



Board Report

File #: 2023-0299, File Type: Informational Report

Agenda Number: 37.

OPERATIONS, SAFETY, AND CUSTOMER EXPERIENCE COMMITTEE JUNE 15, 2023

SUBJECT: C LINE AND K LINE OPERATING PLAN UPDATE

ACTION: APPROVE OPERATING PLAN RECOMMENDATION FOR C AND K LINES

RECOMMENDATION

AUTHORIZE the Chief Executive Officer to implement a new recommended Option 2 (C2 Alternative) for the C and K Line Operating Plan based on public outreach and technical background informing the recommendation on Motion 28.1 - Crenshaw/LAX - Green Line Operating Plan.. (Attachment A)

ISSUE

In December 2018, the Metro Board adopted Motion 28.1 by Directors Hahn, Butts, Solis, Najarian, Fasana, and Garcia setting an initial one-year pilot operating plan for the K Line (Crenshaw/LAX) new light rail link (See Attachment A). The current inability to connect the C and K Lines due to Airport Metro Connector (AMC) station construction, there is no longer an opportunity to pilot Alternative C-3 (Norwalk - Crenshaw/Expo and Willowbrook/Rosa Parks - Redondo Beach) for 1 year, evaluate the performance, and recommend any changes prior to the AMC opening.

In addition, other factors include planned transit connections at the new AMC station, improvements to C Line connecting bus service through the NextGen Bus Plan, the ongoing operator shortage, and planning for future extensions of the C and K Lines warrant a review of the Crenshaw/LAX operating plan. As a result, in April 2022, the Metro Board of Directors authorized staff to review the Crenshaw/LAX operating plan, conduct necessary public outreach, and report back to Board with findings and a recommendation to maintain or change the Operating Plan.

BACKGROUND

Crenshaw/LAX Rail Project:

The Crenshaw/LAX Rail (CLAX) Project is an 8.5-mile extension of C Line (Green) light rail from Aviation/Imperial to the Exposition Line at Exposition/Crenshaw, with eight new stations. An associated project, the AMC Station, will add a ninth station to provide a direct connection to the new Los Angeles World Airports (LAWA) People Mover train system.

The C-3 pilot operating plan that was approved for the new Crenshaw/LAX line as outlined below would have provided a one-year pilot of two service patterns with double service along the I-105

corridor:

- New CLAX east/west service between Norwalk and Crenshaw/Expo Stations via Aviation/LAX C Line station
- C Line (Green) east/west service between Willowbrook/Rosa Parks and Aviation/LAX, continuing south to serve Redondo Beach Stations

There were four key factors that pointed to the need to revisit the original C & K Line Operating Plan decision from 2018.

1. Project Sequencing:

At the time Motion 28.1 was adopted, it was expected that the full K (Crenshaw/LAX) Line would open for revenue service in October 2019, around three years ahead of the construction beginning on the Airport Metro Connector (AMC) Station. This would have allowed ample time to test the pilot operating plan for a year, review results, and report back to the Board regarding ridership and travel patterns to determine whether operating plan changes were warranted.

However, the K Line did not begin revenue service until October 2022. At the same time, AMC Station construction had already broken ground, meaning the Crenshaw/LAX line opening would have to occur in multiple phases:

Phase 1: October 2022: Westchester/Veterans - Expo/Crenshaw (7 stations), with a bus bridge Westchester/Veterans Station - Aviation/LAX Station on the C Line (Green)

Phase 2: Late 2023: Full Crenshaw/LAX line open through Airport Metro Connector Station, though that station will not be completed for passenger service

Phase 3: Late 2024: Airport Metro Connector station to open for passenger service

Board Motion 28.1 established a one-year trial of the C-3 operating plan and directed staff to review the operating plan prior to completion of AMC Station construction. However, while a pilot consistent with the original Board motion could begin in Phase 2 as described above, this would provide only a 14-month period before the AMC Station opens to passengers. This leaves no time to evaluate the performance of a 12-month pilot of the C-3 option or to consider any adjustments for permanent, ongoing operations before AMC Station opens.

Metro AMC station Project team continues to coordinate closely with LAWA People Mover Train project to determine an appropriate implementation schedule for each project. The C & K Line Operating Plan implementation will be coordinated with these two projects.

2. Regional Travel and the NextGen Bus Plan

The K (Crenshaw/LAX) Line helps build a network both for the Metro rail system and as part of an overall regional transit network that includes Metro buses and municipal bus lines. The region served by the C Line (Green) segment between Norwalk Station and Aviation/LAX Station shows a wide distribution of travel patterns to locations north and south of this segment of the C Line (Green). These areas are served by many of Metro's highest ridership transit lines proceeding north and south of this rail line (see Attachment C).

