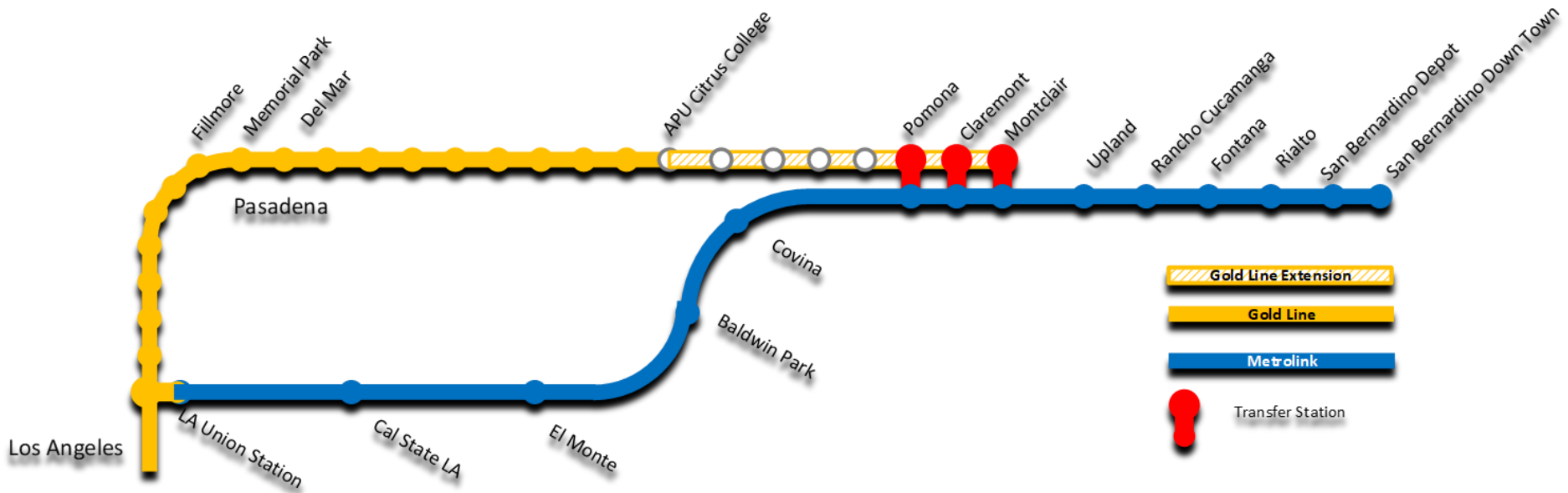


## Conceptual Design/Planning in Support of the Metrolink San Bernardino Line/Gold Line Task Force



Study Update Webinar May 12, 2020  
(Version A.7 –Updated May 20, 2020)

# Study Purpose & Goals – April 9, 2019

## Identify strategies to make the two rail services complementary following Gold Line extension to Pomona (2024) and Montclair (2028).

- Goal # 1 - Study comparative systems to determine optimal transfer strategies between modes.
- Goal #2 - Evaluate Metrolink service scenarios and ridership.
- Goal #3 - Undertake sensitivity analysis on ridership and fares.
- Goal #4 - Identify other innovations based on industrywide best practices.
- Goal #5 - Propose recommended approach and cost estimate with consensus from stakeholders.



# Goal #1

## Study comparative systems to determine optimal transfer strategies between modes.

### 1. Five commuter rail/metro systems reviewed in detail include:

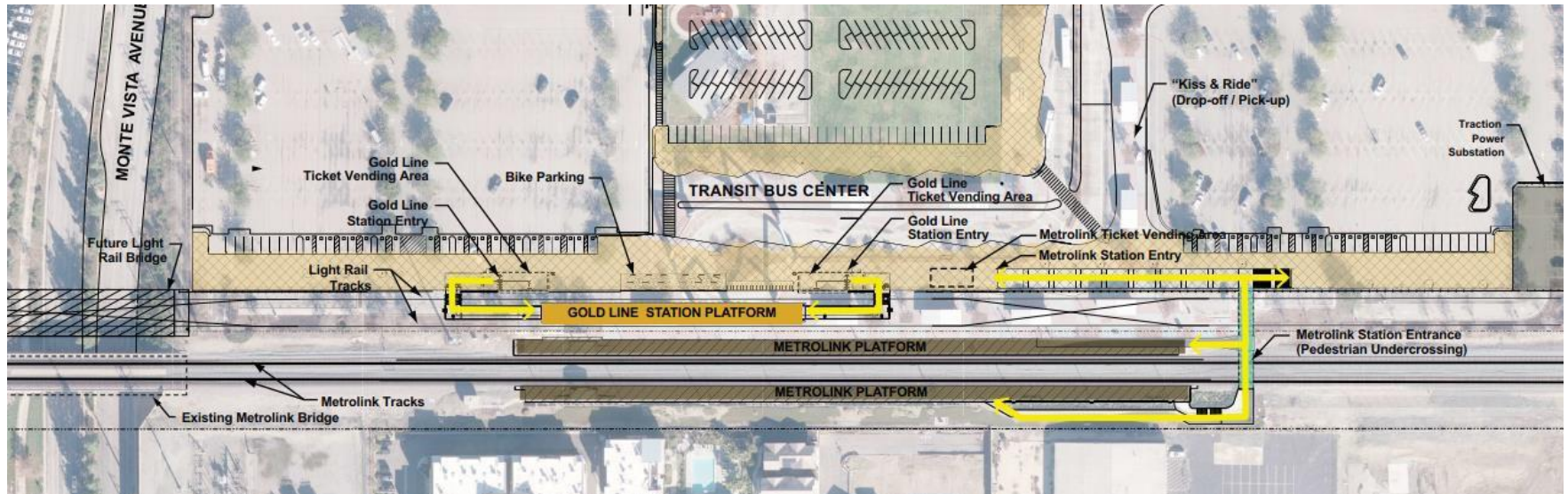
- a) San Jose Caltrain / VTA light rail
- b) Philadelphia SEPTA heavy rail / commuter rail
- c) Chicago Metra commuter rail / CTA rail
- d) Toronto GO Transit commuter rail / TTC subway
- e) London Underground (London, England)

### 2. Best practices applicable to study:

- a) Station layouts that have clear sightlines to train services and transfer areas and that have platforms in close proximity to each other
- b) Fare media technology and integration
- c) Concise and consistent wayfinding and passenger information
- d) Coordination of transit services and planning activities

