UCSF Benioff Children’s Hospital Helipad

Residential Sound Reduction Program

July 30, 2015
Agenda

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UCSF Medical Center at Mission Bay
Creating the Patient Experience at UCSF Medical Center at Mission Bay

Benioff Children’s Hospital SF
- 183 Beds
- Pediatric Care
- Urgent/Emergency Care
- Specialty Outpatient Care

Ron Conway Family Gateway Medical Building
- Helipad, Energy Center (central plant) and Parking

Betty Irene Moore Women’s Hospital
- 36 bed birthing center
- Select women’s ambulatory services
- Specialty Surgery

Bakar Cancer Hospital
- 70 beds
- First step to full cancer services at Mission Bay
- Select adult cancer outpatient services
2014: 9,479 inpatient admissions; 79,272 outpatient visits
18,000 emergency room visits
150 pediatric subspecialists practicing in more than 50 areas of medicine
183 beds dedicated to children
Pioneers in Neonatology / fetal treatment
UCSF Medical Center at Mission Bay
Community Involvement

- Since 2001, UCSF has maintained an open dialogue with the community about the new hospitals and has held more than 60 community meetings

- Neighbors provided input on topics such as site selection, height/bulk/massing, design, open space, traffic, the 4th Street Public Plaza and the new helipad

- This feedback has been extremely valuable in helping shape hospital design and influencing helipad planning and operations
Helipad Operations
UCSF Helipad  *Key Helipad Facts*

- The helipad provides more immediate access for the most critically ill children and for women with serious pregnancy complications.
- Patients are transported from other hospitals all of which are not able to provide the resources, level of care, and number of pediatric specialists available at UCSF Benioff Children’s Hospital San Francisco.
- Helicopter transport/admission must first be approved by a UCSF physician.
- Hovering is not a part of a routine helipad landing — unlike traffic and tour helicopters.
- Approximately 40 transports were projected per month (actual average to date is 30, but we do expect to reach projection).
Helipad Design Changes Decreased Sound Impacts

- Shifted helipad toward the center of campus
- Placed elevator shaft south of helipad to reduce sound travelling toward closest residences
Helicopter Flight Paths

Primary flight path
• over San Francisco Bay to the farthest extent possible
• away from residences

Flight path may be altered by pilot based on weather conditions
Helipad Operations

Ground and Air Transport Team

• UCSF Benioff Children’s Hospital San Francisco has been providing critical care transport for newborns and children for nearly 50 years

• Team is comprised of two specially trained RNs, Nurse Practitioners and Specialty Physicians

• In 2014, the transport team brought over 600 children and infants to UCSF from nearly 80 referring facilities
Inter-facility* Transports to Date

Helicopter and Ground Transports – Feb thru June 2015

- **Helicopter Transports to Mission Bay: 152**
  - 11 pm – 7 am: 26
- **Ground Transports: 527**
  - 11 pm – 7 am: 20

* Inter-facility - transfers from other hospitals for specialty care at UCSF
Community Context

- **Questions or concerns:**
  - (415) 476-4100
  - tiny.ucsf.edu/ucsfhelipad
  - Michele.Davis@ucsf.edu

- **UCSF Advisory Committee on Helicopter Transports**
  - Will address outstanding UCSF helicopter noise issues or concerns
  - Will meet quarterly
  - Neighborhood representation – Mission Bay (north), Lower Potrero (west) and Dogpatch (south)
  - Staff – Medical Transport Team, Campus Planning, and Community & Government Relations
Sound Analysis Concepts
Sound Analysis - *Terminology*

Community Noise Equivalent Level, CNEL

- Describes noise exposure over 24-hour period
- Includes the number of noise events by time of day
  - Day (7am to 7pm)
  - Evening (7pm to 10pm) – add about 5 dB
  - Night (10pm to 7am) – add about 10 dB

Single-Event Noise Exposure Level, SENEL

- Describes noise exposure of complete single helicopter noise event (arrival or departure)
- SENEL includes both level and duration of single noise events
Federal and State Standard: 65 dB CNEL

UCSF EIR Threshold: 95 dB SENEL (estimated)

Note: Actual noise levels measured from test flight were lower than estimated.
Sound Analysis - *UCSF EIR Requirements*

SENEL 95 dB exterior noise level

- UCSF EIR significance threshold
- Corresponds to 80 dB interior noise level (Assumes residential structures reduce noise by at least 15 dB)
- Based on potential awakening research by the Federal Interagency Committee on Aircraft Noise (FICAN)

UCSF Residential Sound Reduction Program (RSRP) goes above and beyond standards and requirements to address noise effects from individual helicopter transports
# Sound Measurement Basics

## SENEL – Measured near UCSF Hospital Site

<table>
<thead>
<tr>
<th>Neighborhood Noise Sources</th>
<th>SENEL Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft</td>
<td>74-85</td>
</tr>
<tr>
<td>Sirens</td>
<td>101</td>
</tr>
<tr>
<td>Construction</td>
<td>85</td>
</tr>
<tr>
<td>Non-UCSF Helicopter Flyovers</td>
<td>81-87</td>
</tr>
<tr>
<td>Motorcycles</td>
<td>88-100</td>
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<tr>
<td>Muni T</td>
<td>84-88</td>
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<tr>
<td>Trucks</td>
<td>81-99</td>
</tr>
<tr>
<td><strong>UCSF Helicopter Transports</strong></td>
<td></td>
</tr>
<tr>
<td>Measured</td>
<td>67-94</td>
</tr>
<tr>
<td>Predicted</td>
<td>76-98</td>
</tr>
</tbody>
</table>

