

Appendix NOI

Noise Supporting Information

NOI.1 Noise Modeling Outputs

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/21/2019
 Case Description: Waterfront Ballpark District -Building Construction Phase 2

---- Receptor #1 ----

| Description | Land Use | Baselines (dBA) | | |
|---------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Phoenix Lofts | Residential | 68 | 66 | 65 |

| Description | Impact Device | Usage(%) | Equipment | | Receptor Distance (feet) | Estimated Shielding (dBA) |
|---------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | | |
| Concrete Pump Truck | No | 20 | 81.4 | 81.4 | 650 | 0 |
| Concrete Pump Truck | No | 20 | 81.4 | 81.4 | 650 | 0 |
| Front End Loader | No | 40 | 79.1 | 79.1 | 650 | 0 |
| Front End Loader | No | 40 | 79.1 | 79.1 | 650 | 0 |
| Crane | No | 16 | 80.6 | 80.6 | 650 | 0 |
| Crane | No | 16 | 80.6 | 80.6 | 650 | 0 |
| Crane | No | 16 | 80.6 | 80.6 | 650 | 0 |
| Crane | No | 16 | 80.6 | 80.6 | 650 | 0 |
| Crane | No | 16 | 80.6 | 80.6 | 650 | 0 |
| Crane | No | 16 | 80.6 | 80.6 | 650 | 0 |
| Crane | No | 16 | 80.6 | 80.6 | 650 | 0 |
| Crane | No | 16 | 80.6 | 80.6 | 650 | 0 |
| Backhoe | No | 40 | 77.6 | 77.6 | 650 | 0 |
| Backhoe | No | 40 | 77.6 | 77.6 | 650 | 0 |
| Backhoe | No | 40 | 77.6 | 77.6 | 650 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|---------------------|------------------|-------------|--------------------|------------|--------------|-------------|------------|------------|------------------------------|------------|--------------|-------------|------------|------------|
| | *Lmax | Leq | Day Lmax | Day Leq | Evening Lmax | Evening Leq | Night Lmax | Night Leq | Day Lmax | Day Leq | Evening Lmax | Evening Leq | Night Lmax | Night Leq |
| Concrete Pump Truck | 59.1 | 52.1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 59.1 | 52.1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Front End Loader | 56.8 | 52.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Front End Loader | 56.8 | 52.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 58.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 58.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 58.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 58.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 58.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 58.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 58.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 55.3 | 51.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 55.3 | 51.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 55.3 | 51.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 59.1 | 62.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

| Description | Land Use | Baselines (dBA) | | |
|-----------------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| 4th Street Residences | Residential | 64 | 63 | 62 |

| Description | Impact Device | Usage(%) | Equipment | | Receptor Distance (feet) | Estimated Shielding (dBA) |
|---------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | | |
| Concrete Pump Truck | No | 20 | 81.4 | 81.4 | 1250 | 5 |
| Concrete Pump Truck | No | 20 | 81.4 | 81.4 | 1250 | 5 |
| Front End Loader | No | 40 | 79.1 | 79.1 | 1250 | 5 |

| | | | | | |
|------------------|----|----|------|------|---|
| Front End Loader | No | 40 | 79.1 | 1250 | 5 |
| Crane | No | 16 | 80.6 | 1250 | 5 |
| Crane | No | 16 | 80.6 | 1250 | 5 |
| Crane | No | 16 | 80.6 | 1250 | 5 |
| Crane | No | 16 | 80.6 | 1250 | 5 |
| Crane | No | 16 | 80.6 | 1250 | 5 |
| Crane | No | 16 | 80.6 | 1250 | 5 |
| Crane | No | 16 | 80.6 | 1250 | 5 |
| Backhoe | No | 40 | 77.6 | 1250 | 5 |
| Backhoe | No | 40 | 77.6 | 1250 | 5 |
| Backhoe | No | 40 | 77.6 | 1250 | 5 |

Results

| Equipment | Calculated (dBA) | | | Noise Limits (dBA) | | | | Noise Limit Exceedance (dBA) | | | | | | |
|---------------------|------------------|------|------|--------------------|---------|-----|-------|------------------------------|------|---------|-----|-------|-----|-----|
| | *Lmax | Leq | Day | Leq | Evening | Leq | Night | Leq | Day | Evening | | Night | Leq | |
| | | | Lmax | | Lmax | | Lmax | | Lmax | Leq | Leq | | | |
| Concrete Pump Truck | 48.4 | 41.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 48.4 | 41.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Front End Loader | 46.2 | 42.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Front End Loader | 46.2 | 42.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 44.6 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 44.6 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 44.6 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 48.4 | 52 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

| Description | Land Use | Baselines (dBA) | | | Equipment | | | | |
|---------------------|-------------|-----------------|---------|-------|---------------|----------|-----------------|-------------------|--------------------------|
| | | Daytime | Evening | Night | Impact Device | Usage(%) | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) |
| Ellington | Residential | 64 | 63 | 62 | No | 20 | 81.4 | 2850 | 0 |
| Concrete Pump Truck | | | | | No | 20 | 81.4 | 2850 | 0 |
| Concrete Pump Truck | | | | | No | 20 | 81.4 | 2850 | 0 |
| Front End Loader | | | | | No | 40 | 79.1 | 2850 | 0 |
| Front End Loader | | | | | No | 40 | 79.1 | 2850 | 0 |
| Crane | | | | | No | 16 | 80.6 | 2850 | 0 |
| Crane | | | | | No | 16 | 80.6 | 2850 | 0 |
| Crane | | | | | No | 16 | 80.6 | 2850 | 0 |
| Crane | | | | | No | 16 | 80.6 | 2850 | 0 |
| Crane | | | | | No | 16 | 80.6 | 2850 | 0 |
| Crane | | | | | No | 16 | 80.6 | 2850 | 0 |
| Crane | | | | | No | 16 | 80.6 | 2850 | 0 |
| Crane | | | | | No | 16 | 80.6 | 2850 | 0 |
| Crane | | | | | No | 16 | 80.6 | 2850 | 0 |
| Backhoe | | | | | No | 40 | 77.6 | 2850 | 0 |
| Backhoe | | | | | No | 40 | 77.6 | 2850 | 0 |
| Backhoe | | | | | No | 40 | 77.6 | 2850 | 0 |

Results

| Equipment | Calculated (dBA) | | | Noise Limits (dBA) | | | | Noise Limit Exceedance (dBA) | | | | | | |
|---------------------|------------------|------|------|--------------------|---------|-----|-------|------------------------------|-----|---------|-----|-------|-----|-----|
| | *Lmax | Leq | Day | Leq | Evening | Leq | Night | Leq | Day | Evening | | Night | Leq | |
| | | | Lmax | | Lmax | | Lmax | | Leq | Leq | | | | |
| Concrete Pump Truck | 46.3 | 39.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

| | | | | | | | | | | | | | | |
|---------------------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Concrete Pump Truck | 46.3 | 39.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Front End Loader | 44 | 40 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Front End Loader | 44 | 40 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 45.4 | 37.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 45.4 | 37.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 45.4 | 37.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 45.4 | 37.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 45.4 | 37.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 45.4 | 37.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 45.4 | 37.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 45.4 | 37.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 42.4 | 38.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 42.4 | 38.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 42.4 | 38.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 46.3 | 49.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

| | | Baselines (dBA) | | | | |
|---------------------|-------------|-----------------|------------|------------|-----------------|-----------------|
| Description | Land Use | Daytime | Evening | Night | | |
| Mitchell Avenue | Residential | 62 | 60 | 60 | | |
| | | Equipment | | | | |
| | | Impact | Spec | Actual | Receptor | Estimated |
| Description | Device | Usage(%) | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Concrete Pump Truck | No | 20 | | 81.4 | 2250 | 0 |
| Concrete Pump Truck | No | 20 | | 81.4 | 2250 | 0 |
| Front End Loader | No | 40 | | 79.1 | 2250 | 0 |
| Front End Loader | No | 40 | | 79.1 | 2250 | 0 |
| Crane | No | 16 | | 80.6 | 2250 | 0 |
| Crane | No | 16 | | 80.6 | 2250 | 0 |
| Crane | No | 16 | | 80.6 | 2250 | 0 |
| Crane | No | 16 | | 80.6 | 2250 | 0 |
| Crane | No | 16 | | 80.6 | 2250 | 0 |
| Crane | No | 16 | | 80.6 | 2250 | 0 |
| Crane | No | 16 | | 80.6 | 2250 | 0 |
| Crane | No | 16 | | 80.6 | 2250 | 0 |
| Backhoe | No | 40 | | 77.6 | 2250 | 0 |
| Backhoe | No | 40 | | 77.6 | 2250 | 0 |
| Backhoe | No | 40 | | 77.6 | 2250 | 0 |

Results

| | | Calculated (dBA) | | | Noise Limits (dBA) | | | | Noise Limit Exceedance (dBA) | | | | | |
|---------------------|--|------------------|------|------|--------------------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | | *Lmax | Leq | Day | Evening | | Night | | Day | | Evening | | Night | |
| Equipment | | | | Lmax | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Concrete Pump Truck | | 48.3 | 41.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | | 48.3 | 41.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Front End Loader | | 46 | 42.1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Front End Loader | | 46 | 42.1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | | 47.5 | 39.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | | 47.5 | 39.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | | 47.5 | 39.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | | 47.5 | 39.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | | 47.5 | 39.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | | 47.5 | 39.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | | 47.5 | 39.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | | 47.5 | 39.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | | 44.5 | 40.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | | 44.5 | 40.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | | 44.5 | 40.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | | 48.3 | 51.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 3/21/2019
 Case Description: Waterfront Ballpark District - Building Construction

---- Receptor #1 ----

| | | Baselines (dBA) | | |
|---------------|-------------|-----------------|---------|-------|
| Description | Land Use | Daytime | Evening | Night |
| Phoenix Lofts | Residential | 68 | 66 | 65 |

| | | Equipment | | | | |
|---------------------|--------|-----------------|-----------------|-------------------|--------------------------|---------------------------|
| Description | Device | Impact Usage(%) | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Concrete Pump Truck | No | 20 | | 81.4 | 400 | 0 |
| Concrete Pump Truck | No | 20 | | 81.4 | 400 | 0 |
| Front End Loader | No | 40 | | 79.1 | 400 | 0 |
| Front End Loader | No | 40 | | 79.1 | 400 | 0 |
| Crane | No | 16 | | 80.6 | 400 | 0 |
| Crane | No | 16 | | 80.6 | 400 | 0 |
| Crane | No | 16 | | 80.6 | 400 | 0 |
| Crane | No | 16 | | 80.6 | 400 | 0 |
| Crane | No | 16 | | 80.6 | 400 | 0 |
| Crane | No | 16 | | 80.6 | 400 | 0 |
| Crane | No | 16 | | 80.6 | 400 | 0 |
| Crane | No | 16 | | 80.6 | 400 | 0 |
| Backhoe | No | 40 | | 77.6 | 400 | 0 |
| Backhoe | No | 40 | | 77.6 | 400 | 0 |
| Backhoe | No | 40 | | 77.6 | 400 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|---------------------|------------------|-------------|--------------------|------------|------------|------------|------------|------------|------------------------------|------------|------------|------------|------------|------------|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Concrete Pump Truck | 63.3 | 56.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 63.3 | 56.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Front End Loader | 61 | 57.1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Front End Loader | 61 | 57.1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 62.5 | 54.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 62.5 | 54.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 62.5 | 54.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 62.5 | 54.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 62.5 | 54.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 62.5 | 54.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 62.5 | 54.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 59.5 | 55.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 59.5 | 55.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 59.5 | 55.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 63.3 | 66.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

| | | Baselines (dBA) | | |
|------------------|-------------|-----------------|---------|-------|
| Description | Land Use | Daytime | Evening | Night |
| 4th Street Resid | Residential | 64 | 63 | 62 |

| | | Equipment | | | | |
|---------------------|--------|-----------------|-----------------|-------------------|--------------------------|---------------------------|
| Description | Device | Impact Usage(%) | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Concrete Pump Truck | No | 20 | | 81.4 | 1250 | 5 |
| Concrete Pump Truck | No | 20 | | 81.4 | 1250 | 5 |
| Front End Loader | No | 40 | | 79.1 | 1250 | 5 |

| | | | | | |
|------------------|----|----|------|------|---|
| Front End Loader | No | 40 | 79.1 | 1250 | 5 |
| Crane | No | 16 | 80.6 | 1250 | 5 |
| Crane | No | 16 | 80.6 | 1250 | 5 |
| Crane | No | 16 | 80.6 | 1250 | 5 |
| Crane | No | 16 | 80.6 | 1250 | 5 |
| Crane | No | 16 | 80.6 | 1250 | 5 |
| Crane | No | 16 | 80.6 | 1250 | 5 |
| Crane | No | 16 | 80.6 | 1250 | 5 |
| Backhoe | No | 40 | 77.6 | 1250 | 5 |
| Backhoe | No | 40 | 77.6 | 1250 | 5 |
| Backhoe | No | 40 | 77.6 | 1250 | 5 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|---------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Concrete Pump Truck | 48.4 | 41.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 48.4 | 41.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Front End Loader | 46.2 | 42.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Front End Loader | 46.2 | 42.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 44.6 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 44.6 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 44.6 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 48.4 | 52 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Baselines (dBA)

| Description | Land Use | Daytime | Evening | Night |
|-------------|-------------|---------|---------|-------|
| Ellington | Residential | 64 | 63 | 62 |

Equipment

| Description | Impact Device | Usage(%) | Spec | Actual | Receptor | Estimated |
|---------------------|---------------|----------|------------|------------|-----------------|-----------------|
| | | | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Concrete Pump Truck | No | 20 | | 81.4 | 1750 | 0 |
| Concrete Pump Truck | No | 20 | | 81.4 | 1750 | 0 |
| Front End Loader | No | 40 | | 79.1 | 1750 | 0 |
| Front End Loader | No | 40 | | 79.1 | 1750 | 0 |
| Crane | No | 16 | | 80.6 | 1750 | 0 |
| Crane | No | 16 | | 80.6 | 1750 | 0 |
| Crane | No | 16 | | 80.6 | 1750 | 0 |
| Crane | No | 16 | | 80.6 | 1750 | 0 |
| Crane | No | 16 | | 80.6 | 1750 | 0 |
| Crane | No | 16 | | 80.6 | 1750 | 0 |
| Crane | No | 16 | | 80.6 | 1750 | 0 |
| Crane | No | 16 | | 80.6 | 1750 | 0 |
| Backhoe | No | 40 | | 77.6 | 1750 | 0 |
| Backhoe | No | 40 | | 77.6 | 1750 | 0 |
| Backhoe | No | 40 | | 77.6 | 1750 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|---------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Concrete Pump Truck | 50.5 | 43.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

| | | | | | | | | | | | | | | |
|---------------------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Concrete Pump Truck | 50.5 | 43.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Front End Loader | 48.2 | 44.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Front End Loader | 48.2 | 44.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 49.7 | 41.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 49.7 | 41.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 49.7 | 41.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 49.7 | 41.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 49.7 | 41.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 49.7 | 41.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 49.7 | 41.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 49.7 | 41.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 46.7 | 42.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 46.7 | 42.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 46.7 | 42.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 50.5 | 54.1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

| Description | Land Use |
|-----------------|-------------|
| Mitchell Avenue | Residential |

| Baselines (dBA) | | |
|-----------------|---------|-------|
| Daytime | Evening | Night |
| 62 | 60 | 60 |

| Description | Impact Device | Equipment | | | | |
|---------------------|---------------|-----------|-----------------|-------------------|--------------------------|---------------------------|
| | | Usage(%) | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Concrete Pump Truck | No | 20 | | 81.4 | 2050 | 0 |
| Concrete Pump Truck | No | 20 | | 81.4 | 2050 | 0 |
| Front End Loader | No | 40 | | 79.1 | 2050 | 0 |
| Front End Loader | No | 40 | | 79.1 | 2050 | 0 |
| Crane | No | 16 | | 80.6 | 2050 | 0 |
| Crane | No | 16 | | 80.6 | 2050 | 0 |
| Crane | No | 16 | | 80.6 | 2050 | 0 |
| Crane | No | 16 | | 80.6 | 2050 | 0 |
| Crane | No | 16 | | 80.6 | 2050 | 0 |
| Crane | No | 16 | | 80.6 | 2050 | 0 |
| Crane | No | 16 | | 80.6 | 2050 | 0 |
| Crane | No | 16 | | 80.6 | 2050 | 0 |
| Backhoe | No | 40 | | 77.6 | 2050 | 0 |
| Backhoe | No | 40 | | 77.6 | 2050 | 0 |
| Backhoe | No | 40 | | 77.6 | 2050 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|---------------------|------------------|-----|--------------------|-------------|--------------|-----------|------------|---------|------------------------------|-------------|--------------|-----------|------------|--|
| | *Lmax | Leq | Day Lmax | Evening Leq | Evening Lmax | Night Leq | Night Lmax | Day Leq | Day Lmax | Evening Leq | Evening Lmax | Night Leq | Night Lmax | |
| Concrete Pump Truck | 49.1 | | 42.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| Concrete Pump Truck | 49.1 | | 42.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| Front End Loader | 46.9 | | 42.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| Front End Loader | 46.9 | | 42.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| Crane | 48.3 | | 40.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| Crane | 48.3 | | 40.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| Crane | 48.3 | | 40.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| Crane | 48.3 | | 40.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| Crane | 48.3 | | 40.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| Crane | 48.3 | | 40.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| Crane | 48.3 | | 40.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| Backhoe | 45.3 | | 41.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| Backhoe | 45.3 | | 41.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| Backhoe | 45.3 | | 41.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| Total | 49.1 | | 52.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/21/2019

Case Description: Waterfront Ballpark District - Compaction

---- Receptor #1 ----

| Description | Land Use | Baselines (dBA) | | |
|---------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Phoenix Lofts | Residential | 68 | 66 | 65 |

| Description | Impact Device | Usage(%) | Equipment | | | |
|-----------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Crane | No | 16 | | 80.6 | 400 | 0 |
| Vibratory Pile Driver | No | 20 | | 100.8 | 400 | 0 |
| Crane | No | 16 | | 80.6 | 400 | 0 |
| Vibratory Pile Driver | No | 20 | | 100.8 | 400 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | Noise Limit Exceedance (dBA) | | | | | | | |
|-----------------------|------------------|------|--------------------|---------|--------------|-------------|------------------------------|-----------|----------|---------|--------------|-------------|------------|-----------|
| | *Lmax | Leq | Day Lmax | Day Leq | Evening Lmax | Evening Leq | Night Lmax | Night Leq | Day Lmax | Day Leq | Evening Lmax | Evening Leq | Night Lmax | Night Leq |
| Crane | 62.5 | 54.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 82.8 | 75.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 62.5 | 54.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 82.8 | 75.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 82.8 | 78.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

| Description | Land Use | Baselines (dBA) | | |
|---------------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| 4th Street Resident | Residential | 64 | 63 | 62 |

| Description | Impact Device | Usage(%) | Equipment | | | |
|-----------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Crane | No | 16 | | 80.6 | 1250 | 5 |
| Vibratory Pile Driver | No | 20 | | 100.8 | 1250 | 5 |
| Crane | No | 16 | | 80.6 | 1250 | 5 |
| Vibratory Pile Driver | No | 20 | | 100.8 | 1250 | 5 |

Results

| Equipment | Calculated (dBA) | | | | Noise Limits (dBA) | | | | Noise Limit Exceedance (dBA) | | | | | |
|-----------------------|------------------|------|------|-----|--------------------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | | | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | *Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 67.9 | 60.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 67.9 | 60.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 67.9 | 63.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

| Description | | Baselines (dBA) | | |
|-------------|-------------|-----------------|---------|-------|
| | Land Use | Daytime | Evening | Night |
| Ellington | Residential | 64 | 63 | 62 |

| Description | Device | Impact | Equipment | | | | |
|-----------------------|--------|--------|-----------|------------|------------|-----------------|-----------------|
| | | | Usage(%) | Spec | Actual | Receptor | Estimated |
| | | | | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Crane | No | 16 | | 80.6 | 1750 | 0 | |
| Vibratory Pile Driver | No | 20 | | 100.8 | 1750 | 0 | |
| Crane | No | 16 | | 80.6 | 1750 | 0 | |
| Vibratory Pile Driver | No | 20 | | 100.8 | 1750 | 0 | |

Results

| Equipment | Calculated (dBA) | | | | Noise Limits (dBA) | | | | Noise Limit Exceedance (dBA) | | | | | |
|-----------------------|------------------|------|------|-----|--------------------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | | | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | *Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | 49.7 | 41.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 69.9 | 62.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 49.7 | 41.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 69.9 | 62.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 69.9 | 66 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

| Description | | Baselines (dBA) | | |
|-----------------|-------------|-----------------|---------|-------|
| | Land Use | Daytime | Evening | Night |
| Mitchell Avenue | Residential | 62 | 60 | 60 |

| Description | Device | Impact | Equipment | | | | |
|-------------|--------|--------|-----------|------------|------------|-----------------|-----------------|
| | | | Usage(%) | Spec | Actual | Receptor | Estimated |
| | | | | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Crane | No | 16 | | 80.6 | 2050 | 0 | |

| | | | | | |
|-----------------------|----|----|-------|------|---|
| Vibratory Pile Driver | No | 20 | 100.8 | 2050 | 0 |
| Crane | No | 16 | 80.6 | 2050 | 0 |
| Vibratory Pile Driver | No | 20 | 100.8 | 2050 | 0 |

| Equipment | Results | | | | | | | | | | | | | |
|-----------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| Crane | 48.3 | 40.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 68.6 | 61.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 48.3 | 40.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 68.6 | 61.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 68.6 | 64.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 3/21/2019
 Case Description: Waterfront Ballpark District - Demolition

---- Receptor #1 ----

| Description | Land Use | Baselines (dBA) | | |
|---------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Phoenix Lofts | Residential | 68 | 66 | 65 |

| Description | Impact Device | Usage(%) | Equipment | | | |
|---------------------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 90.3 | 400 | 5 |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 90.3 | 400 | 5 |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 90.3 | 400 | 5 |
| Excavator | No | 40 | 80.7 | 80.7 | 400 | 5 |
| Excavator | No | 40 | 80.7 | 80.7 | 400 | 5 |
| Excavator | No | 40 | 80.7 | 80.7 | 400 | 5 |
| Concrete Saw | No | 20 | 89.6 | 89.6 | 400 | 0 |
| Backhoe | No | 40 | 77.6 | 77.6 | 400 | 0 |
| Backhoe | No | 40 | 77.6 | 77.6 | 400 | 0 |
| Dump Truck | No | 40 | 76.5 | 76.5 | 400 | 0 |
| Vacuum Street Sweeper | No | 10 | 81.6 | 81.6 | 400 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|---------------------------------|------------------|-----------|--------------------|------------|------------|------------|------------|------------|------------------------------|------------|------------|------------|------------|------------|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Mounted Impact Hammer (hoe ram) | 67.2 | 60.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | 67.2 | 60.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | 67.2 | 60.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 57.6 | 53.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 57.6 | 53.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 57.6 | 53.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Saw | 71.5 | 64.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 59.5 | 55.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 59.5 | 55.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Dump Truck | 58.4 | 54.4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vacuum Street Sweeper | 63.5 | 53.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 71.5 | 69 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

| Description | Land Use | Baselines (dBA) | | |
|-----------------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| 4th Street Residences | Residential | 64 | 63 | 62 |

| Description | Impact Device | Usage(%) | Equipment | | | |
|---------------------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 90.3 | 1250 | 5 |

| | | | | | |
|---------------------------------|-----|----|------|------|---|
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 1250 | 5 |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 1250 | 5 |
| Excavator | No | 40 | 80.7 | 1250 | 5 |
| Excavator | No | 40 | 80.7 | 1250 | 5 |
| Excavator | No | 40 | 80.7 | 1250 | 5 |
| Concrete Saw | No | 20 | 89.6 | 1250 | 5 |
| Backhoe | No | 40 | 77.6 | 1250 | 5 |
| Backhoe | No | 40 | 77.6 | 1250 | 5 |
| Dump Truck | No | 40 | 76.5 | 1250 | 5 |
| Vacuum Street Sweeper | No | 10 | 81.6 | 1250 | 5 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|---------------------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Mounted Impact Hammer (hoe ram) | 57.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | 57.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | 57.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 47.8 | 43.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 47.8 | 43.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 47.8 | 43.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Saw | 56.6 | 49.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 44.6 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 44.6 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Dump Truck | 43.5 | 39.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vacuum Street Sweeper | 48.6 | 38.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 57.3 | 57.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

| Description | Land Use | Baselines (dBA) | | |
|-------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Ellington | Residential | 64 | 63 | 62 |

| Description | Device | Usage(%) | Equipment | | | |
|---------------------------------|--------|----------|------------|------------|-----------------|-----------------|
| | | | Spec | Actual | Receptor | Estimated |
| | | | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 1750 | 0 | |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 1750 | 0 | |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 1750 | 0 | |
| Excavator | No | 40 | 80.7 | 1750 | 0 | |
| Excavator | No | 40 | 80.7 | 1750 | 0 | |
| Excavator | No | 40 | 80.7 | 1750 | 0 | |
| Concrete Saw | No | 20 | 89.6 | 1750 | 0 | |
| Backhoe | No | 40 | 77.6 | 1750 | 0 | |
| Backhoe | No | 40 | 77.6 | 1750 | 0 | |
| Dump Truck | No | 40 | 76.5 | 1750 | 0 | |
| Vacuum Street Sweeper | No | 10 | 81.6 | 1750 | 0 | |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|---------------------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Mounted Impact Hammer (hoe ram) | 57.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | 57.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | 57.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 47.8 | 43.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 47.8 | 43.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 47.8 | 43.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Saw | 56.6 | 49.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 44.6 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 44.6 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Dump Truck | 43.5 | 39.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vacuum Street Sweeper | 48.6 | 38.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 57.3 | 57.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

| | | | | | | | | | | | | | | |
|---------------------------------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Mounted Impact Hammer (hoe ram) | 59.4 | 52.4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | 59.4 | 52.4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | 59.4 | 52.4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 49.8 | 45.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 49.8 | 45.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 49.8 | 45.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Saw | 58.7 | 51.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 46.7 | 42.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 46.7 | 42.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Dump Truck | 45.6 | 41.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vacuum Street Sweeper | 50.7 | 40.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 59.4 | 59.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

| | | Baselines (dBA) | | |
|-----------------|-------------|-----------------|---------|-------|
| Description | Land Use | Daytime | Evening | Night |
| Mitchell Avenue | Residential | 62 | 60 | 60 |

| | | Equipment | | | | |
|---------------------------------|---------------|-----------|------------|-----------------|-----------------|--|
| | | Spec | Actual | Receptor | Estimated | |
| Description | Impact Device | Usage(%) | Lmax (dBA) | Distance (feet) | Shielding (dBA) | |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 2050 | 0 | |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 2050 | 0 | |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 2050 | 0 | |
| Excavator | No | 40 | 80.7 | 2050 | 0 | |
| Excavator | No | 40 | 80.7 | 2050 | 0 | |
| Excavator | No | 40 | 80.7 | 2050 | 0 | |
| Concrete Saw | No | 20 | 89.6 | 2050 | 0 | |
| Backhoe | No | 40 | 77.6 | 2050 | 0 | |
| Backhoe | No | 40 | 77.6 | 2050 | 0 | |
| Dump Truck | No | 40 | 76.5 | 2050 | 0 | |
| Vacuum Street Sweeper | No | 10 | 81.6 | 2050 | 0 | |

| | | Results | | | | | | | | | | | | | |
|---------------------------------|--|------------------|------|--------------------|-----|--------------|-----|------------------------------|-----|----------|-----|--------------|-----|------------|-----|
| | | Calculated (dBA) | | Noise Limits (dBA) | | | | Noise Limit Exceedance (dBA) | | | | | | | |
| | | *Lmax | Leq | Day Lmax | Leq | Evening Lmax | Leq | Night Lmax | Leq | Day Lmax | Leq | Evening Lmax | Leq | Night Lmax | Leq |
| Equipment | | | | | | | | | | | | | | | |
| Mounted Impact Hammer (hoe ram) | | 58 | 51 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | | 58 | 51 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | | 58 | 51 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | | 48.5 | 44.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | | 48.5 | 44.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | | 48.5 | 44.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Saw | | 57.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | | 45.3 | 41.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | | 45.3 | 41.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Dump Truck | | 44.2 | 40.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vacuum Street Sweeper | | 49.3 | 39.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | | 58 | 57.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 3/21/2019

Case Description: Waterfront Ballpark District -Night Cranes

---- Receptor #1 ----

| Description | Land Use | Baselines (dBA) | | |
|---------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Phoenix Lofts | Residential | 68 | 66 | 65 |

| Description | Impact Device | Usage(%) | Equipment | | | |
|----------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Crane | No | 16 | 80.6 | 80.6 | 400 | 5 |
| Crane | No | 16 | 80.6 | 80.6 | 600 | 0 |
| Crane | No | 16 | 80.6 | 80.6 | 600 | 0 |
| Crane | No | 16 | 80.6 | 80.6 | 800 | 0 |
| Flat Bed Truck | No | 40 | 74.3 | 74.3 | 400 | 0 |
| Generator | No | 50 | 80.6 | 80.6 | 400 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|----------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | 57.5 | 49.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 59 | 51 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 59 | 51 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 56.5 | 48.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flat Bed Truck | 56.2 | 52.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Generator | 62.6 | 59.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 62.6 | 61.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

| Description | Land Use | Baselines (dBA) | | |
|---------------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| 4th Street Residenc | Residential | 64 | 63 | 62 |

| Description | Impact Device | Usage(%) | Equipment | | | |
|-------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Crane | No | 16 | 80.6 | 80.6 | 1000 | 5 |
| Crane | No | 16 | 80.6 | 80.6 | 1250 | 5 |

| | | | | | |
|----------------|----|----|------|------|---|
| Crane | No | 16 | 80.6 | 1250 | 5 |
| Crane | No | 16 | 80.6 | 1500 | 5 |
| Flat Bed Truck | No | 40 | 74.3 | 1250 | 5 |
| Generator | No | 50 | 80.6 | 1250 | 5 |

Results

| Equipment | Calculated (dBA) | | | Noise Limits (dBA) | | | | Noise Limit Exceedance (dBA) | | | | | |
|----------------|------------------|------|------|--------------------|------|-------|------|------------------------------|---------|------|-------|------|-----|
| | *Lmax | Leq | Day | Evening | | Night | | Day | Evening | | Night | | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | | Leq | Lmax | Leq | Lmax | Leq |
| Crane | 49.5 | 41.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 46 | 38 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flat Bed Truck | 41.3 | 37.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Generator | 47.7 | 44.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 49.5 | 48.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

| Description | Land Use | Baselines (dBA) | | |
|-------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Ellington | Residential | 64 | 63 | 62 |

| Description | Equipment | | | | | |
|----------------|---------------|----------|------------|------------|-----------------|-----------------|
| | Impact Device | Usage(%) | Spec | Actual | Receptor | Estimated |
| | | | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Crane | No | 16 | 80.6 | 1500 | 0 | |
| Crane | No | 16 | 80.6 | 1750 | 0 | |
| Crane | No | 16 | 80.6 | 1750 | 0 | |
| Crane | No | 16 | 80.6 | 2000 | 0 | |
| Flat Bed Truck | No | 40 | 74.3 | 1500 | 0 | |
| Generator | No | 50 | 80.6 | 1500 | 0 | |

Results

| Equipment | Calculated (dBA) | | | Noise Limits (dBA) | | | | Noise Limit Exceedance (dBA) | | | | |
|----------------|------------------|------|------|--------------------|------|-------|------|------------------------------|---------|------|-------|-----|
| | *Lmax | Leq | Day | Evening | | Night | | Day | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | | Leq | Lmax | Leq | |
| Crane | 51 | 43 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 49.7 | 41.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 49.7 | 41.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 48.5 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flat Bed Truck | 44.7 | 40.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Generator | 51.1 | 48.1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 51.1 | 51.4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Description Land Use
Mitchell Avenue Residential

Baselines (dBA)

| Daytime | Evening | Night |
|---------|---------|-------|
| 62 | 60 | 60 |

Equipment

| Description | Impact Device | Usage(%) | Spec | Actual | Receptor | Estimated |
|----------------|---------------|----------|------------|------------|-----------------|-----------------|
| | | | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Crane | No | 16 | | 80.6 | 1800 | 0 |
| Crane | No | 16 | | 80.6 | 2050 | 0 |
| Crane | No | 16 | | 80.6 | 2050 | 0 |
| Crane | No | 16 | | 80.6 | 2300 | 0 |
| Flat Bed Truck | No | 40 | | 74.3 | 1800 | 0 |
| Generator | No | 50 | | 80.6 | 1800 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|----------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | 49.4 | 41.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 48.3 | 40.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 48.3 | 40.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.3 | 39.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flat Bed Truck | 43.1 | 39.1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Generator | 49.5 | 46.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 49.5 | 49.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 3/21/2019
 Case Description: Waterfront Ballpark District -Night Pours

---- Receptor #1 ----

| Description | Land Use | Baselines (dBA) | | |
|---------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Phoenix Lofts | Residential | 68 | 66 | 65 |

| Description | Device | Impact | Usage(%) | Equipment | | |
|----------------------|--------|--------|----------|-----------------|-------------------|--------------------------|
| | | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) |
| Concrete Mixer Truck | No | | 40 | 78.8 | 400 | 0 |
| Concrete Pump Truck | No | | 20 | 81.4 | 400 | 0 |
| Concrete Mixer Truck | No | | 40 | 78.8 | 600 | 0 |
| Concrete Pump Truck | No | | 20 | 81.4 | 600 | 0 |
| Concrete Mixer Truck | No | | 40 | 78.8 | 800 | 0 |
| Concrete Pump Truck | No | | 20 | 81.4 | 800 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | Noise Limit Exceedance (dBA) | | | | | | | |
|----------------------|------------------|------|--------------------|---------|--------------|-------------|------------------------------|-----------|----------|---------|--------------|-------------|------------|-----------|
| | *Lmax | Leq | Day Lmax | Day Leq | Evening Lmax | Evening Leq | Night Lmax | Night Leq | Day Lmax | Day Leq | Evening Lmax | Evening Leq | Night Lmax | Night Leq |
| Concrete Mixer Truck | 60.7 | 56.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 63.3 | 56.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Mixer Truck | 57.2 | 53.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 59.8 | 52.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Mixer Truck | 54.7 | 50.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 57.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 63.3 | 61.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

| Description | Land Use | Baselines (dBA) | | |
|--------------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| 4th Street Resider | Residential | 64 | 63 | 62 |

| Description | Device | Impact | Usage(%) | Equipment | | |
|----------------------|--------|--------|----------|-----------------|-------------------|--------------------------|
| | | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) |
| Concrete Mixer Truck | No | | 40 | 78.8 | 1000 | 5 |
| Concrete Pump Truck | No | | 20 | 81.4 | 1000 | 5 |
| Concrete Mixer Truck | No | | 40 | 78.8 | 1250 | 5 |
| Concrete Pump Truck | No | | 20 | 81.4 | 1250 | 5 |

| | | | | | |
|----------------------|----|----|------|------|---|
| Concrete Mixer Truck | No | 40 | 78.8 | 1500 | 5 |
| Concrete Pump Truck | No | 20 | 81.4 | 1500 | 5 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|----------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Concrete Mixer Truck | 47.8 | 43.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 50.4 | 43.4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Mixer Truck | 45.8 | 41.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 48.4 | 41.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Mixer Truck | 44.3 | 40.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 46.9 | 39.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 50.4 | 49.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Baselines (dBA)

| Description | Land Use | Daytime | Evening | Night |
|-------------|-------------|---------|---------|-------|
| Ellington | Residential | 64 | 63 | 62 |

Equipment

| Description | Device | Usage(%) | Spec | Actual | Receptor | Estimated |
|----------------------|--------|----------|------------|------------|-----------------|-----------------|
| | | | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Concrete Mixer Truck | No | 40 | 78.8 | 1500 | 0 | |
| Concrete Pump Truck | No | 20 | 81.4 | 1500 | 0 | |
| Concrete Mixer Truck | No | 40 | 78.8 | 1750 | 0 | |
| Concrete Pump Truck | No | 20 | 81.4 | 1750 | 0 | |
| Concrete Mixer Truck | No | 40 | 78.8 | 2000 | 0 | |
| Concrete Pump Truck | No | 20 | 81.4 | 2000 | 0 | |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|----------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Concrete Mixer Truck | 49.3 | 45.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 51.9 | 44.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Mixer Truck | 47.9 | 43.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 50.5 | 43.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Mixer Truck | 46.8 | 42.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 49.4 | 42.4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 51.9 | 51.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Baselines (dBA)

Description Land Use
 Mitchell Avenue Residential

Daytime Evening Night
 62 60 60

Equipment

| Description | Impact Device | Usage(%) | Spec | Actual | Receptor | Estimated |
|----------------------|---------------|----------|------------|------------|-----------------|-----------------|
| | | | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Concrete Mixer Truck | No | 40 | | 78.8 | 1800 | 0 |
| Concrete Pump Truck | No | 20 | | 81.4 | 1800 | 0 |
| Concrete Mixer Truck | No | 40 | | 78.8 | 2050 | 0 |
| Concrete Pump Truck | No | 20 | | 81.4 | 2050 | 0 |
| Concrete Mixer Truck | No | 40 | | 78.8 | 2300 | 0 |
| Concrete Pump Truck | No | 20 | | 81.4 | 2300 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|----------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Concrete Mixer Truck | 47.7 | 43.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 50.3 | 43.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Mixer Truck | 46.5 | 42.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 49.1 | 42.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Mixer Truck | 45.5 | 41.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 48.1 | 41.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 50.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/21/2019

Case Description: Waterfront Ballpark District -Pile Driving Phase 2

---- Receptor #1 ----

| | | Baselines (dBA) | | |
|---------------|-------------|-----------------|---------|-------|
| Description | Land Use | Daytime | Evening | Night |
| Phoenix Lofts | Residential | 68 | 66 | 65 |

| | | Equipment | | | | |
|--------------------|--------|-----------|------------|------------|-----------------|-----------------|
| Description | Device | Usage(%) | Spec | Actual | Receptor | Estimated |
| | | | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Crane | No | 16 | | 80.6 | 400 | 0 |
| Impact Pile Driver | Yes | 20 | | 101.3 | 400 | 0 |
| Crane | No | 16 | | 80.6 | 650 | 0 |
| Impact Pile Driver | Yes | 20 | | 101.3 | 650 | 0 |
| Auger Drill Rig | No | 20 | | 84.4 | 650 | 0 |

| | | Results | | | | | | | | | | | | | |
|--------------------|-------|------------------|------|------|-----|--------------------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | | Calculated (dBA) | | | | Noise Limits (dBA) | | | | Noise Limit Exceedance (dBA) | | | | | |
| Equipment | | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | | 62.5 | 54.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | | 83.2 | 76.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | | 58.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | | 79 | 72 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Auger Drill Rig | | 62.1 | 55.1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | Total | 83.2 | 77.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

| | | Baselines (dBA) | | |
|------------------|-------------|-----------------|---------|-------|
| Description | Land Use | Daytime | Evening | Night |
| 4th Street Resid | Residential | 64 | 63 | 62 |

| | | Equipment | | | | |
|--------------------|--------|-----------|------------|------------|-----------------|-----------------|
| Description | Device | Usage(%) | Spec | Actual | Receptor | Estimated |
| | | | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Crane | No | 16 | | 80.6 | 1000 | 5 |
| Impact Pile Driver | Yes | 20 | | 101.3 | 1000 | 5 |
| Crane | No | 16 | | 80.6 | 1250 | 5 |

| | | | | | |
|--------------------|-----|----|-------|------|---|
| Impact Pile Driver | Yes | 20 | 101.3 | 1250 | 5 |
| Auger Drill Rig | No | 20 | 84.4 | 1250 | 5 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|--------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | 49.5 | 41.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | 70.2 | 63.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | 68.3 | 61.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Auger Drill Rig | 51.4 | 44.4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 70.2 | 65.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Baselines (dBA)

| Description | Land Use | Daytime | Evening | Night |
|-------------|-------------|---------|---------|-------|
| Ellington | Residential | 64 | 63 | 62 |

Equipment

| Description | Device | Usage(%) | Spec | Actual | Receptor | Estimated |
|--------------------|--------|----------|------------|------------|-----------------|-----------------|
| | | | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Crane | No | 16 | | 80.6 | 2600 | 0 |
| Impact Pile Driver | Yes | 20 | | 101.3 | 2600 | 0 |
| Crane | No | 16 | | 80.6 | 2850 | 0 |
| Impact Pile Driver | Yes | 20 | | 101.3 | 2850 | 0 |
| Auger Drill Rig | No | 20 | | 84.4 | 2850 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|--------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | 46.2 | 38.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | 66.9 | 60 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 45.4 | 37.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | 66.2 | 59.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Auger Drill Rig | 49.2 | 42.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 66.9 | 62.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Baselines (dBA)

| Description | Land Use | Daytime | Evening | Night |
|-----------------|-------------|---------|---------|-------|
| Mitchell Avenue | Residential | 62 | 60 | 60 |

| Description | Impact Device | Usage(%) | Equipment | | | |
|--------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Crane | No | 16 | | 80.6 | 2000 | 0 |
| Impact Pile Driver | Yes | 20 | | 101.3 | 2000 | 0 |
| Crane | No | 16 | | 80.6 | 2250 | 0 |
| Impact Pile Driver | Yes | 20 | | 101.3 | 2250 | 0 |
| Auger Drill Rig | No | 20 | | 84.4 | 2250 | 0 |

| Equipment | Results | | | | | | | | | | | | | |
|--------------------|------------------|------|----------|--------------------|------------|----------|--------------|------------|----------|------------------------------|------------|---------|-------------|-----------|
| | Calculated (dBA) | | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | |
| | *Lmax | Leq | Day Lmax | Evening Lmax | Night Lmax | Day Lmax | Evening Lmax | Night Lmax | Day Lmax | Evening Lmax | Night Lmax | Day Leq | Evening Leq | Night Leq |
| Crane | 48.5 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | 69.2 | 62.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.5 | 39.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | 68.2 | 61.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Auger Drill Rig | 51.3 | 44.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 69.2 | 64.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/22/2019

Case Description: Waterfront Ballpark District -Pile Driving

---- Receptor #1 ----

| | | Baselines (dBA) | | |
|---------------|-------------|-----------------|---------|-------|
| Description | Land Use | Daytime | Evening | Night |
| Phoenix Lofts | Residential | 68 | 66 | 65 |

| | | Equipment | | | | |
|--------------------|--------|-----------|-----------------|-------------------|--------------------------|---------------------------|
| | | Impact | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Description | Device | Usage(%) | (dBA) | (dBA) | (feet) | (dBA) |
| Crane | No | 16 | | 80.6 | 150 | 0 |
| Impact Pile Driver | Yes | 20 | | 101.3 | 150 | 0 |
| Crane | No | 16 | | 80.6 | 400 | 0 |
| Impact Pile Driver | Yes | 20 | | 101.3 | 400 | 0 |
| Auger Drill Rig | No | 20 | | 84.4 | 400 | 0 |
| Crane | No | 16 | | 80.6 | 650 | 0 |
| Impact Pile Driver | Yes | 20 | | 101.3 | 650 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|--------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | 71 | 63 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | 91.7 | 84.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 62.5 | 54.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | 83.2 | 76.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Auger Drill Rig | 66.3 | 59.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 58.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | 79 | 72 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 91.7 | 85.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

| | | Baselines (dBA) | | |
|------------------|-------------|-----------------|---------|-------|
| Description | Land Use | Daytime | Evening | Night |
| 4th Street Resid | Residential | 64 | 63 | 62 |

| | | Equipment | | | | |
|-------------|--------|-----------|-----------------|-------------------|--------------------------|---------------------------|
| | | Impact | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Description | Device | Usage(%) | (dBA) | (dBA) | (feet) | (dBA) |

| | | | | | | | | | | | | | | |
|--------------------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Crane | 49.7 | 41.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | 70.4 | 63.4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Auger Drill Rig | 53.5 | 46.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 48.5 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | 69.2 | 62.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 71.7 | 68.4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Baselines (dBA)

| Description | Land Use | Daytime | Evening | Night |
|-----------------|-------------|---------|---------|-------|
| Mitchell Avenue | Residential | 62 | 60 | 60 |

Equipment

| Description | Device | Usage(%) | Equipment | | Receptor Distance (feet) | Estimated Shielding (dBA) |
|--------------------|--------|----------|------------|--------------|--------------------------|---------------------------|
| | | | Spec (dBA) | Actual (dBA) | | |
| Crane | No | 16 | | 80.6 | 1800 | 0 |
| Impact Pile Driver | Yes | 20 | | 101.3 | 1800 | 0 |
| Crane | No | 16 | | 80.6 | 2050 | 0 |
| Impact Pile Driver | Yes | 20 | | 101.3 | 2050 | 0 |
| Auger Drill Rig | No | 20 | | 84.4 | 2050 | 0 |
| Crane | No | 16 | | 80.6 | 2300 | 0 |
| Impact Pile Driver | Yes | 20 | | 101.3 | 2300 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|--------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | 49.4 | 41.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | 70.1 | 63.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 48.3 | 40.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | 69 | 62 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Auger Drill Rig | 52.1 | 45.1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.3 | 39.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | 68 | 61 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 70.1 | 67 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/24/2019

Case Description: Waterfront Ballpark District -Building Construction Phase 2 onm Phase 1

---- Receptor #1 ----

| Description | Land Use | Baselines (dBA) | | |
|-------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Phase 1 | Residential | 62 | 60 | 60 |

| Description | Device | Usage(%) | Equipment | | | Estimated Shielding (dBA) |
|---------------------|--------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | |
| Concrete Pump Truck | No | 20 | | 81.4 | 50 | 0 |
| Front End Loader | No | 40 | | 79.1 | 50 | 0 |
| Crane | No | 16 | | 80.6 | 50 | 0 |
| Backhoe | No | 40 | | 77.6 | 50 | 0 |

| Equipment | Results | | | | | | | | | | | | | |
|---------------------|------------------|------|----------|-----|--------------------|-----|------------|-----|------------------------------|-----|--------------|-----|------------|-----|
| | Calculated (dBA) | | | | Noise Limits (dBA) | | | | Noise Limit Exceedance (dBA) | | | | | |
| | *Lmax | Leq | Day Lmax | Leq | Evening Lmax | Leq | Night Lmax | Leq | Day Lmax | Leq | Evening Lmax | Leq | Night Lmax | Leq |
| Concrete Pump Truck | 81.4 | 74.4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Front End Loader | 79.1 | 75.1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 80.6 | 72.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 77.6 | 73.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 81.4 | 80.1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/24/2019

