WCCTAC

West Contra Costa Transportation Advisory Committee

West Contra Costa High-Capacity Transit Study

Board Meeting

February 24, 2017

Revised: March 30, 2017

Discussion Items

1) Assessment of Refined Alternatives
   - Projected Growth
   - Ridership and Costs
   - Other Findings
2) Preliminary Takeaways
3) Outreach
4) Next Steps in this Study

Study Process

Public Outreach & Participation

Assessment
- Goals & Objectives
- Relevant Prior Studies
- Existing & Future Transportation & Land Use
- Market Analysis

Alternatives Development & Analysis
- Conceptual Alternatives
- Evaluation Criteria
- Preliminary Evaluation ← *Tier 1 Evaluation*
- Alternatives Refinement
- Ridership Modeling
- Cost Estimates

We are here

Final Alternatives
- Funding Options
- Final Alternatives Evaluation ← *Tier 2 Evaluation*

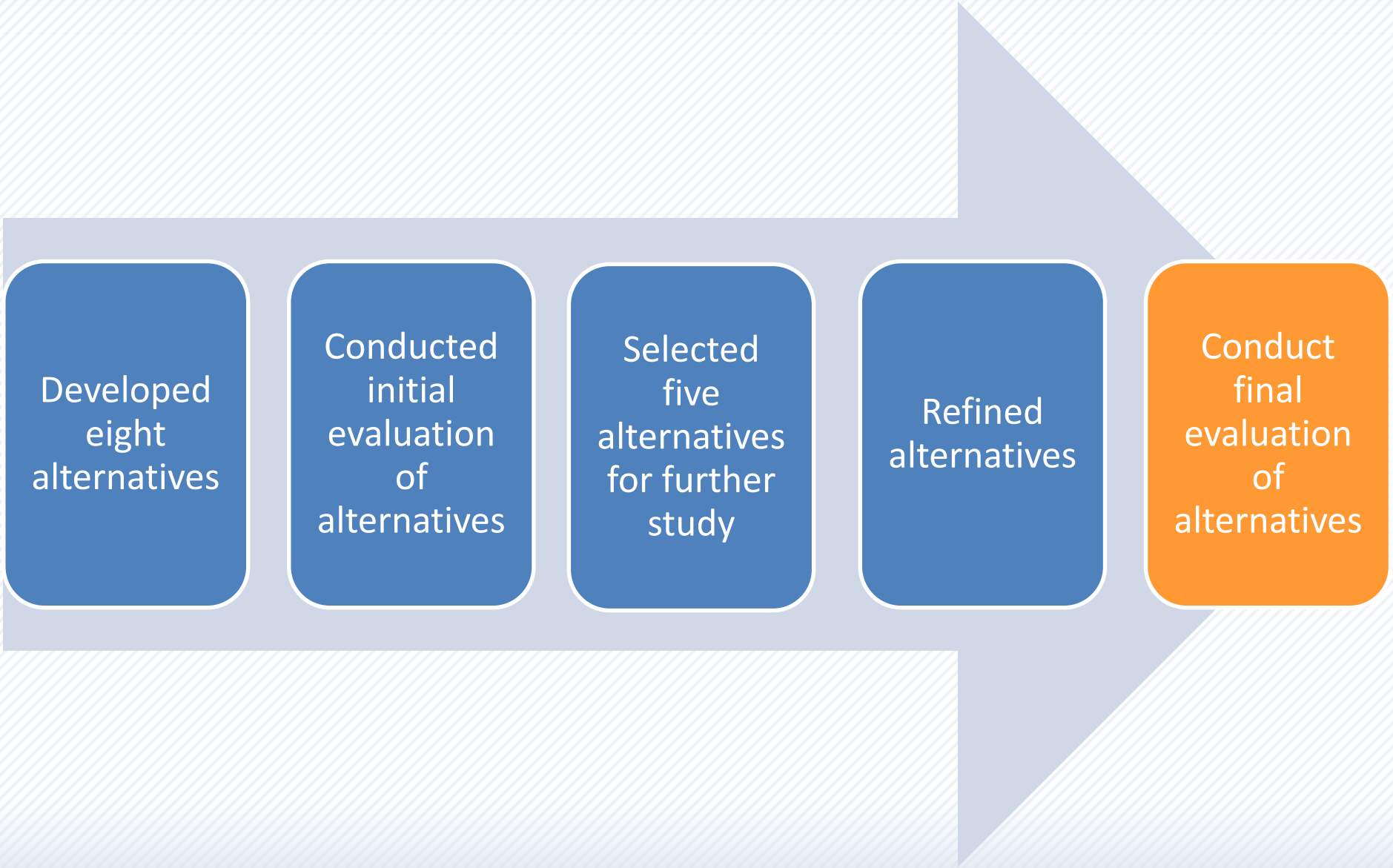
Final Plan
- Summary of Findings/Recommendations
- Next steps beyond this study

Review of Alternatives

Alternative	Yes	No
 1: Express Bus	✕	
 2: San Pablo/Macdonald BRT	✕	
 3: 23rd Street BRT	✕	
 4: UPRR Commuter Rail	✕	
 5: BNSF Commuter Rail		✕
 6: BART Extension from Richmond	✕	
 7A: BART Extension from El Cerrito del Norte		✕
 7B: BART DMU Extension from El Cerrito del Norte		✕

Assessment of Refined Alternatives

Two-Step Evaluation Process



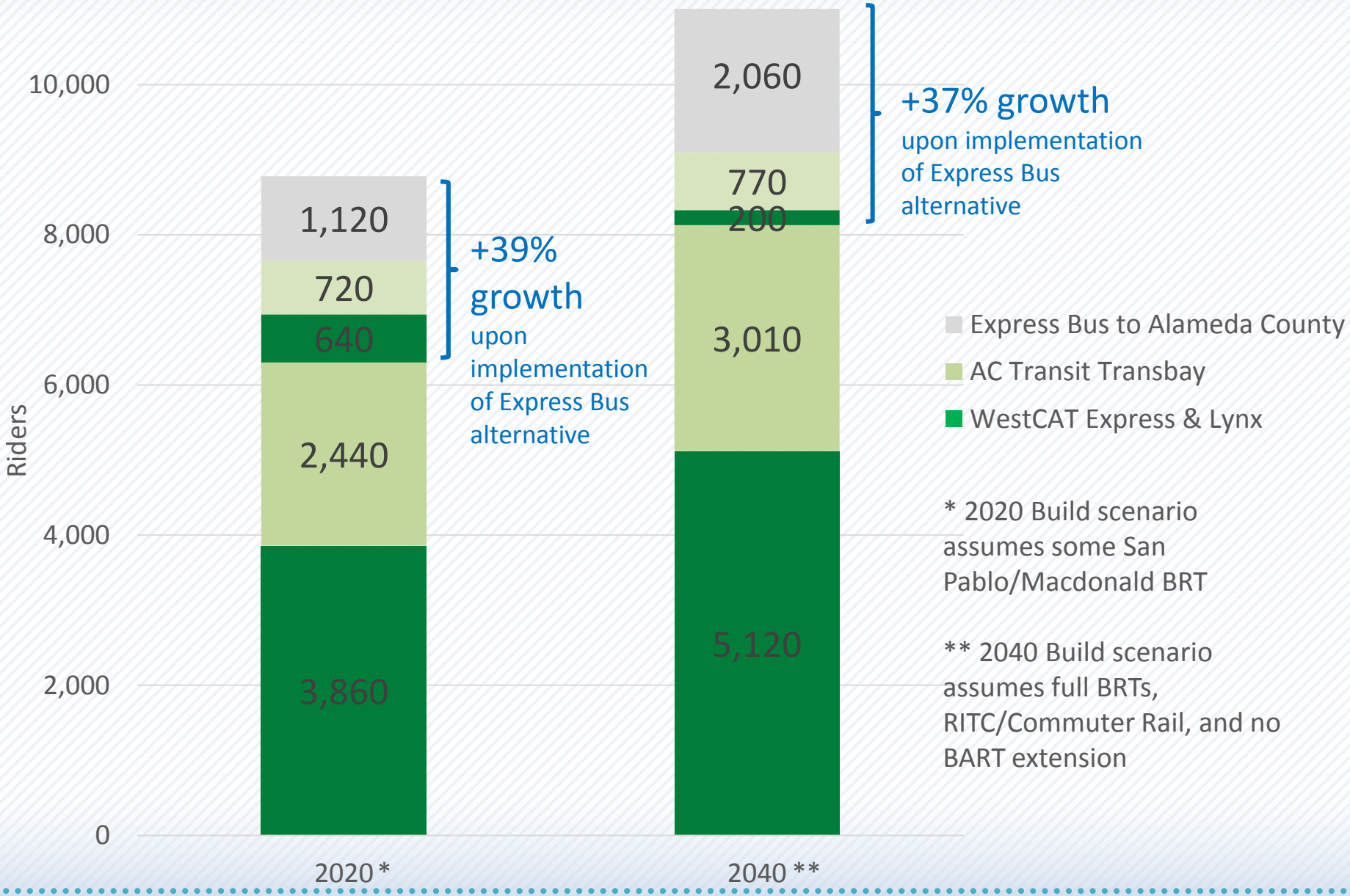
EVALUATION CRITERIA	PERFORMANCE MEASURE
RIDERSHIP	Total riders
	Net new riders
COST AND EFFICIENCY	Capital cost
	Operating and maintenance cost
	Annualized cost per rider
SPEED AND RELIABILITY	Transit travel time improvement
	Transit travel time reliability
ACCESS AND CONNECTIVITY	Regional transit centers served
	Quality of connections to existing transit systems and facilities
	Service to West County markets lacking major transit connections
FEASIBILITY	Time to implementation
COMMUNITY	Consistency with local plans and policies
	Public and stakeholder support
	Economic and transit-oriented development (West County PDAs served)

