Proposed Residential Sound Reduction Program for the UCSF Medical Center at Mission Bay Helipad

November 19, 2008
Agenda

1. Welcome and Introductions
2. Agenda Overview
3. Proposed Residential Sound Reduction Program
   a. Project Overview: UCSF Medical Center at Mission Bay
   b. Overview of Proposed Helipad
   c. Environmental Impact Report
   d. RSRP Program Elements
4. Community Feedback
5. Summary and Next Steps
Project Site
View from Southwest
Major public plaza with landscaping, entrance and outdoor dining;
Third street façade articulated; activated

Inpatient Buildings and Plaza (Third Street)
Helipad Siting

- Located helipad at northern-most Medical Center building to maximize distance from residences
- Developed flight paths that are over San Francisco Bay to extent possible
- Designated flight paths away from residences
- Placed elevator shaft to the south of the landing pad to deflect sound away from the Dogpatch neighborhood
Need for Helipad

- UCSF Children’s Hospital provides a vast array of expert care from routine immunizations to the most advanced treatments for serious, life-threatening childhood diseases
- This expertise is available to the children of San Francisco, California and beyond
- Community hospitals are not able to provide the level of resources and numbers of pediatric specialists available at UCSF Children’s Hospital
- Rapid access to this specialized level of care is vital when a child is critically ill, a baby is born with a devastating birth defect, or a pregnant mother is in distress
- A helipad at Mission Bay would provide much more immediate access for the most critical of these children who are transferred from other hospitals
- Airlifting patients to UCSF will save many lives
Helipad Information

- Helipad is critical to support the needs of the surrounding communities, particularly for high risk newborns / critically ill kids / pregnant mothers

- Estimated transports (touch down and take off) 1.4 per day
  - Pediatrics – septic shock / organ failure
  - Neonates – life threatening heart defects
  - Pregnant mothers – life threatening severe pre-eclampsia
  - Requires physician’s approval

- Time of day
  - 7 AM – 3 PM  Once every other day
  - 3 PM – 11 PM  Once every other day
  - 11 PM – 7 AM  Once every 4 days

- Estimated time from shoreline to helipad: 1 - 2 minutes
  Estimated descent-to-landing / ascent-to-departure time: 30 seconds
  Engine run time on helipad: 30 seconds to 2 minutes after landing, and 30 seconds to 2 minutes before takeoff
  Engines off for the remainder of pad time

- Not used for staff transport or transfer out
Helicopter Test Flight
Environmental Impact Report

UCSF Medical Center at Mission Bay EIR

• In September 2008, UC Board of Regents certified EIR and approved hospital design and budget; helipad operations not yet approved

• EIR mitigation measures identified need for UCSF to continue working with the community to develop Residential Sound Reduction Program (RSRP) -- the subject of tonight’s meeting

• After RSRP is developed, supplemental environmental review will be conducted on RSRP

• After completion of environmental review on RSRP, approval of helipad operations will be sought
Steps for Helipad Approval

- **San Francisco Board of Supervisors** must approve helipad before the California Department of Transportation (Caltrans) Aeronautics Division will consider UCSF’s application to construct and operate the helipad.

- UCSF is also required to obtain an **FAA Airspace Determination**, to ensure the proposed flight paths are clear of obstructions and meet dimensional requirements, prior to requesting approval by Caltrans.
Noise Measurement Basics

Community Noise Equivalent Level, CNEL
• Describes noise exposure over 24-hour period
• CNEL includes the number of noise events by time of day

Single-Event Noise Exposure Level, SENEL
• Describes noise exposure of complete single event
• SENEL includes the noise level and the duration of single noise events
# Noise Measurement Basics

**SENEL – Measured near UCSF Hospital Site**

<table>
<thead>
<tr>
<th>Neighborhood Noise Sources</th>
<th>Lmax Range</th>
<th>SENEL Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft</td>
<td>60-78</td>
<td>74-85</td>
</tr>
<tr>
<td>Sirens</td>
<td>98</td>
<td>101</td>
</tr>
<tr>
<td>Construction</td>
<td>59-80</td>
<td>85</td>
</tr>
<tr>
<td>Non-UCSF Helicopter Flyovers</td>
<td>61-80</td>
<td>81-87</td>
</tr>
<tr>
<td>Motorcycles</td>
<td>84-96</td>
<td>88-100</td>
</tr>
<tr>
<td>Muni T</td>
<td>58-72</td>
<td>84-88</td>
</tr>
<tr>
<td>Trucks</td>
<td>64-84</td>
<td>81-99</td>
</tr>
<tr>
<td><strong>UCSF Helicopter Transports</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measured</td>
<td>56-83</td>
<td>67-94</td>
</tr>
<tr>
<td>Predicted</td>
<td>64-82</td>
<td>76-98</td>
</tr>
</tbody>
</table>
Noise Measurement Basics