Case Description: Waterfront Ballpark District - Compaction Phase 2

---- Receptor #1 ----

| Description | Land Use | Baselines (dBA) | | |
|---------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Phoenix Lofts | Residential | 68 | 66 | 65 |

| Description | Device | Usage(%) | Equipment | | | |
|-----------------------|--------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Crane | No | 16 | 80.6 | 80.6 | 650 | 0 |
| Vibratory Pile Driver | No | 20 | 100.8 | 100.8 | 650 | 0 |
| Crane | No | 16 | 80.6 | 80.6 | 560 | 0 |
| Vibratory Pile Driver | No | 20 | 100.8 | 100.8 | 650 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|-----------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | 58.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 78.5 | 71.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 59.6 | 51.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 78.5 | 71.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 78.5 | 74.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

| Description | Land Use | Baselines (dBA) | | |
|--------------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| 4th Street Residen | Residential | 64 | 63 | 62 |

| Description | Device | Usage(%) | Equipment | | | |
|-----------------------|--------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Crane | No | 16 | 80.6 | 80.6 | 1250 | 5 |
| Vibratory Pile Driver | No | 20 | 100.8 | 100.8 | 1250 | 5 |
| Crane | No | 16 | 80.6 | 80.6 | 1250 | 5 |
| Vibratory Pile Driver | No | 20 | 100.8 | 100.8 | 1250 | 5 |

Results

| Equipment | Calculated (dBA) | | | | Noise Limits (dBA) | | | | Noise Limit Exceedance (dBA) | | | | | |
|-----------------------|------------------|------|------|-----|--------------------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | | | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | *Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 67.9 | 60.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 47.6 | 39.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 67.9 | 60.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 67.9 | 63.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

| Description | Land Use | Baselines (dBA) | | |
|-------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Ellington | Residential | 64 | 63 | 62 |

| Description | Device | Usage(%) | Equipment | | | |
|-----------------------|--------|----------|------------|------------|-----------------|-----------------|
| | | | Spec | Actual | Receptor | Estimated |
| | | | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Crane | No | 16 | | 80.6 | 2850 | 0 |
| Vibratory Pile Driver | No | 20 | | 100.8 | 2850 | 0 |
| Crane | No | 16 | | 80.6 | 2850 | 0 |
| Vibratory Pile Driver | No | 20 | | 100.8 | 2850 | 0 |

Results

| Equipment | Calculated (dBA) | | | | Noise Limits (dBA) | | | | Noise Limit Exceedance (dBA) | | | | | |
|-----------------------|------------------|------|------|-----|--------------------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | | | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | *Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | 45.4 | 37.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 65.7 | 58.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 45.4 | 37.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 65.7 | 58.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 65.7 | 61.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

| Description | Land Use | Baselines (dBA) | | |
|-----------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Mitchell Avenue | Residential | 62 | 60 | 60 |

| Description | Device | Usage(%) | Equipment | | | |
|-------------|--------|----------|------------|------------|-----------------|-----------------|
| | | | Spec | Actual | Receptor | Estimated |
| | | | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Crane | No | 16 | | 80.6 | 2000 | 0 |

| | | | | | |
|-----------------------|----|----|-------|------|---|
| Vibratory Pile Driver | No | 20 | 100.8 | 2000 | 0 |
| Crane | No | 16 | 80.6 | 2000 | 0 |
| Vibratory Pile Driver | No | 20 | 100.8 | 2000 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|-----------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | 48.5 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 68.8 | 61.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 48.5 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 68.8 | 61.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 68.8 | 64.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

| Description | Land Use | Baselines (dBA) | | |
|-------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Phase 1 | Residential | 62 | 60 | 60 |

Equipment

| Description | Device | Usage(%) | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
|-----------------------|--------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | | | | |
| Crane | No | 16 | 80.6 | 80.6 | 50 | 0 |
| Vibratory Pile Driver | No | 20 | 100.8 | 100.8 | 50 | 0 |
| Crane | No | 16 | 80.6 | 80.6 | 50 | 0 |
| Vibratory Pile Driver | No | 20 | 100.8 | 100.8 | 50 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|-----------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | 80.6 | 72.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 100.8 | 93.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Crane | 80.6 | 72.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vibratory Pile Driver | 100.8 | 93.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 100.8 | 96.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/24/2019

Case Description Waterfront Ballpark District - Demolition Phase 2 on Phase 1

---- Receptor #1 ----

| Description | Land Use | Baselines (dBA) | | |
|-------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Phase 1 | Residential | 62 | 60 | 60 |

| Description | Impact Device | Usage(%) | Equipment | | | |
|---------------------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | | 90.3 | 50 | 0 |
| Excavator | No | 40 | | 80.7 | 50 | 0 |
| Concrete Saw | No | 20 | | 89.6 | 50 | 0 |
| Backhoe | No | 40 | | 77.6 | 50 | 0 |

| Equipment | Results | | | | | | | | | | | | | |
|---------------------------------|------------------|------|----------|-----|--------------------|-----|------------|-----|------------------------------|-----|--------------|-----|------------|-----|
| | Calculated (dBA) | | | | Noise Limits (dBA) | | | | Noise Limit Exceedance (dBA) | | | | | |
| | *Lmax | Leq | Day Lmax | Leq | Evening Lmax | Leq | Night Lmax | Leq | Day Lmax | Leq | Evening Lmax | Leq | Night Lmax | Leq |
| Mounted Impact Hammer (hoe ram) | 90.3 | 83.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 80.7 | 76.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Saw | 89.6 | 82.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 77.6 | 73.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 90.3 | 86.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/23/2019

Case Description Waterfront Ballpark District - Demolition Phase 2

---- Receptor #1 ----

| Description | Land Use | Baselines (dBA) | | |
|---------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Phoenix Lofts | Residential | 68 | 66 | 65 |

| Description | Impact Device | Usage(%) | Equipment | | | |
|---------------------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 90.3 | 400 | 5 |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 90.3 | 500 | 5 |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 90.3 | 600 | 5 |
| Excavator | No | 40 | 80.7 | 80.7 | 650 | 5 |
| Excavator | No | 40 | 80.7 | 80.7 | 650 | 5 |
| Excavator | No | 40 | 80.7 | 80.7 | 650 | 5 |
| Concrete Saw | No | 20 | 89.6 | 89.6 | 650 | 0 |
| Backhoe | No | 40 | 77.6 | 77.6 | 650 | 0 |
| Backhoe | No | 40 | 77.6 | 77.6 | 650 | 0 |
| Dump Truck | No | 40 | 76.5 | 76.5 | 650 | 0 |
| Vacuum Street Sweeper | No | 10 | 81.6 | 81.6 | 650 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|---------------------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Mounted Impact Hammer (hoe ram) | 67.2 | 60.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | 65.3 | 58.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | 63.7 | 56.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 53.4 | 49.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 53.4 | 49.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 53.4 | 49.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Saw | 67.3 | 60.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 55.3 | 51.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 55.3 | 51.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Dump Truck | 54.2 | 50.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vacuum Street Sweeper | 59.3 | 49.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 67.3 | 66 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

| Description | Land Use | Baselines (dBA) | | |
|------------------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| 4th Street Residential | Residential | 64 | 63 | 62 |

| Description | Impact Device | Usage(%) | Equipment | | | |
|---------------------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | | 90.3 | 1250 | 5 |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | | 90.3 | 1250 | 5 |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | | 90.3 | 1250 | 5 |
| Excavator | No | 40 | | 80.7 | 1250 | 5 |
| Excavator | No | 40 | | 80.7 | 1250 | 5 |
| Excavator | No | 40 | | 80.7 | 1250 | 5 |
| Concrete Saw | No | 20 | | 89.6 | 1250 | 5 |
| Backhoe | No | 40 | | 77.6 | 1250 | 5 |
| Backhoe | No | 40 | | 77.6 | 1250 | 5 |
| Dump Truck | No | 40 | | 76.5 | 1250 | 5 |
| Vacuum Street Sweeper | No | 10 | | 81.6 | 1250 | 5 |

| Equipment | Results | | | | | | | | | | | | | | |
|---------------------------------|------------------|-------------|------------|--------------------|------------|------------|------------|------------|------------|------------------------------|------------|------------|------------|------------|------------|
| | Calculated (dBA) | | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
| | *Lmax | Leq | | Day | | Evening | | Night | | Day | | Evening | | Night | |
| Mounted Impact Hammer (hoe ram) | 57.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | 57.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | 57.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 47.8 | 43.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 47.8 | 43.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 47.8 | 43.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Saw | 56.6 | 49.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 44.6 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 44.6 | 40.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Dump Truck | 43.5 | 39.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vacuum Street Sweeper | 48.6 | 38.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 57.3 | 57.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

| Description | Land Use | Baselines (dBA) | | |
|-------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Ellington | Residential | 64 | 63 | 62 |

| Equipment | | | |
|-----------|--------|----------|-----------|
| Spec | Actual | Receptor | Estimated |

| Description | Impact Device | Usage(%) | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
|---------------------------------|---------------|----------|------------|------------|-----------------|-----------------|
| | | | | | | |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 2000 | 0 | |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 2000 | 0 | |
| Excavator | No | 40 | 80.7 | 2000 | 0 | |
| Excavator | No | 40 | 80.7 | 2000 | 0 | |
| Excavator | No | 40 | 80.7 | 2000 | 0 | |
| Concrete Saw | No | 20 | 89.6 | 2000 | 0 | |
| Backhoe | No | 40 | 77.6 | 2000 | 0 | |
| Backhoe | No | 40 | 77.6 | 2000 | 0 | |
| Dump Truck | No | 40 | 76.5 | 2000 | 0 | |
| Vacuum Street Sweeper | No | 10 | 81.6 | 2000 | 0 | |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|---------------------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Mounted Impact Hammer (hoe ram) | 58.2 | 51.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | 58.2 | 51.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | 58.2 | 51.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 48.7 | 44.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 48.7 | 44.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 48.7 | 44.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Saw | 57.5 | 50.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 45.5 | 41.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 45.5 | 41.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Dump Truck | 44.4 | 40.4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vacuum Street Sweeper | 49.5 | 39.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 58.2 | 58.1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

| Description | Land Use | Baselines (dBA) | | |
|-----------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Mitchell Avenue | Residential | 62 | 60 | 60 |

| Description | Impact Device | Usage(%) | Equipment | | | |
|---------------------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 2050 | 0 | |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 2050 | 0 | |
| Mounted Impact Hammer (hoe ram) | Yes | 20 | 90.3 | 2050 | 0 | |
| Excavator | No | 40 | 80.7 | 2050 | 0 | |

| | | | | | |
|-----------------------|----|----|------|------|---|
| Excavator | No | 40 | 80.7 | 2050 | 0 |
| Excavator | No | 40 | 80.7 | 2050 | 0 |
| Concrete Saw | No | 20 | 89.6 | 2050 | 0 |
| Backhoe | No | 40 | 77.6 | 2050 | 0 |
| Backhoe | No | 40 | 77.6 | 2050 | 0 |
| Dump Truck | No | 40 | 76.5 | 2050 | 0 |
| Vacuum Street Sweeper | No | 10 | 81.6 | 2050 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|---------------------------------|------------------|------|--------------------|-----|---------|-----|-------|-----|------------------------------|-----|---------|-----|-------|-----|
| | *Lmax | Leq | Day | | Evening | | Night | | Day | | Evening | | Night | |
| | | | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Mounted Impact Hammer (hoe ram) | 58 | 51 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | 58 | 51 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Mounted Impact Hammer (hoe ram) | 58 | 51 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 48.5 | 44.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 48.5 | 44.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Excavator | 48.5 | 44.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Concrete Saw | 57.3 | 50.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 45.3 | 41.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Backhoe | 45.3 | 41.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Dump Truck | 44.2 | 40.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Vacuum Street Sweeper | 49.3 | 39.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 58 | 57.9 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/24/2019

Case Description: Waterfront Ballpark District - Pile Driving Phase 2 on Phase 1

---- Receptor #1 ----

| Description | Land Use | Baselines (dBA) | | |
|-------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Phase 1 | Residential | 62 | 60 | 60 |

| Description | Impact Device | Usage(%) | Equipment | | | |
|--------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Crane | No | 16 | | 80.6 | 50 | 0 |
| Impact Pile Driver | Yes | 20 | | 101.3 | 50 | 0 |

| Equipment | Results | | | | | | | | | | | | | |
|--------------------|------------------|------|----------|-----|--------------------|-----|------------|-----|------------------------------|-----|--------------|-----|------------|-----|
| | Calculated (dBA) | | | | Noise Limits (dBA) | | | | Noise Limit Exceedance (dBA) | | | | | |
| | *Lmax | Leq | Day Lmax | Leq | Evening Lmax | Leq | Night Lmax | Leq | Day Lmax | Leq | Evening Lmax | Leq | Night Lmax | Leq |
| Crane | 80.6 | 72.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Impact Pile Driver | 101.3 | 94.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total | 101.3 | 94.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

NOI.2 Construction Vibration Calculations

Vibration propagation from Construction Equipment

Formula from Caltrans, 2013 = $PPV_{equip} = PPV_{ref} \times (25/D)^{1.1}$
 where

Receptor 1: Phoenix Lofts

| PPV refs @ 25 ft = | | <u>PPV@25ft</u> |
|--------------------|----------------------|-----------------|
| | pile driver (impact) | 0.65 |
| | Vibratory Roller | 0.21 |
| | Bulldozer (large) | 0.089 |
| | Truck (loaded) | 0.076 |
| | Jackhammer | 0.035 |
| | Vibro-Compaction | |

| PPV refs @ 25 ft = | | <u>PPV@25ft</u> |
|--------------------|----------------------|-----------------|
| | pile driver (impact) | 0.644 |
| | pile driver (sonic) | 0.17 |
| | Bulldozer (large) | 0.089 |
| | Truck (loaded) | 0.076 |
| | Jackhammer | 0.035 |

| PPV refs @ 25 ft = | | <u>PPV@25ft</u> |
|--------------------|----------------------|-----------------|
| | pile driver (impact) | 0.644 |
| | pile driver (sonic) | 0.17 |
| | Bulldozer (large) | 0.089 |
| | Truck (loaded) | 0.076 |
| | Jackhammer | 0.035 |

Enter distance = Adjacent Buildings

| Resultant PPV = | | |
|-----------------|----------------------|----------|
| | pile driver (impact) | 0.090562 |
| | Vibratory Roller | 0.029259 |
| | Bulldozer (large) | 0.0124 |
| | Truck (loaded) | 0.010589 |
| | Jackhammer | 0.004876 |
| | Vibro-Compaction | |

Enter distance = Distance 2

| Resultant PPV = | | |
|-----------------|----------------------|----------|
| | pile driver (impact) | 0.041859 |
| | pile driver (sonic) | 0.01105 |
| | Bulldozer (large) | 0.005785 |
| | Truck (loaded) | 0.00494 |
| | Jackhammer | 0.002275 |

Enter distance = Distance 2

| Resultant PPV = | | |
|-----------------|----------------------|----------|
| | pile driver (impact) | 0.030504 |
| | pile driver (sonic) | 0.008052 |
| | Bulldozer (large) | 0.004216 |
| | Truck (loaded) | 0.0036 |
| | Jackhammer | 0.001658 |

| | <u>Lv@25 ft</u> |
|----------------------|-----------------|
| pile driver (impact) | 104 |
| Vibratory Roller | 94 |
| Bulldozer (large) | 87 |
| Truck (loaded) | 86 |
| Jackhammer | 79 |
| Vibro-Compaction | 102 |
| DDC | 119 |

| | <u>Lv@25 ft</u> |
|----------------------|-----------------|
| pile driver (impact) | 104 |
| pile driver (sonic) | 93 |
| Bulldozer (large) | 87 |
| Truck (loaded) | 86 |
| Jackhammer | 79 |
| Vibro-Compaction | 102 |
| DDC | 119 |

| | <u>Lv@25 ft</u> |
|----------------------|-----------------|
| pile driver (impact) | 104 |
| pile driver (sonic) | 93 |
| Bulldozer (large) | 87 |
| Truck (loaded) | 86 |
| Jackhammer | 79 |
| Vibro-Compaction | 102 |
| DDC | 119 |

Formula from FTA 2006 = $Lv(D) = Lv(25 ft) - 30 \log(D/25)$

| Resultant Lv = | | |
|----------------|----------------------|----------|
| | pile driver (impact) | 80.65546 |
| | Vibratory Roller | 70.65546 |
| | Bulldozer (large) | 63.65546 |
| | Truck (loaded) | 62.65546 |
| | Jackhammer | 55.65546 |
| | Vibro-Compaction | 78.65546 |
| | DDC | 95.65546 |

| Resultant Lv = | | |
|----------------|----------------------|----------|
| | pile driver (impact) | 71.62456 |
| | pile driver (sonic) | 60.62456 |
| | Bulldozer (large) | 54.62456 |
| | Truck (loaded) | 53.62456 |
| | Jackhammer | 46.62456 |
| | Vibro-Compaction | 69.62456 |
| | DDC | 86.62456 |

| Resultant Lv = | | |
|----------------|----------------------|---------|
| | pile driver (impact) | 67.8764 |
| | pile driver (sonic) | 56.8764 |
| | Bulldozer (large) | 50.8764 |
| | Truck (loaded) | 49.8764 |
| | Jackhammer | 42.8764 |
| | Vibro-Compaction | 65.8764 |
| | DDC | 82.8764 |

NOI.3 Traffic Noise Calculations

Existing

| ROAD SEGMENT | TOTAL # VEHICLES | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL (15 meters from roadway center) |
|------------------------|---------------------|----------------|---------|----|-------|-----|-------|---------------|----|-----|------|----|----|-------------------|------|------|---|
| | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | |
| Brush 3rd to 5th | 221 | 95 | 209.95 | 3 | 6.63 | 2 | 4.42 | 25 | 40 | 35 | 56 | 35 | 56 | 53.3 | 52.2 | 57.2 | 59.6 |
| Brush 7th to 11th | 1,205 | 95 | 1144.75 | 3 | 36.15 | 2 | 24.1 | 30 | 48 | 30 | 48 | 30 | 48 | 63.0 | 58.6 | 63.9 | 67.1 |
| Brush 12th to 14th | 452 | 95 | 429.4 | 3 | 13.56 | 2 | 9.04 | 30 | 48 | 30 | 48 | 30 | 48 | 58.7 | 54.3 | 59.7 | 62.9 |
| Castro 3rd to 5th | 246 | 95 | 233.7 | 3 | 7.38 | 2 | 4.92 | 25 | 40 | 25 | 40 | 25 | 40 | 53.8 | 50.4 | 56.3 | 58.9 |
| Castro 7th to 8th | 839 | 95 | 797.05 | 3 | 25.17 | 2 | 16.78 | 30 | 48 | 30 | 48 | 30 | 48 | 61.4 | 57.0 | 62.4 | 65.6 |
| Castro 8th to 11th | 1,321 | 95 | 1254.95 | 3 | 39.63 | 2 | 26.42 | 30 | 48 | 30 | 48 | 30 | 48 | 63.4 | 59.0 | 64.3 | 67.5 |
| Castro 12th to 14th | 309 | 95 | 293.55 | 3 | 9.27 | 2 | 6.18 | 30 | 48 | 30 | 48 | 30 | 48 | 57.1 | 52.7 | 58.0 | 61.2 |
| MLK 3rd to 5th | 287 | 95 | 272.65 | 3 | 8.61 | 2 | 5.74 | 25 | 40 | 25 | 40 | 25 | 40 | 54.5 | 51.1 | 57.0 | 59.6 |
| MLK 6th to 7th | 223 | 95 | 211.85 | 3 | 6.69 | 2 | 4.46 | 25 | 40 | 25 | 40 | 25 | 40 | 53.4 | 50.0 | 55.9 | 58.5 |
| MLK 8th to 11th | 251 | 95 | 238.45 | 3 | 7.53 | 2 | 5.02 | 25 | 40 | 25 | 40 | 25 | 40 | 53.9 | 50.5 | 56.4 | 59.0 |
| Clay 7th to 8th | 158 | 95 | 150.1 | 3 | 4.74 | 2 | 3.16 | 25 | 40 | 25 | 40 | 25 | 40 | 51.9 | 48.5 | 54.4 | 57.0 |
| Washington Embdero 3rd | 175 | 95 | 166.25 | 3 | 5.25 | 2 | 3.5 | 25 | 40 | 25 | 40 | 25 | 40 | 52.3 | 49.0 | 54.8 | 57.4 |
| Washton 7th to 8th | 209 | 95 | 198.55 | 3 | 6.27 | 2 | 4.18 | 25 | 40 | 25 | 40 | 25 | 40 | 53.1 | 49.7 | 55.6 | 58.2 |
| Bway Embdero 3rd | 359 | 95 | 341.05 | 3 | 10.77 | 2 | 7.18 | 25 | 40 | 25 | 40 | 25 | 40 | 55.4 | 52.1 | 58.0 | 60.6 |
| Bway 6th to 7th | 1,223 | 95 | 1161.85 | 3 | 36.69 | 2 | 24.46 | 25 | 40 | 25 | 40 | 25 | 40 | 60.8 | 57.4 | 63.3 | 65.9 |
| Bway 8th to 11th | 1,113 | 95 | 1057.35 | 3 | 33.39 | 2 | 22.26 | 25 | 40 | 25 | 40 | 25 | 40 | 60.3 | 57.0 | 62.9 | 65.5 |
| Franklin 12th to 14th | 336 | 95 | 319.2 | 3 | 10.08 | 2 | 6.72 | 25 | 40 | 25 | 40 | 25 | 40 | 55.1 | 51.8 | 57.7 | 60.3 |
| Harrison 6th to 7th | 664 | 95 | 630.8 | 3 | 19.92 | 2 | 13.28 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.7 | 60.6 | 63.2 |
| Harrison 7th to 8th | 1,003 | 95 | 952.85 | 3 | 30.09 | 2 | 20.06 | 25 | 40 | 25 | 40 | 25 | 40 | 59.9 | 56.5 | 62.4 | 65.0 |
| Embdero Market MLK | 61 | 90 | 54.9 | 5 | 3.05 | 5 | 3.05 | 25 | 40 | 25 | 40 | 25 | 40 | 47.5 | 46.6 | 54.2 | 55.7 |
| Embdero Washingt Bway | 288 | 95 | 273.6 | 3 | 8.64 | 2 | 5.76 | 25 | 40 | 25 | 40 | 25 | 40 | 54.5 | 51.1 | 57.0 | 59.6 |
| 3rd Brush Castro | 686 | 95 | 651.7 | 3 | 20.58 | 2 | 13.72 | 25 | 40 | 25 | 40 | 25 | 40 | 58.2 | 54.9 | 60.8 | 63.4 |
| 3rd Washingt Bway | 516 | 95 | 490.2 | 3 | 15.48 | 2 | 10.32 | 25 | 40 | 25 | 40 | 25 | 40 | 57.0 | 53.7 | 59.5 | 62.1 |
| 3rd Bway Franklin | 457 | 95 | 434.15 | 3 | 13.71 | 2 | 9.14 | 25 | 40 | 25 | 40 | 25 | 40 | 56.5 | 53.1 | 59.0 | 61.6 |
| 5th Brush Castro | 1,233 | 95 | 1171.35 | 3 | 36.99 | 2 | 24.66 | 25 | 40 | 25 | 40 | 25 | 40 | 60.8 | 57.4 | 63.3 | 65.9 |
| 5th Castro MLK | 1,159 | 95 | 1101.05 | 3 | 34.77 | 2 | 23.18 | 25 | 40 | 25 | 40 | 25 | 40 | 60.5 | 57.2 | 63.1 | 65.6 |
| 7th Castro MLK | 1,349 | 95 | 1281.55 | 3 | 40.47 | 2 | 26.98 | 25 | 40 | 25 | 40 | 25 | 40 | 61.2 | 57.8 | 63.7 | 66.3 |
| 7th MLK Jeffersn | 1,483 | 95 | 1408.85 | 3 | 44.49 | 2 | 29.66 | 25 | 40 | 25 | 40 | 25 | 40 | 61.6 | 58.2 | 64.1 | 66.7 |
| 7th Clay Washintn | 1,639 | 95 | 1557.05 | 3 | 49.17 | 2 | 32.78 | 25 | 40 | 25 | 40 | 25 | 40 | 62.0 | 58.7 | 64.6 | 67.1 |
| 7th BWay Franklin | 1,936 | 95 | 1839.2 | 3 | 58.08 | 2 | 38.72 | 25 | 40 | 25 | 40 | 25 | 40 | 62.7 | 59.4 | 65.3 | 67.9 |
| 8th Webster Harrison | 745 | 95 | 707.75 | 3 | 22.35 | 2 | 14.9 | 25 | 40 | 25 | 40 | 25 | 40 | 58.6 | 55.2 | 61.1 | 63.7 |
| 11th Castro MLK | 652 | 95 | 619.4 | 3 | 19.56 | 2 | 13.04 | 25 | 40 | 25 | 40 | 25 | 40 | 58.0 | 54.7 | 60.6 | 63.1 |
| 12th Castro MLK | 796 | 95 | 756.2 | 3 | 23.88 | 2 | 15.92 | 25 | 40 | 25 | 40 | 25 | 40 | 58.9 | 55.5 | 61.4 | 64.0 |
| Market Embcdro 3rd | 109 | 95 | 103.55 | 3 | 3.27 | 2 | 2.18 | 25 | 40 | 25 | 40 | 25 | 40 | 50.3 | 46.9 | 52.8 | 55.4 |
| Market 3rd to 7th | 358 | 95 | 340.1 | 3 | 10.74 | 2 | 7.16 | 25 | 40 | 25 | 40 | 25 | 40 | 55.4 | 52.1 | 57.9 | 60.5 |

Assumptions: AM peak hour traffic data from Fehr & Peers

Existing Plus Project

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL (15 meters from roadway center) | |
|-----------------|---------------------|----------|----------------|------|--------|------|------|----|---------------|----|-----|------|----|----|-------------------|-------|-------|---|-------|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| | from: | to: | % | Auto | % | MT | % | HT | | | | | | | | | | | |
| Brush | 3rd | 5th | 310 | 95 | 294.5 | 3 | 9.3 | 2 | 6.2 | 25 | 40 | 35 | 56 | 35 | 56 | 54.8 | 53.7 | 58.7 | 61.0 |
| Brush | 7th | 11th | 1,520 | 95 | 1444 | 3 | 45.6 | 2 | 30.4 | 30 | 48 | 30 | 48 | 30 | 48 | 64.0 | 59.6 | 65.0 | 68.2 |
| Brush | 12th | 14th | 570 | 95 | 541.5 | 3 | 17.1 | 2 | 11.4 | 30 | 48 | 30 | 48 | 30 | 48 | 59.7 | 55.3 | 60.7 | 63.9 |
| Castro | 3rd | 5th | 350 | 95 | 332.5 | 3 | 10.5 | 2 | 7 | 25 | 40 | 25 | 40 | 25 | 40 | 55.3 | 52.0 | 57.9 | 60.4 |
| Castro | 7th | 8th | 1,000 | 95 | 950 | 3 | 30 | 2 | 20 | 30 | 48 | 30 | 48 | 30 | 48 | 62.2 | 57.8 | 63.1 | 66.3 |
| Castro | 8th | 11th | 1,470 | 95 | 1396.5 | 3 | 44.1 | 2 | 29.4 | 30 | 48 | 30 | 48 | 30 | 48 | 63.8 | 59.4 | 64.8 | 68.0 |
| Castro | 12th | 14th | 350 | 95 | 332.5 | 3 | 10.5 | 2 | 7 | 30 | 48 | 30 | 48 | 30 | 48 | 57.6 | 53.2 | 58.6 | 61.8 |
| MLK | 3rd | 5th | 850 | 95 | 807.5 | 3 | 25.5 | 2 | 17 | 25 | 40 | 25 | 40 | 25 | 40 | 59.2 | 55.8 | 61.7 | 64.3 |
| MLK | 6th | 7th | 610 | 95 | 579.5 | 3 | 18.3 | 2 | 12.2 | 25 | 40 | 25 | 40 | 25 | 40 | 57.7 | 54.4 | 60.3 | 62.9 |
| MLK | 8th | 11th | 600 | 95 | 570 | 3 | 18 | 2 | 12 | 25 | 40 | 25 | 40 | 25 | 40 | 57.7 | 54.3 | 60.2 | 62.8 |
| Clay | 7th | 8th | 160 | 95 | 152 | 3 | 4.8 | 2 | 3.2 | 25 | 40 | 25 | 40 | 25 | 40 | 51.9 | 48.6 | 54.5 | 57.0 |
| Washington | Embdero | 3rd | 180 | 95 | 171 | 3 | 5.4 | 2 | 3.6 | 25 | 40 | 25 | 40 | 25 | 40 | 52.4 | 49.1 | 55.0 | 57.6 |
| Washton | 7th | 8th | 210 | 95 | 199.5 | 3 | 6.3 | 2 | 4.2 | 25 | 40 | 25 | 40 | 25 | 40 | 53.1 | 49.7 | 55.6 | 58.2 |
| Bway | Embdero | 3rd | 360 | 95 | 342 | 3 | 10.8 | 2 | 7.2 | 25 | 40 | 25 | 40 | 25 | 40 | 55.4 | 52.1 | 58.0 | 60.6 |
| Bway | 6th | 7th | 1,220 | 95 | 1159 | 3 | 36.6 | 2 | 24.4 | 25 | 40 | 25 | 40 | 25 | 40 | 60.7 | 57.4 | 63.3 | 65.9 |
| Bway | 8th | 11th | 1,110 | 95 | 1054.5 | 3 | 33.3 | 2 | 22.2 | 25 | 40 | 25 | 40 | 25 | 40 | 60.3 | 57.0 | 62.9 | 65.5 |
| Franklin | 12th | 14th | 340 | 95 | 323 | 3 | 10.2 | 2 | 6.8 | 25 | 40 | 25 | 40 | 25 | 40 | 55.2 | 51.8 | 57.7 | 60.3 |
| Harrison | 6th | 7th | 720 | 95 | 684 | 3 | 21.6 | 2 | 14.4 | 25 | 40 | 25 | 40 | 25 | 40 | 58.5 | 55.1 | 61.0 | 63.6 |
| Harrison | 7th | 8th | 1,060 | 95 | 1007 | 3 | 31.8 | 2 | 21.2 | 25 | 40 | 25 | 40 | 25 | 40 | 60.1 | 56.8 | 62.7 | 65.3 |
| Embdero | Market | MLK | 0 | 90 | 0 | 5 | 0 | 5 | 0 | 25 | 40 | 25 | 40 | 25 | 40 | #NUM! | #NUM! | #NUM! | #NUM! |
| Embdero | Washington | Bway | 290 | 95 | 275.5 | 3 | 8.7 | 2 | 5.8 | 25 | 40 | 25 | 40 | 25 | 40 | 54.5 | 51.1 | 57.0 | 59.6 |
| 3rd | Brush | Castro | 740 | 95 | 703 | 3 | 22.2 | 2 | 14.8 | 25 | 40 | 25 | 40 | 25 | 40 | 58.6 | 55.2 | 61.1 | 63.7 |
| 3rd | Washington | Bway | 570 | 95 | 541.5 | 3 | 17.1 | 2 | 11.4 | 25 | 40 | 25 | 40 | 25 | 40 | 57.4 | 54.1 | 60.0 | 62.6 |
| 3rd | Bway | Franklin | 470 | 95 | 446.5 | 3 | 14.1 | 2 | 9.4 | 25 | 40 | 25 | 40 | 25 | 40 | 56.6 | 53.2 | 59.1 | 61.7 |
| 5th | Brush | Castro | 1,400 | 95 | 1330 | 3 | 42 | 2 | 28 | 25 | 40 | 25 | 40 | 25 | 40 | 61.3 | 58.0 | 63.9 | 66.5 |
| 5th | Castro | MLK | 1,310 | 95 | 1244.5 | 3 | 39.3 | 2 | 26.2 | 25 | 40 | 25 | 40 | 25 | 40 | 61.1 | 57.7 | 63.6 | 66.2 |
| 7th | Castro | MLK | 1,400 | 95 | 1330 | 3 | 42 | 2 | 28 | 25 | 40 | 25 | 40 | 25 | 40 | 61.3 | 58.0 | 63.9 | 66.5 |
| 7th | MLK | Jeffersn | 1,550 | 95 | 1472.5 | 3 | 46.5 | 2 | 31 | 25 | 40 | 25 | 40 | 25 | 40 | 61.8 | 58.4 | 64.3 | 66.9 |
| 7th | Clay | Washintn | 1,700 | 95 | 1615 | 3 | 51 | 2 | 34 | 25 | 40 | 25 | 40 | 25 | 40 | 62.2 | 58.8 | 64.7 | 67.3 |
| 7th | BWay | Franklin | 2,000 | 95 | 1900 | 3 | 60 | 2 | 40 | 25 | 40 | 25 | 40 | 25 | 40 | 62.9 | 59.5 | 65.4 | 68.0 |
| 8th | Webster | Harrison | 810 | 95 | 769.5 | 3 | 24.3 | 2 | 16.2 | 25 | 40 | 25 | 40 | 25 | 40 | 59.0 | 55.6 | 61.5 | 64.1 |
| 11th | Castro | MLK | 690 | 95 | 655.5 | 3 | 20.7 | 2 | 13.8 | 25 | 40 | 25 | 40 | 25 | 40 | 58.3 | 54.9 | 60.8 | 63.4 |
| 12th | Castro | MLK | 890 | 95 | 845.5 | 3 | 26.7 | 2 | 17.8 | 25 | 40 | 25 | 40 | 25 | 40 | 59.4 | 56.0 | 61.9 | 64.5 |
| Market | Embcdro | 3rd | 1,610 | 95 | 1529.5 | 3 | 48.3 | 2 | 32.2 | 25 | 40 | 25 | 40 | 25 | 40 | 61.9 | 58.6 | 64.5 | 67.1 |
| Market | 3rd | 7th | 1,770 | 95 | 1681.5 | 3 | 53.1 | 2 | 35.4 | 25 | 40 | 25 | 40 | 25 | 40 | 62.4 | 59.0 | 64.9 | 67.5 |

Assumptions: AM peak hour traffic data from Fehr & Peers

Existing Plus Project Plus Ballpark

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL (15 meters from roadway center) | |
|--------------|---------------------|----------|----------------|----|---------|------|-------|----|---------------|----|-----|------|----|----|-------------------|-------|-------|---|-------|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| Brush | from: 3rd | to: 5th | 310 | 95 | 294.5 | 3 | 9.3 | 2 | 6.2 | 25 | 40 | 35 | 56 | 35 | 56 | 54.8 | 53.7 | 58.7 | 61.0 |
| Brush | 7th | 11th | 2,049 | 95 | 1946.55 | 3 | 61.47 | 2 | 40.98 | 30 | 48 | 30 | 48 | 30 | 48 | 65.3 | 60.9 | 66.3 | 69.5 |
| Brush | 12th | 14th | 933 | 95 | 886.35 | 3 | 27.99 | 2 | 18.66 | 30 | 48 | 30 | 48 | 30 | 48 | 61.9 | 57.5 | 62.8 | 66.0 |
| Castro | 3rd | 5th | 350 | 95 | 332.5 | 3 | 10.5 | 2 | 7 | 25 | 40 | 25 | 40 | 25 | 40 | 55.3 | 52.0 | 57.9 | 60.4 |
| Castro | 7th | 8th | 1,171 | 95 | 1112.45 | 3 | 35.13 | 2 | 23.42 | 30 | 48 | 30 | 48 | 30 | 48 | 62.8 | 58.4 | 63.8 | 67.0 |
| Castro | 8th | 11th | 1,627 | 95 | 1545.65 | 3 | 48.81 | 2 | 32.54 | 30 | 48 | 30 | 48 | 30 | 48 | 64.3 | 59.9 | 65.3 | 68.4 |
| Castro | 12th | 14th | 448 | 95 | 425.6 | 3 | 13.44 | 2 | 8.96 | 30 | 48 | 30 | 48 | 30 | 48 | 58.7 | 54.3 | 59.7 | 62.8 |
| MLK | 3rd | 5th | 1,560 | 95 | 1482 | 3 | 46.8 | 2 | 31.2 | 25 | 40 | 25 | 40 | 25 | 40 | 61.8 | 58.5 | 64.3 | 66.9 |
| MLK | 6th | 7th | 1,492 | 95 | 1417.4 | 3 | 44.76 | 2 | 29.84 | 25 | 40 | 25 | 40 | 25 | 40 | 61.6 | 58.3 | 64.1 | 66.7 |
| MLK | 8th | 11th | 1,386 | 95 | 1316.7 | 3 | 41.58 | 2 | 27.72 | 25 | 40 | 25 | 40 | 25 | 40 | 61.3 | 57.9 | 63.8 | 66.4 |
| Clay | 7th | 8th | 257 | 95 | 244.15 | 3 | 7.71 | 2 | 5.14 | 25 | 40 | 25 | 40 | 25 | 40 | 54.0 | 50.6 | 56.5 | 59.1 |
| Washington | Embdero | 3rd | 477 | 95 | 453.15 | 3 | 14.31 | 2 | 9.54 | 25 | 40 | 25 | 40 | 25 | 40 | 56.7 | 53.3 | 59.2 | 61.8 |
| Washton | 7th | 8th | 341 | 95 | 323.95 | 3 | 10.23 | 2 | 6.82 | 25 | 40 | 25 | 40 | 25 | 40 | 55.2 | 51.9 | 57.7 | 60.3 |
| Bway | Embdero | 3rd | 371 | 95 | 352.45 | 3 | 11.13 | 2 | 7.42 | 25 | 40 | 25 | 40 | 25 | 40 | 55.6 | 52.2 | 58.1 | 60.7 |
| Bway | 6th | 7th | 1,554 | 95 | 1476.3 | 3 | 46.62 | 2 | 31.08 | 25 | 40 | 25 | 40 | 25 | 40 | 61.8 | 58.4 | 64.3 | 66.9 |
| Bway | 8th | 11th | 1,614 | 95 | 1533.3 | 3 | 48.42 | 2 | 32.28 | 25 | 40 | 25 | 40 | 25 | 40 | 62.0 | 58.6 | 64.5 | 67.1 |
| Franklin | 12th | 14th | 393 | 95 | 373.35 | 3 | 11.79 | 2 | 7.86 | 25 | 40 | 25 | 40 | 25 | 40 | 55.8 | 52.5 | 58.4 | 60.9 |
| Harrison | 6th | 7th | 1,005 | 95 | 954.75 | 3 | 30.15 | 2 | 20.1 | 25 | 40 | 25 | 40 | 25 | 40 | 59.9 | 56.5 | 62.4 | 65.0 |
| Harrison | 7th | 8th | 1,343 | 95 | 1275.85 | 3 | 40.29 | 2 | 26.86 | 25 | 40 | 25 | 40 | 25 | 40 | 61.2 | 57.8 | 63.7 | 66.3 |
| Embdero | Market | MLK | 0 | 90 | 0 | 5 | 0 | 5 | 0 | 25 | 40 | 25 | 40 | 25 | 40 | #NUM! | #NUM! | #NUM! | #NUM! |
| Embdero | Washington | Bway | 290 | 95 | 275.5 | 3 | 8.7 | 2 | 5.8 | 25 | 40 | 25 | 40 | 25 | 40 | 54.5 | 51.1 | 57.0 | 59.6 |
| 3rd | Brush | Castro | 740 | 95 | 703 | 3 | 22.2 | 2 | 14.8 | 25 | 40 | 25 | 40 | 25 | 40 | 58.6 | 55.2 | 61.1 | 63.7 |
| 3rd | Washington | Bway | 686 | 95 | 651.7 | 3 | 20.58 | 2 | 13.72 | 25 | 40 | 25 | 40 | 25 | 40 | 58.2 | 54.9 | 60.8 | 63.4 |
| 3rd | Bway | Franklin | 692 | 95 | 657.4 | 3 | 20.76 | 2 | 13.84 | 25 | 40 | 25 | 40 | 25 | 40 | 58.3 | 54.9 | 60.8 | 63.4 |
| 5th | Brush | Castro | 1,958 | 95 | 1860.1 | 3 | 58.74 | 2 | 39.16 | 25 | 40 | 25 | 40 | 25 | 40 | 62.8 | 59.4 | 65.3 | 67.9 |
| 5th | Castro | MLK | 1,706 | 95 | 1620.7 | 3 | 51.18 | 2 | 34.12 | 25 | 40 | 25 | 40 | 25 | 40 | 62.2 | 58.8 | 64.7 | 67.3 |
| 7th | Castro | MLK | 1,781 | 95 | 1691.95 | 3 | 53.43 | 2 | 35.62 | 25 | 40 | 25 | 40 | 25 | 40 | 62.4 | 59.0 | 64.9 | 67.5 |
| 7th | MLK | Jeffersn | 2,006 | 95 | 1905.7 | 3 | 60.18 | 2 | 40.12 | 25 | 40 | 25 | 40 | 25 | 40 | 62.9 | 59.5 | 65.4 | 68.0 |
| 7th | Clay | Washintn | 2,029 | 95 | 1927.55 | 3 | 60.87 | 2 | 40.58 | 25 | 40 | 25 | 40 | 25 | 40 | 63.0 | 59.6 | 65.5 | 68.1 |
| 7th | BWay | Franklin | 2,055 | 95 | 1952.25 | 3 | 61.65 | 2 | 41.1 | 25 | 40 | 25 | 40 | 25 | 40 | 63.0 | 59.7 | 65.5 | 68.1 |
| 8th | Webster | Harrison | 1,301 | 95 | 1235.95 | 3 | 39.03 | 2 | 26.02 | 25 | 40 | 25 | 40 | 25 | 40 | 61.0 | 57.7 | 63.6 | 66.1 |
| 11th | Castro | MLK | 1,073 | 95 | 1019.35 | 3 | 32.19 | 2 | 21.46 | 25 | 40 | 25 | 40 | 25 | 40 | 60.2 | 56.8 | 62.7 | 65.3 |
| 12th | Castro | MLK | 890 | 95 | 845.5 | 3 | 26.7 | 2 | 17.8 | 25 | 40 | 25 | 40 | 25 | 40 | 59.4 | 56.0 | 61.9 | 64.5 |
| Market | Embdro | 3rd | 3,150 | 95 | 2992.5 | 3 | 94.5 | 2 | 63 | 25 | 40 | 25 | 40 | 25 | 40 | 64.9 | 61.5 | 67.4 | 70.0 |
| Market | 3rd | 7th | 3,308 | 95 | 3142.6 | 3 | 99.24 | 2 | 66.16 | 25 | 40 | 25 | 40 | 25 | 40 | 65.1 | 61.7 | 67.6 | 70.2 |

