



Board Report

File #: 2018-0787, File Type: Motion / Motion Response

Agenda Number: 7.

REVISED
AD HOC CONGESTION, HIGHWAY AND ROADS COMMITTEE
FEBRUARY 20, 2019

SUBJECT: SOUNDWALL PROGRAM ANALYSIS, DELIVERY OPTIONS AND FUNDING

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE Countywide soundwall program outline and analysis of potential delivery options to construct the remaining prioritized retrofit soundwall projects, utilizing materials currently approved by the California Department of Transportation (Caltrans) for construction of soundwalls and funding opportunities in response to the October 25, 2018 Board Motion 9.1.

ISSUE

In October 2018, the Board directed staff to identify options to fund and construct the remaining soundwalls on the Post-1989 soundwall lists. This report presents a short term plan to fund the remaining Phase I soundwalls and a long term plan to fund the soundwalls in Phase II.

BACKGROUND

Metro assumed the responsibility for delivery of the retrofit soundwall projects in Los Angeles County after the passage of SB 45 in ~~1999~~ 1998. Prior to that, Caltrans was responsible for nominating soundwalls for funding through the California Transportation Commission (CTC) and constructing soundwalls along the freeway system.

The majority of the soundwall needs after passage of SB 45 consisted of retrofit soundwalls needed to alleviate noise levels in qualified communities adjacent to freeways with no active freeway improvement projects. New freeway improvement projects are required to evaluate noise impacts and consider the construction of soundwalls as part of project mitigation requirements.

In order for a location to qualify for retrofit soundwalls, it must meet all of the following criteria:

- Residential property built prior to the freeway or prior to a freeway capacity enhancing project.
- Exposed to an hourly noise level exceeding the 67-decibel (Leg) threshold established by Federal and State agencies.
- Achieve at least a 5-decibel noise reduction at an eligible residence after installation of

soundwall(s).

- Cost may not exceed \$92,000 per residential unit (“2017” dollars).

Between 2001 and 2003, Metro developed the list of priority retrofit soundwalls by classifying them in “Phases”.

Phase I: Soundwalls that were required to be constructed as part of the High Occupancy Vehicle Lanes (HOV) projects but were deferred; and

Phase II: All other retrofit/after-the-fact soundwall locations deemed eligible along the various freeways.

Within Phase I, three priority lists were established:

Priority 1: Soundwalls warranted for construction within the limits of newly-constructed HOV lane projects but built only on one side of the freeway.

Priority 2: Soundwalls warranted for construction within the limits of newly-constructed HOV lane projects but not built on either side of the freeway.

Priority 3: Soundwalls that met the requirements to be in Phase I but were identified after establishment of the initial Phase I list.

Within those priorities, soundwall “packages” were identified which consisted of bundled walls that could be built together for project delivery and cost effectiveness.

All Phase I Priority 1 Soundwalls are constructed.

Package 10 in Priority 2 is in final design and soundwall package 11 in Priority 2 group is in construction.

The list of the remaining walls under Priorities 2 and 3 are included as Attachment A.

The Phase II list is currently not funded.

From time to time, Metro staff may request and the Board may approve, to the extent that funds are available, funding to implement soundwalls.

To identify and validate soundwall needs on the highway system, standard Caltrans process must be followed. The first step in determining the need for soundwalls is to prepare a Noise Barrier Scope Summary Report (NBSSR). An NBSSR identifies the locations, lengths, and heights of walls, as well as the resulting impacts to the roadway, structures, right of way, and the environment within the project limits. Reasonableness and feasibility tests are applied to see if a project can be recommended to move to design and construction, if funded.

Priority and order of implementation is determined by a soundwall Priority Index Number (PIN), which is calculated with consideration of the existing noise level, the anticipated noise reduction after implementation, the number of residential units benefiting from the project and the project's estimated cost. The PIN helps determine the magnitude of benefit received by residential units upon construction of a soundwall. Currently, all walls in Phase I have a PIN. Not all walls in Phase II have PINs.

As for construction, Caltrans requires that all walls placed along the edge of freeway shoulders be constructed on a safety barrier. Walls constructed on bridges are to be installed on top of the bridge railing. Walls to be constructed in a safe distance from the freeway have more flexible design criteria.

To-date, Caltrans has approved and utilized only a limited number of materials for soundwalls, the list of which is provided in Attachment B. The most frequently used material is masonry block. Acrylic clear panels are an alternative material to masonry block and have been approved for mounting on bridge rails. For any other material approved by Caltrans, walls must be located in the Clear Recovery Zone which is 30 feet from the traveled way or located a minimum 18 inches behind a barrier that meets the Manual for Assessing Safety Hardware (MASH) criteria. Thus, very few LA County locations may be able to use one of the approved alternative systems.

DISCUSSION

Soundwall packages 12 through 14 in Phase I, Priority 2 and all walls in Priority 3 require NBSSR updates to commence design. Funds are identified and available in the Long Range Transportation plan as early as 2024 for implementation of soundwalls. Upon Board approval, funds may be obligated for early development work.

The Phase II list contains 100 freeway segments that had qualified noise readings for soundwalls. No funds have been identified for development and implementation of the Phase II list. A cursory check of the land use along the freeway segments under Phase II suggests approximately 68.8 miles of soundwall would be needed (Attachment A).

It is the Board's intention to identify possible options to fund and implement as many eligible soundwalls as possible.

Staff will continue construction of soundwalls on the current order of priority starting with completion of Phase I priorities as funds become available.

The current estimate of cost of implementation of the remainder of Phase I; Priority 2 (Packages 12-14) and Priority 3 soundwalls is between \$216 to \$433 Million.

Upon completion of Phase I or depletion of available funds, staff will report back to the Board and identify alternative approaches to implementation of Phase II soundwalls as well as any potentially remaining Phase I walls.

Pros: Implementation of soundwall program in accordance with the current Board policies.

Cons: Implementation of Phase II walls would not occur any time soon as the cost of implementation of Phase I priorities is not budgeted and is rising due to market conditions.

FINANCIAL IMPACT

Using the current average cost range of \$10 to \$20 million per mile for soundwall design, right-of-way, and construction (including potential roadway and structure work), the current Rough Order of Magnitude (ROM) cost estimate to complete the remaining Phase I (Priority 2, Package 12-14 and Priority 3 lists) is between \$216.6 million to \$433.2 million, and the non-prioritized Phase II list at \$688 million to \$1.3 billion. The Measure R Expenditure Plan designated a total of \$250 million for countywide soundwalls. In addition, the LRTP (as amended) programmed \$57.6 million of Proposition C 25% transit related highway funds and \$282.1 million in State Regional Improvement Program (RIP) funds for eligible Phase I soundwalls through FY 2040, for a total of \$589.7 million for the completion of Phase I projects.

To-date, the Board has approved Life-of-Project (LOP) budgets totaling \$238.9 million in Measure R funds towards the completion of Phase I, Priority 1 (Packages 4-8) and Priority 2 (Packages 10 and 11), which leaves a balance of \$350.8 million in LRTP funds between FY 2025 and FY 2040, plus any project savings from the completion of Priority 1 and 2 projects, available to deliver the remaining Phase I Priority 2 (Packages 12-14) and Priority 3 projects.

