Attachment A

Transit Feasibility Study

San Gabriel Valley Council of Governments

February 2024

SGVCOG

Metro

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OVERVIEW

In 2020, the Metro Board of Directors (Metro Board) approved an independent feasibility study specifically for the San Gabriel Valley (SGV) communities along the State Route 60 (SR-60) corridor. The importance of the SR-60 corridor and the surrounding communities emphasizes a need for high-quality transit service in the SGV. Through a partnership with the San Gabriel Valley Council of Governments (SGVCOG) and the Los Angeles Metropolitan Transportation Authority (Metro), this Transit Feasibility Study (the Study) identifies short-term project opportunities and a long-term Vision Plan to create an integrated transit network for the entire SGV.

> ***"Honor the commitment of $635.5 million made to the San Gabriel Valley subregion as part of Measure R"***
>
> ***– Metro Board of Directors***

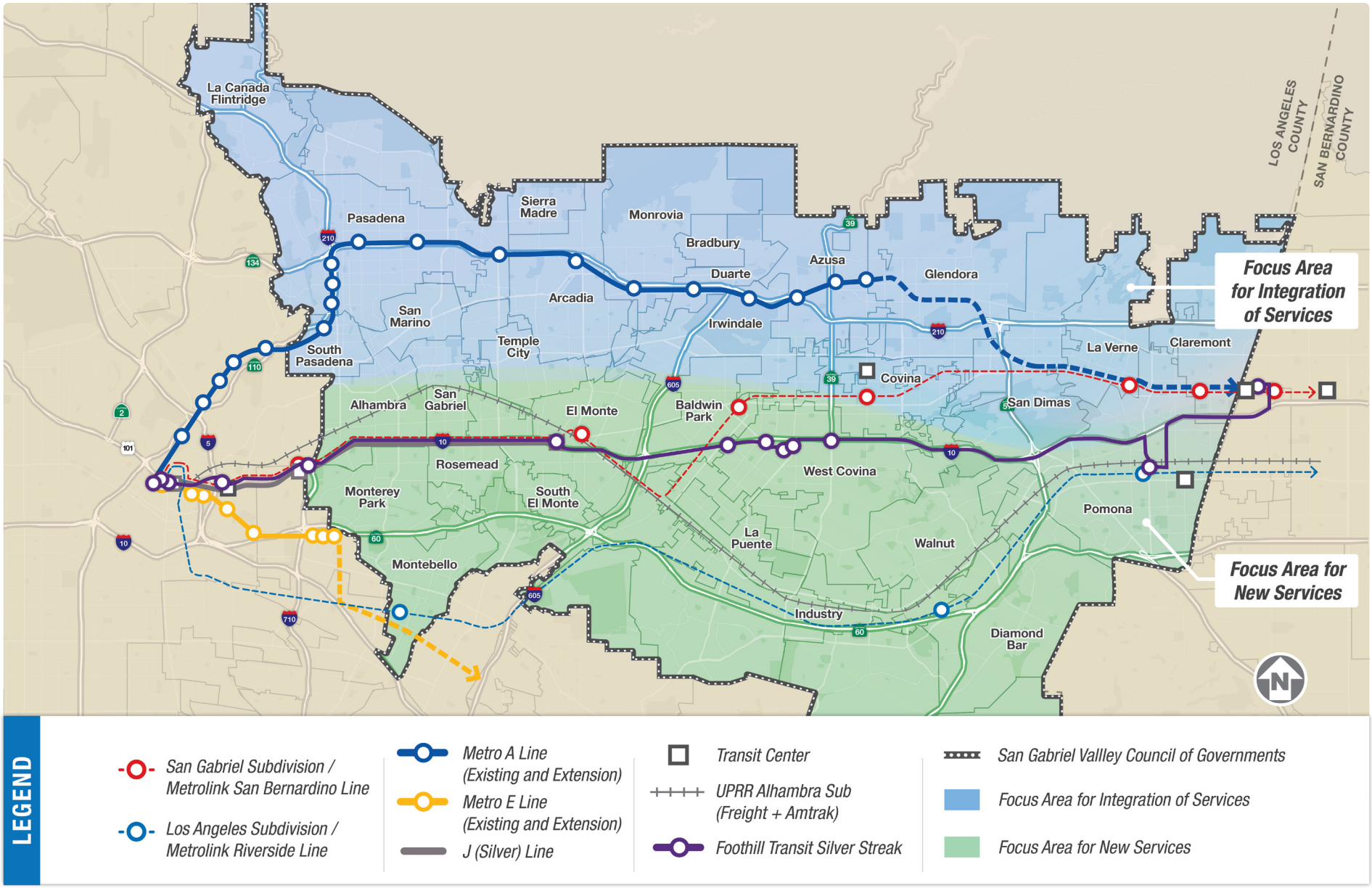
The Metro Board identified $635.5 million Measure R/Measure M funding in years FY22-35 for potential projects. This Study provides SGV jurisdictions with opportunities to provide enhanced transit services with higher frequencies, faster service, and greater connectivity throughout the Valley.

The following goals were developed as high-level, visionary guidelines:

- **Develop near-term and long-term mobility options for SGV**
- **Provide all-day transit service for peak and off-peak trips**
- **Address unmet mobility needs for trips within SGV**
- **Create accessible transit service for SGV communities**
- **Balance the needs of goods movement and transit**
- **Develop transit service that is compatible with surrounding land uses**

STUDY AREA DEFINITION

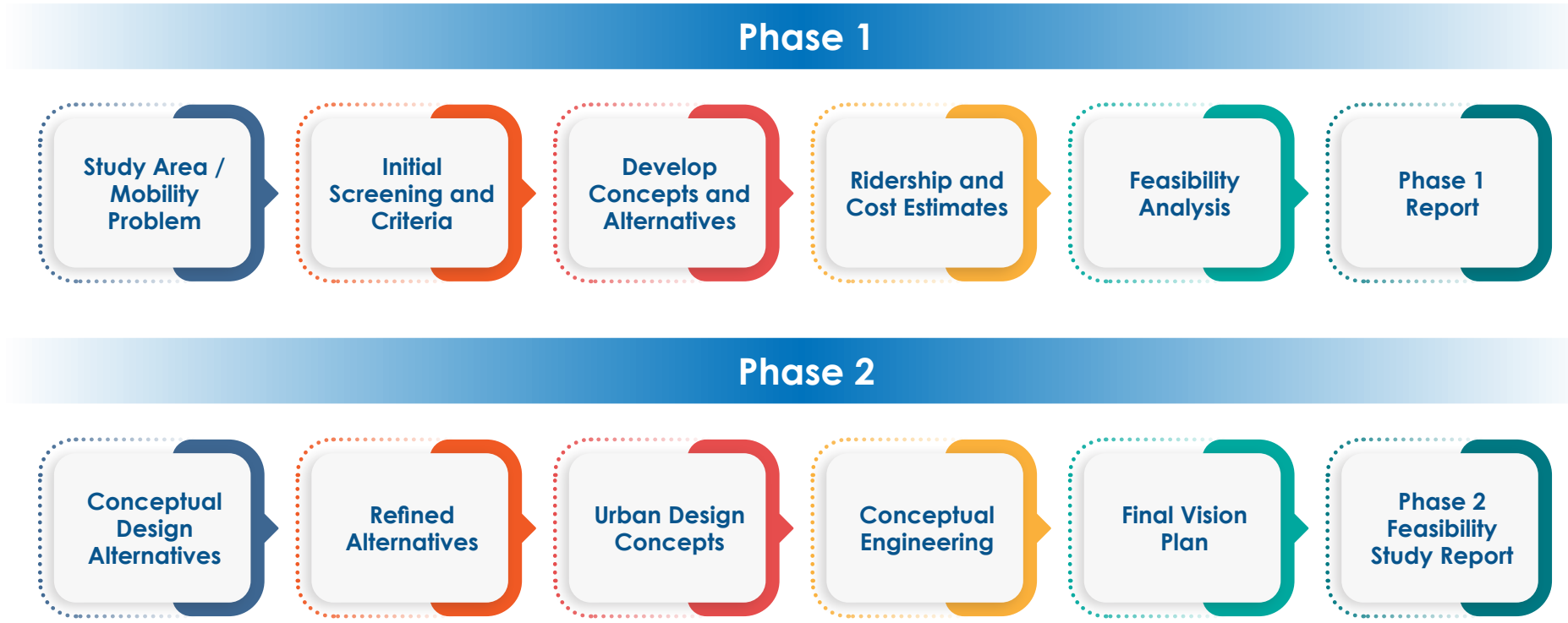
This Study's primary objective was to identify suitable replacement(s) for the SR-60 Light Rail Transit (LRT) extension from the Atlantic Station terminus of the Metro E Line. The first task focused on identification of options for improved transit service along the SR-60 corridor. The SGV study area was segmented into two portions: the southern portion (generally from I-10 south) would be the focus for east-west new services, whereas the northern portion would be evaluated for north-south services and connectivity enhancements to leverage existing and future transit assets within the SGV.



Study Area Definition Map

STUDY TIMELINE

The Study was initiated in July 2021 by SGVCOG. Phase 1 of the Study created an initial feasibility analysis and draft Vision Plan indicating the most promising corridors for improved transit services. Phase 2 was initiated in October 2022 and concluded in December 2023. Phase 2 focused on refinement and design of the most promising concepts and an updated Vision Plan with a phased implementation strategy.



Study Timeline

PUBLIC OPINION SURVEY

A public opinion poll was conducted at the start of the Study. The poll was widely distributed through the web and social media and more than 400 responses were received. The results indicate that there is a substantial market potential for transit in the SGV. Key traveler characteristics include:

- ***30%*** of residents surveyed ***Ride Transit Daily or Weekly***
- ***20%*** of respondents ***Typically Utilize Transit for Travel***
- ***15%*** of those surveyed ***Don't Have Access to a Car***
- ***70%*** of those surveyed ***Travel More than 5 Miles for Work***
- ***46%*** of respondents ***Travel More than 5 Miles for Shopping and Recreation***

The survey also asked respondents to identify factors which would result in higher utilization of transit. The most frequently stated reasons are shown to the right.

Transit Riders Wish...

- There was less congestion along bus routes
- More frequent service was provided
- Buses were cleaner and safer
- Bus stops were improved through lighting and landscaping
- They had better access or stations closer to home

IDENTIFICATION AND SCREENING OF ALTERNATIVES

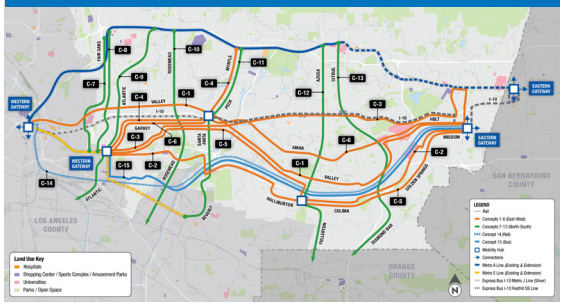
In Phase 1, 15 initial concepts were identified. These were subsequently screened utilizing metrics developed from the Study Goals and Objectives as well as input from stakeholders in the SGV communities. This input was acquired through a robust outreach effort results in 7 final alternatives (3 east-west and 4 north-south). Ridership forecasts and preliminary cost estimates were prepared to identify final alternatives which were included in a comprehensive plan.

Throughout the process, an online, interactive map posted on the SGVCOG website allowed the public to comment on the evolving alternatives.