# Goal #1

## Montclair Station, Construction Authority Design



### Construction Authority key design features;

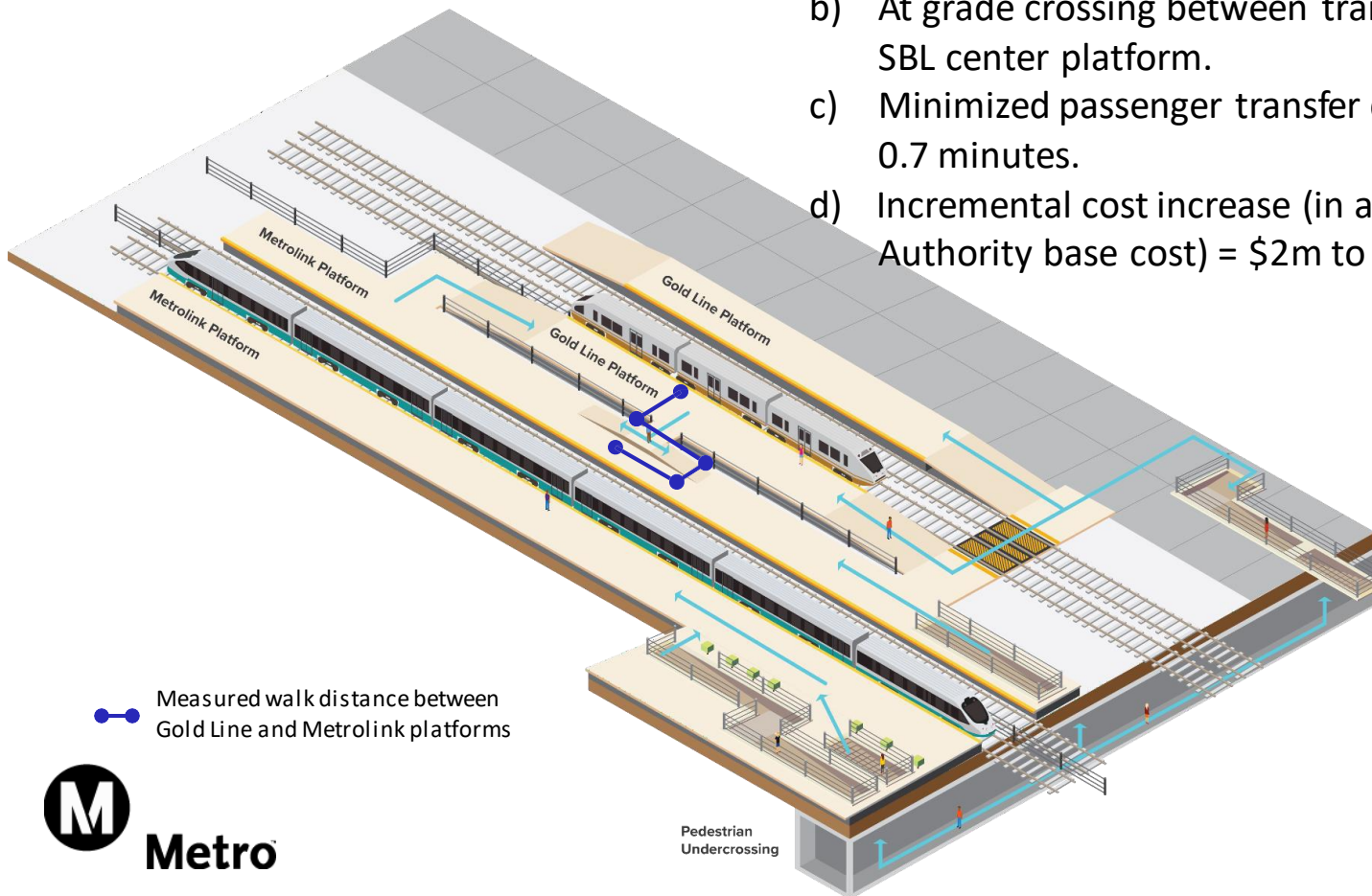
- a) Elevated Gold Line track alignment for Monte Vista Avenue grade separation
- b) Elevated Gold Line center platform approximately 9' above grade
- c) At grade existing Metrolink side platforms
- d) Walking route between Gold Line and Metrolink via pedestrian underpass
- e) Future access from south side of station as part of Arrow Development

# Goal #1

## Montclair Station, proposed design modification

Recommend a revised design for the Montclair Station to allow for a shared platform between Metrolink and Gold Line to enhance transfer.

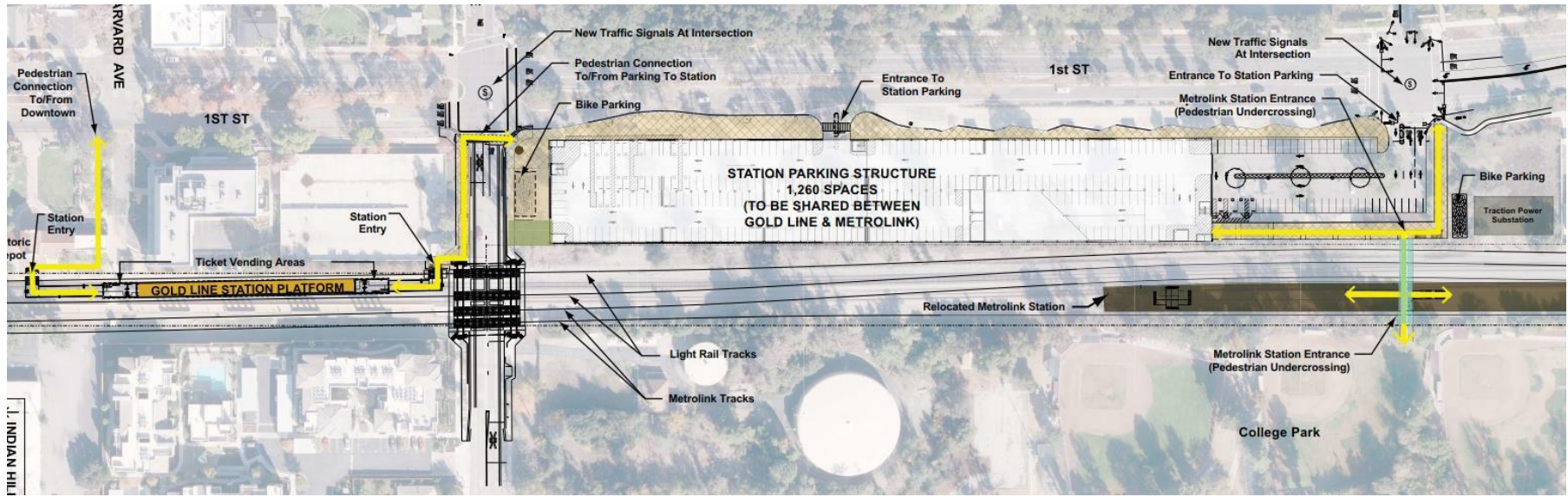
- Combined Gold Line / Metrolink SBL center platform.
- At grade crossing between transit hub and Metrolink SBL center platform.
- Minimized passenger transfer distance/walk time: 150' / 0.7 minutes.
- Incremental cost increase (in addition to Construction Authority base cost) = \$2m to \$5m (2019 dollars).