CNEL (24-hour average)

• Federal Aviation Administration established 65 dB CNEL as standard of significance for determining impacts on noise-sensitive land uses
• California Noise Standard establishes the acceptable level of aircraft noise at 65 dB CNEL

SENEL (Single-event)

• UCSF used SENEL metric voluntarily at suggestion of community
• No federal or state standards, but acknowledged as useful metric in understanding effects of noise on community
• Federal Interagency Committee on Aircraft Noise (FICAN) conducted study in 1997 -- an interior SENEL of about 80 dB would awaken a maximum of about 10% of those exposed
  - 80 dB SENEL interior noise corresponds to about 95 dB SENEL exterior noise, assuming minimal noise reduction for a typical home of about 15 dB
Environmental Impact Report

- Most airports and hospitals surveyed use CNEL or 24-hour metric as the basis of impact
- UCSF Medical Center at Mission Bay EIR analyzed helicopter noise using both CNEL (24-hour average) and SENEL (single-event) metrics
- EIR significance threshold using CNEL is 65 dB, consistent with federal and state standards
- EIR significance threshold using SENEL is 95 dB exterior noise (corresponding to 80 dB interior noise), based on best available guidance (FICAN findings)
- By including SENEL metric, UCSF analysis goes above and beyond standards and requirements to address potential noise effects
Environmental Impact Report

EIR Findings using CNEL (24-hour average)

• The FAA modeling determined that the 65 dB CNEL contour from the expected UCSF helicopter operations will be contained entirely on the UCSF hospital site and research campus.

• Therefore, noise from the expected helicopter operations at the proposed helipad is compatible, per federal and state regulations, with the surrounding community.

• EIR found noise impacts using CNEL to be less than significant and would not require sound mitigation.
Environmental Impact Report
EIR Findings using SENEL (Single-event)

- Noise levels with the potential for sleep disturbances caused by the UCSF helicopter within 95 dB noise contour are expected to be contained largely to the UCSF campus or commercial areas.

- **Exception:** For one helicopter model—the EC-130—residences are within the impact area one block to the south of the hospital site.

- EIR found noise impacts using SENEL to be significant due to the potential noise impact of this one helicopter model.
Environmental Impact Report
Environmental Impact Report

Mitigation Measures UCSF has agreed to:

• Limit landings to critically ill patients where time is of the essence
• Helicopter transport must be approved by physician
• Limit activity to incoming inter-facility transfers
• Prepare Helicopter Operations Plan:
  - Use flight paths described in EIR, unless diversion necessary for safety
  - Use primary approach/departure path as much as feasible
  - Use alternate and secondary flight paths only if necessary for safety
  - UCSF service contracts with air medical companies to require pilots be routinely trained about flight paths
  - Maintain log of helicopter activity
Environmental Impact Report

Mitigation Measures UCSF has agreed to (cont’d):

• Respond to and investigate noise complaints
• Establish community working group for UCSF helicopter operations
• Include additional mitigation developed as part of the community process
## Top Ranked Children’s & Women’s Hospitals in Urban Areas

<table>
<thead>
<tr>
<th></th>
<th>Hospital</th>
<th>City</th>
<th>Noise Metric</th>
<th>Transports/Day</th>
<th>Limits on Hours</th>
<th>Sound Insulation Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Johns Hopkins Hospital</td>
<td>Baltimore</td>
<td>No study</td>
<td>3</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>2.</td>
<td>Stanford Hospital</td>
<td>Palo Alto</td>
<td>No study</td>
<td>2</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>3.</td>
<td>UCLA Medical Center</td>
<td>Los Angeles</td>
<td>CNEL</td>
<td>0.8</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>4.</td>
<td>Children’s Memorial Hospital</td>
<td>Chicago</td>
<td>SEL</td>
<td>0.2</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>5.</td>
<td>Brigham &amp; Women’s Hospital (helipad for Boston Children’s Hosp.)</td>
<td>Boston</td>
<td>No study</td>
<td>1.6</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>6.</td>
<td>Children’s Hospital</td>
<td>Philadelphia</td>
<td>No study</td>
<td>1</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>7.</td>
<td>Methodist Hospital (helipad for Texas Children’s Hosp.)</td>
<td>Houston</td>
<td>No study</td>
<td>Information not available</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>8.</td>
<td>Children’s Medical Center</td>
<td>Dallas</td>
<td>No study</td>
<td>Information not available</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
# Other Northern California Hospitals

