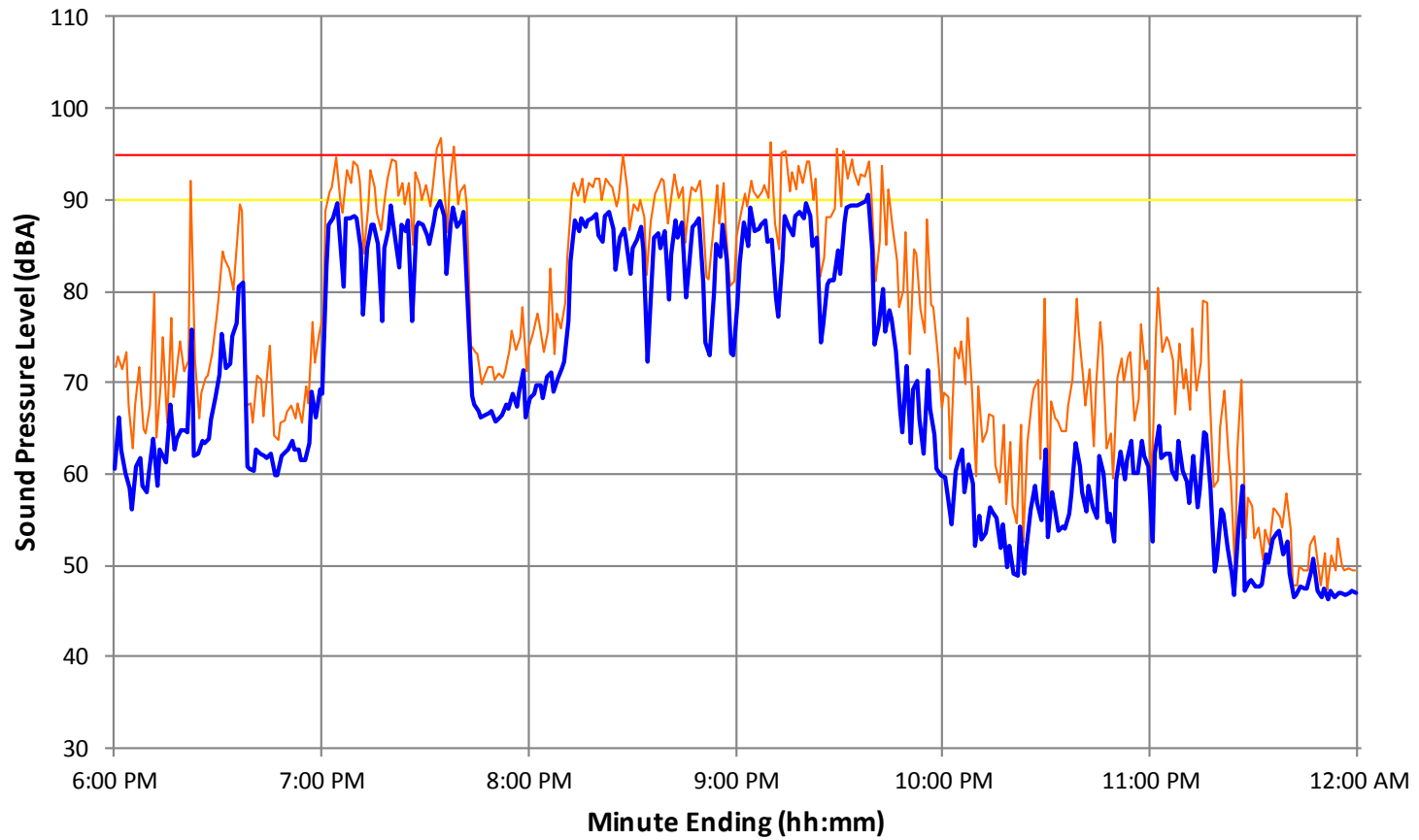
Yellow Light Red Light Maximum 1-sec Leq 1-minute Leq