There are no funds assigned to Phase II at this time. Availability of funds for Phase II walls is highly unlikely due to other Metro funding priorities. A long-term plan for the implementation of Phase II could include the following strategies:

- Authorize a reasonable percentage of the Subregional Measure M allocations to be spent on construction of soundwalls at the election of the Subregion and allow the Subregions to construct soundwalls based on established priorities within each subregion.
- Seek Caltrans funding contribution from the ~~State Highway Operations and Protection Program (SHOPP)~~ SB1 LPP - Local Partnership Program for the Phase II walls.

Staff will continue to identify other funding sources to support the implementation of the Countywide Soundwall Program.

Additionally, as new highway capacity enhancement projects are developed, soundwall segments on the Phase I or Phase II list that are within the limits of those projects will be built as part of the project if deemed eligible.

Impact to Budget

This report is for information only, does not recommend funding beyond the current levels, and therefore does not impose any impact to Metro's budget. Depending on the Board's direction for the next steps, budget impacts will be identified and explained in the follow up reports to the Board.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

Recommendation supports strategic plan goal #5: Provide responsive, accountable and trustworthy governance. This report is intended to identify best practices, access the full life-cycle costs of infrastructure investments and identify trade-offs.

ALTERNATIVES CONSIDERED

Alternative 1: Revise Board's policies and priorities on implementation of soundwalls.

De-prioritize implementation of Phase I soundwalls; identify alternative methodologies to reprioritize the program blending the remainder of Phase I priorities with the Phase II walls and conducting noise studies across the board for all projects.

Pros: Potential opportunities for advancing some of the Phase II walls that otherwise may not be built any time soon.

Cons: Potential delay in implementation of eligible soundwalls that were required to be constructed as part of the HOV lane projects but were deferred due to other priorities.

This alternative is not recommended. Conducting noise studies, preparing documents, and assigning priority index numbers to all candidate walls requires substantial investment without a guarantee of being able to pay for the environmental, design, and construction of those walls.

NEXT STEPS

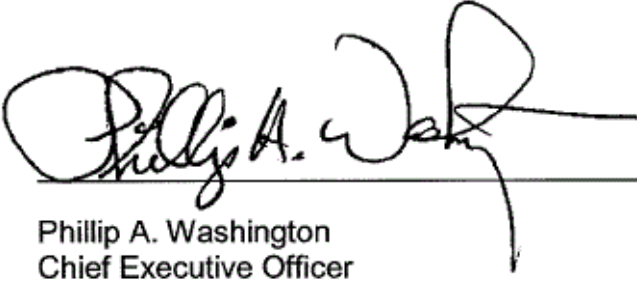
Staff will return to the Board in June 2019 to seek budget authority to continue implementation of the remaining walls in Phase I. Upon completion of Phase I, staff will return to the Board to identify potential available funding and recommend alternatives to establish order of priority for Phase II soundwalls.

ATTACHMENTS

Attachment A - Countywide Soundwall Lists
Attachment B - Soundwall Types Approved by Caltrans
Attachment C - Soundwall Location Maps by Subregion

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Phillip A. Washington
Chief Executive Officer

Remaining Post 1989 Retrofit Soundwall Projects

Phase I, Priority 2, Packages 12, 13 and 14 (Unfunded)

| Rte. | City/Unicorp. | Project Description | SW Length | Notes |
|-------------------|-------------------|---|-----------------------|---|
| PACKAGE 12 | | | | |
| 210 | Glendora | EB Off-ramp Grand Ave / Big Dalton Wash: EB | 0.45 | NBSSR analysis completed on 8/8/2007 |
| 210 | Glendora | W of Bonnie Cove Ave / E of Bonnie Cove Ave: EB | 0.19 | NBSSR analysis completed on 8/8/2007 |
| 210 | Glendora | W of Lyman Ave / E of Sunflower Ave: EB | 0.49 | NBSSR analysis completed on 8/8/2007 |
| PACKAGE 13 | | | | |
| 405 | Long Beach/Carson | Long Beach Blvd / 213 St: NB & SB | 2.65 | NBSSR analysis completed on 3/8/2004 |
| PACKAGE 14 | | | | |
| 134 | Eagle Rock | W of Mt. Helena Ave / W of Figueroa St: EB | 0.28 | NBSSR analysis completed on 6/20/2003 |
| | | | 4.06 | Total Estimated Length of Potential SW Projects (In Miles) |
| | | | \$ 40.6 - 81.2 | Total Estimated Cost of Potential SW Projects (In Millions, 2018) |

Phase I, Priority 3 (Unfunded)

Contains soundwalls that met requirements to be in Phase I but were identified after the Board action of 4-27-2000
(Not in Rank Order)

| Rte. | City/Unicorp. | Project Description | Estimated SW Length | Notes |
|------|---------------|--|---------------------|---|
| 57 | Diamond Bar | North of Brea Cyn Road / North of Sunset Crossing: NB & SB | 3.90 | Commercial frontage |
| 91 | Bellflower | Los Angeles River / Lakewood Blvd: NB & SB | 1.12 | Existing SWs within project limits |
| 118 | Los Angeles | East of Tampa Ave to West of Havenhurst Ave: WB & EB | 6.66 | |
| 118 | Los Angeles | East of Woodley Ave to San Fernando Road: WB & EB | 5.12 | |
| 134 | Toluca Lake | Rte. 101/134 / Ensign Ave: EB | 0.20 | |
| 134 | Burbank | West Riverside Dr. UC: WB | 0.10 | |
| 134 | Burbank | 0.2 Mi East of Buena Vista St to Forest Lawn Drive: WB | 0.15 | Parkland and vacant land frontage |
| 405 | Long Beach | 0.1 Mi North of Lakewood Blvd/0.4 North of Lakewood Blvd: SB | 0.30 | |
| 405 | Los Angeles | Denker Ave./Normandie: NB | 0.00 | |
| | | | 17.6 | Total Estimated Length of Potential SW Projects (In Miles) |
| | | | \$ 176 - 352 | Total Estimated Cost of Potential SW Projects (In Millions, 2018) |

| Key | |
|---------------------|--|
| SW | Soundwall |
| NBSSR | Noise Barrier Scope Summary Report |
| Estimated SW Length | Derived from freeway frontage analysis |

MTA Post 1989 Retrofit Soundwall Projects

Phase II (Unfunded)

