



## Connect OC-LA FINAL REPORT







## What is Connect OC-LA?

Connect OC-LA will make it easier to take transit between Orange County and Los Angeles County.

It is a plan to improve transit that crosses the OC-LA boundary, as well as routes that serve communities near the border without necessarily crossing it.



#### Not your ordinary border

The border between Orange and Los Angeles Counties is a critical gateway: according to the Orange County Long-Range Transportation Plan (2015), more than 600,000 commuters cross the OC-LA border to get to work every day, and the numbers are similar in both directions.

Many of these people are part of underserved communities, including those who live near the border.

#### **Building on the OC Transit Vision**

This study builds on the 2018 OC Transit Vision—OCTA's 20-year transit master plan. It will also serve as an update to the transit recommendations from the 2006 Orange County/Los Angeles Intercounty Study.

#### **Preparing for Los Angeles 2028**

Connect OC-LA also considers transportation needs for the 2028 Olympic Games in Los Angeles. The Honda Center will host events within Orange County, while connections to LA County venues in Long Beach, South Bay, and Downtown Los Angeles will need additional special event mobility services.

#### For OCTA and our neighbors

Connect OC-LA will be a roadmap for not only OCTA but all transit providers that operate near the LA-OC border—whether local, rapid, or express bus or rail.

#### **Navigating this report**

Pages 4-17 provide a summary of the *Existing and Planned Services Report*, covering:

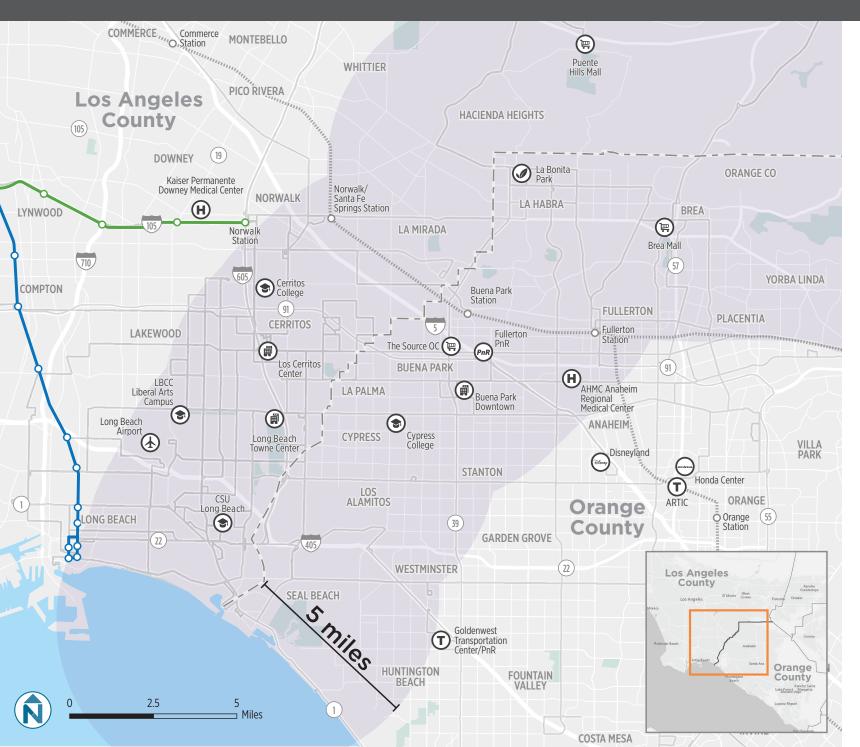
- Neighboring transit providers and existing planning efforts
- Current transit ridership and transfer patterns
- Big data zone-to-zone travel patterns across the OC-LA border
- Community and stakeholder engagement

Pages 18-41 summarize the *Corridor Evaluation and Recommendations Report* focusing on:

- Corridor identification, screening, and evaluation
- Corridor-specific recommendations
- Additional intercounty transit service improvement strategies
- Considerations for the 2028 Olympics



### **OC-LA County Border Area**



#### OC-LA County Border Area (CBA)

**CBA** 

The shaded area is a radius of **5 miles** from from the OC-LA **county border area** (CBA).