Assumptions: AM peak hour traffic data from Fehr & Peers

Cumulative No Project

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL (15 meters from roadway center) | |
|--------------|---------------------|----------|----------------|------|--------|------|-------|----|---------------|----|-----|------|----|----|-------------------|------|------|---|------|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| | from: | to: | % | Auto | % | MT | % | HT | | | | | | | | | | | |
| Brush | 3rd | 5th | 380 | 95 | 361 | 3 | 11.4 | 2 | 7.6 | 25 | 40 | 35 | 56 | 35 | 56 | 55.7 | 54.6 | 59.6 | 61.9 |
| Brush | 7th | 11th | 2,180 | 95 | 2071 | 3 | 65.4 | 2 | 43.6 | 30 | 48 | 30 | 48 | 30 | 48 | 65.5 | 61.1 | 66.5 | 69.7 |
| Brush | 12th | 14th | 810 | 95 | 769.5 | 3 | 24.3 | 2 | 16.2 | 30 | 48 | 30 | 48 | 30 | 48 | 61.2 | 56.8 | 62.2 | 65.4 |
| Castro | 3rd | 5th | 440 | 95 | 418 | 3 | 13.2 | 2 | 8.8 | 25 | 40 | 25 | 40 | 25 | 40 | 56.3 | 53.0 | 58.8 | 61.4 |
| Castro | 7th | 8th | 1,520 | 95 | 1444 | 3 | 45.6 | 2 | 30.4 | 30 | 48 | 30 | 48 | 30 | 48 | 64.0 | 59.6 | 65.0 | 68.2 |
| Castro | 8th | 11th | 2,380 | 95 | 2261 | 3 | 71.4 | 2 | 47.6 | 30 | 48 | 30 | 48 | 30 | 48 | 65.9 | 61.5 | 66.9 | 70.1 |
| Castro | 12th | 14th | 560 | 95 | 532 | 3 | 16.8 | 2 | 11.2 | 30 | 48 | 30 | 48 | 30 | 48 | 59.6 | 55.2 | 60.6 | 63.8 |
| MLK | 3rd | 5th | 500 | 95 | 475 | 3 | 15 | 2 | 10 | 25 | 40 | 25 | 40 | 25 | 40 | 56.9 | 53.5 | 59.4 | 62.0 |
| MLK | 6th | 7th | 420 | 95 | 399 | 3 | 12.6 | 2 | 8.4 | 25 | 40 | 25 | 40 | 25 | 40 | 56.1 | 52.8 | 58.6 | 61.2 |
| MLK | 8th | 11th | 470 | 95 | 446.5 | 3 | 14.1 | 2 | 9.4 | 25 | 40 | 25 | 40 | 25 | 40 | 56.6 | 53.2 | 59.1 | 61.7 |
| Clay | 7th | 8th | 300 | 95 | 285 | 3 | 9 | 2 | 6 | 25 | 40 | 25 | 40 | 25 | 40 | 54.6 | 51.3 | 57.2 | 59.8 |
| Washington | Embdero | 3rd | 320 | 95 | 304 | 3 | 9.6 | 2 | 6.4 | 25 | 40 | 25 | 40 | 25 | 40 | 54.9 | 51.6 | 57.5 | 60.1 |
| Washton | 7th | 8th | 370 | 95 | 351.5 | 3 | 11.1 | 2 | 7.4 | 25 | 40 | 25 | 40 | 25 | 40 | 55.6 | 52.2 | 58.1 | 60.7 |
| Bway | Embdero | 3rd | 660 | 95 | 627 | 3 | 19.8 | 2 | 13.2 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.7 | 60.6 | 63.2 |
| Bway | 6th | 7th | 2,220 | 95 | 2109 | 3 | 66.6 | 2 | 44.4 | 25 | 40 | 25 | 40 | 25 | 40 | 63.3 | 60.0 | 65.9 | 68.5 |
| Bway | 8th | 11th | 2,010 | 95 | 1909.5 | 3 | 60.3 | 2 | 40.2 | 25 | 40 | 25 | 40 | 25 | 40 | 62.9 | 59.6 | 65.4 | 68.0 |
| Franklin | 12th | 14th | 610 | 95 | 579.5 | 3 | 18.3 | 2 | 12.2 | 25 | 40 | 25 | 40 | 25 | 40 | 57.7 | 54.4 | 60.3 | 62.9 |
| Harrison | 6th | 7th | 1,210 | 95 | 1149.5 | 3 | 36.3 | 2 | 24.2 | 25 | 40 | 25 | 40 | 25 | 40 | 60.7 | 57.4 | 63.2 | 65.8 |
| Harrison | 7th | 8th | 1,820 | 95 | 1729 | 3 | 54.6 | 2 | 36.4 | 25 | 40 | 25 | 40 | 25 | 40 | 62.5 | 59.1 | 65.0 | 67.6 |
| Embdero | Market | MLK | 60 | 90 | 54 | 5 | 3 | 5 | 3 | 25 | 40 | 25 | 40 | 25 | 40 | 47.4 | 46.5 | 54.2 | 55.6 |
| Embdero | Washington | Bway | 290 | 95 | 275.5 | 3 | 8.7 | 2 | 5.8 | 25 | 40 | 25 | 40 | 25 | 40 | 54.5 | 51.1 | 57.0 | 59.6 |
| 3rd | Brush | Castro | 1,230 | 95 | 1168.5 | 3 | 36.9 | 2 | 24.6 | 25 | 40 | 25 | 40 | 25 | 40 | 60.8 | 57.4 | 63.3 | 65.9 |
| 3rd | Washington | Bway | 930 | 95 | 883.5 | 3 | 27.9 | 2 | 18.6 | 25 | 40 | 25 | 40 | 25 | 40 | 59.6 | 56.2 | 62.1 | 64.7 |
| 3rd | Bway | Franklin | 840 | 95 | 798 | 3 | 25.2 | 2 | 16.8 | 25 | 40 | 25 | 40 | 25 | 40 | 59.1 | 55.8 | 61.7 | 64.2 |
| 5th | Brush | Castro | 2,240 | 95 | 2128 | 3 | 67.2 | 2 | 44.8 | 25 | 40 | 25 | 40 | 25 | 40 | 63.4 | 60.0 | 65.9 | 68.5 |
| 5th | Castro | MLK | 2,100 | 95 | 1995 | 3 | 63 | 2 | 42 | 25 | 40 | 25 | 40 | 25 | 40 | 63.1 | 59.7 | 65.6 | 68.2 |
| 7th | Castro | MLK | 2,430 | 95 | 2308.5 | 3 | 72.9 | 2 | 48.6 | 25 | 40 | 25 | 40 | 25 | 40 | 63.7 | 60.4 | 66.3 | 68.9 |
| 7th | MLK | Jeffersn | 2,670 | 95 | 2536.5 | 3 | 80.1 | 2 | 53.4 | 25 | 40 | 25 | 40 | 25 | 40 | 64.1 | 60.8 | 66.7 | 69.3 |
| 7th | Clay | Washintn | 2,970 | 95 | 2821.5 | 3 | 89.1 | 2 | 59.4 | 25 | 40 | 25 | 40 | 25 | 40 | 64.6 | 61.3 | 67.1 | 69.7 |
| 7th | BWay | Franklin | 3,520 | 95 | 3344 | 3 | 105.6 | 2 | 70.4 | 25 | 40 | 25 | 40 | 25 | 40 | 65.3 | 62.0 | 67.9 | 70.5 |
| 8th | Webster | Harrison | 1,340 | 95 | 1273 | 3 | 40.2 | 2 | 26.8 | 25 | 40 | 25 | 40 | 25 | 40 | 61.1 | 57.8 | 63.7 | 66.3 |
| 11th | Castro | MLK | 1,170 | 95 | 1111.5 | 3 | 35.1 | 2 | 23.4 | 25 | 40 | 25 | 40 | 25 | 40 | 60.6 | 57.2 | 63.1 | 65.7 |
| 12th | Castro | MLK | 1,450 | 95 | 1377.5 | 3 | 43.5 | 2 | 29 | 25 | 40 | 25 | 40 | 25 | 40 | 61.5 | 58.1 | 64.0 | 66.6 |
| Market | Embcdro | 3rd | 200 | 95 | 190 | 3 | 6 | 2 | 4 | 25 | 40 | 25 | 40 | 25 | 40 | 52.9 | 49.5 | 55.4 | 58.0 |
| Market | 3rd | 7th | 660 | 95 | 627 | 3 | 19.8 | 2 | 13.2 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.7 | 60.6 | 63.2 |

Assumptions: AM peak hour traffic data from Fehr & Peers

Cumulative Plus Project

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL 5 meters from roadway center) | |
|--------------------|---------------------|----------|----------------|------|--------|------|-------|----|---------------|----|-----|------|----|----|-------------------|------|------|---|------|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| | from: | to: | % | Auto | % | MT | % | HT | | | | | | | | | | | |
| Brush | 3rd | 5th | 490 | 95 | 465.5 | 3 | 14.7 | 2 | 9.8 | 25 | 40 | 35 | 56 | 35 | 56 | 56.8 | 55.7 | 60.7 | 63.0 |
| Brush | 7th | 11th | 2,570 | 95 | 2441.5 | 3 | 77.1 | 2 | 51.4 | 30 | 48 | 30 | 48 | 30 | 48 | 66.3 | 61.9 | 67.2 | 70.4 |
| Brush | 12th | 14th | 960 | 95 | 912 | 3 | 28.8 | 2 | 19.2 | 30 | 48 | 30 | 48 | 30 | 48 | 62.0 | 57.6 | 63.0 | 66.2 |
| Castro | 3rd | 5th | 490 | 95 | 465.5 | 3 | 14.7 | 2 | 9.8 | 25 | 40 | 25 | 40 | 25 | 40 | 56.8 | 53.4 | 59.3 | 61.9 |
| Castro | 7th | 8th | 1,610 | 95 | 1529.5 | 3 | 48.3 | 2 | 32.2 | 30 | 48 | 30 | 48 | 30 | 48 | 64.2 | 59.8 | 65.2 | 68.4 |
| Castro | 8th | 11th | 2,460 | 95 | 2337 | 3 | 73.8 | 2 | 49.2 | 30 | 48 | 30 | 48 | 30 | 48 | 66.1 | 61.7 | 67.0 | 70.2 |
| Castro | 12th | 14th | 570 | 95 | 541.5 | 3 | 17.1 | 2 | 11.4 | 30 | 48 | 30 | 48 | 30 | 48 | 59.7 | 55.3 | 60.7 | 63.9 |
| MLK | 3rd | 5th | 960 | 95 | 912 | 3 | 28.8 | 2 | 19.2 | 25 | 40 | 25 | 40 | 25 | 40 | 59.7 | 56.3 | 62.2 | 64.8 |
| MLK | 6th | 7th | 690 | 95 | 655.5 | 3 | 20.7 | 2 | 13.8 | 25 | 40 | 25 | 40 | 25 | 40 | 58.3 | 54.9 | 60.8 | 63.4 |
| MLK | 8th | 11th | 680 | 95 | 646 | 3 | 20.4 | 2 | 13.6 | 25 | 40 | 25 | 40 | 25 | 40 | 58.2 | 54.8 | 60.7 | 63.3 |
| Clay | 7th | 8th | 300 | 95 | 285 | 3 | 9 | 2 | 6 | 25 | 40 | 25 | 40 | 25 | 40 | 54.6 | 51.3 | 57.2 | 59.8 |
| Washington Embdero | 3rd | | 320 | 95 | 304 | 3 | 9.6 | 2 | 6.4 | 25 | 40 | 25 | 40 | 25 | 40 | 54.9 | 51.6 | 57.5 | 60.1 |
| Washton | 7th | 8th | 370 | 95 | 351.5 | 3 | 11.1 | 2 | 7.4 | 25 | 40 | 25 | 40 | 25 | 40 | 55.6 | 52.2 | 58.1 | 60.7 |
| Bway | Embdero | 3rd | 660 | 95 | 627 | 3 | 19.8 | 2 | 13.2 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.7 | 60.6 | 63.2 |
| Bway | 6th | 7th | 2,220 | 95 | 2109 | 3 | 66.6 | 2 | 44.4 | 25 | 40 | 25 | 40 | 25 | 40 | 63.3 | 60.0 | 65.9 | 68.5 |
| Bway | 8th | 11th | 2,010 | 95 | 1909.5 | 3 | 60.3 | 2 | 40.2 | 25 | 40 | 25 | 40 | 25 | 40 | 62.9 | 59.6 | 65.4 | 68.0 |
| Franklin | 12th | 14th | 610 | 95 | 579.5 | 3 | 18.3 | 2 | 12.2 | 25 | 40 | 25 | 40 | 25 | 40 | 57.7 | 54.4 | 60.3 | 62.9 |
| Harrison | 6th | 7th | 1,290 | 95 | 1225.5 | 3 | 38.7 | 2 | 25.8 | 25 | 40 | 25 | 40 | 25 | 40 | 61.0 | 57.6 | 63.5 | 66.1 |
| Harrison | 7th | 8th | 1,900 | 95 | 1805 | 3 | 57 | 2 | 38 | 25 | 40 | 25 | 40 | 25 | 40 | 62.7 | 59.3 | 65.2 | 67.8 |
| Embdero | Market | MLK | 30 | 90 | 27 | 5 | 1.5 | 5 | 1.5 | 25 | 40 | 25 | 40 | 25 | 40 | 44.4 | 43.5 | 51.2 | 52.6 |
| Embdero | Washington | Bway | 290 | 95 | 275.5 | 3 | 8.7 | 2 | 5.8 | 25 | 40 | 25 | 40 | 25 | 40 | 54.5 | 51.1 | 57.0 | 59.6 |
| 3rd | Brush | Castro | 1,270 | 95 | 1206.5 | 3 | 38.1 | 2 | 25.4 | 25 | 40 | 25 | 40 | 25 | 40 | 60.9 | 57.6 | 63.4 | 66.0 |
| 3rd | Washington | Bway | 970 | 95 | 921.5 | 3 | 29.1 | 2 | 19.4 | 25 | 40 | 25 | 40 | 25 | 40 | 59.7 | 56.4 | 62.3 | 64.9 |
| 3rd | Bway | Franklin | 860 | 95 | 817 | 3 | 25.8 | 2 | 17.2 | 25 | 40 | 25 | 40 | 25 | 40 | 59.2 | 55.9 | 61.8 | 64.3 |
| 5th | Brush | Castro | 2,370 | 95 | 2251.5 | 3 | 71.1 | 2 | 47.4 | 25 | 40 | 25 | 40 | 25 | 40 | 63.6 | 60.3 | 66.2 | 68.7 |
| 5th | Castro | MLK | 2,220 | 95 | 2109 | 3 | 66.6 | 2 | 44.4 | 25 | 40 | 25 | 40 | 25 | 40 | 63.3 | 60.0 | 65.9 | 68.5 |
| 7th | Castro | MLK | 2,470 | 95 | 2346.5 | 3 | 74.1 | 2 | 49.4 | 25 | 40 | 25 | 40 | 25 | 40 | 63.8 | 60.5 | 66.3 | 68.9 |
| 7th | MLK | Jeffersn | 2,710 | 95 | 2574.5 | 3 | 81.3 | 2 | 54.2 | 25 | 40 | 25 | 40 | 25 | 40 | 64.2 | 60.9 | 66.7 | 69.3 |
| 7th | Clay | Washintn | 3,010 | 95 | 2859.5 | 3 | 90.3 | 2 | 60.2 | 25 | 40 | 25 | 40 | 25 | 40 | 64.7 | 61.3 | 67.2 | 69.8 |
| 7th | BWay | Franklin | 3,560 | 95 | 3382 | 3 | 106.8 | 2 | 71.2 | 25 | 40 | 25 | 40 | 25 | 40 | 65.4 | 62.0 | 67.9 | 70.5 |
| 8th | Webster | Harrison | 1,420 | 95 | 1349 | 3 | 42.6 | 2 | 28.4 | 25 | 40 | 25 | 40 | 25 | 40 | 61.4 | 58.0 | 63.9 | 66.5 |
| 11th | Castro | MLK | 1,180 | 95 | 1121 | 3 | 35.4 | 2 | 23.6 | 25 | 40 | 25 | 40 | 25 | 40 | 60.6 | 57.2 | 63.1 | 65.7 |
| 12th | Castro | MLK | 1,520 | 95 | 1444 | 3 | 45.6 | 2 | 30.4 | 25 | 40 | 25 | 40 | 25 | 40 | 61.7 | 58.3 | 64.2 | 66.8 |
| Market | Embcdro | 3rd | 1,460 | 95 | 1387 | 3 | 43.8 | 2 | 29.2 | 25 | 40 | 25 | 40 | 25 | 40 | 61.5 | 58.2 | 64.1 | 66.6 |
| Market | 3rd | 7th | 1,880 | 95 | 1786 | 3 | 56.4 | 2 | 37.6 | 25 | 40 | 25 | 40 | 25 | 40 | 62.6 | 59.3 | 65.2 | 67.7 |

Assumptions: AM peak hour traffic data from Fehr & Peers

Cumulative Plus Project Plus Ballpark

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL 5 meters from roadway center) | |
|--------------|---------------------|----------|----------------|------|---------|------|--------|----|---------------|----|-----|------|----|----|-------------------|------|------|---|------|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| | from: | to: | % | Auto | % | MT | % | HT | | | | | | | | | | | |
| Brush | 3rd | 5th | 490 | 95 | 465.5 | 3 | 14.7 | 2 | 9.8 | 25 | 40 | 35 | 56 | 35 | 56 | 56.8 | 55.7 | 60.7 | 63.0 |
| Brush | 7th | 11th | 3,099 | 95 | 2944.05 | 3 | 92.97 | 2 | 61.98 | 30 | 48 | 30 | 48 | 30 | 48 | 67.1 | 62.7 | 68.1 | 71.2 |
| Brush | 12th | 14th | 1,323 | 95 | 1256.85 | 3 | 39.69 | 2 | 26.46 | 30 | 48 | 30 | 48 | 30 | 48 | 63.4 | 59.0 | 64.4 | 67.6 |
| Castro | 3rd | 5th | 490 | 95 | 465.5 | 3 | 14.7 | 2 | 9.8 | 25 | 40 | 25 | 40 | 25 | 40 | 56.8 | 53.4 | 59.3 | 61.9 |
| Castro | 7th | 8th | 1,781 | 95 | 1691.95 | 3 | 53.43 | 2 | 35.62 | 30 | 48 | 30 | 48 | 30 | 48 | 64.7 | 60.3 | 65.6 | 68.8 |
| Castro | 8th | 11th | 2,617 | 95 | 2486.15 | 3 | 78.51 | 2 | 52.34 | 30 | 48 | 30 | 48 | 30 | 48 | 66.3 | 61.9 | 67.3 | 70.5 |
| Castro | 12th | 14th | 668 | 95 | 634.6 | 3 | 20.04 | 2 | 13.36 | 30 | 48 | 30 | 48 | 30 | 48 | 60.4 | 56.0 | 61.4 | 64.6 |
| MLK | 3rd | 5th | 1,670 | 95 | 1586.5 | 3 | 50.1 | 2 | 33.4 | 25 | 40 | 25 | 40 | 25 | 40 | 62.1 | 58.8 | 64.6 | 67.2 |
| MLK | 6th | 7th | 1,572 | 95 | 1493.4 | 3 | 47.16 | 2 | 31.44 | 25 | 40 | 25 | 40 | 25 | 40 | 61.8 | 58.5 | 64.4 | 67.0 |
| MLK | 8th | 11th | 1,466 | 95 | 1392.7 | 3 | 43.98 | 2 | 29.32 | 25 | 40 | 25 | 40 | 25 | 40 | 61.5 | 58.2 | 64.1 | 66.7 |
| Clay | 7th | 8th | 397 | 95 | 377.15 | 3 | 11.91 | 2 | 7.94 | 25 | 40 | 25 | 40 | 25 | 40 | 55.9 | 52.5 | 58.4 | 61.0 |
| Washington | Embdero | 3rd | 617 | 95 | 586.15 | 3 | 18.51 | 2 | 12.34 | 25 | 40 | 25 | 40 | 25 | 40 | 57.8 | 54.4 | 60.3 | 62.9 |
| Washton | 7th | 8th | 501 | 95 | 475.95 | 3 | 15.03 | 2 | 10.02 | 25 | 40 | 25 | 40 | 25 | 40 | 56.9 | 53.5 | 59.4 | 62.0 |
| Bway | Embdero | 3rd | 671 | 95 | 637.45 | 3 | 20.13 | 2 | 13.42 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.8 | 60.7 | 63.3 |
| Bway | 6th | 7th | 2,554 | 95 | 2426.3 | 3 | 76.62 | 2 | 51.08 | 25 | 40 | 25 | 40 | 25 | 40 | 63.9 | 60.6 | 66.5 | 69.1 |
| Bway | 8th | 11th | 2,514 | 95 | 2388.3 | 3 | 75.42 | 2 | 50.28 | 25 | 40 | 25 | 40 | 25 | 40 | 63.9 | 60.5 | 66.4 | 69.0 |
| Franklin | 12th | 14th | 663 | 95 | 629.85 | 3 | 19.89 | 2 | 13.26 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.7 | 60.6 | 63.2 |
| Harrison | 6th | 7th | 1,575 | 95 | 1496.25 | 3 | 47.25 | 2 | 31.5 | 25 | 40 | 25 | 40 | 25 | 40 | 61.9 | 58.5 | 64.4 | 67.0 |
| Harrison | 7th | 8th | 2,183 | 95 | 2073.85 | 3 | 65.49 | 2 | 43.66 | 25 | 40 | 25 | 40 | 25 | 40 | 63.3 | 59.9 | 65.8 | 68.4 |
| Embdero | Market | MLK | 30 | 90 | 27 | 5 | 1.5 | 5 | 1.5 | 25 | 40 | 25 | 40 | 25 | 40 | 44.4 | 43.5 | 51.2 | 52.6 |
| Embdero | Washington | Bway | 290 | 95 | 275.5 | 3 | 8.7 | 2 | 5.8 | 25 | 40 | 25 | 40 | 25 | 40 | 54.5 | 51.1 | 57.0 | 59.6 |
| 3rd | Brush | Castro | 1,270 | 95 | 1206.5 | 3 | 38.1 | 2 | 25.4 | 25 | 40 | 25 | 40 | 25 | 40 | 60.9 | 57.6 | 63.4 | 66.0 |
| 3rd | Washington | Bway | 1,086 | 95 | 1031.7 | 3 | 32.58 | 2 | 21.72 | 25 | 40 | 25 | 40 | 25 | 40 | 60.2 | 56.9 | 62.8 | 65.4 |
| 3rd | Bway | Franklin | 1,082 | 95 | 1027.9 | 3 | 32.46 | 2 | 21.64 | 25 | 40 | 25 | 40 | 25 | 40 | 60.2 | 56.9 | 62.8 | 65.3 |
| 5th | Brush | Castro | 2,928 | 95 | 2781.6 | 3 | 87.84 | 2 | 58.56 | 25 | 40 | 25 | 40 | 25 | 40 | 64.5 | 61.2 | 67.1 | 69.7 |
| 5th | Castro | MLK | 2,616 | 95 | 2485.2 | 3 | 78.48 | 2 | 52.32 | 25 | 40 | 25 | 40 | 25 | 40 | 64.1 | 60.7 | 66.6 | 69.2 |
| 7th | Castro | MLK | 2,851 | 95 | 2708.45 | 3 | 85.53 | 2 | 57.02 | 25 | 40 | 25 | 40 | 25 | 40 | 64.4 | 61.1 | 67.0 | 69.6 |
| 7th | MLK | Jeffersn | 3,166 | 95 | 3007.7 | 3 | 94.98 | 2 | 63.32 | 25 | 40 | 25 | 40 | 25 | 40 | 64.9 | 61.5 | 67.4 | 70.0 |
| 7th | Clay | Washintn | 3,339 | 95 | 3172.05 | 3 | 100.17 | 2 | 66.78 | 25 | 40 | 25 | 40 | 25 | 40 | 65.1 | 61.8 | 67.6 | 70.2 |
| 7th | BWay | Franklin | 3,615 | 95 | 3434.25 | 3 | 108.45 | 2 | 72.3 | 25 | 40 | 25 | 40 | 25 | 40 | 65.5 | 62.1 | 68.0 | 70.6 |
| 8th | Webster | Harrison | 1,911 | 95 | 1815.45 | 3 | 57.33 | 2 | 38.22 | 25 | 40 | 25 | 40 | 25 | 40 | 62.7 | 59.3 | 65.2 | 67.8 |
| 11th | Castro | MLK | 1,563 | 95 | 1484.85 | 3 | 46.89 | 2 | 31.26 | 25 | 40 | 25 | 40 | 25 | 40 | 61.8 | 58.5 | 64.3 | 66.9 |
| 12th | Castro | MLK | 1,520 | 95 | 1444 | 3 | 45.6 | 2 | 30.4 | 25 | 40 | 25 | 40 | 25 | 40 | 61.7 | 58.3 | 64.2 | 66.8 |
| Market | Embcdro | 3rd | 3,000 | 95 | 2850 | 3 | 90 | 2 | 60 | 25 | 40 | 25 | 40 | 25 | 40 | 64.6 | 61.3 | 67.2 | 69.8 |
| Market | 3rd | 7th | 3,418 | 95 | 3247.1 | 3 | 102.54 | 2 | 68.36 | 25 | 40 | 25 | 40 | 25 | 40 | 65.2 | 61.9 | 67.7 | 70.3 |

Assumptions: AM peak hour traffic data from Fehr & Peers

Existing Nighttime

(Assumes 33% of peakhour traffic per Fehr & Piers)

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL (15 meters from roadway center) | |
|-----------------|---------------------|----------|----------------|------|----------|------|---------|----|---------------|----|-----|------|----|----|-------------------|------|------|---|------|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| | from: | to: | % | Auto | % | MT | % | HT | | | | | | | | | | | |
| Brush | 3rd | 5th | 73 | 95 | 69.2835 | 3 | 2.1879 | 2 | 1.4586 | 25 | 40 | 35 | 56 | 35 | 56 | 48.5 | 47.4 | 52.4 | 54.8 |
| Brush | 7th | 11th | 398 | 95 | 377.7675 | 3 | 11.9295 | 2 | 7.953 | 30 | 48 | 30 | 48 | 30 | 48 | 58.2 | 53.8 | 59.1 | 62.3 |
| Brush | 12th | 14th | 149 | 95 | 141.702 | 3 | 4.4748 | 2 | 2.9832 | 30 | 48 | 30 | 48 | 30 | 48 | 53.9 | 49.5 | 54.9 | 58.1 |
| Castro | 3rd | 5th | 81 | 95 | 77.121 | 3 | 2.4354 | 2 | 1.6236 | 25 | 40 | 25 | 40 | 25 | 40 | 49.0 | 45.6 | 51.5 | 54.1 |
| Castro | 7th | 8th | 277 | 95 | 263.0265 | 3 | 8.3061 | 2 | 5.5374 | 30 | 48 | 30 | 48 | 30 | 48 | 56.6 | 52.2 | 57.6 | 60.8 |
| Castro | 8th | 11th | 436 | 95 | 414.1335 | 3 | 13.0779 | 2 | 8.7186 | 30 | 48 | 30 | 48 | 30 | 48 | 58.6 | 54.2 | 59.5 | 62.7 |
| Castro | 12th | 14th | 102 | 95 | 96.8715 | 3 | 3.0591 | 2 | 2.0394 | 30 | 48 | 30 | 48 | 30 | 48 | 52.2 | 47.8 | 53.2 | 56.4 |
| MLK | 3rd | 5th | 95 | 95 | 89.9745 | 3 | 2.8413 | 2 | 1.8942 | 25 | 40 | 25 | 40 | 25 | 40 | 49.6 | 46.3 | 52.2 | 54.8 |
| MLK | 6th | 7th | 74 | 95 | 69.9105 | 3 | 2.2077 | 2 | 1.4718 | 25 | 40 | 25 | 40 | 25 | 40 | 48.5 | 45.2 | 51.1 | 53.7 |
| MLK | 8th | 11th | 83 | 95 | 78.6885 | 3 | 2.4849 | 2 | 1.6566 | 25 | 40 | 25 | 40 | 25 | 40 | 49.1 | 45.7 | 51.6 | 54.2 |
| Clay | 7th | 8th | 52 | 95 | 49.533 | 3 | 1.5642 | 2 | 1.0428 | 25 | 40 | 25 | 40 | 25 | 40 | 47.0 | 43.7 | 49.6 | 52.2 |
| Washington | Embdero | 3rd | 58 | 95 | 54.8625 | 3 | 1.7325 | 2 | 1.155 | 25 | 40 | 25 | 40 | 25 | 40 | 47.5 | 44.1 | 50.0 | 52.6 |
| Washton | 7th | 8th | 69 | 95 | 65.5215 | 3 | 2.0691 | 2 | 1.3794 | 25 | 40 | 25 | 40 | 25 | 40 | 48.3 | 44.9 | 50.8 | 53.4 |
| Bway | Embdero | 3rd | 118 | 95 | 112.5465 | 3 | 3.5541 | 2 | 2.3694 | 25 | 40 | 25 | 40 | 25 | 40 | 50.6 | 47.3 | 53.1 | 55.7 |
| Bway | 6th | 7th | 404 | 95 | 383.4105 | 3 | 12.1077 | 2 | 8.0718 | 25 | 40 | 25 | 40 | 25 | 40 | 55.9 | 52.6 | 58.5 | 61.1 |
| Bway | 8th | 11th | 367 | 95 | 348.9255 | 3 | 11.0187 | 2 | 7.3458 | 25 | 40 | 25 | 40 | 25 | 40 | 55.5 | 52.2 | 58.1 | 60.7 |
| Franklin | 12th | 14th | 111 | 95 | 105.336 | 3 | 3.3264 | 2 | 2.2176 | 25 | 40 | 25 | 40 | 25 | 40 | 50.3 | 47.0 | 52.9 | 55.4 |
| Harrison | 6th | 7th | 219 | 95 | 208.164 | 3 | 6.5736 | 2 | 4.3824 | 25 | 40 | 25 | 40 | 25 | 40 | 53.3 | 49.9 | 55.8 | 58.4 |
| Harrison | 7th | 8th | 331 | 95 | 314.4405 | 3 | 9.9297 | 2 | 6.6198 | 25 | 40 | 25 | 40 | 25 | 40 | 55.1 | 51.7 | 57.6 | 60.2 |
| Embdero | Market | MLK | 20 | 90 | 18.117 | 5 | 1.0065 | 5 | 1.0065 | 25 | 40 | 25 | 40 | 25 | 40 | 42.7 | 41.8 | 49.4 | 50.8 |
| Embdero | Washington | Bway | 95 | 95 | 90.288 | 3 | 2.8512 | 2 | 1.9008 | 25 | 40 | 25 | 40 | 25 | 40 | 49.7 | 46.3 | 52.2 | 54.8 |
| 3rd | Brush | Castro | 226 | 95 | 215.061 | 3 | 6.7914 | 2 | 4.5276 | 25 | 40 | 25 | 40 | 25 | 40 | 53.4 | 50.1 | 56.0 | 58.5 |
| 3rd | Washington | Bway | 170 | 95 | 161.766 | 3 | 5.1084 | 2 | 3.4056 | 25 | 40 | 25 | 40 | 25 | 40 | 52.2 | 48.8 | 54.7 | 57.3 |
| 3rd | Bway | Franklin | 151 | 95 | 143.2695 | 3 | 4.5243 | 2 | 3.0162 | 25 | 40 | 25 | 40 | 25 | 40 | 51.7 | 48.3 | 54.2 | 56.8 |
| 5th | Brush | Castro | 407 | 95 | 386.5455 | 3 | 12.2067 | 2 | 8.1378 | 25 | 40 | 25 | 40 | 25 | 40 | 56.0 | 52.6 | 58.5 | 61.1 |
| 5th | Castro | MLK | 382 | 95 | 363.3465 | 3 | 11.4741 | 2 | 7.6494 | 25 | 40 | 25 | 40 | 25 | 40 | 55.7 | 52.4 | 58.2 | 60.8 |
| 7th | Castro | MLK | 445 | 95 | 422.9115 | 3 | 13.3551 | 2 | 8.9034 | 25 | 40 | 25 | 40 | 25 | 40 | 56.4 | 53.0 | 58.9 | 61.5 |
| 7th | MLK | Jeffersn | 489 | 95 | 464.9205 | 3 | 14.6817 | 2 | 9.7878 | 25 | 40 | 25 | 40 | 25 | 40 | 56.8 | 53.4 | 59.3 | 61.9 |
| 7th | Clay | Washintn | 541 | 95 | 513.8265 | 3 | 16.2261 | 2 | 10.8174 | 25 | 40 | 25 | 40 | 25 | 40 | 57.2 | 53.9 | 59.7 | 62.3 |
| 7th | BWay | Franklin | 639 | 95 | 606.936 | 3 | 19.1664 | 2 | 12.7776 | 25 | 40 | 25 | 40 | 25 | 40 | 57.9 | 54.6 | 60.5 | 63.1 |
| 8th | Webster | Harrison | 246 | 95 | 233.5575 | 3 | 7.3755 | 2 | 4.917 | 25 | 40 | 25 | 40 | 25 | 40 | 53.8 | 50.4 | 56.3 | 58.9 |
| 11th | Castro | MLK | 215 | 95 | 204.402 | 3 | 6.4548 | 2 | 4.3032 | 25 | 40 | 25 | 40 | 25 | 40 | 53.2 | 49.9 | 55.7 | 58.3 |
| 12th | Castro | MLK | 263 | 95 | 249.546 | 3 | 7.8804 | 2 | 5.2536 | 25 | 40 | 25 | 40 | 25 | 40 | 54.1 | 50.7 | 56.6 | 59.2 |
| Market | Embcdro | 3rd | 36 | 95 | 34.1715 | 3 | 1.0791 | 2 | 0.7194 | 25 | 40 | 25 | 40 | 25 | 40 | 45.4 | 42.1 | 48.0 | 50.6 |
| Market | 3rd | 7th | 118 | 95 | 112.233 | 3 | 3.5442 | 2 | 2.3628 | 25 | 40 | 25 | 40 | 25 | 40 | 50.6 | 47.2 | 53.1 | 55.7 |

Existing Plus Project 10-11PM

(Assumes 33% of peakhour traffic per Fehr & Piers)

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL (15 meters from roadway center) | |
|--------------|---------------------|----------|----------------|----|---------|------|--------|----|---------------|----|-----|------|----|----|-------------------|-------|-------|---|-------|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| | from: | to: | | % | Auto | % | MT | % | HT | | | | | | | | | | |
| Brush | 3rd | 5th | 102 | 95 | 97.185 | 3 | 3.069 | 2 | 2.046 | 25 | 40 | 35 | 56 | 35 | 56 | 50.0 | 48.9 | 53.9 | 56.2 |
| Brush | 7th | 11th | 502 | 95 | 476.52 | 3 | 15.048 | 2 | 10.032 | 30 | 48 | 30 | 48 | 30 | 48 | 59.2 | 54.8 | 60.1 | 63.3 |
| Brush | 12th | 14th | 570 | 95 | 541.5 | 3 | 17.1 | 2 | 11.4 | 30 | 48 | 30 | 48 | 30 | 48 | 59.7 | 55.3 | 60.7 | 63.9 |
| Castro | 3rd | 5th | 116 | 95 | 109.725 | 3 | 3.465 | 2 | 2.31 | 25 | 40 | 25 | 40 | 25 | 40 | 50.5 | 47.2 | 53.0 | 55.6 |
| Castro | 7th | 8th | 330 | 95 | 313.5 | 3 | 9.9 | 2 | 6.6 | 30 | 48 | 30 | 48 | 30 | 48 | 57.3 | 52.9 | 58.3 | 61.5 |
| Castro | 8th | 11th | 485 | 95 | 460.845 | 3 | 14.553 | 2 | 9.702 | 30 | 48 | 30 | 48 | 30 | 48 | 59.0 | 54.6 | 60.0 | 63.2 |
| Castro | 12th | 14th | 116 | 95 | 109.725 | 3 | 3.465 | 2 | 2.31 | 30 | 48 | 30 | 48 | 30 | 48 | 52.8 | 48.4 | 53.8 | 57.0 |
| MLK | 3rd | 5th | 281 | 95 | 266.475 | 3 | 8.415 | 2 | 5.61 | 25 | 40 | 25 | 40 | 25 | 40 | 54.4 | 51.0 | 56.9 | 59.5 |
| MLK | 6th | 7th | 201 | 95 | 191.235 | 3 | 6.039 | 2 | 4.026 | 25 | 40 | 25 | 40 | 25 | 40 | 52.9 | 49.6 | 55.4 | 58.0 |
| MLK | 8th | 11th | 198 | 95 | 188.1 | 3 | 5.94 | 2 | 3.96 | 25 | 40 | 25 | 40 | 25 | 40 | 52.8 | 49.5 | 55.4 | 58.0 |
| Clay | 7th | 8th | 53 | 95 | 50.16 | 3 | 1.584 | 2 | 1.056 | 25 | 40 | 25 | 40 | 25 | 40 | 47.1 | 43.8 | 49.6 | 52.2 |
| Washington | Embdero | 3rd | 59 | 95 | 56.43 | 3 | 1.782 | 2 | 1.188 | 25 | 40 | 25 | 40 | 25 | 40 | 47.6 | 44.3 | 50.1 | 52.7 |
| Washton | 7th | 8th | 69 | 95 | 65.835 | 3 | 2.079 | 2 | 1.386 | 25 | 40 | 25 | 40 | 25 | 40 | 48.3 | 44.9 | 50.8 | 53.4 |
| Bway | Embdero | 3rd | 119 | 95 | 112.86 | 3 | 3.564 | 2 | 2.376 | 25 | 40 | 25 | 40 | 25 | 40 | 50.6 | 47.3 | 53.2 | 55.7 |
| Bway | 6th | 7th | 403 | 95 | 382.47 | 3 | 12.078 | 2 | 8.052 | 25 | 40 | 25 | 40 | 25 | 40 | 55.9 | 52.6 | 58.5 | 61.1 |
| Bway | 8th | 11th | 366 | 95 | 347.985 | 3 | 10.989 | 2 | 7.326 | 25 | 40 | 25 | 40 | 25 | 40 | 55.5 | 52.2 | 58.0 | 60.6 |
| Franklin | 12th | 14th | 112 | 95 | 106.59 | 3 | 3.366 | 2 | 2.244 | 25 | 40 | 25 | 40 | 25 | 40 | 50.4 | 47.0 | 52.9 | 55.5 |
| Harrison | 6th | 7th | 238 | 95 | 225.72 | 3 | 7.128 | 2 | 4.752 | 25 | 40 | 25 | 40 | 25 | 40 | 53.6 | 50.3 | 56.2 | 58.8 |
| Harrison | 7th | 8th | 350 | 95 | 332.31 | 3 | 10.494 | 2 | 6.996 | 25 | 40 | 25 | 40 | 25 | 40 | 55.3 | 52.0 | 57.8 | 60.4 |
| Embdero | Market | MLK | 0 | 90 | 0 | 5 | 0 | 5 | 0 | 25 | 40 | 25 | 40 | 25 | 40 | #NUM! | #NUM! | #NUM! | #NUM! |
| Embdero | Washington | Bway | 96 | 95 | 90.915 | 3 | 2.871 | 2 | 1.914 | 25 | 40 | 25 | 40 | 25 | 40 | 49.7 | 46.3 | 52.2 | 54.8 |
| 3rd | Brush | Castro | 244 | 95 | 231.99 | 3 | 7.326 | 2 | 4.884 | 25 | 40 | 25 | 40 | 25 | 40 | 53.8 | 50.4 | 56.3 | 58.9 |
| 3rd | Washington | Bway | 188 | 95 | 178.695 | 3 | 5.643 | 2 | 3.762 | 25 | 40 | 25 | 40 | 25 | 40 | 52.6 | 49.3 | 55.2 | 57.7 |
| 3rd | Bway | Franklin | 155 | 95 | 147.345 | 3 | 4.653 | 2 | 3.102 | 25 | 40 | 25 | 40 | 25 | 40 | 51.8 | 48.4 | 54.3 | 56.9 |
| 5th | Brush | Castro | 462 | 95 | 438.9 | 3 | 13.86 | 2 | 9.24 | 25 | 40 | 25 | 40 | 25 | 40 | 56.5 | 53.2 | 59.1 | 61.6 |
| 5th | Castro | MLK | 432 | 95 | 410.685 | 3 | 12.969 | 2 | 8.646 | 25 | 40 | 25 | 40 | 25 | 40 | 56.2 | 52.9 | 58.8 | 61.4 |
| 7th | Castro | MLK | 462 | 95 | 438.9 | 3 | 13.86 | 2 | 9.24 | 25 | 40 | 25 | 40 | 25 | 40 | 56.5 | 53.2 | 59.1 | 61.6 |
| 7th | MLK | Jeffersn | 512 | 95 | 485.925 | 3 | 15.345 | 2 | 10.23 | 25 | 40 | 25 | 40 | 25 | 40 | 57.0 | 53.6 | 59.5 | 62.1 |
| 7th | Clay | Washintn | 561 | 95 | 532.95 | 3 | 16.83 | 2 | 11.22 | 25 | 40 | 25 | 40 | 25 | 40 | 57.4 | 54.0 | 59.9 | 62.5 |
| 7th | BWay | Franklin | 660 | 95 | 627 | 3 | 19.8 | 2 | 13.2 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.7 | 60.6 | 63.2 |
| 8th | Webster | Harrison | 267 | 95 | 253.935 | 3 | 8.019 | 2 | 5.346 | 25 | 40 | 25 | 40 | 25 | 40 | 54.1 | 50.8 | 56.7 | 59.3 |
| 11th | Castro | MLK | 228 | 95 | 216.315 | 3 | 6.831 | 2 | 4.554 | 25 | 40 | 25 | 40 | 25 | 40 | 53.5 | 50.1 | 56.0 | 58.6 |
| 12th | Castro | MLK | 294 | 95 | 279.015 | 3 | 8.811 | 2 | 5.874 | 25 | 40 | 25 | 40 | 25 | 40 | 54.6 | 51.2 | 57.1 | 59.7 |
| Market | Embcdro | 3rd | 531 | 95 | 504.735 | 3 | 15.939 | 2 | 10.626 | 25 | 40 | 25 | 40 | 25 | 40 | 57.1 | 53.8 | 59.7 | 62.3 |
| Market | 3rd | 7th | 584 | 95 | 554.895 | 3 | 17.523 | 2 | 11.682 | 25 | 40 | 25 | 40 | 25 | 40 | 57.5 | 54.2 | 60.1 | 62.7 |

Existing Plus Project Plus Ballpark 10-11 PM

(Assumes 33% of peakhour traffic per Fehr & Piers)

| ROAD SEGMENT | TOTAL | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL (15 meters from roadway center) | |
|--------------|------------|----------|----------------|------|----------|------|--------|----|---------------|----|-----|------|----|----|-------------------|-------|-------|--|-------|
| | # VEHICLES | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| | from: | to: | % | Auto | % | MT | % | HT | | | | | | | | | | | |
| Brush | 3rd | 5th | 102 | 95 | 97.185 | 3 | 3.069 | 2 | 2.046 | 25 | 40 | 35 | 56 | 35 | 56 | 50.0 | 48.9 | 53.9 | 56.2 |
| Brush | 7th | 11th | 502 | 95 | 476.52 | 3 | 15.048 | 2 | 10.032 | 30 | 48 | 30 | 48 | 30 | 48 | 59.2 | 54.8 | 60.1 | 63.3 |
| Brush | 12th | 14th | 188 | 95 | 178.695 | 3 | 5.643 | 2 | 3.762 | 30 | 48 | 30 | 48 | 30 | 48 | 54.9 | 50.5 | 55.9 | 59.1 |
| Castro | 3rd | 5th | 116 | 95 | 109.725 | 3 | 3.465 | 2 | 2.31 | 25 | 40 | 25 | 40 | 25 | 40 | 50.5 | 47.2 | 53.0 | 55.6 |
| Castro | 7th | 8th | 1,089 | 95 | 1034.55 | 3 | 32.67 | 2 | 21.78 | 30 | 48 | 30 | 48 | 30 | 48 | 62.5 | 58.1 | 63.5 | 66.7 |
| Castro | 8th | 11th | 1,425 | 95 | 1353.845 | 3 | 42.753 | 2 | 28.502 | 30 | 48 | 30 | 48 | 30 | 48 | 63.7 | 59.3 | 64.7 | 67.9 |
| Castro | 12th | 14th | 530 | 95 | 503.025 | 3 | 15.885 | 2 | 10.59 | 30 | 48 | 30 | 48 | 30 | 48 | 59.4 | 55.0 | 60.4 | 63.6 |
| MLK | 3rd | 5th | 1,193 | 95 | 1132.875 | 3 | 35.775 | 2 | 23.85 | 25 | 40 | 25 | 40 | 25 | 40 | 60.6 | 57.3 | 63.2 | 65.8 |
| MLK | 6th | 7th | 1,138 | 95 | 1081.385 | 3 | 34.149 | 2 | 22.766 | 25 | 40 | 25 | 40 | 25 | 40 | 60.4 | 57.1 | 63.0 | 65.6 |
| MLK | 8th | 11th | 1,119 | 95 | 1063.05 | 3 | 33.57 | 2 | 22.38 | 25 | 40 | 25 | 40 | 25 | 40 | 60.4 | 57.0 | 62.9 | 65.5 |
| Clay | 7th | 8th | 114 | 95 | 108.11 | 3 | 3.414 | 2 | 2.276 | 25 | 40 | 25 | 40 | 25 | 40 | 50.4 | 47.1 | 53.0 | 55.6 |
| Washington | Embdero | 3rd | 445 | 95 | 423.13 | 3 | 13.362 | 2 | 8.908 | 25 | 40 | 25 | 40 | 25 | 40 | 56.4 | 53.0 | 58.9 | 61.5 |
| Washton | 7th | 8th | 69 | 95 | 65.835 | 3 | 2.079 | 2 | 1.386 | 25 | 40 | 25 | 40 | 25 | 40 | 48.3 | 44.9 | 50.8 | 53.4 |
| Bway | Embdero | 3rd | 247 | 95 | 234.46 | 3 | 7.404 | 2 | 4.936 | 25 | 40 | 25 | 40 | 25 | 40 | 53.8 | 50.4 | 56.3 | 58.9 |
| Bway | 6th | 7th | 871 | 95 | 827.07 | 3 | 26.118 | 2 | 17.412 | 25 | 40 | 25 | 40 | 25 | 40 | 59.3 | 55.9 | 61.8 | 64.4 |
| Bway | 8th | 11th | 1,128 | 95 | 1071.885 | 3 | 33.849 | 2 | 22.566 | 25 | 40 | 25 | 40 | 25 | 40 | 60.4 | 57.0 | 62.9 | 65.5 |
| Franklin | 12th | 14th | 112 | 95 | 106.59 | 3 | 3.366 | 2 | 2.244 | 25 | 40 | 25 | 40 | 25 | 40 | 50.4 | 47.0 | 52.9 | 55.5 |
| Harrison | 6th | 7th | 238 | 95 | 225.72 | 3 | 7.128 | 2 | 4.752 | 25 | 40 | 25 | 40 | 25 | 40 | 53.6 | 50.3 | 56.2 | 58.8 |
| Harrison | 7th | 8th | 405 | 95 | 384.56 | 3 | 12.144 | 2 | 8.096 | 25 | 40 | 25 | 40 | 25 | 40 | 55.9 | 52.6 | 58.5 | 61.1 |
| Embdero | Market | MLK | 0 | 90 | 0 | 5 | 0 | 5 | 0 | 25 | 40 | 25 | 40 | 25 | 40 | #NUM! | #NUM! | #NUM! | #NUM! |
| Embdero | Washington | Bway | 96 | 95 | 90.915 | 3 | 2.871 | 2 | 1.914 | 25 | 40 | 25 | 40 | 25 | 40 | 49.7 | 46.3 | 52.2 | 54.8 |
| 3rd | Brush | Castro | 244 | 95 | 231.99 | 3 | 7.326 | 2 | 4.884 | 25 | 40 | 25 | 40 | 25 | 40 | 53.8 | 50.4 | 56.3 | 58.9 |
| 3rd | Washington | Bway | 264 | 95 | 250.895 | 3 | 7.923 | 2 | 5.282 | 25 | 40 | 25 | 40 | 25 | 40 | 54.1 | 50.7 | 56.6 | 59.2 |
| 3rd | Bway | Franklin | 381 | 95 | 362.045 | 3 | 11.433 | 2 | 7.622 | 25 | 40 | 25 | 40 | 25 | 40 | 55.7 | 52.3 | 58.2 | 60.8 |
| 5th | Brush | Castro | 1,307 | 95 | 1241.65 | 3 | 39.21 | 2 | 26.14 | 25 | 40 | 25 | 40 | 25 | 40 | 61.0 | 57.7 | 63.6 | 66.2 |
| 5th | Castro | MLK | 1,032 | 95 | 980.685 | 3 | 30.969 | 2 | 20.646 | 25 | 40 | 25 | 40 | 25 | 40 | 60.0 | 56.7 | 62.5 | 65.1 |
| 7th | Castro | MLK | 636 | 95 | 604.2 | 3 | 19.08 | 2 | 12.72 | 25 | 40 | 25 | 40 | 25 | 40 | 57.9 | 54.6 | 60.4 | 63.0 |
| 7th | MLK | Jeffersn | 831 | 95 | 788.975 | 3 | 24.915 | 2 | 16.61 | 25 | 40 | 25 | 40 | 25 | 40 | 59.1 | 55.7 | 61.6 | 64.2 |
| 7th | Clay | Washintn | 813 | 95 | 772.35 | 3 | 24.39 | 2 | 16.26 | 25 | 40 | 25 | 40 | 25 | 40 | 59.0 | 55.6 | 61.5 | 64.1 |
| 7th | BWay | Franklin | 919 | 95 | 873.05 | 3 | 27.57 | 2 | 18.38 | 25 | 40 | 25 | 40 | 25 | 40 | 59.5 | 56.2 | 62.0 | 64.6 |
| 8th | Webster | Harrison | 376 | 95 | 357.485 | 3 | 11.289 | 2 | 7.526 | 25 | 40 | 25 | 40 | 25 | 40 | 55.6 | 52.3 | 58.2 | 60.8 |
| 11th | Castro | MLK | 240 | 95 | 227.715 | 3 | 7.191 | 2 | 4.794 | 25 | 40 | 25 | 40 | 25 | 40 | 53.7 | 50.3 | 56.2 | 58.8 |
| 12th | Castro | MLK | 702 | 95 | 666.615 | 3 | 21.051 | 2 | 14.034 | 25 | 40 | 25 | 40 | 25 | 40 | 58.3 | 55.0 | 60.9 | 63.5 |
| Market | Embcdro | 3rd | 2,527 | 95 | 2400.935 | 3 | 75.819 | 2 | 50.546 | 25 | 40 | 25 | 40 | 25 | 40 | 63.9 | 60.6 | 66.4 | 69.0 |
| Market | 3rd | 7th | 2,579 | 95 | 2450.145 | 3 | 77.373 | 2 | 51.582 | 25 | 40 | 25 | 40 | 25 | 40 | 64.0 | 60.6 | 66.5 | 69.1 |