Other qualified soundwalls including soundwalls identified prior to the adoption of Metro Soundwall Policies (Not in Rank Order)

| Rte. | City/Unicorp. | Project Description | Estimated SW Length | Notes | Potential to be Built with a Highway Project |
|------|-----------------|---|---------------------|---|--|
| 2 | Los Angeles | Route 5 / Route 134: WB & EB | 4.07 | Commercial and parkland frontage | No |
| 5 | Los Angeles | 0.1 South of Olympic / First St: NB & SB | 4.50 | | No |
| 5 | Los Angeles | Fletcher Dr / South of Glendale Blvd: NB & SB | 0.64 | Commercial and parkland frontage | |
| 5 | Los Angeles | Fletcher Dr. to Route 2: SB | 0.30 | | |
| 5 | Los Angeles | South of Broadway to South of Humboldt St: NB | 0.40 | | |
| 10 | Santa Monica | Lincoln Bl / East of 27th St: WB & EB | 1.05 | Existing SWs within project limits | No |
| 10 | Santa Monica/LA | East of Centinela Ave / Motor Ave: WB & EB | 3.22 | Existing SWs within project limits | |
| 10 | Los Angeles | Motor Ave / Palms / National Blvd: WB & EB | 0.20 | Existing SWs within project limits; commercial frontage | |
| 10 | Los Angeles | West of Palms / Fairfax Ave: WB & EB | 1.47 | Existing SWs within project limits | |
| 10 | Los Angeles | Redondo Blvd / East of Albany St: WB & EB | 3.72 | Existing SWs within project limits | |
| 10 | Alhambra | West of Route 5 / Garfield Ave: WB & EB | 3.36 | Existing SWs within project limits | I-710 North Project |
| 10 | Alhambra | East of Atlantic Bl. To West of 9th St: WB | 0.02 | | |
| 10 | Monterey Park | New Ave / Walnut Grove Ave: WB & EB | 0.96 | Existing SWs within project limits | |
| 10 | Los Angeles | 0.1 mile West of Indian Hills Bl to 0.1 mile East of Indian Hills Bl WB | 0.02 | Commercial frontage | No |
| 14 | Los Angeles | North of Red Rover Mine Rd: NB (Vasquez High School) | 0.23 | | No |
| 14 | Lancaster | Ave P-8 / Ave I: NB | 2.43 | Commercial zones; schools | |
| 14 | Lancaster | 1,800 Feet South of Ave. E to Ave. E: NB | 0.34 | | |
| 47 | Los Angeles | East of Gaffey St to West of Harbor Bl: NB & EB 2,720 feet of wall | 0.52 | | No |
| 57 | Pomona | 0.2 South of Temple Ave / North of Campus: NB & SB | 0.70 | Existing SWs within project limits | No |
| 60 | Los Angeles | Rowan / Route 710: WB | 0.55 | Commercial frontage | No |
| 60 | Los Angeles | East of S. Dangler Ave. to Mednik Ave. EB | 0.10 | | |
| 60 | Los Angeles | San Gabriel Blvd / Route 605: WB & EB | 1.24 | Existing SWs within project limits; commercial frontage | |
| 71 | Pomona | 0.1 Mi. South of North Ranch Rd to Rte. 71/60 IC: NB | 0.26 | Existing SWs within project limits | SR-71 project |
| 90 | Los Angeles | Ballona Creek / Inglewood Blvd: WB & EB | 0.45 | Parkland frontage | No |
| 90 | Los Angeles | East of Mindanao Short Ave to West of Culver Blvd: EB | 0.40 | | |
| 90 | Los Angeles | East of Centinela Ave. to West of Inglewood Blvd: WB | 0.40 | | |
| 90 | Culver City | Inglewood Blvd / Route 405: WB & EB | 0.50 | Existing SWs within project limits | |
| 91 | Cerritos | East of Studebaker Rd to Coral Reef Cir. WB connector to NB LA-605 | 0.12 | | SR-91 WB Project |
| 101 | Los Angeles | 1st Street to Kearney St: NB | 0.06 | Commercial frontage | No |
| 101 | Los Angeles | Beaudry Ave to Alvarado St: NB | 0.61 | | |
| 101 | Los Angeles | South of Alvarado St / North of Vermont Ave: NB & SB | 1.33 | Existing SWs within project limits | |
| 101 | Los Angeles | Along Hollywood Blvd. On-Ramp | 0.03 | | |
| 101 | Los Angeles | Cahuenga Blvd / 0.1 Mi North of Cahuenga Blvd: SB | 0.02 | | |
| 101 | Los Angeles | North of Lankershim Blvd to North of Vineland Ave: SB | 0.72 | | |
| 101 | Los Angeles | Vineland Ave / 0.2 Mi North of Moorpark St: NB & SB | 0.38 | Commercial frontage | |
| 101 | Los Angeles | Radford Ave / Laurel Canyon Blvd: NB | 0.20 | | |
| 101 | Los Angeles | Fulton Ave. to 0.2 Mi. West of Fulton Ave. WB (Memo-12/14/06: PIN is not applicable to school noise abatement, private school)) | 0.20 | | |
| 101 | Los Angeles | North of Hayvenhurst Ave / Burbank Blvd: NB & SB | 3.96 | | |
| 101 | Los Angeles | West of Reseda Blvd / Yolanda Ave: SB | 0.24 | | |
| 101 | Woodland Hills | Winnetka Ave / Desoto Ave: NB | 0.77 | | |
| 101 | Los Angeles | Canoga Ave / Owensmouth Ave: NB | 0.30 | | |
| 101 | Los Angeles | West of Topanga Canyon to East of Farralone Ave: WB | 0.14 | | |
| 101 | Los Angeles | Shoup Ave / E Woodlake Ave: NB | 0.76 | | |
| 101 | Woodland Hills | Dunman Ave / 0.4 Mi South of Mulholland Dr: SB | 0.06 | Commercial frontage | |

