Final Environmental Impact Statement/
Final Environmental Impact Report

for the
Westside Subway Extension

prepared by the
U.S. Department of Transportation
Federal Transit Administration

and the
Los Angeles County
Metropolitan Transportation Authority

pursuant to

Leslie T. Rogers
Region IX Regional Administrator
Federal Transit Administration

MAR - 9 2012

Date

Arthur T. Leahy
Chief Executive Officer
Los Angeles County
Metropolitan Transportation Authority

MAR - 5 2012

Date
ABSTRACT—The Los Angeles County Metropolitan Transportation Authority (Metro) proposes to implement a heavy rail transit subway that would operate as an extension of the Metro Purple Line heavy rail transit subway system from its current western terminus at Wilshire/Western Station to a new western terminus near the West Los Angeles Veterans Affairs (VA) Hospital. The extension will be nearly 9 miles and will include a total of seven new stations.

The Westside Subway Extension Study Area is in western Los Angeles County and encompasses approximately 38 square miles. The Study Area is east-west oriented and includes portions of five jurisdictions—the Cities of Los Angeles, West Hollywood, Beverly Hills, and Santa Monica, as well as portions of unincorporated Los Angeles County. The boundaries of the Study Area generally extend north to the base of the Santa Monica Mountains along Hollywood, Sunset, and San Vicente Boulevards, east to the Metro Rail stations at Hollywood/Highland and Wilshire/Western, south to Pico Boulevard, and west to the Pacific Ocean.

This Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) provides a detailed description of the Locally Preferred Alternative (LPA), including station locations, entrance locations, construction staging and laydown areas, and other elements associated with the Project. The No Build Alternative is included in this Final EIS/EIR for comparative purposes.

This report is a combined Final EIS/EIR satisfying the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). It also serves as summary documentation of the consultation conducted in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and the Section 4(f) evaluation prepared pursuant to Section 4(f) of the U.S. Department of Transportation Act of 1966.
This Final EIS/EIR addresses agency and public comments on the Draft EIS/EIR and describes the associated transportation and environmental impacts, operating and maintenance and capital costs, and potential funding sources. Areas of consideration in the Final EIS/EIR include transit; traffic; parking; land use/neighborhoods; land acquisition; displacement and relocation; equity and environmental justice considerations; visual quality; air quality; noise and vibration; geology, soils, and seismicity; exposure to hazardous substances; water resources; biological resources; energy resources; safety and security; historic, archaeological, and paleontological resources; community facilities and parklands; construction impacts; and other CEQA determinations. Mitigation measures for the impacts resulting from the LPA are also identified. The information contained in this report will be used by the Metro Board of Directors to decide whether to implement the LPA.

Additional written comments and questions concerning this document should be directed to the following:

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The Federal Transit Administration (FTA) and the Los Angeles County Metropolitan Transportation Authority (Metro) have prepared this Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) on a proposed major transit investment in Los Angeles County, California. The Proposed Action is an extension of the existing Metro Purple Line heavy rail transit subway system from its current western terminus at Wilshire/Western Station to a new western terminus near the West Los Angeles Veterans Affairs (VA) Hospital. The extension will be nearly 9 miles and will include a total of seven new stations.

The Project results from nearly 30 years of planning and environmental review. In January 2009, Metro completed an Alternatives Analysis that evaluated transit mode and alignment alternatives in the Westside Corridor. This resulted in Metro’s selection of a heavy rail transit subway extension as the preferred transit mode for this corridor. The Westside Subway Extension Project is included in Metro’s Long Range Transportation Plan and is part of the Regional Transportation Plan adopted in 2008 by the Southern California Association of Governments, the designated Metropolitan Planning Organization.

This Final EIS/EIR provides a detailed description of the Locally Preferred Alternative (LPA), including station locations, entrance locations, construction staging and laydown areas, and other elements associated with the Project. The No Build Alternative is included in the Final EIS/EIR for comparative purposes.