Cumulative No Project 10 - 11 PM

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL (15 meters from roadway center) |
|--------------|---------------------|----------|----------------|----|---------|------|--------|----|---------------|----|-----|------|----|----|-------------------|------|------|---|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | |
| | from: | to: | | % | Auto | % | MT | % | HT | | | | | | | | | |
| Brush | 3rd | 5th | 125 | 95 | 119.13 | 3 | 3.762 | 2 | 2.508 | 25 | 40 | 35 | 56 | 35 | 56 | 50.9 | 49.8 | 54.7 |
| Brush | 7th | 11th | 719 | 95 | 683.43 | 3 | 21.582 | 2 | 14.388 | 30 | 48 | 30 | 48 | 30 | 48 | 60.7 | 56.3 | 61.7 |
| Brush | 12th | 14th | 267 | 95 | 253.935 | 3 | 8.019 | 2 | 5.346 | 30 | 48 | 30 | 48 | 30 | 48 | 56.4 | 52.0 | 57.4 |
| Castro | 3rd | 5th | 145 | 95 | 137.94 | 3 | 4.356 | 2 | 2.904 | 25 | 40 | 25 | 40 | 25 | 40 | 51.5 | 48.1 | 54.0 |
| Castro | 7th | 8th | 502 | 95 | 476.52 | 3 | 15.048 | 2 | 10.032 | 30 | 48 | 30 | 48 | 30 | 48 | 59.2 | 54.8 | 60.1 |
| Castro | 8th | 11th | 785 | 95 | 746.13 | 3 | 23.562 | 2 | 15.708 | 30 | 48 | 30 | 48 | 30 | 48 | 61.1 | 56.7 | 62.1 |
| Castro | 12th | 14th | 185 | 95 | 175.56 | 3 | 5.544 | 2 | 3.696 | 30 | 48 | 30 | 48 | 30 | 48 | 54.8 | 50.4 | 55.8 |
| MLK | 3rd | 5th | 165 | 95 | 156.75 | 3 | 4.95 | 2 | 3.3 | 25 | 40 | 25 | 40 | 25 | 40 | 52.1 | 48.7 | 54.6 |
| MLK | 6th | 7th | 139 | 95 | 131.67 | 3 | 4.158 | 2 | 2.772 | 25 | 40 | 25 | 40 | 25 | 40 | 51.3 | 47.9 | 53.8 |
| MLK | 8th | 11th | 155 | 95 | 147.345 | 3 | 4.653 | 2 | 3.102 | 25 | 40 | 25 | 40 | 25 | 40 | 51.8 | 48.4 | 54.3 |
| Clay | 7th | 8th | 99 | 95 | 94.05 | 3 | 2.97 | 2 | 1.98 | 25 | 40 | 25 | 40 | 25 | 40 | 49.8 | 46.5 | 52.4 |
| Washington | Embdero | 3rd | 106 | 95 | 100.32 | 3 | 3.168 | 2 | 2.112 | 25 | 40 | 25 | 40 | 25 | 40 | 50.1 | 46.8 | 52.6 |
| Washton | 7th | 8th | 122 | 95 | 115.995 | 3 | 3.663 | 2 | 2.442 | 25 | 40 | 25 | 40 | 25 | 40 | 50.7 | 47.4 | 53.3 |
| Bway | Embdero | 3rd | 218 | 95 | 206.91 | 3 | 6.534 | 2 | 4.356 | 25 | 40 | 25 | 40 | 25 | 40 | 53.3 | 49.9 | 55.8 |
| Bway | 6th | 7th | 733 | 95 | 695.97 | 3 | 21.978 | 2 | 14.652 | 25 | 40 | 25 | 40 | 25 | 40 | 58.5 | 55.2 | 61.1 |
| Bway | 8th | 11th | 663 | 95 | 630.135 | 3 | 19.899 | 2 | 13.266 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.7 | 60.6 |
| Franklin | 12th | 14th | 201 | 95 | 191.235 | 3 | 6.039 | 2 | 4.026 | 25 | 40 | 25 | 40 | 25 | 40 | 52.9 | 49.6 | 55.4 |
| Harrison | 6th | 7th | 399 | 95 | 379.335 | 3 | 11.979 | 2 | 7.986 | 25 | 40 | 25 | 40 | 25 | 40 | 55.9 | 52.5 | 58.4 |
| Harrison | 7th | 8th | 601 | 95 | 570.57 | 3 | 18.018 | 2 | 12.012 | 25 | 40 | 25 | 40 | 25 | 40 | 57.7 | 54.3 | 60.2 |
| Embdero | Market | MLK | 20 | 90 | 17.82 | 5 | 0.99 | 5 | 0.99 | 25 | 40 | 25 | 40 | 25 | 40 | 42.6 | 41.7 | 49.4 |
| Embdero | Washington | Bway | 96 | 95 | 90.915 | 3 | 2.871 | 2 | 1.914 | 25 | 40 | 25 | 40 | 25 | 40 | 49.7 | 46.3 | 52.2 |
| 3rd | Brush | Castro | 406 | 95 | 385.605 | 3 | 12.177 | 2 | 8.118 | 25 | 40 | 25 | 40 | 25 | 40 | 56.0 | 52.6 | 58.5 |
| 3rd | Washington | Bway | 307 | 95 | 291.555 | 3 | 9.207 | 2 | 6.138 | 25 | 40 | 25 | 40 | 25 | 40 | 54.7 | 51.4 | 57.3 |
| 3rd | Bway | Franklin | 277 | 95 | 263.34 | 3 | 8.316 | 2 | 5.544 | 25 | 40 | 25 | 40 | 25 | 40 | 54.3 | 51.0 | 56.8 |
| 5th | Brush | Castro | 739 | 95 | 702.24 | 3 | 22.176 | 2 | 14.784 | 25 | 40 | 25 | 40 | 25 | 40 | 58.6 | 55.2 | 61.1 |
| 5th | Castro | MLK | 693 | 95 | 658.35 | 3 | 20.79 | 2 | 13.86 | 25 | 40 | 25 | 40 | 25 | 40 | 58.3 | 54.9 | 60.8 |
| 7th | Castro | MLK | 802 | 95 | 761.805 | 3 | 24.057 | 2 | 16.038 | 25 | 40 | 25 | 40 | 25 | 40 | 58.9 | 55.6 | 61.5 |
| 7th | MLK | Jeffersn | 881 | 95 | 837.045 | 3 | 26.433 | 2 | 17.622 | 25 | 40 | 25 | 40 | 25 | 40 | 59.3 | 56.0 | 61.9 |
| 7th | Clay | Washintn | 980 | 95 | 931.095 | 3 | 29.403 | 2 | 19.602 | 25 | 40 | 25 | 40 | 25 | 40 | 59.8 | 56.4 | 62.3 |
| 7th | BWay | Franklin | 1,162 | 95 | 1103.52 | 3 | 34.848 | 2 | 23.232 | 25 | 40 | 25 | 40 | 25 | 40 | 60.5 | 57.2 | 63.1 |
| 8th | Webster | Harrison | 442 | 95 | 420.09 | 3 | 13.266 | 2 | 8.844 | 25 | 40 | 25 | 40 | 25 | 40 | 56.3 | 53.0 | 58.9 |
| 11th | Castro | MLK | 386 | 95 | 366.795 | 3 | 11.583 | 2 | 7.722 | 25 | 40 | 25 | 40 | 25 | 40 | 55.7 | 52.4 | 58.3 |
| 12th | Castro | MLK | 479 | 95 | 454.575 | 3 | 14.355 | 2 | 9.57 | 25 | 40 | 25 | 40 | 25 | 40 | 56.7 | 53.3 | 59.2 |
| Market | Embcdro | 3rd | 66 | 95 | 62.7 | 3 | 1.98 | 2 | 1.32 | 25 | 40 | 25 | 40 | 25 | 40 | 48.1 | 44.7 | 50.6 |
| Market | 3rd | 7th | 218 | 95 | 206.91 | 3 | 6.534 | 2 | 4.356 | 25 | 40 | 25 | 40 | 25 | 40 | 53.3 | 49.9 | 55.8 |

Cumulative Plus Project 10 -11 PM

(Assumes 33% of peakhour traffic per Fehr & Piers)

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL 5 meters from roadway center) | | |
|-------------------------|---------------------|--|----------------|---------|----|--------|----|--------|---------------|-----|-----|-----|----|-----|-------------------|------|------|---|----|----|
| | | | Auto | | MT | | HT | | Auto | | k/h | | MT | | k/h | | Auto | | MT | HT |
| | | | % | Auto | % | MT | % | HT | | k/h | | k/h | | k/h | | k/h | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | | |
| Brush 3rd to 5th | 162 | | 95 | 153.615 | 3 | 4.851 | 2 | 3.234 | 25 | 40 | 35 | 56 | 35 | 56 | 52.0 | 50.9 | 55.8 | 58.2 | | |
| Brush 7th to 11th | 848 | | 95 | 805.695 | 3 | 25.443 | 2 | 16.962 | 30 | 48 | 30 | 48 | 30 | 48 | 61.4 | 57.0 | 62.4 | 65.6 | | |
| Brush 12th to 14th | 317 | | 95 | 300.96 | 3 | 9.504 | 2 | 6.336 | 30 | 48 | 30 | 48 | 30 | 48 | 57.2 | 52.8 | 58.1 | 61.3 | | |
| Castro 3rd to 5th | 162 | | 95 | 153.615 | 3 | 4.851 | 2 | 3.234 | 25 | 40 | 25 | 40 | 25 | 40 | 52.0 | 48.6 | 54.5 | 57.1 | | |
| Castro 7th to 8th | 531 | | 95 | 504.735 | 3 | 15.939 | 2 | 10.626 | 30 | 48 | 30 | 48 | 30 | 48 | 59.4 | 55.0 | 60.4 | 63.6 | | |
| Castro 8th to 11th | 812 | | 95 | 771.21 | 3 | 24.354 | 2 | 16.236 | 30 | 48 | 30 | 48 | 30 | 48 | 61.3 | 56.9 | 62.2 | 65.4 | | |
| Castro 12th to 14th | 188 | | 95 | 178.695 | 3 | 5.643 | 2 | 3.762 | 30 | 48 | 30 | 48 | 30 | 48 | 54.9 | 50.5 | 55.9 | 59.1 | | |
| MLK 3rd to 5th | 317 | | 95 | 300.96 | 3 | 9.504 | 2 | 6.336 | 25 | 40 | 25 | 40 | 25 | 40 | 54.9 | 51.5 | 57.4 | 60.0 | | |
| MLK 6th to 7th | 228 | | 95 | 216.315 | 3 | 6.831 | 2 | 4.554 | 25 | 40 | 25 | 40 | 25 | 40 | 53.5 | 50.1 | 56.0 | 58.6 | | |
| MLK 8th to 11th | 224 | | 95 | 213.18 | 3 | 6.732 | 2 | 4.488 | 25 | 40 | 25 | 40 | 25 | 40 | 53.4 | 50.0 | 55.9 | 58.5 | | |
| Clay 7th to 8th | 99 | | 95 | 94.05 | 3 | 2.97 | 2 | 1.98 | 25 | 40 | 25 | 40 | 25 | 40 | 49.8 | 46.5 | 52.4 | 55.0 | | |
| Washington Embdero 3rd | 106 | | 95 | 100.32 | 3 | 3.168 | 2 | 2.112 | 25 | 40 | 25 | 40 | 25 | 40 | 50.1 | 46.8 | 52.6 | 55.2 | | |
| Washton 7th to 8th | 122 | | 95 | 115.995 | 3 | 3.663 | 2 | 2.442 | 25 | 40 | 25 | 40 | 25 | 40 | 50.7 | 47.4 | 53.3 | 55.9 | | |
| Bway Embdero 3rd | 218 | | 95 | 206.91 | 3 | 6.534 | 2 | 4.356 | 25 | 40 | 25 | 40 | 25 | 40 | 53.3 | 49.9 | 55.8 | 58.4 | | |
| Bway 6th to 7th | 733 | | 95 | 695.97 | 3 | 21.978 | 2 | 14.652 | 25 | 40 | 25 | 40 | 25 | 40 | 58.5 | 55.2 | 61.1 | 63.6 | | |
| Bway 8th to 11th | 663 | | 95 | 630.135 | 3 | 19.899 | 2 | 13.266 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.7 | 60.6 | 63.2 | | |
| Franklin 12th to 14th | 201 | | 95 | 191.235 | 3 | 6.039 | 2 | 4.026 | 25 | 40 | 25 | 40 | 25 | 40 | 52.9 | 49.6 | 55.4 | 58.0 | | |
| Harrison 6th to 7th | 426 | | 95 | 404.415 | 3 | 12.771 | 2 | 8.514 | 25 | 40 | 25 | 40 | 25 | 40 | 56.2 | 52.8 | 58.7 | 61.3 | | |
| Harrison 7th to 8th | 627 | | 95 | 595.65 | 3 | 18.81 | 2 | 12.54 | 25 | 40 | 25 | 40 | 25 | 40 | 57.9 | 54.5 | 60.4 | 63.0 | | |
| Embdero Market to MLK | 10 | | 90 | 8.91 | 5 | 0.495 | 5 | 0.495 | 25 | 40 | 25 | 40 | 25 | 40 | 39.6 | 38.7 | 46.3 | 47.8 | | |
| Embdero Washingt Bway | 96 | | 95 | 90.915 | 3 | 2.871 | 2 | 1.914 | 25 | 40 | 25 | 40 | 25 | 40 | 49.7 | 46.3 | 52.2 | 54.8 | | |
| 3rd Brush to Castro | 419 | | 95 | 398.145 | 3 | 12.573 | 2 | 8.382 | 25 | 40 | 25 | 40 | 25 | 40 | 56.1 | 52.7 | 58.6 | 61.2 | | |
| 3rd Washingt Bway | 320 | | 95 | 304.095 | 3 | 9.603 | 2 | 6.402 | 25 | 40 | 25 | 40 | 25 | 40 | 54.9 | 51.6 | 57.5 | 60.1 | | |
| 3rd Bway to Franklin | 284 | | 95 | 269.61 | 3 | 8.514 | 2 | 5.676 | 25 | 40 | 25 | 40 | 25 | 40 | 54.4 | 51.1 | 56.9 | 59.5 | | |
| 5th Brush to Castro | 782 | | 95 | 742.995 | 3 | 23.463 | 2 | 15.642 | 25 | 40 | 25 | 40 | 25 | 40 | 58.8 | 55.5 | 61.3 | 63.9 | | |
| 5th Castro to MLK | 733 | | 95 | 695.97 | 3 | 21.978 | 2 | 14.652 | 25 | 40 | 25 | 40 | 25 | 40 | 58.5 | 55.2 | 61.1 | 63.6 | | |
| 7th Castro to MLK | 815 | | 95 | 774.345 | 3 | 24.453 | 2 | 16.302 | 25 | 40 | 25 | 40 | 25 | 40 | 59.0 | 55.6 | 61.5 | 64.1 | | |
| 7th MLK to Jeffersn | 894 | | 95 | 849.585 | 3 | 26.829 | 2 | 17.886 | 25 | 40 | 25 | 40 | 25 | 40 | 59.4 | 56.0 | 61.9 | 64.5 | | |
| 7th Clay to Washintn | 993 | | 95 | 943.635 | 3 | 29.799 | 2 | 19.866 | 25 | 40 | 25 | 40 | 25 | 40 | 59.8 | 56.5 | 62.4 | 65.0 | | |
| 7th BWay to Franklin | 1,175 | | 95 | 1116.06 | 3 | 35.244 | 2 | 23.496 | 25 | 40 | 25 | 40 | 25 | 40 | 60.6 | 57.2 | 63.1 | 65.7 | | |
| 8th Webster to Harrison | 469 | | 95 | 445.17 | 3 | 14.058 | 2 | 9.372 | 25 | 40 | 25 | 40 | 25 | 40 | 56.6 | 53.2 | 59.1 | 61.7 | | |
| 11th Castro to MLK | 389 | | 95 | 369.93 | 3 | 11.682 | 2 | 7.788 | 25 | 40 | 25 | 40 | 25 | 40 | 55.8 | 52.4 | 58.3 | 60.9 | | |
| 12th Castro to MLK | 502 | | 95 | 476.52 | 3 | 15.048 | 2 | 10.032 | 25 | 40 | 25 | 40 | 25 | 40 | 56.9 | 53.5 | 59.4 | 62.0 | | |
| Market Embcdro 3rd | 482 | | 95 | 457.71 | 3 | 14.454 | 2 | 9.636 | 25 | 40 | 25 | 40 | 25 | 40 | 56.7 | 53.4 | 59.2 | 61.8 | | |
| Market 3rd to 7th | 620 | | 95 | 589.38 | 3 | 18.612 | 2 | 12.408 | 25 | 40 | 25 | 40 | 25 | 40 | 57.8 | 54.5 | 60.3 | 62.9 | | |

Cumulative Plus Project Plus Ballpark 10 - 11 PM

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL 5 meters from roadway center) | |
|--------------------|---------------------|----------|----------------|------|----------|------|--------|----|---------------|----|-----|------|----|----|-------------------|------|------|---|------|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| | from: | to: | % | Auto | % | MT | % | HT | | | | | | | | | | | |
| Brush | 3rd | 5th | 162 | 95 | 153.615 | 3 | 4.851 | 2 | 3.234 | 25 | 40 | 35 | 56 | 35 | 56 | 52.0 | 50.9 | 55.8 | 58.2 |
| Brush | 7th | 11th | 848 | 95 | 805.695 | 3 | 25.443 | 2 | 16.962 | 30 | 48 | 30 | 48 | 30 | 48 | 61.4 | 57.0 | 62.4 | 65.6 |
| Brush | 12th | 14th | 317 | 95 | 300.96 | 3 | 9.504 | 2 | 6.336 | 30 | 48 | 30 | 48 | 30 | 48 | 57.2 | 52.8 | 58.1 | 61.3 |
| Castro | 3rd | 5th | 162 | 95 | 153.615 | 3 | 4.851 | 2 | 3.234 | 25 | 40 | 25 | 40 | 25 | 40 | 52.0 | 48.6 | 54.5 | 57.1 |
| Castro | 7th | 8th | 1,290 | 95 | 1225.785 | 3 | 38.709 | 2 | 25.806 | 30 | 48 | 30 | 48 | 30 | 48 | 63.3 | 58.9 | 64.2 | 67.4 |
| Castro | 8th | 11th | 1,752 | 95 | 1664.21 | 3 | 52.554 | 2 | 35.036 | 30 | 48 | 30 | 48 | 30 | 48 | 64.6 | 60.2 | 65.6 | 68.8 |
| Castro | 12th | 14th | 602 | 95 | 571.995 | 3 | 18.063 | 2 | 12.042 | 30 | 48 | 30 | 48 | 30 | 48 | 60.0 | 55.6 | 60.9 | 64.1 |
| MLK | 3rd | 5th | 1,229 | 95 | 1167.36 | 3 | 36.864 | 2 | 24.576 | 25 | 40 | 25 | 40 | 25 | 40 | 60.8 | 57.4 | 63.3 | 65.9 |
| MLK | 6th | 7th | 1,165 | 95 | 1106.465 | 3 | 34.941 | 2 | 23.294 | 25 | 40 | 25 | 40 | 25 | 40 | 60.5 | 57.2 | 63.1 | 65.7 |
| MLK | 8th | 11th | 1,145 | 95 | 1088.13 | 3 | 34.362 | 2 | 22.908 | 25 | 40 | 25 | 40 | 25 | 40 | 60.5 | 57.1 | 63.0 | 65.6 |
| Clay | 7th | 8th | 160 | 95 | 152 | 3 | 4.8 | 2 | 3.2 | 25 | 40 | 25 | 40 | 25 | 40 | 51.9 | 48.6 | 54.5 | 57.0 |
| Washington Embdero | 3rd | 3rd | 492 | 95 | 467.02 | 3 | 14.748 | 2 | 9.832 | 25 | 40 | 25 | 40 | 25 | 40 | 56.8 | 53.4 | 59.3 | 61.9 |
| Washton | 7th | 8th | 122 | 95 | 115.995 | 3 | 3.663 | 2 | 2.442 | 25 | 40 | 25 | 40 | 25 | 40 | 50.7 | 47.4 | 53.3 | 55.9 |
| Bway Embdero | 3rd | 3rd | 346 | 95 | 328.51 | 3 | 10.374 | 2 | 6.916 | 25 | 40 | 25 | 40 | 25 | 40 | 55.3 | 51.9 | 57.8 | 60.4 |
| Bway | 6th | 7th | 1,201 | 95 | 1140.57 | 3 | 36.018 | 2 | 24.012 | 25 | 40 | 25 | 40 | 25 | 40 | 60.7 | 57.3 | 63.2 | 65.8 |
| Bway | 8th | 11th | 1,425 | 95 | 1354.035 | 3 | 42.759 | 2 | 28.506 | 25 | 40 | 25 | 40 | 25 | 40 | 61.4 | 58.1 | 63.9 | 66.5 |
| Franklin | 12th | 14th | 201 | 95 | 191.235 | 3 | 6.039 | 2 | 4.026 | 25 | 40 | 25 | 40 | 25 | 40 | 52.9 | 49.6 | 55.4 | 58.0 |
| Harrison | 6th | 7th | 426 | 95 | 404.415 | 3 | 12.771 | 2 | 8.514 | 25 | 40 | 25 | 40 | 25 | 40 | 56.2 | 52.8 | 58.7 | 61.3 |
| Harrison | 7th | 8th | 682 | 95 | 647.9 | 3 | 20.46 | 2 | 13.64 | 25 | 40 | 25 | 40 | 25 | 40 | 58.2 | 54.9 | 60.7 | 63.3 |
| Embdero | Market | MLK | 10 | 90 | 8.91 | 5 | 0.495 | 5 | 0.495 | 25 | 40 | 25 | 40 | 25 | 40 | 39.6 | 38.7 | 46.3 | 47.8 |
| Embdero | Washington | Bway | 96 | 95 | 90.915 | 3 | 2.871 | 2 | 1.914 | 25 | 40 | 25 | 40 | 25 | 40 | 49.7 | 46.3 | 52.2 | 54.8 |
| 3rd | Brush | Castro | 419 | 95 | 398.145 | 3 | 12.573 | 2 | 8.382 | 25 | 40 | 25 | 40 | 25 | 40 | 56.1 | 52.7 | 58.6 | 61.2 |
| 3rd | Washington | Bway | 396 | 95 | 376.295 | 3 | 11.883 | 2 | 7.922 | 25 | 40 | 25 | 40 | 25 | 40 | 55.9 | 52.5 | 58.4 | 61.0 |
| 3rd | Bway | Franklin | 510 | 95 | 484.31 | 3 | 15.294 | 2 | 10.196 | 25 | 40 | 25 | 40 | 25 | 40 | 57.0 | 53.6 | 59.5 | 62.1 |
| 5th | Brush | Castro | 1,627 | 95 | 1545.745 | 3 | 48.813 | 2 | 32.542 | 25 | 40 | 25 | 40 | 25 | 40 | 62.0 | 58.6 | 64.5 | 67.1 |
| 5th | Castro | MLK | 1,333 | 95 | 1265.97 | 3 | 39.978 | 2 | 26.652 | 25 | 40 | 25 | 40 | 25 | 40 | 61.1 | 57.8 | 63.7 | 66.2 |
| 7th | Castro | MLK | 989 | 95 | 939.645 | 3 | 29.673 | 2 | 19.782 | 25 | 40 | 25 | 40 | 25 | 40 | 59.8 | 56.5 | 62.4 | 65.0 |
| 7th | MLK | Jeffersn | 1,213 | 95 | 1152.635 | 3 | 36.399 | 2 | 24.266 | 25 | 40 | 25 | 40 | 25 | 40 | 60.7 | 57.4 | 63.2 | 65.8 |
| 7th | Clay | Washintn | 1,245 | 95 | 1183.035 | 3 | 37.359 | 2 | 24.906 | 25 | 40 | 25 | 40 | 25 | 40 | 60.8 | 57.5 | 63.4 | 66.0 |
| 7th | BWay | Franklin | 1,434 | 95 | 1362.11 | 3 | 43.014 | 2 | 28.676 | 25 | 40 | 25 | 40 | 25 | 40 | 61.4 | 58.1 | 64.0 | 66.6 |
| 8th | Webster | Harrison | 578 | 95 | 548.72 | 3 | 17.328 | 2 | 11.552 | 25 | 40 | 25 | 40 | 25 | 40 | 57.5 | 54.1 | 60.0 | 62.6 |
| 11th | Castro | MLK | 401 | 95 | 381.33 | 3 | 12.042 | 2 | 8.028 | 25 | 40 | 25 | 40 | 25 | 40 | 55.9 | 52.6 | 58.4 | 61.0 |
| 12th | Castro | MLK | 910 | 95 | 864.12 | 3 | 27.288 | 2 | 18.192 | 25 | 40 | 25 | 40 | 25 | 40 | 59.5 | 56.1 | 62.0 | 64.6 |
| Market | Embcdro | 3rd | 2,478 | 95 | 2353.91 | 3 | 74.334 | 2 | 49.556 | 25 | 40 | 25 | 40 | 25 | 40 | 63.8 | 60.5 | 66.4 | 68.9 |
| Market | 3rd | 7th | 2,615 | 95 | 2484.63 | 3 | 78.462 | 2 | 52.308 | 25 | 40 | 25 | 40 | 25 | 40 | 64.1 | 60.7 | 66.6 | 69.2 |

Adjustments for Ambient Noise Nighttime with Ballgame

MLK from 3rd to 5th

Change Yellow column and cell B7 Only

| | Traffic | Ambient |
|--------------|----------|----------|
| Noise Source | 65.76591 | 72.7 |
| | 3772165 | 18620871 |
| | 65.76591 | |

Adding Noise Sources 73.50113

Change in noise level = 0.80 dBA

MLK from 6th to 7th

Change Yellow column and cell B7 Only

| | Traffic | Ambient |
|--------------|----------|---------|
| Noise Source | 65.56389 | 65.9 |
| | 3600717 | 3890451 |
| | 65.56389 | |

Adding Noise Sources 68.7455

Change in noise level = 2.85 dBA

MLK from 8th to 11th

Change Yellow column and cell B7 Only

| | Traffic | Ambient |
|--------------|----------|----------|
| Noise Source | 65.48962 | 58.8 |
| | 3539667 | 758577.6 |
| | 65.48962 | |

Adding Noise Sources 66.33291

Change in noise level = 7.53 dBA

Market Street from Embarcadero to 3rd Street

Change Yellow column and cell B7 Only

| | Traffic | Ambient |
|--------------|----------|---------|
| Noise Source | 69.02789 | 66.8 |
| | 7994459 | 4786301 |
| | 69.02789 | |

Adding Noise Sources 71.06557

Market Street from 3rd Street to 7th Street

Change Yellow column and cell B7 Only

| | Traffic | Ambient |
|--------------|---------|----------|
| Noise Source | 69.116 | 78.5 |
| | 8158315 | 70794578 |
| | 69.116 | |

Adding Noise Sources 78.97368

Castro Street from 7th Street to 8th Street

Change Yellow column and cell B7 Only

| | Traffic | Ambient |
|--------------|----------|---------|
| Noise Source | 66.70549 | 67.7 |
| | 4683268 | 5888437 |
| | 66.70549 | |

Adding Noise Sources 70.24145

Castro Street from 8th Street to 11th Street

Change Yellow column and cell B7 Only

| | Traffic | Ambient |
|--------------|----------|---------|
| Noise Source | 67.87366 | 67.7 |
| | 6128673 | 5888437 |
| | 67.87366 | |

Adding Noise Sources 70.798

Castro Street from 12th Street to 14th Street

Change Yellow column and cell B7 Only

| | Traffic | Ambient |
|--------------|----------|---------|
| Noise Source | 63.57387 | 67.7 |
| | 2277126 | 5888437 |
| | 63.57387 | |

Adding Noise Sources 69.11986

Washington Street from Embarcadero to 3rd Street

Change Yellow column and cell B7 Only

| | Traffic | Ambient |
|--------------|----------|---------|
| Noise Source | 61.48882 | 62.6 |
| | 1408907 | 1819701 |
| | 61.48882 | |

Adding Noise Sources 65.09015

5th Street from Brush Street to Castro Street

Change Yellow column and cell B7 Only

| | Traffic | Ambient |
|--------------|----------|---------|
| Noise Source | 66.16408 | 63.8 |
| | 4134356 | 2398833 |
| | 66.16408 | |

Adding Noise Sources 68.15125

NOI.4 Three Dimensional Noise Modeling of Ballpark and Concert Noise



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memorandum

date October 22, 2020

to Crescentia Brown, ESA

from Susumu Shirayama, ESA

subject Waterfront Ballpark District at Howard Terminal - **Ballpark and Concert Event Noise Assessment**

1.0 INTRODUCTION

Based on the most current available information, ESA developed noise contour maps for the proposed Oakland Athletics Ballpark at Howard Terminal for use in the noise impact analysis in the Environmental Impact Report (EIR). This technical memorandum describes the Noise Fundamentals, Noise Measurements, Model Validation, Assumptions and Findings with noise contour maps. Two scenarios were assessed for this technical memorandum: 1) baseball game event and 2) music concert event in the Ballpark. The information in this memorandum provides information to inform the noise impact analysis of the EIR.

2.0 NOISE FUNDAMENTALS

Noise is generally defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude. When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to extremely low and extremely high frequencies. This method of frequency

weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements.

An individual's noise exposure is a measure of noise over a period of time. While a noise level is a measure of noise at a given instant in time, community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic. What makes community noise variable throughout a day, besides the slowly changing background noise, is the addition of short-duration, single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment change the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to accurately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

- L_{eq} : The L_{eq} , or equivalent sound level, is the energy-mean dBA during a measured time interval. It is the "equivalent" constant sound level that would have to be produced by a given source to equal the acoustic energy contained in the fluctuating sound level measured.
- L_{max} : The maximum, instantaneous noise level experienced during a given period of time.
- L_{min} : The minimum, instantaneous noise level experienced during a given period of time.
- L_{dn} : Also termed the DNL, the L_{dn} is defined as the A-weighted average sound level for a 24-hour day with a 10-dB penalty added to nighttime (10:00 p.m. to 7:00 a.m.) sound levels to compensate for people's increased sensitivity to noise during usually quieter evening and nighttime hours.

Noise levels from a particular source generally decline as distance to the receptor increases. Other factors, such as the weather, reflective surfaces, or barriers also help intensify or reduce the noise level at any given location. A commonly used rule of thumb for roadway noise is that for every doubling of distance from the source, the noise level is reduced by about 3 dBA at acoustically "hard" locations (i.e., the area between the noise source and the receptor is nearly complete asphalt, concrete, hard-packed soil, or other solid materials) and 4.5 dBA at acoustically "soft" locations (i.e., the area between the source and receptor is normal earth or has vegetation, including grass). Noise from stationary or point sources is reduced by about 6 to 7.5 dBA for every doubling of distance at acoustically hard and soft locations, respectively. Noise levels may also be reduced by intervening structures – generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA.

3.0 NOISE MEASUREMENTS

The dominant noise sources from a baseball game include crowd shouting and announcements and music generated through the public address system. In order to establish the reference noise levels from noise sources during a baseball game, noise measurement data was collected from the game between the Oakland Athletics and Los Angeles Angels on March 31, 2019. Monitored noise level data was used to validate the modeling effort for the proposed ballpark.

Two sound level meters were placed at the bottom of the 3rd deck: one at Section 344 (M1) and one at Section 330 (M2). Both measurements were started at 12:30 p.m. and ended at 4:00 p.m., and collected one-third octave band of 1-second interval data. The game started at 1:07 p.m. and ended at 3:47 p.m. For the purpose of the analysis, the collected noise data was averaged to define the noise levels from the entirety of the game, as noise level would vary throughout a game. The noise contour maps generated and presented later in this memorandum present the average noise environment of events. Therefore, it is appropriate for the average noise level during the game to be used. Averaged noise levels were 81.2 dBA and 82.6 dBA at M1 and M2, respectively. Noise sources included crowd shouting and announcements and music from the public address system. Table 1 presents the summary of measured octave band data for the game period. Figure 1 presents the 1-minute averaged A-weighted noise levels throughout the measurement period. Attachment 1 includes field notes, pictures of sound level meters, and the event log.

**TABLE 1
SUMMARY OF MEASURED OCTAVE BAND NOISE LEVELS**

| Measurement Locations | Octave Band Center Frequencies (Hz) | | | | | | | | | Measured Level (Leq, dBA) |
|-----------------------|-------------------------------------|------|------|------|------|------|------|------|------|---------------------------|
| | 31.5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | |
| M1 | 77.7 | 82.6 | 74.4 | 73.2 | 77.4 | 77.0 | 75.1 | 67.8 | 53.5 | 81.2 |
| M2 | 76.9 | 79.6 | 75.4 | 70.9 | 78.0 | 79.5 | 75.9 | 69.0 | 54.9 | 82.6 |

Notes:
 Octave band noise levels are un-weighted decibels.
 Noise levels represents the entire game period, which is from 13:07 to 15:47.

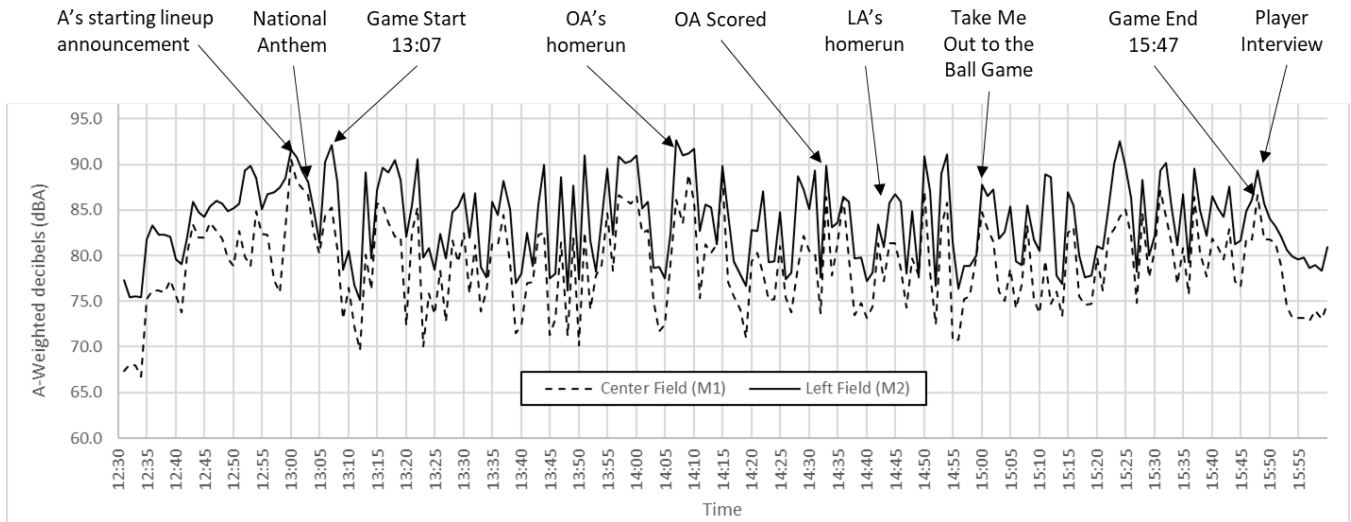


Figure 1: 1-minute Averaged Noise Level Measurement Results

Figure 1 illustrates the similar pattern of sound levels received at locations M1 and M2. The noise levels at M2 were higher than M1 due to the close proximity to the spectators. There were no spectators in Sections from 335 to 355, where M1 was located in Section 344. The measurement results were used for the model validation discussed below.

4.0 MODEL VALIDATION

The Computer Aided Noise Abatement (Cadena) noise propagation program (Version 2020) was used to estimate the propagation of noise from events at the proposed Ballpark.

CadnaA is a Windows-based software program that predicts and assesses noise levels in the vicinity of noise sources based on International Organization for Standardization 9613-2 algorithms for noise propagation calculations. The calculations account for classical sound wave divergence plus attenuation factors resulting from air absorption, basic ground effects, and barrier/shielding.

The model validation was conducted to establish the noise source for the model by re-creating the same measurement environment. The Coliseum seating areas were used as noise sources within the proposed ballpark. The measured data from M1 was used for the seating areas of Bleachers and second deck above Bleachers including spectators at Treehouse and Stomping Ground. The measured data from M2 was used for all seating areas other than ones included in M1. The model validation resulted the noise levels of 81.2 dBA at M1 and 82.6 dBA at M2, which were the same as the measured noise levels. The result of the validated noise source was used for the proposed Ballpark noise model.

5.0 ASSUMPTIONS

Several key assumptions were made for the model. Below describes each assumption.

- The proposed Ballpark capacity is 32,000 for a baseball game and a music concert.
 - Lower Level – 14,400
 - Lower Left Field Level – 2,800
 - Upper Level – 10,300
 - Roof – 4,500
 - For a music concert event, there will be 10,000 people in the field. Lower Left Field Level and Roof will be closed. Upper level will be reduced to 7,600 people. Total would remain at 32,000.
- Music events within the Ballpark would take place on a stage at the center field area. Noise source levels at this stage were assumed to be 95dBA at 100 feet, which was derived from the Environmental Noise Assessment report for the 49ers Levi's Stadium Project. The noise source of music event crowd was assumed to be the same as a baseball game.
- Noise sources other than project-related events were not considered for the noise contour development. Those potential noise sources would include rail and vehicular traffic.
- Future structures within the proposed project area were included in the model.
- Existing building footprints were not included.
- Topographic data outside of the Ballpark was considered flat.
- A worst-case analysis assuming no measureable wind was applied. Subsequent model runs using average wind speeds inventoried for the former Alameda Naval Air Station resulted in lower predicted noise values.
- The noise modeling accounts for the proposed design of the Ballpark including the structure height, reflection from structures, and roof structure design.
- The analysis also takes into account the capacity of the Ballpark for the two predominant types of anticipated events, noise anticipated from those crowds, and specific locations of event stage.

6.0 FINDINGS

Figure 2 presents the noise contour map predicted for a baseball game event. Figure 3 presents the noise contour map of a music concert event with a stage inside the Ballpark. Figures 4 and 5 present the noise contour maps of a baseball game and a music concert including the wind blowing from the West at 11.8 miles per hour. Noise contours out to 60 dBA L_{eq} are presented.

6.1 Baseball Game

As presented in Figure 2, the 60 dBA L_{eq} noise contour extends toward the southeast approximately 800 feet from the center of the Stadium. As it is designed, the southeast side of the Stadium is wide open. Figure 4 presents the result of noise contours from a baseball game with the wind at 11.8 miles per hour from the west. Table 2 includes the noise levels at each receiver monitored in the EIR analysis, as well as a few additional receiver points.

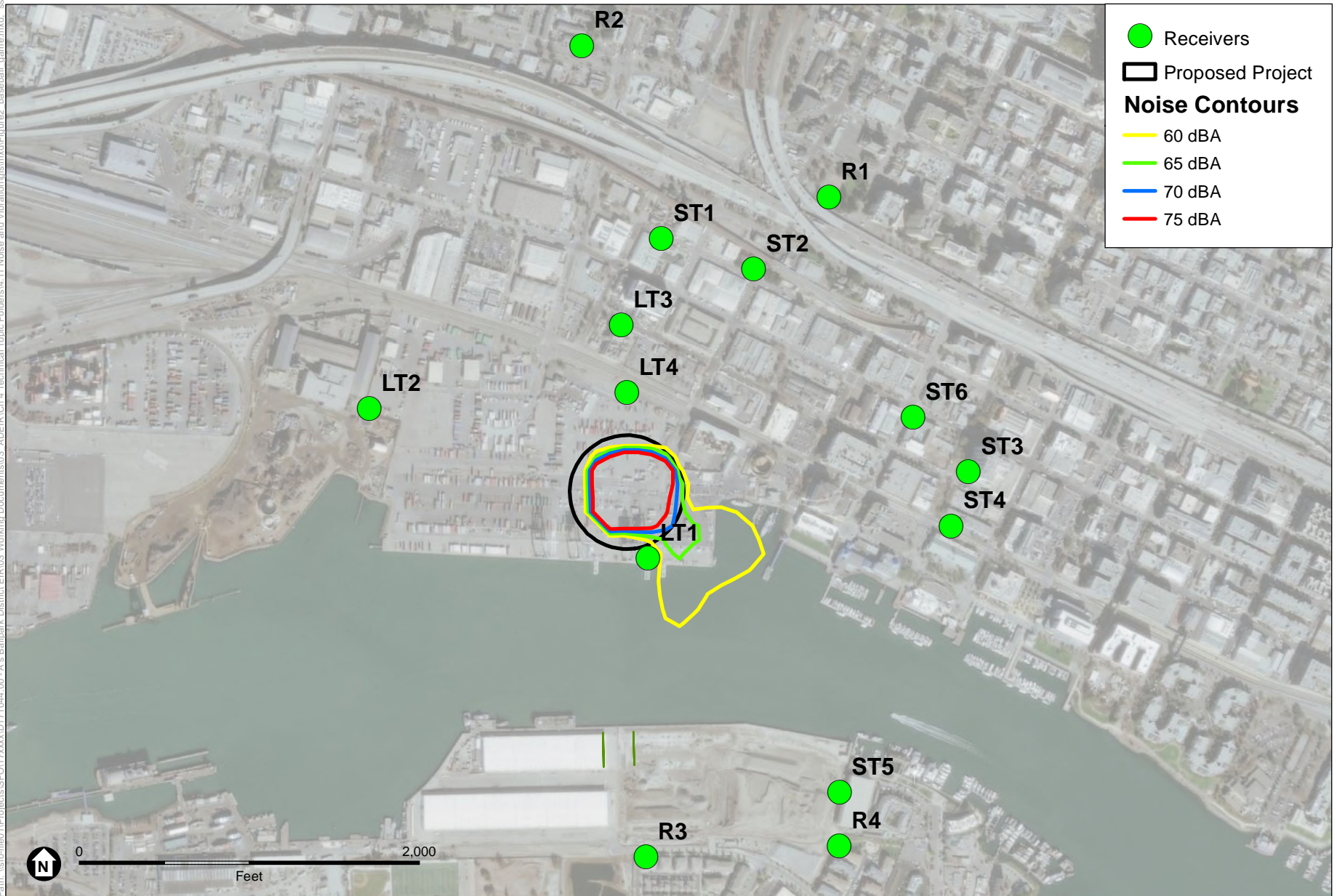
6.2 Music Event

As presented in Figure 3, the 60 dBA L_{eq} noise contour extended toward south and southwest approximately 3,500 feet from the center of the Stadium. As it is designed, the southeast side of the Stadium is wide open. In addition, the stage would be located east end of the Stadium. Taking into account the opening of the stadium and the location of the stage, noise exposure was limited to the south and southeast. Figure 5 presents the result of noise contours from a music event with the wind at 11.8 miles per hour from the west. Table 2 includes the noise levels at each receiver monitored in the EIR analysis, as well as a few additional receiver points.