Pokey Lafarge
07-09-2017



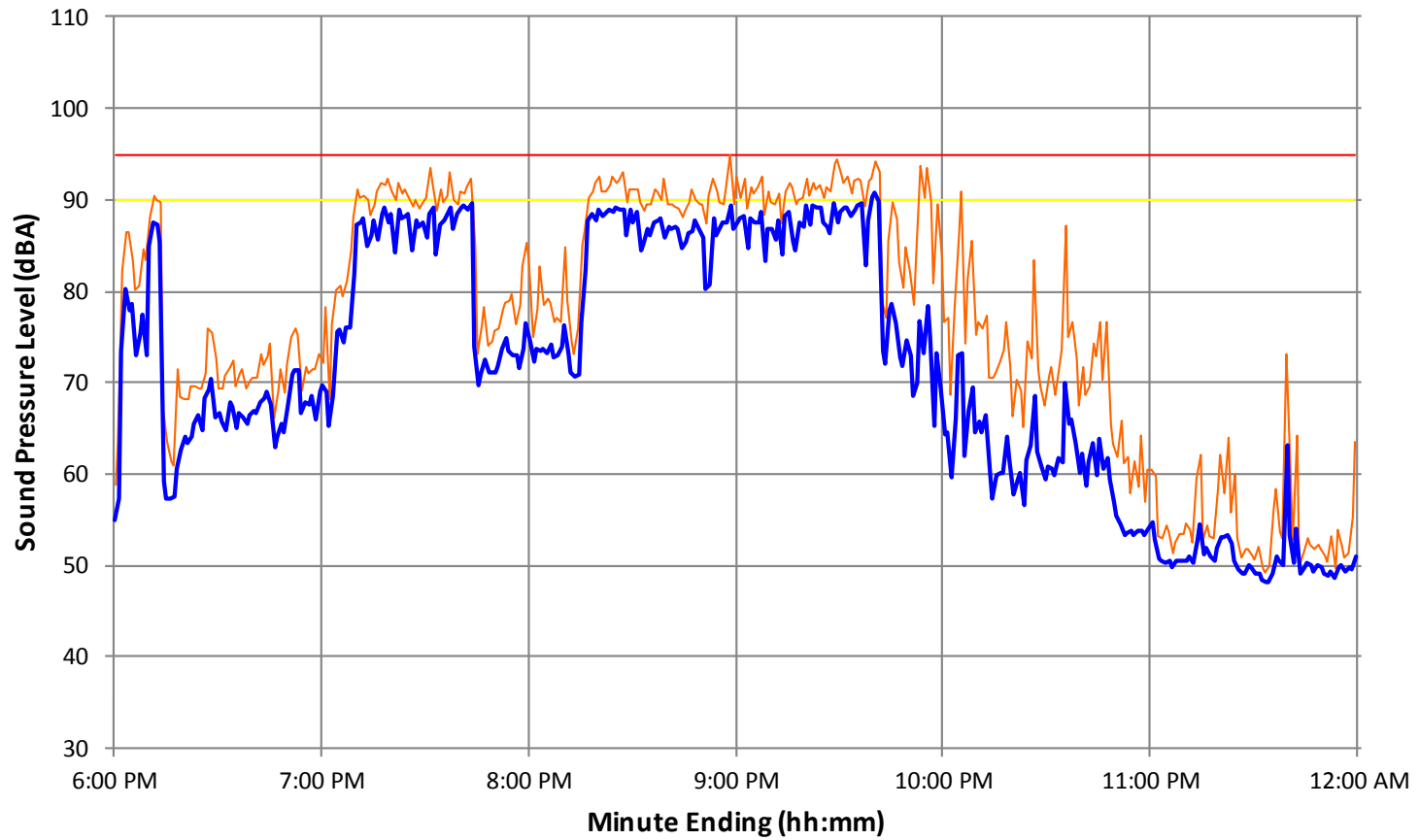
Yellow Light Red Light Maximum 1-sec Leq 1-minute Leq

Connor Oberst
07-23-2017



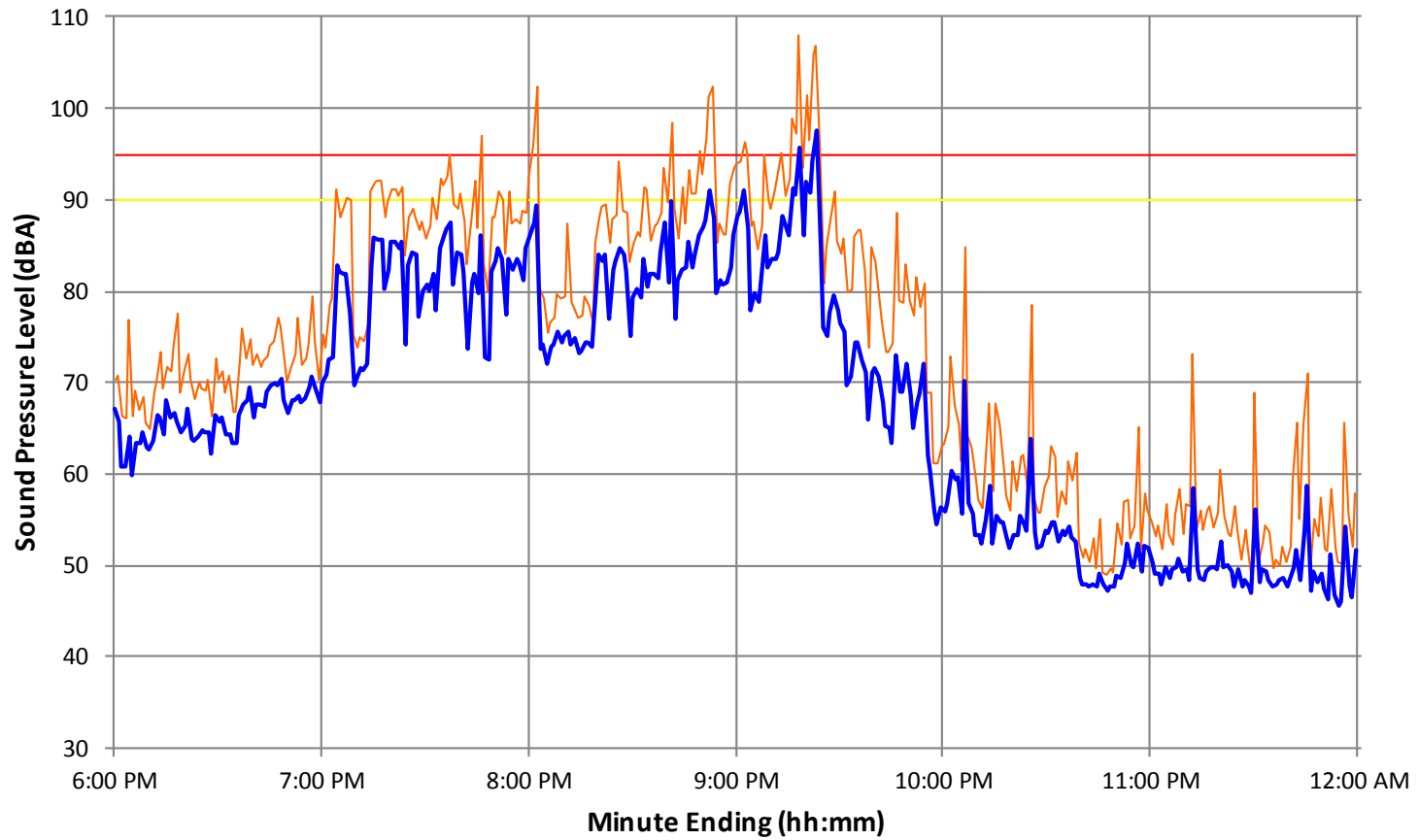
— Yellow Light — Red Light — Maximum 1-sec Leq — 1-minute Leq

