

Metro



Board Report

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 PLANNING AND PROGRAMMING COMMITTEE
JULY 17, 2019
SUBJECT: METROLINK ANTELOPE VALLEY LINE STUDY**ACTION: RECEIVE AND FILE****RECOMMENDATION**

RECEIVE AND FILE status report on Motion 47 from the July 2017 Board of Director's meeting regarding the Metrolink Antelope Valley Line study (Refer to Attachment A).

ISSUE

Motion 47 authorized a study of the Metrolink Antelope Valley Line (AVL) between Burbank and Lancaster and directed staff to coordinate with Metrolink and the North County Transportation Coalition to:

- a) Determine a range of frequency of service to maximize regional accessibility throughout the day;
- b) Assess the condition of the existing rail infrastructure (e.g. tracks, culverts, tunnels, crossings, etc.) that limits operational flexibility and service reliability;
- c) Recommend needed infrastructure and capital improvement costs (in level of priority) along with cost benefit analysis to support the range of frequency of service, service reliability, safety, an on-time performance including latest technologies in rail propulsion, controls and rail stock.

In collaboration with Metrolink, the North Los Angeles County Transportation Coalition (NCTC), California State Transportation Agency and LOSSAN, Metro presents the initial results of the Antelope Valley Line Study (Burbank to Lancaster) to incrementally improve rail service along the Antelope Valley Line along with a cost benefit analysis of the corresponding infrastructure and capital improvements.

DISCUSSION

This AVL Study is focused on the 65.2 mile portion of the rail line between the Burbank Downtown Station and the Lancaster Station. A separate study called Los Angeles-Glendale-Burbank study includes the remaining 11.4 mile portion of the route between Los Angeles Union Station to Burbank Downtown Station. In collaboration with NCTC and Metrolink, this AVL study identified six (6) service scenarios that align with the California State Rail 2040 Plan and Metrolink's Southern California

Optimized Rail Expansion Plan (SCORE), which advance more regular service frequencies in the corridor, along with a set of cost-effective infrastructure improvements needed to support each scenario. Furthermore, this study also developed a phased implementation plan and identified potential funding strategies to enhance regional mobility. The intent of the Antelope Valley Line Study is to define the initial steps, in terms of capital investment and improved rail service, that will set this corridor on a trajectory to achieve the State's and region's ambitious goals for rail transportation for the next twenty years.

Background

The Antelope Valley Line (AVL) is a 76.6 mile class 4 rail corridor route owned by Los Angeles County Metropolitan Transportation Authority (Metro) and used by the Southern California Regional Rail Authority (SCRRA) running Metrolink commuter rail service between Los Angeles Union Station and Lancaster as well as Union Pacific Railroad for class 1 freight service. There are up to 30 Metrolink commuter trains and 12 Union Pacific Railroad freight trains per day on the AVL line. The AVL has a variety of service challenges with largely 60% single track along with aging infrastructure, significant grades and curves through mountainous topography.

The average passenger rail travel time between Lancaster and Los Angeles Union Station with 11 station stops is approximately two (2) hours and 15 minutes. To shorten the commute to 1 hour and 40 minutes, Metrolink operates two weekday roundtrip express service from Los Angeles Union Station to Palmdale with service stops to select stations of Burbank Downtown, Sylmar/San Fernando, Santa Clarita and Palmdale. The Antelope Valley Transit Authority runs five (5) round trips with bus service between Santa Clarita and Lancaster. The AVL is currently Metrolink's third-busiest line with approximately 7,000 weekday passengers which is equivalent to removing more than 1 million car trips annually.

Service Scenarios

The AVL Study proposed six (6) service scenarios, each with a corresponding set of infrastructure improvements, which are based on a phased implementation. The different phases provide for flexibility based on demand for rail service.

1. **Service Scenario 1** - Provide additional one (1) late evening train
2. **Service Scenario 2** - Provide additional two (2) late evening trains and provide bi-directional hourly mid-day service
3. **Service Scenario 3** - Provide bi-directional 30 minute service during the regular weekday between Los Angeles Union Station and Santa Clarita.
4. **Service Scenario 4** - It is the same as Scenario 3 with additional express service.
5. **Service Scenario 5** - It is the same as Scenario 4 service during the regular weekday, additional express service and intermediate turns at Santa Clarita.
6. **Service Scenario 6** - It is the same as Scenario 4 with intermediate turns at Sylmar/San Fernando Station.