Measured walk distance between Gold Line and Metrolink platforms

# Goal #1

## Claremont Station, Construction Authority Design

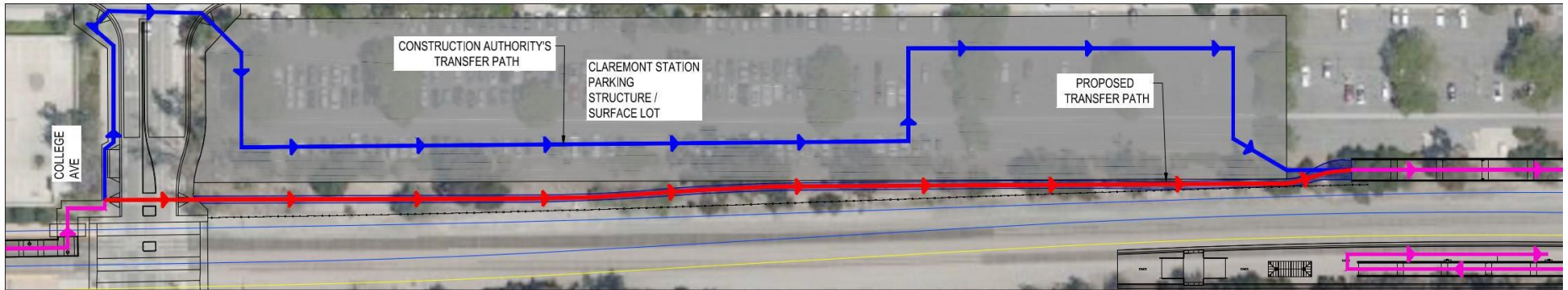


### Construction Authority key design features;

- At grade center Gold Line platform located at existing Metrolink Station
- Existing Metrolink Station relocated east of College Avenue
- Parking Lot (structure) on north side between Gold Line and Metrolink
- Walking route between stations via the parking lot

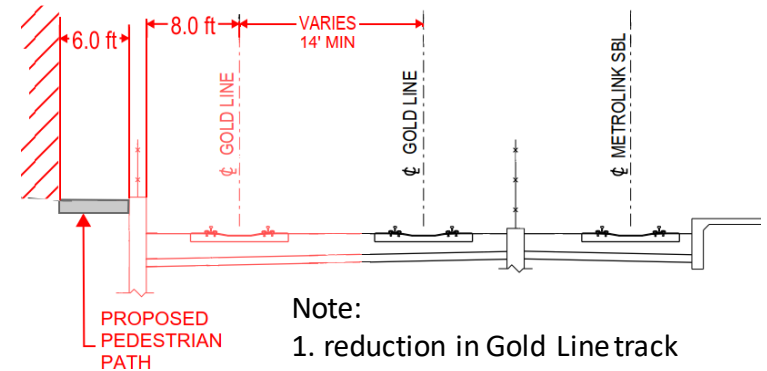
# Goal #1

## Claremont Station, proposed design modification



### 1. Potential Design Improvement;

- a) Implement a new pedestrian walking route that would run adjacent to Gold Line alignment.
  - Reference design transfer path distance = 2,390' or approx. = 11.4 minutes.
  - Proposed new transfer path distance = 1,990' or approx. = 9.5 minutes.
- b) Incremental increase (in addition to Construction Authority base cost) (2019 dollars) = \$400k to \$600k (Includes paving, lighting, signage, CCTV and landscaping)



Note:  
1. reduction in Gold Line track centers from 16' to 14' would be required to provide space for the new pedestrian walking route.  
2. CA proposed walking route from ACE drawings dated 02-15-2018

# Goal #2

## Evaluate Metrolink service scenarios on ridership (ridership estimates for Gold Line and Metrolink SBL).

### Metrolink San Bernardino Line



#### 1. Existing Service Level – 38 daily trains

*(Note 38 daily trains on Monday to Thursday and 40 daily trains on Friday)*

#### 2. Base Service Level - 46 daily trains (interim service improvements)

- (i) Peak 30-min service avg (with additional peak direction express)
- (ii) Off Peak 60-min service avg

#### 3. Enhanced Service Level - 70 daily trains

- (i) Peak 20-min service avg (30-min service in the off peak direction)
- (ii) Off Peak 30-min service avg