Express Bus

Alternative 1: Express Bus

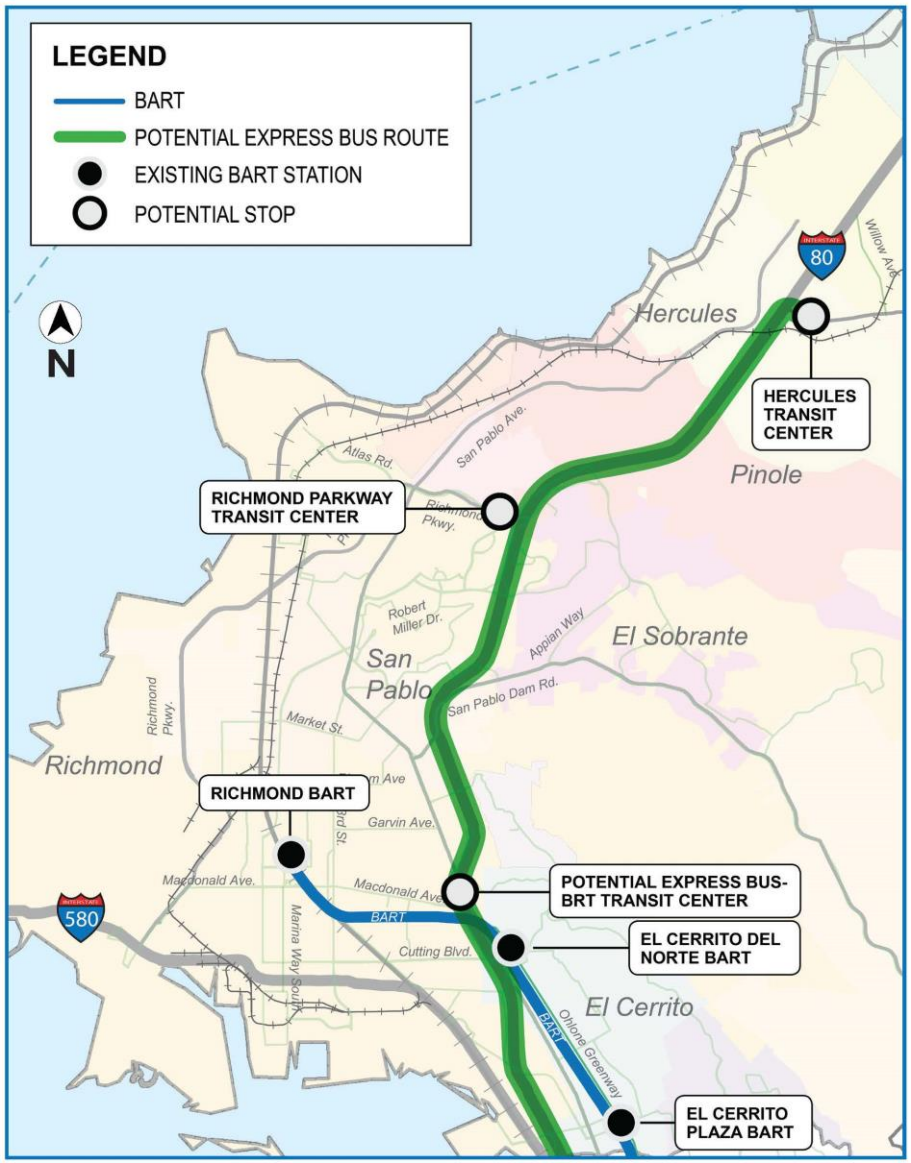
- Travel market analysis shows demand to Berkeley, Emeryville, and Oakland as well as San Francisco
- Improved links to freeway and effective use of HOV lanes
- Direct access ramps allows faster service
- Can be done in stages:
  - 3 years for operations to East Bay along I-80
  - 15 years for full suite of proposed improvements

Express Bus: Net New Ridership



Express Bus: Capital Cost

Express



Time Horizon	Cost (2017 $)
Short-term • Increase existing bus frequency • New service to Berkeley, Oakland, Emeryville • Transit priority improvements	$11 m
Medium-term • Bus stop improvements – Berkeley, Emeryville, Oakland • Expanded parking at Richmond Parkway. and Hercules Transit Centers	$91 m
Long-term • Freeway ramp improvements at I-80/Macdonald, Richmond Parkway and Hercules Transit Centers • and Hercules Transit Centers • New Express Bus-BRT transit center at Macdonald and I-80	$143 m
Total	$245 m

Express Bus: Annualized Cost per Rider

Alternative	2020 Per Total Riders	2020 Per New Rider	2040 Per Total Riders	2040 Per New Rider
1: Express Bus	$8	$8	$20	$21

Costs include capital and O&M costs and are in 2017 dollars

Express Bus: Assessment

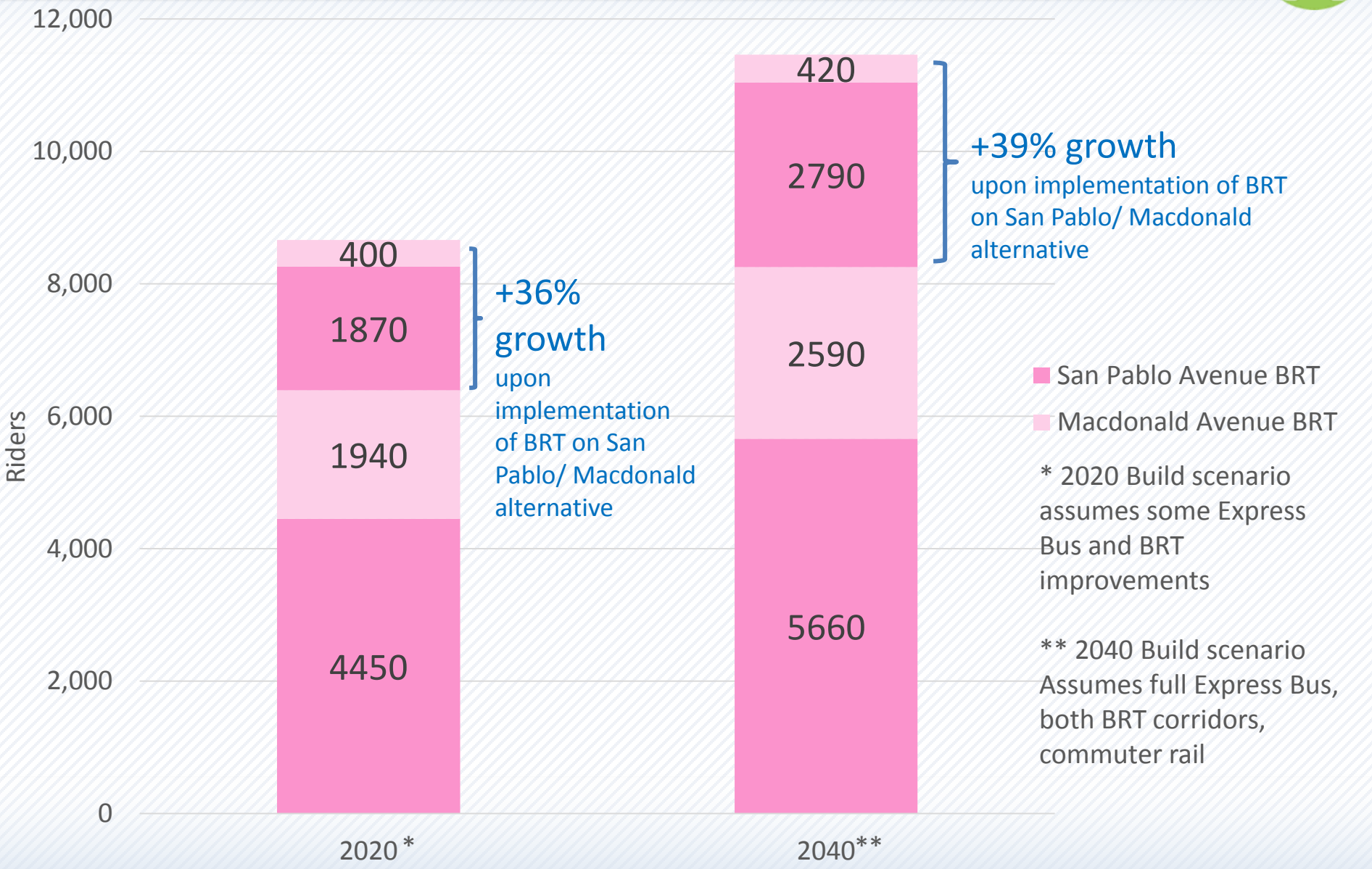
- Can be implemented incrementally
- New infrastructure (e.g., ramps) would produce greater improvements in travel time
- Reliability is moderate
  - 88% of route is in dedicated HOV lanes:
    - Lanes often congested during peak periods
    - Buses need to cross mixed-flow lanes
- Good regional transit center connections
  - Connections at freeway can require longer walks
- Highest capital cost of bus alternatives
  - Improvements can be phased
  - Transit center at Macdonald/I-80 cost is very high