New Pornographers 07-28-2017



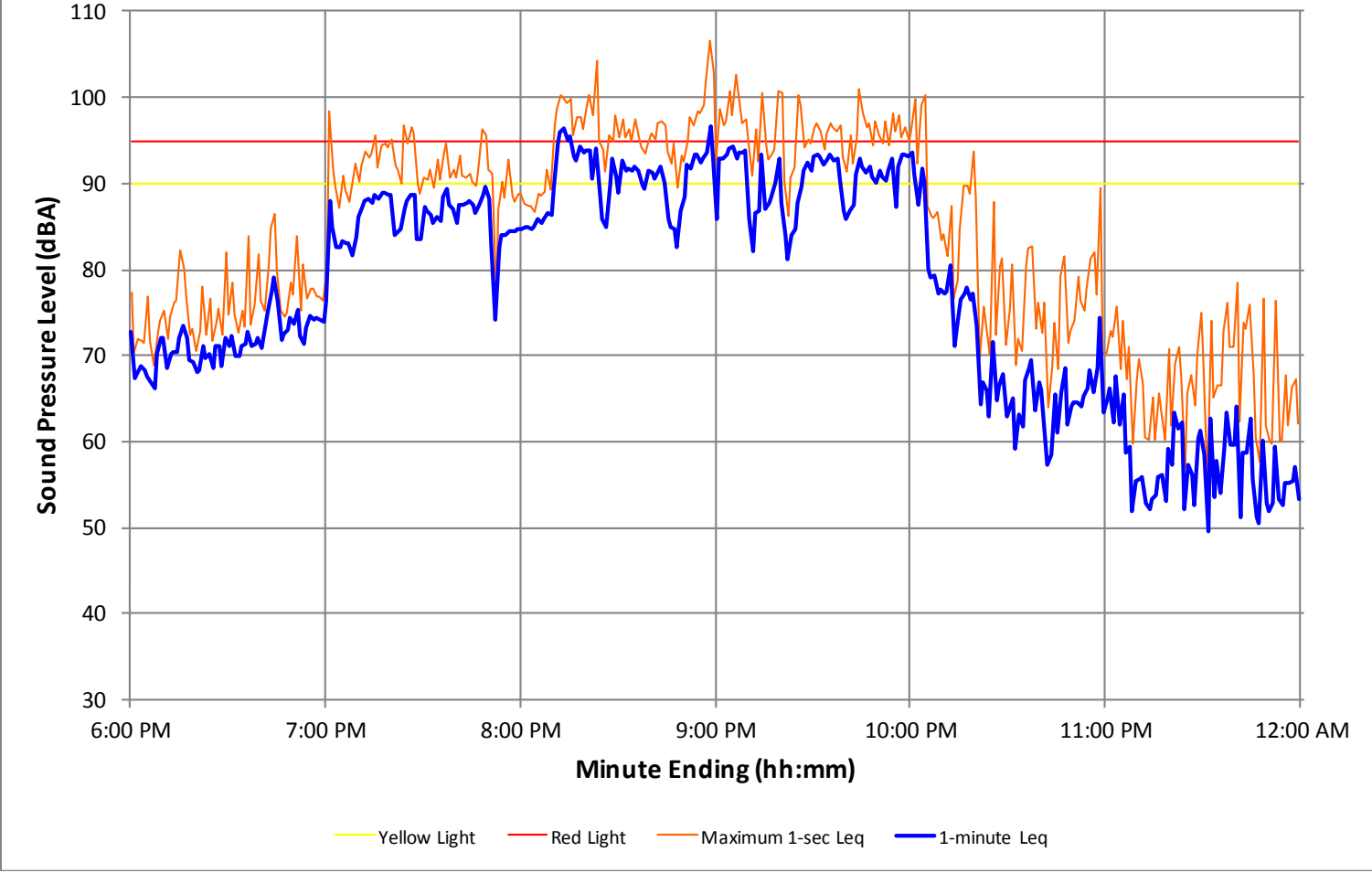
— Yellow Light — Red Light — Maximum 1-sec Leq — 1-minute Leq