### Metro Gold Line



#### 1. Existing

- (i) Peak 8-min service frequency
- (ii) Off Peak 12-min service frequency

#### 2. Consistent with Metro Rail Design Criteria and Gold Line 2B EIR (Noise and Vibration)

- (i) Peak 5-min service frequency
- (ii) Off Peak 12-min service frequency



Metro



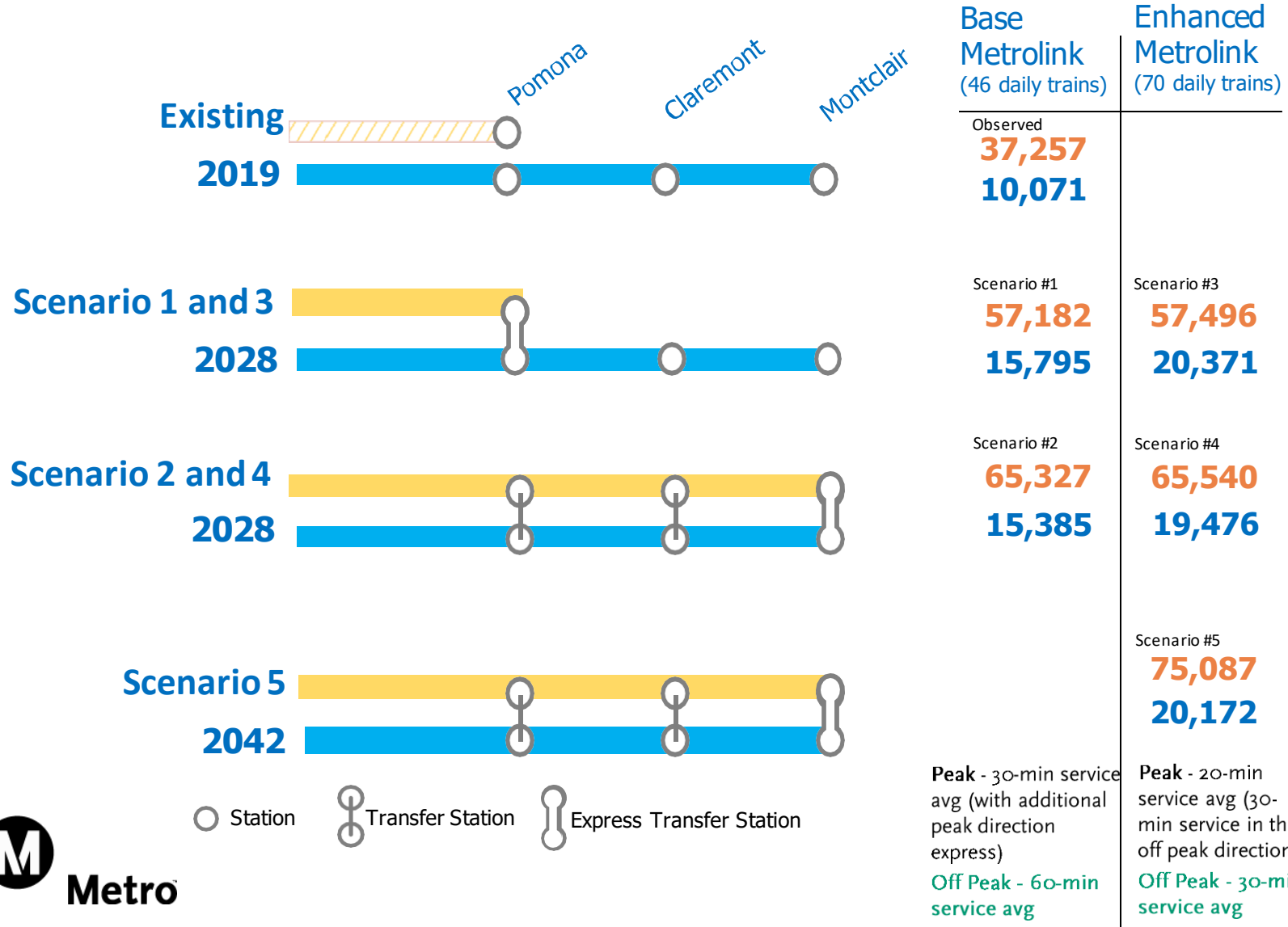
# Goal #2

## Evaluate Metrolink service scenarios on ridership (ridership estimates for Gold Line and Metrolink SBL).

1. Gold Line and Metrolink SBL ridership increases between 2019 and 2028. The main drivers of ridership increases are;
  - a. Forecast population growth is up to 16% within the corridor.
  - b. Forecast employment growth is up to 18% within the corridor.
  - c. Improved regional connectivity provided by transit expansion; Gold Line extension to Montclair, Purple Line Extension, Crenshaw, Regional Connector, East San Fernando Light Rail, Vermont Corridor BRT, North San Fernando Valley BRT, North Hollywood and Pasadena BRT.
  
2. Gold Line ridership continues to increase between 2028 and 2042. The main drivers of ridership increases are;
  - a. Improved regional connectivity provided by further transit expansion; Sepulveda Pass, West Santa Ana Branch, SR-60 North Side Light Rail, Green Line extension to Torrance.
  
3. Metrolink ridership growth stabilizes between 2028 to 2042. The main drivers of ridership patterns;
  - a. Gold Line extension to Montclair.
  - b. No further Metrolink service improvements beyond 2028.
  - c. Growth in I-10 HOV Lane volumes.