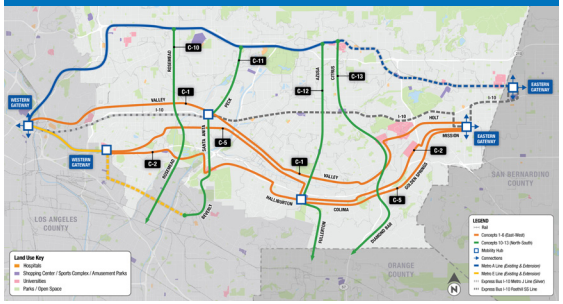
East-West Concepts	C1 Valley Boulevard	C2 SR-60	C3 I-10	C4 Garvey-Peck	C5 Valley-Colima-Golden Springs	C6 Garvey-Amar	C 14/15 Commuter Rail/ Bus *
Fulfills near-term needs	●	✓	✗	✗	✓	✗	✗
Improves transit service	✓	✓	✗	●	✓	✗	●
Addresses existing travel trends within SGV	●	✓	●	✗	✓	✗	✓
Provides mobility to EFCs and other local communities	●	✗	✓	●	✓	✓	✗
Increases access to major SGV transit hubs	✓	✓	●	✓	✗	✗	✗
Increases access to major SGV activity centers	●	✓	✓	✗	●	●	✓
Facilitates access to bike/ped facilities	✓	✗	●	●	●	✓	✗
Minimizes conflicts with goods movement	✓	●	●	✓	✓	✓	✗
Supports land use and development	✓	●	✗	✓	✓	✓	✗
OVERALL SCORING	Moderate	Moderate	Low	Low	High	Low	Low

Notes: ✓ = positive score ● = neutral score ✗ = negative score * - Scoring weighted towards rail score

15 Initial Conceptual Alternatives



7 Screened Concepts



East-West Hybrid Alternative

OUTREACH PROGRAM

During Phase 1, a Technical Advisory Committee (TAC) was formed that included 24 cities, unincorporated LA County, and other public agencies. The TAC served as an opportunity for agencies to provide input and collaborate on solutions. Additional outreach activities that occurred during Phase 1 included:

- Public agency/elected official briefings with over 30 participants
- 10 key stakeholder/one-on-one briefings
- Two community workshops that engaged 144 attendees
- Travel survey that garnered responses from over 400 SGV residents
- A social media ad campaign that reached 3,800 to 10,900 people per day and garnered 250 to 700 clicks per day
- A project website that hosted information and interactive concept maps, which received community feedback
- A dedicated email and phone number with a voicemail in English, Spanish, and Chinese for the community to provide feedback

During Phase 2, the TAC was expanded to include 27 cities, agencies, and elected official districts. The outreach activities that occurred during Phase 2 included:

- 19 one-on-one briefings with municipal agencies, LA County Departments, elected officials and other stakeholders
- A project website that hosted an informational campaign and Interactive Map on the Initial Concepts, which received 49 feedback comments that engaged over 300 participants
- 11 community pop-up events in the cities and communities located closest to the concepts

In subsequent planning phases, SGVCOG will continue collaboration with cities and transit agencies.

Input from Pop-Up Events

Direct connections to Cal State LA, East LA College, Mt. San Antonio College, and Cal Poly Pomona

Service improvements centered in low-income communities and areas with low car availability

More transit service in Monterey Park and additional transit hubs west of El Monte

Faster bus operations, more frequent service, and bus lanes on Rosemead Blvd

Jump Start Projects (2028)

Jump Start Projects could potentially be implemented in the near term by 2028. These jump start projects are contingent upon securing earlier funding sources. These projects need local support to be realized.

Jump Start Projects include:

- Transit Signal Priority along:
  - Valley Blvd
  - Fair Oaks Ave - Atlantic Blvd
  - Rosemead Blvd
  - Azusa Ave
  - White Ave - Arrow Hwy
- Dedicated Bus Lanes along six smaller segments of the east-west hybrid concept (as shown on the Jump Start Projects Map)

Mid Term Plan (2035)

The Mid Term Plan features all projects planned to be implemented and funded as part of the $635.5 million programmed by Metro by 2035, in addition to the improvements listed in the Jump Start Projects.

The Mid Term Plan includes:

- New East-West BRT Service from Atlantic station in East LA to Pomona Transit Center in Pomona
- Transit Hub Improvements at Atlantic Station, El Monte Transit Center, Puente Hills Mall, Pomona Transit Center, and Pomona (North) Metrolink Station
- North-South Bus Lanes along portions of Rosemead Blvd
- Additional transit signal priority treatments on select major arterials in the SGV

Long Term Vision Plan

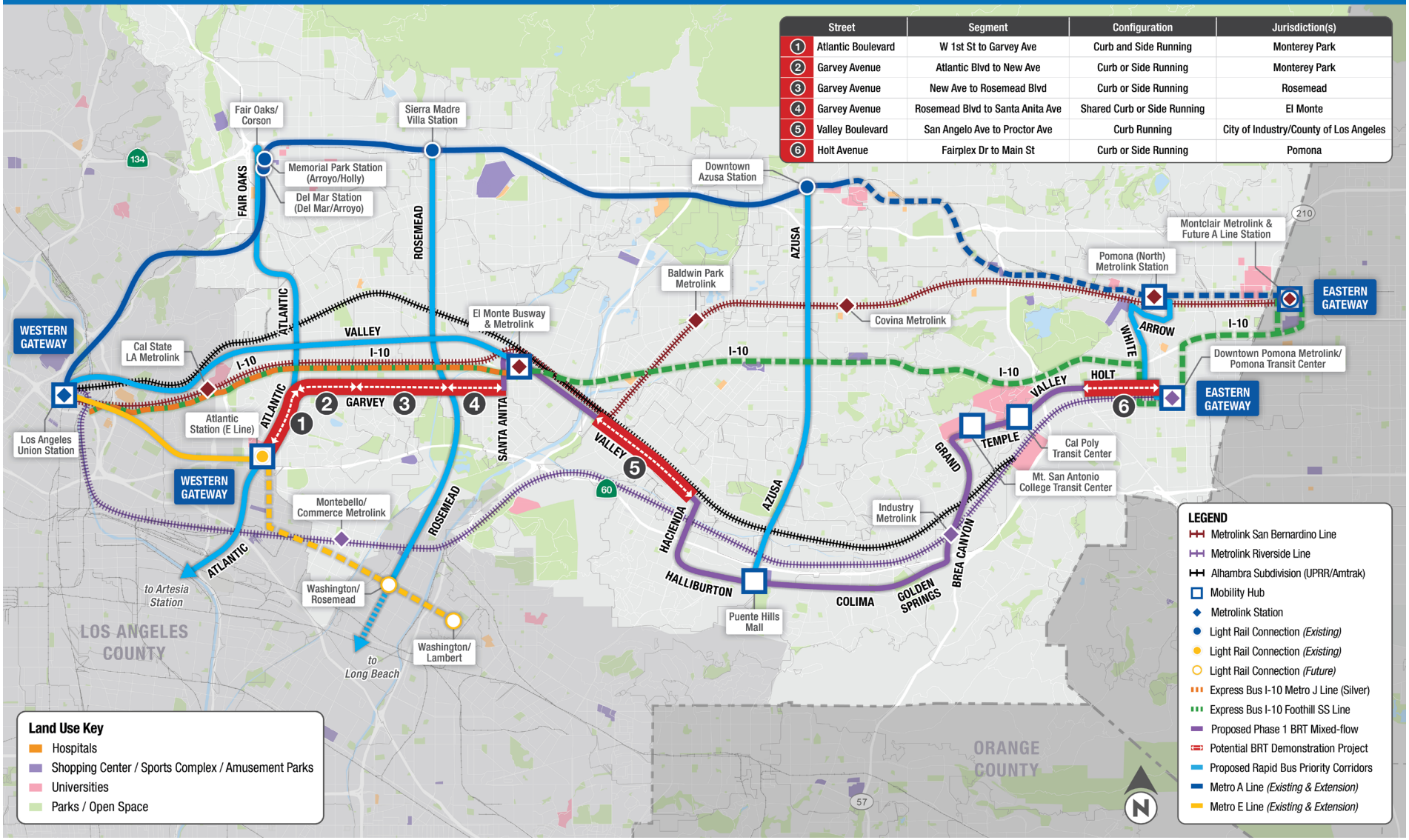
The Long Term Vision Plan features projects that are not funded as part of the $635.5 million in funding programmed for Metro but can leverage the improvements outlined in the Mid Term Plan 2035. It is important to note that these improvements are visionary and are not financially constrained. They would require additional funds to be secured.

The Long Term Vision Plan includes:

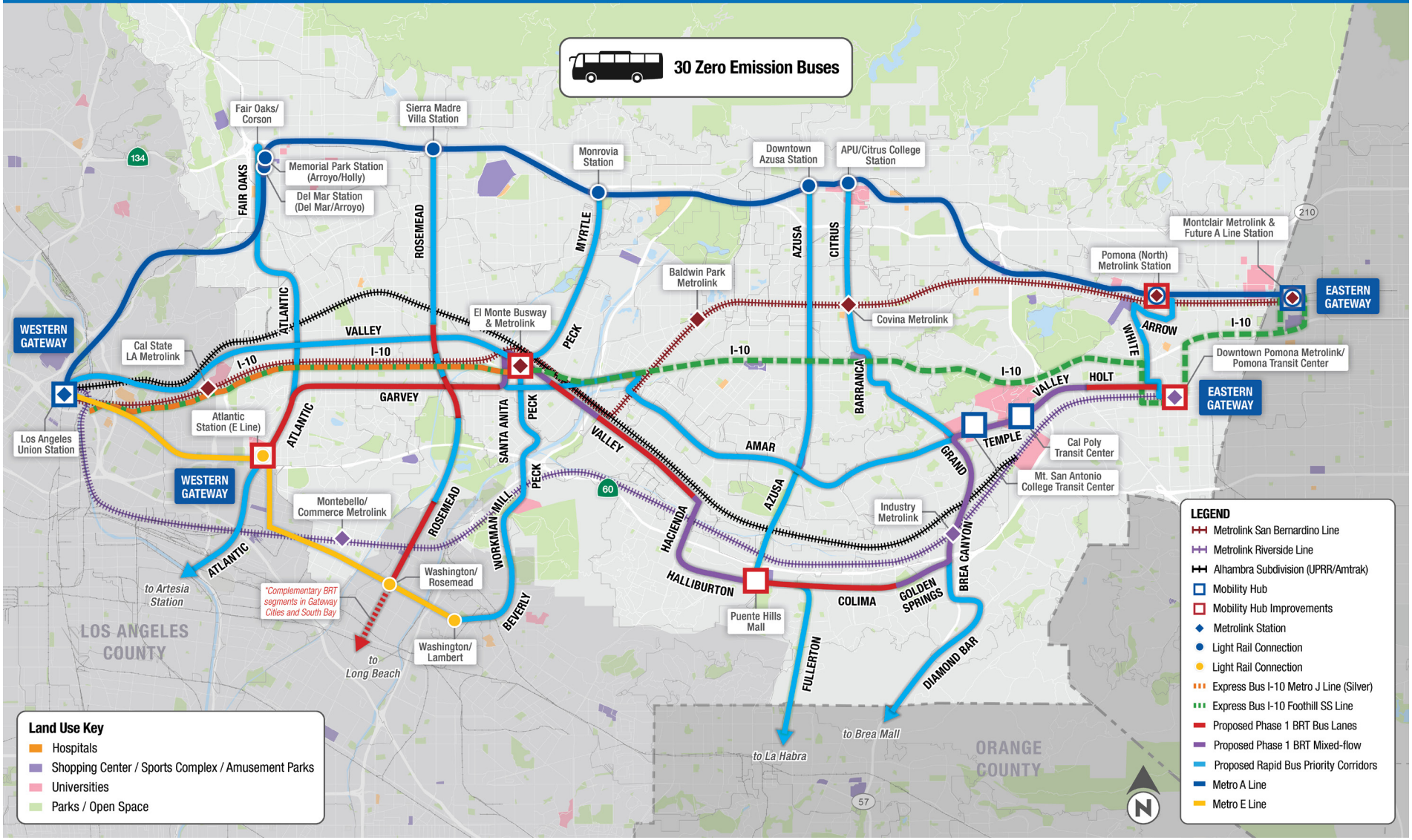
- Additional "Phase 2" BRT lanes on Valley Blvd from Union Station to El Monte Transit Center, along Azusa Ave from Azusa Downtown Station to Puente Hills Mall, and along White Ave and Arrow Hwy in Pomona.
- Potential rail service with infill stations along the Alhambra subdivision
- Additional segments of dedicated bus lanes along the Phase I BRT alignment on Valley Blvd

Jump Start Projects (2028)