BRT on San Pablo Avenue/ Macdonald Avenue

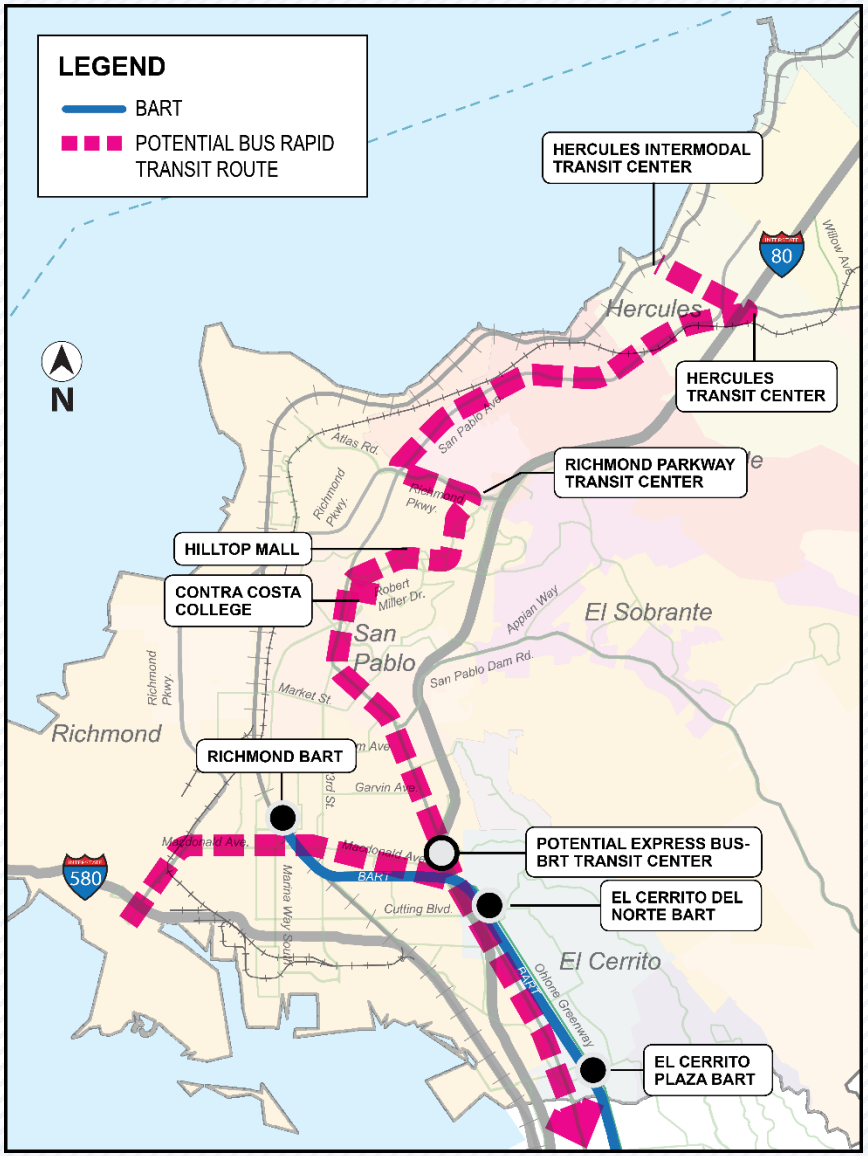
Alternative 2: BRT on San Pablo/Macdonald Avenues

- Serves the heart of the West County transit market
- Extension of potential AC Transit BRT project
- Service affords flexibility in implementation
  - Builds on Rapid bus infrastructure currently in place in corridor

BRT on San Pablo/Macdonald: Net New Ridership



BRT on San Pablo/Macdonald: Capital Costs



Time Horizon	Cost (2017 $)
Short-term • Transit priority improvements • Extend Rapid Bus improvements to Richmond Parkway	$3 m
Medium-term • Extend Rapid Bus service to Hercules Transit Center • Expanded parking at Richmond Parkway and Hercules Transit Centers • San Pablo bus-only lanes – El Cerrito del Norte to 23rd Street • Macdonald bus-only lanes – San Pablo to 23rd Street	$180 m
Long-term • Macdonald bus-only lanes – 23rd Street to Richmond Parkway • New Express Bus-BRT transit center at Macdonald and I-80 • Extend Rapid Bus service to RITC	$60 m
Total	$243 m

BRT on San Pablo/Macdonald: Annualized Cost Per Rider

Alternative	2020 Per Total Riders	2020 Per New Rider	2040 Per Total Riders	2040 Per New Rider
1: Express Bus	$8	$8	$20	$21
2: BRT on San Pablo/Macdonald Avenues	$2	$6	$5	$18

Costs include capital and O&M costs and are in 2017 dollars

BRT on San Pablo/Macdonald: Assessment

- Improvements are scalable
  - Initial changes can occur quickly
  - Other changes can be implemented over time
- High ridership returns for investment
- Reliability is moderate
  - 70% of route could be bus-only lanes:
    - Amount of travel time improvements depends on extent of bus-only lanes
    - Trade-offs with other modes of travel in existing ROW
- High-quality transit connections and number of regional transit centers served

BRT on San Pablo/Macdonald: Assessment

- Corridor's long length results in:
  - Excellent transit connections
  - Service to Hercules, Pinole, Tara Hills, and west and central Richmond
  - PDAs well-served
  - Higher operating costs
- Moderate costs
  - Improvements can be phased but greatest benefits are reached when full improvements are in place
  - High cost-effectiveness

BRT on 23rd Street

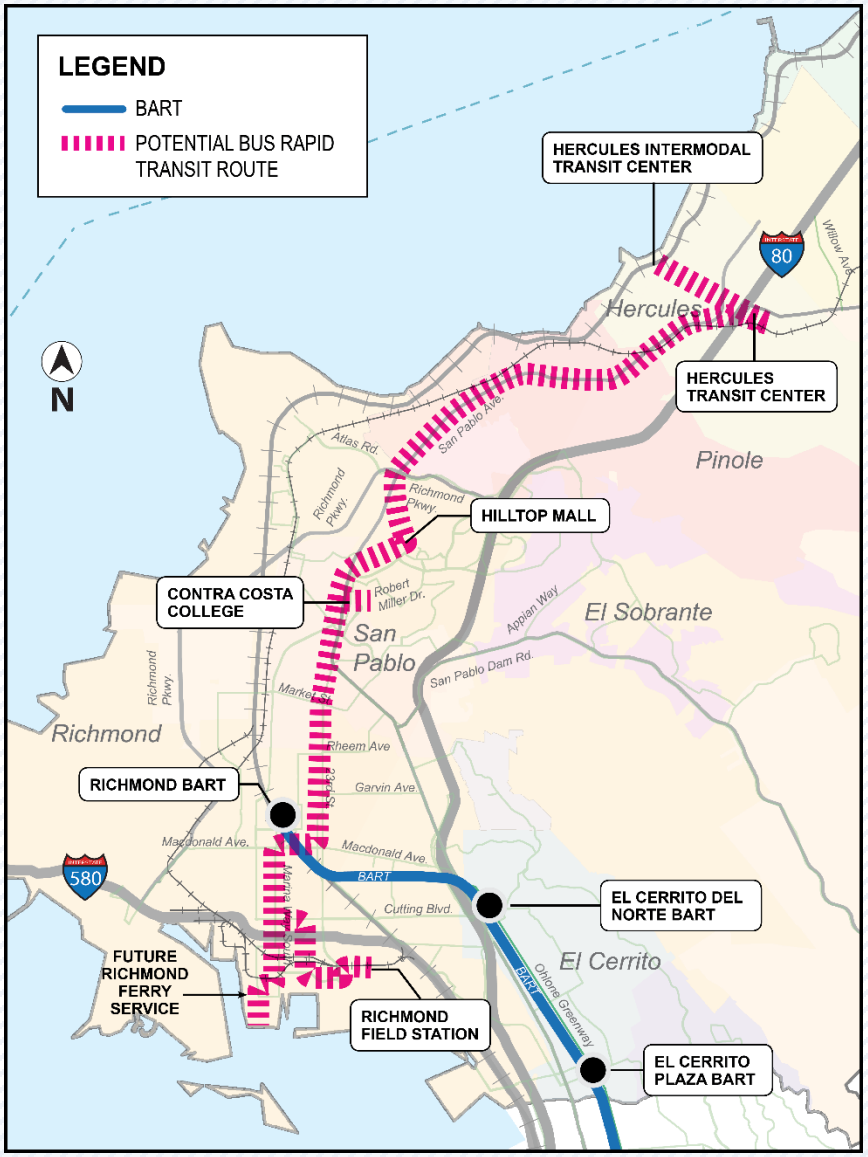


Alternative 3: BRT on 23rd Street

- Serves the heart of the West County transit market
- 23rd Avenue serves strong markets
  - Richmond and San Pablo
  - Richmond Field Station
  - New Ford Point ferry terminal
  - Marina Bay/Richmond Harbor districts
- Service affords flexibility in implementation

BRT on 23rd Street: Ridership

BRT on 23rd Street: Capital Costs



Time Horizon	Cost (2017 $)
Short-term • Transit priority improvements • Improvements on 23rd Street from Macdonald to Richmond Field Station • BRT station at Ford Point	$17 m
Medium-term • Expanded parking at Richmond Parkway and Hercules Transit Centers • Bus-only lanes on 23rd Street between Macdonald and Rheem Avenues • Extend Rapid Bus service to Hercules Transit Center • New vehicles (20 buses) • BRT stations	$99 m
Long-term • Bus-only lanes on 23rd/San Pablo from Rheem to Hilltop Mall • Extend Rapid Bus service to RITC • BRT stations	$63 m
Total	**$179 m**

BRT on 23rd Street: Annualized Cost Per Rider

Alternative	2020 Per Total Riders	2020 Per New Rider	2040 Per Total Riders	2040 Per New Rider
 1: Express Bus	$8	$8	$20	$21
 2: BRT on San Pablo/Macdonald Avenues	$2	$6	$5	$18
 3: BRT on 23rd Street	$4	$8	$8	$17