# Goal #2

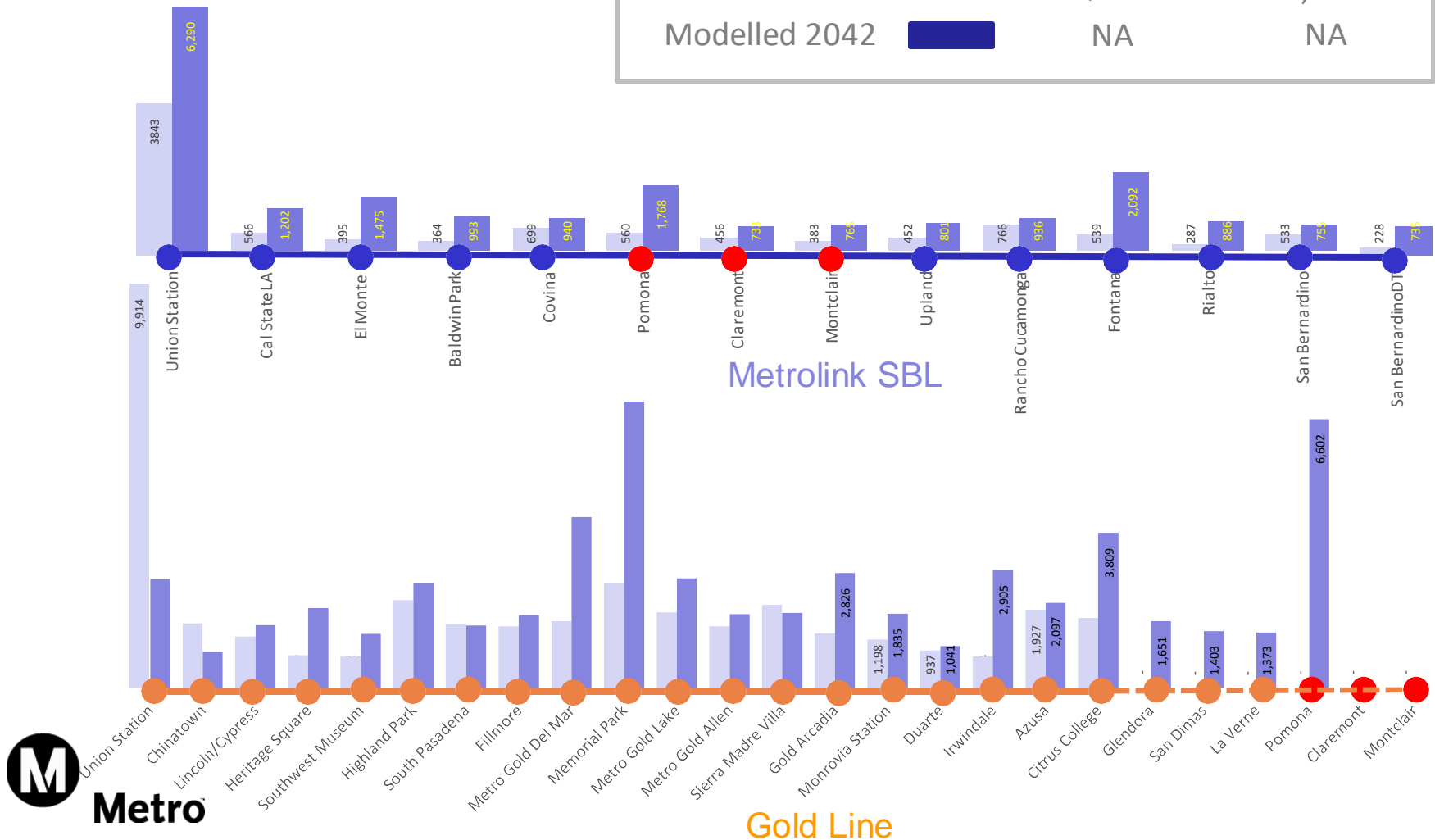
## Summary of modeling results



# Ridership - Average Weekday Boardings per Station

Gold Line to **Pomona**  
'Enhanced' Metrolink SBL Service

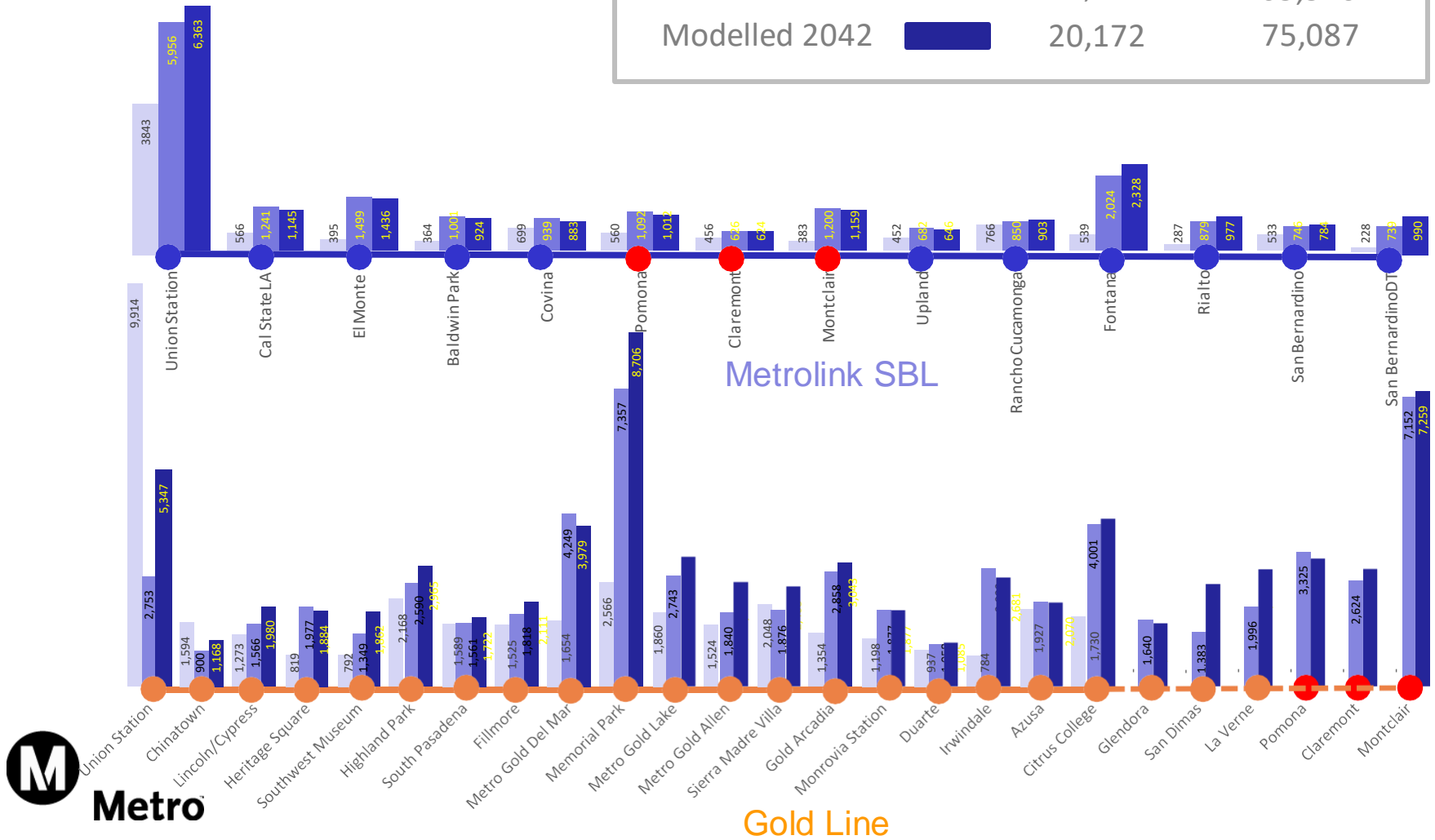
Total Boardings / Line	Metrolink SBL	Gold Line
Observed 2018	10,071	37,257
Modelled 2028	20,371	57,496
Modelled 2042	NA	NA



