



WESTSIDE SUBWAY EXTENSION PROJECT

Air Quality Construction Impacts Memorandum

Metro

August 2015

Table of Contents

List of Tables

1.0 INTRODUCTION

This memorandum supplements the *Westside Subway Extension Air Quality Technical Report (*August 2010) and the *Westside Subway Extension Air Quality Memorandum* (December 2011) and supports the *Westside Subway Extension Final EIS/EIR* (March 2012). This memorandum updates the analysis in Section 3.4 of the *Air Quality Memorandum* to incorporate further refinements to the construction approach and schedule for the Century City Constellation Station.

As a result of this refined analysis, SCAQMD thresholds will be exceeded for PM_{10} during the construction of the Project, prior to mitigation. With the proposed mitigation implemented, however, both PM_{10} and $PM_{2.5}$ will be reduced, and SCAQMD thresholds would not be exceeded for any pollutant. These determinations are consistent with the findings in the *Westside Subway Extension Draft EIS/EIR* (September 2010).

Only the LPA (Alternative 2) is included in this memorandum. The LPA is being constructed as three consecutive phases under the Metro Long Range Transportation Plan (LRTP) Scenario.

Information on regulatory framework, analysis methodology and existing conditions/affected environment can be found in the *Westside Subway Extension Project Air Quality Technical Report*.

2.0 REFINEMENTS TO CONSTRUCTION APPROACH AND SCHEDULE

The reason for the re-evaluation of Section 2 of the Westside Subway Extension is a result of a change in the development timeline for the parcel originally identified in the August 2012 Record of Decision (ROD) as the primary construction staging and laydown area along with station entrance for the Century City Constellation Station.

Due to a proposed commercial development at the corner of Avenue of the Stars and Constellation Boulevard (Area 1), the site can no longer be utilized for construction staging and laydown. However, the station entrance proposed at this location will remain and be incorporated into the new development. The following provides a summary of the areas of change from the approved construction staging scenario for the Century City Constellation Station (see Figure 2-1 for locations of referenced areas):

1. Change in construction staging scenario locations

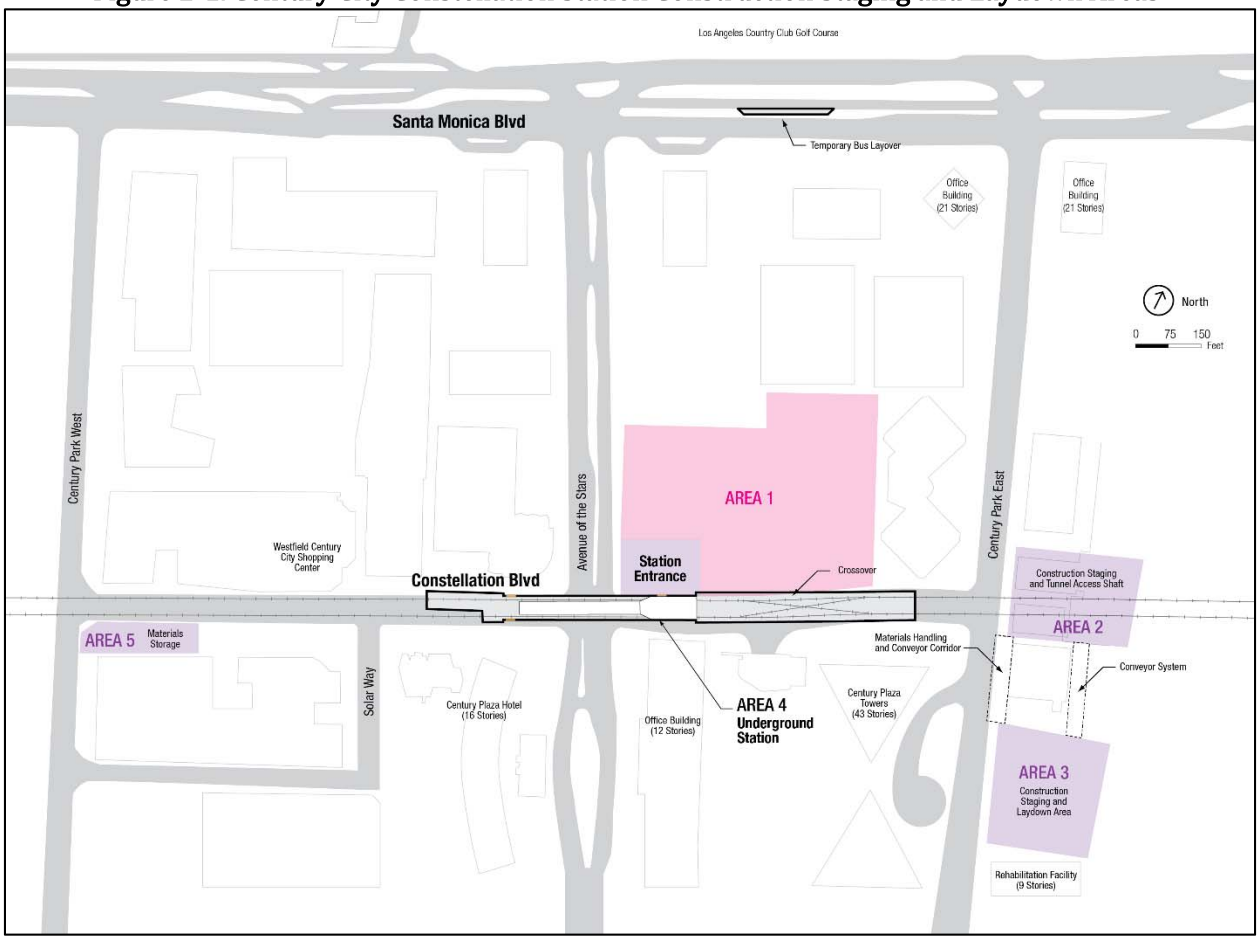
Scenario A, as identified in the EIS/EIR, with the Century City Constellation Station entrance and approximately 5.5 acre construction staging and laydown area (staging area) at the northeast corner of Constellation Boulevard and Avenue of the Stars (Area 1) was selected as part of the preferred alternative. Due to a proposed commercial development at this site, the selected construction staging area can no longer be used for the project. Instead, the staging areas identified in EIS/EIR as part of Scenario B will be used. The Scenario B sites (Area 2 and Area 3) include two locations along Century Park East and require full acquisition of 1940 Century Park East, 1950 Century Park East, and 2040 Century Park East.