The CBA enables the Connect OC-LA study to assess the quality of existing transit serving different types of trips:

- Trips entirely within the CBA
- Trips into and out of the CBA
- Trips through the CBA

#### **Rail Transit**

""O" Metrolink

Metro Rail Green Line

Metro Rail Blue Line

# Who will be affected by Connect OC-LA recommendations?

## Connect OC-LA will require working together

Several transit agencies provide service across or near the county border area. Each one operates with different jurisdictional control over fixed routes and facilities. A coordinated approach will be necessary to improve the quality and appeal of transit in this area.

#### Transit Agency Stakeholder Committee

In response to the need for coordination, Connect OC-LA established a Transit Agency Stakeholder (TAS) Committee made up of staff from OCTA, LA Metro, Long Beach Transit, Foothill Transit, Caltrans, Norwalk Transit, Southern California Association of Governments (SCAG), Metrolink, and Cerritos on Wheels.

The purpose of the committee was to provide input to the study team regarding objectives, analysis approaches, findings, and implementation recommendations.























## What projects are in the works?

Agency*	Improvement	Туре	Timeframe	Impact on people who take transit between OC and LA
OCTA	OC Streetcar	Capital		Improved circulation betweem Santa Ana and Garden Grove
	La Palma / Lincoln opportunity corridor	Capital		Extend Rte 38 (15-min local) into Carson at Clark/Lakewood (LB City College)
	State College Boulevard opportunity corridor	Capital		Serves Brea PnR, which is a gateway between OC and Covina/Pomona area, including Metrolink (City of Industry station)
LA METRO	Eastside Transit Corridor Phase II extension (Washington alignment)	Capital		Terminal station near South Whittier (Washington at Lambert) will be less than 5 miles from OC border; Opportunity for new connection from OCTA to LA Metro
	Green Line to LAX (Norwalk to LAX)	Capital		Increase fixed route connections to Norwalk Green Line station for potential workers
	Eastside Transit Corridor Phase III extension (SR-60 alignment)	Capital		Nominal impact on OCTA fixed route service
	West Santa Ana Branch	Capital		Terminal station near South at Pioneer (Los Cerritos Center)
	Interstates 105, 405, 605 Managed Lanes	Capital		Better travel times for Express Bus service and potential Freeway BRT investments
FOOTHILL TRANSIT	Pilot mobile ticketing solutions	Service		Opportunity to identify potential specifications and/or pilot for interagency fare acceptance
LONG BEACH TRANSIT	10% increase in service hours; improve connection to California State University Long Beach, MetroRail	Service		Additional transfer opportunities at California State University Long Beach
	Expand service hours by 25% over current	Service		
	Connect Lakewood Mall and Norwalk	Service		Transfer opportunity in Norwalk for OCTA riders heading to Lakewood
	Add six (6) freeway routes, including service to Irvine and Santa Ana	Service		Improve intermodal facilities in Irvine/Santa Ana; and modify fixed route service plans
	Expand service hours by 50% over current	Service		
	East-West downtown Long Beach circulator	Capital		
NORWALK	Expanded parking at Norwalk / Sante Fe Metrolink station	Capital		Increased PnR capacity will not impact fixed route services
METROLINK	Infill station construction - Placentia	Capital		Access to 91/Perris Valley Line for communities in northern Orange County
AMTRAK	Completion of the third main line track between Fullerton and Los Angeles	Capital		Improve fixed route connection and parking capacity at Amtrak stations (nominal)
	Introduce new San Diego to Los Angeles round trip	Service		

<sup>\*</sup>Cerritos on Wheels has no projects in the works

## What does transit between the counties look like today?

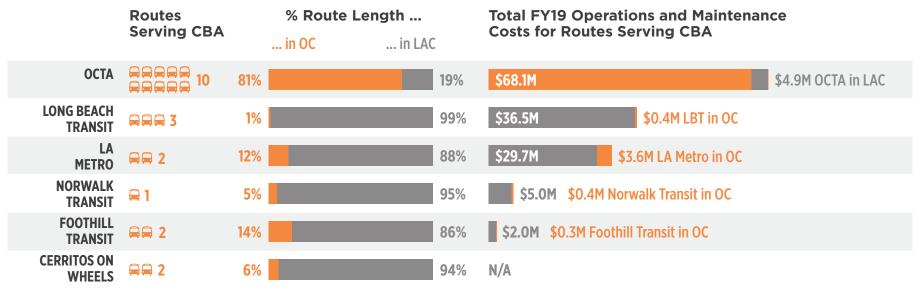
The intercounty fixed route transit network consists of the regional rail network, as well as local and express bus services that cross the county boundary. These provide connections to key destinations and transit facilities.