| | | | | | |
|-----|----------------------|---|--------------|---|-------------------------------------|
| 105 | Hawthorne | East of Rte. 405 to West of Prairie Ave: WB | 0.95 | | Express Lanes Project |
| 105 | Hawthorne | East of Inglewood Ave. to West of Hawthorne Blvd: EB | 0.38 | | |
| 105 | Los Angeles | West of Inglewood Ave to Hawthorne Bl: WB | 0.45 | | |
| 105 | Hawthorne | East of Prairie Ave. to West of Prairie Ave: EB | 0.12 | Commercial frontage | |
| 105 | Hawthorne | East of Prairie Ave. to West of Doty Ave: WB | 0.05 | Existing SWs within project limits | |
| 105 | Hawthorne | West to East of Dominguez Creek: EB | 0.00 | Parkland frontage | |
| 105 | Hawthorne | East of Crenshaw Blvd. to West of Crenshaw Blvd: WB | 0.04 | Existing SWs within project limits | |
| 105 | Hawthorne/LA | West of Normandie Ave. to West of Hoover St: EB | 0.90 | | |
| 105 | Hawthorne | West of Budlong Ave. to West of Vermont Ave: WB | 0.20 | | |
| 105 | Los Angeles | East of Rte. 110 to West of Main St: EB | 0.35 | | |
| 105 | Los Angeles | East of Rte. 110 to East of Avalon Blvd: WB | 0.70 | | |
| 105 | Willowbrook | West of Central Ave. to West of Wilmington Ave: WB | 1.00 | | |
| 105 | Willowbrook | West of Central Ave. to East of Compton Ave: EB | 0.28 | | |
| 105 | Willowbrook/Lynw | West of Wilmington Ave. to East of State St: WB | 1.05 | | |
| 105 | Lynwood | West of State St. to West of Long Beach Blvd: EB | 0.60 | | |
| 105 | Lynwood | West of Long Beach Blvd to West of Spruce St: WB | 0.21 | | |
| 105 | Lynwood | West of Bullis St to East of Wright Rd: EB | 1.27 | | |
| 110 | Los Angeles | North of Oliver St / 0.1 Mi North of 223rd St: NB & SB | 0.89 | Existing SWs within project limits | No |
| 110 | San Pedro | N El Beron Ave/ N Mac Arthur Ave: NB | 0.30 | | |
| 110 | Los Angeles | Flower St / 23rd St: NB | 0.00 | Commercial frontage | |
| 110 | Los Angeles | 23rd St to Washington Bl: SB | 0.00 | Commercial frontage | No |
| 110 | Los Angeles | South of College / Arroyo Seco Ave: SB | 1.18 | Parkland frontage | |
| 118 | Chatsworth | East of Topanga Canyon Bl to East of Topanga Blvd: WB | 0.02 | | No |
| 118 | Chatsworth | Topanga Canyon Blvd / 118 Freeway Off-Ramp: EB | 0.10 | | No |
| 134 | Burbank | East of S California to Bob Hope Drive Off-Ramp | 0.11 | | |
| 134 | Glendale | W San Rafael Ave / E San Rafael Ave: EB | 0.02 | Commercial and vacant land frontage | No |
| 134 | Pasadena | From 574 ft West of Orange Grove Bl OC to 394' East: WB | 0.15 | | No |
| 210 | Los Angeles | East of Foothill Blvd / West of MacClay St: WB & EB | 4.52 | | |
| 210 | Los Angeles | Paxton St / South of Sunland Ave: WB & EB | 0.87 | Existing SWs within project limits | |
| 210 | Glendale | 0.4 Mi. West of Honolulu Ave / Boston Ave: WB & EB | 0.06 | Existing SWs within project limits | |
| 210 | La Canada/Flintridge | Boston / Berkshire Place: WB & EB | 5.04 | Existing SWs within project limits | |
| 210 | Pasadena | N. Arroyo Blvd / Orange Grove Blvd: WB & EB | 0.00 | Existing SWs within project limits | |
| 210 | Arcadia | Santa Anita Ave Off-Ramp: WB | 0.10 | | |
| 210 | Glendora | 0.3 Mi. West of Gladstone St to 0.5 Mi. West of Via Verde in San Dimas: WB & EB | 1.56 | Commercial and vacant land frontage | |
| 405 | Long Beach | Clark Ave Bridge Structure: SB | 0.04 | | No |
| 405 | Long Beach | LA-405 SB to LA-710 SB Connector: SB | 0.38 | Existing SWs within project limits | I-405 Aux Lanes |
| 405 | Los Angeles | W. Rosecrans Ave to W. El Segundo Bl: SB | 1.05 | | |
| 605 | Long Beach | North of Coyote Creek OC to South of Spring St. NB On-Ramp: NB | 0.17 | | No |
| 605 | Lakewood | El Dorado Park between Spring St & Carson St: SB | 0.00 | Parkland frontage | |
| 605 | Norwalk | South of I-105 to North of Rosecrans Ave: SB | 0.23 | | I-605 Corridor Improvements Project |
| 605 | Pico Riviera | South of Telegraph Rd. to South of Slauson Ave: SB | 0.12 | Parkland frontage | |
| 605 | Whittier | UPRR Bridge to North of Beverly Bl: NB | 0.41 | | |
| 605 | Irwindale | Route 210 / So Huntington Dr: NB & SB | 0.39 | | No |
| 710 | Bell/South Gate | Imperial Hwy to South of Clara St: SB | 0.60 | | I-710 South Project |
| | | | 68.8 | Total Estimated Length of Potential SW Projects (In Miles) | |
| | | | \$ 688-1,376 | Total Estimated Cost of Potential SW Projects (In Millions, 2018) | |

| Key | |
|---------------------|--|
| SW | Soundwall |
| NBSSR | Noise Barrier Scope Summary Report |
| Estimated SW Length | Derived from freeway frontage analysis |

Soundwall Materials Approved by Caltrans

| Material Name | Material Description | Allowable Use | Current Status | Cost |
|--|----------------------|---|---------------------------|--|
| Masonry Block | Masonry Blocks | Extensive use on the freeway system, on barriers or adjacent to the freeway shoulder | Approved | Construction Capital cost averages \$1,000/linear foot for a 14 foot high soundwall |
| Acrylite - Soundstop Masonry Wall System | Clear Acrylic Panels | Outside clear recovery zone of a highway or behind MASH approved barrier. Can not be mounted on Bridge Rails or Safety Barriers | Pending Caltrans Approval | The material is more expensive than masonry block according to the manufacturer |
| Acrylite - Soundstop Ready-Fit Noise Barrier Panel | Clear Acrylic Panels | Outside clear recovery zone of a highway or behind MASH approved barrier | Pending Caltrans Approval | The material is more expensive than masonry block according to the manufacturer |
| Acrylite - SoundstopTL4 System | Clear Acrylic Panels | On top of bridge rails crash, barriers or retaining walls | Approved | One example: \$109/sq ft or about \$1500/linear foot for a 14 foot soundwall. Used on I-405 Atherton St. undercrossing and 37th St. Harbor Transit Way Station |