**TABLE 2
NOISE LEVELS AT RECEIVERS**

| Receivers | Baseball Game | | Music Event | |
|-----------|---------------|-----------|--------------|-----------|
| | Without Wind | With Wind | Without Wind | With Wind |
| ST1 | 36.2 | 35.0 | 45.2 | 43.9 |
| ST2 | 37.5 | 36.6 | 45.8 | 44.7 |
| ST3 | 34.6 | 34.6 | 43.4 | 43.4 |
| ST4 | 39.5 | 39.5 | 44.4 | 44.4 |
| ST6 | 34.8 | 34.8 | 44.8 | 44.8 |
| LT1 | 51.3 | 50.8 | 64.3 | 63.5 |
| LT2 | 35.9 | 28.7 | 44.7 | 36.2 |
| LT3 | 41.0 | 40.0 | 49.4 | 48.1 |
| LT4 | 46.7 | 46.0 | 54.1 | 52.9 |
| R1 | 41.4 | 40.6 | 42.8 | 41.8 |
| R2 | 34.4 | 33.0 | 39.2 | 37.8 |
| R3 | 39.5 | 38.2 | 49.4 | 48.1 |
| R4 | 48.7 | 47.7 | 62.1 | 61.0 |

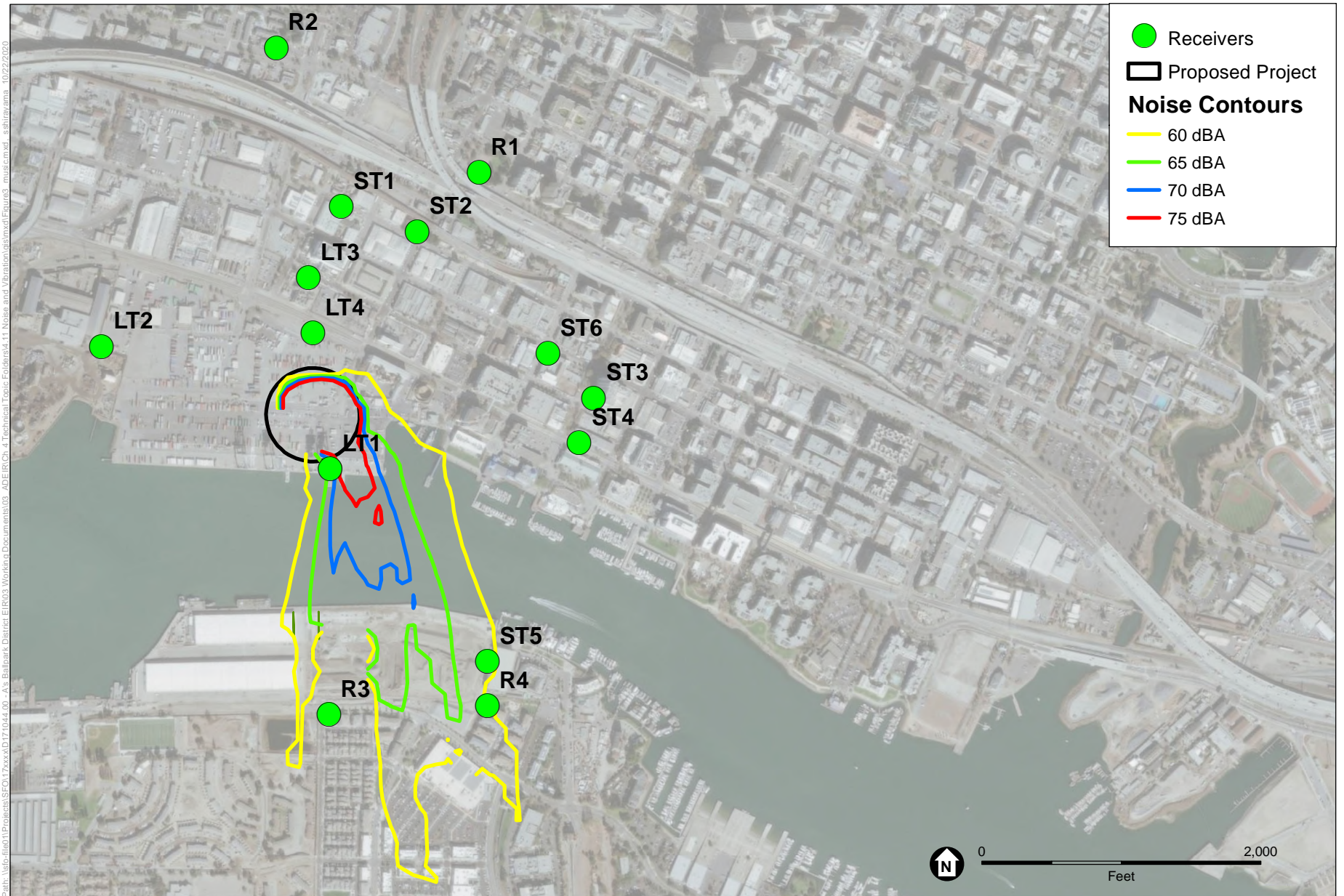
Notes:
 Noise levels represent an average of the entire baseball game or music event.
 ST = Short Term measurement location
 LT = Long Term measurement location
 R = Additional Distant Receiver



SOURCE: ESA, 2020; Oakland Athletics, 2020; City of Oakland, 2019

Oakland Athletics Ballpark EIR Project Name

Figure 2
Noise Contour Map
Baseball Game



SOURCE: ESA, 2020; Oakland Athletics, 2020; City of Oakland, 2019

Oakland Athletics Ballpark EIR Project Name

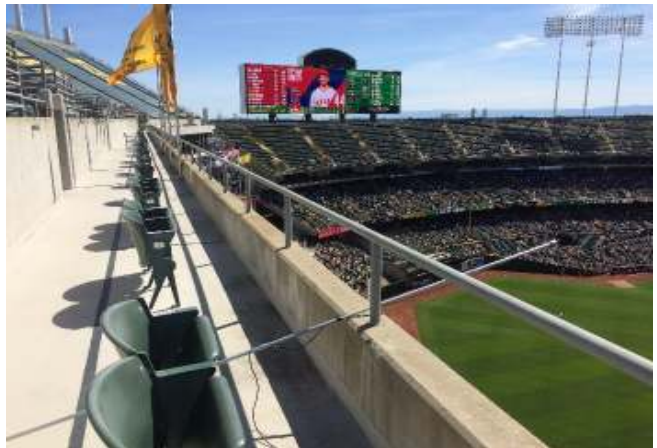
Figure 3
Noise Contour Map
Music Event

FIELD NOISE MEASUREMENT DATA FORM

Project Name: Oakland A's EIR Project #: D171044 Date: 3/31/2019 Page of
 Monitoring Location: M1 (Section 344) Analyst: Shirayama

| Sound Level Meter | Field Calibration | Weather Data |
|--------------------------|---|---|
| Model #: <u>LD831</u> | Model #: <u>CAL200</u> | Based on Google information: Wind: <u>Calm</u> Precipitation: <u>No</u> Avg Wind Speed/Direction: <u>8 mph/W</u> |
| Serial #: <u>2783</u> | Serial #: <u>12037</u> | |
| Weighting: <u>Flat</u> | Calibration Level (dBA): <u>114</u> | |
| Response: <u>Slow</u> | Pre-Test <u>113.9</u> dBA | Temp (°F): <u>64-72</u> RH (%): <u>50%</u> |
| Windscreen : <u>Yes</u> | Post-Test <u>113.8</u> dBA | Bar Psr (Hg): <u>31.11</u> Cloud Cover (%): <u>0</u> |
| Topo: <u>Stadium</u> | <u>GPS Coordinates (at SLM location)#</u> | |
| Terrain: <u>Concrete</u> | | |

| Octave Band Center Frequency (Hz) | | | | | | | | | | | | |
|-----------------------------------|--------------------|-----------|------|------|------|------|------|------|------|------|------|-----------------------|
| ID | Start Time | Stop Time | 31.5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | Overall A-weighted dB |
| | Entire Measurement | | | | | | | | | | | |
| | 12:30 | 16:00 | 77.0 | 82.4 | 74.8 | 73.4 | 77.9 | 76.7 | 75.5 | 68.6 | 56.5 | 81.4 |
| | Game only | | | | | | | | | | | |
| | 13:07 | 15:47 | 77.7 | 82.6 | 74.4 | 73.2 | 77.4 | 77.0 | 75.1 | 67.8 | 53.5 | 81.2 |
| | | | | | | | | | | | | |

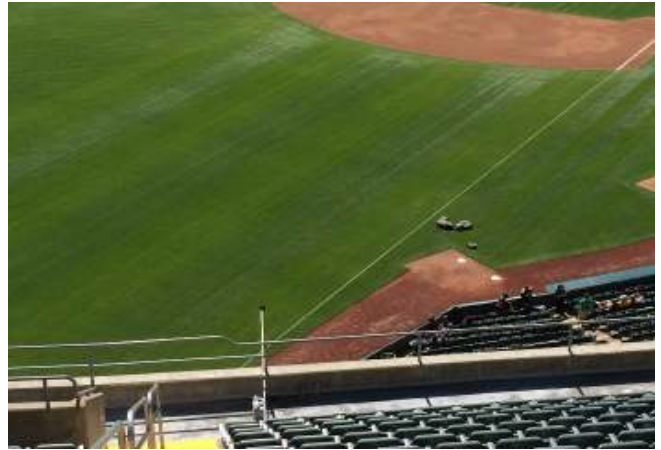


FIELD NOISE MEASUREMENT DATA FORM

Project Name: Oakland A's EIR Project #: D171044 Date: 3/31/2019 Page of
 Monitoring Location: M2 (Section 330) Analyst: Shirayama

| Sound Level Meter | Field Calibration | Weather Data |
|--------------------------|---|---|
| Model #: <u>LxT</u> | Model #: <u>CAL200</u> | Based on Google information: Wind: <u>Calm</u> Precipitation: <u>No</u> Avg Wind Speed/Direction: <u>8 mph/W</u> Temp (°F): <u>64-72</u> RH (%): <u>50%</u> Bar Psr (Hg): <u>31.11</u> Cloud Cover (%): <u>0</u> |
| Serial #: <u>5055</u> | Serial #: <u>12037</u> | |
| Weighting: <u>Flat</u> | Calibration Level (dBA): <u>114</u> | |
| Response: <u>Slow</u> | Pre-Test <u>113.8</u> dBA | |
| Windscreen : <u>Yes</u> | Post-Test <u>113.7</u> dBA | |
| Topo: <u>Stadium</u> | <u>GPS Coordinates (at SLM location)#</u> | |
| Terrain: <u>Concrete</u> | | |

| Octave Band Center Frequency (Hz) | | | | | | | | | | | | |
|-----------------------------------|--------------------|-----------|------|------|------|------|------|------|------|------|------|-----------------------|
| ID | Start Time | Stop Time | 31.5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | Overall A-weighted dB |
| | Entire Measurement | | | | | | | | | | | |
| | 12:30 | 16:00 | 76.2 | 79.7 | 76.0 | 70.9 | 78.2 | 79.2 | 76.0 | 69.6 | 55.6 | 85.9 |
| | Game only | | | | | | | | | | | |
| | 13:07 | 15:47 | 76.9 | 79.6 | 75.4 | 70.9 | 78.0 | 79.5 | 75.9 | 69.0 | 54.9 | 85.9 |
| | | | | | | | | | | | | |



FIELD NOISE MEASUREMENT DATA FORM

Project Name: Oakland A's EIR

Project #: D171044

Date: 3/31/2019

Page of

Monitoring Log

Analyst: Shirayama

| | | | |
|-------|--|-------|---|
| 12:34 | Announcement start | 15:00 | Take Me Out To The Ball Game |
| | Constant music and commercial | 15:02 | Start of bottom of 7th inning |
| 12:47 | Angels starting lineup announcement | 15:14 | End of 7th inning |
| 12:53 | First pitch | 15:16 | Start of top of 8th inning |
| 12:59 | Athletics starting lineup announcement | 15:21 | End of top of 8th inning |
| 13:03 | National Anthem | 15:23 | Start of bottom of 8th inning |
| 13:07 | Game start | 15:35 | End of 8th inning |
| 13:12 | Double play | 15:38 | Start of top of 9th inning |
| 13:14 | End of top of 1st inning | 15:40 | Gulls all over the area making some noise |
| 13:16 | Start of bottom of 1st inning | 15:47 | Game end |
| 13:20 | End of 1st inning | 15:49 | Interview |
| 13:22 | Start of top of 2nd inning | | Constant music and commercial |
| 13:27 | End of top of 2nd inning | | |
| 13:29 | Start of bottom of 2nd inning | | |
| 13:35 | End of 2nd inning | | |
| 13:37 | Start of top of 3rd inning | | |
| 13:42 | End of top of 3rd inning | | |
| 13:44 | Start of bottom of 3rd inning | | |
| 14:00 | End of 3rd inning | | |
| 14:02 | Start of top of 4th inning | | |
| 14:05 | End of top of 4th inning | | |
| 14:08 | Start of bottom of 4th inning | | |
| 14:09 | Athletics homerun | | |
| 14:13 | End of 4th inning | | |
| 14:15 | Start of top of 5th inning | | |
| 14:19 | End of top of 5th inning | | |
| 14:21 | Start of bottom of 5th inning | | |
| 14:28 | Athletics double / Angels pitcher change | | |
| 14:32 | Athletics single RBI | | |
| 14:34 | End of 5th inning | | |
| 14:36 | Start of top of 6th inning | | |
| 14:41 | Angels homerun | | |
| 14:43 | End of top of 6th inning | | |
| 14:45 | Start of bottom of 6th inning | | |
| 14:48 | End of 6th inning | | |
| 14:51 | Start of top of 7th inning | | |
| 14:52 | Athletics pitcher change | | |
| 14:59 | End of top of 7th inning | | |

NOI-5 Project Alternative Traffic Noise Analysis without Vehicle Trip Reduction

memorandum

date January 16, 2020

to Crescentia Brown, Project Manager

cc Hillary Gittleman, Project Director

from Chris Sanchez, Senior Technical Associate – Acoustics and Vibration

subject Howard Terminal Project Alternative Traffic Noise Analysis without Vehicle Trip Reduction

The Noise and Vibration Section of the Draft Environmental Impact Report (EIR) for the Waterfront Ballpark District at Howard Terminal includes an assessment of the potential noise impacts that would be associated with increased traffic volumes on roadways serving the Project vicinity. Traffic noise levels were determined for this analysis using the FHWA Traffic Noise Prediction Model based on baseline and future traffic projections developed as part of the transportation analysis (see Section 4.15 of the Draft EIR, *Transportation and Circulation*). All traffic volumes used in this roadway noise analysis were provided by Fehr & Peers Transportation Consultants, and reflect a 20 percent trip reduction associated with implementation of the Transportation Demand Management Plan as required under Mitigation Measure TRANS-1.

In the interest of full disclosure, this memorandum presents an alternative analysis of potential traffic noise impacts assuming road segment volume forecasts without the 20% vehicle trip reduction.

Roadway Traffic Noise Increases without Vehicle Trip Reduction

The proposed Project would result in increased traffic volumes along roadways used to access the proposed ballpark and mixed-use development.

Traffic noise level significance is determined by comparing the increase in noise levels (traffic contribution only) to increments recognized by the City of Oakland (City of Oakland, 2018) and Caltrans (Caltrans, 2013) as representing a readily perceptible increase in noise levels.

Increased vehicular traffic associated with the proposed Project would increase noise levels along existing roadways. Increases in noise from traffic on existing roadways were assessed by modeling existing and future roadway noise levels and comparing the resulting increase to standards adopted by the City of Oakland as thresholds of significance.

Traffic noise was developed from the transportation analysis, and assessed in this section for the following scenarios:

1. Existing traffic conditions (year 2018) during the weekday p.m. peak commute hour (4:45 to 5:45 p.m.). The weekday p.m. peak hour was used to represent the maximum period of traffic generation and associated noise generated by the project;
2. Existing plus proposed full buildout of Project mixed uses only during the weekday p.m. peak commute hour (this does not include ballgame or event traffic, so is representative of a non-game/event day);
3. Existing plus proposed full buildout of Project mixed uses during the weekday p.m. peak commute hour plus peak pre-ballgame-related traffic [conservatively adds the peak hour of pre-ballgame-related traffic (6:00 to 7:00 p.m.), and assumes ballpark attendance of 35,000]; and
4. Nighttime Scenario (10:00 to 11:00 p.m.): Existing plus proposed full buildout of Project mixed uses plus post-ballgame-related traffic (existing and proposed mixed use traffic conservatively estimated at one-third that of weekday p.m. peak commute traffic based on professional judgment of the transportation consultants).

Traffic noise levels were determined for this analysis using the FHWA Traffic Noise Prediction Model based on baseline and future traffic projections developed as part of the transportation analysis (see Section 4.15, *Transportation and Circulation*). All traffic volumes used in this roadway noise analysis were provided by Fehr & Peers Transportation Consultants, and do not reflect a 20 percent trip reduction associated with implementation of the Transportation Demand Management Plan as required under Mitigation Measure TRANS-1. Modeled weekday noise level estimates for the most highly impacted 35 roadway segments near the Project site are presented in **Table 1** for full buildout of the Project mixed uses during the weekday p.m. peak commute hour (excludes ballgame); in **Table 2** for the full buildout of Project mixed uses plus pre- ballgame traffic; and in **Table 3** for Nighttime Scenario: full buildout of the Project mixed uses plus post-ballgame traffic.

Traffic noise level significance is determined by comparing the increase in noise levels (traffic contribution only) to increments recognized by the City of Oakland Significance Criterion 4, above of a permanent increase in noise levels of 5 dBA or more or, for a cumulative increase that exceeds 5 dBA, a project contribution to the cumulative scenario of 3 dBA or more.

As shown in Table 1, weekday traffic noise level increases under the full buildout of Project mixed uses scenario (excludes ballgame) would be less than significant (less than 5 dBA increase) for receptors along all roadways analyzed.

As shown in Table 2, weekday traffic noise level increases for full buildout of Project mixed uses plus pre-game related traffic would be less than significant (less than 5 dBA increase) for receptors along all roadways analyzed, except for MLK Way from 8th Street to 11th Street. Therefore, implementation of transportation mitigation measures identified in Section 4.15, *Transportation and Circulation* would be required to reduce this impact to a less than significant level along this roadway segment.

As shown in Table 3, nighttime (10:00 to 11:00 p.m.) weekday traffic noise level increases for full buildout of the Project mixed-uses plus post-ballgame would also would be less than significant (less than 5 dBA increase) for receptors along all roadways analyzed, except for MLK Way from 8th Street to 11th Street, Broadway from 8th Street to 11th Street, and 12th Street from Castro Street to MLK Way. Therefore, implementation of transportation mitigation measures identified in Section 4.15, *Transportation and Circulation* would be required to reduce this impact to a less than significant level along these roadway segments.

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Significance after Mitigation: Less than Significant for traffic noise.

TABLE 1
MODELED TRAFFIC NOISE LEVELS WITH WEEKDAY P.M. FULL BUILDOUT
OF PROJECT MIXED USES (EXCLUDES BALLGAME/EVENT)

| Roadway Segment | Existing | Existing plus Full Buildout of Project Mixed Uses | dBA Difference | Significant Increase? |
|--|----------|---|----------------|-----------------------|
| Brush Street from 3 rd Street to 5 th Street | 59.6 | 61.4 | 1.8 | No |
| Brush Street from 7 th Street to 11 th Street | 67.1 | 68.4 | 1.3 | No |
| Brush Street from 12 th Street to 14 th Street | 62.9 | 64.1 | 1.2 | No |
| Castro Street from 3 rd Street to 5 th Street | 58.9 | 60.7 | 1.8 | No |
| Castro Street from 7 th Street to 8 th Street | 65.6 | 66.5 | 1.0 | No |
| Castro Street from 8 th Street to 11 th Street | 67.5 | 68.1 | 0.6 | No |
| Castro Street from 12 th Street to 14 th Street | 61.2 | 61.9 | 0.7 | No |
| MLK Way from 3 rd Street to 5 th Street ^a | 77.2 | 77.5 | 0.3 | No |
| MLK Way from 6 th Street to 7 th Street ^a | 68.6 | 69.8 | 1.2 | No |
| MLK Way from 8 th Street to 11 th Street ^a | 63.1 | 66.3 | 3.2 | No |
| Clay Street from 7 th Street to 8 th Street | 57.0 | 57.0 | 0.0 | No |
| Washington Street from Embarcadero to 3 rd Street | 57.4 | 57.6 | 0.2 | No |
| Washington Street from 7 th Street to 8 th Street | 58.2 | 58.2 | 0.0 | No |
| Broadway from Embarcadero to 3 rd Street | 60.6 | 60.6 | 0.0 | No |
| Broadway from 6 th Street to 7 th Street | 65.9 | 65.9 | 0.0 | No |
| Broadway from 8 th Street to 11 th Street | 65.5 | 65.5 | 0.0 | No |
| Franklin Street from 12 th Street to 14 th Street | 60.3 | 60.3 | 0.0 | No |
| Harrison Street from 6 th Street to 7 th Street | 63.2 | 63.7 | 0.5 | No |
| Harrison Street from 7 th Street to 8 th Street | 65.0 | 65.3 | 0.3 | No |
| Embarcadero from Market Street to Martin Luther King Jr. Way | 55.7 | Closed | N/A | No |
| Embarcadero from Washington Street to Broadway | 59.6 | 59.6 | 0.0 | No |
| 3 rd Street from Brush Street to Castro Street | 63.4 | 63.9 | 0.5 | No |
| 3 rd Street from Washington Street to Broadway | 62.1 | 62.7 | 0.6 | No |
| 3 rd Street from Broadway to Franklin Street | 61.6 | 61.7 | 0.1 | No |
| 5 th Street from Brush Street to Castro Street | 65.9 | 66.6 | 0.7 | No |
| 5 th Street from Castro Street to Martin Luther King Jr. Way | 65.6 | 66.3 | 0.7 | No |
| 7 th Street from Castro Street to Martin Luther King Jr. Way | 66.3 | 66.5 | 0.2 | No |
| 7 th Street from Martin Luther King Jr. Way to Jefferson Street | 66.7 | 67.0 | 0.3 | No |
| 7 th Street from Clay Street to Washington Street | 67.1 | 67.4 | 0.3 | No |
| 7 th Street from Broadway to Franklin Street | 67.9 | 68.1 | 0.2 | No |
| 8 th Street from Webster Street to Harrison Street | 63.7 | 64.1 | 0.4 | No |
| 11 th Street from Castro Street to Martin Luther King Jr. Way | 63.1 | 63.5 | 0.4 | No |
| 12 th Street from Castro Street to Martin Luther King Jr. Way | 64.0 | 64.6 | 0.6 | No |
| Market Street from Embarcadero to 3 rd Street ^a | 68.5 | 68.0 | 2.8 | No |
| Market Street from 3 rd Street to 7 th Street ^a | 84.8 | 84.9 | 0.1 | No |

SOURCE: Fehr & Peers, 2019, ESA, 2019.

^a Due to the presence of other existing noise sources near this location (UPRR or I-880), the existing noise level at this location is based on measurement data and the existing plus project value is the logarithmic sum of the existing measurement data and the predicted traffic contribution.

**TABLE 2
MODELED TRAFFIC NOISE LEVELS WITH WEEKDAY P.M. FULL BUILDOUT
OF PROJECT MIXED USES PLUS PRE-BALLGAME TRAFFIC**

| Roadway Segment | Existing | Existing plus Full Buildout of Project Mixed Uses plus Pre-Ballgame Traffic | dBA Difference | Significant Increase? |
|--|-----------------|--|-----------------------|------------------------------|
| Brush Street from 3 rd Street to 5 th Street | 59.6 | 61.4 | 1.8 | No |
| Brush Street from 7 th Street to 11 th Street | 67.1 | 69.7 | 2.6 | No |
| Brush Street from 12 th Street to 14 th Street | 62.9 | 66.3 | 3.4 | No |
| Castro Street from 3 rd Street to 5 th Street | 58.9 | 60.7 | 1.8 | No |
| Castro Street from 7 th Street to 8 th Street | 65.6 | 67.5 | 1.9 | No |
| Castro Street from 8 th Street to 11 th Street | 67.5 | 68.7 | 1.2 | No |
| Castro Street from 12 th Street to 14 th Street | 61.2 | 63.4 | 1.2 | No |
| MLK Way from 3 rd Street to 5 th Street ^a | 77.2 | 77.6 | 0.3 | No |
| MLK Way from 6 th Street to 7 th Street ^a | 68.6 | 71.1 | 2.5 | No |
| MLK Way from 8 th Street to 11 th Street ^a | 63.1 | 68.6 | 5.5 | Yes |
| Clay Street from 7 th Street to 8 th Street | 57.0 | 59.4 | 2.4 | No |
| Washington Street from Embarcadero to 3 rd Street | 57.4 | 61.8 | 4.4 | No |
| Washington Street from 7 th Street to 8 th Street | 58.2 | 60.4 | 2.2 | No |
| Broadway from Embarcadero to 3 rd Street | 60.6 | 60.7 | 0.1 | No |
| Broadway from 6 th Street to 7 th Street | 65.9 | 67.3 | 1.4 | No |
| Broadway from 8 th Street to 11 th Street | 65.5 | 67.6 | 2.2 | No |
| Franklin Street from 12 th Street to 14 th Street | 60.3 | 61.4 | 1.1 | No |
| Harrison Street from 6 th Street to 7 th Street | 63.2 | 65.4 | 2.2 | No |
| Harrison Street from 7 th Street to 8 th Street | 65.0 | 66.6 | 1.5 | No |
| Embarcadero from Market Street to MLK Way | 55.7 | Closed | N/A | No |
| Embarcadero from Washington Street to Broadway | 59.6 | 59.6 | 0.0 | No |
| 3 rd Street from Brush Street to Castro Street | 63.4 | 63.9 | 0.6 | No |
| 3 rd Street from Washington Street to Broadway | 62.1 | 63.5 | 1.4 | No |
| 3 rd Street from Broadway to Franklin Street | 61.6 | 63.6 | 2.0 | No |
| 5 rd Street from Brush Street to Castro Street | 65.9 | 68.2 | 2.3 | No |
| 5 rd Street from Castro Street to MLK Way | 65.6 | 67.6 | 1.9 | No |
| 7 rd Street from Castro Street to MLK Way | 66.3 | 67.8 | 1.5 | No |
| 7 rd Street from MLK Way to Jefferson Street | 66.7 | 68.4 | 1.7 | No |
| 7 rd Street from Clay Street to Washington Street | 67.1 | 68.3 | 1.2 | No |
| 7 rd Street from Broadway to Franklin Street | 67.9 | 68.2 | 0.3 | No |
| 8 th Street from Webster Street to Harrison Street | 63.7 | 66.6 | 2.9 | No |
| 11 th Street from Castro Street to MLK Way | 63.1 | 66.3 | 3.2 | No |
| 12 th Street from Castro Street to MLK Way | 64.0 | 64.6 | 0.6 | No |
| Market Street from Embarcadero to 3 rd Street ^a | 68.5 | 72.6 | 2.1 | No |
| Market Street from 3 rd Street to 7 th Street ^a | 84.8 | 85.0 | 0.2 | No |

SOURCE: Fehr & Peers, 2019, ESA, 2019.

^a Due to the presence of other existing noise sources near this location (UPRR or I-880), the existing noise level at this location is based on measurement data and the existing plus project value is the logarithmic sum of the existing measurement data and the predicted

traffic contribution.

**TABLE 3
MODELED TRAFFIC NOISE LEVELS WITH NIGHTTIME SCENARIO (10:00 TO 11:00 P.M.): FULL BUILDOUT OF
PROJECT MIXED USES PLUS POST-BALLGAME TRAFFIC**

| Roadway Segment | Existing | Existing plus Full Buildout of Mixed Uses plus Post-Ballgame Traffic | dBA Difference | Significant Increase? |
|--|----------|--|----------------|-----------------------|
| Weekday Nighttime Hour (10:00 PM – 11:00 PM) | | | | |
| Brush Street from 3 rd Street to 5 th Street | 54.8 | 56.6 | 1.9 | No |
| Brush Street from 7 th Street to 11 th Street | 62.3 | 63.6 | 1.3 | No |
| Brush Street from 12 th Street to 14 th Street | 58.1 | 59.3 | 1.2 | No |
| Castro Street from 3 rd Street to 5 th Street | 54.1 | 55.9 | 1.8 | No |
| Castro Street from 7 th Street to 8 th Street ^a | 67.7 | 70.4 | 2.7 | No |
| Castro Street from 8 th Street to 11 th Street ^a | 67.7 | 71.1 | 3.4 | No |
| Castro Street from 12 th Street to 14 th Street ^a | 67.7 | 69.4 | 1.7 | No |
| MLK Way from 3 rd Street to 5 th Street ^a | 72.7 | 73.5 | 0.8 | No |
| MLK Way from 6 th Street to 7 th Street ^a | 65.9 | 69.1 | 3.2 | No |
| MLK Way from 8 th Street to 11 th Street ^a | 58.8 | 67.0 | 8.2 | Yes |
| Clay Street from 7 th Street to 8 th Street | 52.2 | 57.1 | 4.9 | No |
| Washington Street from Embarcadero to 3 rd Street ^a | 62.6 | 65.1 | 2.5 | No |
| Washington Street from 7 th Street to 8 th Street | 53.4 | 53.4 | 0.0 | No |
| Broadway from Embarcadero to 3 rd Street | 55.7 | 58.9 | 3.2 | No |
| Broadway from 6 th Street to 7 th Street | 61.1 | 65.4 | 4.3 | No |
| Broadway from 8 th Street to 11 th Street | 60.7 | 66.5 | 5.9 | Yes |
| Franklin Street from 12 th Street to 14 th Street | 55.4 | 55.5 | 0.1 | No |
| Harrison Street from 6 th Street to 7 th Street | 58.4 | 58.9 | 0.5 | No |
| Harrison Street from 7 th Street to 8 th Street | 60.2 | 61.1 | 0.9 | No |
| Embarcadero from Market Street to MLK Way | 50.8 | Closed | N/A | No |
| Embarcadero from Washington Street to Broadway | 54.8 | 54.9 | 0.1 | No |
| 3 rd Street from Brush Street to Castro Street | 58.5 | 59.1 | 0.6 | No |
| 3 rd Street from Washington Street to Broadway | 57.3 | 59.3 | 2.0 | No |
| 3 rd Street from Broadway to Franklin Street | 56.8 | 61.7 | 4.9 | No |
| 5 th Street from Brush Street to Castro Street ^a | 63.8 | 68.4 | 4.6 | No |
| 5 th Street from Castro Street to MLK Way | 60.8 | 65.4 | 4.6 | No |
| 7 th Street from Castro Street to MLK Way | 61.5 | 63.1 | 1.6 | No |
| 7 th Street from MLK Way to Jefferson Street | 61.9 | 64.5 | 2.6 | No |
| 7 th Street from Clay Street to Washington Street | 62.3 | 64.3 | 1.9 | No |
| 7 th Street from Broadway to Franklin Street | 63.1 | 64.8 | 1.8 | No |
| 8 th Street from Webster Street to Harrison Street | 58.9 | 61.1 | 2.2 | No |
| 11 th Street from Castro Street to MLK Way | 58.3 | 58.9 | 0.5 | No |
| 12 th Street from Castro Street to MLK Way | 59.2 | 65.1 | 5.9 | Yes |
| Market Street from Embarcadero to 3 rd Street ^a | 66.8 | 71.2 | 4.4 | No |
| Market Street from 3 rd Street to 7 th Street ^a | 78.5 | 79.0 | 0.5 | No |

SOURCE: Fehr & Peers, 2019, ESA, 2019.

^a Due to the presence of other existing noise sources near this location (UPRR, I-980 or I-880), the existing noise level at this location

Cumulative Roadway Traffic Noise Increases without Vehicle Trip Reduction

Operational noise impacts of the proposed Project would primarily result from increased traffic on the local roadway network. Cumulative (year 2040) plus Project traffic data without a 20 percent trip reduction associated with implementation of the Transportation Demand Management Plan as required under Mitigation Measure TRANS-1 were used to estimate the cumulative operational noise increases. Because traffic impacts would primarily occur before and after events the cumulative impact analysis considers traffic impacts separately from operational impacts.

Cumulative traffic noise level significance is determined by a two-step process. First, a comparison is made of the increase in noise levels between cumulative conditions with the Project and existing baseline conditions to an incremental 5 dBA threshold established by the City of Oakland. If the roadside noise levels would exceed this incremental threshold, a cumulative noise impact would be identified.

The second step of the cumulative roadside noise analysis (if a cumulative noise impact is predicted) is to evaluate if the contribution of the project to roadside noise levels is cumulatively considerable. This second step (if necessary) involves assessing whether the Project contribution to roadside noise levels (i.e., the difference between cumulative conditions and cumulative plus Project conditions) would exceed the 3 dBA incremental contribution threshold established by the City of Oakland.

The roadway segments analyzed and the results of the noise increases resulting from modeling are shown in **Table 4** [for 2040 Cumulative plus weekday p.m.¹ full buildout of Project mixed uses (excludes ballgame)], **Table 5** (for the 2040 Cumulative plus weekday p.m. full buildout of Project mixed uses plus pre-ballgame traffic) and **Table 6** (for the 2040 Nighttime Cumulative scenario (10:00 to 11:00 p.m.): full buildout of Project mixed uses plus post-ballgame traffic).

¹ The peak hour was used to represent the maximum period of traffic generation and associated noise generated by the project.

**TABLE 4
MODELED TRAFFIC NOISE LEVELS YEAR 2040 WITH WEEKDAY P.M. FULL BUILDOUT
OF PROJECT MIXED USES (EXCLUDES BALLGAME)**

| Roadway Segment | Existing | 2040 plus Full Buildout of Project Mixed Uses | dBA Difference 2040 plus Full Buildout of Project Mixed Uses from Existing | Significant Cumulative Increase ? | 2040 No Project | dBA Difference 2040 plus Full Buildout of Project Mixed Uses from 2040 No Project | Cumulatively Considerable Project Increase? |
|---|-----------------|--|---|--|------------------------|--|--|
| Weekday PM Peak Hour Noise Levels (4:45 p.m. – 5:45 p.m.) | | | | | | | |
| Brush Street from 3 rd Street to 5 th Street | 59.6 | 63.1 | 3.5 | No | 61.2 | 1.9 | N/A |
| Brush Street from 7 th Street to 11 th Street | 67.1 | 70.5 | 3.4 | No | 68.9 | 1.6 | N/A |
| Brush Street from 12 th Street to 14 th Street | 62.9 | 66.2 | 4.3 | No | 64.7 | 1.5 | N/A |
| Castro Street from 3 rd Street to 5 th Street | 58.9 | 62.6 | 3.7 | No | 60.7 | 1.9 | N/A |
| Castro Street from 7 th Street to 8 th Street | 65.6 | 68.7 | 3.1 | No | 67.4 | 1.3 | N/A |
| Castro Street from 8 th Street to 11 th Street | 67.5 | 70.4 | 2.9 | No | 69.3 | 1.1 | N/A |
| Castro Street from 12 th Street to 14 th Street | 61.2 | 64.2 | 3.0 | No | 63.1 | 1.1 | N/A |
| MLK Way from 3 rd Street to 5 th Street ^a | 77.2 | 77.5 | 0.3 | No | 77.3 | 0.2 | N/A |
| MLK Way from 6 th Street to 7 th Street ^a | 68.6 | 70.1 | 1.5 | No | 69.2 | 0.9 | N/A |
| MLK Way from 8 th Street to 11 th Street ^a | 63.1 | 66.9 | 3.8 | No | 63.7 | 3.2 | N/A |
| Clay Street from 7 th Street to 8 th Street | 57.0 | 59.8 | 2.8 | No | 59.0 | 0.8 | N/A |
| Washington Street from Embarcadero to 3 rd Street ^a | 62.6 | 64.5 | 1.9 | No | 64.3 | 0.2 | N/A |
| Washington Street from 7 th Street to 8 th Street | 58.2 | 60.7 | 2.5 | No | 59.9 | 0.8 | N/A |
| Broadway from Embarcadero to 3 rd Street | 60.6 | 63.2 | 2.6 | No | 62.4 | 0.8 | N/A |
| Broadway from 6 th Street to 7 th Street | 65.9 | 68.5 | 2.6 | No | 67.7 | 0.8 | N/A |
| Broadway from 8 th Street to 11 th Street | 65.5 | 68.0 | 2.5 | No | 67.3 | 0.8 | N/A |
| Franklin Street from 12 th Street to 14 th Street | 60.3 | 62.9 | 2.6 | No | 62.1 | 0.8 | N/A |
| Harrison Street from 6 th Street to 7 th Street | 63.2 | 66.1 | 2.9 | No | 65.0 | 1.1 | N/A |
| Harrison Street from 7 th Street to 8 th Street | 65.0 | 67.8 | 2.8 | No | 66.8 | 1.0 | N/A |
| Embarcadero from Market Street to MLK Way | 55.4 | Closed | N/A | No | Closed | N/A | N/A |
| Embarcadero from Washington Street to Broadway | 60.5 | 59.6 | -0.9 | No | 59.6 | 0.0 | N/A |
| 3rd Street from Brush Street to Castro Street | 63.4 | 66.2 | 2.8 | No | 65.1 | 1.1 | N/A |
| 3rd Street from Washington Street to Broadway | 62.1 | 65.0 | 2.9 | No | 63.9 | 1.1 | N/A |
| 3rd Street from Broadway to Franklin Street | 61.6 | 64.3 | 2.7 | No | 63.5 | 0.8 | N/A |

TABLE 4 (CONTINUED)
MODELED TRAFFIC NOISE LEVELS YEAR 2040 WITH WEEKDAY P.M. FULL BUILDOUT
OF PROJECT MIXED USES (EXCLUDES BALLGAME)

| Roadway Segment | Existing | 2040 plus Full Buildout of Project Mixed Uses | dBA Difference 2040 plus Full Buildout of Project Mixed Uses from Existing | Significant Cumulative Increase ? | 2040 No Project | dBA Difference 2040 plus Full Buildout of Project Mixed Uses from 2040 No Project | Cumulatively Considerable Project Increase? |
|--|-----------------|--|---|--|------------------------|--|--|
| 5 rd Street from Brush Street to Castro Street | 65.9 | 68.9 | 3.0 | No | 67.7 | 1.2 | N/A |
| 5 rd Street from Castro Street to MLK Way | 65.6 | 68.6 | 3.0 | No | 67.4 | 1.2 | N/A |
| 7 rd Street from Castro Street to MLK Way | 66.3 | 69.0 | 2.7 | No | 68.1 | 0.9 | N/A |
| 7 rd Street from MLK Way to Jefferson Street | 66.7 | 69.4 | 2.7 | No | 68.5 | 0.9 | N/A |
| 7 rd Street from Clay Street to Washington Street | 67.1 | 69.8 | 2.7 | No | 68.9 | 0.9 | N/A |
| 7 rd Street from Broadway to Franklin Street | 67.9 | 70.6 | 2.7 | No | 69.7 | 0.9 | N/A |
| 8 th Street from Webster Street to Harrison Street | 63.7 | 66.5 | 2.8 | No | 65.5 | 1.0 | N/A |
| 11 th Street from Castro Street to MLK Way | 63.1 | 65.9 | 2.8 | No | 64.9 | 1.0 | N/A |
| 12 th Street from Castro Street to MLK Way | 64.0 | 67.0 | 3.0 | No | 65.8 | 1.2 | N/A |
| Market Street from Embarcadero to 3 rd Street ^a | 68.5 | 71.4 | 2.9 | No | 69.1 | 2.3 | N/A |
| Market Street from 3 rd Street to 7 th Street ^a | 84.8 | 84.9 | 0.1 | No | 84.8 | 0.1 | N/A |

^a Due to the presence of other existing noise sources near this location (UPRR or I-880), the existing noise level at this location is based on measurement data and the existing plus project value is the logarithmic sum of the existing measurement data and the predicted traffic contribution.

**TABLE 5
MODELED TRAFFIC NOISE LEVELS YEAR 2040 WITH WEEKDAY P.M. FULL BUILDOUT
OF PROJECT MIXED USES PLUS PRE-BALLGAME TRAFFIC**

| Roadway Segment | Existing | 2040 plus Full Buildout of Project Mixed Uses plus Pre-Ballgame Traffic | dBA Difference 2040 plus Full Buildout of Project Mixed Uses plus Pre-Ballgame Traffic from Existing | Significant Cumulative Increase ? | 2040 No Project | dBA Difference 2040 plus Full Buildout of Project Mixed Uses plus Pre-Ballgame Traffic from 2040 No Project | Cumulatively Considerable Project Increase? |
|---|----------|---|--|-----------------------------------|-----------------|---|---|
| Weekday PM Peak Hour Noise Levels | | | | | | | |
| Brush Street from 3 rd Street to 5 th Street | 59.6 | 63.1 | 3.5 | No | 61.2 | 1.9 | N/A |
| Brush Street from 7 th Street to 11 th Street | 67.1 | 71.3 | 4.2 | No | 68.9 | 2.4 | N/A |
| Brush Street from 12 th Street to 14 th Street | 62.9 | 67.7 | 4.8 | No | 64.7 | 3.0 | N/A |
| Castro Street from 3 rd Street to 5 th Street | 58.9 | 62.6 | 3.7 | No | 60.7 | 2.0 | N/A |
| Castro Street from 7 th Street to 8 th Street | 65.6 | 69.3 | 3.7 | No | 67.4 | 1.9 | N/A |
| Castro Street from 8 th Street to 11 th Street | 67.5 | 70.8 | 3.3 | No | 69.3 | 1.5 | N/A |
| Castro Street from 12 th Street to 14 th Street | 61.2 | 65.1 | 3.9 | No | 63.1 | 2.0 | N/A |
| MLK Way from 3 rd Street to 5 th Street ^a | 77.2 | 77.7 | 0.5 | No | 77.3 | 0.4 | N/A |
| MLK Way from 6 th Street to 7 th Street ^a | 68.6 | 71.3 | 2.7 | No | 69.2 | 2.1 | N/A |
| MLK Way from 8 th Street to 11 th Street ^a | 63.1 | 69.1 | 6.0 | Yes | 63.7 | 5.4 | Yes |
| Clay Street from 7 th Street to 8 th Street | 57.0 | 61.2 | 4.2 | No | 59.0 | 2.2 | N/A |
| Washington Street from Embarcadero to 3 rd Street ^a | 62.6 | 65.8 | 3.2 | No | 64.3 | 1.5 | N/A |
| Washington Street from 7 th Street to 8 th Street | 58.2 | 62.1 | 3.9 | No | 59.9 | 2.2 | N/A |
| Broadway from Embarcadero to 3 rd Street | 60.6 | 63.3 | 2.7 | No | 62.4 | 0.9 | N/A |
| Broadway from 6 th Street to 7 th Street | 65.9 | 69.3 | 3.4 | No | 67.7 | 1.6 | N/A |
| Broadway from 8 th Street to 11 th Street | 65.5 | 69.4 | 3.9 | No | 67.3 | 2.1 | N/A |
| Franklin Street from 12 th Street to 14 th Street | 60.3 | 63.5 | 3.2 | No | 62.1 | 1.4 | N/A |
| Harrison Street from 6 th Street to 7 th Street | 63.2 | 67.2 | 4.0 | No | 65.0 | 2.2 | N/A |
| Harrison Street from 7 th Street to 8 th Street | 65.0 | 68.5 | 3.5 | No | 66.8 | 1.7 | N/A |
| Embarcadero from Market Street to MLK Way | 55.7 | Closed | N/A | N/A | Closed | N/A | N/A |
| Embarcadero from Washington Street to Broadway | 59.6 | 59.6 | 0.0 | No | 59.6 | 0.0 | N/A |
| 3rd Street from Brush Street to Castro Street | 63.4 | 66.2 | 2.8 | No | 65.1 | 1.1 | N/A |
| 3rd Street from Washington Street to Broadway | 62.1 | 65.5 | 3.4 | No | 63.9 | 1.6 | N/A |

TABLE 5 (CONTINUED)
MODELED TRAFFIC NOISE LEVELS YEAR 2040 WITH WEEKDAY P.M. FULL BUILDOUT
OF PROJECT MIXED USES PLUS PRE-BALLGAME TRAFFIC

| Roadway Segment | Existing | 2040 plus Full Buildout of Project Mixed Uses plus Pre-Ballgame Traffic | dBA Difference 2040 plus Full Buildout of Project Mixed Uses plus Pre-Ballgame Traffic from Existing | Significant Cumulative Increase ? | 2040 No Project | dBA Difference 2040 plus Full Buildout of Project Mixed Uses plus Pre-Ballgame Traffic from 2040 No Project | Cumulatively Considerable Project Increase? |
|--|-----------------|--|---|--|------------------------|--|--|
| 3rd Street from Broadway to Franklin Street | 61.6 | 65.5 | 3.9 | No | 63.5 | 2.0 | N/A |
| 5 rd Street from Brush Street to Castro Street | 65.9 | 69.9 | 4.0 | No | 67.7 | 2.2 | N/A |
| 5 rd Street from Castro Street to MLK Way | 65.6 | 69.4 | 3.8 | No | 67.4 | 2.0 | N/A |
| 7 rd Street from Castro Street to MLK Way | 66.3 | 69.8 | 3.5 | No | 68.1 | 1.7 | N/A |
| 7 rd Street from MLK Way to Jefferson Street | 66.7 | 70.3 | 3.6 | No | 68.5 | 1.8 | N/A |
| 7 rd Street from Clay Street to Washington Street | 67.1 | 70.4 | 3.3 | No | 68.9 | 1.5 | N/A |
| 7 rd Street from Broadway to Franklin Street | 67.9 | 70.6 | 2.7 | No | 69.7 | 0.9 | N/A |
| 8 th Street from Webster Street to Harrison Street | 63.7 | 68.1 | 4.4 | No | 65.5 | 2.6 | N/A |
| 11 th Street from Castro Street to MLK Way | 63.1 | 67.7 | 4.6 | No | 64.9 | 2.8 | N/A |
| 12 th Street from Castro Street to MLK Way | 64.0 | 67.0 | 3.0 | No | 65.8 | 1.2 | N/A |
| Market Street from Embarcadero to 3 rd Street ^a | 68.5 | 72.7 | 4.2 | No | 69.1 | 3.6 | N/A |
| Market Street from 3 rd Street to 7 th Street ^a | 84.8 | 85.0 | 0.2 | No | 84.8 | 0.2 | N/A |

a Due to the presence of other existing noise sources near this location (UPRR or I-880), the existing noise level at this location is based on measurement data and the existing plus project value is the logarithmic sum of the existing measurement data and the predicted traffic contribution.