The service plans for the six (6) service scenarios were analyzed to determine where additional railroad capacity would be needed to enable trains running in opposite directions to pass each other, and where yard storage would need to be increased to accommodate a larger rolling stock fleet serving the AVL. Collectively, the six (6) service scenarios will require the 14 infrastructure

improvements shown in Table 1 below. The capital cost for each of these projects is categorized by project and description to support each service scenario. Each scenario requires a subset of these projects, most of which extend or add a second track in portions of the line that currently have only a single track.

Table 1: Infrastructure Improvement Capital Costs by Service Scenario

Project	Description	Scenario	Scenario 1	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Estimated Rough Order-of-Magnitude Capital Cost ¹
Lancaster Terminal - 6 train sets	New double track and second station platform, plus two new 1,000-foot storage tracks (4-train sets stored on tracks) OPTION: Conversion to Service Tracks			X			X	\$ 27.3M Option: \$9M
Lancaster Terminal - 8 train sets	New double track and second station platform, plus three new 1,000-foot storage tracks (5-train sets stored on tracks) OPTION: Conversion to Service Tracks				X	X		\$ 30.1M Option: \$12M
Palmdale North	New double track and 2 platform tracks at station (integrated with HSR)					X	X	\$ 127.3M
Acton Siding	New 13,200-foot siding				X			\$ 40.2M
Ravenna South	Extend existing siding by 13,200 feet (new double track)					X	X	\$ 56.3M
Via Princessa-Honby	Extend existing siding by 5,808 feet (new double track)				X			\$ 26.4M
Canyon-Santa Clarita	Extend double track by 8,448 feet			X	X	X	X	\$ 48.8M
Hood-Saugus	Connect sidings at each end and convert to double track				X			\$ 41.6M
Balboa-Tunnel	Extend double track by 6,336 feet		X	X	X	X	X	\$ 41.8M
Sylmar-Roxford	New 8,976-foot double track				X			\$ 42.7M
Sylmar Station	Second track at station (other costs included in Van Nuys - Sylmar)						X	\$ 22.9M
Van Nuys Blvd-Sylmar	New 12,672-foot double track							\$ 47.4M
Sheldon-Van Nuys Blvd	New 13,200-foot double track					X	X	\$ 67.0M
Brighton-McGinley	Connect double track segments at both ends			X	X	X	X	\$ 57.3M

TOTAL TOTAL	\$0	\$41.8	\$175.2	\$328.9	\$428.6	\$448.7	\$ 677.1M
WITH OPTIONS			\$184.2	\$340.9	\$440.6	\$458	\$ 698.1M

NOTE: ESTIMATED CAPITAL COSTS INCLUDE THIRD PARTY AND SOFT COSTS.

Cost Benefit Analysis

The AVL Study employed rail service modeling and operations analysis that led to the identification of required capital improvements for each service scenario considering five (5) criteria: operations, regional connectivity, costs and financial performance, right-of-way impacts and applied technology.

The evaluation process was designed to assess each individual capital improvement on five (5) factors related to their contribution to improving AVL corridor service: (1) degree to which capital improvement supports sequential service scenario; (2) total capital cost; (3) independent utility of the project; (4) environmental or community impact issues; and (5) required right-of-way acquisitions, on a scale of 10 points to 50 points. The first criterion favors projects that preserve future flexibility to increase service according to a variety of possible service scenarios. Given limited available funding and widespread needs for new infrastructure investments across the entire rail network, proposed improvements with relatively low capital costs will be easier to fund and implement quickly. The independent utility criterion assesses the ability of a project to directly support improved rail service and deliver ridership benefits. The impact and right-of-way criteria measure the degree of risk associated with a project, favoring early action projects that minimize these risks.

The resulting cost to benefit evaluation scores are presented in Table 2 listed on the following page. The top scoring project is the Balboa double-track extension, which is required by Service Scenarios 2 through 6. The regular, repeating hourly service pattern on the AVL that this project enables is expected to be the backbone of any long-term future service plan on the AVL. As a result, this project is robust and logical for the first round of capital improvement investment.