The LPA will extend heavy rail transit, in subway, from the existing Metro Purple Line Wilshire/Western Station to a Westwood/VA Hospital Station. The extension will be nearly 9 miles and will include a total of seven new stations:

- Wilshire/La Brea
- Wilshire/Fairfax
- Wilshire/La Cienega
- Wilshire/Rodeo
- Century City (Century City Santa Monica or Century City Constellation)
- Westwood/UCLA (Westwood/UCLA On-Street or Westwood/UCLA Off-Street)
- Westwood/VA Hospital (Westwood/VA Hospital South or Westwood/VA Hospital North)

This document builds on the findings of the Westside Transit Corridor Alternatives Analysis Study (Metro 2009c) and the Westside Subway Extension Draft Environmental Impact Statement/Environmental Impact Report (Metro 2010). This Final EIS/EIR presents the results of a comprehensive analysis of the LPA and No Build Alternative. In Chapter 1, the Final EIS/EIR presents the Purpose and Need for a transit investment within the Westside Corridor. Chapter 2 summarizes the LPA considered, including physical features and operating characteristics. Chapter 3 summarizes the transportation benefits and impacts of the LPA. Environmental factors, impacts, and mitigations, including the Section 4(f) evaluation, are discussed in Chapters 4 and 5. Chapter 6 addresses the LPA’s cost and financial feasibility. Chapter 7 provides a comprehensive evaluation focused on
the decisions at hand. Chapter 8 addresses public outreach and also summarizes comments received on the Draft EIS/EIR and the responses to those comments. More detailed technical documentation is available for those interested in the analysis methodology and results.

The LPA project definition scope was submitted to FTA for approval into the New Starts Preliminary Engineering (PE) phase of project development. As part of the PE process, the project was further refined as more detailed decisions were made within the designated project scope. Refinements will be confirmed during Final Design. The PE phase also includes completion of the CEQA process with the certification of the EIR and the adoption of an LPA for implementation by the Metro Board of Directors as well as the completion of the NEPA process with a Record of Decision issued by the FTA.
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Appendices

Appendix A—Plan and Profile, and Typical Section Drawings
Appendix B—Station Plan Report

VOLUME 4

The following appendices and technical reports can be found on the CD accompanying the printed version of the Final EIS/EIR or on the Metro Westside Subway Extension Project website: www.metro.net/projects/westside/. Technical reports include those prepared for the Draft EIS/EIR (2010) and for the Final EIS/EIR (2012).

Appendices

Appendix C—Acquisitions
Appendix D—Memorandum of Agreement and Section 106 Correspondence
Appendix E—Construction Methods
Appendix F—Notice of Intent/Notice of Preparation/Notices of Availability/Notice of Completion
Appendix G—Memorandum of Understanding for Paleontological Resources
Appendix H—Response to Comments
Appendix I—Mitigation Monitoring and Reporting Plan
Appendix J—Environmental Justice Reports
  Analysis of Environmental Justice Technical Report
  Analysis of Environmental Justice Memorandum
Appendix K—Section 4(f) and Section 106 Reports
  Cultural Resources Technical Report
  Historic Property Survey Report
  Archaeological Resources Supplemental Survey Technical Report
  Historic Properties Supplemental Survey Technical Report
  Section 4 (f) Evaluation Technical Report
Appendix L—Geotechnical Reports
  Addendum to the Geotechnical and Hazardous Materials Technical Report
  Century City Area Fault Investigation Report
  Century City Area Tunneling Safety Report
  Preliminary Geotechnical and Environmental Report
Draft EIS/EIR Technical Reports

Addendum to the Operations and Maintenance Cost Report
Air Quality Technical Report
Alternatives Screening and Refinement Following Scoping Report
Climate Change Technical Report
Community and Neighborhood Technical Report
Comparative Benefits and Costs Analysis Technical Report
Construction and Mitigation Technical Report
Cost and Financial Analysis Technical Report
Cumulative Impact Assessment Technical Report
Economic and Fiscal Impacts Analysis and Mitigation
Ecosystems and Biological Resources Technical Report
Energy Technical Report
Growth Inducing Impacts Technical Report
Hydrology and Water Quality Technical Report
Land Use and Development Opportunities Report
Noise and Vibration Technical Report
Operations and Maintenance Cost Report
Parking Impacts and Policy Plan
Parklands and Other Community Facilities Technical Report
Public Participation and Community Outreach Report
Real Estate and Acquisitions Technical Report
Safety and Security Hazards and Threat Assessment Technical Report
Smart Growth Evaluation Report
Traffic Analysis Impact Report
Transit Impact Assessment Report
Transportation Impacts Report
Visual and Aesthetics Impacts Report
Final EIS/EIR Technical Reports