**TABLE 6
MODELED TRAFFIC NOISE LEVELS YEAR 2040 WITH NIGHTTIME SCENARIO (10:00 TO 11:00 P.M.): FULL BUILDOUT OF PROJECT MIXED USES PLUS POST-BALLGAME TRAFFIC**

| Roadway Segment | Existing | 2040 plus Full Buildout of Mixed Uses plus Post-Ballgame Traffic | dBA Difference 2040 plus Full Buildout of Mixed Uses plus Post-Ballgame Traffic from Existing | Significant Cumulative Increase ? | 2040 No Project | dBA Difference 2040 plus Full Buildout of Mixed Uses plus Post-Ballgame Traffic 2040 No Project | Cumulatively Considerable Project Increase? |
|--|----------|--|---|-----------------------------------|-----------------|---|---|
| Weekday Nighttime Hour Noise Levels (10:00 p.m. – 11:00 p.m.) | | | | | | | |
| Brush Street from 3 rd Street to 5 th Street | 54.8 | 58.3 | 3.5 | No | 57.1 | 1.2 | N/A |
| Brush Street from 7 th Street to 11 th Street | 62.3 | 65.6 | 3.3 | No | 64.9 | 0.7 | N/A |
| Brush Street from 12 th Street to 14 th Street | 58.1 | 61.3 | 3.3 | No | 60.6 | 0.7 | N/A |
| Castro Street from 3 rd Street to 5 th Street | 54.1 | 57.7 | 3.6 | No | 56.6 | 1.1 | N/A |
| Castro Street from 7 th Street to 8 th Street ^a | 67.7 | 70.7 | 3.0 | No | 69.0 | 1.7 | N/A |
| Castro Street from 8 th Street to 11 th Street ^a | 67.7 | 71.5 | 3.8 | No | 69.7 | 1.8 | N/A |
| Castro Street from 12 th Street to 14 th Street ^a | 67.7 | 69.6 | 1.9 | No | 68.2 | 1.4 | N/A |
| MLK Way from 3 rd Street to 5 th Street ^a | 72.7 | 73.6 | 0.9 | No | 72.8 | 0.8 | N/A |
| MLK Way from 6 th Street to 7 th Street ^a | 65.9 | 69.2 | 3.3 | No | 66.4 | 2.8 | N/A |
| MLK Way from 8 th Street to 11 th Street ^a | 58.8 | 67.5 | 6.7 | Yes | 60.9 | 6.6 | Yes |
| Clay Street from 7 th Street to 8 th Street | 52.2 | 58.2 | 6.0 | Yes | 55.0 | 3.2 | Yes |
| Washington Street from Embarcadero to 3 rd Street ^a | 62.6 | 65.3 | 2.7 | No | 63.3 | 2.0 | N/A |
| Washington Street from 7 th Street to 8 th Street | 53.4 | 55.9 | 2.5 | No | 55.9 | 0.0 | N/A |
| Broadway from Embarcadero to 3 rd Street | 55.7 | 60.4 | 4.7 | No | 58.4 | 2.0 | N/A |
| Broadway from 6 th Street to 7 th Street | 61.1 | 66.5 | 5.5 | Yes | 63.6 | 2.9 | No |
| Broadway from 8 th Street to 11 th Street | 60.7 | 67.4 | 6.7 | Yes | 63.2 | 4.2 | Yes |
| Franklin Street from 12 th Street to 14 th Street | 55.4 | 58.0 | 2.6 | No | 58.0 | 0.0 | N/A |
| Harrison Street from 6 th Street to 7 th Street | 58.4 | 61.3 | 2.9 | No | 61.0 | 0.3 | N/A |
| Harrison Street from 7 th Street to 8 th Street | 60.2 | 63.3 | 3.1 | No | 62.8 | 0.5 | N/A |
| Embarcadero from Market Street to MLK Way | 50.8 | Closed | N/A | N/A | 52.5 | N/A | N/A |
| Embarcadero from Washington Street to Broadway | 54.8 | 54.8 | 0.0 | N/A | 54.8 | 0.0 | N/A |
| 3rd Street from Brush Street to Castro Street | 58.5 | 61.4 | 2.9 | No | 61.1 | 0.3 | N/A |
| 3rd Street from Washington Street to Broadway | 57.3 | 61.1 | 3.8 | No | 59.9 | 1.2 | N/A |
| 3rd Street from Broadway to Franklin Street | 56.8 | 62.7 | 5.9 | Yes | 59.4 | 3.3 | Yes |

TABLE 6 (CONTINUED)
MODELED TRAFFIC NOISE LEVELS YEAR 2040 WITH NIGHTTIME SCENARIO (10:00 TO 11:00 P.M.): FULL BUILDOUT OF PROJECT MIXED USES PLUS POST-BALLGAME TRAFFIC

| Roadway Segment | Existing | 2040 plus Full Buildout of Mixed Uses plus Post-Ballgame Traffic | dBA Difference 2040 plus Full Buildout of Mixed Uses plus Post-Ballgame Traffic from Existing | Significant Cumulative Increase ? | 2040 No Project | dBA Difference 2040 plus Full Buildout of Mixed Uses plus Post-Ballgame Traffic 2040 No Project | Cumulatively Considerable Project Increase? |
|--|-----------------|---|--|--|------------------------|--|--|
| 5 rd Street from Brush Street to Castro Street ^a | 63.8 | 69.0 | 5.2 | Yes | 66.8 | 2.2 | No |
| 5 rd Street from Castro Street to MLK Way ^a | 63.8 | 68.4 | 4.6 | No | 66.6 | 1.8 | N/A |
| 7 rd Street from Castro Street to MLK Way | 61.5 | 65.0 | 3.5 | No | 64.0 | 1.0 | N/A |
| 7 rd Street from MLK Way to Jefferson Street | 61.9 | 66.1 | 4.2 | No | 64.5 | 1.6 | N/A |
| 7 rd Street from Clay Street to Washington Street | 62.3 | 66.1 | 3.8 | No | 64.9 | 1.2 | N/A |
| 7 rd Street from Broadway to Franklin Street | 63.1 | 66.7 | 3.6 | No | 65.7 | 1.0 | N/A |
| 8 th Street from Webster Street to Harrison Street | 58.9 | 62.8 | 3.9 | No | 61.5 | 1.3 | N/A |
| 11 th Street from Castro Street to MLK Way | 58.3 | 61.2 | 2.9 | No | 60.9 | 0.3 | N/A |
| 12 th Street from Castro Street to MLK Way | 59.2 | 65.9 | 6.7 | Yes | 61.8 | 4.1 | Yes |
| Market Street from Embarcadero to 3 rd Street ^a | 66.8 | 71.2 | 4.4 | No | 67.0 | 4.2 | N/A |
| Market Street from 3 rd Street to 7 th Street ^a | 78.5 | 79.0 | 0.5 | No | 78.5 | 0.5 | N/A |

a Due to the presence of other existing noise sources near this location (UPRR, I-980, or I-880), the existing noise level at this location is based on measurement data and the existing plus project value is the logarithmic sum of the existing measurement data and the predicted traffic contribution.

As shown in Table 4, none of the 35 roadway segments analyzed under 2040 Cumulative plus weekday p.m. full buildout of Project mixed uses conditions would experience an increase in traffic noise levels over baseline conditions that would exceed 5 dBA. Therefore, cumulative roadway traffic impacts under the 2040 Cumulative plus weekday p.m. full buildout of Project mixed uses conditions would be less than significant.

As shown in Table 5, one of the 35 roadway segments analyzed under 2040 Cumulative plus weekday p.m. full buildout of Project mixed uses plus pre-ballgame traffic conditions would experience an increase in traffic noise levels over baseline conditions that would exceed 5 dBA and represent significant cumulative noise impact. These impacted roadway segment is Martin Luther King Jr. Way from 8th Street to 11th Street. The project's contribution to this these roadway segment would be greater than 3-dBA and, hence, would be cumulatively considerable. Receptors on Martin Luther King Jr. Way are near to the elevated I-880 freeway and BART tracks which were considered in the analysis by using monitored background values.

As shown in Table 6, seven of the 35 roadway segments analyzed under 2040 Nighttime Cumulative scenario (10:00 to 11:00 p.m.): full buildout of Project mixed uses plus post-ballgame traffic conditions would experience an increase in traffic noise levels over baseline conditions that would exceed 5 dBA and represent significant cumulative noise impacts. These impacted roadway segments are predicted to occur on Clay Street, Martin Luther King Jr. Way, Broadway, 3rd Street, 5th Street, and 12th Street. The Project's contribution to six of the seven roadway segments would be 3 dBA or greater and, hence, be cumulatively considerable.

Consequently, the proposed Project would contribute considerably to predicated cumulative roadside noise impacts at residential receptors adjacent to on Clay Street, Martin Luther King Jr. Way, Broadway, 3rd Street, 5th Street, and 12th Street. While these impacts would occur only for a few hours per event, given that there would be up to 41 weekday evening regular season baseball games as well as up to 15 concert events per year, this impact is considered a *significant* cumulative operational noise impact.

Although noise mitigation (i.e., installation of noise barriers), could potentially reduce these event-driven noise impacts, physical barriers would likely have secondary effects on aesthetics and would not effectively shield elevated receptors. Additionally, a barrier would need to be continuous to provide meaningful reduction (FTA, 2018), which is not physically feasible because landowners along these roadways need driveway access. Another mitigation considered would be re-routing traffic away from these affected roadways. Re-routing project traffic would result in the transfer of noise impacts from one roadway to another and would likely result in secondary traffic impacts. Alternative methods of ingress and egress (i.e., gondola) are explored in Project variant analysis. Implementation of the Transportation and Parking Demand Management Plan required under **Mitigation Measure TRANS-1** would reduce the severity of these impacts. However, as indicated in the analysis with implementation of the Transportation and Parking Demand Management Plan required under **Mitigation Measure TRANS-1**, impacts would remain significant and unavoidable.

Significance after Mitigation: Significant and Unavoidable.

Attachment 1: Traffic Noise Model Data Sheets

Existing

| ROAD SEGMENT | TOTAL # VEHICLES | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL (15 meters from roadway center) |
|-------------------------|---------------------|----------------|---------|----|-------|-----|-------|---------------|----|-----|------|----|----|-------------------|------|------|---|
| | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | |
| Brush from: 3rd to: 5th | 221 | 95 | 209.95 | 3 | 6.63 | 2 | 4.42 | 25 | 40 | 35 | 56 | 35 | 56 | 53.3 | 52.2 | 57.2 | 59.6 |
| Brush 7th 11th | 1,205 | 95 | 1144.75 | 3 | 36.15 | 2 | 24.1 | 30 | 48 | 30 | 48 | 30 | 48 | 63.0 | 58.6 | 63.9 | 67.1 |
| Brush 12th 14th | 452 | 95 | 429.4 | 3 | 13.56 | 2 | 9.04 | 30 | 48 | 30 | 48 | 30 | 48 | 58.7 | 54.3 | 59.7 | 62.9 |
| Castro 3rd 5th | 246 | 95 | 233.7 | 3 | 7.38 | 2 | 4.92 | 25 | 40 | 25 | 40 | 25 | 40 | 53.8 | 50.4 | 56.3 | 58.9 |
| Castro 7th 8th | 839 | 95 | 797.05 | 3 | 25.17 | 2 | 16.78 | 30 | 48 | 30 | 48 | 30 | 48 | 61.4 | 57.0 | 62.4 | 65.6 |
| Castro 8th 11th | 1,321 | 95 | 1254.95 | 3 | 39.63 | 2 | 26.42 | 30 | 48 | 30 | 48 | 30 | 48 | 63.4 | 59.0 | 64.3 | 67.5 |
| Castro 12th 14th | 309 | 95 | 293.55 | 3 | 9.27 | 2 | 6.18 | 30 | 48 | 30 | 48 | 30 | 48 | 57.1 | 52.7 | 58.0 | 61.2 |
| MLK 3rd 5th | 287 | 95 | 272.65 | 3 | 8.61 | 2 | 5.74 | 25 | 40 | 25 | 40 | 25 | 40 | 54.5 | 51.1 | 57.0 | 59.6 |
| MLK 6th 7th | 223 | 95 | 211.85 | 3 | 6.69 | 2 | 4.46 | 25 | 40 | 25 | 40 | 25 | 40 | 53.4 | 50.0 | 55.9 | 58.5 |
| MLK 8th 11th | 251 | 95 | 238.45 | 3 | 7.53 | 2 | 5.02 | 25 | 40 | 25 | 40 | 25 | 40 | 53.9 | 50.5 | 56.4 | 59.0 |
| Clay 7th 8th | 158 | 95 | 150.1 | 3 | 4.74 | 2 | 3.16 | 25 | 40 | 25 | 40 | 25 | 40 | 51.9 | 48.5 | 54.4 | 57.0 |
| Washington Embdero 3rd | 175 | 95 | 166.25 | 3 | 5.25 | 2 | 3.5 | 25 | 40 | 25 | 40 | 25 | 40 | 52.3 | 49.0 | 54.8 | 57.4 |
| Washton 7th 8th | 209 | 95 | 198.55 | 3 | 6.27 | 2 | 4.18 | 25 | 40 | 25 | 40 | 25 | 40 | 53.1 | 49.7 | 55.6 | 58.2 |
| Bway Embdero 3rd | 359 | 95 | 341.05 | 3 | 10.77 | 2 | 7.18 | 25 | 40 | 25 | 40 | 25 | 40 | 55.4 | 52.1 | 58.0 | 60.6 |
| Bway 6th 7th | 1,223 | 95 | 1161.85 | 3 | 36.69 | 2 | 24.46 | 25 | 40 | 25 | 40 | 25 | 40 | 60.8 | 57.4 | 63.3 | 65.9 |
| Bway 8th 11th | 1,113 | 95 | 1057.35 | 3 | 33.39 | 2 | 22.26 | 25 | 40 | 25 | 40 | 25 | 40 | 60.3 | 57.0 | 62.9 | 65.5 |
| Franklin 12th 14th | 336 | 95 | 319.2 | 3 | 10.08 | 2 | 6.72 | 25 | 40 | 25 | 40 | 25 | 40 | 55.1 | 51.8 | 57.7 | 60.3 |
| Harrison 6th 7th | 664 | 95 | 630.8 | 3 | 19.92 | 2 | 13.28 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.7 | 60.6 | 63.2 |
| Harrison 7th 8th | 1,003 | 95 | 952.85 | 3 | 30.09 | 2 | 20.06 | 25 | 40 | 25 | 40 | 25 | 40 | 59.9 | 56.5 | 62.4 | 65.0 |
| Embdero Market MLK | 61 | 90 | 54.9 | 5 | 3.05 | 5 | 3.05 | 25 | 40 | 25 | 40 | 25 | 40 | 47.5 | 46.6 | 54.2 | 55.7 |
| Embdero Washingt Bway | 288 | 95 | 273.6 | 3 | 8.64 | 2 | 5.76 | 25 | 40 | 25 | 40 | 25 | 40 | 54.5 | 51.1 | 57.0 | 59.6 |
| 3rd Brush Castro | 686 | 95 | 651.7 | 3 | 20.58 | 2 | 13.72 | 25 | 40 | 25 | 40 | 25 | 40 | 58.2 | 54.9 | 60.8 | 63.4 |
| 3rd Washingt Bway | 516 | 95 | 490.2 | 3 | 15.48 | 2 | 10.32 | 25 | 40 | 25 | 40 | 25 | 40 | 57.0 | 53.7 | 59.5 | 62.1 |
| 3rd Bway Franklin | 457 | 95 | 434.15 | 3 | 13.71 | 2 | 9.14 | 25 | 40 | 25 | 40 | 25 | 40 | 56.5 | 53.1 | 59.0 | 61.6 |
| 5th Brush Castro | 1,233 | 95 | 1171.35 | 3 | 36.99 | 2 | 24.66 | 25 | 40 | 25 | 40 | 25 | 40 | 60.8 | 57.4 | 63.3 | 65.9 |
| 5th Castro MLK | 1,159 | 95 | 1101.05 | 3 | 34.77 | 2 | 23.18 | 25 | 40 | 25 | 40 | 25 | 40 | 60.5 | 57.2 | 63.1 | 65.6 |
| 7th Castro MLK | 1,349 | 95 | 1281.55 | 3 | 40.47 | 2 | 26.98 | 25 | 40 | 25 | 40 | 25 | 40 | 61.2 | 57.8 | 63.7 | 66.3 |
| 7th MLK Jeffersn | 1,483 | 95 | 1408.85 | 3 | 44.49 | 2 | 29.66 | 25 | 40 | 25 | 40 | 25 | 40 | 61.6 | 58.2 | 64.1 | 66.7 |
| 7th Clay Washintn | 1,639 | 95 | 1557.05 | 3 | 49.17 | 2 | 32.78 | 25 | 40 | 25 | 40 | 25 | 40 | 62.0 | 58.7 | 64.6 | 67.1 |
| 7th BWay Franklin | 1,936 | 95 | 1839.2 | 3 | 58.08 | 2 | 38.72 | 25 | 40 | 25 | 40 | 25 | 40 | 62.7 | 59.4 | 65.3 | 67.9 |
| 8th Webster Harrison | 745 | 95 | 707.75 | 3 | 22.35 | 2 | 14.9 | 25 | 40 | 25 | 40 | 25 | 40 | 58.6 | 55.2 | 61.1 | 63.7 |
| 11th Castro MLK | 652 | 95 | 619.4 | 3 | 19.56 | 2 | 13.04 | 25 | 40 | 25 | 40 | 25 | 40 | 58.0 | 54.7 | 60.6 | 63.1 |
| 12th Castro MLK | 796 | 95 | 756.2 | 3 | 23.88 | 2 | 15.92 | 25 | 40 | 25 | 40 | 25 | 40 | 58.9 | 55.5 | 61.4 | 64.0 |
| Market Embcdro 3rd | 109 | 95 | 103.55 | 3 | 3.27 | 2 | 2.18 | 25 | 40 | 25 | 40 | 25 | 40 | 50.3 | 46.9 | 52.8 | 55.4 |
| Market 3rd 7th | 358 | 95 | 340.1 | 3 | 10.74 | 2 | 7.16 | 25 | 40 | 25 | 40 | 25 | 40 | 55.4 | 52.1 | 57.9 | 60.5 |

Assumptions: AM peak hour traffic data from Fehr & Peers

Existing Plus Project

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL (15 meters from roadway center) | |
|--------------|---------------------|----------|----------------|------|--------|------|------|----|---------------|----|-----|------|----|----|-------------------|-------|-------|---|-------|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| | from: | to: | % | Auto | % | MT | % | HT | | | | | | | | | | | |
| Brush | 3rd | 5th | 310 | 95 | 294.5 | 3 | 9.3 | 2 | 6.2 | 25 | 40 | 35 | 56 | 35 | 56 | 54.8 | 53.7 | 58.7 | 61.0 |
| Brush | 7th | 11th | 1,520 | 95 | 1444 | 3 | 45.6 | 2 | 30.4 | 30 | 48 | 30 | 48 | 30 | 48 | 64.0 | 59.6 | 65.0 | 68.2 |
| Brush | 12th | 14th | 570 | 95 | 541.5 | 3 | 17.1 | 2 | 11.4 | 30 | 48 | 30 | 48 | 30 | 48 | 59.7 | 55.3 | 60.7 | 63.9 |
| Castro | 3rd | 5th | 350 | 95 | 332.5 | 3 | 10.5 | 2 | 7 | 25 | 40 | 25 | 40 | 25 | 40 | 55.3 | 52.0 | 57.9 | 60.4 |
| Castro | 7th | 8th | 1,000 | 95 | 950 | 3 | 30 | 2 | 20 | 30 | 48 | 30 | 48 | 30 | 48 | 62.2 | 57.8 | 63.1 | 66.3 |
| Castro | 8th | 11th | 1,470 | 95 | 1396.5 | 3 | 44.1 | 2 | 29.4 | 30 | 48 | 30 | 48 | 30 | 48 | 63.8 | 59.4 | 64.8 | 68.0 |
| Castro | 12th | 14th | 350 | 95 | 332.5 | 3 | 10.5 | 2 | 7 | 30 | 48 | 30 | 48 | 30 | 48 | 57.6 | 53.2 | 58.6 | 61.8 |
| MLK | 3rd | 5th | 850 | 95 | 807.5 | 3 | 25.5 | 2 | 17 | 25 | 40 | 25 | 40 | 25 | 40 | 59.2 | 55.8 | 61.7 | 64.3 |
| MLK | 6th | 7th | 610 | 95 | 579.5 | 3 | 18.3 | 2 | 12.2 | 25 | 40 | 25 | 40 | 25 | 40 | 57.7 | 54.4 | 60.3 | 62.9 |
| MLK | 8th | 11th | 600 | 95 | 570 | 3 | 18 | 2 | 12 | 25 | 40 | 25 | 40 | 25 | 40 | 57.7 | 54.3 | 60.2 | 62.8 |
| Clay | 7th | 8th | 160 | 95 | 152 | 3 | 4.8 | 2 | 3.2 | 25 | 40 | 25 | 40 | 25 | 40 | 51.9 | 48.6 | 54.5 | 57.0 |
| Washington | Embdero | 3rd | 180 | 95 | 171 | 3 | 5.4 | 2 | 3.6 | 25 | 40 | 25 | 40 | 25 | 40 | 52.4 | 49.1 | 55.0 | 57.6 |
| Washton | 7th | 8th | 210 | 95 | 199.5 | 3 | 6.3 | 2 | 4.2 | 25 | 40 | 25 | 40 | 25 | 40 | 53.1 | 49.7 | 55.6 | 58.2 |
| Bway | Embdero | 3rd | 360 | 95 | 342 | 3 | 10.8 | 2 | 7.2 | 25 | 40 | 25 | 40 | 25 | 40 | 55.4 | 52.1 | 58.0 | 60.6 |
| Bway | 6th | 7th | 1,220 | 95 | 1159 | 3 | 36.6 | 2 | 24.4 | 25 | 40 | 25 | 40 | 25 | 40 | 60.7 | 57.4 | 63.3 | 65.9 |
| Bway | 8th | 11th | 1,110 | 95 | 1054.5 | 3 | 33.3 | 2 | 22.2 | 25 | 40 | 25 | 40 | 25 | 40 | 60.3 | 57.0 | 62.9 | 65.5 |
| Franklin | 12th | 14th | 340 | 95 | 323 | 3 | 10.2 | 2 | 6.8 | 25 | 40 | 25 | 40 | 25 | 40 | 55.2 | 51.8 | 57.7 | 60.3 |
| Harrison | 6th | 7th | 720 | 95 | 684 | 3 | 21.6 | 2 | 14.4 | 25 | 40 | 25 | 40 | 25 | 40 | 58.5 | 55.1 | 61.0 | 63.6 |
| Harrison | 7th | 8th | 1,060 | 95 | 1007 | 3 | 31.8 | 2 | 21.2 | 25 | 40 | 25 | 40 | 25 | 40 | 60.1 | 56.8 | 62.7 | 65.3 |
| Embdero | Market | MLK | 0 | 90 | 0 | 5 | 0 | 5 | 0 | 25 | 40 | 25 | 40 | 25 | 40 | #NUM! | #NUM! | #NUM! | #NUM! |
| Embdero | Washington | Bway | 290 | 95 | 275.5 | 3 | 8.7 | 2 | 5.8 | 25 | 40 | 25 | 40 | 25 | 40 | 54.5 | 51.1 | 57.0 | 59.6 |
| 3rd | Brush | Castro | 740 | 95 | 703 | 3 | 22.2 | 2 | 14.8 | 25 | 40 | 25 | 40 | 25 | 40 | 58.6 | 55.2 | 61.1 | 63.7 |
| 3rd | Washington | Bway | 570 | 95 | 541.5 | 3 | 17.1 | 2 | 11.4 | 25 | 40 | 25 | 40 | 25 | 40 | 57.4 | 54.1 | 60.0 | 62.6 |
| 3rd | Bway | Franklin | 470 | 95 | 446.5 | 3 | 14.1 | 2 | 9.4 | 25 | 40 | 25 | 40 | 25 | 40 | 56.6 | 53.2 | 59.1 | 61.7 |
| 5th | Brush | Castro | 1,400 | 95 | 1330 | 3 | 42 | 2 | 28 | 25 | 40 | 25 | 40 | 25 | 40 | 61.3 | 58.0 | 63.9 | 66.5 |
| 5th | Castro | MLK | 1,310 | 95 | 1244.5 | 3 | 39.3 | 2 | 26.2 | 25 | 40 | 25 | 40 | 25 | 40 | 61.1 | 57.7 | 63.6 | 66.2 |
| 7th | Castro | MLK | 1,400 | 95 | 1330 | 3 | 42 | 2 | 28 | 25 | 40 | 25 | 40 | 25 | 40 | 61.3 | 58.0 | 63.9 | 66.5 |
| 7th | MLK | Jeffersn | 1,550 | 95 | 1472.5 | 3 | 46.5 | 2 | 31 | 25 | 40 | 25 | 40 | 25 | 40 | 61.8 | 58.4 | 64.3 | 66.9 |
| 7th | Clay | Washintn | 1,700 | 95 | 1615 | 3 | 51 | 2 | 34 | 25 | 40 | 25 | 40 | 25 | 40 | 62.2 | 58.8 | 64.7 | 67.3 |
| 7th | BWay | Franklin | 2,000 | 95 | 1900 | 3 | 60 | 2 | 40 | 25 | 40 | 25 | 40 | 25 | 40 | 62.9 | 59.5 | 65.4 | 68.0 |
| 8th | Webster | Harrison | 810 | 95 | 769.5 | 3 | 24.3 | 2 | 16.2 | 25 | 40 | 25 | 40 | 25 | 40 | 59.0 | 55.6 | 61.5 | 64.1 |
| 11th | Castro | MLK | 690 | 95 | 655.5 | 3 | 20.7 | 2 | 13.8 | 25 | 40 | 25 | 40 | 25 | 40 | 58.3 | 54.9 | 60.8 | 63.4 |
| 12th | Castro | MLK | 890 | 95 | 845.5 | 3 | 26.7 | 2 | 17.8 | 25 | 40 | 25 | 40 | 25 | 40 | 59.4 | 56.0 | 61.9 | 64.5 |
| Market | Embcdro | 3rd | 1,610 | 95 | 1529.5 | 3 | 48.3 | 2 | 32.2 | 25 | 40 | 25 | 40 | 25 | 40 | 61.9 | 58.6 | 64.5 | 67.1 |
| Market | 3rd | 7th | 1,770 | 95 | 1681.5 | 3 | 53.1 | 2 | 35.4 | 25 | 40 | 25 | 40 | 25 | 40 | 62.4 | 59.0 | 64.9 | 67.5 |

Assumptions: AM peak hour traffic data from Fehr & Peers

Existing Plus Project Plus Ballpark

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL (15 meters from roadway center) | |
|--------------|---------------------|----------|----------------|------|---------|------|-------|----|---------------|----|-----|------|----|----|-------------------|-------|-------|---|-------|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| | from: | to: | % | Auto | % | MT | % | HT | | | | | | | | | | | |
| Brush | 3rd | 5th | 310 | 95 | 294.5 | 3 | 9.3 | 2 | 6.2 | 25 | 40 | 35 | 56 | 35 | 56 | 54.8 | 53.7 | 58.7 | 61.0 |
| Brush | 7th | 11th | 2,049 | 95 | 1946.55 | 3 | 61.47 | 2 | 40.98 | 30 | 48 | 30 | 48 | 30 | 48 | 65.3 | 60.9 | 66.3 | 69.5 |
| Brush | 12th | 14th | 933 | 95 | 886.35 | 3 | 27.99 | 2 | 18.66 | 30 | 48 | 30 | 48 | 30 | 48 | 61.9 | 57.5 | 62.8 | 66.0 |
| Castro | 3rd | 5th | 350 | 95 | 332.5 | 3 | 10.5 | 2 | 7 | 25 | 40 | 25 | 40 | 25 | 40 | 55.3 | 52.0 | 57.9 | 60.4 |
| Castro | 7th | 8th | 1,171 | 95 | 1112.45 | 3 | 35.13 | 2 | 23.42 | 30 | 48 | 30 | 48 | 30 | 48 | 62.8 | 58.4 | 63.8 | 67.0 |
| Castro | 8th | 11th | 1,627 | 95 | 1545.65 | 3 | 48.81 | 2 | 32.54 | 30 | 48 | 30 | 48 | 30 | 48 | 64.3 | 59.9 | 65.3 | 68.4 |
| Castro | 12th | 14th | 448 | 95 | 425.6 | 3 | 13.44 | 2 | 8.96 | 30 | 48 | 30 | 48 | 30 | 48 | 58.7 | 54.3 | 59.7 | 62.8 |
| MLK | 3rd | 5th | 1,560 | 95 | 1482 | 3 | 46.8 | 2 | 31.2 | 25 | 40 | 25 | 40 | 25 | 40 | 61.8 | 58.5 | 64.3 | 66.9 |
| MLK | 6th | 7th | 1,492 | 95 | 1417.4 | 3 | 44.76 | 2 | 29.84 | 25 | 40 | 25 | 40 | 25 | 40 | 61.6 | 58.3 | 64.1 | 66.7 |
| MLK | 8th | 11th | 1,386 | 95 | 1316.7 | 3 | 41.58 | 2 | 27.72 | 25 | 40 | 25 | 40 | 25 | 40 | 61.3 | 57.9 | 63.8 | 66.4 |
| Clay | 7th | 8th | 257 | 95 | 244.15 | 3 | 7.71 | 2 | 5.14 | 25 | 40 | 25 | 40 | 25 | 40 | 54.0 | 50.6 | 56.5 | 59.1 |
| Washington | Embdero | 3rd | 477 | 95 | 453.15 | 3 | 14.31 | 2 | 9.54 | 25 | 40 | 25 | 40 | 25 | 40 | 56.7 | 53.3 | 59.2 | 61.8 |
| Washton | 7th | 8th | 341 | 95 | 323.95 | 3 | 10.23 | 2 | 6.82 | 25 | 40 | 25 | 40 | 25 | 40 | 55.2 | 51.9 | 57.7 | 60.3 |
| Bway | Embdero | 3rd | 371 | 95 | 352.45 | 3 | 11.13 | 2 | 7.42 | 25 | 40 | 25 | 40 | 25 | 40 | 55.6 | 52.2 | 58.1 | 60.7 |
| Bway | 6th | 7th | 1,554 | 95 | 1476.3 | 3 | 46.62 | 2 | 31.08 | 25 | 40 | 25 | 40 | 25 | 40 | 61.8 | 58.4 | 64.3 | 66.9 |
| Bway | 8th | 11th | 1,614 | 95 | 1533.3 | 3 | 48.42 | 2 | 32.28 | 25 | 40 | 25 | 40 | 25 | 40 | 62.0 | 58.6 | 64.5 | 67.1 |
| Franklin | 12th | 14th | 393 | 95 | 373.35 | 3 | 11.79 | 2 | 7.86 | 25 | 40 | 25 | 40 | 25 | 40 | 55.8 | 52.5 | 58.4 | 60.9 |
| Harrison | 6th | 7th | 1,005 | 95 | 954.75 | 3 | 30.15 | 2 | 20.1 | 25 | 40 | 25 | 40 | 25 | 40 | 59.9 | 56.5 | 62.4 | 65.0 |
| Harrison | 7th | 8th | 1,343 | 95 | 1275.85 | 3 | 40.29 | 2 | 26.86 | 25 | 40 | 25 | 40 | 25 | 40 | 61.2 | 57.8 | 63.7 | 66.3 |
| Embdero | Market | MLK | 0 | 90 | 0 | 5 | 0 | 5 | 0 | 25 | 40 | 25 | 40 | 25 | 40 | #NUM! | #NUM! | #NUM! | #NUM! |
| Embdero | Washington | Bway | 290 | 95 | 275.5 | 3 | 8.7 | 2 | 5.8 | 25 | 40 | 25 | 40 | 25 | 40 | 54.5 | 51.1 | 57.0 | 59.6 |
| 3rd | Brush | Castro | 740 | 95 | 703 | 3 | 22.2 | 2 | 14.8 | 25 | 40 | 25 | 40 | 25 | 40 | 58.6 | 55.2 | 61.1 | 63.7 |
| 3rd | Washington | Bway | 686 | 95 | 651.7 | 3 | 20.58 | 2 | 13.72 | 25 | 40 | 25 | 40 | 25 | 40 | 58.2 | 54.9 | 60.8 | 63.4 |
| 3rd | Bway | Franklin | 692 | 95 | 657.4 | 3 | 20.76 | 2 | 13.84 | 25 | 40 | 25 | 40 | 25 | 40 | 58.3 | 54.9 | 60.8 | 63.4 |
| 5th | Brush | Castro | 1,958 | 95 | 1860.1 | 3 | 58.74 | 2 | 39.16 | 25 | 40 | 25 | 40 | 25 | 40 | 62.8 | 59.4 | 65.3 | 67.9 |
| 5th | Castro | MLK | 1,706 | 95 | 1620.7 | 3 | 51.18 | 2 | 34.12 | 25 | 40 | 25 | 40 | 25 | 40 | 62.2 | 58.8 | 64.7 | 67.3 |
| 7th | Castro | MLK | 1,781 | 95 | 1691.95 | 3 | 53.43 | 2 | 35.62 | 25 | 40 | 25 | 40 | 25 | 40 | 62.4 | 59.0 | 64.9 | 67.5 |
| 7th | MLK | Jeffersn | 2,006 | 95 | 1905.7 | 3 | 60.18 | 2 | 40.12 | 25 | 40 | 25 | 40 | 25 | 40 | 62.9 | 59.5 | 65.4 | 68.0 |
| 7th | Clay | Washintn | 2,029 | 95 | 1927.55 | 3 | 60.87 | 2 | 40.58 | 25 | 40 | 25 | 40 | 25 | 40 | 63.0 | 59.6 | 65.5 | 68.1 |
| 7th | BWay | Franklin | 2,055 | 95 | 1952.25 | 3 | 61.65 | 2 | 41.1 | 25 | 40 | 25 | 40 | 25 | 40 | 63.0 | 59.7 | 65.5 | 68.1 |
| 8th | Webster | Harrison | 1,301 | 95 | 1235.95 | 3 | 39.03 | 2 | 26.02 | 25 | 40 | 25 | 40 | 25 | 40 | 61.0 | 57.7 | 63.6 | 66.1 |
| 11th | Castro | MLK | 1,073 | 95 | 1019.35 | 3 | 32.19 | 2 | 21.46 | 25 | 40 | 25 | 40 | 25 | 40 | 60.2 | 56.8 | 62.7 | 65.3 |
| 12th | Castro | MLK | 890 | 95 | 845.5 | 3 | 26.7 | 2 | 17.8 | 25 | 40 | 25 | 40 | 25 | 40 | 59.4 | 56.0 | 61.9 | 64.5 |
| Market | Embcdro | 3rd | 3,150 | 95 | 2992.5 | 3 | 94.5 | 2 | 63 | 25 | 40 | 25 | 40 | 25 | 40 | 64.9 | 61.5 | 67.4 | 70.0 |
| Market | 3rd | 7th | 3,308 | 95 | 3142.6 | 3 | 99.24 | 2 | 66.16 | 25 | 40 | 25 | 40 | 25 | 40 | 65.1 | 61.7 | 67.6 | 70.2 |

Assumptions: AM peak hour traffic data from Fehr & Peers

Cumulative No Project

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL (15 meters from roadway center) | |
|--------------|---------------------|----------|----------------|------|--------|------|-------|----|---------------|----|-----|------|----|----|-------------------|------|------|---|------|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| | from: | to: | % | Auto | % | MT | % | HT | | | | | | | | | | | |
| Brush | 3rd | 5th | 380 | 95 | 361 | 3 | 11.4 | 2 | 7.6 | 25 | 40 | 35 | 56 | 35 | 56 | 55.7 | 54.6 | 59.6 | 61.9 |
| Brush | 7th | 11th | 2,180 | 95 | 2071 | 3 | 65.4 | 2 | 43.6 | 30 | 48 | 30 | 48 | 30 | 48 | 65.5 | 61.1 | 66.5 | 69.7 |
| Brush | 12th | 14th | 810 | 95 | 769.5 | 3 | 24.3 | 2 | 16.2 | 30 | 48 | 30 | 48 | 30 | 48 | 61.2 | 56.8 | 62.2 | 65.4 |
| Castro | 3rd | 5th | 440 | 95 | 418 | 3 | 13.2 | 2 | 8.8 | 25 | 40 | 25 | 40 | 25 | 40 | 56.3 | 53.0 | 58.8 | 61.4 |
| Castro | 7th | 8th | 1,520 | 95 | 1444 | 3 | 45.6 | 2 | 30.4 | 30 | 48 | 30 | 48 | 30 | 48 | 64.0 | 59.6 | 65.0 | 68.2 |
| Castro | 8th | 11th | 2,380 | 95 | 2261 | 3 | 71.4 | 2 | 47.6 | 30 | 48 | 30 | 48 | 30 | 48 | 65.9 | 61.5 | 66.9 | 70.1 |
| Castro | 12th | 14th | 560 | 95 | 532 | 3 | 16.8 | 2 | 11.2 | 30 | 48 | 30 | 48 | 30 | 48 | 59.6 | 55.2 | 60.6 | 63.8 |
| MLK | 3rd | 5th | 500 | 95 | 475 | 3 | 15 | 2 | 10 | 25 | 40 | 25 | 40 | 25 | 40 | 56.9 | 53.5 | 59.4 | 62.0 |
| MLK | 6th | 7th | 420 | 95 | 399 | 3 | 12.6 | 2 | 8.4 | 25 | 40 | 25 | 40 | 25 | 40 | 56.1 | 52.8 | 58.6 | 61.2 |
| MLK | 8th | 11th | 470 | 95 | 446.5 | 3 | 14.1 | 2 | 9.4 | 25 | 40 | 25 | 40 | 25 | 40 | 56.6 | 53.2 | 59.1 | 61.7 |
| Clay | 7th | 8th | 300 | 95 | 285 | 3 | 9 | 2 | 6 | 25 | 40 | 25 | 40 | 25 | 40 | 54.6 | 51.3 | 57.2 | 59.8 |
| Washington | Embdero | 3rd | 320 | 95 | 304 | 3 | 9.6 | 2 | 6.4 | 25 | 40 | 25 | 40 | 25 | 40 | 54.9 | 51.6 | 57.5 | 60.1 |
| Washton | 7th | 8th | 370 | 95 | 351.5 | 3 | 11.1 | 2 | 7.4 | 25 | 40 | 25 | 40 | 25 | 40 | 55.6 | 52.2 | 58.1 | 60.7 |
| Bway | Embdero | 3rd | 660 | 95 | 627 | 3 | 19.8 | 2 | 13.2 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.7 | 60.6 | 63.2 |
| Bway | 6th | 7th | 2,220 | 95 | 2109 | 3 | 66.6 | 2 | 44.4 | 25 | 40 | 25 | 40 | 25 | 40 | 63.3 | 60.0 | 65.9 | 68.5 |
| Bway | 8th | 11th | 2,010 | 95 | 1909.5 | 3 | 60.3 | 2 | 40.2 | 25 | 40 | 25 | 40 | 25 | 40 | 62.9 | 59.6 | 65.4 | 68.0 |
| Franklin | 12th | 14th | 610 | 95 | 579.5 | 3 | 18.3 | 2 | 12.2 | 25 | 40 | 25 | 40 | 25 | 40 | 57.7 | 54.4 | 60.3 | 62.9 |
| Harrison | 6th | 7th | 1,210 | 95 | 1149.5 | 3 | 36.3 | 2 | 24.2 | 25 | 40 | 25 | 40 | 25 | 40 | 60.7 | 57.4 | 63.2 | 65.8 |
| Harrison | 7th | 8th | 1,820 | 95 | 1729 | 3 | 54.6 | 2 | 36.4 | 25 | 40 | 25 | 40 | 25 | 40 | 62.5 | 59.1 | 65.0 | 67.6 |
| Embdero | Market | MLK | 60 | 90 | 54 | 5 | 3 | 5 | 3 | 25 | 40 | 25 | 40 | 25 | 40 | 47.4 | 46.5 | 54.2 | 55.6 |
| Embdero | Washington | Bway | 290 | 95 | 275.5 | 3 | 8.7 | 2 | 5.8 | 25 | 40 | 25 | 40 | 25 | 40 | 54.5 | 51.1 | 57.0 | 59.6 |
| 3rd | Brush | Castro | 1,230 | 95 | 1168.5 | 3 | 36.9 | 2 | 24.6 | 25 | 40 | 25 | 40 | 25 | 40 | 60.8 | 57.4 | 63.3 | 65.9 |
| 3rd | Washington | Bway | 930 | 95 | 883.5 | 3 | 27.9 | 2 | 18.6 | 25 | 40 | 25 | 40 | 25 | 40 | 59.6 | 56.2 | 62.1 | 64.7 |
| 3rd | Bway | Franklin | 840 | 95 | 798 | 3 | 25.2 | 2 | 16.8 | 25 | 40 | 25 | 40 | 25 | 40 | 59.1 | 55.8 | 61.7 | 64.2 |
| 5th | Brush | Castro | 2,240 | 95 | 2128 | 3 | 67.2 | 2 | 44.8 | 25 | 40 | 25 | 40 | 25 | 40 | 63.4 | 60.0 | 65.9 | 68.5 |
| 5th | Castro | MLK | 2,100 | 95 | 1995 | 3 | 63 | 2 | 42 | 25 | 40 | 25 | 40 | 25 | 40 | 63.1 | 59.7 | 65.6 | 68.2 |
| 7th | Castro | MLK | 2,430 | 95 | 2308.5 | 3 | 72.9 | 2 | 48.6 | 25 | 40 | 25 | 40 | 25 | 40 | 63.7 | 60.4 | 66.3 | 68.9 |
| 7th | MLK | Jeffersn | 2,670 | 95 | 2536.5 | 3 | 80.1 | 2 | 53.4 | 25 | 40 | 25 | 40 | 25 | 40 | 64.1 | 60.8 | 66.7 | 69.3 |
| 7th | Clay | Washintn | 2,970 | 95 | 2821.5 | 3 | 89.1 | 2 | 59.4 | 25 | 40 | 25 | 40 | 25 | 40 | 64.6 | 61.3 | 67.1 | 69.7 |
| 7th | BWay | Franklin | 3,520 | 95 | 3344 | 3 | 105.6 | 2 | 70.4 | 25 | 40 | 25 | 40 | 25 | 40 | 65.3 | 62.0 | 67.9 | 70.5 |
| 8th | Webster | Harrison | 1,340 | 95 | 1273 | 3 | 40.2 | 2 | 26.8 | 25 | 40 | 25 | 40 | 25 | 40 | 61.1 | 57.8 | 63.7 | 66.3 |
| 11th | Castro | MLK | 1,170 | 95 | 1111.5 | 3 | 35.1 | 2 | 23.4 | 25 | 40 | 25 | 40 | 25 | 40 | 60.6 | 57.2 | 63.1 | 65.7 |
| 12th | Castro | MLK | 1,450 | 95 | 1377.5 | 3 | 43.5 | 2 | 29 | 25 | 40 | 25 | 40 | 25 | 40 | 61.5 | 58.1 | 64.0 | 66.6 |
| Market | Embcdro | 3rd | 200 | 95 | 190 | 3 | 6 | 2 | 4 | 25 | 40 | 25 | 40 | 25 | 40 | 52.9 | 49.5 | 55.4 | 58.0 |
| Market | 3rd | 7th | 660 | 95 | 627 | 3 | 19.8 | 2 | 13.2 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.7 | 60.6 | 63.2 |

Assumptions: AM peak hour traffic data from Fehr & Peers

Cumulative Plus Project

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | VEHICLE SPEED | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL 5 meters from roadway center) | | | |
|--------------------|---------------------|----------|----------------|------|--------|------|-------|---------------|------|----|-----|------|-------------------|----|----|---|------|------|------|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| | from: | to: | % | Auto | % | MT | % | HT | | | | | | | | | | | |
| Brush | 3rd | 5th | 490 | 95 | 465.5 | 3 | 14.7 | 2 | 9.8 | 25 | 40 | 35 | 56 | 35 | 56 | 56.8 | 55.7 | 60.7 | 63.0 |
| Brush | 7th | 11th | 2,570 | 95 | 2441.5 | 3 | 77.1 | 2 | 51.4 | 30 | 48 | 30 | 48 | 30 | 48 | 66.3 | 61.9 | 67.2 | 70.4 |
| Brush | 12th | 14th | 960 | 95 | 912 | 3 | 28.8 | 2 | 19.2 | 30 | 48 | 30 | 48 | 30 | 48 | 62.0 | 57.6 | 63.0 | 66.2 |
| Castro | 3rd | 5th | 490 | 95 | 465.5 | 3 | 14.7 | 2 | 9.8 | 25 | 40 | 25 | 40 | 25 | 40 | 56.8 | 53.4 | 59.3 | 61.9 |
| Castro | 7th | 8th | 1,610 | 95 | 1529.5 | 3 | 48.3 | 2 | 32.2 | 30 | 48 | 30 | 48 | 30 | 48 | 64.2 | 59.8 | 65.2 | 68.4 |
| Castro | 8th | 11th | 2,460 | 95 | 2337 | 3 | 73.8 | 2 | 49.2 | 30 | 48 | 30 | 48 | 30 | 48 | 66.1 | 61.7 | 67.0 | 70.2 |
| Castro | 12th | 14th | 570 | 95 | 541.5 | 3 | 17.1 | 2 | 11.4 | 30 | 48 | 30 | 48 | 30 | 48 | 59.7 | 55.3 | 60.7 | 63.9 |
| MLK | 3rd | 5th | 960 | 95 | 912 | 3 | 28.8 | 2 | 19.2 | 25 | 40 | 25 | 40 | 25 | 40 | 59.7 | 56.3 | 62.2 | 64.8 |
| MLK | 6th | 7th | 690 | 95 | 655.5 | 3 | 20.7 | 2 | 13.8 | 25 | 40 | 25 | 40 | 25 | 40 | 58.3 | 54.9 | 60.8 | 63.4 |
| MLK | 8th | 11th | 680 | 95 | 646 | 3 | 20.4 | 2 | 13.6 | 25 | 40 | 25 | 40 | 25 | 40 | 58.2 | 54.8 | 60.7 | 63.3 |
| Clay | 7th | 8th | 300 | 95 | 285 | 3 | 9 | 2 | 6 | 25 | 40 | 25 | 40 | 25 | 40 | 54.6 | 51.3 | 57.2 | 59.8 |
| Washington Embdero | 3rd | | 320 | 95 | 304 | 3 | 9.6 | 2 | 6.4 | 25 | 40 | 25 | 40 | 25 | 40 | 54.9 | 51.6 | 57.5 | 60.1 |
| Washton | 7th | 8th | 370 | 95 | 351.5 | 3 | 11.1 | 2 | 7.4 | 25 | 40 | 25 | 40 | 25 | 40 | 55.6 | 52.2 | 58.1 | 60.7 |
| Bway | Embdero | 3rd | 660 | 95 | 627 | 3 | 19.8 | 2 | 13.2 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.7 | 60.6 | 63.2 |
| Bway | 6th | 7th | 2,220 | 95 | 2109 | 3 | 66.6 | 2 | 44.4 | 25 | 40 | 25 | 40 | 25 | 40 | 63.3 | 60.0 | 65.9 | 68.5 |
| Bway | 8th | 11th | 2,010 | 95 | 1909.5 | 3 | 60.3 | 2 | 40.2 | 25 | 40 | 25 | 40 | 25 | 40 | 62.9 | 59.6 | 65.4 | 68.0 |
| Franklin | 12th | 14th | 610 | 95 | 579.5 | 3 | 18.3 | 2 | 12.2 | 25 | 40 | 25 | 40 | 25 | 40 | 57.7 | 54.4 | 60.3 | 62.9 |
| Harrison | 6th | 7th | 1,290 | 95 | 1225.5 | 3 | 38.7 | 2 | 25.8 | 25 | 40 | 25 | 40 | 25 | 40 | 61.0 | 57.6 | 63.5 | 66.1 |
| Harrison | 7th | 8th | 1,900 | 95 | 1805 | 3 | 57 | 2 | 38 | 25 | 40 | 25 | 40 | 25 | 40 | 62.7 | 59.3 | 65.2 | 67.8 |
| Embdero | Market | MLK | 30 | 90 | 27 | 5 | 1.5 | 5 | 1.5 | 25 | 40 | 25 | 40 | 25 | 40 | 44.4 | 43.5 | 51.2 | 52.6 |
| Embdero | Washington | Bway | 290 | 95 | 275.5 | 3 | 8.7 | 2 | 5.8 | 25 | 40 | 25 | 40 | 25 | 40 | 54.5 | 51.1 | 57.0 | 59.6 |
| 3rd | Brush | Castro | 1,270 | 95 | 1206.5 | 3 | 38.1 | 2 | 25.4 | 25 | 40 | 25 | 40 | 25 | 40 | 60.9 | 57.6 | 63.4 | 66.0 |
| 3rd | Washington | Bway | 970 | 95 | 921.5 | 3 | 29.1 | 2 | 19.4 | 25 | 40 | 25 | 40 | 25 | 40 | 59.7 | 56.4 | 62.3 | 64.9 |
| 3rd | Bway | Franklin | 860 | 95 | 817 | 3 | 25.8 | 2 | 17.2 | 25 | 40 | 25 | 40 | 25 | 40 | 59.2 | 55.9 | 61.8 | 64.3 |
| 5th | Brush | Castro | 2,370 | 95 | 2251.5 | 3 | 71.1 | 2 | 47.4 | 25 | 40 | 25 | 40 | 25 | 40 | 63.6 | 60.3 | 66.2 | 68.7 |
| 5th | Castro | MLK | 2,220 | 95 | 2109 | 3 | 66.6 | 2 | 44.4 | 25 | 40 | 25 | 40 | 25 | 40 | 63.3 | 60.0 | 65.9 | 68.5 |
| 7th | Castro | MLK | 2,470 | 95 | 2346.5 | 3 | 74.1 | 2 | 49.4 | 25 | 40 | 25 | 40 | 25 | 40 | 63.8 | 60.5 | 66.3 | 68.9 |
| 7th | MLK | Jeffersn | 2,710 | 95 | 2574.5 | 3 | 81.3 | 2 | 54.2 | 25 | 40 | 25 | 40 | 25 | 40 | 64.2 | 60.9 | 66.7 | 69.3 |
| 7th | Clay | Washintn | 3,010 | 95 | 2859.5 | 3 | 90.3 | 2 | 60.2 | 25 | 40 | 25 | 40 | 25 | 40 | 64.7 | 61.3 | 67.2 | 69.8 |
| 7th | BWay | Franklin | 3,560 | 95 | 3382 | 3 | 106.8 | 2 | 71.2 | 25 | 40 | 25 | 40 | 25 | 40 | 65.4 | 62.0 | 67.9 | 70.5 |
| 8th | Webster | Harrison | 1,420 | 95 | 1349 | 3 | 42.6 | 2 | 28.4 | 25 | 40 | 25 | 40 | 25 | 40 | 61.4 | 58.0 | 63.9 | 66.5 |
| 11th | Castro | MLK | 1,180 | 95 | 1121 | 3 | 35.4 | 2 | 23.6 | 25 | 40 | 25 | 40 | 25 | 40 | 60.6 | 57.2 | 63.1 | 65.7 |
| 12th | Castro | MLK | 1,520 | 95 | 1444 | 3 | 45.6 | 2 | 30.4 | 25 | 40 | 25 | 40 | 25 | 40 | 61.7 | 58.3 | 64.2 | 66.8 |
| Market | Embcdro | 3rd | 1,460 | 95 | 1387 | 3 | 43.8 | 2 | 29.2 | 25 | 40 | 25 | 40 | 25 | 40 | 61.5 | 58.2 | 64.1 | 66.6 |
| Market | 3rd | 7th | 1,880 | 95 | 1786 | 3 | 56.4 | 2 | 37.6 | 25 | 40 | 25 | 40 | 25 | 40 | 62.6 | 59.3 | 65.2 | 67.7 |