A portion (less than 0.25 acres) of Area 1 will be required for construction of the station entrance which is to remain in the original location at the northeast corner of Constellation Boulevard and Avenue of the Stars (Area 1) and will be incorporated into future development to be constructed at this location. Metro will coordinate with the developer regarding the station entrance, although if development of the site has not yet begun when construction of the Constellation Station begins, the station entrance would be designed as described in the EIR. If the site is not developed at the start of the Constellation Station construction, it is possible that more than 0.25 acres of Area 1 will be used for construction activities.

In addition, due to the loss of full use of Area 1, the tunnel boring machine (TBM) will be lowered into the station excavation along Constellation Boulevard. This will require the full closure of approximately 200 feet of the eastern end of Constellation Boulevard between Century Park East and the first driveway on the north side of the street. Constellation Boulevard is a minor 4-lane east/west collector street median traversing a distance of approximately 0.4 miles between Century Park West and Century Park East that is classified in the Transportation Element of the City of Los Angeles General Plan as a Divided Secondary Highway. Within the study area, Constellation Boulevard has two travel lanes in each direction with painted two-way left-turn lanes and primarily provides a means of access to the properties located along its length. The closure of this short section of the noncontiguous Constellation Boulevard will be in place for approximately six months and will not block any building or driveway entrances.

Therefore, a hybrid of construction staging scenarios will be implemented with the station entrance location from Scenario A and staging areas from Scenario B.

Figure 2-1. Century City Constellation Station Construction Staging and Laydown Areas



2. Installation of a new tunnel access shaft and conveyor in Area 2

Since the majority of Area 1 will no longer be available for construction staging and removal of excavated materials, a temporary vertical access shaft, up to 80 feet in diameter will be constructed in Area 2 to provide access to the tunnel heading for workers and materials and to remove excavated material from the tunnel. The placement of a vertical access shaft in Area 2 was not included as part of a construction staging scenario presented in the EIS/EIR. The vertical access shaft will include three phases: construction of the shaft; operations conducted through the shaft including mucking, concrete work, and rail welding; and backfill of the shaft. Construction staging activities in Area 2 will occur for approximately seven years.