Costs include capital and O&M costs and are in 2017 dollars

BRT on 23rd Street: Assessment

- Improvements are scalable, can be implemented over time
- Good ridership returns for investment
  - Higher new ridership than the San Pablo/Macdonald BRT, and cost-effectiveness is similar
- BART extensions have low impact on BRT ridership
  - BRT serves a different travel market than BART
- Reliability is low:
  - 40% of route could be bus-only lanes:
    - Amount of travel time improvements depends on extent of dedicated lanes; more bus-only lanes would improve reliability
    - Trade-offs with other modes of travel in existing conditions

BRT on 23rd Street: Assessment

- High-quality transit connections and number of regional transit centers served
- Improves service to West County markets lacking major transit connections
- Lowest cost of all bus alternatives
  - Shortest in terms of route miles
  - Lower distance in dedicated lanes

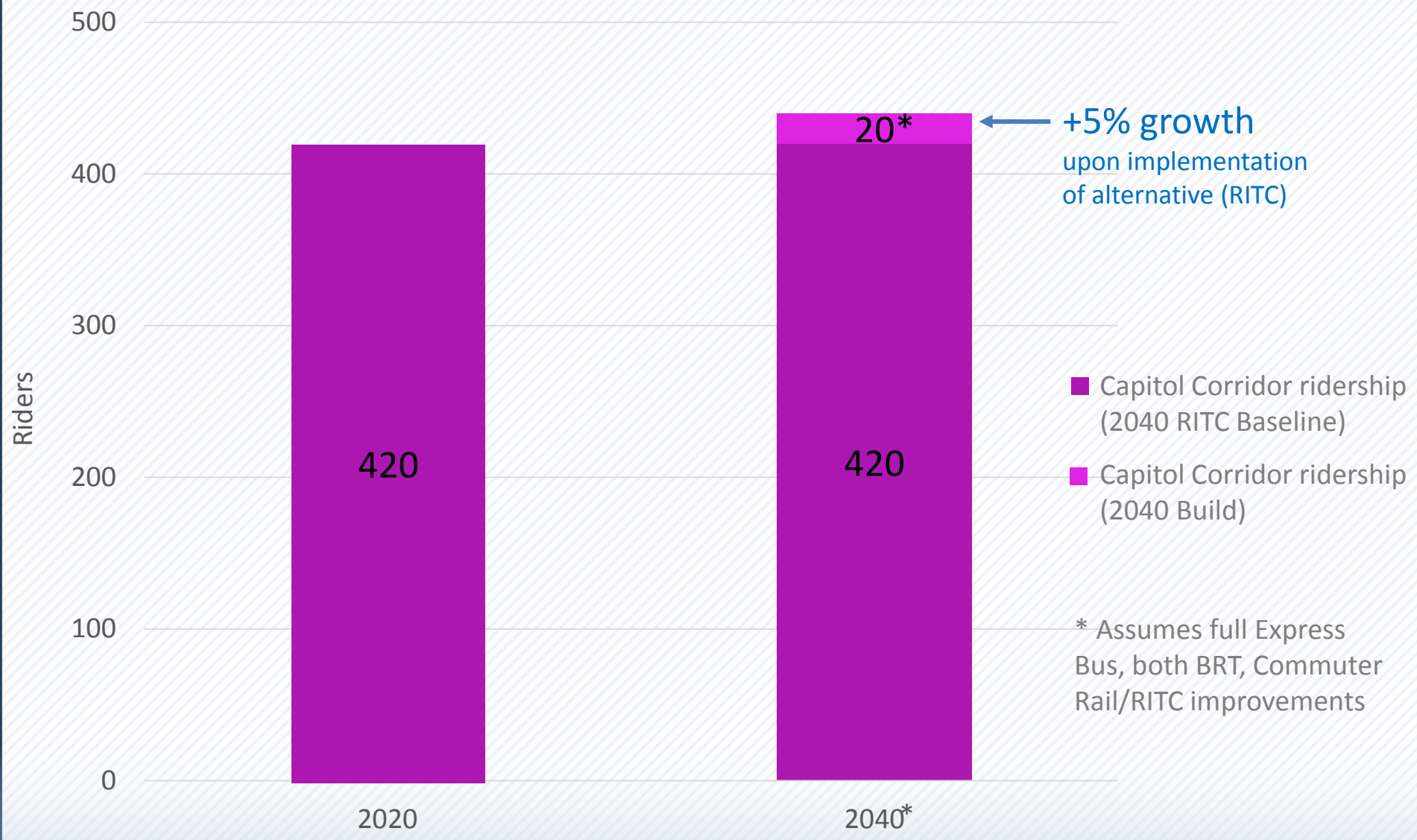
Commuter Rail

(Capitol Corridor Fare Subsidy and Regional Intermodal Transit Center)

Alternative 4: Commuter Rail

- Significant transit travel time savings
- Fare subsidy for West County travelers
  - Estimated cost for 75% subsidy
    - $5,708,000 for three-year pilot
    - $11 cost per rider
    - $39 cost per new rider
  - Estimated new riders
    - 186 riders with 75% subsidy
- Full build-out of Regional Intermodal Transit Center (RITC), with Capitol Corridor stop

Commuter Rail: RITC Ridership



Commuter Rail: Capital Costs

Time Horizon	Cost (2017 $)
Short-term • Fare subsidy pilot (operating costs)	--
Medium-term • Build-out of Regional Intermodal Transit Center (RITC)	$51 m
Total	$51 m

Commuter Rail: Annualized Cost per Rider

Alternative	2020 Per Total Riders	2020 Per New Rider	2040 Per Total Riders	2040 Per New Rider
1: Express Bus	$8	$8	$20	$21
2: BRT on San Pablo/Macdonald Avenues	$2	$6	$5	$18
3: BRT on 23rd Street	$4	$8	$8	$17
4: Commuter Rail	--	--	$18	$36

Costs include capital and O&M costs and are in 2017 dollars

Commuter Rail: Assessment

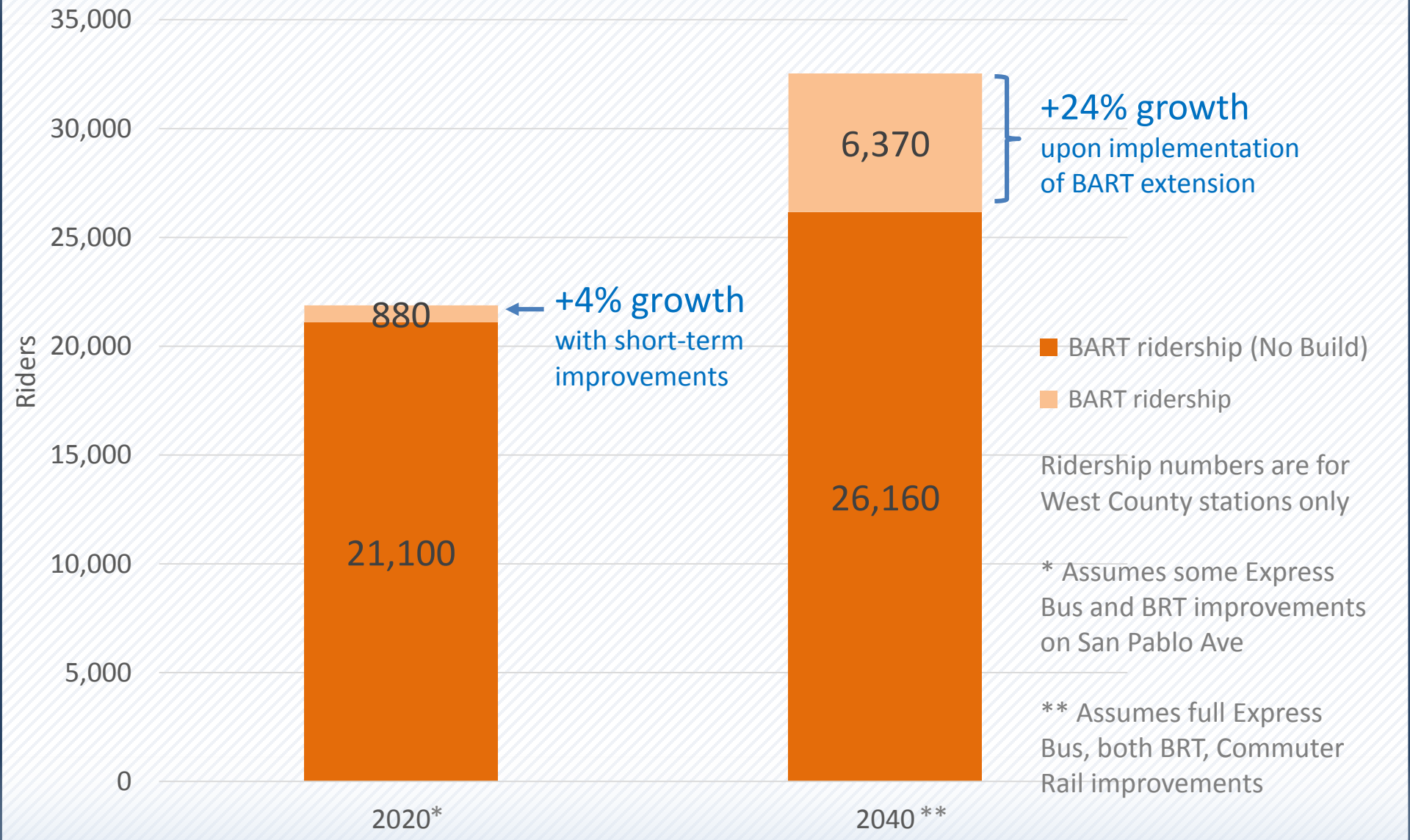
- Substantial travel time improvement over existing bus service
- Good connections to regional transit centers and to RITC
- Very low capital costs and moderate O&M costs
  - Fare subsidy pilot can begin once funding is secured
  - RITC underway, but not all funding is secured
  - O&M costs are associated with station maintenance and fare subsidy
- Still need to reach agreement on proposed service pattern, including RITC stop