Accelerated Financial Plan
Acquisitions and Displacement Supplemental Report
Addendum to the Community and Neighborhood Technical Report
Addendum to the Hydrology and Water Quality Technical Report
Addendum to the Land Use and Development Opportunities Technical Report
Addendum to the Safety and Security Hazards and Threat Assessment Technical Report
Addendum to the Visual and Aesthetic Impacts Technical Report
Addendum to Transportation Impacts Report
Air Quality Memorandum
Alternative Financial Plan
Century City Station Location Report
Century City TOD and Walk Access Study
Climate Change Memorandum
Construction Traffic Analysis Report
Economic and Fiscal Impacts Analysis and Mitigation Memorandum
Energy Memorandum
Existing Plus Project Traffic Impact Analysis Report
Financial Plan Appendices to both the Accelerated Financial Plan and Alternative Financial Plan
Noise and Vibration Study
Parklands and Other Community Facilities Supplemental Technical Report
Station Circulation Report
Station Entrance Location Report and Recommendations
Technical Report Summarizing the Results of the Forecasted Alternatives
Updated Off-Street Parking Analysis Memorandum
Wilshire/La Cienega Terminus (Phase 1) Traffic Impact Analysis Report
Westwood/UCLA Station and the Westwood/VA Hospital Station Locations Report
Wilshire/Rodeo Station Bank of America Portal Traffic Impact Analysis Report
# ACRONYMS AND ABBREVIATIONS