# Ridership - Average Weekday Boardings per Station

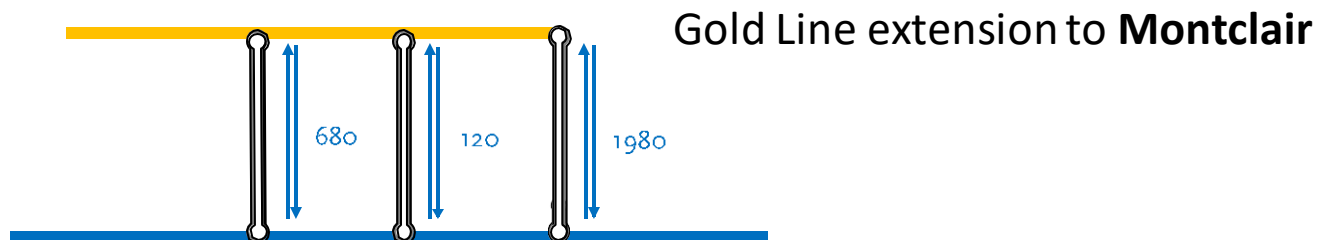
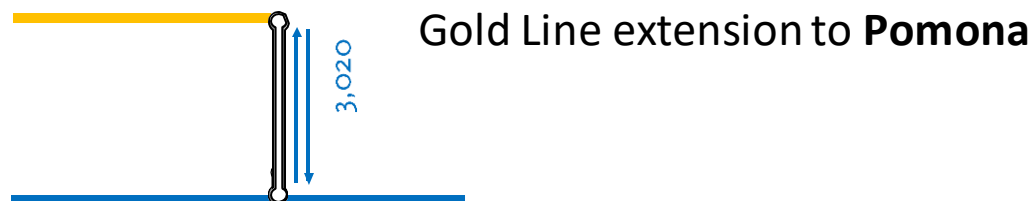
Gold Line to **Montclair**  
 'Enhanced' Metrolink SBL Service

Total Boardings / Line	Metrolink SBL	Gold Line
Observed 2018	10,071	37,257
Modelled 2028	19,476	65,540
Modelled 2042	20,172	75,087



# Passenger Transfers between Metrolink and Gold Line

Average Weekday Passenger Transfers between Metrolink and Gold Line Service.



**Notes:**

- a) Passenger transfer numbers have been extracted from Metro ridership model (CBM18)
- b) Passenger transfer numbers are total for both directions (total number of passengers transferring between the two rail systems)

# Goal #3

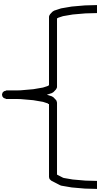
## Undertake sensitivity analysis on ridership and fares (fare sensitivity analysis).

1. Test potential effect on ridership resulting from changes to the Metro and Metrolink fares.
2. Using ridership modeling projections for 2028 with enhanced Metrolink services and Gold Line extension to Pomona and Montclair.

### Metrolink SBL Fare Change

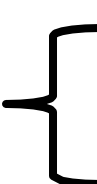
### Gold Line Fare Change

15% Off Peak Discount\*



\$2.50 (+43%)
\$3.00 (+71%)
\$3.50 (+100%)

25% Off Peak Discount\*



\$2.50 (+43%)
\$3.00 (+71%)
\$3.50 (+100%)

# Goal #3

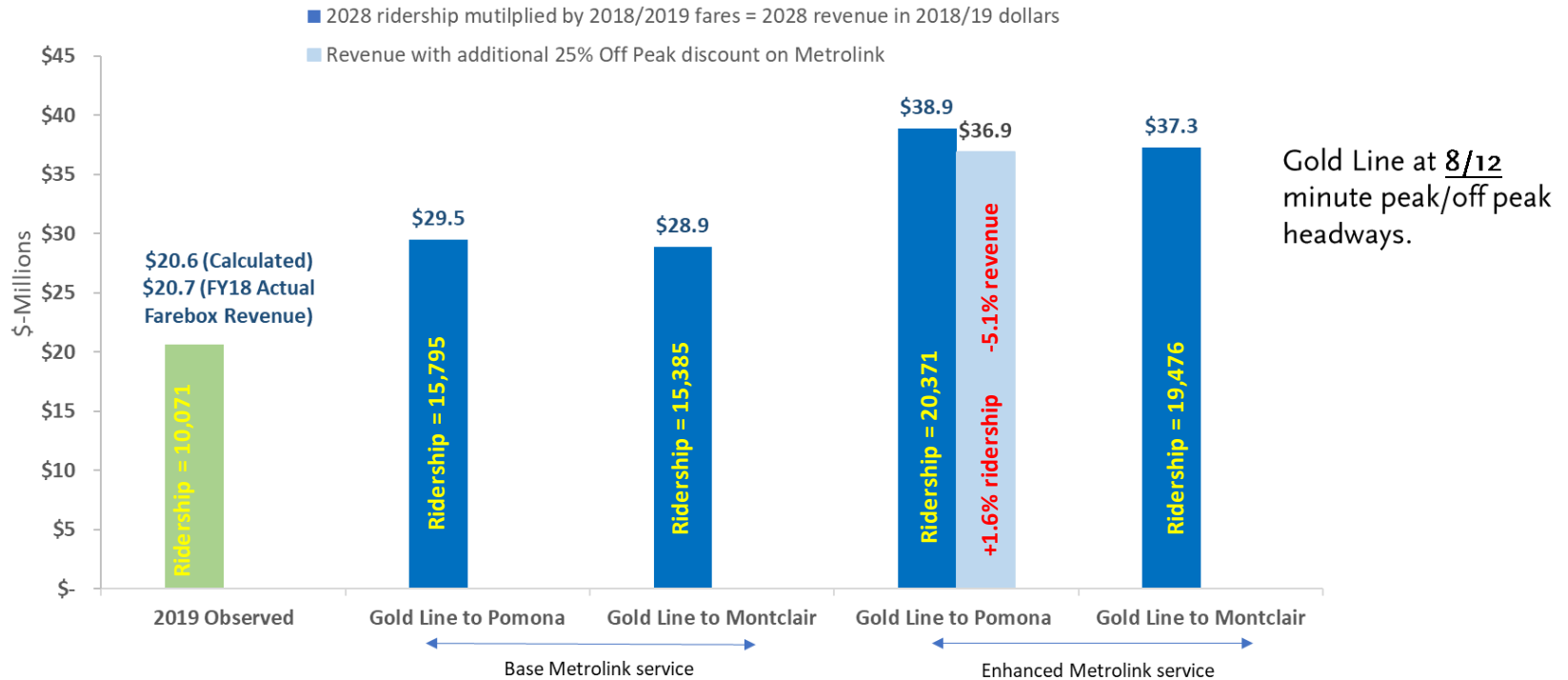
## Results and recommendations

1. Metrolink SBL off-peak fare discounts of 15% and 25% have negligible effect on Metrolink ridership.
  - i. 15% discount increases ridership by 1.1% to 1.5%
  - ii. 25% discount increases ridership by 1.7% to 2.1%
  
2. Gold Line fare increases of \$2.50, \$3.00 and \$3.50 show Gold Line ridership decrease of up to 6%. Gold Line ridership appears to be inelastic (unresponsive) within this range of fare increases.
  