Gillian Welch
07-01-2017

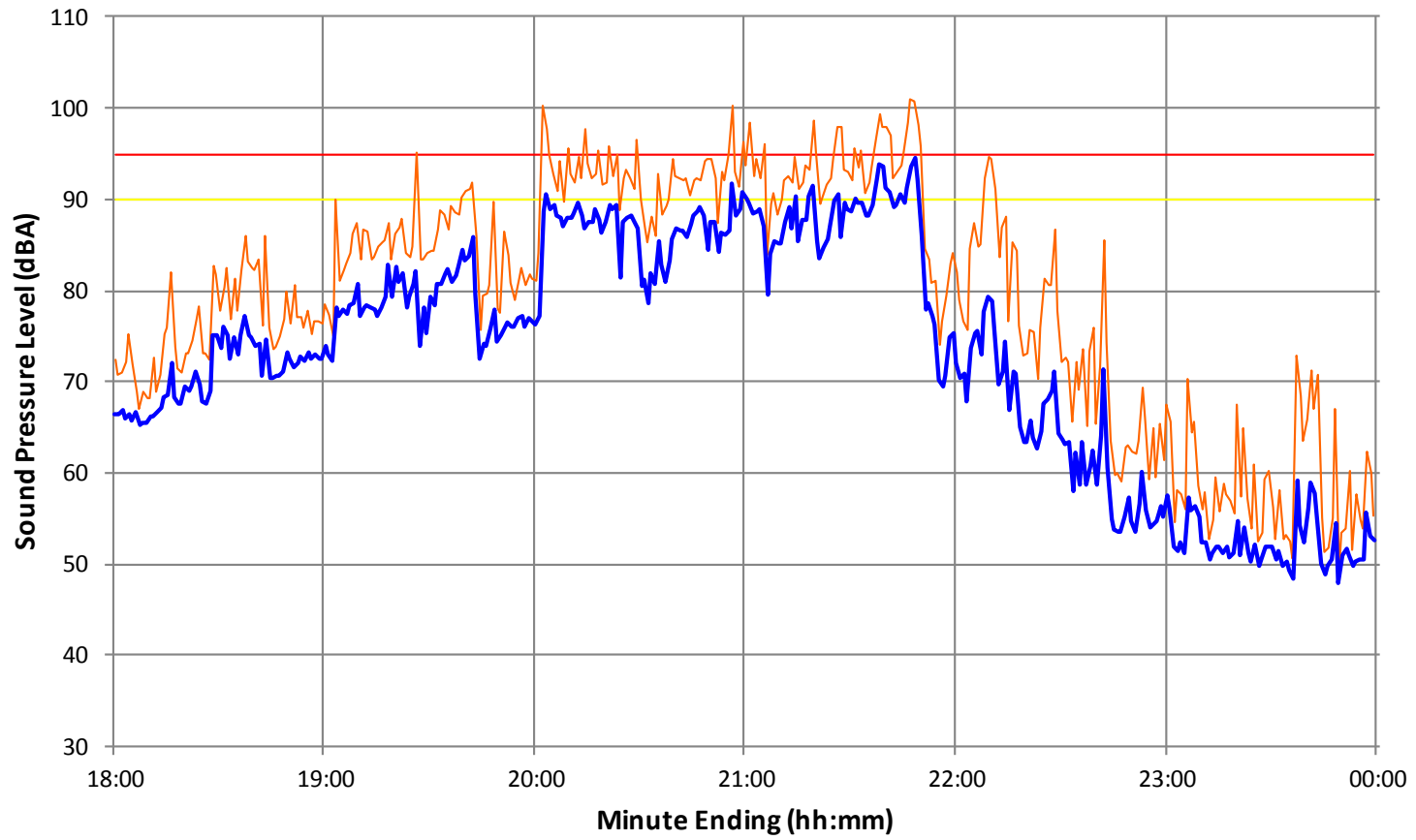


— Yellow Light — Red Light — Maximum 1-sec Leq — 1-minute Leq

**Michael Franti
07-26-2017**



Taj Mahal & Keb Mo 08-16-2017

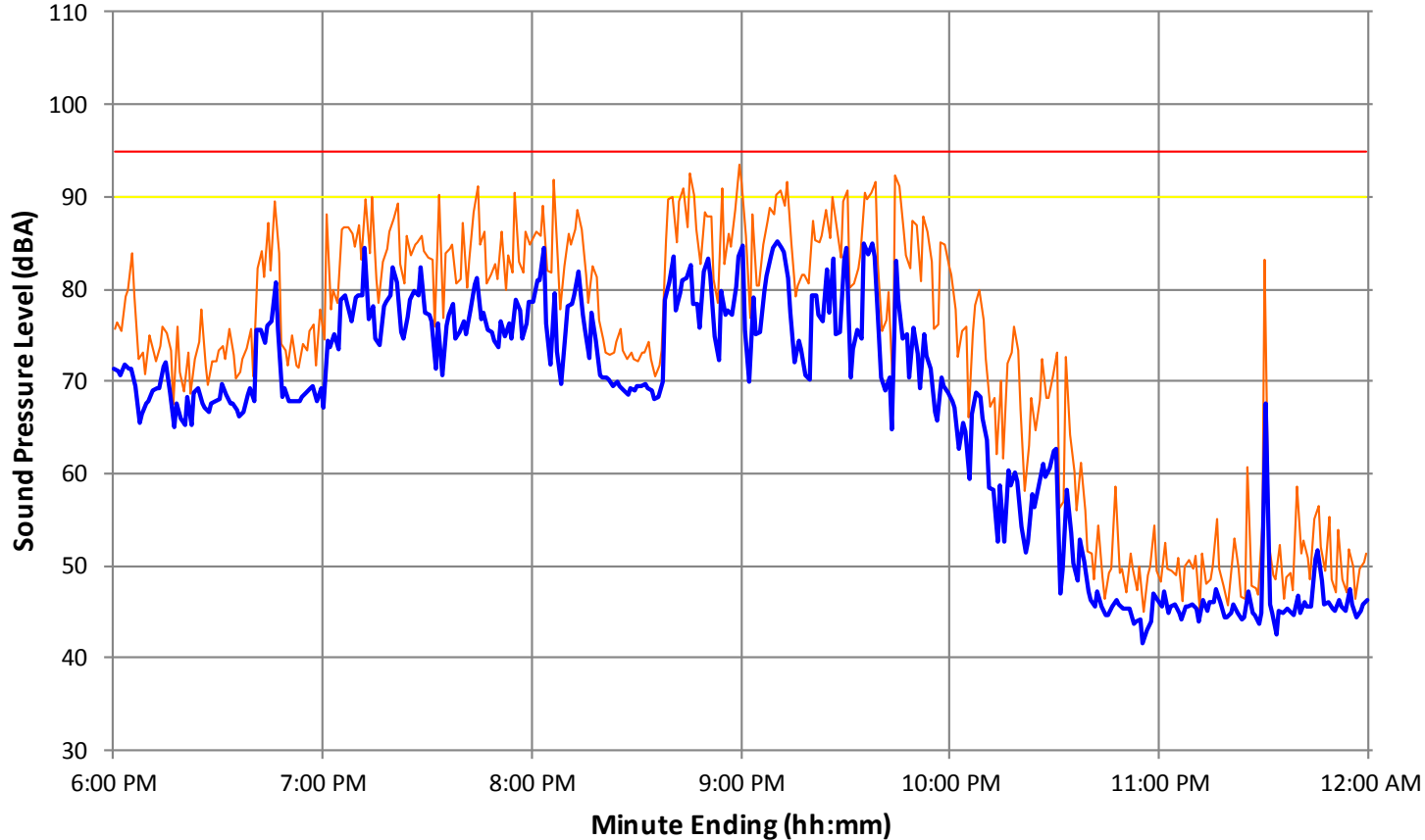


— Yellow Light — Red Light — Maximum 1-sec Leq — 1-minute Leq

Data:

Mary Poppins

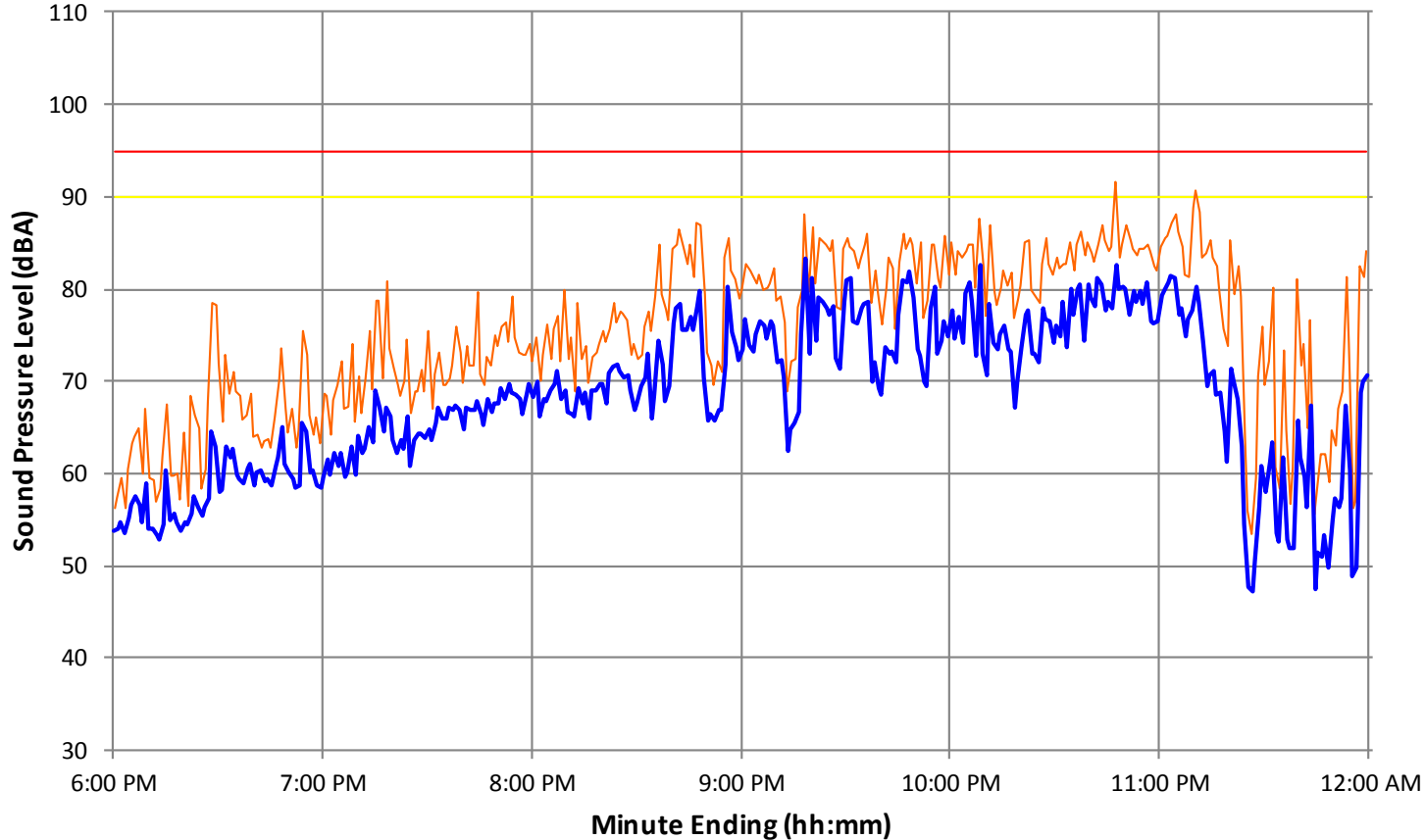
**Mary Poppins
07-30-2017**



— Yellow Light — Red Light — Maximum 1-sec Leq — 1-minute Leq

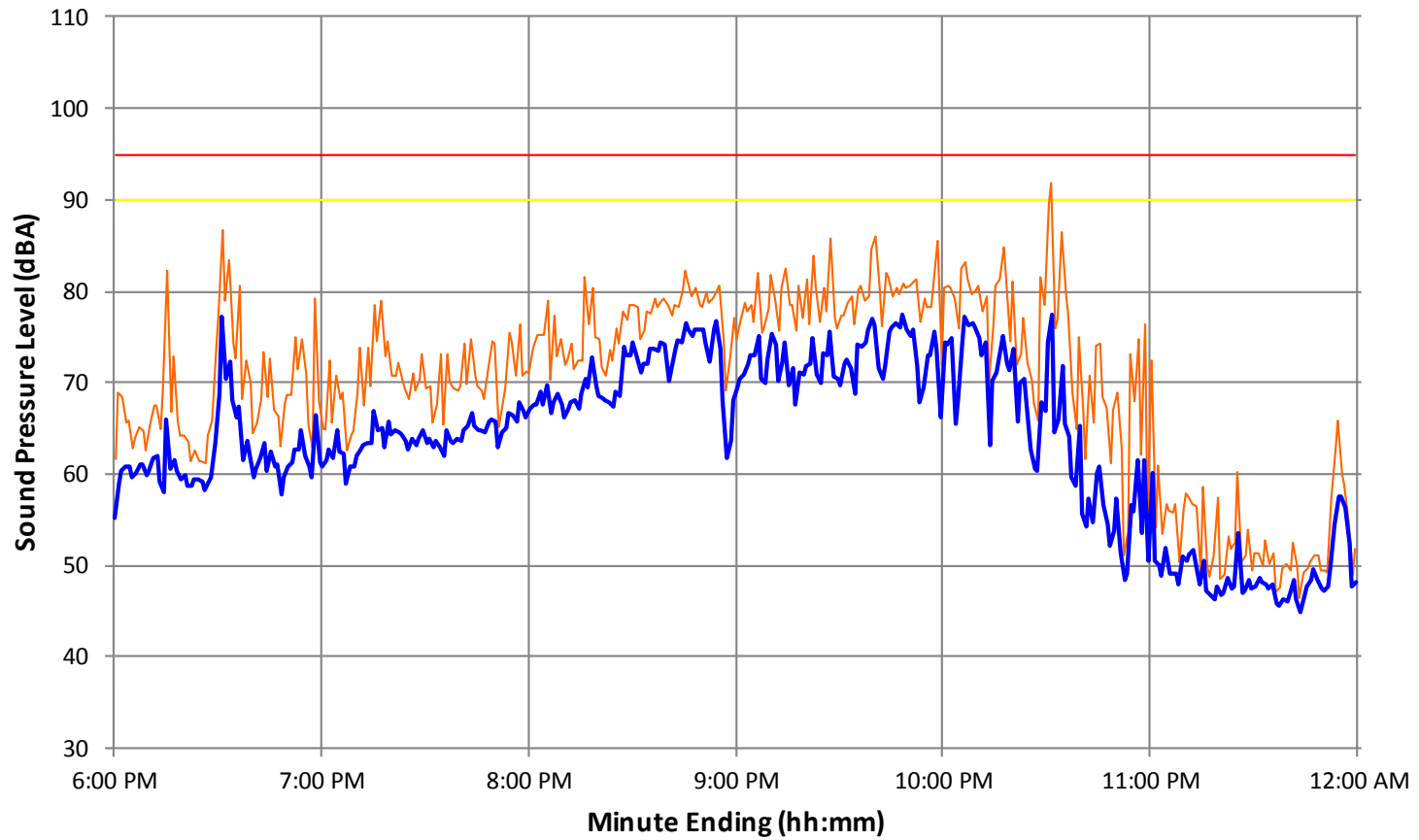
Data:
Movies

**Movie (Rogue One)
07-10-2017**



— Yellow Light — Red Light — Maximum 1-sec Leq — 1-minute Leq

Movie (Lego Batman)
07-17-2017



— Yellow Light — Red Light — Maximum 1-sec Leq — 1-minute Leq

Task 1: Sound Monitoring

Non-conforming performances