Assumptions: AM peak hour traffic data from Fehr & Peers

Cumulative Plus Project Plus Ballpark

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL 5 meters from roadway center) | |
|--------------|---------------------|----------|----------------|------|---------|------|--------|----|---------------|----|-----|------|----|----|-------------------|------|------|---|------|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| | from: | to: | % | Auto | % | MT | % | HT | | | | | | | | | | | |
| Brush | 3rd | 5th | 490 | 95 | 465.5 | 3 | 14.7 | 2 | 9.8 | 25 | 40 | 35 | 56 | 35 | 56 | 56.8 | 55.7 | 60.7 | 63.0 |
| Brush | 7th | 11th | 3,099 | 95 | 2944.05 | 3 | 92.97 | 2 | 61.98 | 30 | 48 | 30 | 48 | 30 | 48 | 67.1 | 62.7 | 68.1 | 71.2 |
| Brush | 12th | 14th | 1,323 | 95 | 1256.85 | 3 | 39.69 | 2 | 26.46 | 30 | 48 | 30 | 48 | 30 | 48 | 63.4 | 59.0 | 64.4 | 67.6 |
| Castro | 3rd | 5th | 490 | 95 | 465.5 | 3 | 14.7 | 2 | 9.8 | 25 | 40 | 25 | 40 | 25 | 40 | 56.8 | 53.4 | 59.3 | 61.9 |
| Castro | 7th | 8th | 1,781 | 95 | 1691.95 | 3 | 53.43 | 2 | 35.62 | 30 | 48 | 30 | 48 | 30 | 48 | 64.7 | 60.3 | 65.6 | 68.8 |
| Castro | 8th | 11th | 2,617 | 95 | 2486.15 | 3 | 78.51 | 2 | 52.34 | 30 | 48 | 30 | 48 | 30 | 48 | 66.3 | 61.9 | 67.3 | 70.5 |
| Castro | 12th | 14th | 668 | 95 | 634.6 | 3 | 20.04 | 2 | 13.36 | 30 | 48 | 30 | 48 | 30 | 48 | 60.4 | 56.0 | 61.4 | 64.6 |
| MLK | 3rd | 5th | 1,670 | 95 | 1586.5 | 3 | 50.1 | 2 | 33.4 | 25 | 40 | 25 | 40 | 25 | 40 | 62.1 | 58.8 | 64.6 | 67.2 |
| MLK | 6th | 7th | 1,572 | 95 | 1493.4 | 3 | 47.16 | 2 | 31.44 | 25 | 40 | 25 | 40 | 25 | 40 | 61.8 | 58.5 | 64.4 | 67.0 |
| MLK | 8th | 11th | 1,466 | 95 | 1392.7 | 3 | 43.98 | 2 | 29.32 | 25 | 40 | 25 | 40 | 25 | 40 | 61.5 | 58.2 | 64.1 | 66.7 |
| Clay | 7th | 8th | 397 | 95 | 377.15 | 3 | 11.91 | 2 | 7.94 | 25 | 40 | 25 | 40 | 25 | 40 | 55.9 | 52.5 | 58.4 | 61.0 |
| Washington | Embdero | 3rd | 617 | 95 | 586.15 | 3 | 18.51 | 2 | 12.34 | 25 | 40 | 25 | 40 | 25 | 40 | 57.8 | 54.4 | 60.3 | 62.9 |
| Washton | 7th | 8th | 501 | 95 | 475.95 | 3 | 15.03 | 2 | 10.02 | 25 | 40 | 25 | 40 | 25 | 40 | 56.9 | 53.5 | 59.4 | 62.0 |
| Bway | Embdero | 3rd | 671 | 95 | 637.45 | 3 | 20.13 | 2 | 13.42 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.8 | 60.7 | 63.3 |
| Bway | 6th | 7th | 2,554 | 95 | 2426.3 | 3 | 76.62 | 2 | 51.08 | 25 | 40 | 25 | 40 | 25 | 40 | 63.9 | 60.6 | 66.5 | 69.1 |
| Bway | 8th | 11th | 2,514 | 95 | 2388.3 | 3 | 75.42 | 2 | 50.28 | 25 | 40 | 25 | 40 | 25 | 40 | 63.9 | 60.5 | 66.4 | 69.0 |
| Franklin | 12th | 14th | 663 | 95 | 629.85 | 3 | 19.89 | 2 | 13.26 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.7 | 60.6 | 63.2 |
| Harrison | 6th | 7th | 1,575 | 95 | 1496.25 | 3 | 47.25 | 2 | 31.5 | 25 | 40 | 25 | 40 | 25 | 40 | 61.9 | 58.5 | 64.4 | 67.0 |
| Harrison | 7th | 8th | 2,183 | 95 | 2073.85 | 3 | 65.49 | 2 | 43.66 | 25 | 40 | 25 | 40 | 25 | 40 | 63.3 | 59.9 | 65.8 | 68.4 |
| Embdero | Market | MLK | 30 | 90 | 27 | 5 | 1.5 | 5 | 1.5 | 25 | 40 | 25 | 40 | 25 | 40 | 44.4 | 43.5 | 51.2 | 52.6 |
| Embdero | Washington | Bway | 290 | 95 | 275.5 | 3 | 8.7 | 2 | 5.8 | 25 | 40 | 25 | 40 | 25 | 40 | 54.5 | 51.1 | 57.0 | 59.6 |
| 3rd | Brush | Castro | 1,270 | 95 | 1206.5 | 3 | 38.1 | 2 | 25.4 | 25 | 40 | 25 | 40 | 25 | 40 | 60.9 | 57.6 | 63.4 | 66.0 |
| 3rd | Washington | Bway | 1,086 | 95 | 1031.7 | 3 | 32.58 | 2 | 21.72 | 25 | 40 | 25 | 40 | 25 | 40 | 60.2 | 56.9 | 62.8 | 65.4 |
| 3rd | Bway | Franklin | 1,082 | 95 | 1027.9 | 3 | 32.46 | 2 | 21.64 | 25 | 40 | 25 | 40 | 25 | 40 | 60.2 | 56.9 | 62.8 | 65.3 |
| 5th | Brush | Castro | 2,928 | 95 | 2781.6 | 3 | 87.84 | 2 | 58.56 | 25 | 40 | 25 | 40 | 25 | 40 | 64.5 | 61.2 | 67.1 | 69.7 |
| 5th | Castro | MLK | 2,616 | 95 | 2485.2 | 3 | 78.48 | 2 | 52.32 | 25 | 40 | 25 | 40 | 25 | 40 | 64.1 | 60.7 | 66.6 | 69.2 |
| 7th | Castro | MLK | 2,851 | 95 | 2708.45 | 3 | 85.53 | 2 | 57.02 | 25 | 40 | 25 | 40 | 25 | 40 | 64.4 | 61.1 | 67.0 | 69.6 |
| 7th | MLK | Jeffersn | 3,166 | 95 | 3007.7 | 3 | 94.98 | 2 | 63.32 | 25 | 40 | 25 | 40 | 25 | 40 | 64.9 | 61.5 | 67.4 | 70.0 |
| 7th | Clay | Washintn | 3,339 | 95 | 3172.05 | 3 | 100.17 | 2 | 66.78 | 25 | 40 | 25 | 40 | 25 | 40 | 65.1 | 61.8 | 67.6 | 70.2 |
| 7th | BWay | Franklin | 3,615 | 95 | 3434.25 | 3 | 108.45 | 2 | 72.3 | 25 | 40 | 25 | 40 | 25 | 40 | 65.5 | 62.1 | 68.0 | 70.6 |
| 8th | Webster | Harrison | 1,911 | 95 | 1815.45 | 3 | 57.33 | 2 | 38.22 | 25 | 40 | 25 | 40 | 25 | 40 | 62.7 | 59.3 | 65.2 | 67.8 |
| 11th | Castro | MLK | 1,563 | 95 | 1484.85 | 3 | 46.89 | 2 | 31.26 | 25 | 40 | 25 | 40 | 25 | 40 | 61.8 | 58.5 | 64.3 | 66.9 |
| 12th | Castro | MLK | 1,520 | 95 | 1444 | 3 | 45.6 | 2 | 30.4 | 25 | 40 | 25 | 40 | 25 | 40 | 61.7 | 58.3 | 64.2 | 66.8 |
| Market | Embcdro | 3rd | 3,000 | 95 | 2850 | 3 | 90 | 2 | 60 | 25 | 40 | 25 | 40 | 25 | 40 | 64.6 | 61.3 | 67.2 | 69.8 |
| Market | 3rd | 7th | 3,418 | 95 | 3247.1 | 3 | 102.54 | 2 | 68.36 | 25 | 40 | 25 | 40 | 25 | 40 | 65.2 | 61.9 | 67.7 | 70.3 |

Assumptions: AM peak hour traffic data from Fehr & Peers

Existing Nighttime

(Assumes 33% of peakhour traffic per Fehr & Piers)

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL (15 meters from roadway center) | |
|------------------------|---------------------|--|----------------|----------|----|---------|-----|---------|---------------|----|-----|------|----|----|-------------------|------|------|---|--|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| from: to: | | | % | Auto | % | MT | % | HT | | | | | | | | | | | |
| Brush 3rd 5th | 73 | | 95 | 69.2835 | 3 | 2.1879 | 2 | 1.4586 | 25 | 40 | 35 | 56 | 35 | 56 | 48.5 | 47.4 | 52.4 | 54.8 | |
| Brush 7th 11th | 398 | | 95 | 377.7675 | 3 | 11.9295 | 2 | 7.953 | 30 | 48 | 30 | 48 | 30 | 48 | 58.2 | 53.8 | 59.1 | 62.3 | |
| Brush 12th 14th | 149 | | 95 | 141.702 | 3 | 4.4748 | 2 | 2.9832 | 30 | 48 | 30 | 48 | 30 | 48 | 53.9 | 49.5 | 54.9 | 58.1 | |
| Castro 3rd 5th | 81 | | 95 | 77.121 | 3 | 2.4354 | 2 | 1.6236 | 25 | 40 | 25 | 40 | 25 | 40 | 49.0 | 45.6 | 51.5 | 54.1 | |
| Castro 7th 8th | 277 | | 95 | 263.0265 | 3 | 8.3061 | 2 | 5.5374 | 30 | 48 | 30 | 48 | 30 | 48 | 56.6 | 52.2 | 57.6 | 60.8 | |
| Castro 8th 11th | 436 | | 95 | 414.1335 | 3 | 13.0779 | 2 | 8.7186 | 30 | 48 | 30 | 48 | 30 | 48 | 58.6 | 54.2 | 59.5 | 62.7 | |
| Castro 12th 14th | 102 | | 95 | 96.8715 | 3 | 3.0591 | 2 | 2.0394 | 30 | 48 | 30 | 48 | 30 | 48 | 52.2 | 47.8 | 53.2 | 56.4 | |
| MLK 3rd 5th | 95 | | 95 | 89.9745 | 3 | 2.8413 | 2 | 1.8942 | 25 | 40 | 25 | 40 | 25 | 40 | 49.6 | 46.3 | 52.2 | 54.8 | |
| MLK 6th 7th | 74 | | 95 | 69.9105 | 3 | 2.2077 | 2 | 1.4718 | 25 | 40 | 25 | 40 | 25 | 40 | 48.5 | 45.2 | 51.1 | 53.7 | |
| MLK 8th 11th | 83 | | 95 | 78.6885 | 3 | 2.4849 | 2 | 1.6566 | 25 | 40 | 25 | 40 | 25 | 40 | 49.1 | 45.7 | 51.6 | 54.2 | |
| Clay 7th 8th | 52 | | 95 | 49.533 | 3 | 1.5642 | 2 | 1.0428 | 25 | 40 | 25 | 40 | 25 | 40 | 47.0 | 43.7 | 49.6 | 52.2 | |
| Washington Embdero 3rd | 58 | | 95 | 54.8625 | 3 | 1.7325 | 2 | 1.155 | 25 | 40 | 25 | 40 | 25 | 40 | 47.5 | 44.1 | 50.0 | 52.6 | |
| Washton 7th 8th | 69 | | 95 | 65.5215 | 3 | 2.0691 | 2 | 1.3794 | 25 | 40 | 25 | 40 | 25 | 40 | 48.3 | 44.9 | 50.8 | 53.4 | |
| Bway Embdero 3rd | 118 | | 95 | 112.5465 | 3 | 3.5541 | 2 | 2.3694 | 25 | 40 | 25 | 40 | 25 | 40 | 50.6 | 47.3 | 53.1 | 55.7 | |
| Bway 6th 7th | 404 | | 95 | 383.4105 | 3 | 12.1077 | 2 | 8.0718 | 25 | 40 | 25 | 40 | 25 | 40 | 55.9 | 52.6 | 58.5 | 61.1 | |
| Bway 8th 11th | 367 | | 95 | 348.9255 | 3 | 11.0187 | 2 | 7.3458 | 25 | 40 | 25 | 40 | 25 | 40 | 55.5 | 52.2 | 58.1 | 60.7 | |
| Franklin 12th 14th | 111 | | 95 | 105.336 | 3 | 3.3264 | 2 | 2.2176 | 25 | 40 | 25 | 40 | 25 | 40 | 50.3 | 47.0 | 52.9 | 55.4 | |
| Harrison 6th 7th | 219 | | 95 | 208.164 | 3 | 6.5736 | 2 | 4.3824 | 25 | 40 | 25 | 40 | 25 | 40 | 53.3 | 49.9 | 55.8 | 58.4 | |
| Harrison 7th 8th | 331 | | 95 | 314.4405 | 3 | 9.9297 | 2 | 6.6198 | 25 | 40 | 25 | 40 | 25 | 40 | 55.1 | 51.7 | 57.6 | 60.2 | |
| Embdero Market MLK | 20 | | 90 | 18.117 | 5 | 1.0065 | 5 | 1.0065 | 25 | 40 | 25 | 40 | 25 | 40 | 42.7 | 41.8 | 49.4 | 50.8 | |
| Embdero Washingt Bway | 95 | | 95 | 90.288 | 3 | 2.8512 | 2 | 1.9008 | 25 | 40 | 25 | 40 | 25 | 40 | 49.7 | 46.3 | 52.2 | 54.8 | |
| 3rd Brush Castro | 226 | | 95 | 215.061 | 3 | 6.7914 | 2 | 4.5276 | 25 | 40 | 25 | 40 | 25 | 40 | 53.4 | 50.1 | 56.0 | 58.5 | |
| 3rd Washingt Bway | 170 | | 95 | 161.766 | 3 | 5.1084 | 2 | 3.4056 | 25 | 40 | 25 | 40 | 25 | 40 | 52.2 | 48.8 | 54.7 | 57.3 | |
| 3rd Bway Franklin | 151 | | 95 | 143.2695 | 3 | 4.5243 | 2 | 3.0162 | 25 | 40 | 25 | 40 | 25 | 40 | 51.7 | 48.3 | 54.2 | 56.8 | |
| 5th Brush Castro | 407 | | 95 | 386.5455 | 3 | 12.2067 | 2 | 8.1378 | 25 | 40 | 25 | 40 | 25 | 40 | 56.0 | 52.6 | 58.5 | 61.1 | |
| 5th Castro MLK | 382 | | 95 | 363.3465 | 3 | 11.4741 | 2 | 7.6494 | 25 | 40 | 25 | 40 | 25 | 40 | 55.7 | 52.4 | 58.2 | 60.8 | |
| 7th Castro MLK | 445 | | 95 | 422.9115 | 3 | 13.3551 | 2 | 8.9034 | 25 | 40 | 25 | 40 | 25 | 40 | 56.4 | 53.0 | 58.9 | 61.5 | |
| 7th MLK Jeffersn | 489 | | 95 | 464.9205 | 3 | 14.6817 | 2 | 9.7878 | 25 | 40 | 25 | 40 | 25 | 40 | 56.8 | 53.4 | 59.3 | 61.9 | |
| 7th Clay Washintn | 541 | | 95 | 513.8265 | 3 | 16.2261 | 2 | 10.8174 | 25 | 40 | 25 | 40 | 25 | 40 | 57.2 | 53.9 | 59.7 | 62.3 | |
| 7th BWay Franklin | 639 | | 95 | 606.936 | 3 | 19.1664 | 2 | 12.7776 | 25 | 40 | 25 | 40 | 25 | 40 | 57.9 | 54.6 | 60.5 | 63.1 | |
| 8th Webster Harrison | 246 | | 95 | 233.5575 | 3 | 7.3755 | 2 | 4.917 | 25 | 40 | 25 | 40 | 25 | 40 | 53.8 | 50.4 | 56.3 | 58.9 | |
| 11th Castro MLK | 215 | | 95 | 204.402 | 3 | 6.4548 | 2 | 4.3032 | 25 | 40 | 25 | 40 | 25 | 40 | 53.2 | 49.9 | 55.7 | 58.3 | |
| 12th Castro MLK | 263 | | 95 | 249.546 | 3 | 7.8804 | 2 | 5.2536 | 25 | 40 | 25 | 40 | 25 | 40 | 54.1 | 50.7 | 56.6 | 59.2 | |
| Market Embcdro 3rd | 36 | | 95 | 34.1715 | 3 | 1.0791 | 2 | 0.7194 | 25 | 40 | 25 | 40 | 25 | 40 | 45.4 | 42.1 | 48.0 | 50.6 | |
| Market 3rd 7th | 118 | | 95 | 112.233 | 3 | 3.5442 | 2 | 2.3628 | 25 | 40 | 25 | 40 | 25 | 40 | 50.6 | 47.2 | 53.1 | 55.7 | |

Existing Plus Project 10-11PM

(Assumes 33% of peakhour traffic per Fehr & Piers)

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL (15 meters from roadway center) | |
|-------------------------|---------------------|--|----------------|---------|----|--------|-----|--------|---------------|----|-----|------|----|----|-------------------|-------|-------|---|--|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| Brush from: 3rd to: 5th | 112 | | 95 | 106.59 | 3 | 3.366 | 2 | 2.244 | 25 | 40 | 35 | 56 | 35 | 56 | 50.4 | 49.3 | 54.3 | 56.6 | |
| Brush 7th 11th | 531 | | 95 | 504.735 | 3 | 15.939 | 2 | 10.626 | 30 | 48 | 30 | 48 | 30 | 48 | 59.4 | 55.0 | 60.4 | 63.6 | |
| Brush 12th 14th | 600 | | 95 | 570 | 3 | 18 | 2 | 12 | 30 | 48 | 30 | 48 | 30 | 48 | 59.9 | 55.5 | 60.9 | 64.1 | |
| Castro 3rd 5th | 122 | | 95 | 115.995 | 3 | 3.663 | 2 | 2.442 | 25 | 40 | 25 | 40 | 25 | 40 | 50.7 | 47.4 | 53.3 | 55.9 | |
| Castro 7th 8th | 347 | | 95 | 329.175 | 3 | 10.395 | 2 | 6.93 | 30 | 48 | 30 | 48 | 30 | 48 | 57.6 | 53.2 | 58.5 | 61.7 | |
| Castro 8th 11th | 495 | | 95 | 470.25 | 3 | 14.85 | 2 | 9.9 | 30 | 48 | 30 | 48 | 30 | 48 | 59.1 | 54.7 | 60.1 | 63.3 | |
| Castro 12th 14th | 119 | | 95 | 112.86 | 3 | 3.564 | 2 | 2.376 | 30 | 48 | 30 | 48 | 30 | 48 | 52.9 | 48.5 | 53.9 | 57.1 | |
| MLK 3rd 5th | 330 | | 95 | 313.5 | 3 | 9.9 | 2 | 6.6 | 25 | 40 | 25 | 40 | 25 | 40 | 55.1 | 51.7 | 57.6 | 60.2 | |
| MLK 6th 7th | 238 | | 95 | 225.72 | 3 | 7.128 | 2 | 4.752 | 25 | 40 | 25 | 40 | 25 | 40 | 53.6 | 50.3 | 56.2 | 58.8 | |
| MLK 8th 11th | 231 | | 95 | 219.45 | 3 | 6.93 | 2 | 4.62 | 25 | 40 | 25 | 40 | 25 | 40 | 53.5 | 50.2 | 56.0 | 58.6 | |
| Clay 7th 8th | 53 | | 95 | 50.16 | 3 | 1.584 | 2 | 1.056 | 25 | 40 | 25 | 40 | 25 | 40 | 47.1 | 43.8 | 49.6 | 52.2 | |
| Washington Embdero 3rd | 59 | | 95 | 56.43 | 3 | 1.782 | 2 | 1.188 | 25 | 40 | 25 | 40 | 25 | 40 | 47.6 | 44.3 | 50.1 | 52.7 | |
| Washton 7th 8th | 69 | | 95 | 65.835 | 3 | 2.079 | 2 | 1.386 | 25 | 40 | 25 | 40 | 25 | 40 | 48.3 | 44.9 | 50.8 | 53.4 | |
| Bway Embdero 3rd | 119 | | 95 | 112.86 | 3 | 3.564 | 2 | 2.376 | 25 | 40 | 25 | 40 | 25 | 40 | 50.6 | 47.3 | 53.2 | 55.7 | |
| Bway 6th 7th | 403 | | 95 | 382.47 | 3 | 12.078 | 2 | 8.052 | 25 | 40 | 25 | 40 | 25 | 40 | 55.9 | 52.6 | 58.5 | 61.1 | |
| Bway 8th 11th | 366 | | 95 | 347.985 | 3 | 10.989 | 2 | 7.326 | 25 | 40 | 25 | 40 | 25 | 40 | 55.5 | 52.2 | 58.0 | 60.6 | |
| Franklin 12th 14th | 112 | | 95 | 106.59 | 3 | 3.366 | 2 | 2.244 | 25 | 40 | 25 | 40 | 25 | 40 | 50.4 | 47.0 | 52.9 | 55.5 | |
| Harrison 6th 7th | 244 | | 95 | 231.99 | 3 | 7.326 | 2 | 4.884 | 25 | 40 | 25 | 40 | 25 | 40 | 53.8 | 50.4 | 56.3 | 58.9 | |
| Harrison 7th 8th | 356 | | 95 | 338.58 | 3 | 10.692 | 2 | 7.128 | 25 | 40 | 25 | 40 | 25 | 40 | 55.4 | 52.0 | 57.9 | 60.5 | |
| Embdero Market MLK | 0 | | 90 | 0 | 5 | 0 | 5 | 0 | 25 | 40 | 25 | 40 | 25 | 40 | #NUM! | #NUM! | #NUM! | #NUM! | |
| Embdero Washington Bway | 96 | | 95 | 90.915 | 3 | 2.871 | 2 | 1.914 | 25 | 40 | 25 | 40 | 25 | 40 | 49.7 | 46.3 | 52.2 | 54.8 | |
| 3rd Brush Castro | 257 | | 95 | 244.53 | 3 | 7.722 | 2 | 5.148 | 25 | 40 | 25 | 40 | 25 | 40 | 54.0 | 50.6 | 56.5 | 59.1 | |
| 3rd Washington Bway | 195 | | 95 | 184.965 | 3 | 5.841 | 2 | 3.894 | 25 | 40 | 25 | 40 | 25 | 40 | 52.8 | 49.4 | 55.3 | 57.9 | |
| 3rd Bway Franklin | 155 | | 95 | 147.345 | 3 | 4.653 | 2 | 3.102 | 25 | 40 | 25 | 40 | 25 | 40 | 51.8 | 48.4 | 54.3 | 56.9 | |
| 5th Brush Castro | 479 | | 95 | 454.575 | 3 | 14.355 | 2 | 9.57 | 25 | 40 | 25 | 40 | 25 | 40 | 56.7 | 53.3 | 59.2 | 61.8 | |
| 5th Castro MLK | 446 | | 95 | 423.225 | 3 | 13.365 | 2 | 8.91 | 25 | 40 | 25 | 40 | 25 | 40 | 56.4 | 53.0 | 58.9 | 61.5 | |
| 7th Castro MLK | 469 | | 95 | 445.17 | 3 | 14.058 | 2 | 9.372 | 25 | 40 | 25 | 40 | 25 | 40 | 56.6 | 53.2 | 59.1 | 61.7 | |
| 7th MLK Jeffersn | 518 | | 95 | 492.195 | 3 | 15.543 | 2 | 10.362 | 25 | 40 | 25 | 40 | 25 | 40 | 57.0 | 53.7 | 59.6 | 62.1 | |
| 7th Clay Washintn | 568 | | 95 | 539.22 | 3 | 17.028 | 2 | 11.352 | 25 | 40 | 25 | 40 | 25 | 40 | 57.4 | 54.1 | 60.0 | 62.5 | |
| 7th BWay Franklin | 667 | | 95 | 633.27 | 3 | 19.998 | 2 | 13.332 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.8 | 60.6 | 63.2 | |
| 8th Webster Harrison | 271 | | 95 | 257.07 | 3 | 8.118 | 2 | 5.412 | 25 | 40 | 25 | 40 | 25 | 40 | 54.2 | 50.8 | 56.7 | 59.3 | |
| 11th Castro MLK | 231 | | 95 | 219.45 | 3 | 6.93 | 2 | 4.62 | 25 | 40 | 25 | 40 | 25 | 40 | 53.5 | 50.2 | 56.0 | 58.6 | |
| 12th Castro MLK | 304 | | 95 | 288.42 | 3 | 9.108 | 2 | 6.072 | 25 | 40 | 25 | 40 | 25 | 40 | 54.7 | 51.3 | 57.2 | 59.8 | |
| Market Embcdro 3rd | 663 | | 95 | 630.135 | 3 | 19.899 | 2 | 13.266 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.7 | 60.6 | 63.2 | |
| Market 3rd 7th | 700 | | 95 | 664.62 | 3 | 20.988 | 2 | 13.992 | 25 | 40 | 25 | 40 | 25 | 40 | 58.3 | 55.0 | 60.9 | 63.4 | |

Existing Plus Project Plus Ballpark 10-11 PM

(Assumes 33% of peakhour traffic per Fehr & Piers)

| ROAD SEGMENT | TOTAL | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL (15 meters from roadway center) | |
|------------------------|-------|----------|----------------|----------|----|--------|-----|--------|---------------|----|-----|------|----|----|-------------------|-------|-------|--|-------|
| | # | VEHICLES | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| Brush 3rd to 5th | 112 | | 95 | 106.59 | 3 | 3.366 | 2 | 2.244 | 25 | 40 | 35 | 56 | 35 | 56 | 50.4 | 49.3 | 54.3 | 56.6 | 1.9 |
| Brush 7th to 11th | 531 | | 95 | 504.735 | 3 | 15.939 | 2 | 10.626 | 30 | 48 | 30 | 48 | 30 | 48 | 59.4 | 55.0 | 60.4 | 63.6 | 1.3 |
| Brush 12th to 14th | 198 | | 95 | 188.1 | 3 | 5.94 | 2 | 3.96 | 30 | 48 | 30 | 48 | 30 | 48 | 55.1 | 50.7 | 56.1 | 59.3 | 1.2 |
| Castro 3rd to 5th | 122 | | 95 | 115.995 | 3 | 3.663 | 2 | 2.442 | 25 | 40 | 25 | 40 | 25 | 40 | 50.7 | 47.4 | 53.3 | 55.9 | 1.8 |
| Castro 7th to 8th | 1,152 | | 95 | 1093.925 | 3 | 34.545 | 2 | 23.03 | 30 | 48 | 30 | 48 | 30 | 48 | 62.8 | 58.4 | 63.8 | 66.9 | 6.2 |
| Castro 8th to 11th | 1,604 | | 95 | 1523.8 | 3 | 48.12 | 2 | 32.08 | 30 | 48 | 30 | 48 | 30 | 48 | 64.2 | 59.8 | 65.2 | 68.4 | 5.7 |
| Castro 12th to 14th | 679 | | 95 | 644.86 | 3 | 20.364 | 2 | 13.576 | 30 | 48 | 30 | 48 | 30 | 48 | 60.5 | 56.1 | 61.5 | 64.7 | 8.2 |
| MLK 3rd to 5th | 1,242 | | 95 | 1179.9 | 3 | 37.26 | 2 | 24.84 | 25 | 40 | 25 | 40 | 25 | 40 | 60.8 | 57.5 | 63.4 | 65.9 | 11.2 |
| MLK 6th to 7th | 1,360 | | 95 | 1291.62 | 3 | 40.788 | 2 | 27.192 | 25 | 40 | 25 | 40 | 25 | 40 | 61.2 | 57.9 | 63.7 | 66.3 | 12.7 |
| MLK 8th to 11th | 1,460 | | 95 | 1387 | 3 | 43.8 | 2 | 29.2 | 25 | 40 | 25 | 40 | 25 | 40 | 61.5 | 58.2 | 64.1 | 66.6 | 12.5 |
| Clay 7th to 8th | 161 | | 95 | 152.76 | 3 | 4.824 | 2 | 3.216 | 25 | 40 | 25 | 40 | 25 | 40 | 51.9 | 48.6 | 54.5 | 57.1 | 4.9 |
| Washingto Embdero 3rd | 445 | | 95 | 423.13 | 3 | 13.362 | 2 | 8.908 | 25 | 40 | 25 | 40 | 25 | 40 | 56.4 | 53.0 | 58.9 | 61.5 | 8.9 |
| Washton 7th to 8th | 69 | | 95 | 65.835 | 3 | 2.079 | 2 | 1.386 | 25 | 40 | 25 | 40 | 25 | 40 | 48.3 | 44.9 | 50.8 | 53.4 | 0.0 |
| Bway Embdero 3rd | 247 | | 95 | 234.46 | 3 | 7.404 | 2 | 4.936 | 25 | 40 | 25 | 40 | 25 | 40 | 53.8 | 50.4 | 56.3 | 58.9 | 3.2 |
| Bway 6th to 7th | 1,086 | | 95 | 1031.32 | 3 | 32.568 | 2 | 21.712 | 25 | 40 | 25 | 40 | 25 | 40 | 60.2 | 56.9 | 62.8 | 65.4 | 4.3 |
| Bway 8th to 11th | 1,427 | | 95 | 1355.935 | 3 | 42.819 | 2 | 28.546 | 25 | 40 | 25 | 40 | 25 | 40 | 61.4 | 58.1 | 64.0 | 66.5 | 5.9 |
| Franklin 12th to 14th | 112 | | 95 | 106.59 | 3 | 3.366 | 2 | 2.244 | 25 | 40 | 25 | 40 | 25 | 40 | 50.4 | 47.0 | 52.9 | 55.5 | 0.1 |
| Harrison 6th to 7th | 244 | | 95 | 231.99 | 3 | 7.326 | 2 | 4.884 | 25 | 40 | 25 | 40 | 25 | 40 | 53.8 | 50.4 | 56.3 | 58.9 | 0.5 |
| Harrison 7th to 8th | 411 | | 95 | 390.83 | 3 | 12.342 | 2 | 8.228 | 25 | 40 | 25 | 40 | 25 | 40 | 56.0 | 52.7 | 58.6 | 61.1 | 0.9 |
| Embdero Market MLK | 0 | | 90 | 0 | 5 | 0 | 5 | 0 | 25 | 40 | 25 | 40 | 25 | 40 | #NUM! | #NUM! | #NUM! | #NUM! | #NUM! |
| Embdero Washingtn Bway | 96 | | 95 | 90.915 | 3 | 2.871 | 2 | 1.914 | 25 | 40 | 25 | 40 | 25 | 40 | 49.7 | 46.3 | 52.2 | 54.8 | 0.0 |
| 3rd Brush Castro | 257 | | 95 | 244.53 | 3 | 7.722 | 2 | 5.148 | 25 | 40 | 25 | 40 | 25 | 40 | 54.0 | 50.6 | 56.5 | 59.1 | 0.6 |
| 3rd Washingtn Bway | 271 | | 95 | 257.165 | 3 | 8.121 | 2 | 5.414 | 25 | 40 | 25 | 40 | 25 | 40 | 54.2 | 50.8 | 56.7 | 59.3 | 2.0 |
| 3rd Bway Franklin | 464 | | 95 | 440.895 | 3 | 13.923 | 2 | 9.282 | 25 | 40 | 25 | 40 | 25 | 40 | 56.5 | 53.2 | 59.1 | 61.7 | 4.9 |
| 5th Brush Castro | 1,422 | | 95 | 1350.425 | 3 | 42.645 | 2 | 28.43 | 25 | 40 | 25 | 40 | 25 | 40 | 61.4 | 58.1 | 63.9 | 66.5 | 5.4 |
| 5th Castro MLK | 1,109 | | 95 | 1053.075 | 3 | 33.255 | 2 | 22.17 | 25 | 40 | 25 | 40 | 25 | 40 | 60.3 | 57.0 | 62.9 | 65.4 | 4.6 |
| 7th Castro MLK | 643 | | 95 | 610.47 | 3 | 19.278 | 2 | 12.852 | 25 | 40 | 25 | 40 | 25 | 40 | 58.0 | 54.6 | 60.5 | 63.1 | 1.6 |
| 7th MLK Jeffersn | 891 | | 95 | 846.545 | 3 | 26.733 | 2 | 17.822 | 25 | 40 | 25 | 40 | 25 | 40 | 59.4 | 56.0 | 61.9 | 64.5 | 2.6 |
| 7th Clay Washintn | 847 | | 95 | 804.27 | 3 | 25.398 | 2 | 16.932 | 25 | 40 | 25 | 40 | 25 | 40 | 59.2 | 55.8 | 61.7 | 64.3 | 1.9 |
| 7th BWay Franklin | 958 | | 95 | 909.72 | 3 | 28.728 | 2 | 19.152 | 25 | 40 | 25 | 40 | 25 | 40 | 59.7 | 56.3 | 62.2 | 64.8 | 1.8 |
| 8th Webster Harrison | 407 | | 95 | 386.27 | 3 | 12.198 | 2 | 8.132 | 25 | 40 | 25 | 40 | 25 | 40 | 56.0 | 52.6 | 58.5 | 61.1 | 2.2 |
| 11th Castro MLK | 243 | | 95 | 230.85 | 3 | 7.29 | 2 | 4.86 | 25 | 40 | 25 | 40 | 25 | 40 | 53.7 | 50.4 | 56.3 | 58.9 | 0.5 |
| 12th Castro MLK | 1,018 | | 95 | 966.72 | 3 | 30.528 | 2 | 20.352 | 25 | 40 | 25 | 40 | 25 | 40 | 60.0 | 56.6 | 62.5 | 65.1 | 5.9 |
| Market Embcdro 3rd | 2,659 | | 95 | 2526.335 | 3 | 79.779 | 2 | 53.186 | 25 | 40 | 25 | 40 | 25 | 40 | 64.1 | 60.8 | 66.7 | 69.2 | 18.7 |
| Market 3rd 7th | 2,695 | | 95 | 2559.87 | 3 | 80.838 | 2 | 53.892 | 25 | 40 | 25 | 40 | 25 | 40 | 64.2 | 60.8 | 66.7 | 69.3 | 13.6 |

Cumulative No Project 10 - 11 PM

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL (15 meters from roadway center) | |
|--------------|---------------------|----------|----------------|----|---------|------|--------|----|---------------|----|-----|------|----|----|-------------------|-------|-------|---|-------|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| Brush | from: 3rd | to: 5th | 106 | 95 | 100.32 | 3 | 3.168 | 2 | 2.112 | 25 | 40 | 35 | 56 | 35 | 56 | 50.1 | 49.0 | 54.0 | 56.4 |
| Brush | 7th | 11th | 601 | 95 | 570.57 | 3 | 18.018 | 2 | 12.012 | 30 | 48 | 30 | 48 | 30 | 48 | 59.9 | 55.5 | 60.9 | 64.1 |
| Brush | 12th | 14th | 224 | 95 | 213.18 | 3 | 6.732 | 2 | 4.488 | 30 | 48 | 30 | 48 | 30 | 48 | 55.7 | 51.3 | 56.6 | 59.8 |
| Castro | 3rd | 5th | 122 | 95 | 115.995 | 3 | 3.663 | 2 | 2.442 | 25 | 40 | 25 | 40 | 25 | 40 | 50.7 | 47.4 | 53.3 | 55.9 |
| Castro | 7th | 8th | 419 | 95 | 398.145 | 3 | 12.573 | 2 | 8.382 | 30 | 48 | 30 | 48 | 30 | 48 | 58.4 | 54.0 | 59.4 | 62.6 |
| Castro | 8th | 11th | 657 | 95 | 623.865 | 3 | 19.701 | 2 | 13.134 | 30 | 48 | 30 | 48 | 30 | 48 | 60.3 | 55.9 | 61.3 | 64.5 |
| Castro | 12th | 14th | 155 | 95 | 147.345 | 3 | 4.653 | 2 | 3.102 | 30 | 48 | 30 | 48 | 30 | 48 | 54.1 | 49.7 | 55.0 | 58.2 |
| MLK | 3rd | 5th | 139 | 95 | 131.67 | 3 | 4.158 | 2 | 2.772 | 25 | 40 | 25 | 40 | 25 | 40 | 51.3 | 47.9 | 53.8 | 56.4 |
| MLK | 6th | 7th | 116 | 95 | 109.725 | 3 | 3.465 | 2 | 2.31 | 25 | 40 | 25 | 40 | 25 | 40 | 50.5 | 47.2 | 53.0 | 55.6 |
| MLK | 8th | 11th | 129 | 95 | 122.265 | 3 | 3.861 | 2 | 2.574 | 25 | 40 | 25 | 40 | 25 | 40 | 51.0 | 47.6 | 53.5 | 56.1 |
| Clay | 7th | 8th | 83 | 95 | 78.375 | 3 | 2.475 | 2 | 1.65 | 25 | 40 | 25 | 40 | 25 | 40 | 49.0 | 45.7 | 51.6 | 54.2 |
| Washington | Embdero | 3rd | 89 | 95 | 84.645 | 3 | 2.673 | 2 | 1.782 | 25 | 40 | 25 | 40 | 25 | 40 | 49.4 | 46.0 | 51.9 | 54.5 |
| Washton | 7th | 8th | 102 | 95 | 97.185 | 3 | 3.069 | 2 | 2.046 | 25 | 40 | 25 | 40 | 25 | 40 | 50.0 | 46.6 | 52.5 | 55.1 |
| Bway | Embdero | 3rd | 182 | 95 | 172.425 | 3 | 5.445 | 2 | 3.63 | 25 | 40 | 25 | 40 | 25 | 40 | 52.5 | 49.1 | 55.0 | 57.6 |
| Bway | 6th | 7th | 611 | 95 | 579.975 | 3 | 18.315 | 2 | 12.21 | 25 | 40 | 25 | 40 | 25 | 40 | 57.7 | 54.4 | 60.3 | 62.9 |
| Bway | 8th | 11th | 554 | 95 | 526.68 | 3 | 16.632 | 2 | 11.088 | 25 | 40 | 25 | 40 | 25 | 40 | 57.3 | 54.0 | 59.8 | 62.4 |
| Franklin | 12th | 14th | 168 | 95 | 159.885 | 3 | 5.049 | 2 | 3.366 | 25 | 40 | 25 | 40 | 25 | 40 | 52.1 | 48.8 | 54.7 | 57.3 |
| Harrison | 6th | 7th | 333 | 95 | 316.635 | 3 | 9.999 | 2 | 6.666 | 25 | 40 | 25 | 40 | 25 | 40 | 55.1 | 51.8 | 57.6 | 60.2 |
| Harrison | 7th | 8th | 502 | 95 | 476.52 | 3 | 15.048 | 2 | 10.032 | 25 | 40 | 25 | 40 | 25 | 40 | 56.9 | 53.5 | 59.4 | 62.0 |
| Embdero | Market | MLK | 0 | 90 | 0 | 5 | 0 | 5 | 0 | 25 | 40 | 25 | 40 | 25 | 40 | #NUM! | #NUM! | #NUM! | #NUM! |
| Embdero | Washington | Bway | 96 | 95 | 90.915 | 3 | 2.871 | 2 | 1.914 | 25 | 40 | 25 | 40 | 25 | 40 | 49.7 | 46.3 | 52.2 | 54.8 |
| 3rd | Brush | Castro | 340 | 95 | 322.905 | 3 | 10.197 | 2 | 6.798 | 25 | 40 | 25 | 40 | 25 | 40 | 55.2 | 51.8 | 57.7 | 60.3 |
| 3rd | Washington | Bway | 257 | 95 | 244.53 | 3 | 7.722 | 2 | 5.148 | 25 | 40 | 25 | 40 | 25 | 40 | 54.0 | 50.6 | 56.5 | 59.1 |
| 3rd | Bway | Franklin | 231 | 95 | 219.45 | 3 | 6.93 | 2 | 4.62 | 25 | 40 | 25 | 40 | 25 | 40 | 53.5 | 50.2 | 56.0 | 58.6 |
| 5th | Brush | Castro | 617 | 95 | 586.245 | 3 | 18.513 | 2 | 12.342 | 25 | 40 | 25 | 40 | 25 | 40 | 57.8 | 54.4 | 60.3 | 62.9 |
| 5th | Castro | MLK | 578 | 95 | 548.625 | 3 | 17.325 | 2 | 11.55 | 25 | 40 | 25 | 40 | 25 | 40 | 57.5 | 54.1 | 60.0 | 62.6 |
| 7th | Castro | MLK | 670 | 95 | 636.405 | 3 | 20.097 | 2 | 13.398 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.8 | 60.7 | 63.3 |
| 7th | MLK | Jeffersn | 736 | 95 | 699.105 | 3 | 22.077 | 2 | 14.718 | 25 | 40 | 25 | 40 | 25 | 40 | 58.5 | 55.2 | 61.1 | 63.7 |
| 7th | Clay | Washintn | 818 | 95 | 777.48 | 3 | 24.552 | 2 | 16.368 | 25 | 40 | 25 | 40 | 25 | 40 | 59.0 | 55.7 | 61.5 | 64.1 |
| 7th | BWay | Franklin | 970 | 95 | 921.69 | 3 | 29.106 | 2 | 19.404 | 25 | 40 | 25 | 40 | 25 | 40 | 59.7 | 56.4 | 62.3 | 64.9 |
| 8th | Webster | Harrison | 370 | 95 | 351.12 | 3 | 11.088 | 2 | 7.392 | 25 | 40 | 25 | 40 | 25 | 40 | 55.6 | 52.2 | 58.1 | 60.7 |
| 11th | Castro | MLK | 323 | 95 | 307.23 | 3 | 9.702 | 2 | 6.468 | 25 | 40 | 25 | 40 | 25 | 40 | 55.0 | 51.6 | 57.5 | 60.1 |
| 12th | Castro | MLK | 399 | 95 | 379.335 | 3 | 11.979 | 2 | 7.986 | 25 | 40 | 25 | 40 | 25 | 40 | 55.9 | 52.5 | 58.4 | 61.0 |
| Market | Embcdro | 3rd | 56 | 95 | 53.295 | 3 | 1.683 | 2 | 1.122 | 25 | 40 | 25 | 40 | 25 | 40 | 47.4 | 44.0 | 49.9 | 52.5 |
| Market | 3rd | 7th | 182 | 95 | 172.425 | 3 | 5.445 | 2 | 3.63 | 25 | 40 | 25 | 40 | 25 | 40 | 52.5 | 49.1 | 55.0 | 57.6 |