3. Gold Line and Metrolink SBL are serving different markets and riders are not switching services due to these changes in fares.



# Goal #3

## Estimate future Metrolink SBL Farebox revenues.



### NOTES:

1. Average fare for transferring passengers = \$3.55 (2018/2019 dollars, fare allows for the existing 25% discount)
2. Average fare for non-transferring passengers = \$6.57 (2018/2019 dollars, fare allows for the existing 25% discount)
3. FY2018 (July 1, 2018 to June 30, 2019) farebox revenues used for comparison with observed ridership from 2019.
4. Metrolink revenue estimates for Gold Line 5/12 headways are less than 0.25% higher.



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# Stakeholder Feedback from March 2020

## Estimate change to subsidy for Metrolink SBL services.

1. Estimate future Metrolink SBL operating costs following implementation of SCORE program service frequency improvements (70 trains per day).
2. Using estimated Metrolink SBL farebox revenues, estimate the indicative change to JPA subsidy.



# Stakeholder Feedback from March 2020

## Estimate Metrolink SBL Operating Cost for 2028

Train Service Type	Cost per train	Existing (38 train / day)		Enhanced (70 trains / day)	
		# Trains / Day	Cost / Day	# Trains / Day	Cost / Day
Peak	\$3,025*	18	\$54,450	20	\$60,500
Reverse Peak	\$404**	8	\$3,232	13	\$5,252
Off Peak	\$889**	12	\$10,668	37	\$32,893
<b>Daily Total</b>		<b>38</b>	<b>\$68,350</b>	<b>70</b>	<b>\$98,645</b>
<b>Change in Daily Operating Cost</b>		<b>+\$30,295</b>			

1. All costs are in FY2018/2019 dollar values
2. Operating cost unit rates have been provided by Metrolink
3. Variation in unit rates (peak, reverse peak and off-peak) is a result of crew utilization during a shift and the need for split shifts for some services.
4. 2018 Annual Operating Cost = \$50,453k (Metrolink Budget Handbook)
5. Change in annual operating cost at 2028 = \$30,295 x 255 operating days/year = \$7,725k
6. 2028 Operating cost = \$50,453 + \$7,725 = \$58,178k
7. Contingency added to allow for weekend operating cost and 2028 schedule uncertainty = 15%

**Total Estimated 2028 Annual Operating Cost = \$66.9m (increase of 33%)**



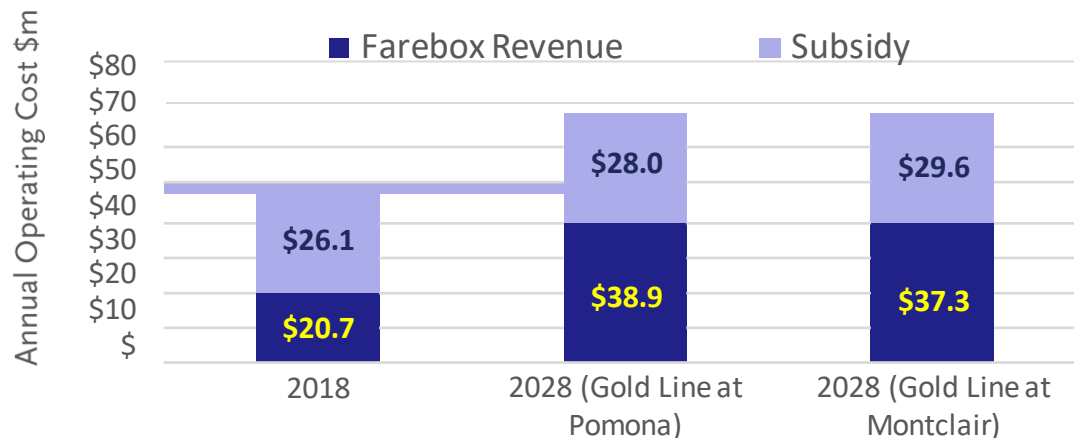
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\* Metrolink Peak service trains have high operating cost (existing and future) as they require a

# Stakeholder Feedback from March 2020

## Estimated change to Metrolink SBL subsidy:

1. Estimated 2028 Annual Operating Cost = \$66.9m
2. Estimated 2028 Annual Revenue = \$38.9m (Gold Line Pomona)  
= \$37.3m (Gold Line to Montclair)
3. Estimated 2028 Subsidy = \$66.9m – \$38.9m = **\$28.0m** (Gold Line to Pomona)  
= \$66.9m – \$37.3m = **\$29.6m** (Gold Line to Montclair)
4. Budgeted Subsidy FY2020 = \$30.3m (FY2019 = \$29.6m)
5. Therefore no estimated subsidy increase.



# Goal #4

## Identify other complementary strategies based on industrywide best practices.

### 1. Other complementary strategies

- a. Schedule synchronization
- b. Branding and visual identity
- c. Fare media and ticketing



# Goal #4

## 1. Timetable synchronization

- a) Implementation of SCORE program increases Metrolink SBL service frequency to 20min peak and 30min off peak.
- b) Future Gold Line service frequency is 8min peak (or 5min) to 12 min off peak.
- c) **Recommendation** - Schedule synchronization is not considered practical given the regularized service patterns and line capacity constrains on both systems.

## 2. Gold Line and Metrolink SBL operating hours

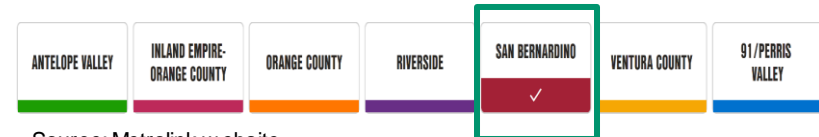
- a) Gold Line currently operates 4 to 5 hours longer in the evening than Metrolink services.
- b) Anticipate that future Gold Line train services will for 2 to 3 hours later in the evening than Metrolink services.
- c) **Recommendation** - to avoid missed connections from Gold Line to Metrolink;
  - (i) Gold Line on board announcements on next Metrolink train at transfer stations.
  - (ii) Gold Line station announcements on next Metrolink train at transfer stations.
  - (iii) Gold Line terminal station signage and supporting services.