By December 2021, much of the NextGen Bus Plan was implemented, providing fast, frequent north-south bus connections. This includes connections between the C Line (Green) and many key north-south transit lines serving many Equity Focus Communities throughout South and Southeast LA, where transit service is key to community mobility. These include key corridors such as Long Beach Bl, Central Av, Avalon Bl, Vermont Av, Western Av, Crenshaw Bl, and Hawthorne Bl, Metro's A Line (Blue) light rail service, and J Line (Silver) BRT service, which also provide key north-south connections from the C Line (Green). Municipal agencies such as Long Beach Transit complete the regional connections from the C Line (Green). The regional bus and rail network provides key links from the C Line (Green) to downtown LA, USC, and Mid-City areas matched to key travel patterns (See Attachment C). Options 1, 2, and 3 (Alternatives C-1, C-2, and C-3) for the Crenshaw/LAX Operating plan all serve the existing C Line segment between Norwalk and Aviation/LAX Stations, maintaining the well-utilized connections to north-south transit lines at the ten stations along this segment.

The LAX area is a key regional destination. Both Options 1 and 2 provide direct access to AMC for LAX access from all three directions (all stations) of the C and K Lines. Option 3 provides a direct link to the AMC from the Crenshaw and Norwalk segments, but does not provide a direct link to the AMC from the Redondo Beach segment (4 stations). The AMC will also act as the regional transit hub for the area, consolidating the services currently serving the LAX City Bus center and Aviation/LAX Transit Center. The AMC will provide connections from both the C and K light rail lines to a range of Metro and municipal bus lines, including lines such as the Rapid 3 provided by Big Blue Bus via Lincoln Bl to Santa Monica and Culver City Bus Rapid 6 via Sepulveda Bl to Culver City. Bus speed improvement measures are also being planned or have already been implemented for Lincoln Bl and Sepulveda Rapid buses and other key bus corridors connecting with light rail at the AMC. Examples of such measures include bus lane extensions on Lincoln Bl and transit signal priority on Sepulveda Bl at Culver City. These two services can be connected two seamlessly using the EZ transit pass.

Travel patterns for the South Bay areas along the Redondo Beach segment of the C Line (Green), as shown in Figure 4 in Attachment C, are aligned largely north-south to the LAX region and areas north and west.

3. Operational Resource Requirements:

The three main options considered have a range of resource requirements and operating costs based on the 8-minute peak and 10-minute off peak service frequencies planned for the Metro light rail network when this plan will be implemented in 2024.

Option (2018 Alternative)	Railcar Fleets	Annual Operating Cost (\$ Million)
1 (C-1)	46	\$99.5
2 (C-2)	46	\$102.9
3 (C-3)	50	\$113.2

Option 1 and 2 have an overlap of 1.3 miles for the two rail services between Aviation/LAX and AMC

stations. The Option 3 has a much larger overlap of 8.3 miles for the two rail services along the I-105 corridor between Willowbrook/Rosa Parks and Aviation/LAX Stations, requiring more rail cars and resulting in a higher annual operating cost. Modelling of ridership potential showed a less than 3% difference in ridership between the Options 1, 2, and 3 (C-1, C-2, and C-3 alternatives), with Option 3 showing the highest ridership as it has the most service operated with two lines operating over the existing C Line between Aviation/LAX Station and Willowbrook/Rosa Parks Station.

Rail operators are recruited from bus operator ranks. Operator hiring needs are significant at this time, particularly given the “Great Resignation” and changes in the labor supply after the pandemic, and may remain so for some time based on hiring progress to date. The needs of this rail project will take from bus operator ranks, leaving fewer operators available for bus service. This issue is most significant for Option 3 as it requires the larger amount of trains and operators.

4. Future C and K Rail Corridors:

Two Measure M rail extension projects related to the K Line and C Line are in the planning phase:

- 1) C Line Extension to Torrance: providing greater access to the South Bay by extending the C Line 4.5 miles south from Redondo Beach to the Torrance Transit Center. The Draft EIR was released in early 2023 with an estimated project opening for revenue service in 2030-2033.
- 2) Crenshaw Northern Extension: Extends the K Line north from Expo/Crenshaw Station to the D (Purple) Line in mid-Wilshire and the B (Red) Line in Hollywood. Three alignments are under study as part of the Draft EIR, which is being prepared to make the project “shovel ready” should funding become available to accelerate the project in advance of its Measure M timeline of 2047-2049.

The opportunity exists to eventually create a north-south rail alignment extending from Torrance to West Hollywood, as an adaptation of Option 2 (C-2 alternative).