Cumulative Plus Project 10 -11 PM

(Assumes 33% of peakhour traffic per Fehr & Piers)

| ROAD SEGMENT | TOTAL # VEHICLES | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL 5 meters from roadway center) | |
|------------------------|---------------------|----------------|---------|----|--------|-----|--------|---------------|----|-----|------|----|----|-------------------|-------|-------|---|--|
| | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | |
| | | % | Auto | % | MT | % | HT | | | | | | | | | | | |
| Brush 3rd to 5th | 165 | 95 | 156.75 | 3 | 4.95 | 2 | 3.3 | 25 | 40 | 35 | 56 | 35 | 56 | 52.1 | 51.0 | 55.9 | 58.3 | |
| Brush 7th to 11th | 851 | 95 | 808.83 | 3 | 25.542 | 2 | 17.028 | 30 | 48 | 30 | 48 | 30 | 48 | 61.5 | 57.1 | 62.4 | 65.6 | |
| Brush 12th to 14th | 317 | 95 | 300.96 | 3 | 9.504 | 2 | 6.336 | 30 | 48 | 30 | 48 | 30 | 48 | 57.2 | 52.8 | 58.1 | 61.3 | |
| Castro 3rd to 5th | 188 | 95 | 178.695 | 3 | 5.643 | 2 | 3.762 | 25 | 40 | 25 | 40 | 25 | 40 | 52.6 | 49.3 | 55.2 | 57.7 | |
| Castro 7th to 8th | 571 | 95 | 542.355 | 3 | 17.127 | 2 | 11.418 | 30 | 48 | 30 | 48 | 30 | 48 | 59.7 | 55.3 | 60.7 | 63.9 | |
| Castro 8th to 11th | 845 | 95 | 802.56 | 3 | 25.344 | 2 | 16.896 | 30 | 48 | 30 | 48 | 30 | 48 | 61.4 | 57.0 | 62.4 | 65.6 | |
| Castro 12th to 14th | 201 | 95 | 191.235 | 3 | 6.039 | 2 | 4.026 | 30 | 48 | 30 | 48 | 30 | 48 | 55.2 | 50.8 | 56.2 | 59.4 | |
| MLK 3rd to 5th | 399 | 95 | 379.335 | 3 | 11.979 | 2 | 7.986 | 25 | 40 | 25 | 40 | 25 | 40 | 55.9 | 52.5 | 58.4 | 61.0 | |
| MLK 6th to 7th | 300 | 95 | 285.285 | 3 | 9.009 | 2 | 6.006 | 25 | 40 | 25 | 40 | 25 | 40 | 54.7 | 51.3 | 57.2 | 59.8 | |
| MLK 8th to 11th | 304 | 95 | 288.42 | 3 | 9.108 | 2 | 6.072 | 25 | 40 | 25 | 40 | 25 | 40 | 54.7 | 51.3 | 57.2 | 59.8 | |
| Clay 7th to 8th | 99 | 95 | 94.05 | 3 | 2.97 | 2 | 1.98 | 25 | 40 | 25 | 40 | 25 | 40 | 49.8 | 46.5 | 52.4 | 55.0 | |
| Washington Embdero 3rd | 106 | 95 | 100.32 | 3 | 3.168 | 2 | 2.112 | 25 | 40 | 25 | 40 | 25 | 40 | 50.1 | 46.8 | 52.6 | 55.2 | |
| Washton 7th to 8th | 122 | 95 | 115.995 | 3 | 3.663 | 2 | 2.442 | 25 | 40 | 25 | 40 | 25 | 40 | 50.7 | 47.4 | 53.3 | 55.9 | |
| Bway Embdero 3rd | 218 | 95 | 206.91 | 3 | 6.534 | 2 | 4.356 | 25 | 40 | 25 | 40 | 25 | 40 | 53.3 | 49.9 | 55.8 | 58.4 | |
| Bway 6th to 7th | 733 | 95 | 695.97 | 3 | 21.978 | 2 | 14.652 | 25 | 40 | 25 | 40 | 25 | 40 | 58.5 | 55.2 | 61.1 | 63.6 | |
| Bway 8th to 11th | 663 | 95 | 630.135 | 3 | 19.899 | 2 | 13.266 | 25 | 40 | 25 | 40 | 25 | 40 | 58.1 | 54.7 | 60.6 | 63.2 | |
| Franklin 12th to 14th | 201 | 95 | 191.235 | 3 | 6.039 | 2 | 4.026 | 25 | 40 | 25 | 40 | 25 | 40 | 52.9 | 49.6 | 55.4 | 58.0 | |
| Harrison 6th to 7th | 426 | 95 | 404.415 | 3 | 12.771 | 2 | 8.514 | 25 | 40 | 25 | 40 | 25 | 40 | 56.2 | 52.8 | 58.7 | 61.3 | |
| Harrison 7th to 8th | 627 | 95 | 595.65 | 3 | 18.81 | 2 | 12.54 | 25 | 40 | 25 | 40 | 25 | 40 | 57.9 | 54.5 | 60.4 | 63.0 | |
| Embdero Market to MLK | 0 | 90 | 0 | 5 | 0 | 5 | 0 | 25 | 40 | 25 | 40 | 25 | 40 | #NUM! | #NUM! | #NUM! | #NUM! | |
| Embdero Washingt Bway | 96 | 95 | 90.915 | 3 | 2.871 | 2 | 1.914 | 25 | 40 | 25 | 40 | 25 | 40 | 49.7 | 46.3 | 52.2 | 54.8 | |
| 3rd Brush Castro | 439 | 95 | 416.955 | 3 | 13.167 | 2 | 8.778 | 25 | 40 | 25 | 40 | 25 | 40 | 56.3 | 52.9 | 58.8 | 61.4 | |
| 3rd Washingt Bway | 330 | 95 | 313.5 | 3 | 9.9 | 2 | 6.6 | 25 | 40 | 25 | 40 | 25 | 40 | 55.1 | 51.7 | 57.6 | 60.2 | |
| 3rd Bway Franklin | 284 | 95 | 269.61 | 3 | 8.514 | 2 | 5.676 | 25 | 40 | 25 | 40 | 25 | 40 | 54.4 | 51.1 | 56.9 | 59.5 | |
| 5th Brush Castro | 812 | 95 | 771.21 | 3 | 24.354 | 2 | 16.236 | 25 | 40 | 25 | 40 | 25 | 40 | 59.0 | 55.6 | 61.5 | 64.1 | |
| 5th Castro MLK | 756 | 95 | 717.915 | 3 | 22.671 | 2 | 15.114 | 25 | 40 | 25 | 40 | 25 | 40 | 58.7 | 55.3 | 61.2 | 63.8 | |
| 7th Castro MLK | 825 | 95 | 783.75 | 3 | 24.75 | 2 | 16.5 | 25 | 40 | 25 | 40 | 25 | 40 | 59.0 | 55.7 | 61.6 | 64.2 | |
| 7th MLK Jeffersn | 908 | 95 | 862.125 | 3 | 27.225 | 2 | 18.15 | 25 | 40 | 25 | 40 | 25 | 40 | 59.5 | 56.1 | 62.0 | 64.6 | |
| 7th Clay Washintn | 1,007 | 95 | 956.175 | 3 | 30.195 | 2 | 20.13 | 25 | 40 | 25 | 40 | 25 | 40 | 59.9 | 56.6 | 62.4 | 65.0 | |
| 7th BWay Franklin | 1,188 | 95 | 1128.6 | 3 | 35.64 | 2 | 23.76 | 25 | 40 | 25 | 40 | 25 | 40 | 60.6 | 57.3 | 63.2 | 65.7 | |
| 8th Webster Harrison | 469 | 95 | 445.17 | 3 | 14.058 | 2 | 9.372 | 25 | 40 | 25 | 40 | 25 | 40 | 56.6 | 53.2 | 59.1 | 61.7 | |
| 11th Castro MLK | 403 | 95 | 382.47 | 3 | 12.078 | 2 | 8.052 | 25 | 40 | 25 | 40 | 25 | 40 | 55.9 | 52.6 | 58.5 | 61.1 | |
| 12th Castro MLK | 518 | 95 | 492.195 | 3 | 15.543 | 2 | 10.362 | 25 | 40 | 25 | 40 | 25 | 40 | 57.0 | 53.7 | 59.6 | 62.1 | |
| Market Embcdro 3rd | 693 | 95 | 658.35 | 3 | 20.79 | 2 | 13.86 | 25 | 40 | 25 | 40 | 25 | 40 | 58.3 | 54.9 | 60.8 | 63.4 | |
| Market 3rd to 7th | 802 | 95 | 761.805 | 3 | 24.057 | 2 | 16.038 | 25 | 40 | 25 | 40 | 25 | 40 | 58.9 | 55.6 | 61.5 | 64.0 | |

Cumulative Plus Project Plus Ballpark 10 - 11 PM

| ROAD SEGMENT | TOTAL # VEHICLES | | VEHICLE TYPE % | | | | | | VEHICLE SPEED | | | | | | NOISE LEVEL (dBA) | | | CALCULATED NOISE LEVEL 5 meters from roadway center) | |
|--------------|---------------------|----------|----------------|------|----------|------|--------|----|---------------|----|-----|------|----|----|-------------------|-------|-------|---|-------|
| | | | Auto | MT | HT | Auto | k/h | MT | k/h | HT | k/h | Auto | MT | HT | | | | | |
| Calveno Peak | | | | | | | | | | | | | | | | | | | |
| | from: | to: | % | Auto | % | MT | % | HT | | | | | | | | | | | |
| Brush | 3rd | 5th | 165 | 95 | 156.75 | 3 | 4.95 | 2 | 3.3 | 25 | 40 | 35 | 56 | 35 | 56 | 52.1 | 51.0 | 55.9 | 58.3 |
| Brush | 7th | 11th | 1,436 | 95 | 1364.58 | 3 | 43.092 | 2 | 28.728 | 30 | 48 | 30 | 48 | 30 | 48 | 63.7 | 59.3 | 64.7 | 67.9 |
| Brush | 12th | 14th | 715 | 95 | 679.06 | 3 | 21.444 | 2 | 14.296 | 30 | 48 | 30 | 48 | 30 | 48 | 60.7 | 56.3 | 61.7 | 64.9 |
| Castro | 3rd | 5th | 188 | 95 | 178.695 | 3 | 5.643 | 2 | 3.762 | 25 | 40 | 25 | 40 | 25 | 40 | 52.6 | 49.3 | 55.2 | 57.7 |
| Castro | 7th | 8th | 821 | 95 | 779.855 | 3 | 24.627 | 2 | 16.418 | 30 | 48 | 30 | 48 | 30 | 48 | 61.3 | 56.9 | 62.3 | 65.5 |
| Castro | 8th | 11th | 1,072 | 95 | 1018.21 | 3 | 32.154 | 2 | 21.436 | 30 | 48 | 30 | 48 | 30 | 48 | 62.5 | 58.1 | 63.4 | 66.6 |
| Castro | 12th | 14th | 348 | 95 | 330.885 | 3 | 10.449 | 2 | 6.966 | 30 | 48 | 30 | 48 | 30 | 48 | 57.6 | 53.2 | 58.6 | 61.8 |
| MLK | 3rd | 5th | 1,109 | 95 | 1053.835 | 3 | 33.279 | 2 | 22.186 | 25 | 40 | 25 | 40 | 25 | 40 | 60.3 | 57.0 | 62.9 | 65.5 |
| MLK | 6th | 7th | 1,334 | 95 | 1267.585 | 3 | 40.029 | 2 | 26.686 | 25 | 40 | 25 | 40 | 25 | 40 | 61.1 | 57.8 | 63.7 | 66.3 |
| MLK | 8th | 11th | 1,280 | 95 | 1215.62 | 3 | 38.388 | 2 | 25.592 | 25 | 40 | 25 | 40 | 25 | 40 | 60.9 | 57.6 | 63.5 | 66.1 |
| Clay | 7th | 8th | 215 | 95 | 204.25 | 3 | 6.45 | 2 | 4.3 | 25 | 40 | 25 | 40 | 25 | 40 | 53.2 | 49.8 | 55.7 | 58.3 |
| Washington | Embdero | 3rd | 403 | 95 | 382.47 | 3 | 12.078 | 2 | 8.052 | 25 | 40 | 25 | 40 | 25 | 40 | 55.9 | 52.6 | 58.5 | 61.1 |
| Washton | 7th | 8th | 259 | 95 | 246.145 | 3 | 7.773 | 2 | 5.182 | 25 | 40 | 25 | 40 | 25 | 40 | 54.0 | 50.7 | 56.5 | 59.1 |
| Bway | Embdero | 3rd | 229 | 95 | 217.36 | 3 | 6.864 | 2 | 4.576 | 25 | 40 | 25 | 40 | 25 | 40 | 53.5 | 50.1 | 56.0 | 58.6 |
| Bway | 6th | 7th | 1,220 | 95 | 1158.62 | 3 | 36.588 | 2 | 24.392 | 25 | 40 | 25 | 40 | 25 | 40 | 60.7 | 57.4 | 63.3 | 65.9 |
| Bway | 8th | 11th | 1,389 | 95 | 1319.835 | 3 | 41.679 | 2 | 27.786 | 25 | 40 | 25 | 40 | 25 | 40 | 61.3 | 58.0 | 63.8 | 66.4 |
| Franklin | 12th | 14th | 296 | 95 | 281.485 | 3 | 8.889 | 2 | 5.926 | 25 | 40 | 25 | 40 | 25 | 40 | 54.6 | 51.2 | 57.1 | 59.7 |
| Harrison | 6th | 7th | 782 | 95 | 742.615 | 3 | 23.451 | 2 | 15.634 | 25 | 40 | 25 | 40 | 25 | 40 | 58.8 | 55.5 | 61.3 | 63.9 |
| Harrison | 7th | 8th | 979 | 95 | 930.05 | 3 | 29.37 | 2 | 19.58 | 25 | 40 | 25 | 40 | 25 | 40 | 59.8 | 56.4 | 62.3 | 64.9 |
| Embdero | Market | MLK | 0 | 90 | 0 | 5 | 0 | 5 | 0 | 25 | 40 | 25 | 40 | 25 | 40 | #NUM! | #NUM! | #NUM! | #NUM! |
| Embdero | Washington | Bway | 96 | 95 | 90.915 | 3 | 2.871 | 2 | 1.914 | 25 | 40 | 25 | 40 | 25 | 40 | 49.7 | 46.3 | 52.2 | 54.8 |
| 3rd | Brush | Castro | 439 | 95 | 416.955 | 3 | 13.167 | 2 | 8.778 | 25 | 40 | 25 | 40 | 25 | 40 | 56.3 | 52.9 | 58.8 | 61.4 |
| 3rd | Washington | Bway | 446 | 95 | 423.7 | 3 | 13.38 | 2 | 8.92 | 25 | 40 | 25 | 40 | 25 | 40 | 56.4 | 53.0 | 58.9 | 61.5 |
| 3rd | Bway | Franklin | 546 | 95 | 518.51 | 3 | 16.374 | 2 | 10.916 | 25 | 40 | 25 | 40 | 25 | 40 | 57.2 | 53.9 | 59.8 | 62.4 |
| 5th | Brush | Castro | 1,471 | 95 | 1397.26 | 3 | 44.124 | 2 | 29.416 | 25 | 40 | 25 | 40 | 25 | 40 | 61.6 | 58.2 | 64.1 | 66.7 |
| 5th | Castro | MLK | 1,213 | 95 | 1152.065 | 3 | 36.381 | 2 | 24.254 | 25 | 40 | 25 | 40 | 25 | 40 | 60.7 | 57.4 | 63.2 | 65.8 |
| 7th | Castro | MLK | 1,331 | 95 | 1264.45 | 3 | 39.93 | 2 | 26.62 | 25 | 40 | 25 | 40 | 25 | 40 | 61.1 | 57.8 | 63.7 | 66.2 |
| 7th | MLK | Jeffersn | 1,529 | 95 | 1452.075 | 3 | 45.855 | 2 | 30.57 | 25 | 40 | 25 | 40 | 25 | 40 | 61.7 | 58.4 | 64.3 | 66.8 |
| 7th | Clay | Washintn | 1,446 | 95 | 1373.225 | 3 | 43.365 | 2 | 28.91 | 25 | 40 | 25 | 40 | 25 | 40 | 61.5 | 58.1 | 64.0 | 66.6 |
| 7th | BWay | Franklin | 1,247 | 95 | 1184.65 | 3 | 37.41 | 2 | 24.94 | 25 | 40 | 25 | 40 | 25 | 40 | 60.8 | 57.5 | 63.4 | 66.0 |
| 8th | Webster | Harrison | 1,096 | 95 | 1040.82 | 3 | 32.868 | 2 | 21.912 | 25 | 40 | 25 | 40 | 25 | 40 | 60.3 | 56.9 | 62.8 | 65.4 |
| 11th | Castro | MLK | 1,059 | 95 | 1005.67 | 3 | 31.758 | 2 | 21.172 | 25 | 40 | 25 | 40 | 25 | 40 | 60.1 | 56.8 | 62.7 | 65.2 |
| 12th | Castro | MLK | 518 | 95 | 492.195 | 3 | 15.543 | 2 | 10.362 | 25 | 40 | 25 | 40 | 25 | 40 | 57.0 | 53.7 | 59.6 | 62.1 |
| Market | Embcdro | 3rd | 2,233 | 95 | 2121.35 | 3 | 66.99 | 2 | 44.66 | 25 | 40 | 25 | 40 | 25 | 40 | 63.4 | 60.0 | 65.9 | 68.5 |
| Market | 3rd | 7th | 2,340 | 95 | 2222.905 | 3 | 70.197 | 2 | 46.798 | 25 | 40 | 25 | 40 | 25 | 40 | 63.6 | 60.2 | 66.1 | 68.7 |

NOI.6 Ballpark Noise Technical Memorandum



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memorandum

date October 22, 2020

to

from Susumu Shirayama, ESA

subject Waterfront Ballpark District at Howard Terminal - **Ballpark and Concert Event Noise Assessment**

1.0 INTRODUCTION

Based on the most current available information, ESA developed noise contour maps for the proposed Oakland Athletics Ballpark at Howard Terminal for use in the noise impact analysis in the Environmental Impact Report (EIR). This technical memorandum describes the Noise Fundamentals, Noise Measurements, Model Validation, Assumptions and Findings with noise contour maps. Two scenarios were assessed for this technical memorandum: 1) baseball game event and 2) music concert event in the Ballpark. The information in this memorandum provides information to inform the noise impact analysis of the EIR.

2.0 NOISE FUNDAMENTALS

Noise is generally defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude. When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to extremely low and extremely high frequencies. This method of frequency

weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements.

An individual's noise exposure is a measure of noise over a period of time. While a noise level is a measure of noise at a given instant in time, community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic. What makes community noise variable throughout a day, besides the slowly changing background noise, is the addition of short-duration, single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment change the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to accurately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

- L_{eq} : The L_{eq} , or equivalent sound level, is the energy-mean dBA during a measured time interval. It is the "equivalent" constant sound level that would have to be produced by a given source to equal the acoustic energy contained in the fluctuating sound level measured.
- L_{max} : The maximum, instantaneous noise level experienced during a given period of time.
- L_{min} : The minimum, instantaneous noise level experienced during a given period of time.
- L_{dn} : Also termed the DNL, the L_{dn} is defined as the A-weighted average sound level for a 24-hour day with a 10-dB penalty added to nighttime (10:00 p.m. to 7:00 a.m.) sound levels to compensate for people's increased sensitivity to noise during usually quieter evening and nighttime hours.

Noise levels from a particular source generally decline as distance to the receptor increases. Other factors, such as the weather, reflective surfaces, or barriers also help intensify or reduce the noise level at any given location. A commonly used rule of thumb for roadway noise is that for every doubling of distance from the source, the noise level is reduced by about 3 dBA at acoustically "hard" locations (i.e., the area between the noise source and the receptor is nearly complete asphalt, concrete, hard-packed soil, or other solid materials) and 4.5 dBA at acoustically "soft" locations (i.e., the area between the source and receptor is normal earth or has vegetation, including grass). Noise from stationary or point sources is reduced by about 6 to 7.5 dBA for every doubling of distance at acoustically hard and soft locations, respectively. Noise levels may also be reduced by intervening structures – generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA.

3.0 NOISE MEASUREMENTS

The dominant noise sources from a baseball game include crowd shouting and announcements and music generated through the public address system. In order to establish the reference noise levels from noise sources during a baseball game, noise measurement data was collected from the game between the Oakland Athletics and Los Angeles Angels on March 31, 2019. Monitored noise level data was used to validate the modeling effort for the proposed ballpark.

Two sound level meters were placed at the bottom of the 3rd deck: one at Section 344 (M1) and one at Section 330 (M2). Both measurements were started at 12:30 p.m. and ended at 4:00 p.m., and collected one-third octave band of 1-second interval data. The game started at 1:07 p.m. and ended at 3:47 p.m. For the purpose of the analysis, the collected noise data was averaged to define the noise levels from the entirety of the game, as noise level would vary throughout a game. The noise contour maps generated and presented later in this memorandum present the average noise environment of events. Therefore, it is appropriate for the average noise level during the game to be used. Averaged noise levels were 81.2 dBA and 82.6 dBA at M1 and M2, respectively. Noise sources included crowd shouting and announcements and music from the public address system. Table 1 presents the summary of measured octave band data for the game period. Figure 1 presents the 1-minute averaged A-weighted noise levels throughout the measurement period. Attachment 1 includes field notes, pictures of sound level meters, and the event log.

**TABLE 1
SUMMARY OF MEASURED OCTAVE BAND NOISE LEVELS**

| Measurement Locations | Octave Band Center Frequencies (Hz) | | | | | | | | | Measured Level (Leq, dBA) |
|-----------------------|-------------------------------------|------|------|------|------|------|------|------|------|---------------------------|
| | 31.5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | |
| M1 | 77.7 | 82.6 | 74.4 | 73.2 | 77.4 | 77.0 | 75.1 | 67.8 | 53.5 | 81.2 |
| M2 | 76.9 | 79.6 | 75.4 | 70.9 | 78.0 | 79.5 | 75.9 | 69.0 | 54.9 | 82.6 |

Notes:
 Octave band noise levels are un-weighted decibels.
 Noise levels represents the entire game period, which is from 13:07 to 15:47.

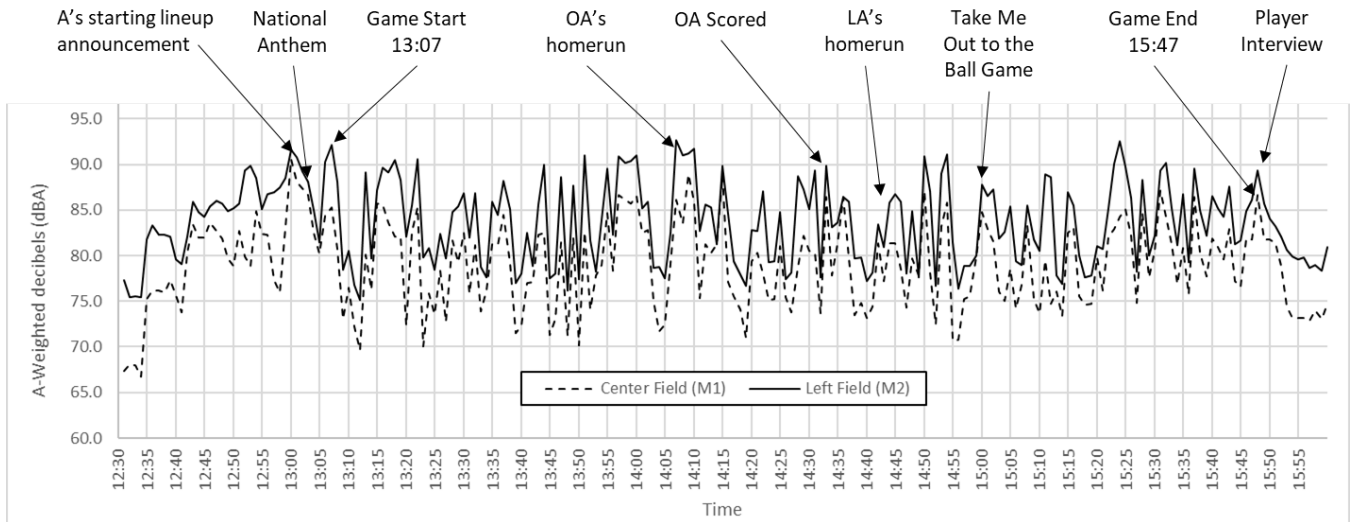


Figure 1: 1-minute Averaged Noise Level Measurement Results

Figure 1 illustrates the similar pattern of sound levels received at locations M1 and M2. The noise levels at M2 were higher than M1 due to the close proximity to the spectators. There were no spectators in Sections from 335 to 355, where M1 was located in Section 344. The measurement results were used for the model validation discussed below.

4.0 MODEL VALIDATION

The Computer Aided Noise Abatement (CadnaA) noise propagation program (Version 2020) was used to estimate the propagation of noise from events at the proposed Ballpark.

CadnaA is a Windows-based software program that predicts and assesses noise levels in the vicinity of noise sources based on International Organization for Standardization 9613-2 algorithms for noise propagation calculations. The calculations account for classical sound wave divergence plus attenuation factors resulting from air absorption, basic ground effects, and barrier/shielding.

The model validation was conducted to establish the noise source for the model by re-creating the same measurement environment. The Coliseum seating areas were used as noise sources within the proposed ballpark. The measured data from M1 was used for the seating areas of Bleachers and second deck above Bleachers including spectators at Treehouse and Stomping Ground. The measured data from M2 was used for all seating areas other than ones included in M1. The model validation resulted the noise levels of 81.2 dBA at M1 and 82.6 dBA at M2, which were the same as the measured noise levels. The result of the validated noise source was used for the proposed Ballpark noise model.

5.0 ASSUMPTIONS

Several key assumptions were made for the model. Below describes each assumption.

- The proposed Ballpark capacity is 32,000 for a baseball game and a music concert.
 - Lower Level – 14,400
 - Lower Left Field Level – 2,800
 - Upper Level – 10,300
 - Roof – 4,500
 - For a music concert event, there will be 10,000 people in the field. Lower Left Field Level and Roof will be closed. Upper level will be reduced to 7,600 people. Total would remain at 32,000.
- Music events within the Ballpark would take place on a stage at the center field area. Noise source levels at this stage were assumed to be 95dBA at 100 feet, which was derived from the Environmental Noise Assessment report for the 49ers Levi's Stadium Project. The noise source of music event crowd was assumed to be the same as a baseball game.
- Noise sources other than project-related events were not considered for the noise contour development. Those potential noise sources would include rail and vehicular traffic.
- Future structures within the proposed project area were included in the model.
- Existing building footprints were not included.
- Topographic data outside of the Ballpark was considered flat.
- A worst-case analysis assuming no measureable wind was applied. Subsequent model runs using average wind speeds inventoried for the former Alameda Naval Air Station resulted in lower predicted noise values.
- The noise modeling accounts for the proposed design of the Ballpark including the structure height, reflection from structures, and roof structure design.
- The analysis also takes into account the capacity of the Ballpark for the two predominant types of anticipated events, noise anticipated from those crowds, and specific locations of event stage.

6.0 FINDINGS

Figure 2 presents the noise contour map predicted for a baseball game event. Figure 3 presents the noise contour map of a music concert event with a stage inside the Ballpark. Figures 4 and 5 present the noise contour maps of a baseball game and a music concert including the wind blowing from the West at 11.8 miles per hour. Noise contours out to 60 dBA L_{eq} are presented.

6.1 Baseball Game

As presented in Figure 2, the 60 dBA L_{eq} noise contour extends toward the southeast approximately 800 feet from the center of the Stadium. As it is designed, the southeast side of the Stadium is wide open. Figure 4 presents the result of noise contours from a baseball game with the wind at 11.8 miles per hour from the west. Table 2 includes the noise levels at each receiver monitored in the EIR analysis, as well as a few additional receiver points.

6.2 Music Event

As presented in Figure 3, the 60 dBA L_{eq} noise contour extended toward south and southwest approximately 3,500 feet from the center of the Stadium. As it is designed, the southeast side of the Stadium is wide open. In addition, the stage would be located east end of the Stadium. Taking into account the opening of the stadium and the location of the stage, noise exposure was limited to the south and southeast. Figure 5 presents the result of noise contours from a music event with the wind at 11.8 miles per hour from the west. Table 2 includes the noise levels at each receiver monitored in the EIR analysis, as well as a few additional receiver points.

**TABLE 2
NOISE LEVELS AT RECEIVERS**

| Receivers | Baseball Game | | Music Event | |
|-----------|---------------|-----------|--------------|-----------|
| | Without Wind | With Wind | Without Wind | With Wind |
| ST1 | 36.2 | 35.0 | 45.2 | 43.9 |
| ST2 | 37.5 | 36.6 | 45.8 | 44.7 |
| ST3 | 34.6 | 34.6 | 43.4 | 43.4 |
| ST4 | 39.5 | 39.5 | 44.4 | 44.4 |
| ST6 | 34.8 | 34.8 | 44.8 | 44.8 |
| LT1 | 51.3 | 50.8 | 64.3 | 63.5 |
| LT2 | 35.9 | 28.7 | 44.7 | 36.2 |
| LT3 | 41.0 | 40.0 | 49.4 | 48.1 |
| LT4 | 46.7 | 46.0 | 54.1 | 52.9 |
| R1 | 41.4 | 40.6 | 42.8 | 41.8 |
| R2 | 34.4 | 33.0 | 39.2 | 37.8 |
| R3 | 39.5 | 38.2 | 49.4 | 48.1 |
| R4 | 48.7 | 47.7 | 62.1 | 61.0 |

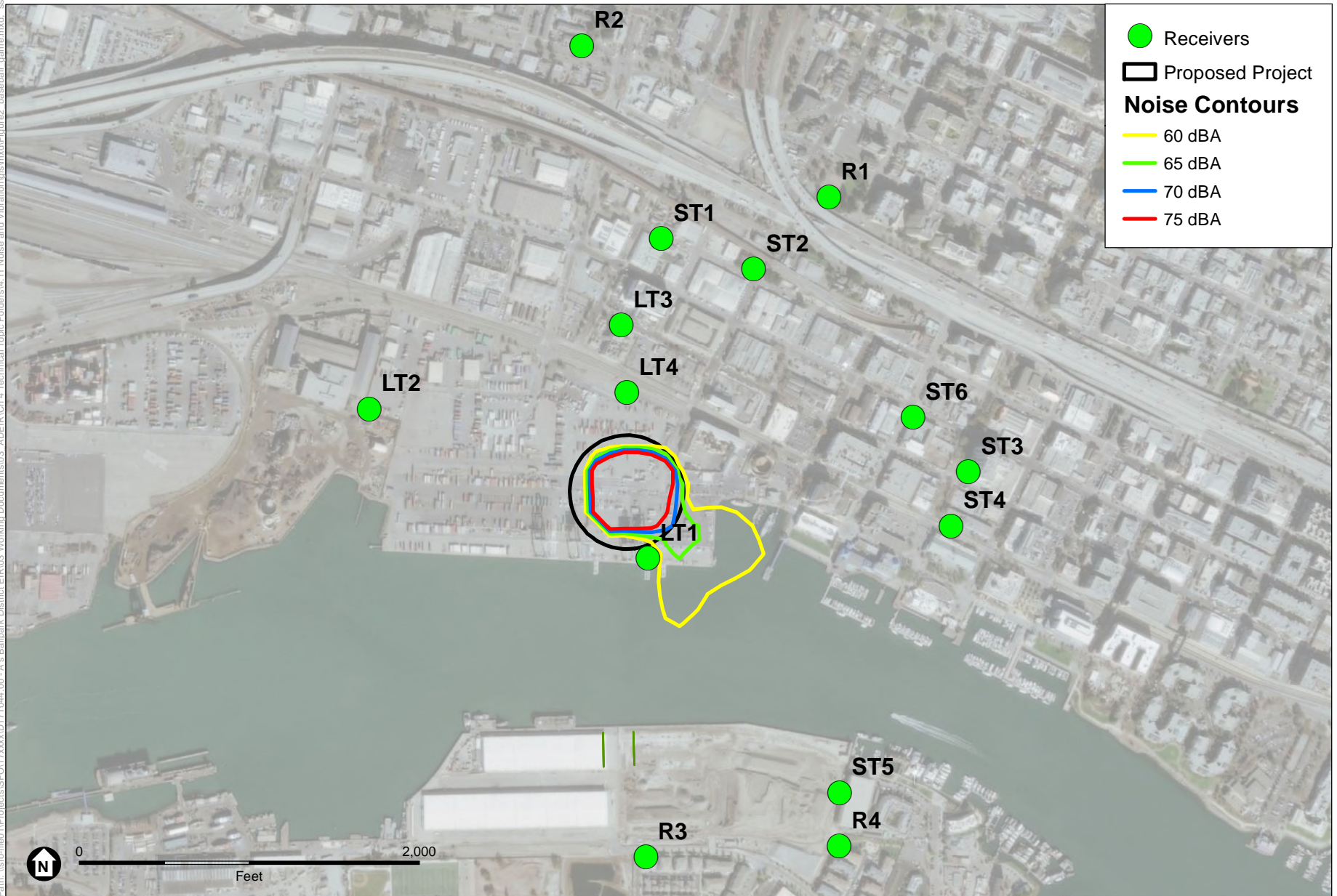
Notes:

Noise levels represent an average of the entire baseball game or music event.

ST = Short Term measurement location

LT = Long Term measurement location

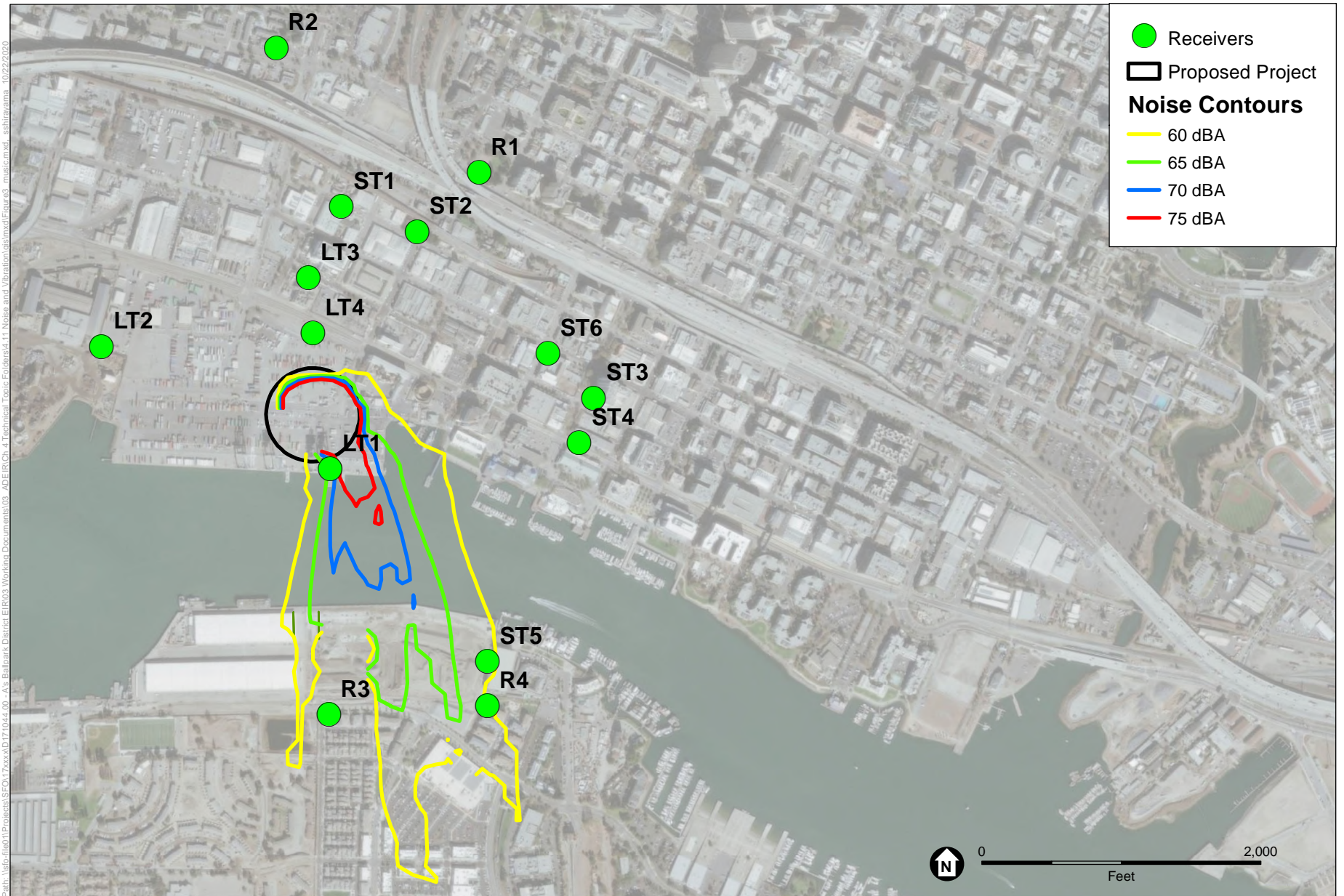
R = Additional Distant Receiver



SOURCE: ESA, 2020; Oakland Athletics, 2020; City of Oakland, 2019

Oakland Athletics Ballpark EIR Project Name

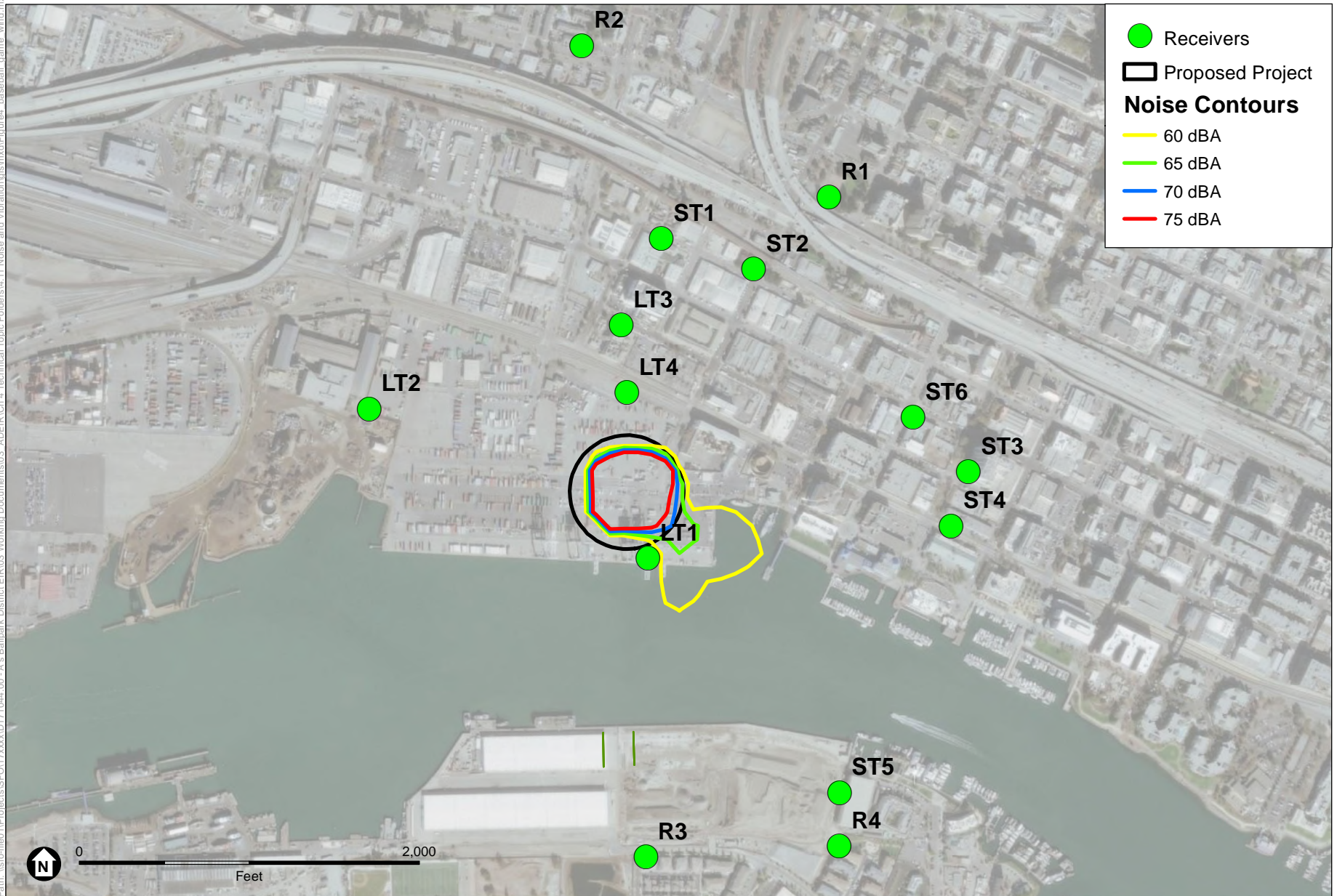
Figure 2
Noise Contour Map
Baseball Game



SOURCE: ESA, 2020; Oakland Athletics, 2020; City of Oakland, 2019

Oakland Athletics Ballpark EIR Project Name

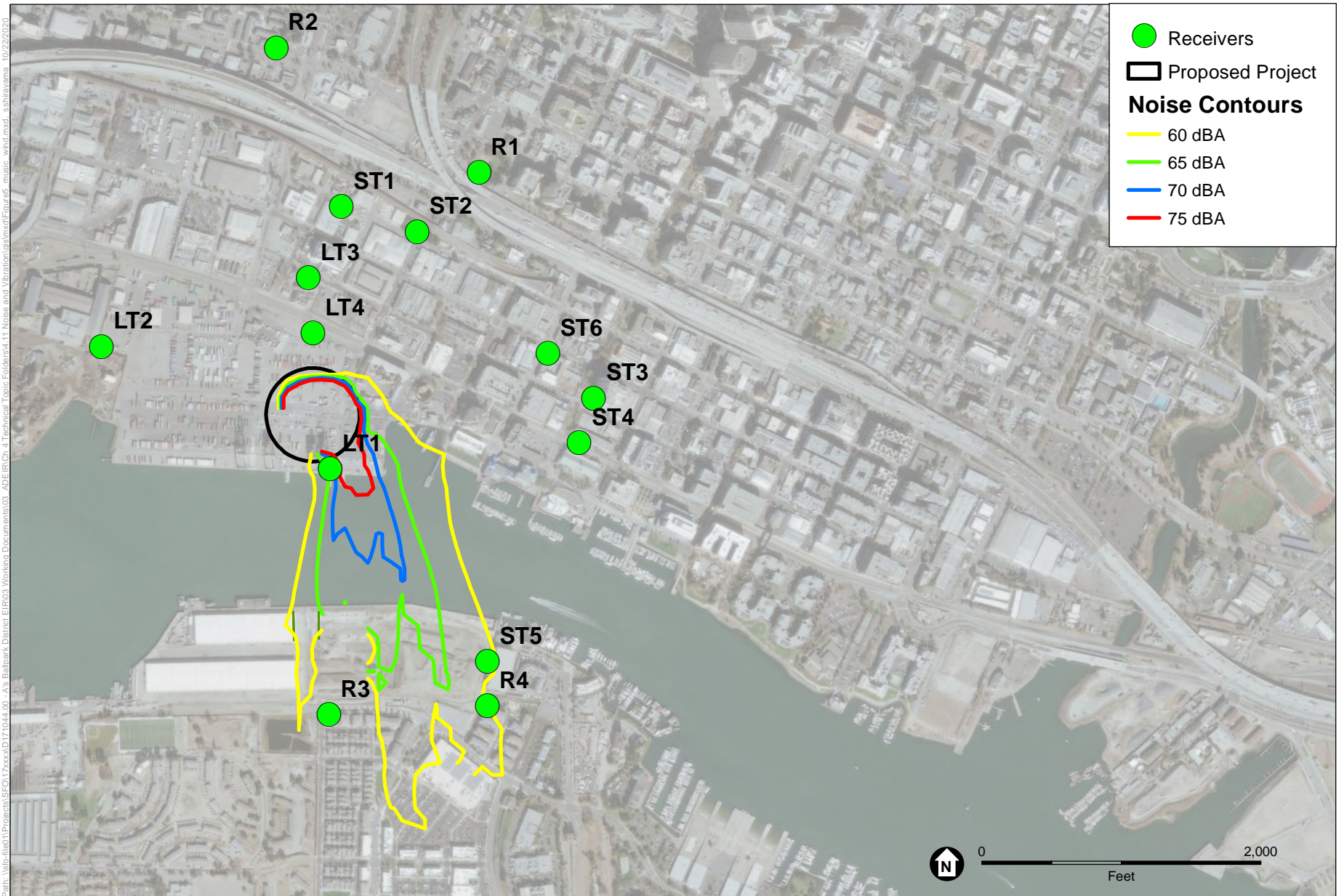
Figure 3
Noise Contour Map
Music Event



SOURCE: ESA, 2020; Oakland Athletics, 2020; City of Oakland, 2019

Oakland Athletics Ballpark EIR Project Name

Figure 4
Noise Contour Map
Baseball Game with Wind



SOURCE: ESA, 2020; Oakland Athletics, 2020; City of Oakland, 2019

Oakland Athletics Ballpark EIR Project Name

Figure 5
 Noise Contour Map
 Music Event with Wind