<table>
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<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>µg/m³</td>
<td>micrograms per cubic meter</td>
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<tr>
<td>AA</td>
<td>Alternatives Analysis</td>
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<tr>
<td>AB</td>
<td>State of California Assembly Bill</td>
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<td>Advisory Council on Historic Preservation</td>
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<td>ACI</td>
<td>American Concrete Institute</td>
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<td>AFF</td>
<td>America Fast Forward</td>
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<td>AMSL</td>
<td>above mean sea level</td>
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<td>American National Standards Institute</td>
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<td>APCD</td>
<td>Air Pollution Control District</td>
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<td>Area of Potential Effect</td>
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<td>APTA</td>
<td>American Public Transportation Association</td>
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<td>ASTM</td>
<td>formerly known as American Society for Testing and Materials International</td>
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<td>BBB</td>
<td>Santa Monica Big Blue Bus</td>
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<tr>
<td>bgs</td>
<td>below-ground surface</td>
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<td>best management practice(s)</td>
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<td>CEI</td>
<td>cost effectiveness index</td>
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<tr>
<td>CEQ</td>
<td>Council on Environmental Quality</td>
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<td>California Environmental Quality Act (PRC 21000-21177)</td>
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<td>Comprehensive Environmental Response, Compensation and Liability Act of 1980, also known as “Superfund Act”</td>
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<td>methane</td>
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<td>California Natural Diversity Database</td>
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<tr>
<td>CO</td>
<td>carbon monoxide</td>
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<td>LAX</td>
<td>Los Angeles International Airport</td>
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<td>lbs</td>
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<td>Ldn</td>
<td>average day-night noise level</td>
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<td>lower explosive limit</td>
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<td>limited English proficiency</td>
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<td>equivalent sound level</td>
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<td>hourly equivalent sound level</td>
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<td>maximum noise level during an event</td>
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<tr>
<td>LRTP</td>
<td>Long Range Transportation Plan</td>
</tr>
<tr>
<td>LTF</td>
<td>Local Transportation Fund</td>
</tr>
<tr>
<td>LUST</td>
<td>leaking underground storage tank</td>
</tr>
<tr>
<td>ma</td>
<td>million years old</td>
</tr>
<tr>
<td>MDE</td>
<td>maximum design earthquake</td>
</tr>
<tr>
<td>Metro</td>
<td>Los Angeles County Metropolitan Transportation Authority</td>
</tr>
<tr>
<td>mg</td>
<td>milligrams</td>
</tr>
<tr>
<td>mg/m$^3$</td>
<td>milligrams per cubic meter</td>
</tr>
<tr>
<td>MOA</td>
<td>Memorandum of Agreement</td>
</tr>
<tr>
<td>MOS</td>
<td>minimum operable segments</td>
</tr>
<tr>
<td>mph</td>
<td>miles per hour</td>
</tr>
<tr>
<td>MPO</td>
<td>metropolitan planning organization</td>
</tr>
<tr>
<td>MS4</td>
<td>Municipal Separate Storm Sewer System</td>
</tr>
<tr>
<td>MSAT</td>
<td>mobile source air toxics</td>
</tr>
<tr>
<td>MSHA</td>
<td>U.S. Mine Safety and Health Administration</td>
</tr>
<tr>
<td>MUTCD</td>
<td>Manual on Uniform Traffic Control Devices</td>
</tr>
<tr>
<td>Mw</td>
<td>earthquake magnitude</td>
</tr>
<tr>
<td>N$_2$O</td>
<td>nitrous oxide</td>
</tr>
<tr>
<td>NAAQS</td>
<td>National Ambient Air Quality Standards</td>
</tr>
<tr>
<td>NAHC</td>
<td>Native American Heritage Commission</td>
</tr>
<tr>
<td>NDIR</td>
<td>non-dispersive infrared photometry</td>
</tr>
<tr>
<td>NEPA</td>
<td>National Environmental Policy Act</td>
</tr>
<tr>
<td>NF$_3$</td>
<td>nitrogen trfluoride</td>
</tr>
<tr>
<td>NHDVS</td>
<td>National Home for Disabled Volunteer Soldiers</td>
</tr>
<tr>
<td>Acronym</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------------------</td>
</tr>
<tr>
<td>NO$_2$</td>
<td>nitrogen dioxide</td>
</tr>
<tr>
<td>NOAA/FS</td>
<td>National Oceanic and Atmospheric Administration/Fisheries Service</td>