The majority of intercounty passenger rail trips are taken along the LOSSAN Corridor, which supports Metrolink Orange County Line and 91/Perris Line commuter rail, as well as Amtrak Pacific Surfliner service. The LA Metro Green line serves the county border area via its terminal station in the City of Norwalk (LA County).

OCTA is the fixed route bus transit operator for Orange County, with 10 intercounty routes serving the county border area and destinations in LA County. Five (5) transit agency stakeholders currently operate fixed route service to Orange County along 10 additional bus lines.

#### Limited crossborder investments

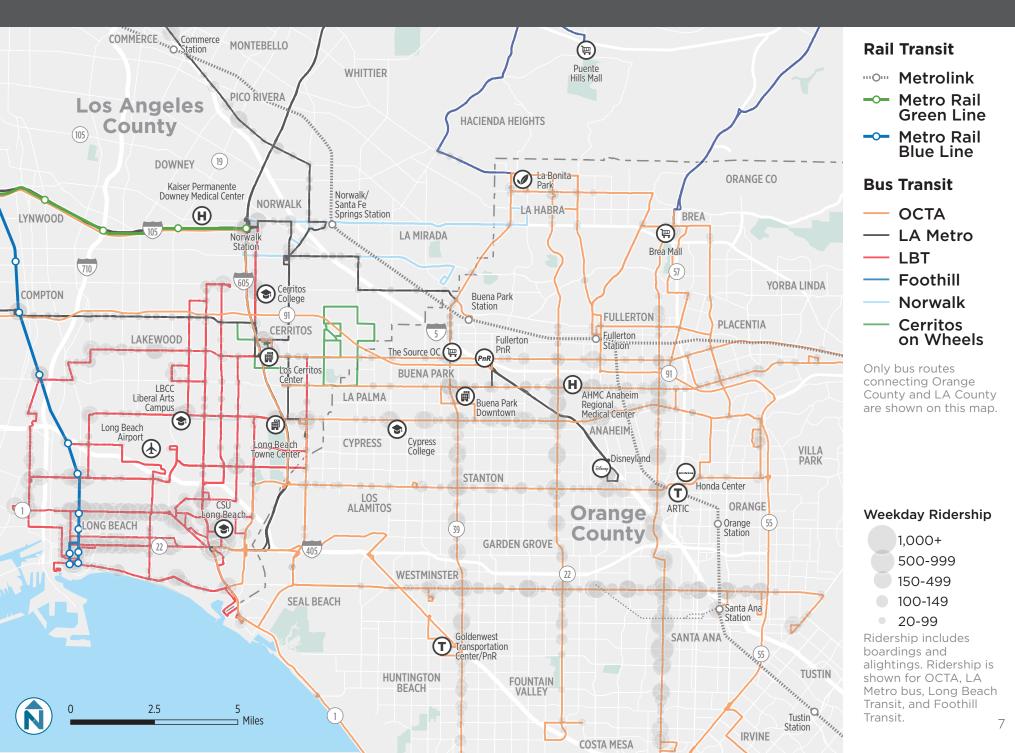
The total investment of intercounty fixed route bus service by all six operators is less than 7% of their combined annual operating budgets. The combined annual investment in intercounty bus service by transit operators in Los Angeles County (\$4.64 million) and OCTA (\$4.85 million), are respectively similar.





Note that COW operates 2 fixed routes, each with multiple route deviations. Some route deviations may serve intercounty trips, but the proportional cost of intercounty trips was not able to be determined.

### **Intercounty Fixed route Transit Network**



## How do transit riders travel across county lines?

Due to jurisdictional boundaries, most intercounty transit trips require a transfer between fixed routes and transit agency operators. Even the one-seat rides along express bus or rail routes connecting urban job centers often require transfer to local buses or alternative means to connect passengers with their final destinations.