<table>
<thead>
<tr>
<th>Hospital</th>
<th>City</th>
<th>Noise Metric</th>
<th>Transports/Day</th>
<th>Limits on Hours</th>
<th>Sound Insulation Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Santa Rosa Memorial</td>
<td>Santa Rosa</td>
<td>No study</td>
<td>2</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>2. Children’s Hospital</td>
<td>Oakland</td>
<td>No study</td>
<td>Information not available</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>3. John Muir Medical Center</td>
<td>Concord</td>
<td>CNEL</td>
<td>0.5</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>4. UC Davis Medical Center</td>
<td>Sacramento</td>
<td>CNEL</td>
<td>2</td>
<td>No</td>
<td>Nominal payment</td>
</tr>
<tr>
<td>5. Sutter Hospital</td>
<td>Sacramento</td>
<td>SEL</td>
<td>Information not available</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>6. Kaiser Permanente Medical Center</td>
<td>Santa Clara</td>
<td>SEL</td>
<td>0.04</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>7. Santa Clara Valley Medical Center</td>
<td>San Jose</td>
<td>No study</td>
<td>0.8</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
Other Hospitals
Johns Hopkins Hospital, Baltimore
Other Hospitals
Brigham & Women’s, Boston
Other Hospitals
Children’s Memorial Hospital, Chicago
Other Hospitals
UC Davis Medical Center, Sacramento
Benchmarks

- Airports use CNEL (24-hour average) metric to determine noise impact
- Most hospitals surveyed have not studied noise impacts
- Of peer hospitals and Northern California hospitals surveyed, only UC Davis Medical Center offered nominal compensation for sound insulation
UCSF Residential Sound Reduction Program Proposal

—Goal—

• To reduce noise level from UCSF helicopters in interior sleeping areas of qualifying properties
UCSF Residential Sound Reduction Program Proposal

—Qualifications—

• Property is located within the 95 dB SENEL (single-event) contour zone at the time helicopter operations commence.
  – Map shows the 95 dB SENEL contour for loudest helicopter analyzed in EIR
  – Zone includes all blocks touched by 95 dB noise contour
  – Before helicopter operations start, UCSF will conduct a test flight and redraw the contour

• 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
UCSF Residential Sound Reduction Program Proposal

—Start-Up Period—

- During first six weeks of operations, UCSF will address noise complaints, if any, by revising helicopter operations where feasible
  - Confirm proper flight paths being used
  - Consider altering flight paths
  - Work with flight companies to reduce use of louder helicopters
UCSF Residential Sound Reduction Program Proposal

—Implementation —

• Property owners have 6 months after start-up period to apply

• UCSF determines if property meets agreed-upon qualifications
UCSF Residential Sound Reduction Program Proposal

—Implementation—

• Qualified UCSF consultant recommends sound reduction measures, and prepares cost estimate for these items, including materials, labor, permits and inspections

• Measures may include:
  – standard acoustical windows
  – standard acoustical doors
  – weather stripping around doors and other openings
  – insulate or double pane skylights
UCSF Residential Sound Reduction Program Proposal

—Implementation—

- UCSF pays property owner amount of estimate
- Property owner releases UCSF from future claims for UCSF helicopter noise at the property
- Property owner is responsible to implement sound reduction improvements
Summary

- EIR noise analysis includes assumptions that favor the community:
  - Voluntary use of SENEL (single-event) noise metric in addition to FAA-required CNEL (24-hour) noise metric
  - Noisiest helicopter model was used to determine contour for RSRP
  - Assumes existing sound insulation in homes is minimal

- UCSF’s proposed RSRP goes above and beyond other hospitals surveyed

- UCSF is making a sincere effort to be a good neighbor and reduce noise on impacted properties in a meaningful way
Community Feedback
Next Steps