The extension of platforms to accommodate three car trains at four existing C Line stations (Redondo Beach, Douglas, Mariposa, and Aviation/LAX) can be addressed in anticipation of the above two planned rail network expansion projects. This will ensure network capacity is maximized for future needs. Two car trains are expected to meet the ridership levels for the C and K Line prior to these projects opening.

Network Simplicity, Operating Resources/Costs/Impacts, Frequency, and Connections:

Concerns around having a direct connection to the E Line at Expo/Crenshaw often is mentioned by riders, since each option only has one proposed line having a direct connection with the E Line. Having more overlap between lines not only adds costs, but also adds complexity for riders navigating the system needing to understand the operation of multiple lines at their station. To extend both the C and K Lines to Expo/Crenshaw would require 55 rail cars (+12 over Option 2) and an annual operating cost of \$125 million (+\$25 million). This scenario would also result in combined 4-minute service on the K Line, with gate down times likely to reach up to 60% of the time. This would require no more than a combined 5-minute peak service (10 minutes on each line) to keep gate times reasonable. These frequencies would also not match the E Line 8-minute planned frequency. In the absence of both lines extending to the E Line, schedules between the two lines can be coordinated

for a very convenient 3-minute transfer all times of day at AMC Station for passengers transferring between trains there in each direction. Each line could then operate the 8-minute peak, 10-minute off-peak frequency consistent with the rest of the light rail network.

DISCUSSION

Since the Board adoption of Motion 28.1, circumstances have changed, making it timely for a review of the original decision. The review begins with a discussion of four key factors that have changed since the original Board decision in 2018. Following this discussion, the results of new public outreach conducted to inform the Board on this operating plan decision are shared. Outreach focused on the C-3 alternative selected in Motion 28.1, and the other two options (the C-1 and C-2 alternatives) that received final consideration in 2018. These three options are referred to as Options 1, 2, and 3, and each shown in Attachment B.

Public Outreach

As directed by the Metro Board, Metro staff conducted significant public outreach in March and April 2023 to provide robust public input in support of an updated C and K Lines operating plan recommendation. Outreach was conducted after five months of operation of the new K Line.

The primary method of gathering input was through an on-line survey instrument (see Attachment D) which presented the three Options and asked respondents to select their preferred option. The survey was promoted as follows:

- Email with survey link sent to 120,609 registered TAP card holders (prize of 30 day TAP card offered) which included a link to sign up to participate in on-line focus groups. (See Attachment D)
- Postings on Metro's social media channels such as The Source, El Pasajero, Facebook, and Twitter (See Attachment E)
- Signs placed at the entrance to all 14 C Line and 7 K Line stations with details including QR code link to the survey.
- Metro Ambassadors and Blue Shirts staff distributing flyers for the survey and community meetings at stations and onboard C and K Line trains. (See Attachment F)
- Presentations at the following Metro Regional Service Council Meetings: Westside Central (March 8, 2023), Gateway Cities (March 9, 2023) and South Bay Cities (March 10, 2023).
- Presentations to Gateway Cities Council of Government Transportation Committee and Board of Directors Meetings (March 1) and City Managers Meeting (March 9).
- Presentation to South Bay Cities Council of Government.
- Presentation to Airport Metro Connector Community Meeting (March 23)
- Presentation to CLAX Community Meeting (March 29)
- In-person and virtual community meetings at Norwalk City Hall (April 24), in Redondo Beach (April 26), at Earvin Magic Johnson Recreation Center in South LA (April 29), and a virtual meeting (May 2).
- Two virtual focus groups (April 25, April 29).

The full results of the 20-question survey are provided in Attachment G. The survey presented the three options and asked respondents how they expected each option would impact their travel:

- 5,759 people responded about their use of Metro, with 93.4% having used Metro at least once in the last year, 76.9% used Metro in the last month, and 59% used Metro in the last week. Of those who used Metro in the last week, 42.4% used Metro 5+ times in the last week.
- 5,380 people responded to a question about whether they knew about the Airport Metro Connector project; 73.8% were aware of it. Of those 5,380, 55.6% were very likely and 28.3% were likely to use Metro bus and rail services to LAX as a result of this project.