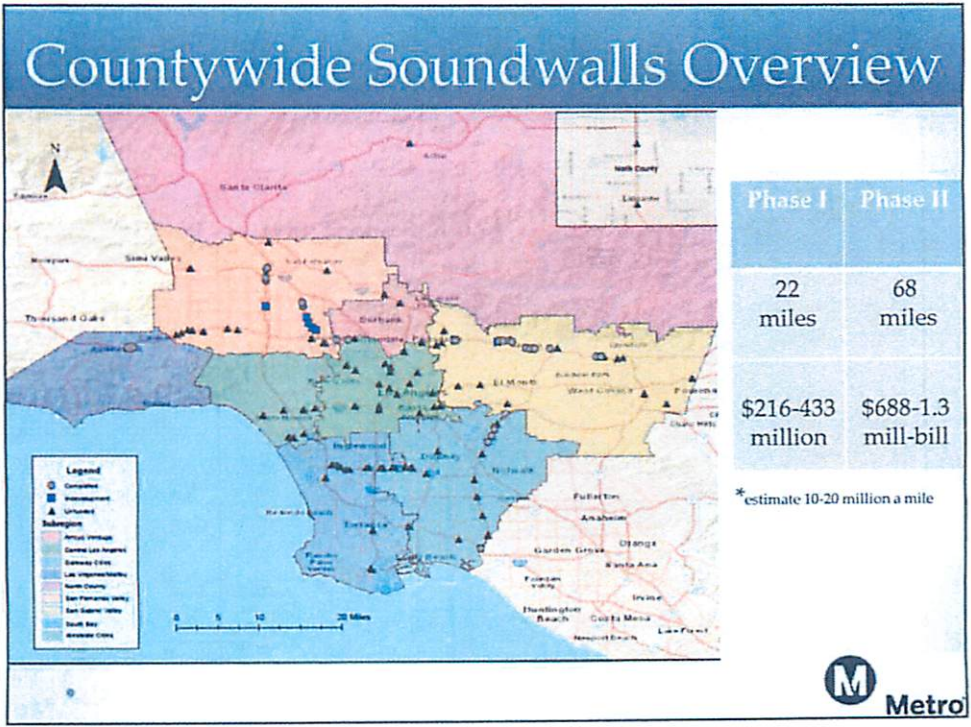
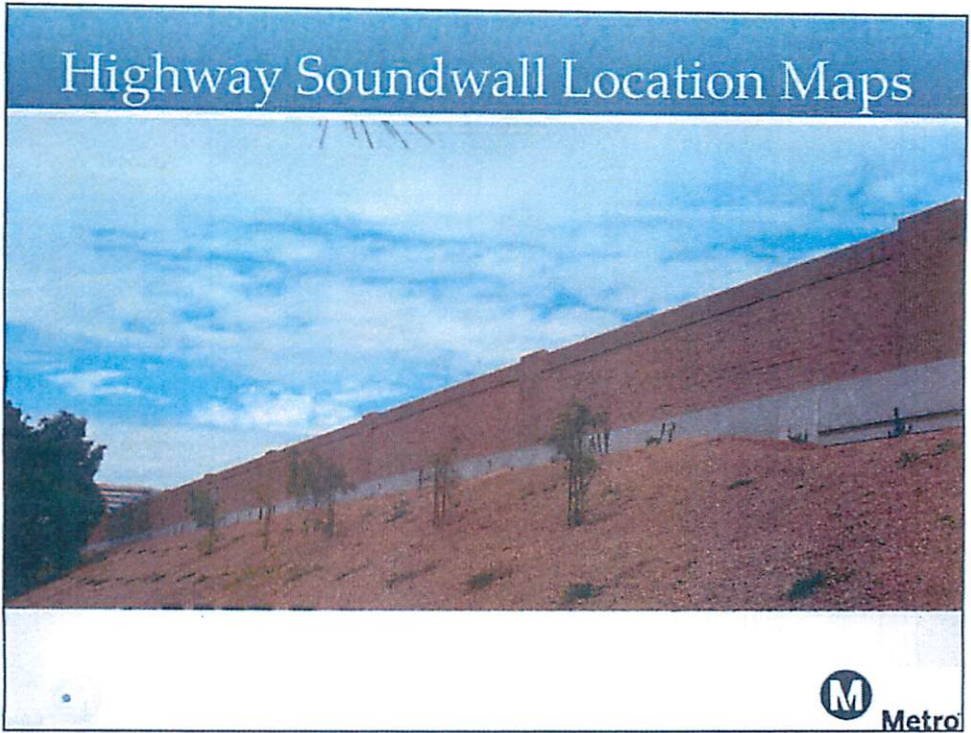
Masonry Block

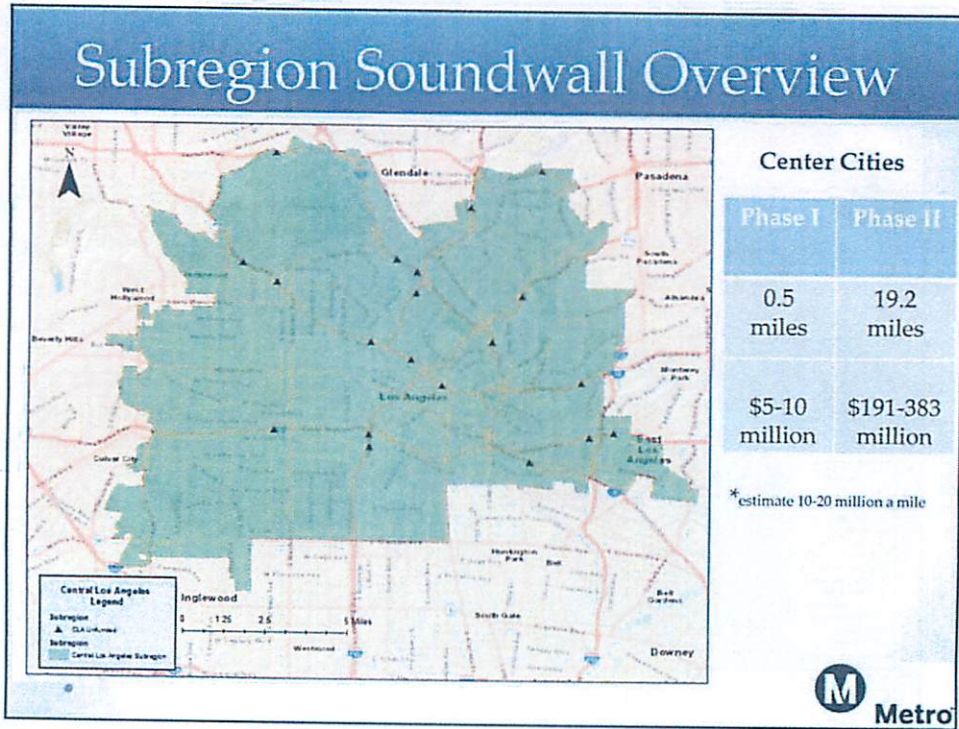
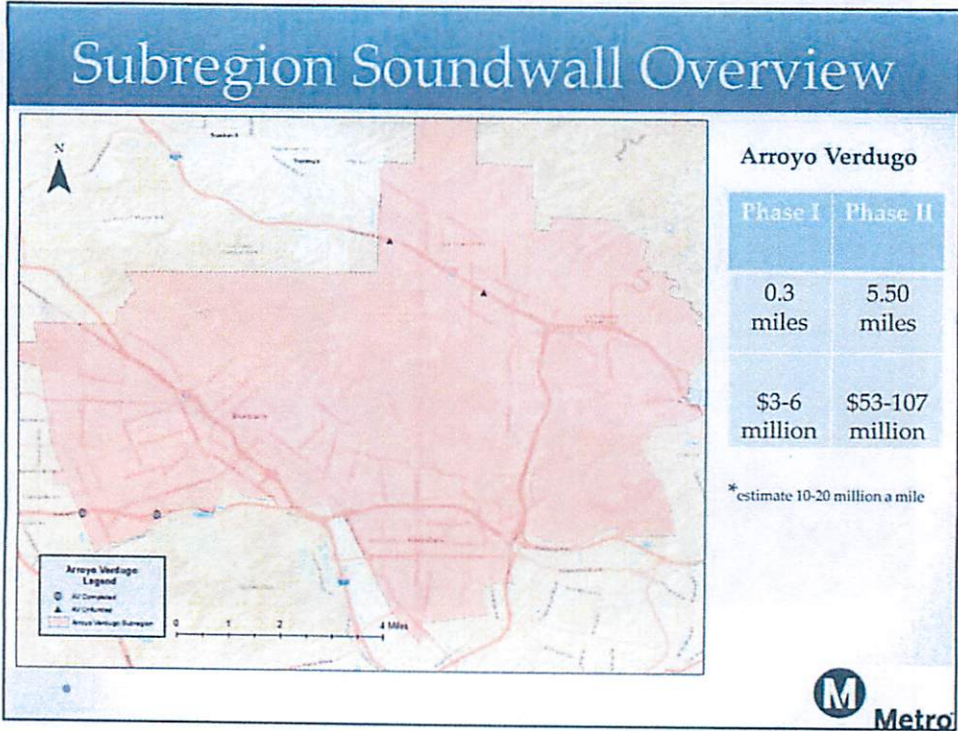