# Goal #4

**Simplify decision making and wayfinding by clear differentiation for both rail services.**

## **Recommendation;**

1. Color themed architectural details and platform furniture.
2. Prominent use of Operator Logo and clear brand distinction.
3. Use of combined real time passenger service information displays.



Source: Metrolink website



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# Goal #4

## Seamless transfers at interchange stations require integrated ticketing

1. Metrolink has a bar code system that facilitates free transfers to Metro services and also includes EZ pay access to municipal transit services.
2. Metro offers an EZ pass fare that enables Metro riders to access a range of municipal transit services, however EZ pass does not allow transfers for Metro riders onto Metrolink services

**Scan Metrolink Tickets,  
Don't TAP**



**Scan paper QR Code at Metro Gate Scanner**

**QR Codes are also found on tickets through Metrolink's mobile app**



### Recommendation

1. Consider a Metro ticket or EZ pass that provides a reciprocal seamless transfer for Metro riders onto Metrolink SBL services.

# Goal #4

## Challenges and Opportunities

- a) **Equitable fares for Metro and Metrolink** - An up-charge for Metro users to have a seamless transfer to Metrolink SBL services should be equitable with an equivalent Metrolink ticket fare.
- b) **Integrated Technology** – Metrolink’s current onboard/mobile technology cannot validate Metro TAP cards / passes; however, there are no perceived technological barriers to integrated ticketing. More evaluation is required prior to implementation.
- c) **A Metro+(Metrolink) pass** would need to have a distance based upcharge to remain aligned with Metrolink fares. Any misalignment between a Metro+(Metrolink) pass and Metrolink fares will divert ticket purchases and farebox revenues from Metrolink.
- d) **Indicative value of a Metrolink reimbursement**
  - 1500 weekday transfers, each way estimated using 2028 ridership modelling outputs.
  - Average Metrolink transfer fare \$3.75 each way (provided by Metrolink).
  - Assume 255 days/year.
  - Annual reimbursement indicative estimate ranges \$1.4m to \$2.8m.



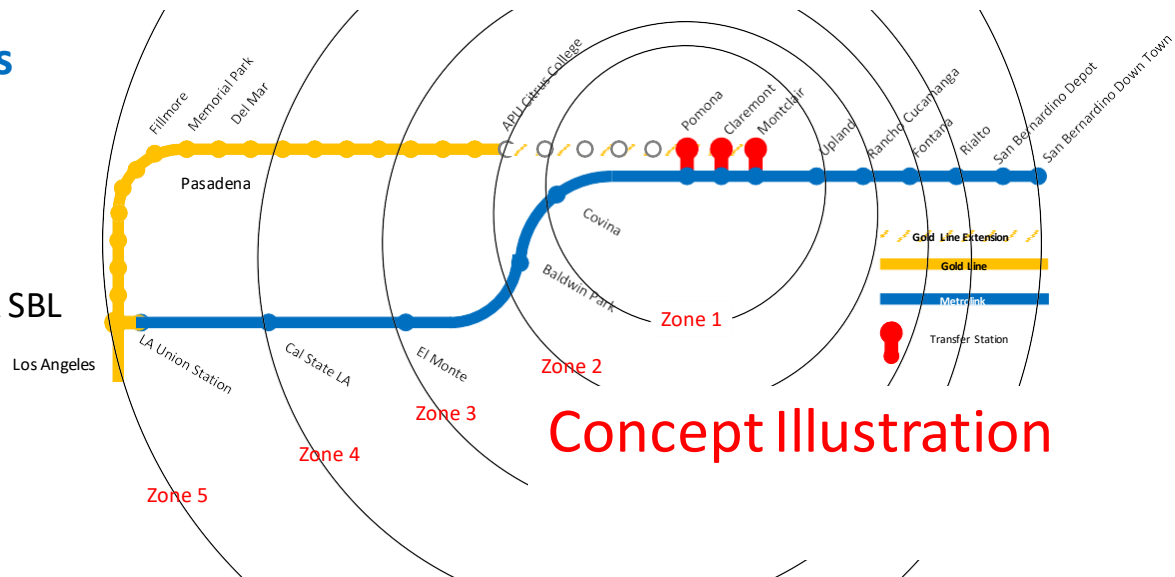


# Goal #4

## 'Metro+Metrolink Pass' Objectives

### Key considerations for integrated Metro ticketing would be;

1. Allow Metro passengers to purchase monthly pass with included Metrolink SBL fare.
2. Metro pass up-charging based on;
  - (i) SBL destination station
  - (ii) Simplified based on SBL zoning.
3. Distance based fare would provide parity with equivalent Metrolink ticket cost.
4. Added value of Metro ticket (access to all connected LA County Metro services) could be reflected in the Metro pass upcharge.



Metro Pass Type	Metro Pass Base Cost	Indicative Metro Pass Up Charge	Equivalent Metrolink Monthly Pass
Monthly Base	\$100	-	-
Plus SBL Zone 1	\$100	+ \$40	\$140
Plus SBL Zone 2	\$100	+ \$82	\$182
Plus SBL Zone 3	\$100	+ \$117	\$217
Plus SBL Zone 4	\$100	+ \$145	\$245
Plus SBL Zone 5	\$100	+ \$180	\$280

# Study Goal #5

## Propose recommended approach and cost estimate with consensus from stakeholders.

1. Recommendations to enhance pedestrian connectivity at transfer stations:
  - a) Claremont revised walk route between Gold Line and relocated Metrolink SBL platforms.
  - b) Montclair Station
  - c) Introduce branding differentiation, platform visual identity, combined passenger information.
  
2. Consider introducing reciprocal Metro to Metrolink transfer ticketing (Metro+Metrolink Pass)
  - a) Further study of a zone or distance based 'Metro+Metrolink' pass.

# Next Steps

1. Distribute updated presentation material incorporating feedback from stakeholder meeting May 12, 2020.
2. Collect final feedback from stakeholders.
3. Brief Metro and Stakeholder Executive Management on study objective and findings.
4. Finalize study report.