</tr>
<tr>
<td>NOI</td>
<td>Notice of Intent</td>
</tr>
<tr>
<td>NOP</td>
<td>Notice of Preparation</td>
</tr>
<tr>
<td>NO$_x$</td>
<td>nitrogen oxides</td>
</tr>
<tr>
<td>NPDES</td>
<td>National Pollutant Discharge Elimination System</td>
</tr>
<tr>
<td>NPS</td>
<td>National Park Service</td>
</tr>
<tr>
<td>NRHP</td>
<td>National Register of Historic Places</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>operating and maintenance</td>
</tr>
<tr>
<td>O$_3$</td>
<td>ozone</td>
</tr>
<tr>
<td>OCC</td>
<td>Operations Control Center</td>
</tr>
<tr>
<td>ODE</td>
<td>operating design earthquake</td>
</tr>
<tr>
<td>ODS</td>
<td>ozone depleting substance</td>
</tr>
<tr>
<td>OHP</td>
<td>Office of Historic Preservation</td>
</tr>
<tr>
<td>OPR</td>
<td>The California Governor’s Office of Planning and Research</td>
</tr>
<tr>
<td>OSHA</td>
<td>U.S. Occupational Safety and Health Administration</td>
</tr>
<tr>
<td>PCB</td>
<td>polychlorinated biphenyls</td>
</tr>
<tr>
<td>pCi/l</td>
<td>pico Curies per liter of air</td>
</tr>
<tr>
<td>PDF</td>
<td>project design features</td>
</tr>
<tr>
<td>PE</td>
<td>preliminary engineering</td>
</tr>
<tr>
<td>PEIR</td>
<td>Program Environmental Impact Report</td>
</tr>
<tr>
<td>PFC</td>
<td>perfluorocarbons</td>
</tr>
<tr>
<td>PGA</td>
<td>peak ground acceleration</td>
</tr>
<tr>
<td>PM$_{10}$</td>
<td>particulate matter smaller than or equal to 10 microns in size</td>
</tr>
<tr>
<td>PM$_{2.5}$</td>
<td>particulate matter smaller than or equal to 2.5 microns in size</td>
</tr>
<tr>
<td>ppb</td>
<td>parts per billion</td>
</tr>
<tr>
<td>ppm</td>
<td>parts per million</td>
</tr>
<tr>
<td>PPV</td>
<td>peak particle velocity</td>
</tr>
<tr>
<td>PRC</td>
<td>State of California Public Resources Code</td>
</tr>
<tr>
<td>PRMMP</td>
<td>Paleontological Resources Monitoring and Mitigation Plan</td>
</tr>
<tr>
<td>Project</td>
<td>Westside Subway Extension Project</td>
</tr>
<tr>
<td>PSHA</td>
<td>probabilistic seismic hazard analysis</td>
</tr>
<tr>
<td>QTIB</td>
<td>Qualified Transportation Improvement Bond</td>
</tr>
<tr>
<td>RCEM</td>
<td>Road Construction Emissions Model, Version 6.3.2</td>
</tr>
<tr>
<td>RCPG</td>
<td>Regional Comprehensive Plan and Guide</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation and Recovery Act</td>
</tr>
<tr>
<td>RMS</td>
<td>root mean squared</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Full Form</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>ROC</td>
<td>Rail Operations Center</td>
</tr>
<tr>
<td>ROD</td>
<td>Record of Decision</td>
</tr>
<tr>
<td>ROW</td>
<td>right-of-way</td>
</tr>
<tr>
<td>RPP</td>
<td>residential permit parking</td>
</tr>
<tr>
<td>RTIP</td>
<td>Regional Transportation Improvement Plan</td>
</tr>
<tr>
<td>RTP</td>
<td>Regional Transportation Plan</td>
</tr>
<tr>
<td>SAAG</td>
<td>Station Area Advisory Group</td>
</tr>
<tr>
<td>SAFETEA-LU</td>
<td>Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (U.S. Public Law 109-59)</td>
</tr>
<tr>
<td>SB</td>
<td>State of California Senate Bill</td>
</tr>
<tr>
<td>SCAB</td>
<td>South Coast Air Basin</td>
</tr>
<tr>
<td>SCAG</td>
<td>Southern California Association of Governments</td>
</tr>
<tr>
<td>SCAQMD</td>
<td>South Coast Air Quality Management District</td>
</tr>
<tr>
<td>SCC</td>
<td>standardized cost categories</td>
</tr>
<tr>
<td>SCRTD</td>
<td>Southern California Regional Transit District</td>
</tr>
<tr>
<td>Section 106</td>
<td>National Historic Preservation Act of 1966</td>
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<tr>
<td>Section 4(f)</td>
<td>Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites (23 CFR 774 et seq.)</td>
</tr>
<tr>
<td>SED</td>
<td>socioeconomic data</td>
</tr>
<tr>
<td>sf</td>
<td>square foot</td>
</tr>
<tr>
<td>SF₆</td>
<td>sulfur hexafluoride</td>
</tr>
<tr>
<td>SHPO</td>
<td>State Historic Preservation Office/Officer</td>
</tr>
<tr>
<td>SIP</td>
<td>State Implementation Plan</td>
</tr>
<tr>
<td>SO₂</td>
<td>sulfur dioxide</td>
</tr>
<tr>
<td>SOP</td>
<td>standard operating procedure</td>
</tr>
<tr>
<td>SPT</td>
<td>standard penetration test</td>
</tr>
<tr>
<td>SVP</td>
<td>Society of Vertebrate Paleontology</td>
</tr>
<tr>
<td>SWPPP</td>
<td>Storm Water Pollution Prevention Plan</td>
</tr>
<tr>
<td>TAHA</td>
<td>Terry A. Hayes Associates</td>
</tr>
<tr>
<td>TAP</td>
<td>Tunnel Advisory Panel</td>
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<tr>
<td>TAZ</td>
<td>traffic analysis zone</td>
</tr>
<tr>
<td>TBM</td>
<td>tunnel boring machine</td>
</tr>
<tr>
<td>TCON</td>
<td>traffic control plan</td>
</tr>
<tr>
<td>TDA</td>
<td>Transportation Development Act</td>
</tr>
<tr>
<td>TDM</td>
<td>transportation demand management</td>
</tr>
<tr>
<td>TEA-21</td>
<td>Transportation Equity Act for the 21st Century</td>
</tr>
<tr>
<td>TIFIA</td>
<td>Transportation Infrastructure Finance and Innovation Act</td>
</tr>
</tbody>
</table>
Acronyms and Abbreviations