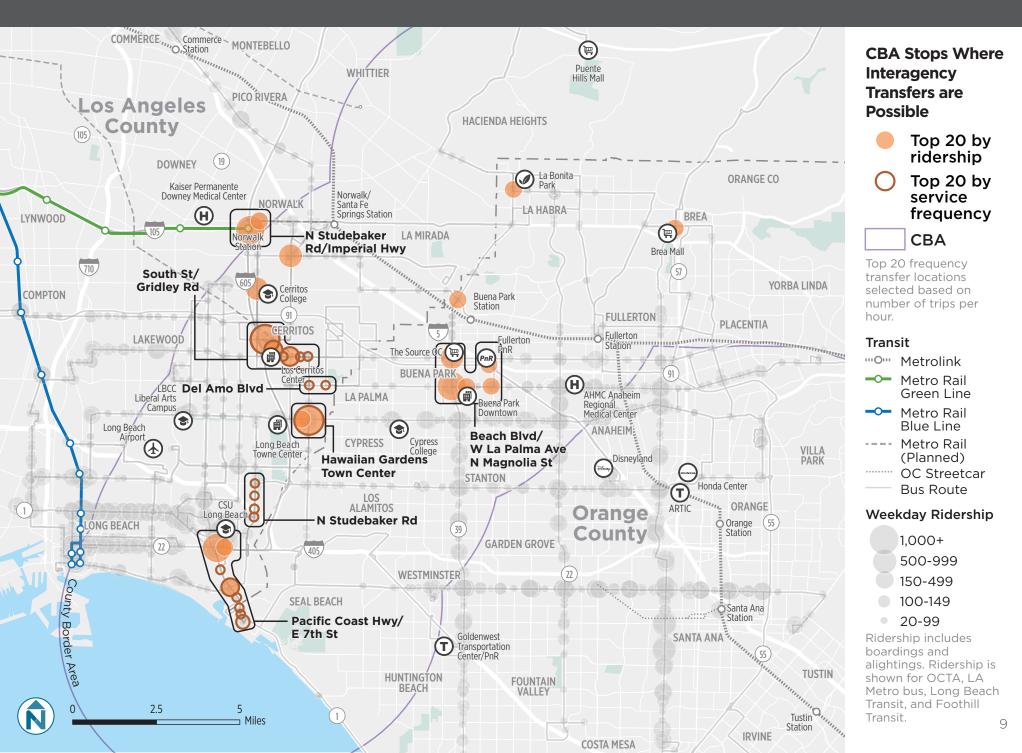
To facilitate transfers, neighboring transit providers often operate bus routes that converge at regional activity centers or key facilities.

#### Analysis of ridership and transfer hotspots

Connect OC-LA analyzes ridership and frequency of service for bus lines in the intercounty fixed route network to identify bus stop locations and street segments that could benefit from infrastructure investments aimed at improving speed, reliability, and passenger comfort.



### **CBA Ridership and Intercounty Transfer Hotspots**



## How can Big Data help us identify travel markets?

#### What is a travel market?

A travel market is a pattern of many people making similar trips from one place to another on a regular basis. Markets can be defined by time periods, the most common being morning and evening commute times (i.e., peak periods). Intercounty travel occurs at all hours of the day and travel markets vary based on many factors such as trip purpose and distance.

#### Why not use existing transportation models?

Regional travel demand models (RTDM) are the tool most commonly used by transportation agencies to measure existing trends and project changes to travel patterns based on future conditions. The RTDM maintained by the Southern California Association of Governments (SCAG) covers transportation across six counties and over 38,000 square miles. It is not sufficiently fine-grained to represent intercounty trips near the OC-LA border.

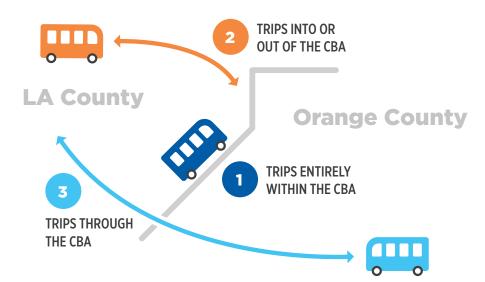
## Connect OC-LA approach: use Big Data from Streetlight

As a result of the limitations of RTDM, Connect OC-LA uses an innovative Big Data source—supplied by Streetlight—to analyze intercounty travel patterns. Streetlight data provides a large sample of daily travel patterns by indexing millions of anonymized location records from smart phones and navigation devices in

connected cars and trucks traveling between Orange and LA counties. Along with context from other data sources—such as the road network and fixed route transit network—Streetlight data can help us understand study area transportation patterns.