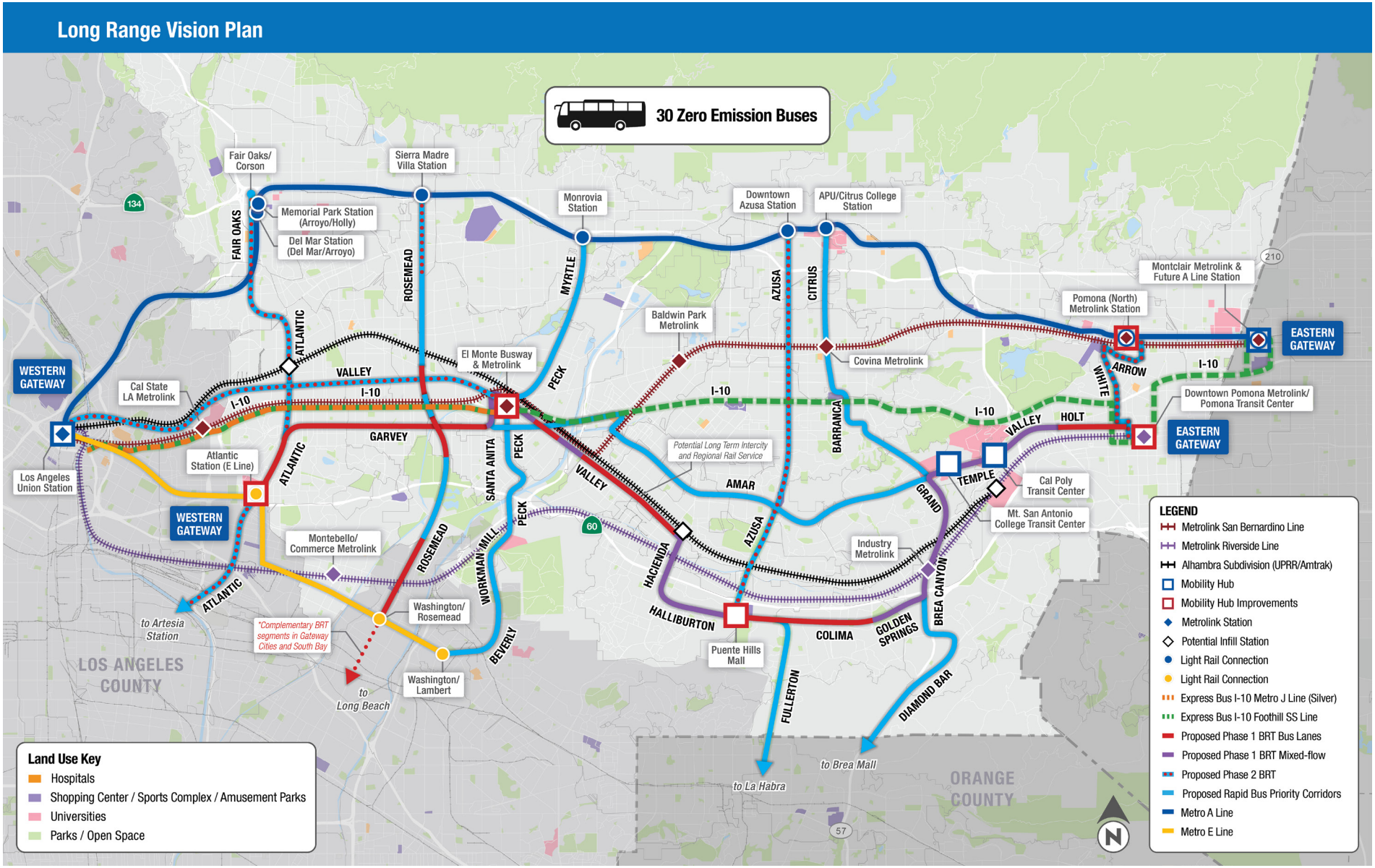
	Street	Segment	Configuration	Jurisdiction(s)
1	Atlantic Boulevard	W 1st St to Garvey Ave	Curb and Side Running	Monterey Park
2	Garvey Avenue	Atlantic Blvd to New Ave	Curb or Side Running	Monterey Park
3	Garvey Avenue	New Ave to Rosemead Blvd	Curb or Side Running	Rosemead
4	Garvey Avenue	Rosemead Blvd to Santa Anita Ave	Shared Curb or Side Running	El Monte
5	Valley Boulevard	San Angelo Ave to Proctor Ave	Curb Running	City of Industry/County of Los Angeles
6	Holt Avenue	Fairplex Dr to Main St	Curb or Side Running	Pomona



Mid Term Plan (2035)



Long Range Vision Plan



NEXT STEPS

Delivery of the proposed transit service improvements will require a number of steps which include:

1. *Assembly of Funding*
2. *Prepare Preliminary Engineering (PE) and Final Design Plans*
3. *Obtain Environmental Clearance*
4. *Develop Operating Agreements*
5. *Identify Funding for Operations*
6. *Identify Maintenance Responsibilities / Develop Agreements*
7. *Caltrans Agreements*
8. *Railroad Negotiations*
9. *Obtain Construction Permits*
10. *Manage Design and Construction*
11. *Commission New Services*

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Transit Feasibility Study

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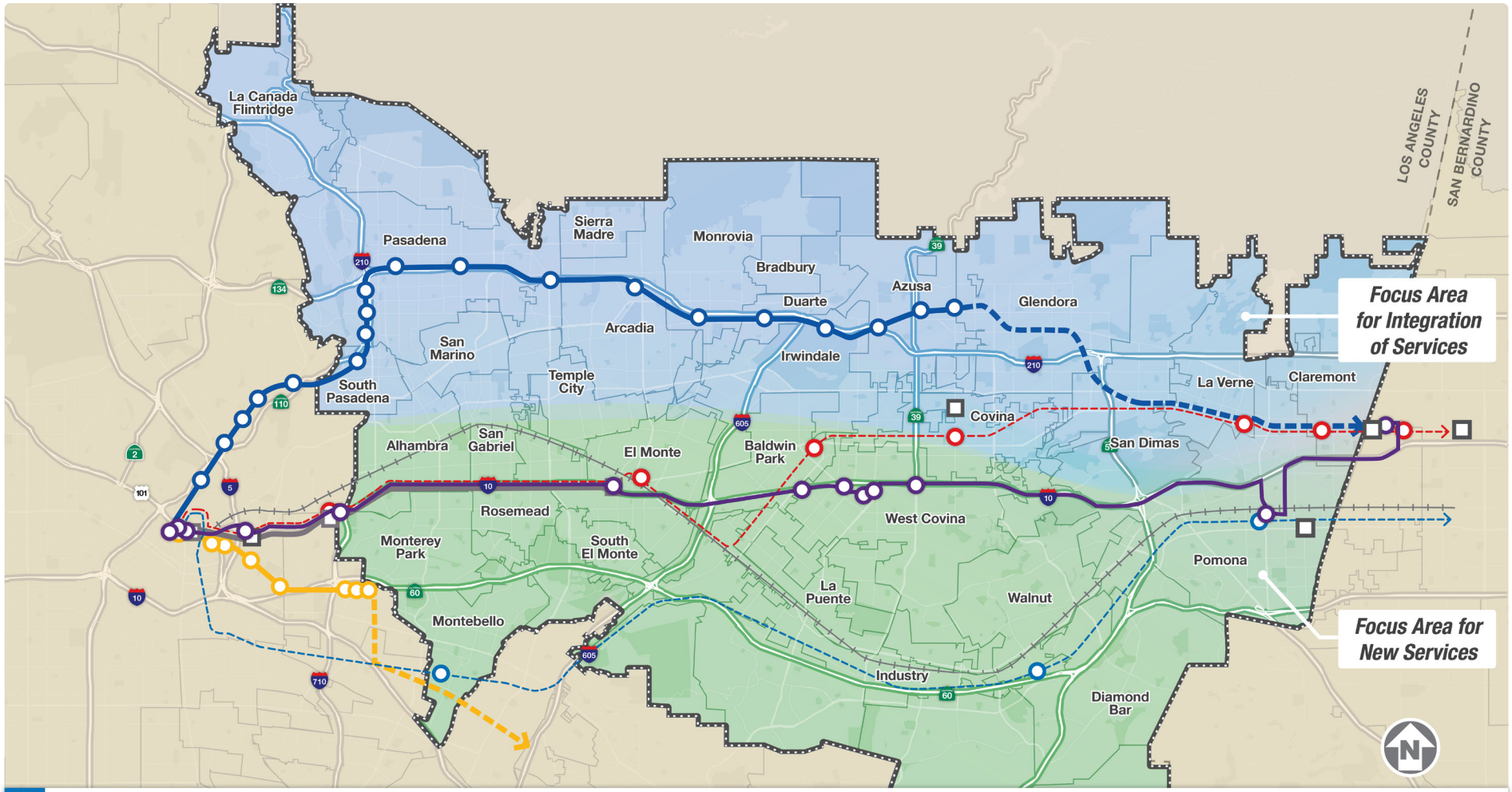

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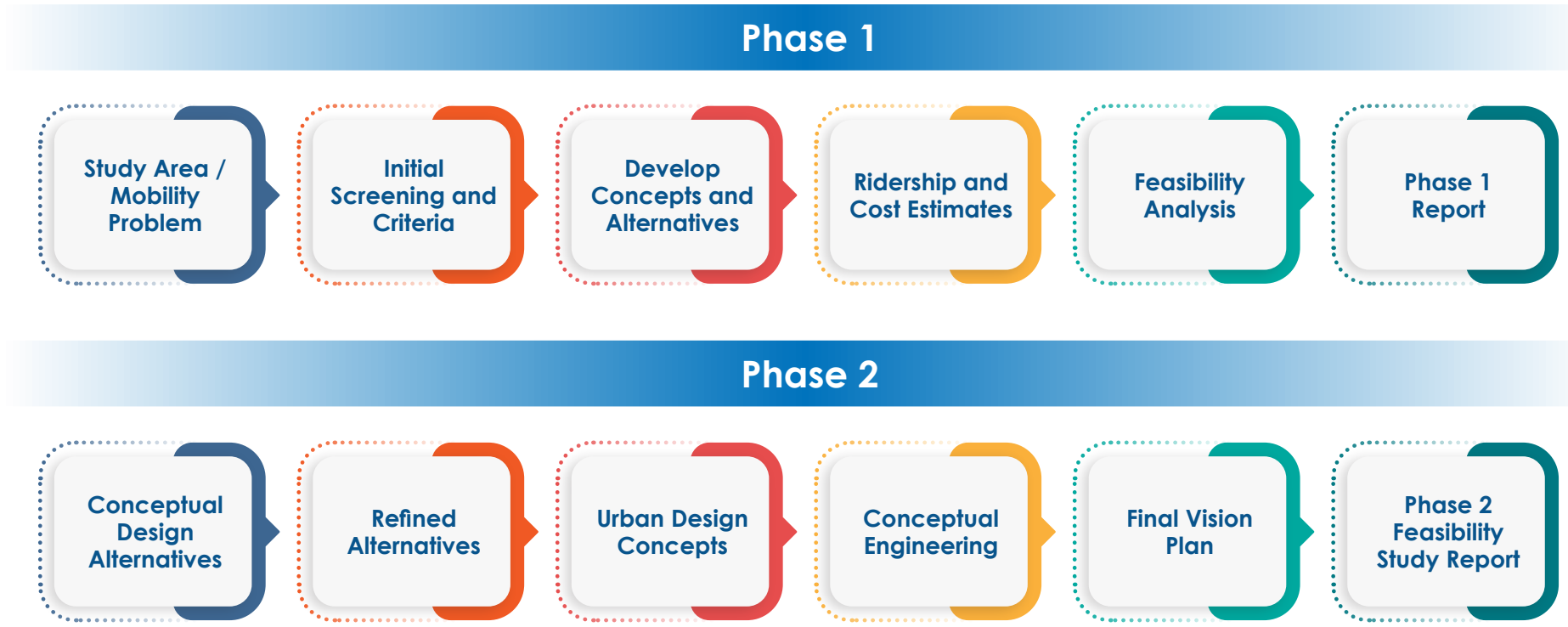

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PURPOSE & NEED

Given the mobility problems defined in the SGV, the project's purpose is to:

- Reduce travel times for transit to establish transit as an attractive alternative to the automobile; Establish connectivity with key origins and destinations throughout SGV;
- Provide a wider array of good transit options for residents of SGV, particularly for transit dependent populations and EFCs within the SGV;
- Expand service and increase frequency to underserved markets
- Create opportunities for transit-oriented communities to accommodate anticipated growth and housing allocation needs.

MOBILITY PROBLEM

New transit investment in the SGV will enhance mobility and provide more dependable, convenient, and accessible transit options for a subregion that has a large share of transit dependent populations, a vast housing and economic base, and historically disadvantaged Equity Focus Communities (EFCs) that are constrained by existing transportation systems.

Planning analysis of SGV characteristics and mobility factors identified key mobility issues and needs. These features were quantified and were subsequently used to screen and refine transit alternatives which were identified during the Study.

Key Mobility Problem Themes	
Topic	**Mobility Problem**
Land Use Densities	Zoning in the SGV is low-density residential (40%). Density needs to be encouraged in areas where transit is accessible and mobility options are available.
Housing Allocations	Cities provide zoning to accommodate their share of statewide housing needs. Each jurisdiction must ensure there are sufficient areas to accommodate their housing unit requirements.
High Population and Employment Densities	The SGV accounts for a significant share of the county's housing and economic base (almost 1/5 of LA County's residents and jobs). SGV densities are an average of two to four times higher when compared to LA County as a whole.
Transit Dependent Populations	There are a significant number of transit dependent communities in the SGV with 44% of residents being either minors or seniors, 23% of households are low-income, and 15.7% are zero-car households. Minorities comprise of 80% of the population in the SGV, with some census tracts exceeding 93%.