Table 2 below shows the results for how each option might impact how the 5,380 people who stated they use Metro at least once per year, as well as those who stated that they do not ride Metro but would expect to ride Metro in the future:

Table 2: Metro Rider (5,380) Expectation of Frequency of Usage of Metro By Option

Option/Metro Usage	More Often	About the Same	Less Often
Option 1 (C-1)	33.4%	52.5%	14.1%
Option 2 (C-2)	43.4%	45.0%	11.6%
Option 3 (C-3)	25.5%	46.1%	28.4%

Table 3: Non-Rider (379) Expectation of Frequency of Usage

Option/Metro Usage	More Often	About the Same	Less Often
Option 1 (C-1)	29.0%	48.3%	22.7%
Option 2 (C-2)	40.1%	41.2%	18.7%
Option 3 (C-3)	20.0%	42.5%	37.5%

Both riders and non-riders suggest Option 2 would see them riding more while Option 1 would see the most riders maintaining existing levels of usage. Option 3 would see the largest chance of riders' usage declining.

Table 4 below presents results for riders (5,380) and non-riders (379) preference for an option.

Table 4: Option Preference of Riders and Non-Riders

Option	Option 1	Option 2	Option 3
Rider (5380)	30.9%	47.3%	21.8%
Non-Rider (379)	31.9%	45.6%	22.4%

Results were similar for each group with Option 2 showing as preferred by the most respondents and Option 3 being the least preferred.

Respondents were then asked if they had ridden the C or K Line in the last 6 months. The 2,648 people that responded were asked their option preference based on their most recent ride, including if they had no preference between the three options or preferred an option other than the three

options offered. These additional two options were added to identify if riders showed either no preferences among the three options or a strong preference for other options from the three presented options. The earlier question in the survey focused on identifying the difference levels of support for the three presented options.

Table 5: Option Preference of Recent C & K Line Riders

Option	Option 1	Option 2	Option 3	All are Okay	Other Option
Recent C or K Line Rider (2,548)	19.5%	37.3%	15.6%	20.3%	7.3%

Again, Option 2 ranked highest. Combining Option 2 with those who stated all options would be okay equates to 57.6% of all respondents.

In looking at distribution of responses by area for these last two questions, as shown in the maps in Attachment H, the data reflects some density of responses in the Norwalk area favoring a direct connection to the Expo Line through Option 1 or 3. A significant density of responses throughout the Westside and Inglewood areas showed support for Option 2.

In terms of the employment profile of respondents, 66.4% of riders (5,380) were employed, and 12.0% were retired. Of non-riders (378), 62.5% were employed and 25.9% were retired.

In terms of age, 76.4% of riders were aged 25-64 years, and 69.9% of non-riders fell within that age range. This was broken out by ranges 25-34 (23.6% of riders, 19% of non-riders), 35-44 (22.1% of riders, 19.8% of non-riders), and 45-64 (30.7% of riders, 31.1% of non-riders). 9.1% riders were in the 18-24 range, and 12.0% fell within the 65+ years category, while 3.7% of non-riders were in the 18-24 range, and 25.1% from the 65+ age range. Overall, 47% supported Option 2, making it the most popular option. The percentage of support grew as age reduced, with those 65+ being the least supportive of Option 2, though even this group or respondents supported Option 2 more than other options.

In terms of household income, Table 6 shows a high rate of response from both ends of the income range, though higher income households were overrepresented for non-riders:

Table 6: Respondent Household Income/Option Preference

Annual Household Income and Rider/Non-Rider	<\$25,000	\$25,000 to <\$50,000	\$50,000 to under \$100,000	\$100,000 and above
Rider	29.8%	18.2%	21.5%	30.4%
Non-Rider	17.9%	13.5%	24.3%	44.3%
Option 1 (C-1)	32.1%	31.7%	33.2%	27.6%
Option 2 (C-2)	42.7%	44.7%	46.8%	56.1%
Option 3 (C-3)	25.2%	23.6%	20.0%	16.3%

The above data shows that all income ranges supported Option 2 the most, though support for this option increased as income increased.

The survey also collected data on ethnicity, as shown in Table 7 below:

Table 7: Respondent Ethnicity/Option Preference

Ethnicity/Rider-Non-Rider and Option	Latinx/Hispanic	Black/African American	White/Caucasian	Asian American/Pacific Islander	Native American	Other
Rider	32.7%	11.3%	33.0%	13.7%	0.8%	8.5%
Non-Rider	24.0%	6.1%	43.5%	17.2%	0.0%	9.2%
Option 1 (C-1)	32.6%	31.4%	29.1%	32.7%	30.2%	28.8%
Option 2 (C-2)	41.1%	41.8%	54.4%	46.8%	39.5%	49.4%
Option 3 (C-3)	26.3%	26.8%	16.5%	20.5%	30.2%	21.8%

The above data shows that people of color supported Option 2 the most among the three options, though not as strongly as White Caucasian, and Other respondents did. The Asian American/Pacific Islander respondents supported Option C2 notably more strongly than other minority groups.