- **Lake Street Dive** – *system not yet active*
- **Gillian Welsh** – *over limit at end of performance*
- **Michael Franti** – *consistently over limit throughout performance*
- **Taj Mahal/Keb Mo** – *several short exceedances throughout performance*

Task 2: Sound System Review

Line array loudspeakers provide ability to control coverage

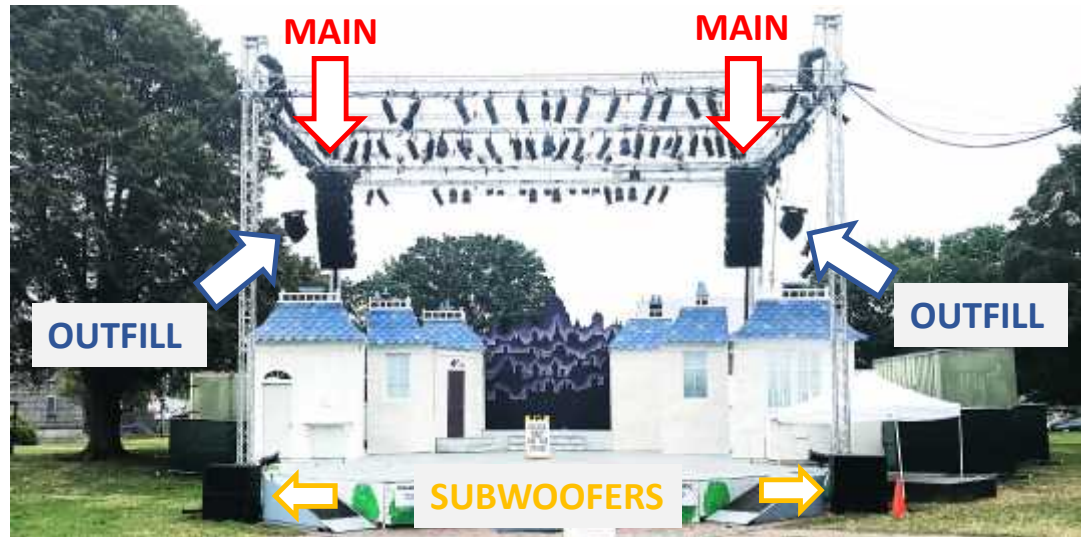
Require careful design and setup



Task 2: Sound System Review

PPAF Loudspeaker Setup:

- 2 main arrays: *cover lawn in front of stage*
- 2 outfill arrays: *cover side lawns*
- 4 subwoofers

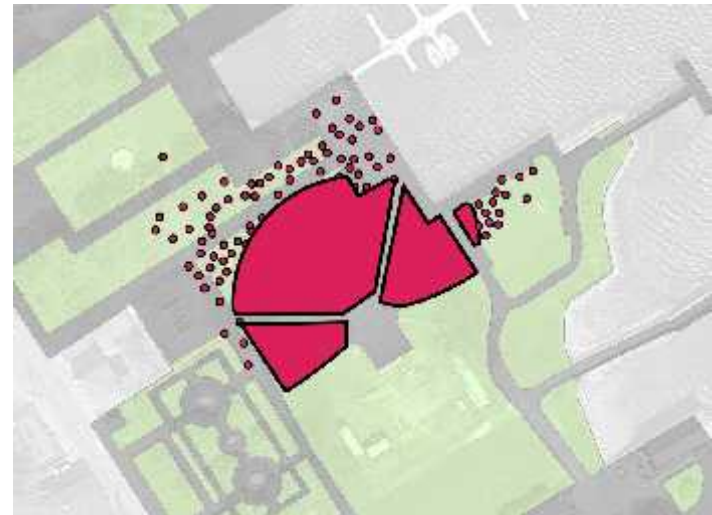


Task 2: Sound System Review

Reuter Associates has hired MFI Productions for review
MFI was recommended by Nexo/Yamaha

MFI conducted modeling and an on-site inspection

Recommendations based on
“Regular Event” coverage from
Master Plan, Appendix B.