Key Mobility Problem Themes (continued)	
Topic	**Mobility Problem**
Equity Focus Communities	EFC areas, which historically have less access to economic and investment opportunities, are located throughout the SGV. EFCs are concentrated along I-210, I-10, and SR-60.
Freeway and Arterial Congestion	Substantial congestion exists with high westbound travel in the morning and high eastbound travel in the evenings on the I-10 and SR-60. Arterials that run parallel to these freeways also experience heavy congestion.
Goods Movement Conflicts	Goods movement is a significant use of the transportation network within the SGV. It is difficult to develop or add new transportation without affecting existing rail and truck operations.
Transit	The only express east/west transit services are via Metrolink and Metro L Line. There is also need for transit services in the north/south corridors, particularly to serve transit-dependent and EFC communities.
Travel Markets	Given the size of the SGV and the large number of activity centers, travel patterns are decentralized and irregular in length. Many trips pass through the SGV traveling to external destinations.

OUTREACH PROGRAM

The Study was informed by continuous input and numerous comments from the general public, various involved jurisdictions, and key stakeholders including transit operators such as Metro and Foothill Transit. Various outreach activities were initiated during Phase 1and continued throughout Phase 2.

An extensive outreach effort was conducted through multiple community events, one-on-one briefings, and consistent public engagement. This created a greater understanding of the project and helped establish consensus on the Study's outcomes.

During Phase 1, a Technical Advisory Committee (TAC) was formed that included 24 cities, unincorporated LA County, and other public agencies. The TAC gathered technical input agency coordination, and collaboration on solutions.

Additional outreach activities that occurred during **Phase 1** included:

- Public agency/elected official briefings with over 30 participants
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- Two community workshops that engaged 144 attendees
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- A dedicated email and phone number for the public to provide feedback on the project which had a voicemail in English, Spanish, and Chinese

In subsequent planning phases, SGVCOG will continue collaboration with cities and transit agencies.

Phase 2 continued the Study's collaborative engagement to further refine the concepts that were deemed most optimal for meeting project needs. During Phase 2, the TAC was expanded to include 27 cities, agencies, and elected official districts. The TAC, one-on-one briefings, as well as public input received at pop-up events and interactive online maps were used to gather input on more specific conceptual definitions of the project. The outreach activities that occurred during Phase 2 included:

- 19 one-on-one briefings with various city staff, municipal agencies, LA County Departments, elected officials and other stakeholders (e.g., Cal Poly Pomona)
- A project website that hosted an informational campaign and Interactive Map on the Initial Concepts, that engaged over 300 participants and recieved 49 comments
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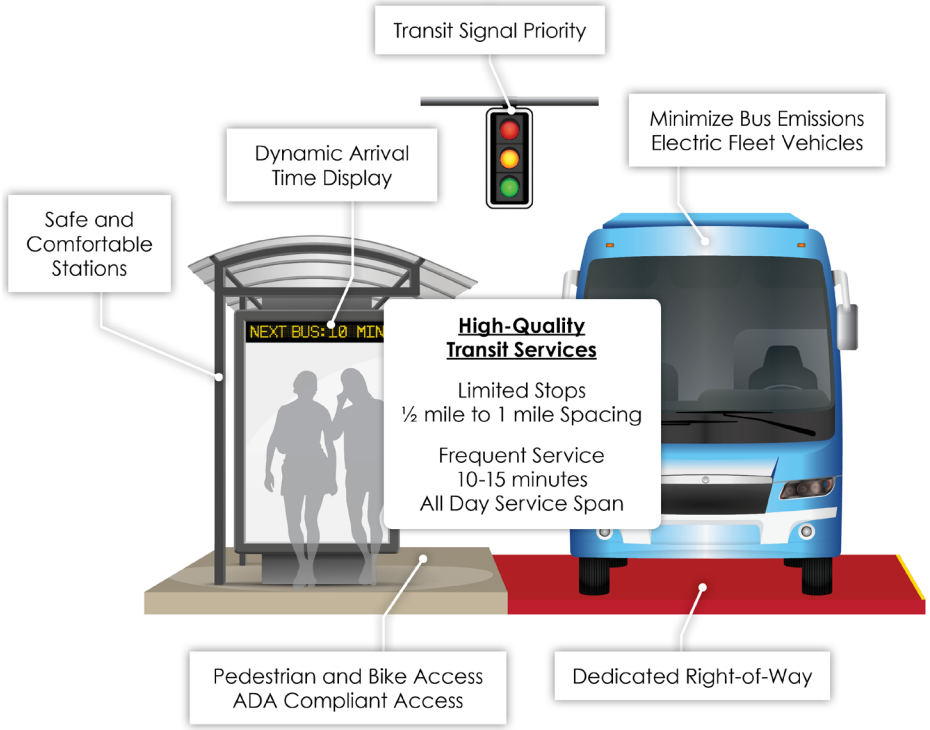
BRT ELEMENTS

Bus Rapid Transit is a high-quality rubber-tired transit mode that provides faster and more frequent service compared to typical local bus operations. Typical elements of BRT include:

- ***Dedicated Right-Of-Way (ROW):*** Compared to traditional bus routes which operate with other roadway traffic, BRT incorporates dedicated bus lanes, either on an existing roadway or dedicated ROW.
- ***Enhanced Stops:*** BRT stations typically feature enhanced amenities such as real-time bus arrival information, upgraded seating, and improved bike and pedestrian access.
- ***Limited Stops:*** BRT stops are typically spaced at ½ mile to 1 mile apart, which is a much greater distance compared to local services, which may make as many as 8 stops per mile. Local service is often run in conjunction with BRT service to address First/ Last Mile concerns.
- ***Transit Signal Priority (TSP):*** TSP detects buses approaching a signal and either extends the cycle of an existing green phase or calls up an early green light. This reduces the amount of time that buses wait at red traffic signals, improving average travel speeds, and shortening overall trip times by as much as 10 percent.
- ***More Frequent Service:*** According to the Transportation Research Board Transit Capacity Manual, BRT services operate at a frequency of 10 minutes or less, or six buses per hour in each direction.
- ***Longer Service Span:*** Compared to traditional bus routes, the service span of BRT typically extends over more hours, with high frequencies throughout most of the day from early morning to late evening.



Typical BRT Features

BUS LANE CONFIGURATIONS

There are three principal types of roadway configurations to provide bus lanes:

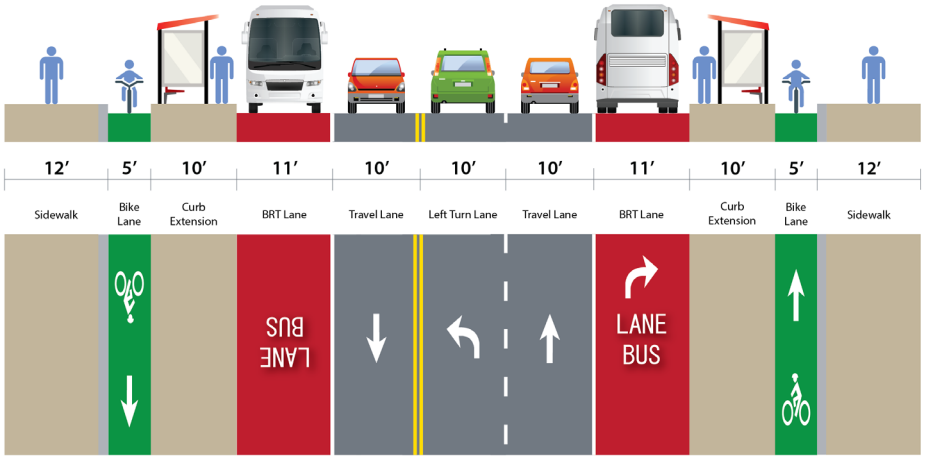
- ***Side Running Lanes***
- ***Center or Median Running Lanes***
- ***Curb Running Lane***

Side Running Lanes: In this configuration, the outside travel lanes are restricted to buses and right-turning vehicles. On-street parking and/or bike lanes can be provided outside of the bus lanes. Side-running bus lanes may be provided by widening and/or reconfiguring the outside travel lane to bus-only operation. The minimum desirable lane width is 11 feet, preferably 12 feet or more.

With this bus lane configuration, conflicts between automobile and buses are expected, as general purpose traffic is allowed to weave across the bus lanes to access driveways, loading zones, and to make right turn maneuvers at intersections. Space permitting, right-turn bays may be provided outboard from the bus lanes at intersections to reduce operational interference from right-turning vehicles yielding to pedestrians crossing concurrently with through traffic.

Stations are typically placed along the sidewalk, which may be widened through the loading zone using "curb extensions" or "bulb-outs" enhancing walkability and the pedestrian environment.

Bike lanes, where present, may be routed between the loading-zone and sidewalk area to minimize conflicts with bus patrons.



***NOTE: These figures represent minimum lane widths*

Side Running Configuration

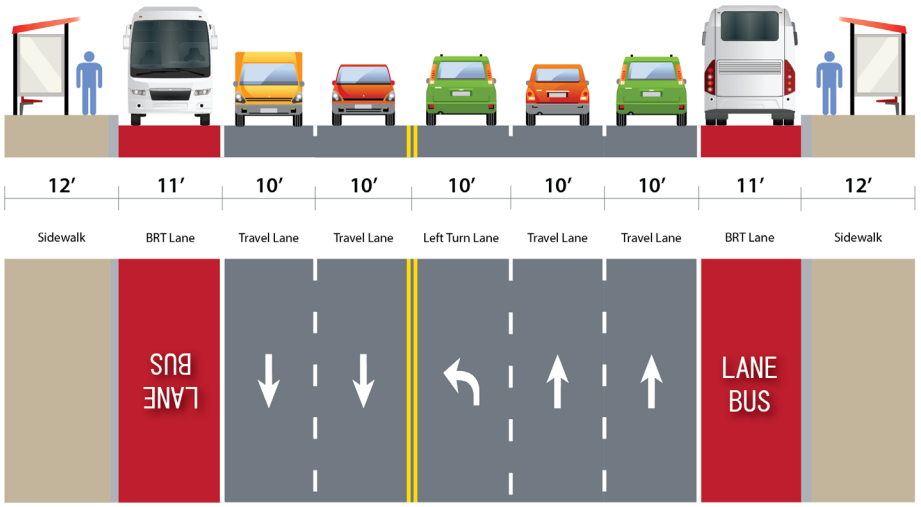
Key Features of Side Running Lanes:

- Typically requires 100' to 120' roadway with four lanes and bicycle lanes
- May be accommodated by converting outside lanes to bus-and-right-turn only lanes
- Stations can be placed on sidewalks or on curb extensions "bulb-outs" to widen sidewalk
- Right-turning vehicles at driveways and intersections cross bus lane

Center or Median Running Lanes: In this configuration, dedicated bus lanes are provided in the center of the roadway within or alongside a raised median. Wide roadways, typically 120 feet or more, are required to accommodate center or median running bus lanes. There are few local San Gabriel Valley roadways with right-of-way wide enough and suitable for center or median running bus lanes, so this prototype is discussed for informational purposes.

Curb Running Lanes: In this configuration, bus lanes run in an outside lane along the roadway curb. Curb running bus lanes may be provided by widening, removing parking or reconfiguring the outside of the roadway travel lane to bus-only operation. Similar to side running, the minimum desirable lane width is 11 feet, with 12 to 14 feet preferred. The curb running configuration does not accommodate bicycles unless a lane width of 16 feet is provided for shared operation. Otherwise, if bicycle lanes are needed, side running bus lanes should be utilized.

Stations are usually placed along the sidewalk near signalized intersections with marked crosswalks where patrons can cross the roadway. On-street parking or loading can be accommodated in off-peak periods, in which case the bus lanes are only available during peak periods. A curb extension or "bulb-out" may be provided if there is sufficient roadway width. This type of running-way can experience conflicts or interactions with cyclists, parked vehicles, commercial loading zones/vehicles, and right-turning traffic, which typically merges into the bus lane prior to turning.