Because Areas 2 and 3 are not adjacent to each other, excavated material will likely be moved between the tunnel access shaft in Area 2 and staging area in Area 3 via an enclosed conveyor system. The conveyer will be in operation for approximately three years and located along a new temporary easement to be acquired by Metro. Should a slurry TBM be used, the conveyance system will carry the slurry feed and discharge pipes from the tunnel access shaft to a slurry separation plant in Area 3. There are three proposed location options for the conveyor system, with the final location to be determined after negotiations with the property owner:

I. The first option aligns the conveyor system from the vertical access shaft in Area 2 and travels approximately 400 feet along the east side of the AT&T building parking structure at 2010 Century Park East to Area 3. The conveyor would span the top of the parking structure. In addition to the conveyor, temporary pipe racks carrying utility lines, water, grout, foam, compressed air, etc. would also be installed over the top of the parking structure.

II. The second option is also located along the east side of the AT&T building at 2010 Century Park East. With this option the parking structure would be demolished and the conveyor system would be placed at ground level for approximately 400 feet from the tunnel shaft to Area 3. The parking structure is structurally unsound and only partially used now. Should AT&T agree to remove the parking structure, the enclosed conveyor system would be placed at ground level between Areas 2 and 3. Removal of the parking structure would also allow for additional area behind the AT&T building to be used for construction staging and laydown activities and for movement of materials and equipment between Areas 2 and 3. In addition, the area immediately adjacent to the east side of the building will be available for use as parking for employees of the AT&T facility.

III. The third option would place the conveyor system along the west side of the AT&T building in a materials handling corridor. This option would only be used if an easement along the east side of the AT&T building is not feasible. The corridor would extend from staging Area 2 to Area 3, a distance of approximately 400 feet, with a width encompassing one northbound traffic lane and sidewalk in the public right-of-way along the eastern side of Century Park East, and the space between the AT&T building and the eastern edge of the sidewalk. The corridor would be separated from traffic on Century Park East by K-Rail dividers plus fencing with fabric sight screening. Materials handling equipment would travel on the closed street lane. The enclosed conveyor would be elevated such that traffic entering the AT&T facility could pass beneath the conveyor structure. Access to the AT&T building and their facilities will be maintained through the period of use, which is approximately five years. The materials handling corridor along Century Park East would require the temporary relocation of one bus stop serving the Metro 28 line and LADOT Commuter Express line 534.

3. Operation of inpatient long-term rehabilitation facility adjacent to construction staging Area 3

Immediately south of staging Area 3, a former physician-run hospital at 2080 Century Park East that has been closed since 2008 is being remodeled to become a new inpatient rehabilitation facility with a tentative opening date of March 2016. The nine story rehabilitation facility was not in operation at the time of the EIR, therefore the analysis of the adjacent construction staging area did not assess potential noise, air quality, dust, light, and visual impacts to an inpatient medical facility. The 138 bed facility will provide inpatient rehabilitation services. Adjacent to the building, construction staging Area 3 will primarily be used for the temporary storage of excavated material which will then be hauled away for off-site disposal. Area 3 will also be used for storage of materials and equipment required for tunnel and station construction, and for the design/build contractor's office, maintenance shops, and parking. There is no change to the truck haul routes to be used for construction of the Century City Constellation Station identified in the EIS/EIR. Construction related activities will be in operation at this site for approximately seven years.

4. Use of existing Metro bus layover area for construction material storage

In addition to the Century Park East sites identified in the EIR, a material storage area will be placed at the existing 0.3 acre Metro bus layover site on the southeast corner of Century Park West and Constellation Boulevard (Area 5). The property owner also uses the site for a fuel cell installation to generate electricity. Access to the fuel cell installation will be maintained during the entire time the site is used by Metro. There will be no ground disturbing activity at the site other than for the installation and removal of soundwalls, and for removal and restoration of curbs and landscaping. Following construction of the station, the site will be returned to its current use as a Metro bus layover facility. The site will be used approximately seven years for storage of construction ma

5. Temporary bus layover on Santa Monica Boulevard

Due to the use of the existing Metro bus layover site (Area 5), a new temporary bus layover approximately 250 feet long and 12 feet wide providing parking for up to five buses, will be constructed in the median of Santa Monica Boulevard between Avenue of the Stars and Century Park East. Also included will be restroom facilities for Metro bus operators. The layover zone will be located in the landscaped median between the eastbound lanes of Santa Monica Boulevard and a dedicated bus lane, and will be in use for approximately seven years.