TIP Transportation Improvement Plan
TMP Transportation Management Plan
TOD transit-oriented development
TOG total organic gases
TPH total petroleum hydrocarbons
TPSS traction power substation
TSM Transportation Systems Management
TVA threat and vulnerability assessment
UCLA University of California, Los Angeles
UDWG Urban Design Working Group
Uniform Act Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended
UP Union Pacific Railroad
URBEMIS California Air Resources Board's Urban Emissions Model
USACE U.S. Army Corps of Engineers
USC United States Code
USC University of Southern California
USDA U.S. Department of Agriculture
USDOI U.S. Department of Interior
USDOT U.S. Department of Transportation
USEO U.S. Executive Order
USFWS U.S. Fish and Wildlife Service
USGS U.S. Geological Survey
UST underground storage tank
VA Veterans Affairs
VdB vibration decibels
VHT vehicle hours traveled
VMT vehicle miles traveled
VOC volatile organic compounds
WATCH Manual Work Area Traffic Control Handbook
WB westbound
WDR waste discharge requirements
YOE year of expenditure
above mean sea level (AMSL) A measure of elevation above sea level.

alluvium Loose, unconsolidated soil or sediments that are eroded or reshaped by water.

Alternatives Analysis (AA) An alternatives analysis is the Federal Transit Administration planning requirement for projects seeking New and Small Starts funding. The objective of the Alternatives Analysis program (49 U.S.C. 5339) is to assist in financing the evaluation of all reasonable modal and multimodal alternatives and general alignment options for identified transportation needs in a particular, broadly defined travel corridor. The transportation planning process of the Alternatives Analysis:

- Includes an assessment of a wide range of public transportation or multimodal alternatives, which will address transportation problems within a corridor or subarea.
- Provides ample information to enable the Secretary to make the findings of project justification and local financial commitment.
- Supports the selection of a Locally Preferred Alternative.
- Enables the local Metropolitan Planning Organization to adopt the Locally Preferred Alternative as part of the long-range transportation plan.

aquifer An underground layer of permeable rock from which groundwater can be extracted.

Area of Potential Effect (APE) “…the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.” 36 CFR Part 800.16(d)

at-grade Surface level.

bus rapid transit (BRT) An enhanced bus system that operates on bus lanes or other transitways in order to combine the flexibility of buses with the efficiency of rail.

capital costs Costs incurred on the purchase of land, buildings, construction, and equipment to be used in bringing a project to a commercially operable status.

carbon dioxide equivalent (CO₂e) A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential.

Centers Concept Characterization of Los Angeles as a collection of urban centers rather than a single downtown served by adjacent areas.

Concurrent Construction Scenario Under the America Fast Forward (30/10) Scenario (Concurrent Construction Scenario), accelerated federal funding would allow the LPA to open in its entirety to the Westwood/VA Hospital Station in 2022 with the three construction segments built concurrently.
cut and cover  Construction method that involves “cutting” the area to be excavated and “covering” it to maintain traffic flow while excavation continues below.

dBA  A-weighted decibels that account for human perception of sound and unwanted noise.

de minimis  The requirements of Section 4(f) would be considered satisfied if it is determined that a transportation project would have only a de minimis impact on the Section 4(f) resource. De minimis impact is defined in 23 CFR 774.17 as follows:

- For parks, recreation areas, and wildlife and waterfowl refuges, a de minimis impact is one that would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f); and
- For historic sites, de minimis impact means that the FTA has determined, in accordance with 36 CFR Part 800, that no historic property is affected by the project or the project would have “no adverse effect” on the property in question.

dewatering  Removal or draining of groundwater or surface water from a site by pumping or evaporation.

earth pressure balance (EPB)  A type of pressurized tunnel boring.