BART

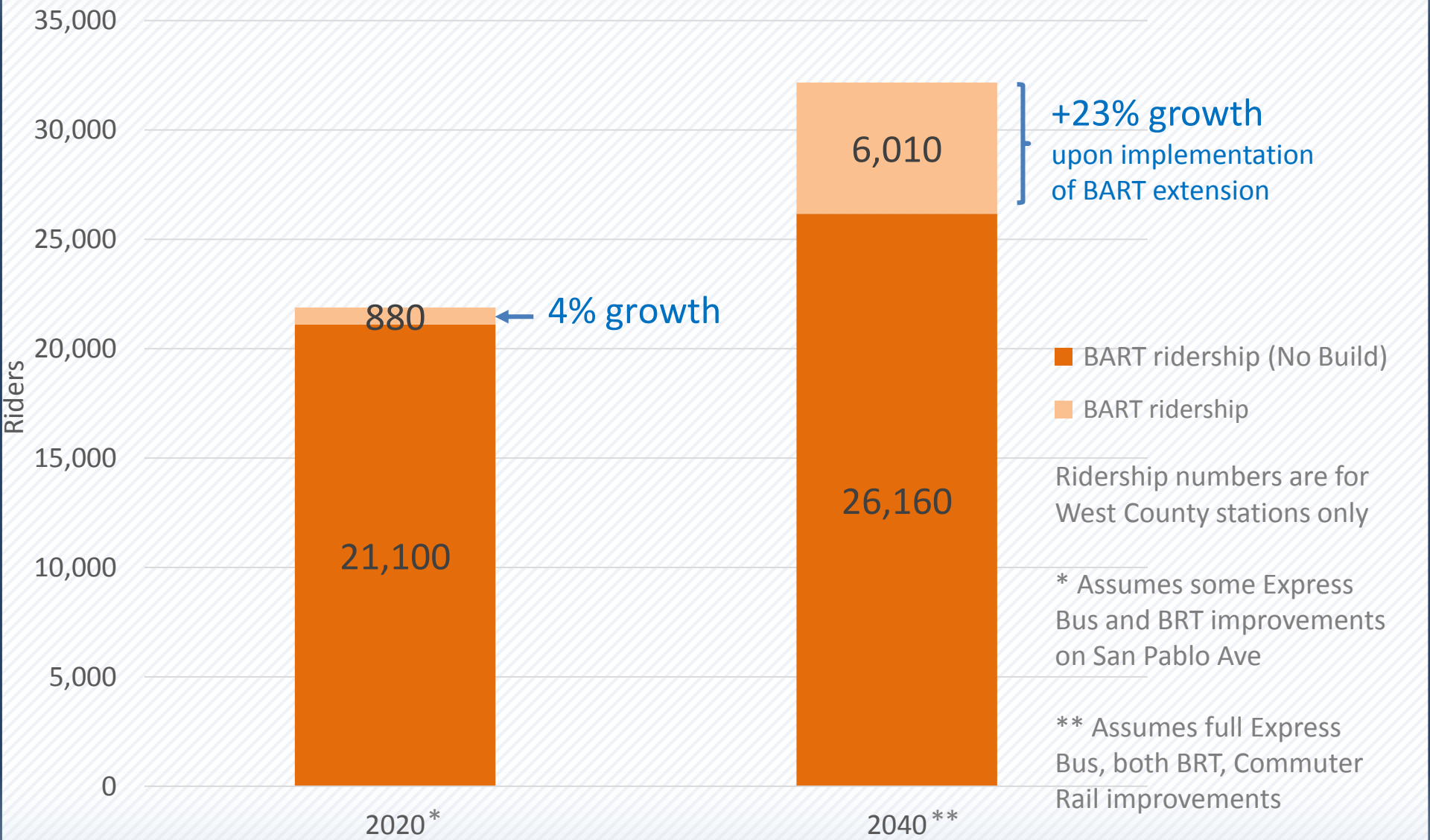
Alternatives 6A and 6B: BART Extension from Richmond Station

- Extension from Richmond station
- Two potential alignments to Hercules
  - Rumrill Boulevard
  - Richmond Parkway

BART Extension via Rumrill Blvd: Net New Ridership



BART Extension via Richmond Pkwy: Net New Ridership



BART Projected Ridership: No Build and Build

Station	2015 Observed	2040 No Build	2040 BART Rumrill Blvd	2040 BART Richmond Parkway
El Cerrito Plaza	4,810	7,130	8,060	8,170
El Cerrito del Norte	8,560	12,490	4,580	4,640
Richmond	4,270	6,540	5,380	6,780
Contra Costa College	--	--	4,540	--
Hilltop Mall	--	--	--	2,390
Richmond Parkway TC	--	--	2,880	--
Appian Way	--	--	--	3,650
Hercules Transit Center	--	--	7,090	6,540
TOTAL	17,460	26,160	32,530	32,170

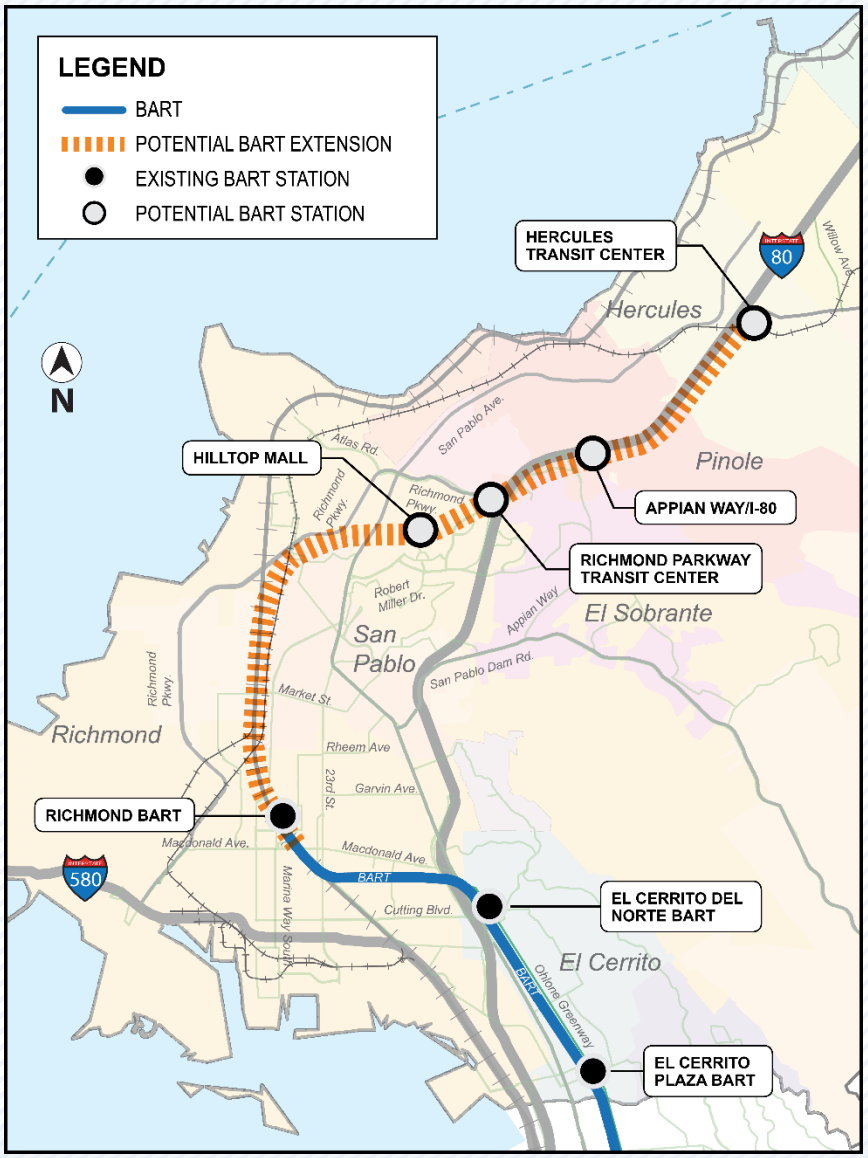
TC = Transit Center

BART Extension via Rumrill Blvd: Capital Cost

Time Horizon	Cost (2017 $)
Short-term • Conceptual engineering • Program-level environmental clearance	$56 m
Medium-term • Preliminary engineering • Project-level environmental clearance	$74 m
Long-term • BART service to Hercules • ROW Acquisition • Vehicles (60 cars) • Stations and terminal yard	$3,452 m
Total	$3,582 m

Note: There is a potential for phasing construction to reduce initial costs

BART Extension via Richmond Parkway: Capital Cost



Time Horizon	Cost (2017 $)
Short-term • Conceptual engineering • Program-level environmental clearance	$69 m
Medium-term • Preliminary engineering • Project-level environmental clearance	$92 m
Long-term • BART service to Hercules • Vehicle acquisition (60 cars) • Stations and terminal yard	$4,000 m
Total	$4,161 m