6. Westfield Mall Station Entrance

A potential second station entrance is under consideration at the Westfield Century City Mall. A knockout panel will be included in the northwest corner of the station box which will allow the Westfield Mall to connect directly to the Constellation Station if desired. In addition, Metro is currently in discussions with the property owners regarding the placement of the station appendages (exhaust and vent shafts) within the Westfield Mall property.

7. Elimination of train cross-over at Wilshire/Rodeo Station.

After an operational analysis was performed to verify that the train cross-over east of the Wilshire/Rodeo Station could be eliminated while still maintaining operational requirements for the Westside Subway Extension Project, Section 2, the Metro Board, at its September 2014 Board meeting approved the elimination of the cross-over. This action will result in significant shortening of the underground station, thus reducing construction costs and impacts to traffic and disruption to the surrounding streets and businesses.

3.0 CONSTRUCTION ASSESSMENTS

3.1 Existing with Project

An assessment of the air quality construction impacts was conducted. The assessment utilized CARB's EMFAC2011 mobile source emission factors, and the SCAQMD OFFROAD emission factors. SCAQMD OFFROAD was used to develop emission factors from off-road construction equipment. Using these various data sources, daily construction emission levels were developed. These values were compared to the air quality construction significance thresholds shown in Table 3-1 to determine if the project would meet or exceed these values. As the construction schedule is still preliminary at this time, construction emissions were estimated for each major activity.

Table 3-1: SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds[1]		
Pollutant	Construction[2]	Operation[3]
Nitrogen Oxides (NOx)	100 lbs/day	55 lbs/day
Volatile Organic Compounds (VOC)	75 lbs/day	55 lbs/day
Respirable Particulate Matter (PM10)	150 lbs/day	150 lbs/day
Fine Particulate Matter (PM2.5)	55 lbs/day	55 lbs/day
Sulfur Oxides (SOx)	150 lbs/day	150 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Lead (Pb)	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs), Odor and GHG Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MT/yr CO2eq for industrial facilities	
Ambient Air Quality for Criteria Pollutants[4]		
NO2 1-hour average annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM10 24-hour average annual average	10.4 µg/m3 (construction)[5] & 2.5 µg/m3 (operation) 1.0 µg/m3	
PM2.5 24-hour average	10.4 µg/m3 (construction)[5] & 2.5 µg/m3 (operation)	
SO2 1-hour average 24-hour average	0.25 ppm (state) & 0.075 ppm (federal-99th percentile) 0.04 ppm (state)	
Sulfate 24-hour average	25 µg/m3 (state)	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
Lead 30-day average Rolling 3-month average	1.5 µg/m3 (state) 0.15 µg/m3 (federal)	

SCAQMD, March 2015, http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2
[1]*Source: SCAQMD CEQA Handbook (SCAQMD, 1993).*
[2]Construction thresholds apply to both the South Coast Air Basin and Coachella Valley (Salton Sea and Mojave Desert Air Basins).
[3]For Coachella Valley, the mass daily thresholds for operation are the same as the construction thresholds.
[4]Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.
[5]Ambient air quality threshold based on SCAQMD Rule 403.
KEY: lbs/day = pounds per day; ppm = parts per million; µg/m3 = microgram per cubic meter; ≥ = greater than or equal to; MT/yr CO2eq = metric tons per year of CO2 equivalents

As shown in Table 3-2, for the Century City Constellation Station, SCAQMD thresholds would be exceeded for PM_{10}.

Table 3-2: Estimated Highest Daily Construction Impacts for Century City Constellation Station Construction (lbs/day) – Prior to Mitigation

Activity	VOC	CO	NOx	PM_{10}	$PM_{2.5}$
Construction Equipment	10	50	65	3	3
Dust Generated from Dirt Handling (Excavation, Backfilling, etc.)				158	33
Mobile Sources (Deliveries, worker trips, hauling of material, etc.)	2	16	33	2	1
Highest Daily Total*	11	67	98	163	37
SCAQMD Thresholds	**75**	**550**	**100**	**150**	**55**

Note: Because the maximum daily emissions from construction equipment, dust generation, and mobile sources do not occur on the same day, the highest daily totals (which are presented) are less than the sum of the individual source maximums.