Sources: Helicopter Noise Analysis for University of California San Francisco Mission Bay Hospital Site, HMMH Report No. 302300, March 2008
Residential Sound Reduction Program (RSRP)
UCSF Residential Sound Reduction Program

— Goal

To reduce noise level from UCSF helicopters in interior sleeping areas of qualifying properties
UCSF Residential Sound Reduction Program
— *What has been done to date*

- During the start-up period (8-12 weeks after opening), UCSF measured the noise from helicopter operations.
- Sound consultant determined when we acquired enough data for validation of sound model.
- Sound data was collected in six locations.
- The 95 dB SENEL (single-event) RSRP noise contour was redrawn to reflect the noise environment as measured.
UCSF Residential Sound Reduction Program

— Qualifications

- Property is located in the blocks within or touched by the 2015 RSRP contour
  - Final contour was drawn after start-up period
- Property is a legal residential or live/work unit
- Noise level in interior sleeping area at or greater than 80 dB SENEL with windows closed
  - Note: If unit is loft with no separate sleeping area, entire unit will be considered for sound mitigation
UCSF Residential Sound Reduction Program

— Implementation

- Applications are available to property owners July 30, 2015
  - tiny.ucsf.edu/ucsfhelipad

- Property owners have 12 months after notification to apply (July 30, 2015 - July 30, 2016)
  - UCSF will send a reminder at least 3 months before the end of the application period

- Applications will be reviewed to confirm property is in the blocks within or touched by the contour

- Applicant will be notified and sound testing inside the property will be scheduled
If noise level in interior sleeping area is at or greater than 80 dB SENEL with windows closed,

then legal owner qualifies for sound reduction package
UCSF will provide the legal owner(s) with the details of a recommended sound reduction package with the goal of reducing noise levels by at least 5 dB, which is a noticeable improvement.

- San Francisco Planning Code regarding historic district or historic structures will apply. Wood windows may be required. Related costs will be included.

Legal owner(s) will submit to UCSF three bids from pre-approved contractors to install the recommended sound reduction measures.

- Bids will be reviewed for accuracy and appropriateness.
UCSF Residential Sound Reduction Program

— Agreement

- UCSF pays the property owner in the amount of the lowest of the three bids
- Property owner is responsible for making sound reduction improvements
- Property owner releases UCSF from future claims for UCSF helicopter noise at the property
  - Release shall be in the form of an easement, which is recorded with the City and County of San Francisco
Sound Analysis Results
Sound Analysis

Sound Analysis

- Two UCSF helicopter transports simulated
- Measured outside noise levels at six community locations
  - Noise levels ranged from less than audible to 90 dB SENEL
  - Noise levels were less than EIR significance threshold of 95 dB SENEL
Sound Analysis

2015 Measurements of Actual Transports

- Six noise monitors collected data for nine full days April 23 - May 1, 2015
  - Five monitors in the community
  - One monitor on the roof of the Medical Center south building

- A total of nine UCSF helicopter transports occurred during the measurement period (average of one transport per day)
  - Seven transports from CALSTAR
  - One transport each from REACH and Med-Trans
  - Eight transports using the EC135 helicopter
  - One transport using the Bell 407 helicopter

Note: Bell 407 helicopter noise levels measured within range of the EC135 levels
Sound Analysis

April /May 2015 Measurement of Actual Transports
Sound Analysis

2015 Measurements of Actual Transports

Arrival Flight Track
Departure Flight Track
Sound Analysis
2015 Measurements of Actual Transports

- Measured noise levels agreed well with the modeled noise contour in terms of the SENEL metric, except immediately to the south of Mariposa Street (Site A)
- Difference to the south is due to blockage of the noise path by the hospital buildings
  - Model does not account for shielding
- National sound experts, HMMH, determined the noise level reduction due to the shielding from the south hospital building to be on the order of just 5 to 9 dB
- Difference in the maximum measured SENEL and modeled SENEL was 6 dB
Sound Analysis – *Comparison of 2015 Measurements to the Modeled 95 dB SENEL Contour*
Sound Analysis – Final RSRP Contour
Sound Analysis - Conclusions

- No residential property is expected to experience:
  - Exterior noise levels of 95 dB SENEL or greater from UCSF helicopter transports
  - Interior noise levels of 80 dB SENEL or greater from UCSF helicopter transports

- According to the Supplemental Environmental Impact Report:
  - “All residential properties located on any block that is touched by the 95 dB SENEL noise contour” would be included in the Residential Sound Reduction Program (RSRP)

- Residential properties within the block defined by Mariposa and 18th Streets between Tennessee and Minnesota Streets might qualify for the RSRP
  - Residential property owners may apply for RSRP and be tested to determine interior noise levels from UCSF helicopter transports
  - It is unlikely that sleeping areas within these structures will qualify for acoustical treatment by having noise levels from UCSF helicopter transports of 80 dB SENEL or greater
Sound Analysis

Properties Potentially Eligible for RSRP

Residential Parcels within block touched by RSRP Contour
Discussion