***NOTE: These figures represent minimum lane widths*

Curb Running Configuration

Key Features of Curb Running Lanes:

- Typically requires 100' to 120' roadway with four lanes
- May be accommodated by converting on-street parking or curb lane to bus-and-right-turn only lane
- Stations are placed on sidewalks
- Parking may be allowed in off-peak periods only; does not work with bike lanes

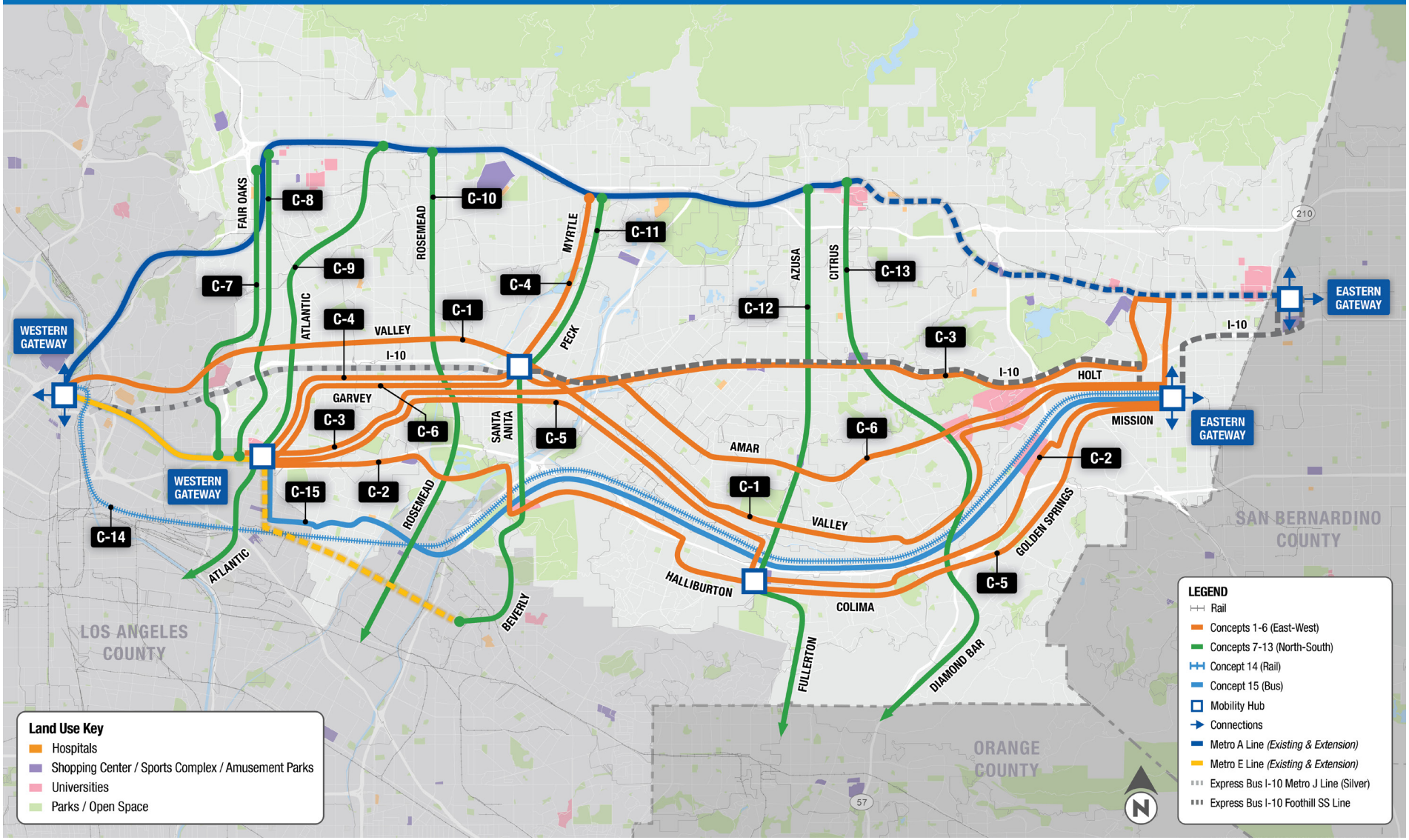
PHASE 1 – 15 INITIAL CONCEPTS

In Phase 1 of the Study, 15 initial concepts for new and enhanced transit services were developed based on the Project's purpose and need as well as input gathered from community outreach and stakeholder input. Demographics and travel patterns of the SGV were studied and documented in a Study Area Report, and a Mobility Problem Definition was created. The initial concepts focused on both east-west and north-south services that would provide complementary services within the SGV.

The concepts were designed with terminuses at rail stations or transit centers to integrate into existing and proposed transit networks. In Phase 1, ROW, stop locations, key destinations, and estimated travel times were used to define the concepts. These key characteristics guided the development of the 15 conceptual alternatives that would improve transit service along well-travelled corridors in the SGV. The 15 concepts are presented in more detail in the Initial Conceptual Alternatives Report.

Concept	Service Description
C1 - East-West	Downtown Los Angeles to Downtown Pomona via Valley Blvd
C2 - East-West	Atlantic Station to Downtown Pomona via SR-60
C3 - East-West	Atlantic Station to Pomona North Metrolink via I-10
C4 - East-West	Atlantic Station to Monrovia Station via Garvey Ave & Peck Rd
C5 - East-West	Atlantic Station to Downtown Pomona via Valley Blvd & Colima Rd/Golden Springs Dr
C6 - East-West	Atlantic Station to Downtown Pomona via Garvey Ave & Amar Rd
C7 - North-South	Maravilla Station to Del Mar Station via CSLA
C8 - North-South	East LA Civic Center Station to Memorial Park Station via Monterey Pass
C9 - North-South	Sierra Madre Villa Station to Downtown Long Beach via Atlantic Blvd
C10 - North-South	Sierra Madre Villa Station to CSLB via Rosemead Blvd & Lakewood Blvd
C11 - North-South	Monrovia Station to Whittier via Peck Rd and Beverly Blvd
C12 - North-South	Azusa Downtown Station to Newport Beach via Azusa Ave & Harbor Blvd
C13 - North-South	APU / Citrus College Station to Anaheim via Citrus & Grand Ave
C14 - East-West	Riverside Line Local Rail Service to Downtown Pomona Metrolink
C15 - East-West	Riverside Line / SR-60 Express Bus Service

15 Initial Conceptual Alternatives



INITIAL SCREENING OF CONCEPTS

East-West Concepts	C1 Valley Boulevard	C2 SR-60	C3 I-10	C4 Garvey-Peck	C5 Valley-Colima-Golden Springs	C6 Garvey-Amar	C 14/15 Commuter Rail / Bus *
Fulfills near-term needs	●	✓	✗	✗	✓	✗	✗
Improves transit service	✓	✓	✗	●	✓	✗	●
Addresses existing travel trends within SGV	●	✓	●	✗	✓	✗	✓
Provides mobility to EFCs and other local communities	●	✗	✓	●	✓	✓	✗
Increases access to major SGV transit hubs	✓	✓	●	✓	✗	✗	✗
Increases access to major SGV activity centers	●	✓	✓	✗	●	●	✓
Facilitates access to bike/ped facilities	✓	✗	●	●	●	✓	✗
Minimizes conflicts with goods movement	✓	●	●	✓	✓	✓	✗
Supports land use and development	✓	●	✗	✓	✓	✓	✗
OVERALL SCORING	*Moderate*	*Moderate*	*Low*	*Low*	*High*	*Low*	*Low*

Notes: ✓ = *positive score* ● = *neutral score* ✗ = *negative score*

** - Scoring weighted towards rail score*

The 15 Initial Concepts were screened using metrics developed from the Study Goals and Objectives. The objectives focused on improving short and long-term transit service, providing more mobility options to EFCs and other local communities, addressing travel trends in the SGV, increasing access to mobility hubs and major activity centers, facilitating access to bike/pedestrian networks, and supporting land use and development.

The initial screening used qualitative and quantitative evaluations based on a three-point scale (positive, neutral, negative).

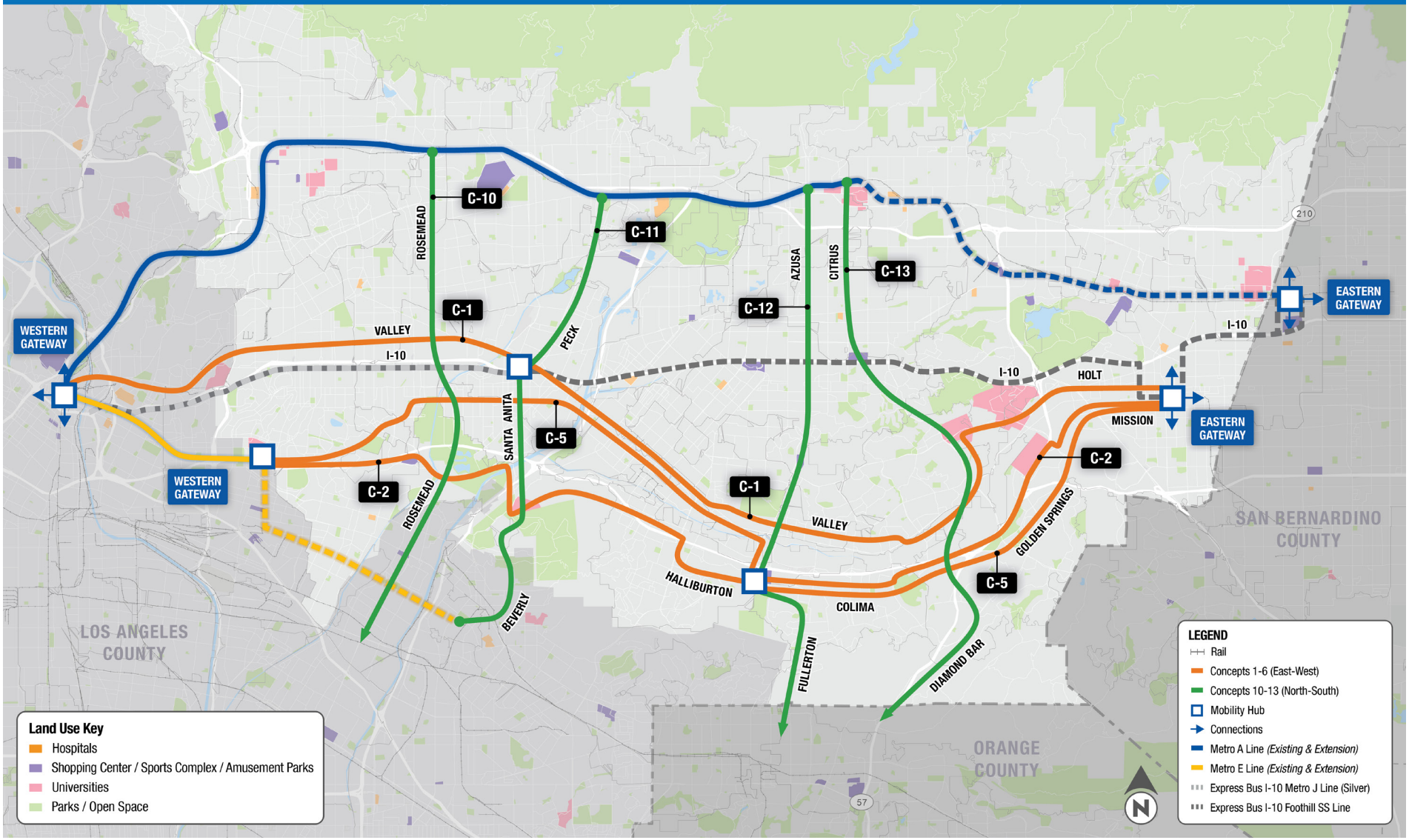
The east-west concepts were screened using a two-step process which considered both the screening scores as well as input from SGVCOG stakeholders obtained through the Study's outreach efforts.

After the east-west concepts were screened, the north-south concepts were then screened considering the compatibility and network synergy in supporting the east-west concepts.

Based on the input received and initial screening, the highest-ranking east-west concepts were:

- ***Concept 1 – Valley Boulevard***
- ***Concept 2 – SR-60***
- ***Concept 5 – Valley-Colima-Golden Springs***

7 Screened Concepts



PHASE 2 CONCEPT REFINEMENT – DEVELOPMENT OF EAST-WEST BRT ROUTE

Phase 2 focused on refining the three east-west concepts through early conceptual design and engineering. Phase 2 identified potential bus lane configurations (side-running, curb-running, or center), developed urban design concepts, as well as created an implementation and Vision Plan.

All the concepts were made available to the public via an "Interactive Map" on the SGVCOG website where participants could post specific comments. The C1/C5 Hybrid Concept received the most positive comments on the website, from the TAC, as well as through other stakeholder outreach.