The survey also collected data on gender as shown in Table 8 below.

Gender Rider/Non-Rider and Preferred Option	Male	Female	Non-Binary	Prefer to Self Describe
Rider	60.7%	35.8%	2.6%	0.9%
Non-Rider	53.3%	43.5%	2.1%	1.1%
Option 1 (C-1)	30.3%	32.7%	25.7%	24.6%
Option 2 (C-2)	49.0%	44.1%	48.7%	36.8%
Option 3 (C-3)	36.8%	23.3%	25.7%	38.8%

The above data shows that all genders preferred Option 2 except the Prefer to Self Describe group that preferred Option 3 slightly more. The Male and Non-binary groups had the largest percentages supporting Option 2.

RECOMMENDATION

Staff recommends the Board adopt Option 2 (C-2 Alternative), creating a K Line operating between Redondo Beach and Expo/Crenshaw and a C Line operating between Norwalk and the LAX/Metro Transit Center. This recommendation is based on the following factors:

- Simple, easy-to-understand network
- Most supported option from community outreach
- Provides direct connection to LAX/Metro Transit Center from all C and K Line stations
- Creates north-south (K) and east-west (C) lines in line with regional travel patterns

- Lower resources (less trains/operators) and operating costs than previous C-3 pilot option
- North-south corridor consistent with Torrance and Hollywood future extensions

This Operating Plan is recommended to be implemented in coordination with the AMC project and LAX People Mover Train projects.

FINANCIAL IMPACT

This item is to seek Board authorization for CEO to implement an updated operating plan for the C and K Lines.

Impact to Budget

While there is no impact to the proposed FY24 budget directly from this item. Revenue service based on Board direction for this Operating Plan will be included in the Metro FY25 budget request as the planned opening would fall in the first half of FY25 in conjunction with the AMC opening. Option 2 (C-2 alternative) would have a lower impact on the operating budget per year at \$102.9 million, compared to the previously recommended pilot Option 3 (C-3 Alternative) at \$113.2, an saving annual saving of \$10.3 million. Option 1 (C-1 alternative) is only slightly less costly than Option 2 at \$99.5 million.

EQUITY PLATFORM

There are not expected disparities between available Crenshaw/LAX operating plan choices; all are anticipated to preserve high frequency rail service on all existing and new rail segments. Outreach as described in this Board item, has shown consistently high support for Option 2 among all groups, including people of color and low-income households. Option 2 is the most supported option in the survey results. In recognition of common other concerns raised, well timed connections between trains on the two lines will allow minimal transfer times of three minutes for those riders from the Norwalk Segment to travel to/from areas of north of the LAX/Metro Transit Center Station. This would ensure convenient connections for serving riders on the Metro C & K Lines transit network, especially those who live and work within Equity Focus Communities along the existing C Line that rely most on transit. The recommendation will also allow communities served by the K Line (Crenshaw/LAX) to enjoy new direct access to the South Bay areas.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

The recommendation supports strategic plan goal #1: Provide high quality mobility options that enable people to spend less time traveling. The service changes also respond to the sub-goal of investing in a world class bus system that is reliable, convenient, safe, and attractive to more users for more trips.

NEXT STEPS

Should the Board approve the recommendation, staff will begin preparation for the implementation of the approved operating plan. Staff would return to the Board with an update regarding the

implementation of the Operating Plan consistent with AMC and Airport People Mover Train construction and testing completion ready for revenue service as soon as possible in 2024.

ATTACHMENTS

Attachment A - Motion 28.1

Attachment B - C and K Line Operating Plan Options

Attachment C - Travel and Transit Demand

Attachment D - C & K Line Operating Plan Survey E-blast

Attachment E - Social Media Comments on C & K Lines Operating Plan

Attachment F - Community Meetings and Survey Flyer

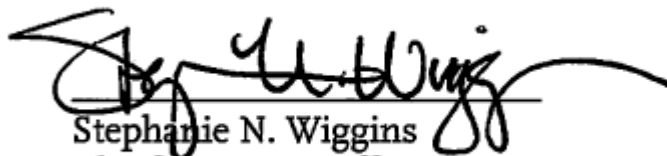
Attachment G - C & K Line Operating Plan Survey and Results

Attachment H - Distribution of C & K Line Operating Plan Survey Responses

Attachment I - Public Meetings Report Final

Prepared by: Joe Forgiarini, Senior Executive Officer, Service Development, Scheduling, and Analysis (213) 418-3400

Reviewed by: Conan Cheung, Chief Operations Officer, (213) 418-3034



Stephanie N. Wiggins
Chief Executive Officer