3.2 Mitigation Measures

To reduce air quality impacts related to construction activities, the following mitigation measures are recommended to be implemented. All of these mitigations were included in the Final EIS/EIR, published in March 2012 and are included in the Mitigation Monitoring and Reporting Plan.

CON-6—Meet Mine Safety (MSHA) Standards

Tunnel locomotives (hauling spoils and other equipment to the tunnel heading) will be approved by Metro to meet MSHA standards.

CON-7—Meet SCAQMD Standards

Metro and its contractors will set and maintain work equipment and standards to meet SCAQMD standards, including NOx.

CON-8—Monitoring and Recording of Air Quality at Worksites

Monitoring and recording of air quality at the worksites will be conducted. In areas of gassy soil conditions, air quality will be continuously monitored and recorded. Construction will be altered as required to maintain a safe working atmosphere. The working environment will be kept in compliance with federal, state, and local regulations, including SCAQMD and Cal/OSHA standards.

CON-9—No Idling of Heavy Equipment

Metro specifications will require that contractors not unnecessarily idle heavy equipment.

CON-10—Maintenance of Construction Equipment

Metro will require its contractors to maintain and tune engines per manufacturer's specifications to perform at EPA certification levels, where applicable, and to perform at verified standards applicable to retrofit technologies. Metro will also require periodic,

unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.

CON-11—Prohibit Tampering of Equipment

Metro will prohibit its contractors from tampering with engines and require continuing adherence to manufacturer's recommendations.

CON-12—Use of Best Available Emissions Control Technologies

Metro will encourage its contractors to lease new, clean equipment meeting the most stringent of applicable federal or state standards (e.g., Tier 3 or greater engine standards) or best available emissions control technologies on all equipment.

CON-13—Placement of Construction Equipment

Construction equipment and staging zones will be located away from sensitive receptors and fresh air intakes to buildings and air conditioners.

CON-14—Measures to Reduce the Predicted PM10 Levels

Mitigation measures such as watering, the use of soil stabilizers, etc. will be applied to reduce the predicted PM_{10} levels to below the SCAQMD daily construction threshold levels. A watering schedule will be established to prevent soil stockpiles from drying out.

CON-15—Reduce Street Debris

At truck exit areas, wheel washing equipment will be installed to prevent soil from being tracked onto city streets, and followed by street sweeping as required to clean streets.

CON-16—Dust Control During Transport

Trucks will be covered to control dust during transport of spoils.

CON-17—Fugitive Dust Control

To control fugitive dust, wind fencing and phase grading operations, where appropriate, will be implemented along with the use of water trucks for stabilization of surfaces under windy conditions.

CON-18—Street Watering

Surrounding streets at construction sites will be watered by trucks as needed to eliminate air-borne dust. In keeping with Metro's prior policy on the Eastside Gold Line, the contractor will water streets in the station area impacted by dust not less than once a day and more often if needed.

CON-19—Spillage Prevention for Non-Earthmoving Equipment

Provisions will be made to prevent spillage when hauling materials and operating non-earthmoving equipment. Additionally, speed will be limited to 15 mph for these activities at construction sites.

CON-20—Spillage Prevention for Earthmoving Equipment

Provisions will be made to prevent spillage when hauling materials and operating earth-moving equipment. Additionally, speed will be limited to 10 mph for these activities at construction sites.

CON-21—Additional Controls to Reduce Emissions

EPA-registered particulate traps and other appropriate controls will be used where suitable to reduce emissions of particulate matter and other pollutants at the construction site.

3.3 Impacts Remaining After Mitigation

With the implementation of the mitigation measures listed above in Section 3.2, PM_{10} and $PM_{2.5}$ will be reduced, and SCAQMD thresholds would not be exceeded for any pollutant.

Table 3-3. Estimated Highest Daily Construction Impacts for Century City Constellation Station Construction (lbs/day) – After Mitigation

Activity	VOC	CO	NOx	PM_{10}	$PM_{2.5}$
Construction Equipment	10	50	65	3	3
Dust Generated from Dirt Handling (Excavation, Backfilling, etc.)				26	5
Mobile Sources (Deliveries, worker trips, hauling of material, etc.)	2	16	33	2	1
Highest Daily Total*	11	67	98	31	9
SCAQMD Thresholds	**75**	**550**	**100**	**150**	**55**

Note: Because the maximum daily emissions from construction equipment, dust generation, and mobile sources do not occur on the same day, the highest daily totals (which are presented) are less than the sum of the individual source maximums.