Note: There is a potential for phasing construction to reduce initial costs

BART Alternatives: Annualized Cost Per Rider

Alternative	2020 Per Total Riders	2020 Per New Rider	2040 Per Total Riders	2040 Per New Rider
1: Express Bus	$8	$8	$20	$21
2: BRT on San Pablo/Macdonald Avenues	$2	$6	$5	$18
3: BRT on 23rd Street	$4	$8	$8	$17
4: Commuter Rail	--	--	$18	$36
6A: BART Extension via Rumrill Boulevard	--	--	$35	$80
6B: BART Extension via Richmond Parkway	--	--	$35	$93

Costs include capital and O&M costs and are in 2017 dollars

BART Extensions: Assessment

- Highest capital cost, O&M cost, and cost per rider
  - Intermediate station(s) can be deferred
- Long implementation timeline with less opportunity for interim improvements
- Rumrill vs. Richmond Parkway alignment
  - No substantial difference in terms of ridership between 2 alternatives
  - Only Rumrill provides service to Contra Costa College
  - Stations can be further assessed and selected in subsequent study

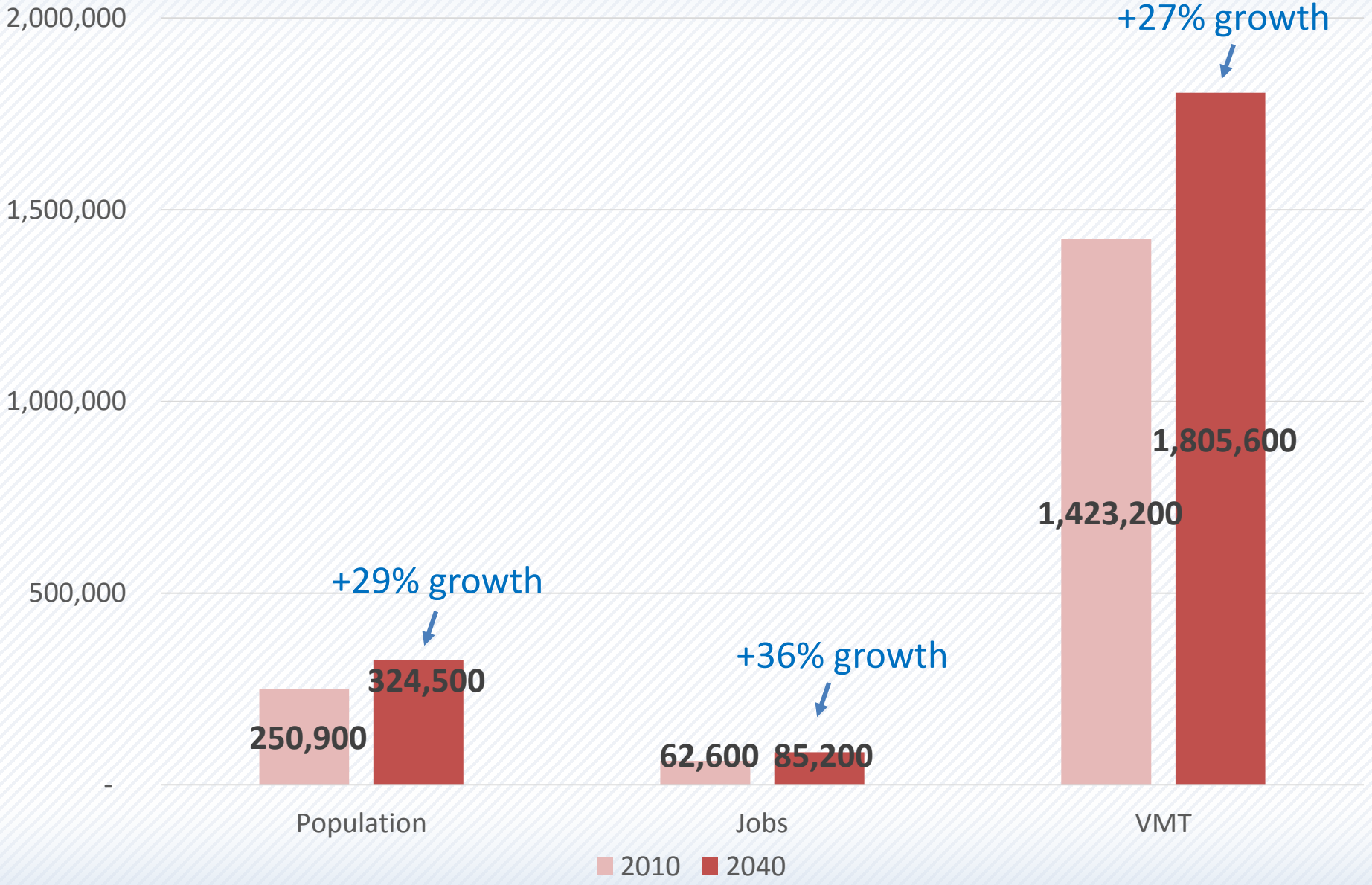
BART Extensions: Assessment

- Substantial travel time improvement over existing bus service
- Highest reliability
  - 100% exclusive guideway
  - No at-grade crossings
  - No shared use of corridor
- Good connections to regional transit centers