The three proposed additional infrastructure improvements that comprise the second round of capital improvement investment also score high in the evaluation, because they support multiple future service scenarios, are relatively straightforward in terms of construction and are not expected to have significant negative impacts. The four combined infrastructure improvements facilitate Service Scenarios 2 and 3.

Table 2: Evaluation and Ranking of Infrastructure Improvements

Project Name	Description	Estimated Rough Magnitude	Total Capital Weighted Score
Lancaster Terminal – 6 train sets	New double track and second station platform, plus two new 1,000-foot storage tracks (4-train sets stored on tracks) Option to convert storage tracks to service and inspection tracks.	\$ 27,300,000 Op	37
Lancaster Terminal – 8 train sets	New double track and second station platform, plus three new 1,000-foot storage tracks (5-train sets stored on tracks) Option to convert storage tracks to service and inspection tracks.	\$ 30,100,000 Op	33
Palmdale North	New double track and 2 platform tracks at station (integrated with HSR)	\$ 127,300,000	16

Acton Siding	New 13,200-foot siding	\$ 40,200,000	24
Ravenna South	Extend existing siding by 13,200 feet (new double track)	\$ 56,300,000	23
Via Princessa-Honby	Extend existing siding by 5,808 feet (new double track)	\$ 26,400,000	25
Canyon-Sta. Clarita	Extend double track by 8,448 feet	\$ 48,800,000	40
Hood-Saugus	Connect sidings at each end and convert to double track	\$ 41,600,000	24
Balboa-Tunnel	Extend double track by 6,336 feet	\$ 41,800,000	49
Sylmar-Roxford	New 8,976-foot double track	\$ 42,700,000	23
Sylmar Station	Second track at station (other costs included in Van Nuys - Sylmar)	\$ 22,900,000	29
Van Nuys Blvd-Sylmar	New 12,672-foot double track	\$ 47,400,000	21
Sheldon-Van Nuys Blvd	New 13,200-foot double track	\$ 67,000,000	24
Brighton-McGinley	Connect double track segments at both ends	\$ 57,300,000	43
Total ROM Capital Cost		\$ 677,	

NOTE: ESTIMATED CAPITAL COSTS INCLUDE THIRD PARTY AND SOFT COSTS.

Phased Implementation

Based on the evaluation findings and sensitivity analysis along with input from NCTC and Metrolink, it

became clear that improvements to service on the AVL (and the proposed infrastructure improvements needed to support the service scenarios) should be viewed as an incremental service improvement continuum as funding permits, rather than any one scenario being an end-all objective.

The study determined three (3) successive phases potentially at intervals (5 year, 10 year and 20 year) that are consistent with the California State Rail Plan and Metrolink's SCORE Plan. Each of the three phases identified proposed infrastructure improvements at build out conditions that allow Regional Rail operators to further analyze and determine the order of new services within a given phase. The AVL Study (Burbank to Lancaster) also took into consideration potential future growth passenger rail services and freight services by Union Pacific Railroad. The three phases of service improvement include:

Phase 1 (5 year Plan) - This five year plan considers increase in rail services within the existing rail infrastructure and operations and maintenance costs.

- a) Add late-night train departure from Los Angeles Union Station at 11 p.m. on Fridays and Saturdays.
- b) Potentially adjust off-peak schedules to improve service frequency and reduce schedule gaps.
- c) No capital investments are needed for this phase.

Phase 2 (10 year Plan) - The next ten years consider increase in rail services with defined set of infrastructure improvements needed to support the service.

- a) Adds two mid-day service round trips to provide hourly frequency between Los Angeles Union Station and Santa Clarita Valley.
- b) Hourly frequency between Los Angeles Union Station and Antelope Valley supported by Antelope Valley Transit Authority bus service. Where the Antelope Valley Transit Authority could reduce the current five round trips of bus service between Santa Clarita and Lancaster to three round trips.
- c) Allows for expanding late night service to remaining weekdays and adds a second frequency on selected days, based on ridership demand.
- d) Requires a capital investment of \$42 million for the Balboa Double Track Extension from Balboa Boulevard to Sierra Highway. Located in the unincorporated Los Angeles County, this project will extend double track to just south of Tunnel 25.