Enhanced Transportation Infrastructure Finance and Innovation Act (TIFIA)  A federal funding mechanism proposed in the America Fast Forward Plan.

environmental clearance  The National Environmental Policy Act (NEPA) of 1969 established protocol by which agencies are required to evaluate project impacts on the social and natural environment.

Environmental Justice (EJ)  To avoid, minimize, or mitigate disproportionately high and adverse human health, environmental effects, social and economic effects on minority and low income populations; to ensure full and fair participation in the transportation decision-making process by affected communities; and to prevent the denial of, reduction in, or delay the receipt of benefits by minority and low-income populations.

façade  The front of a building; any face of a building given special architectural treatment.

fixed guideway  Any transit service that uses exclusive or controlled rights-of-way or rails, entirely or in part.

Full Funding Grant Agreement (FFGA)  Establishes the terms and conditions for federal financial participation in a New Starts project; defines the project; sets the maximum amount of federal new starts funding for a project; covers the period of time for completion of the project; and facilitates efficient management of the project in accordance with applicable federal statutes, regulations, and policy.

geologic epoch  A timescale based on rock layering.
global warming potential (GWP)  A-weighting factor used to compare emissions of different greenhouse gases. The heat trapping ability of 1 metric ton (1,000 kilograms) of CO₂ is taken as the standard, and emissions are expressed in terms of CO₂ equivalent (CO₂e) but can also be expressed in terms of carbon equivalent.

ground-borne noise (GBN)  A low-frequency rumble related to operational vibration.

heavy rail transit (HRT)  An electric railway that has high passenger capacity and is characterized by exclusive rights-of-way, multcar trains, high speed, rapid acceleration, sophisticated signaling, and high-platform loading.

joint development  An effort by a public agency and a private developer to undertake a construction project. Joint developments are usually a voluntary joining of governmental entities with private for-profit organizations to undertake mutually beneficial development in connection with public infrastructure.

laydown areas  Laydown or staging areas are designated areas where vehicles, supplies, and construction equipment are positioned for access and use to a construction site.

Ldn  Average day-night noise level, cumulative 24-hour day-night noise level.

Leq  Equivalent, continuous sound level; measure of total noise energy of all sound during a time period.

Leq(h)  Hourly equivalent sound level; Leq for a 1-hour period

Letters of No Prejudice (LONP)  LONP authority allows an applicant to incur costs on a project using non-federal resources with the understanding that the costs incurred subsequent to the issuance of the LONP may be reimbursable as eligible expenses or eligible for credit toward the local match should FTA approve the project at a later date.

level-of-service (LOS)  A qualitative measure to describe road conditions that reflect the relative ease of traffic flow on a scale of A to F, with free-flow being rated LOS A and congested conditions as LOS F.

light rail transit (LRT)  A form of rail service operated on city streets, semi-exclusive rights-of-way, or exclusive rights-of way. This type of rail generally has a lower passenger capacity than heavy rail.

liquefaction  A process by which loosely packed sandy or silty materials saturated with water are shaken hard enough to lose strength and stiffness.

maximum design earthquake (MDE)  A level of ground-shaking hazard that has 4 percent probability of exceedance in 100 years.

Measure R  A half-cent sales tax approved by Los Angeles County voters in November 2008.