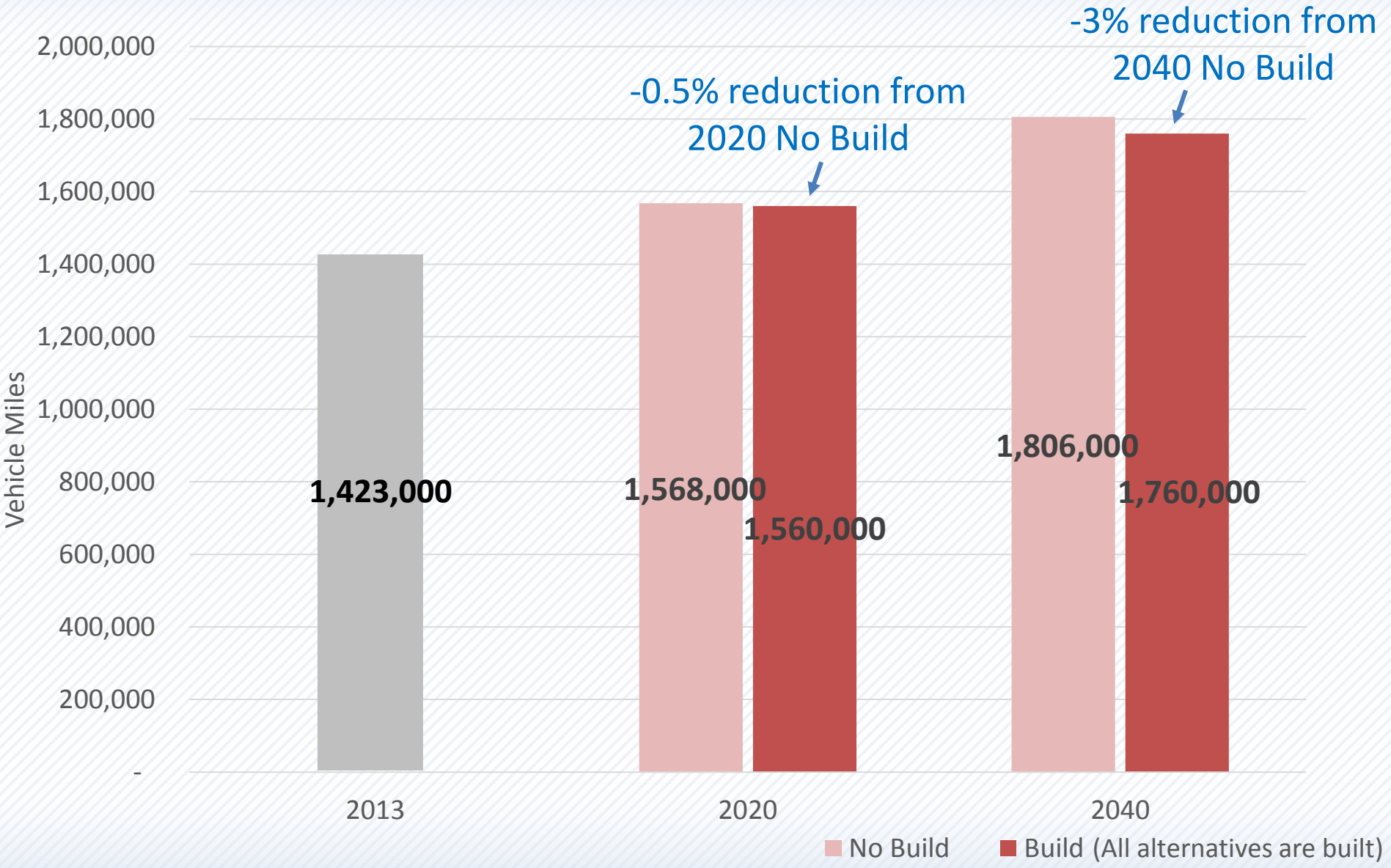
Preliminary Takeaways



West County is Growing

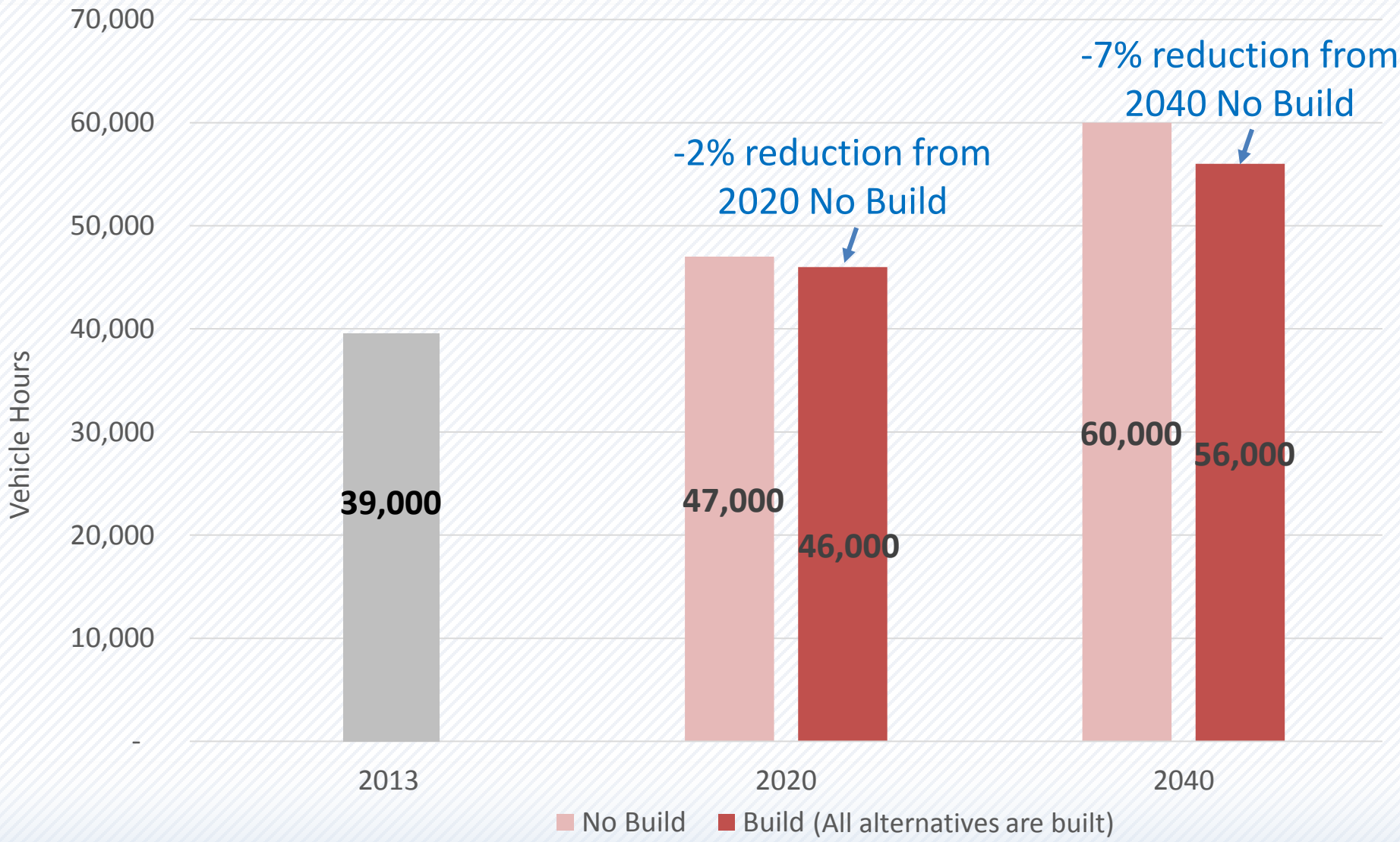


Vehicles Miles Traveled



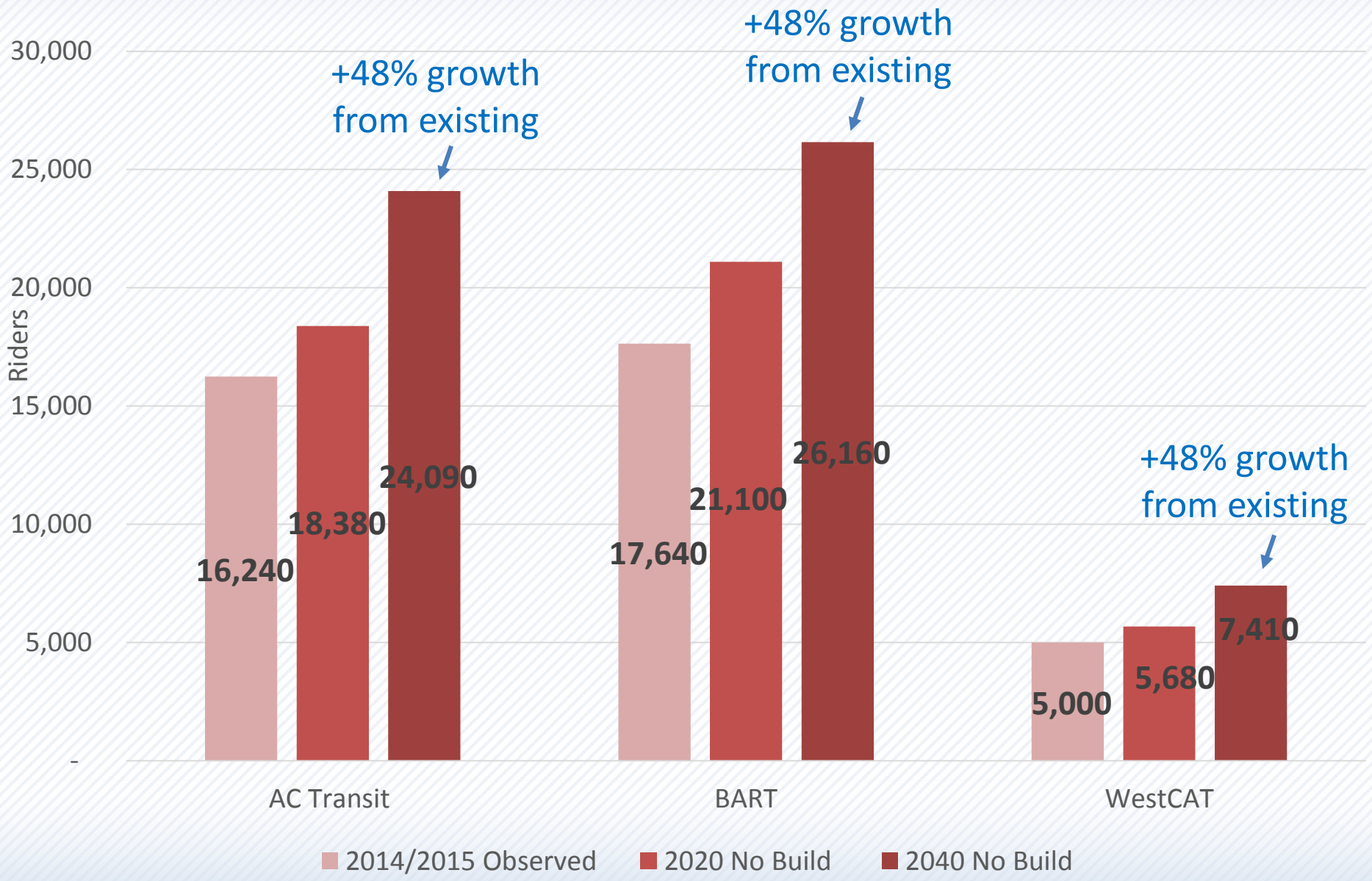
Data is for a four-hour period during the morning peak travel period.

Vehicles Hours Traveled



Data is for a four-hour period during the morning peak travel period.

Ridership – Existing and No Build



Preliminary Takeaways

- Transit investments and improvements would:
  - Reduce VMT and VHT
    - By 2040, 3% and 7% respectively
    - Allows growth to continue in West County
  - Relieve pressure on local streets by adding corridor capacity
    - Add ability to carry more people rather than cars
  - Provide people with travel options and strengthen local transit
  - Support local plans and policies

Preliminary Takeaways

- Express Bus is very promising, especially in short-term
  - Relative ease of implementation → Add new service areas and increase frequency of buses to existing routes
  - Express Bus alternative's projected ridership is comparable to existing express bus lines
- BRT promising, especially for local trips & as BART feeder
  - Bus-priority improvements (e.g., signal priority, queue jumps, etc.) can be built in short-term
  - San Pablo/Macdonald BRT would generate the highest ridership
    - San Pablo about 5 times the new ridership as Macdonald
  - Bus-only lane is a factor for long-term operational success
  - 23rd Street highest number of new riders at lowest capital costs

Preliminary Takeaways

- Commuter Rail
  - Fare subsidy pilot is compelling, needs long-term funding source
  - RITC well underway, but needs funding to complete
  - Need agreement with Capitol Corridor regarding Hercules stop
- BART
  - Current stations will be at- or over-capacity to accommodate BART's "natural growth"
    - Could shift trips to other modes if BART becomes less desirable
    - Relieving the growing demand at El Cerrito del Norte
  - High cost and long lead time suggest pairing with bus improvements or considering incremental investment

Annualized Cost Per Rider

Alternative	2020 Per Total Riders	2020 Per New Rider	2040 Per Total Riders	2040 Per New Rider
 1: Express Bus	$8	$8	$20	$21
 2: BRT on San Pablo/Macdonald Avenues	$2	$6	$5	$18
 3: BRT on 23rd Street	$4	$8	$8	$17
 4: Commuter Rail	--	--	$18	$36
 6A: BART Extension via Rumrill Boulevard	--	--	$35	$80
 6B: BART Extension via Richmond Parkway	--	--	$35	$93

Costs include capital and O&M costs and are in 2017 dollars

Outreach

Outreach Components

- Online survey*
  - Available 2/21 – 3/26
- Fact sheet*
- Display poster*
  - Posted at public buildings
- Press release
- Sample text for posting to e-blasts, newsletters, etc.