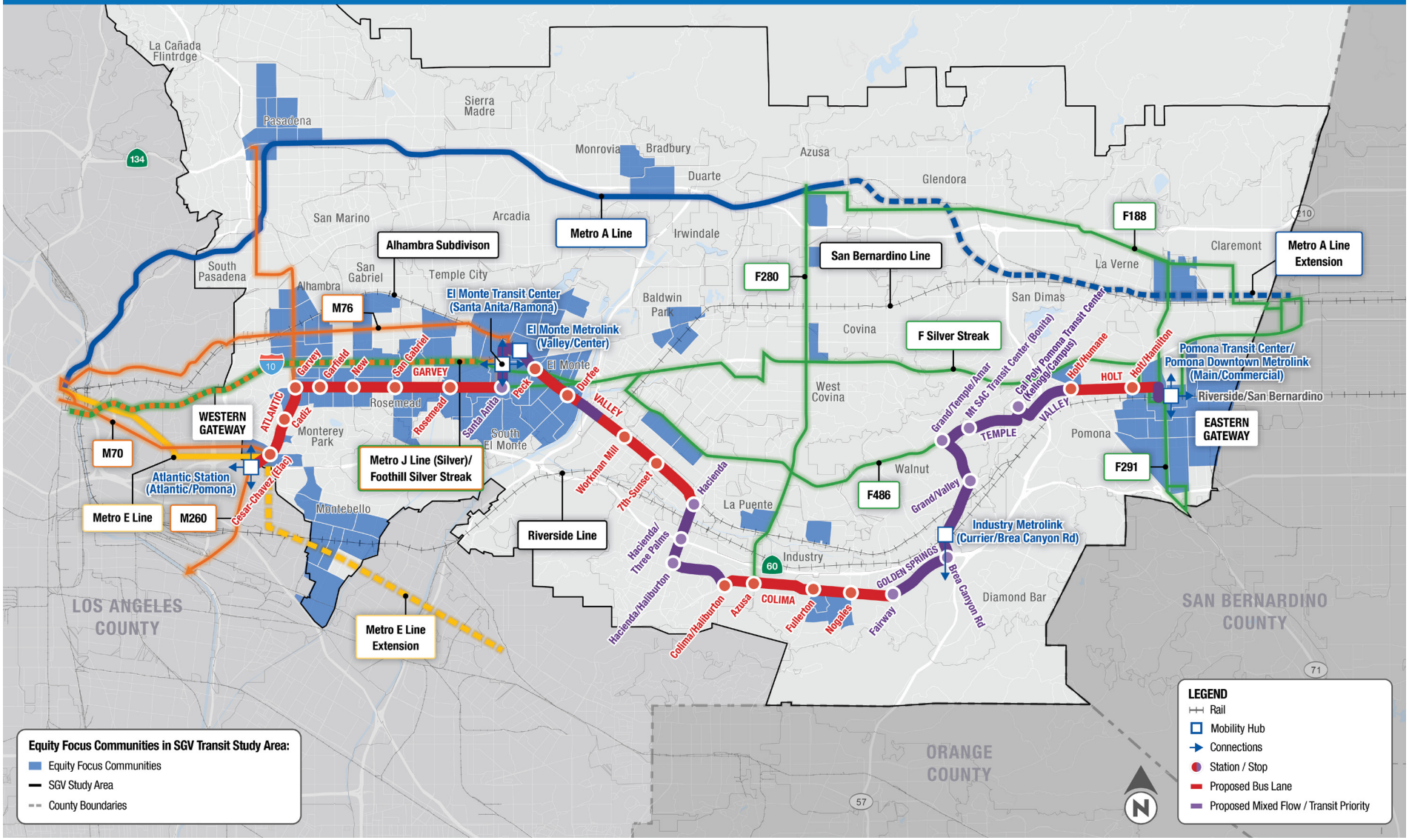
> ***"The Hybrid Concept really connects the southern part of SGV and its popular destinations. I also am glad bus lanes and connections to other routes are emphasized in this route plan."***
>
> ***– Community Member Posting from Online Interactive Map***

> ***"I prefer the Hybrid Concept because it is a good mix of segments - it hits major transit centers without overextending to downtown."***
>
> ***– Community Member Posting from Online Interactive Map***

Phase 2 also reviewed the detailed ridership demand for the three east-west Concepts 1, 2, and 5. After a further assessment of passenger boardings by station, the results showed more favorable performance for Concept 5 west of the Interstate-605 Freeway, and Concept 1 east of the I-605. To incorporate the best elements of both concepts, C1/C5 were combined into a "Hybrid" east-west option. This Hybrid Concept also had the benefit of traveling through a significant number of EFCs and SGV communities and connecting to colleges such as Cal Poly Pomona and Mt. San Antonio College in the east and to the Metro E Line's Atlantic Station in the west. Due to low ridership and input received by stakeholders, Concept 2 was screened out from further consideration.

A rendering facing east, showing Side Running Bus Lanes on Holt Avenue near Hamilton Boulevard in Pomona

C1/C5 East-West Hybrid Concept



PLAN IMPLEMENTATION

A principal outcome of the Study was the development of a long-range transit Vision Plan with phased implementation. The plan is presented in three planning horizons beginning with a 2035 Mid Term Plan which is financially constrained by the $635.5 million which Metro committed to the SGV:

- ***Mid Term Plan (2035):*** The 2035 horizon year reflects the date at which the full $635.5 million in funding committed by Metro will be available. The designated improvements include an east-west BRT service to replace the prior SR-60 LRT alternative along with complementary valley-wide service and connectivity enhancements providing high-quality transit for the entire SGV planning area.

Preliminary "planning-level" capital cost estimates were prepared for the bus lanes and TSP improvements, to confirm the plan elements would be implementable with the funding committed by Metro for year 2035.

In addition to the new east-west route, the Metro funding is sufficient to implement the East-West Hybrid BRT Concept as well as two new north-south rapid bus services (Monrovia to Whittier and Azusa to Diamond Bar).

- ***Long Term Vision Plan:*** The Long Term Plan, which is financially unconstrained identifies the ultimate build-out of high quality transit services throughout the SGV. No particular year is specified, but for planning purposes, a Year 2050 horizon could be considered. Included are BRT services, Rapid Bus services, and potential new rail service between Pomona and Downtown Los Angeles.

- ***Jump Start Projects (2028):*** Jump Start Projects (often referred to as Near Term Plan) includes TSP and demonstration bus lane segments serving existing high-frequency routes. These could be implemented within 3 to 5 years if funding is identified and the projects are expedited.

A rendering facing east, showing Curb Running Bus Lanes along Valley Boulevard near Proctor Avenue in the City of Industry

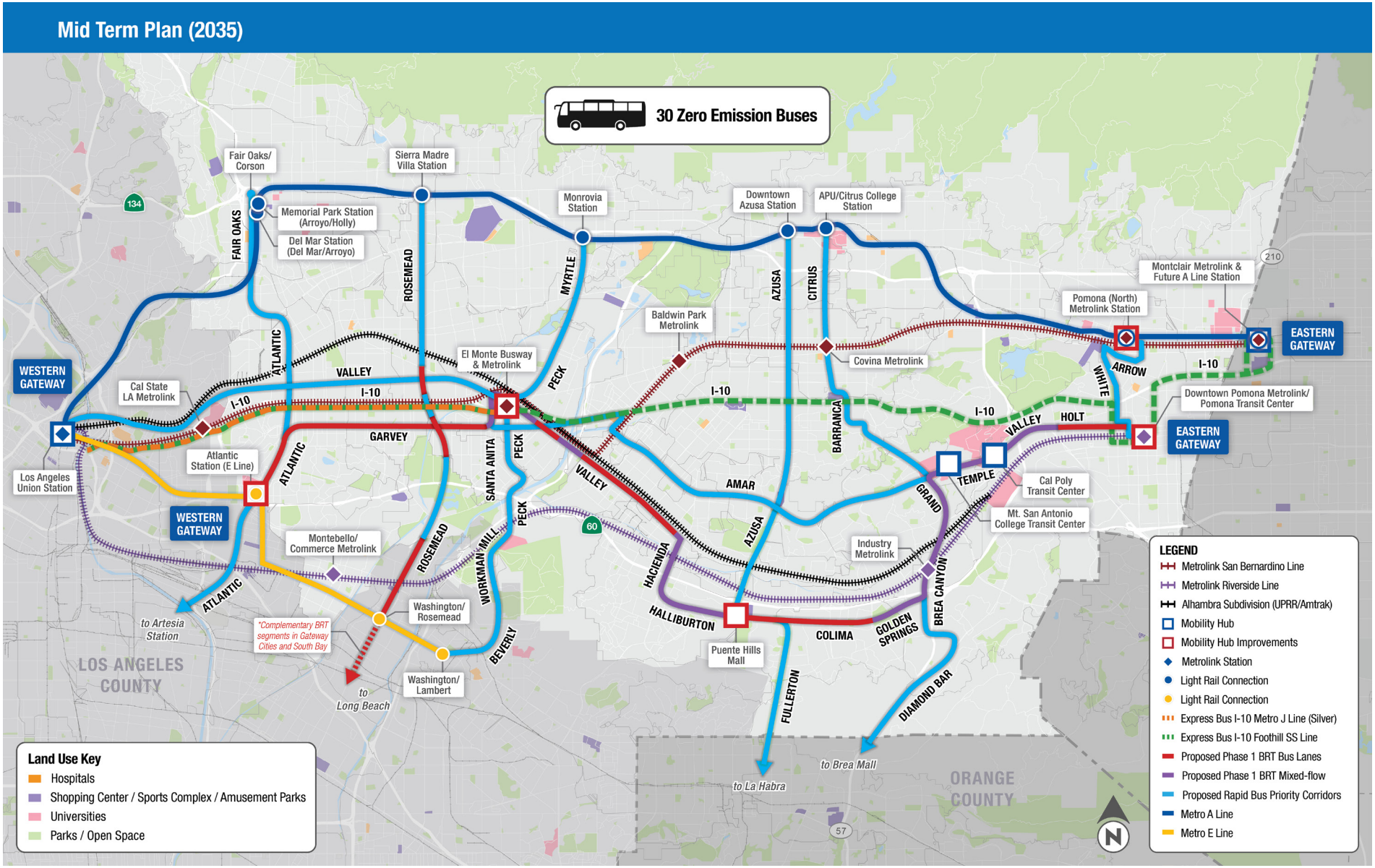
MID TERM PLAN (2035)

The Mid Term Plan incorporates capital improvements which could be constructed with the $635.5-million committed to the SGV by Metro. This includes:

- ***Rapid Bus Priority Corridors*** – Provide Traffic Signal Priority (TSP) at all signalized intersections along designated corridors. These improvements would facilitate existing bus services in the near term and would host limited stop "Rapid Bus" services in the longer term:
  - » Valley Boulevard / Metro Line 76 from Downtown Los Angeles to El Monte
  - » Amar Road / Foothill Line 486 from El Monte to Downtown Pomona
  - » Atlantic Boulevard / Metro Line 260 from Pasadena to Atlantic Station (Metro E Line)
  - » Rosemead Boulevard / Metro Line 266 from Monrovia Station (Metro A Line) to Galatin Road (Pico Rivera)
  - » Proposed Myrtle – Peck – Workman Mill – Beverly route from Monrovia Station (Metro A Line) to proposed terminus of Metro E line on Washington Boulevard (Whittier)
  - » Azusa Avenue / Foothill Transit Line 280 from Azusa Station (Metro A Line) to Puente Hills Mall Transit Center (City of Industry)
  - » Proposed Citrus / Grand route from Citrus/APU Station (Metro A Line) to Diamond Bar
  - » Route from Pomona North Metrolink Station to Downtown Pomona via Arrow Highway and White Avenue (through Pomona Fairplex)
- ***BRT Corridors*** – Provide bus lanes and enhanced stations along designated BRT corridors. These improvements would support existing high-frequency bus services in the near term and would host BRT service in the longer term:
  - » Bus lane segments and enhanced stations along the East-West Hybrid route between Atlantic Station (Metro E Line) and Pomona
  - » Bus lane segments along Rosemead Boulevard within SGV (Rosemead, El Monte and South El Monte)
  - » Transit center and bus operations center improvements (specifics to be determined by further study)
  - » 30 Zero Emission Buses (ZEBs)

A rendering facing east, showing Curb Running Bus Lanes along Holt Avenue near Hamilton Boulevard in Pomona

Mid Term Plan (2035)



Transit center improvements may include provision of additional bays for new bus lines, charging and/or fueling, improved access and circulation and joint development. Bus operations center improvements could include expansion of existing center(s) as well as fueling/charging and maintenance improvements.

A Rough Order of Magnitude (ROM) capital cost estimate was prepared for the proposed 2035 improvements program. All of the elements (including purchase of buses) shown in the Mid Term Plan. The cost estimate indicates that all of the improvements, including 17.5 miles of east-west bus lanes and 2.4 miles of north-south bus lanes, with enhanced stations, could be delivered within the $635.5-million committed by Metro. Even with escalation, the TSP and bus lanes segments could be constructed, however there would be less money available for the transit center and transit ops center improvements.