Memorandum of Understanding (MOU)  A document providing a general description of the responsibilities that are assumed by two or more parties in their pursuit of the same goal.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methane Gas Risk Zone</td>
<td>An area in the Fairfax District designated as a risk zone in 1985 following a naturally occurring methane gas fire at a Ross “Dress for Less” store. The methane gas fire resulted in an investigation by a special City of Los Angeles Task Force. Conclusions from this investigation led to Congressional prohibition on federal funding for subway construction within this designated Methane Gas Risk Zone (Public Law 99-190). Due to advances in new tunnel construction methods, Congress repealed the federal prohibition on subway funding in December 2007.</td>
</tr>
<tr>
<td>Mw</td>
<td>Earthquake magnitude measurement used instead of the Richter scale.</td>
</tr>
<tr>
<td>non-dispersive infrared photometry (NDIR)</td>
<td>A tool used to determine a concentration of gas.</td>
</tr>
<tr>
<td>operating design earthquake (ODEO)</td>
<td>Level of ground-shaking hazard that has 50 percent probability of exceedance in 100 years.</td>
</tr>
<tr>
<td>peak ground acceleration (PGA)</td>
<td>A fraction of the acceleration of gravity used to express ground motion induced by a seismic event.</td>
</tr>
<tr>
<td>peak particle velocity (PPV)</td>
<td>An expression of ground-borne vibration.</td>
</tr>
<tr>
<td>Phased Construction Scenario</td>
<td>Under the Metro Long Range Transportation Plan Scenario (Phased Construction Scenario), the LPA would be constructed and opened in three phased segments with the entire Project operational to the Westwood/VA Hospital Station in 2036; Phase 1 to the Wilshire/La Cienega Station would open in 2020; and Phase 2 to Century City would open in 2026. This is the construction scenario if accelerated federal funding cannot be secured.</td>
</tr>
<tr>
<td>Qualified Transportation Improvement Bonds (QTBIS)</td>
<td>A federal funding mechanism proposed in the American Fast Forward Plan.</td>
</tr>
<tr>
<td>Regional Transportation Plan (RTP)</td>
<td>The RTP is a long-term blueprint of a region’s transportation system. Usually RTPs are conducted every five years and include plans for 30 years into the future. The RTP identifies and analyzes transportation needs of the metropolitan region and creates a framework for project priorities.</td>
</tr>
<tr>
<td>root mean squared (RMS)</td>
<td>A formula used to calculate ground-borne vibration from transit vehicles.</td>
</tr>
<tr>
<td>Sanborn Maps</td>
<td>Historical and current maps of U.S. cities and towns that were initially created to estimate fire insurance liabilities.</td>
</tr>
<tr>
<td>scoping</td>
<td>A process to determine and ensure that a range of issues are identified and properly studied in an environmental document produced for public review.</td>
</tr>
<tr>
<td>standardized cost categories (SCC)</td>
<td>Categories that summarize budget baselines in a consistent framework.</td>
</tr>
<tr>
<td>Storm Water Pollution Prevention Plan (SWPPP)</td>
<td>A SWPPP is a site-specific, written document that:</td>
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<tr>
<td>---------------------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>• Identifies potential sources of stormwater pollution at the construction site</td>
</tr>
<tr>
<td></td>
<td>• Describes practices to reduce pollutants in stormwater discharges from the construction site. Reduction of pollutants is often achieved by controlling the volume of stormwater runoff (e.g., taking steps to allow stormwater to infiltrate into the soil).</td>
</tr>
<tr>
<td></td>
<td>• Identifies procedures the operator will implement to comply with the terms and conditions of a construction general permit.</td>
</tr>
</tbody>
</table>

| study area | Thirty-eight square miles of land in western Los Angeles County. The area is oriented east-west and includes portions of five jurisdictions: the Cities of Los Angeles, West Hollywood, Beverly Hills, and Santa Monica, plus portions of unincorporated Los Angeles County. The boundaries extend north to the Santa Monica Mountains along Hollywood, Sunset, and San Vicente Boulevards, east to the Metro Rail stations at Hollywood/Highland and Wilshire/Western, south to Pico Boulevard, and west to the Pacific Ocean. |

| transit-oriented development (TOD) | Compact, medium- to high-density mixed-use development within walking distance of transit facilities. |
| tunnel boring machine (TBM) | A machine used to excavate tunnels with the ability to penetrate through a variety of soil and hard rock. |
| vibration decibels (VdB) | An expression of ground-borne vibration. |
| watershed | An area of land where all of the water that is under it or drains off it converges into the same place. |
| zone pairs | Selected origin and destinations. |