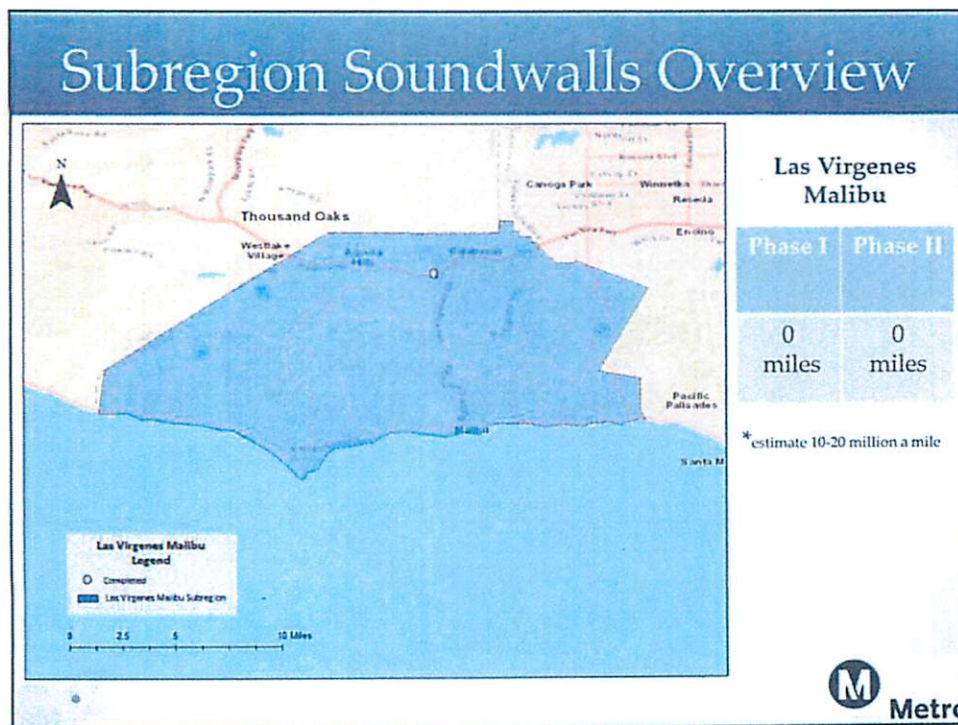
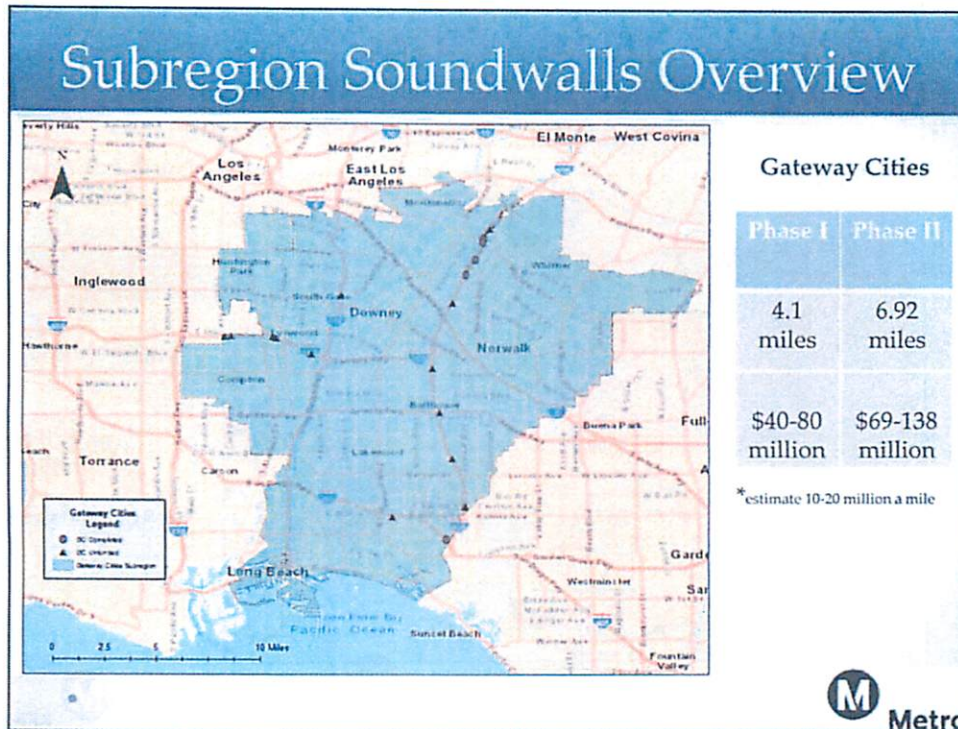
Acrylite - Soundstop Masonry Wall System & Ready-Fit Noise Barrier Panel