After improvements have been made along the East-West Hybrid route, the new service would be commissioned pursuant to developing a service agreement with the operator(s). BRT service could also potentially be implemented along Rosemead Boulevard, if additional bus lane segments are constructed through Pico Rivera and further south in the Gateway Cities area.

2035 Mid Term Plan Capital Cost

Element	Quantity (Bus Lanes/ Route Miles)	2023		2035			
		Low Cost	High Cost	Low Cost	High Cost	Inflation Rate (12 years)	12-year Inflation Factor
Transit Priority Enhancements	Up to 180	$35M	$35M	$45.5M	$45.5M	4%	1.6
East-West BRT Line Improvements (Lanes & Stations)	17.5 Miles / 33.8 Miles	$195M	$250M	$312M	$400M	4%	1.6
North-South BRT Line Improvements (Lanes & Stations)	2.4 Miles / 10.1 Miles	$45M	$50M	$72M	$80M	4%	1.6
Electric Buses	Up to 30	$40M	$40M	$50M	$50M	2%	1.26
Fixed Facilities	Allowance	$155M	$125M	$156M	$60M	N/A	N/A
Phase 1 Program Cost		**$470M**	**$500M**	**$635.5M**	**$635.5M**	-	-

Notes: 1) Low Cost (side running) / High Cost (curb running);
2) Funds not allocated to other categories would be available to fund fixed facilities.

LONG TERM VISION PLAN

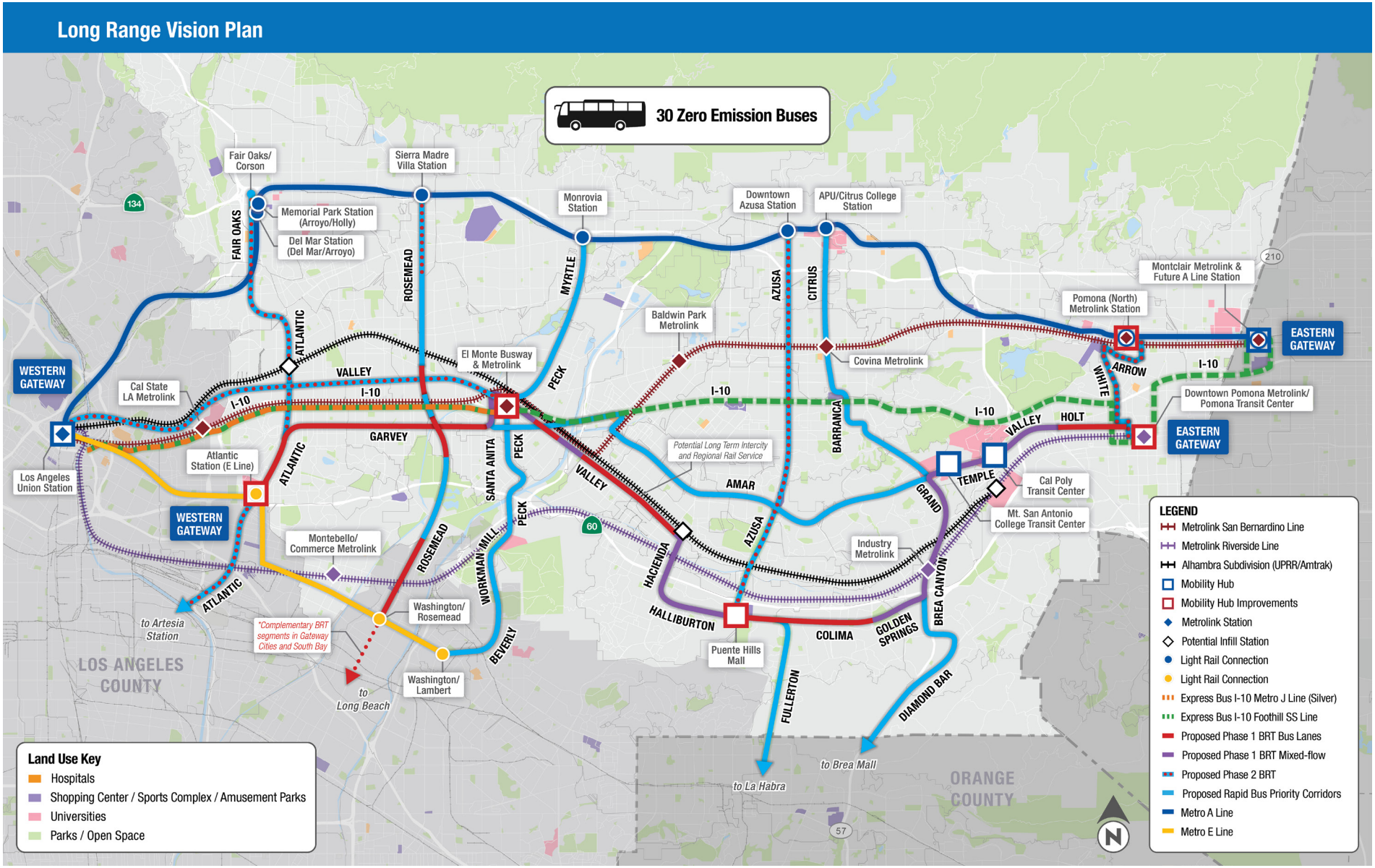
The Long Term Vision Plan includes projects and improvements that could potentially be achieved by year 2050, subject to additional funding and project development activity. In addition to the projects shown in the 2035 Mid Term Plan, the Long Term Vision Plan would add:

- Bus lane segments and additional BRT services along designated Phase 2 BRT corridors including:
  - Atlantic Boulevard / Metro Line 260 from Pasadena to Atlantic Station (Metro E Line) with potential extension south to Artesia Station (Metro A Line)
  - Additional bus lane segments along Rosemead Boulevard / Metro Line 266 in East Pasadena
  - Azusa Avenue / Foothill Transit Line 280 from Azusa Station (Metro A Line) to Puente Hills Mall Transit Center
  - Bus lane segments along Valley Boulevard between LA Union Station and El Monte Transit Center (Metro Line 76)
  - Bus lane segments along route from Pomona North Metrolink Station to Downtown Pomona via Arrow Highway and White Avenue (through Pomona Fairplex). (This route segment could provide an alternative terminal for the east-west BRT service.)
- Potential passenger rail service along the Union Pacific Alhambra Subdivision between downtown Pomona and Los Angles Union Station with infill stations at the South Campus of California Polytechnic University (Pomona), Hacienda Boulevard (City of Industry) and Atlantic Boulevard (Alhambra).

With buildout of the Long Term Vision Plan bus lane, transit center and operations center improvements and commissioning of new Rapid Bus and BRT services, the SGV would have an integrated network of east-west and north-south services covering the full extent of the Valley and providing public transport to all communities.

A rendering facing east, showing Side Running Bus Lanes on Colima Road near Azusa Avenue in Unincorporated Los Angeles County

Long Range Vision Plan



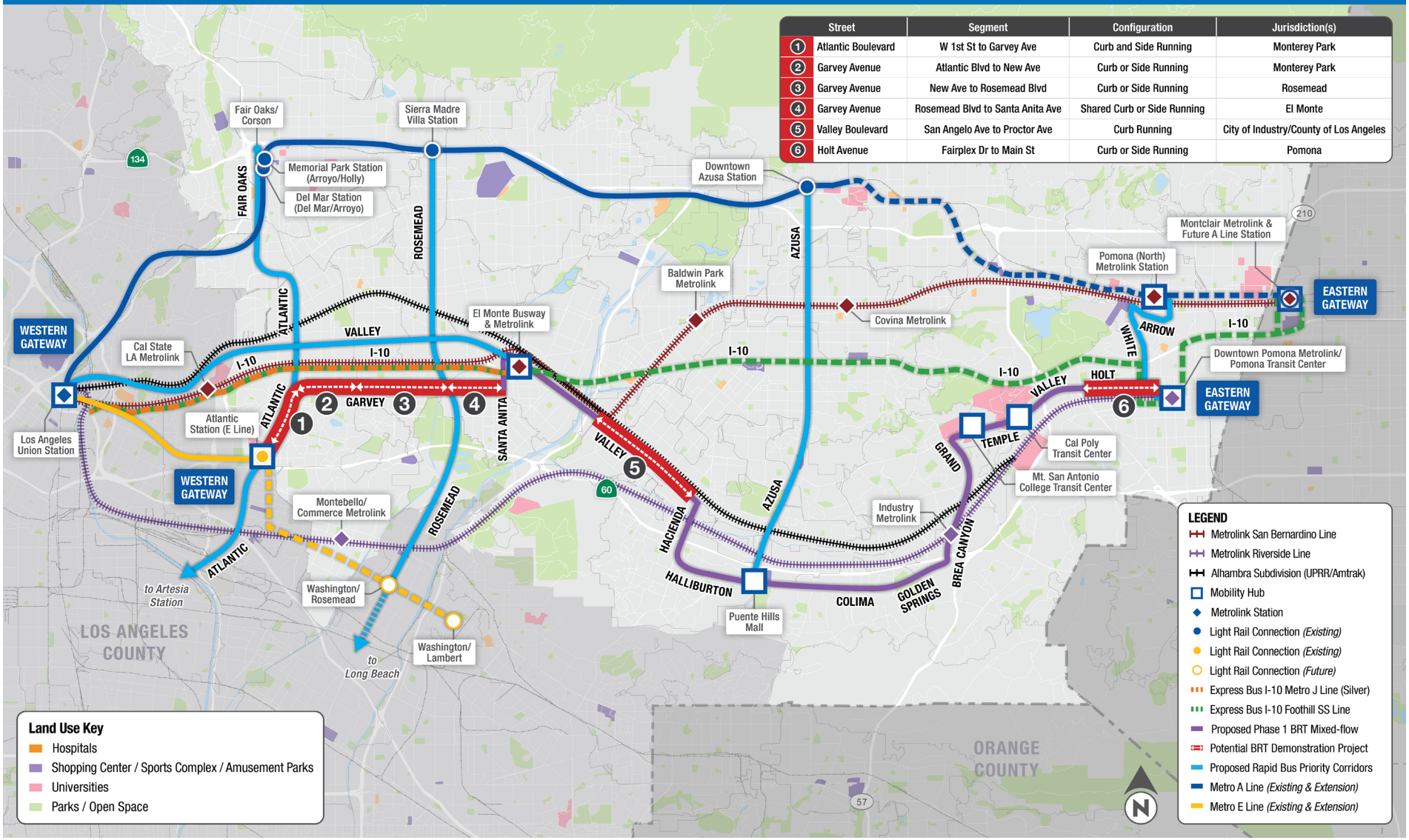
JUMP START PROJECTS (2028)

In response to the concern that the funding designated by Metro may not be available until 2035, a set of near term improvements, "Jump Start Projects," have been identified for potential implementation over the next 3 – 5 years, subject to the acquisition of funding. Near term improvements could include:

- TSP enhancements along designated Rapid Bus Priority Corridors and BRT corridors which currently have higher-frequency services, e.g., Metro bus lines (Lines 76, 260, and 266) and two existing Foothill Transit bus lines (Lines 280 and 197)
- Constructing "Jump Start" bus lane demonstration projects at one or more of six candidate segments including: Atlantic Boulevard and Garvey Avenue in Monterey Park, Garvey Avenue in Rosemead and El Monte, Valley Boulevard in Industry and LA County, and Holt Avenue in Pomona.
- Providing BRT shelters to enhance stops at key station locations
- Providing "Complete Street" improvements for pedestrians and bicyclists in anticipation of future bus transit improvements

A rendering facing east, showing Mixed Flow Operations on Valley Boulevard west of Tyler Avenue in El Monte

Jump Start Projects (2028)



PROJECT DELIVERY

Delivery of the proposed transit service improvements will require a number of steps which include:

- ***Assembly of Funding*** – LA Metro has committed $635.5 million (programmed for Year 2035) in capital funds to build the project. There is a desire to implement Near Term improvements (e.g., in place within the next 3 to 5 years) including transit priority enhancements and demonstration bus lanes segments, which would require either advancing a portion of these funds or finding other sources available ahead of the 2035 year of commitment.
- ***Prepare Preliminary Engineering (PE) and Final Design Plans*** – Design plans need to be prepared. Preparation of PE is critical to project delivery as these plans will provide the basis for the involved Jurisdictions Having Authority (JHA) to vet the proposed improvements with the respective communities and to assure the proposed improvements are consistent with local design standards.
- ***Streamline Environmental Clearance*** – Because the proposed improvements have independent utility, are located within publicly owned right-of-way, and are intended to support enhanced transit service, they would be eligible for an exemption from California Environmental Quality Act (CEQA) requirements under SB922. SGVCOG would need to develop the necessary documentation to support this approach. If pursuing federal funding, a Categorical Exclusion (CE) through National Environmental Policy Act (NEPA) can be pursued. This process requires confirmation that the project shows no impact to environmental resources. If impacts are identified, then additional technical studies would need to be conducted.
- ***Developing Operating Agreements*** – Both LA Metro and Foothill Transit currently provide services within the San Gabriel Valley, along with a number of municipal operators. The proposed east-west service would span both the LA Metro and Foothill Transit territories, so an operating agreement would need to be developed to designate an operator for the east-west service. (The north-south service improvements could be implemented separately by LA Metro and Foothill Transit in a coordinated approach.) Any proposed service improvements would require the agencies' boards to review and approve the service, pending funding availability.
- ***Identify Funding for Operations*** – Operating funds would be required to support proposed new services. These funds could potentially be obtained by reducing and/or eliminating duplicative services; or new funding could be sought from state and local sources.