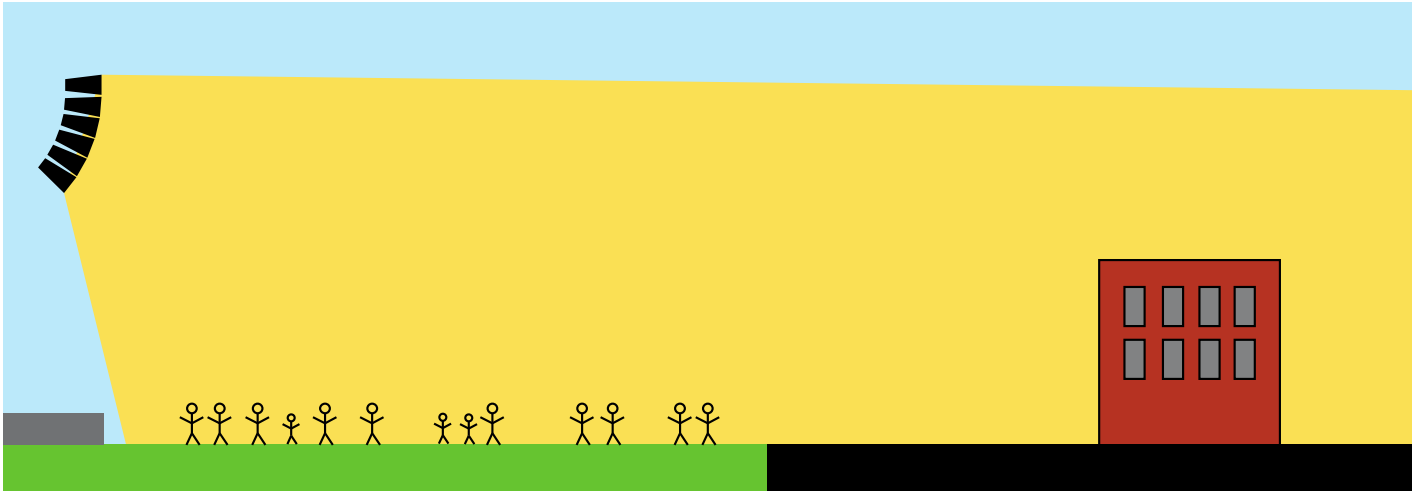
Task 2: Sound System Review

MFI Recommendations

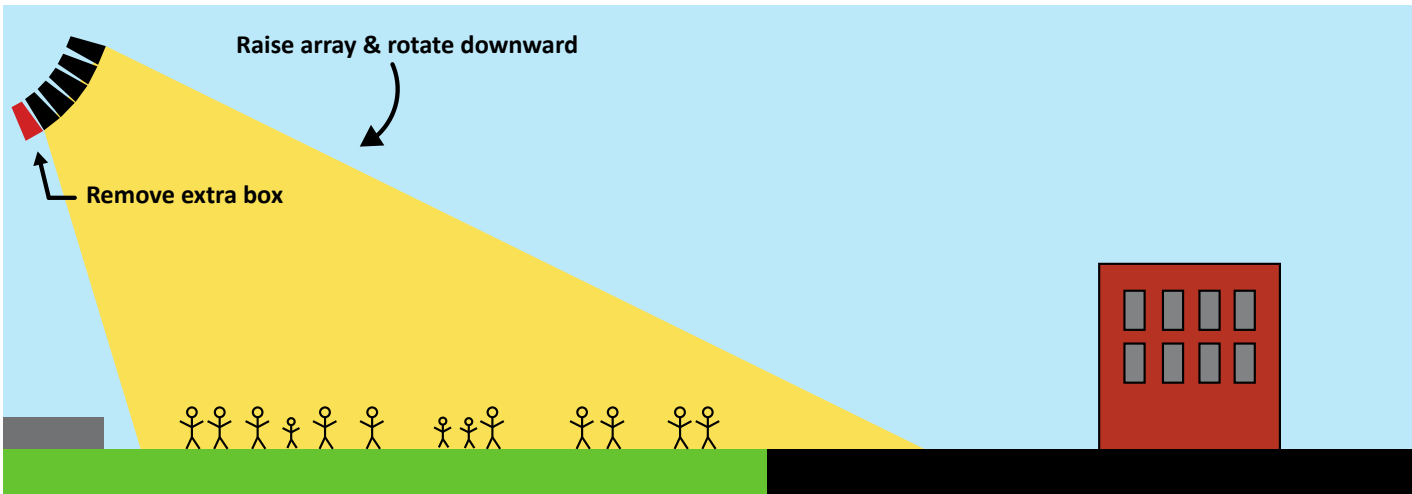
- Angle each array downward
- Reduce number of boxes in each array (main and side)
- Raise main arrays 4 feet
- Move side arrays forward 12 feet
- Move to directional subwoofers

Additional Note

This equipment is not designed to be exposed to weather, and is showing signs of deterioration.

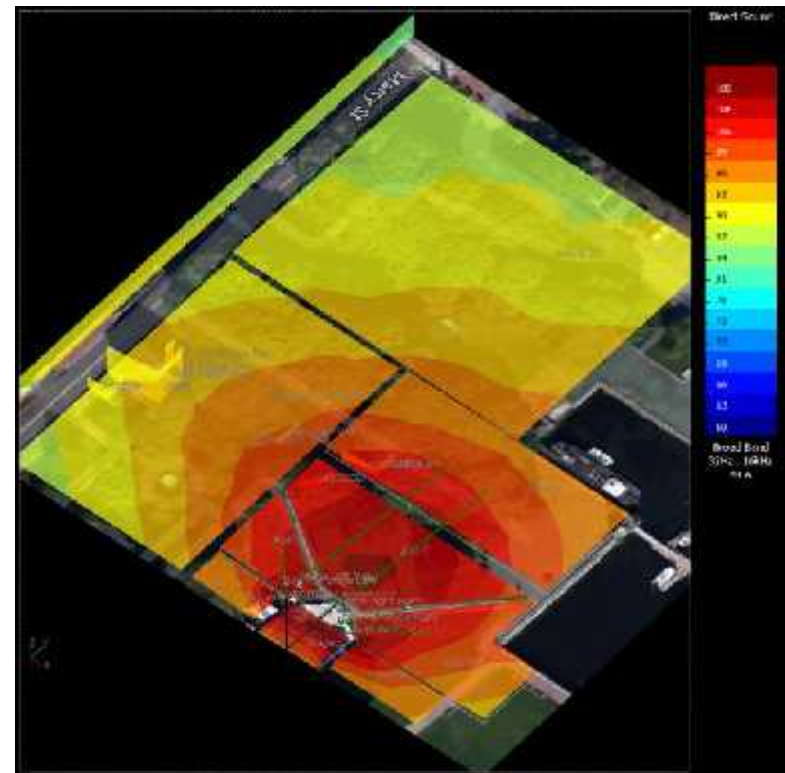
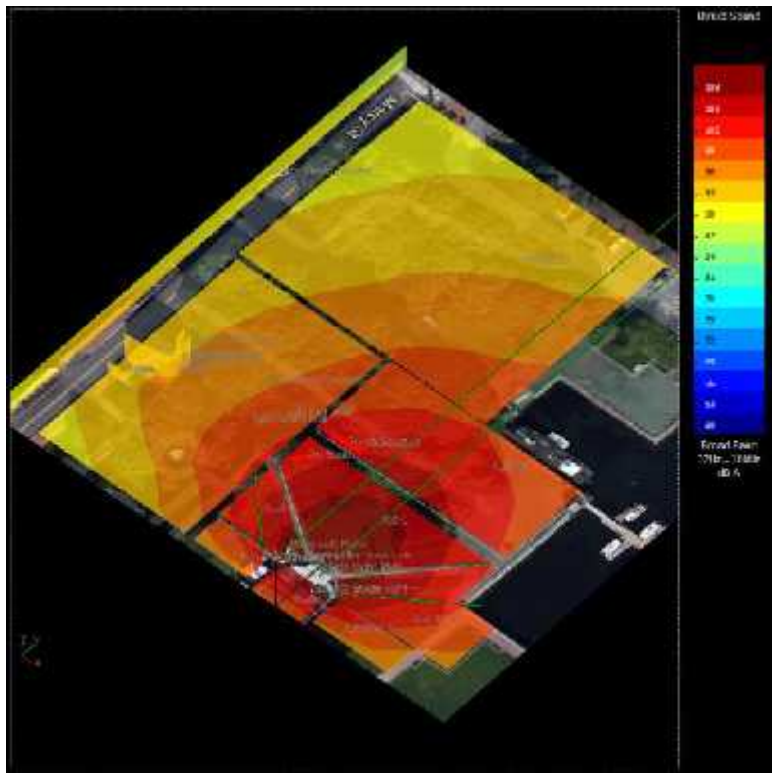


Exigtin



Recommended

Existing vs. Recommended (dBA)



Task 3: Calibrated Offsite Measurements

Deferred to next season due to time constraints

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