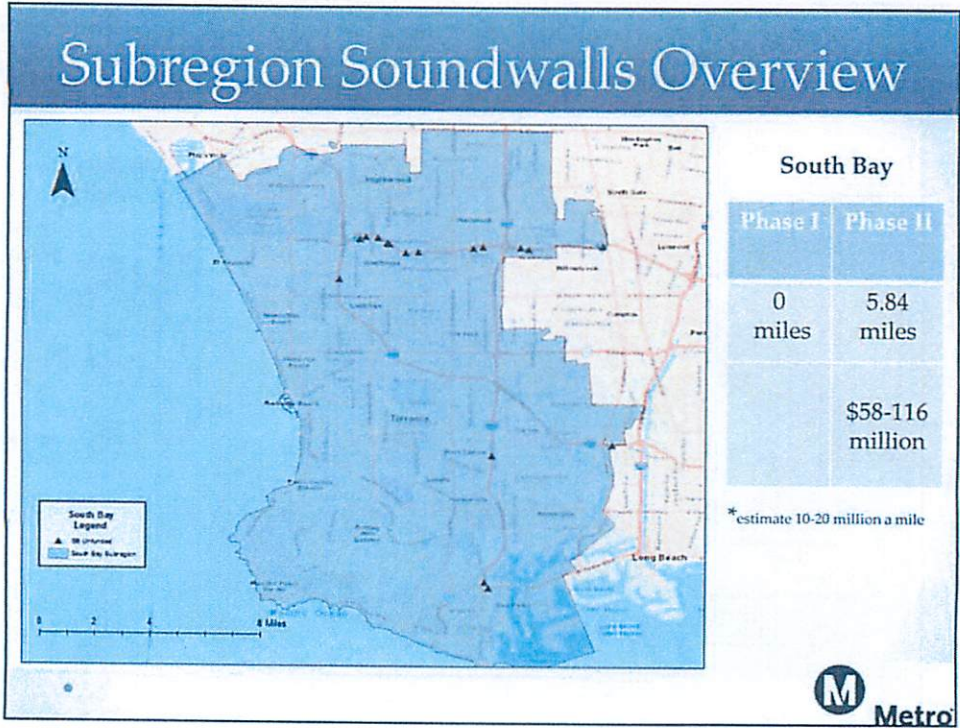


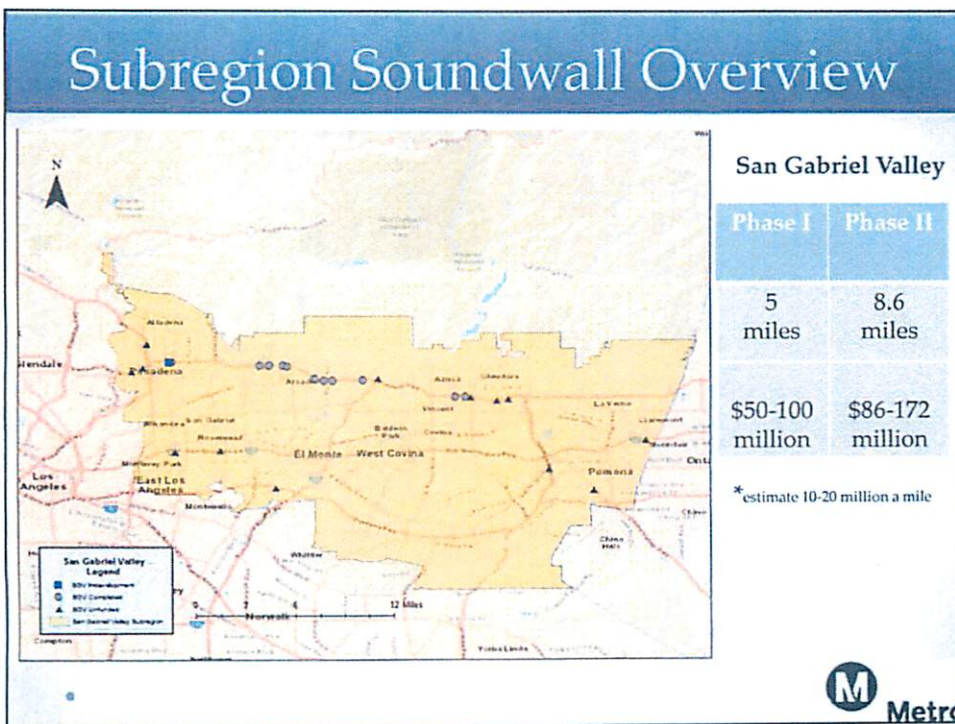
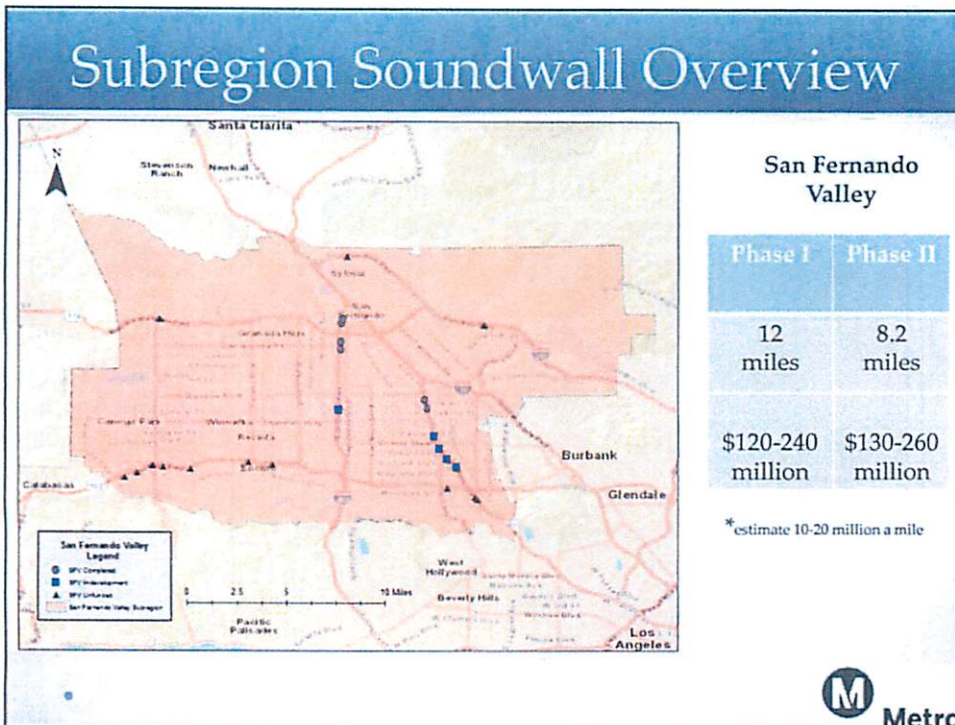
Acrylite - Soundstop TL4 System