- ***Identify Maintenance Responsibilities/Develop Agreements*** – It is anticipated that BRT station components would be maintained by the bus operating agency, however, general maintenance of the roadway and sidewalks, including street sweeping, removal of debris, roadway general maintenance as well as signing and striping, would be maintained by City/ County forces.
- ***Caltrans Agreements*** – Institutional arrangements need to be orchestrated to allow development of BRT improvements along Rosemead Boulevard, which is designated as SR-164 and Azusa Avenue, which is designated as SR-39. These may be facilitated if these routes are relinquished from the State highway system. (Rosemead and San Gabriel are pursuing relinquishment for Rosemead.) Additionally, certain traffic signals (e.g., in the vicinity of freeway interchanges) may be maintained and operated by Caltrans so hardware and software upgrades would need to be coordinated with that agency.
- ***Railroad Negotiations*** – Negotiations would need to be accomplished with the Union Pacific Railroad to obtain an agreement to add passenger service to the Alhambra Subdivision, which is an opportunity shown in the Long Term Vision Plan.
- ***Obtain Construction Permits*** – Permits required to construct improvements within the public right-of-way would need to be obtained from local jurisdictions prior to the start of construction activities. Permit requirements may contain clauses which would need to be flowed down to the construction contractor(s).
- ***Manage Design and Construction*** – Although the scope of improvements primarily involves modifications to signing, striping and traffic signals, along with construction of bus shelters along sidewalks and roadway islands, the scale of the improvements may warrant establishment of a Program Manager to oversee the final design and construction.
- ***Commission New Services*** – After the improvements have been constructed and all of the operating agreements are in place, new or modified service plans need to be put into place. This may include supplemental training for bus drivers with regards to the use of the bus lanes. Also, for new BRT corridors with bus lanes, a coordinated campaign of enforcement may be warranted to educate the motoring public and manage violations.

Key Findings from Study

- The SGV Vision Plan incorporates an integrated network of east-west and north-south transit services that maximize the coverage and distribution of project benefits.
- There are opportunities to add dedicated bus lanes and provide limited-stop services with the implementation of BRT lines.
- Other principal transit lines could be improved with higher frequencies and implementation of TSP delivering Rapid Bus type services along selected Bus Priority Corridors.
- The $635.5 million provided by Metro in Year 2035 could be used to implement both BRT and Rapid Bus services along with transit center improvements and the purchase of new ZEBs in the mid-term future.
- Pursuant to the identification of funding, SGV could begin implementation of the Vision Plan by providing TSP to selected Priority Bus Corridors and Demonstration Bus Lanes along selected segments designated for BRT service.
- The optimal east-west BRT service is the Hybrid Concept that connects a western gateway located at Atlantic Station (the current terminus of the Metro E Line) and an eastern gateway located at the Pomona Transit Center in downtown Pomona adjacent to the Pomona –Downtown Metrolink Station on the Southern California Regional Rail Authority (SCRRA) Riverside Line.

A rendering facing east, showing Side Running Bus Lanes on Garvey Avenue west of Santa Anita in El Monte

A rendering facing south, showing Side Running Bus Lanes with Protected Bike Lanes on Rosemead Boulevard at Rush Street in South El Monte

- In the Near Term (2028), in addition to the east-west Hybrid Concept, Rapid Bus Priority Corridors were identified that would receive TSP enhancements to improve existing bus services provided by Metro and Foothill Transit.
- For the Mid Term (2035), when funding will be available, improvements planned include: constructing bus lane segments for the Hybrid Concept and along Rosemead Boulevard; TSP along Amar Road, Monrovia to Whittier, Azusa to Diamond Bar, and Pomona Downtown to Pomona north Metrolink via Fairplex; Transit center and bus operations center improvements, enhanced BRT stations, and purchase of ZEBs.
- A Long Term Vision Plan (2050) subject to project development includes transit enhancements such as Priority Bus Corridors along Atlantic Boulevard, Rosemead Boulevard, Azusa Avenue, and White Avenue – Arrow Highway – Garvey Avenue; as well as future rail passenger service along the UPRR Alhambra Subdivision.
- Strategies for Project Delivery include assembling funding, preparing preliminary engineering and final design plans, obtaining environmental clearances, developing operating agreements, identifying funding for O&M, agreements between agencies and rail owners, permitting and construction, and commissioning of new services.

A rendering facing southwest, showing Side Running Bus Lanes along Atlantic Boulevard near Riggins Street in Monterey Park

REFERENCED MATERIAL FROM THE STUDY

The Feasibility Study builds upon prior Metro planning documents including: BRT Vision and Principles, NextGen Bus Plan, North Hollywood to Pasadena BRT. The following table identifies work products which provide additional technical information in support of this study.

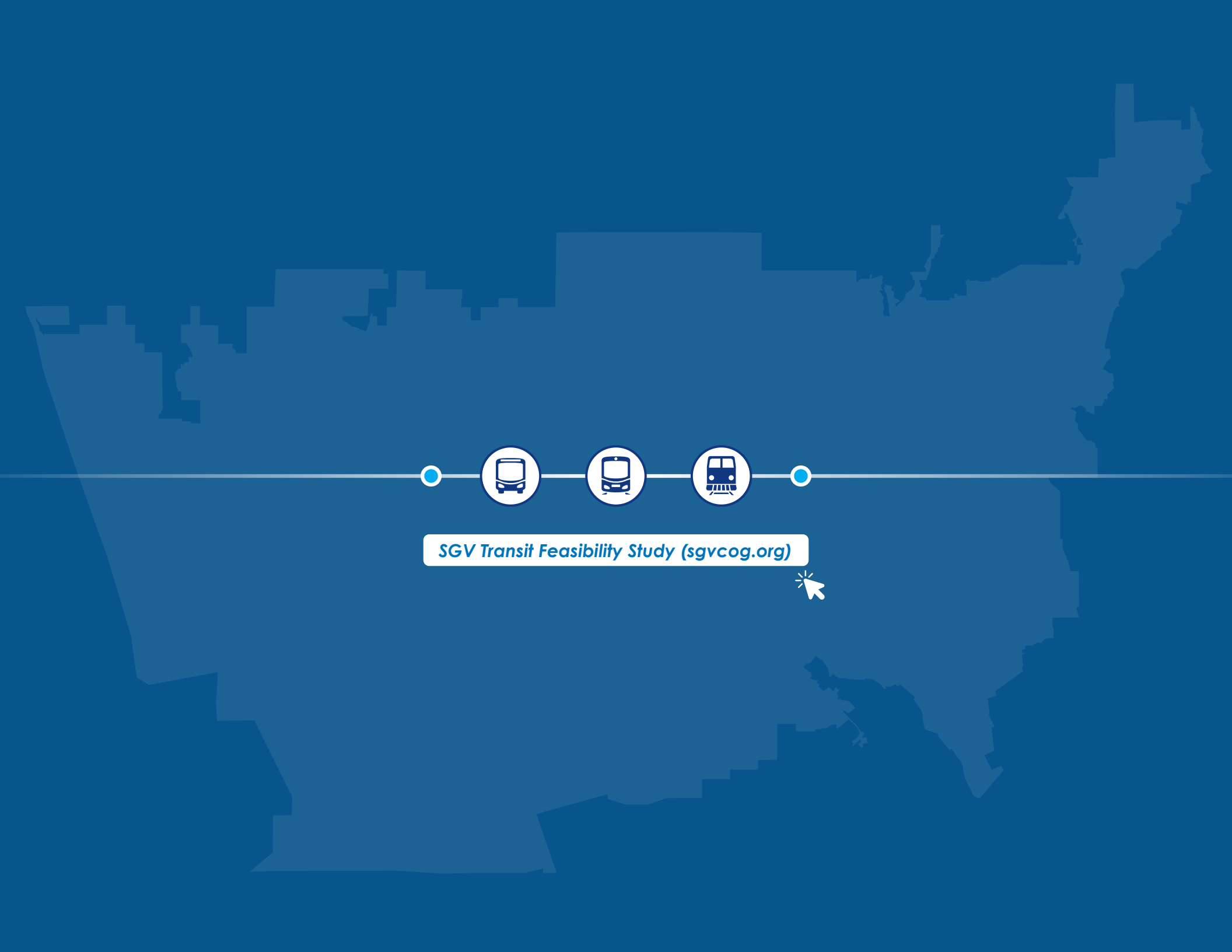
Phase 1 Work Products	
Product	**Contents**
Study Area Definition (Appendix A)	Defines project boundaries, stakeholder cities and agencies. Summarizes existing plans, land use patterns, freeway and arterial networks and conditions, and existing transit network.
Mobility Problem Definition (Appendix B)	Provides statement of purpose and goals of study. Summarizes prominent mobility issues for the SGV, identifies key trip attractors and distribution of major internal and external travel demand, communities most in need of enhanced transit services, and current transportation improvement projects in the SGV.
Initial Conceptual Alternatives (Appendix C)	Presents 15 conceptual alternatives developed for enhanced transit services in the SGV, including routing, stops and hubs.
Screening Methodology (Appendix D)	Outlines criteria and scoring methods for screening of initial alternatives for both qualitative and quantitative data.
Written Comments (Appendix E)	Summarizes written comments received from the various involved jurisdictions, stakeholders and the general public regarding the initial conceptual alternatives.
Initial Concepts Screening (Appendix F)	Presents scoring of east-west concepts and identifies three most promising for further analysis. North-south concepts were assessed qualitatively and four were recommended to be advanced.
Refinement of Screened Concepts (Appendix G)	Indicates refinements to the three east-west and four north-south concepts recommended for further study.
Travel Demand Forecast Methodology (Appendix H)	Describes the methodology and scenarios used to develop projected year 2042 ridership.

Phase 1 Work Products (continued)	
Product	**Contents**
Travel Forecast Ridership Report (Appendix I1 and I2)	Presents ridership results for 3 screened east-west BRT alternatives and 4 north-south Rapid Bus alternatives.
Capital Cost Methodology (Appendix J)	Documents the methodology used to develop capital cost estimates.
Operations & Maintenance Cost Methodology (Appendix K)	Documents the methodology used to estimate operations & maintenance costs.
Capital Cost Estimates (Appendix L1 and L2)	Transmits the rough order-of-magnitude capital cost estimates for bus lanes and other improvements shown in the proposed 2035 transit plan.
Operations & Maintenance Costs (Appendix M)	Provides bus operations costs, bus-miles and bus-hours for seven screened concepts.
Phase 1 Feasibility Study (Appendix N)	Transmits the results of the Phase 1 analysis including initial conceptual alternatives screening, refinement and evaluation. Also includes working draft transit Vision Plan.

Phase 2 Work Products	
Product	**Contents**
Ridership Update (Appendix O)	Updates ridership results to provide projected ridership for the proposed East-West Hybrid BRT route alignment alternative.
Capital Cost Update (Appendix P)	Updates capital cost estimates to provide specific costs for proposed east-west and north-south bus lanes segments. Incorporates escalation to Year 2035.
Urban Design Report (Appendix Q)	Presents criteria for siting and configuring BRT stations and shelters. Presents site specific illustrative examples of urban design integration for BRT stations.
Conceptual Design Plans (Appendix R)	Presents illustrative example conceptual plans for sample bus lanes segments along proposed BRT routes.

Prior work products and other Study information can be accessed on the SGVCOG website at the following address:

SGV Transit Feasibility Study (sgvcog.org)


SGV Transit Feasibility Study (sgvcog.org)