Phase 3 (20 year Plan) - The twenty (20) year plan considers more robust increase in rail service that also includes integration with Metro's San Fernando Light Rail and Sepulveda Corridor.

- a) Doubles volume of daily trains compared with existing service (30 daily round trips).
- b) Marginally increases peak service frequency and adds morning express train to Los Angeles Union Station.
- c) Provides more regular reverse-commute service.
- d) Further increase to mid-day service frequency - 30 minutes between Los Angeles Union

Station and Santa Clarita Valley; hourly between Los Angeles Union Station and Antelope Valley.

- e) Bus service round trips would double from existing conditions to provide 30 minute between Santa Clarita and Lancaster.
- f) Provides more frequent and regular service on weekends and holidays.
- g) Requires a capital investment of \$133.4 million for three additional capital improvements. (1) Lancaster Terminal Improvements (\$27.3 million) shall construct new double track to the end of the corridor, a second station platform and two storage tracks. (2) Canyon to Santa Clarita Double Track Extension (\$48.8 million) from Soledad Canyon Road to Golden Oak Road is located within the City of Santa Clarita. (3) Brighton to McGinley Double Track (\$57.3 million) is a segment of the Brighton to Roxford double track project that connects completes a gap in double track between Burbank and Sun Valley.

It should be noted, the time frame of the three phases of investments (5, 10 and 20 years) can be accelerated based on funding availability.

Findings

Service scenarios 1, 2 and 3 offer the potential for tangible improvements in AVL service, are all consistent with multiple future 2040 year plans, and are recommended for implementation if funding has been identified. The proposed infrastructure improvements identified in this study to support service scenarios 1, 2 and 3 are listed below and estimated at approximately \$175.2 million. At a minimum, the Balboa Double Track Extension is required to support service scenario 2 with hourly bi-directional service on the AVL at an approximate cost of \$41.8 million.

1. Balboa Double Track Extension - \$41.8 million
2. Brighton to McGinley Double Track- \$57.3 million
3. Canyon to Santa Clarita Double Track - \$48.8 million
4. Lancaster Terminal Improvements - \$27.3 million

Staff is working with NCTC and Metrolink to finalize the report by the end of July. It is important to note, the costs shown above only cover the preliminary estimated capital improvements required and does not include annual maintenance costs. Further analysis by each passenger or freight rail operator will be required to implement new service(s).

FINANCIAL IMPACT

This is a Receive and File report for information only with no financial impacts. Implementation of any of the scenarios would require funding to be identified for capital and operations costs.

Impact to Budget

This report has no financial impact.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

Recommendation supports strategic plan goals of the Metro Vision 2028 Strategic Plan:

Goal 1: Provide high-quality mobility options that enable people to spend less time traveling. The incremental service options improve LA County's overall transit network and assets.

Goal 4: Transform LA County through regional collaboration and national leadership. Goal was achieved by partnering with Metrolink, North County Transportation Coalition and the local jurisdictions to identify needed improvements to improve mobility.

NEXT STEPS

Staff will return to the Board on a project by project basis to seek approval to continue to advance any projects or service identified through this study if funding has been identified.

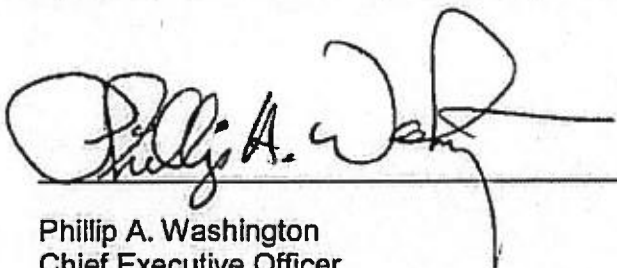
ATTACHMENTS

Attachment A - July 2017 Metro Board Motion 47

Attachment B - Antelope Valley Line Study Presentation

Prepared by: Brian Balderrama, Senior Director, Regional Rail, (213) 418-3177
Jeanet Owens, Senior Executive Officer, Regional Rail, (213) 418-3189

Reviewed by: Richard Clarke, Chief Program Management Officer, (213) 922-7557



Phillip A. Washington
Chief Executive Officer