WINTER 2017

WCCTAC
West Contra Costa Transportation Advisory Committee

RETHINK YOUR COMMUTE!

WEST COUNTY HIGH-CAPACITY TRANSIT STUDY

The I-80 corridor is one of the most congested in the Bay Area. Better transit options could provide West County residents with more convenient, reliable, and faster access to destinations throughout the Bay Area.

The West County High-Capacity Transit Study is evaluating options for potential transit improvements along important transportation corridors where people live and travel now and will in the future. The options include Express Bus, Bus Rapid Transit (BRT), Capitol Corridor/Amtrak, and BART.

WHAT IS HIGH-CAPACITY TRANSIT?

High-capacity transit provides substantially higher levels of passenger capacity with typically fewer stops and higher speeds than local bus service.

EXPRESS BUS

Express Bus Service: Potential route and stops

Express Bus service makes a few stops to pick up passengers and then travels non-stop to its final destination. The Express Bus alternative would offer service between the Hercules Transit Center and Berkeley, Emeryville, and Oakland. On its way, the Express Bus would stop at the Richmond Parkway Transit Center and at a potential new transit center near Macdonald Avenue and San Pablo Avenue in Richmond.

Express Bus Benefits:

- Fast, direct service between West County and San Francisco, Berkeley, Emeryville, and Oakland
- Buses every 10 to 12 minutes during commute hours and every 30 minutes during non-commute hours
- New, direct access to carpool lanes to bypass freeway congestion

Timeline:

1 – 5 YEARS
- More frequent service
- New service to Berkeley, Emeryville, and Oakland
- Bus priority improvements (such as signals and "queue jumps" to let buses move through intersections more quickly)

5 – 15 YEARS
- More parking at Richmond Parkway and Hercules Transit Centers

15+ YEARS
- Freeway ramp improvements for buses at transit centers so buses can get on/off freeway faster
- Transit center at Macdonald Avenue and I-80 so riders can transfer between Express Buses and Bus Rapid Transit service

1

* Translated into Spanish and Chinese

RETHINK YOUR COMMUTE !

The I-80 corridor is one of the most congested in the Bay Area. Better transit options in West County could help. Check out the ideas below. Then:

1. Take our brief online survey
2. Attend one of six presentations
3. Tell us what you think on our website

Westbound I-80 Corridor During Commute Hours

BART Station During Commute Hours

Commuter Rail

What is it?

Capitol Corridor (Amtrak) provides commuter rail service between San Jose and Sacramento, with stops in Richmond and Martinez and a new stop planned in Hercules. It also stops in West Berkeley, Emeryville, and Jack London Square. An option under consideration is a subsidy of 50 to 75 percent for trips on Capitol Corridor that start or end in West Contra Costa County so the cost is similar to other transit.

Express Bus

What is it?

Express buses make a few stops to pick up passengers and then travel non-stop to their final destination.

Benefits

- Fast, direct service between West County and Berkeley, Emeryville, Oakland and San Francisco
- Frequent buses: 10 to 12 minutes during commute hours and every 30 minutes during non-commute hours
- New direct access to carpool lanes to bypass congestion

Timeline

1-5 years: More buses and new service to Berkeley, Emeryville, and Oakland

5-15 years: Add parking at Richmond Parkway and Hercules Transit Centers

15 years+: Build freeway ramp improvements at these two transit centers

Potential Express Bus Service In West County

Potential Express Bus Service In Alameda County

Bus Rapid Transit (BRT)

What is it?

Bus Rapid Transit (BRT) is specialized service that lets buses move through congested streets more quickly. It gives priority to buses at traffic signals, can include bus-only lanes, and makes it faster for passengers to get on and off buses.

Benefits

- Faster travel time that's more reliable
- Buses get green lights at traffic signals
- Quickly implemented, so riders get benefits sooner
- Improvements tailored to local needs

Timeline

1-15 years: Add bus priority treatments (such as signals and "queue jumps" to let buses move through intersections more quickly); build bus-only lanes

15 years+: Build Express Bus-BRT transit center at Macdonald and I-80, extend Rapid Bus improvements to new Hercules Intermodal Transit Center

Potential San Pablo Avenue / Macdonald Avenue BRT

Potential 23rd Street BRT

BART

What is it?

This alternative extends BART from the Richmond station to a new station in Hercules near the I-80 and Hwy.4 interchange. There are two potential routes, each with the possibility of 1-2 stations in between. Station options include: Contra Costa College, Hilltop Mall, Richmond Parkway Transit Center, and Appian Way.

Benefits

- Faster travel time and greater reliability due to dedicated trackway
- Improves access to Alameda, San Francisco, San Mateo, and Santa Clara Counties

Timeline

1-15 years: Conduct preliminary engineering design and environmental review

15-25 years+: Conduct final design and construction

Potential BART extension and stations for Route Option 1. (Only one to two stations would likely be built.)

Potential BART extension and stations for Route Option 2. (Only one to two stations would likely be built.)

GIVE US YOUR FEEDBACK

Come hear more at a Council meeting!*

CITY	DATE	TIME	ADDRESS
Richmond	Tuesday, February 28	6:30 PM	City Hall 440 Civic Center Plaza
San Pablo	Monday, March 6	7:00 PM	City Hall 13831 San Pablo Avenue
Pinole	Tuesday, March 7	7:00 PM	City Hall 2131 Pear Street
El Sobrante	Wednesday, March 8	6:00 PM	El Sobrante Library 4191 Appian Way
Hercules	Tuesday, March 14	7:00 ~~6:00~~ PM	City Hall 111 Civic Drive
El Cerrito	Tuesday March 21	7:00 PM	City Hall 10890 San Pablo Avenue

*Check your local council agenda to confirm meeting date and time

Take our online survey

and be placed in a drawing to win one of four Clipper cards with a $15 value! (Survey available February 21st-March 26th)

Scan to go to online survey

Visit our website

www.WestCountyTransitStudy.com

To learn more and give us your comments

- ✓ How West County residents and employees get around
- ✓ Existing and future transit services
- ✓ Other transit options studied
- ✓ Evaluation criteria

WINTER 2017

WEST COUNTY HIGH-CAPACITY TRANSIT STUDY

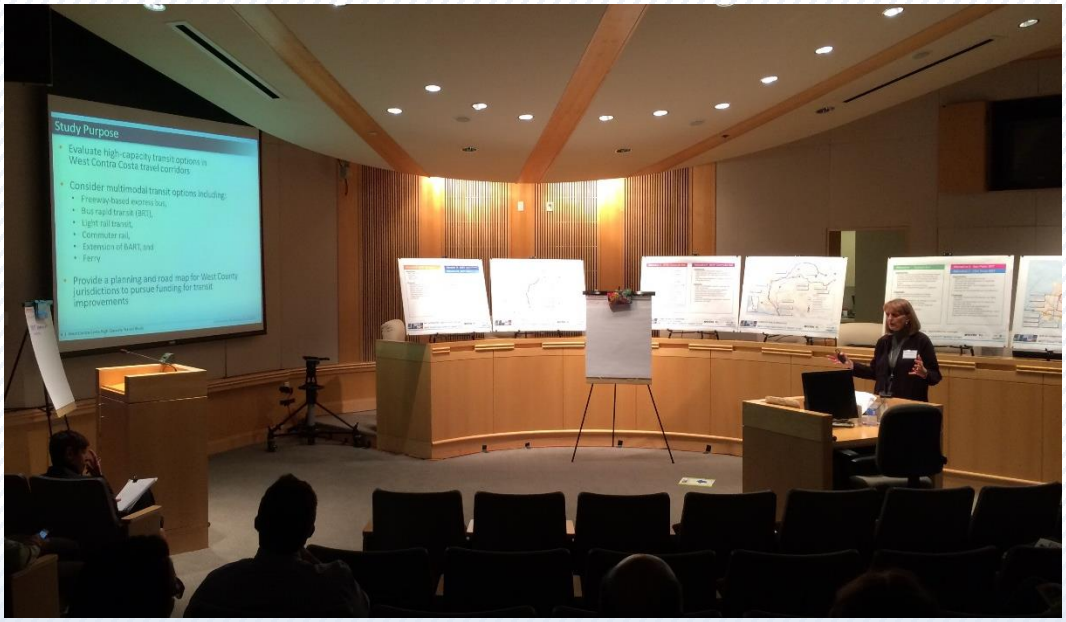
LEAD STUDY SPONSOR: WCCTAC

STUDY SPONSORS: BART, Contra Costa transportation authority, Metropolitan Transportation Commission

STUDY PARTNERS: AC Transit, Caltrans, 511, Capitol Corridor, WestCAT

Council Presentations

- Dates and locations
  - 2/28 Richmond
  - 3/6 San Pablo
  - 3/7 Pinole
  - 3/8 El Sobrante
  - 3/14 Hercules
  - 3/21 El Cerrito



Distribution Schedule for Outreach Materials

Date	Item
2/14	Distribution of outreach material begins
2/14	Receive delivery of printed fact sheets (English, Spanish, and Chinese)
2/15-2/24	Outreach materials incorporated in agency outreach; Widely distribute outreach materials beyond agency
2/17	Website updates will go live
2/21	Online survey available on website in English, Spanish and Chinese
2/21-3/26	Display Posters and Online Survey publicly available

Remaining Study Schedule



Schedule

Date	Activity
2/21 – 3/26	Online survey available
2/24	Board meeting • Ridership • Capital Costs • Tier 2 Screening
2/28 – 3/21	City Council presentations
4/28	Board meeting • Funding Strategy • Online survey results • Council presentations • Draft Final Plan
5/26	Board meeting • Final Plan

Discussion