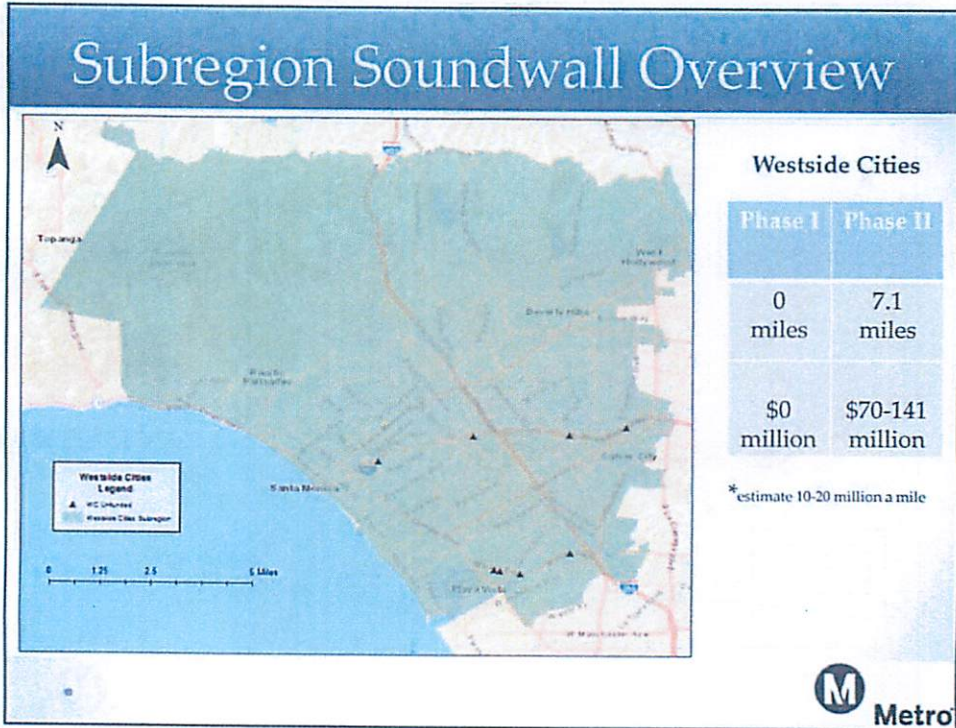












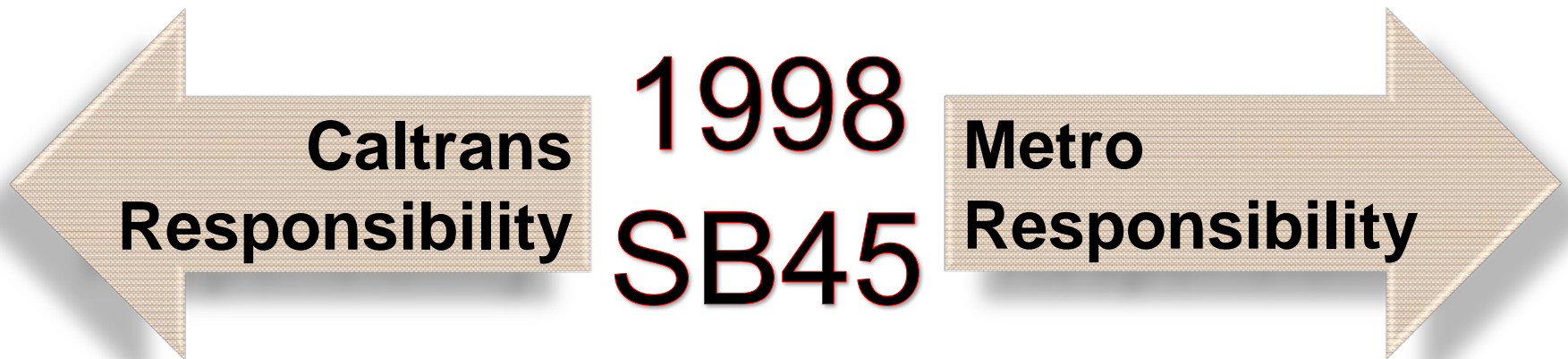
Metro Soundwall Program

Highway Program
February 2019



Soundwall Program History

- Soundwalls are constructed:
 1. as part of the **new freeway capacity enhancement projects** where warranted per established criteria, or
 2. as **retrofit** for protection of eligible residential neighborhoods constructed before an adjacent freeway





Soundwall Program History



Post May 1989 Phase I and II soundwall priority lists

- **Phase I** – Soundwalls where HOV lanes were constructed without the required soundwalls
 - [Priority 1](#): Soundwalls were constructed on one side of the freeway only
 - [Priority 2](#): Soundwalls were not constructed
 - [Priority 3](#): Soundwalls that met the requirements to be in Phase I but were identified after establishment of the initial Phase I list
- **Phase II** – All other soundwalls



Eligibility Criteria for Soundwall Construction



Feasibility Test - A soundwall of a reasonable height constructed adjacent to a freeway must be able to attenuate noise.

- 1. Noise Level Threshold** - A minimum noise level of 67 dBA for one hour (the highest one hour noise reading)
- 2. Noise Reduction:** Min. 5 dBA reduction with a proposed wall
- 3. Cost Feasibility** - Max. \$92,000 cost per dwelling unit.



Soundwall Project Funding & Delivery



1. Noise Investigation
2. Prepare Noise Barrier Scope Summary Report (NBSSR) to identify the proposed size and locations of soundwalls, environmental and other impacts, and provide the estimated cost
3. Priority assignment
4. Funding to proceed to design and construction phases

Construction Requirements



Alternative Materials



Soundwall Program Status

| Phase/Package | Status |
|-------------------------------------|---|
| Phase I, Priority 1, Packages 1-8 | Completed |
| Phase I, Priority 2, Package 10 | In Design |
| Phase I, Priority 2, Package 11 | In Construction (Package 9 Scope included in Package 11) |
| Phase I, Priority 2, Packages 12-14 | NBSSR Completed Not Funded for Design or Construction |
| Phase I, Priority 3 | List not funded/not prioritized |
| Phase II | List not funded/not prioritized |

Remaining Walls Phase I



Priority 2

| <u>Pkg</u> | <u>Route</u> | <u>Miles</u> | |
|------------|--------------|--------------|------------------------|
| 12 | 210 | 1.7 | Glendora |
| 13 | 405 | 9 | Long Beach, Carson |
| 14 | 134 | <u>0.6</u> | Eagle Rock |
| | | 11.3 | NET: 4.06 miles |

Priority 3

| | | |
|-----|-------------|-------------------------|
| 57 | 7.8 | Diamond Bar |
| 91 | 5.6 | Bellflower |
| 118 | 13.8 | Los Angeles |
| 134 | 0.6 | Toluca Lake, Burbank |
| 405 | <u>0.7</u> | Long Beach, Los Angeles |
| | 28.5 | NET: 7.6 miles |



Remaining Walls

Phase II



| <u>Route</u> | <u>Miles</u> | <u>Jurisdiction</u> |
|--------------|---------------|---|
| 2 | 9.2 | Los Angeles |
| 5 | 10.2 | Los Angeles |
| 10 | 38.33 | Santa Monica, LA, Alhambra, Monterey Park |
| 14 | 8.4 | Los Angeles, Lancaster |
| 47 | 1.2 | Los Angeles |
| 57 | 2.8 | Pomona |
| 60 | 7.3 | Los Angeles |
| 71 | 1.7 | Pomona |
| 90 | 2.6 | Los Angeles |
| 91 | 0.12 | Cerritos |
| 101 | 14.77 | Los Angeles, SFV, Calabasas |
| 105 | 10.52 | Los Angeles, Hawthorne, Lynwood, Willowbrook |
| 110 | 18.55 | Los Angeles, San Pedro |
| 118 | 0.2 | Los Angeles, Chatsworth |
| 134 | 1.29 | Los Angeles, Burbank, Glendale |
| 210 | 42.6 | Los Angeles, Glendale, Pasadena, Arcadia, Glendora, |
| 405 | 3.04 | Los Angeles, Long Beach |
| 605 | 3.05 | Lakewood, Pico Rivera, Whittier, Norwalk |
| 710 | <u>2.4</u> | Bell, South Gate |
| | 178.27 | (NET: 68.8 miles) |





Soundwall Cost



- ❑ Current cost (design and construction):
 - \$10 Million/mile if placed adjacent to the freeway shoulder
 - \$20 Million/mile if on bridge structures or retaining walls

 - Phase I: \$216.6 - \$433.2 million
 - Phase II: \$688 million - \$1.3 billion

- ❑ Funds in LRTP (starting in 2024): \$350.8 million

Soundwall Funding



| Eligible Fund Source | Eligible Phase | Comments |
|--|----------------|--|
| Prop. C 25% & RIP | I | 2024-2040 Years New Funding is Available |
| Measure R | | |
| Metro Allocation | I & II | \$17.3 (2024). Nearly all funds are programmed to other projects and programs |
| Subregional Highway Funds & Local Return | I & II | Only Arroyo Verdugo and Gateway Cities have programmed part of their allocations to build soundwalls |
| Measure M | | |
| Subregional Highway Funds & Local Return | I & II | Guidelines Developed. Local return may be used to build soundwalls. |
| SB 1 Local Partnership Program | I & II | LPP Funds a broad variety of projects. Limited funding availability, soundwalls have to compete. |





For More Information

Soundwall Program Webpage:
<https://www.metro.net/projects/soundwalls>