Connect OC-LA uses Streetlight data for a six-month period from September 2018 to April 2019.

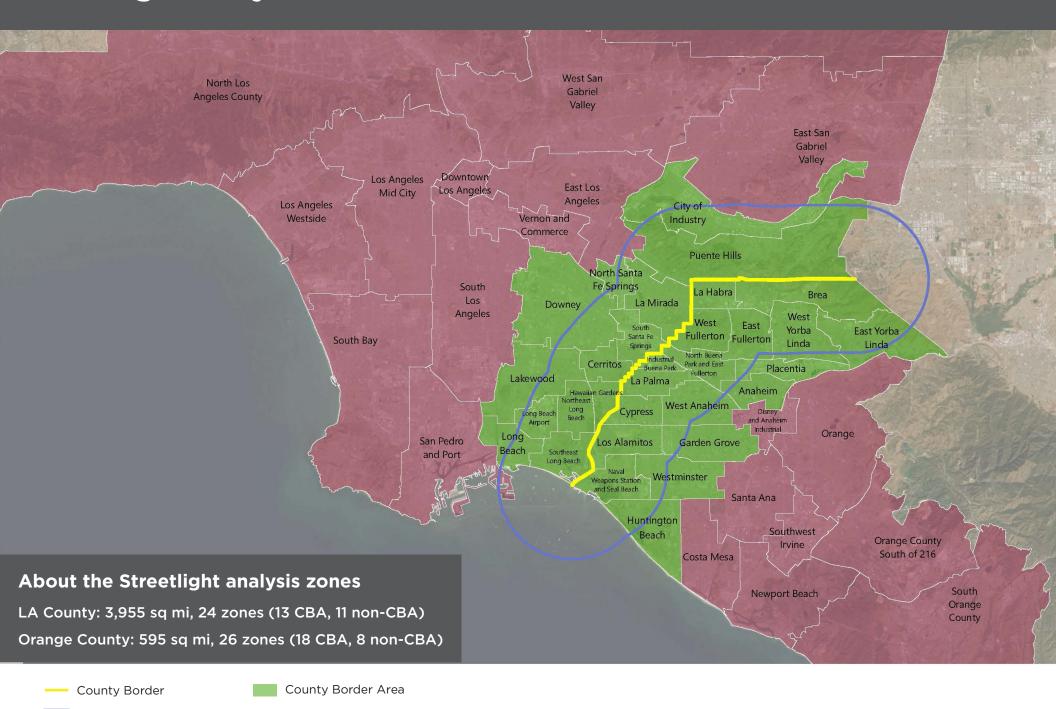
By defining the county border area zones around existing cities and population clusters, our process identifies more granular trip patterns. It also takes into consideration longer distance trips that could benefit from improved transit connections to commuter bus and regional rail options. Specifically, the travel market analysis using Streetlight data includes three types of trip patterns as shown below.



### **Streetlight Analysis Zones**

County Border 5 mile Area

Outside County Border Area



## Which travel markets are unserved or underserved?

The objective of the travel analysis is to identify travel markets—origin-destination (O-D) zone pairs—that could benefit from improved intercounty transit services. This analysis focuses on markets that are currently unserved or underserved by transit.

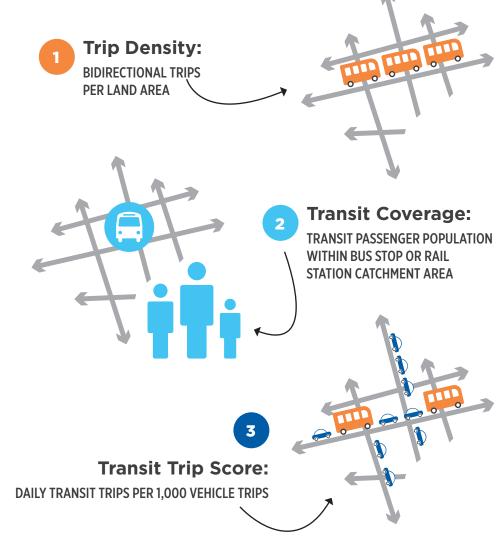
## Transit level of service to determine unserved and underserved markets

To determine unserved and underserved markets, this analysis calculates a transit level of service (LOS) for each Orange-LA County analysis zone pair. The LOS calculation includes three performance metrics:

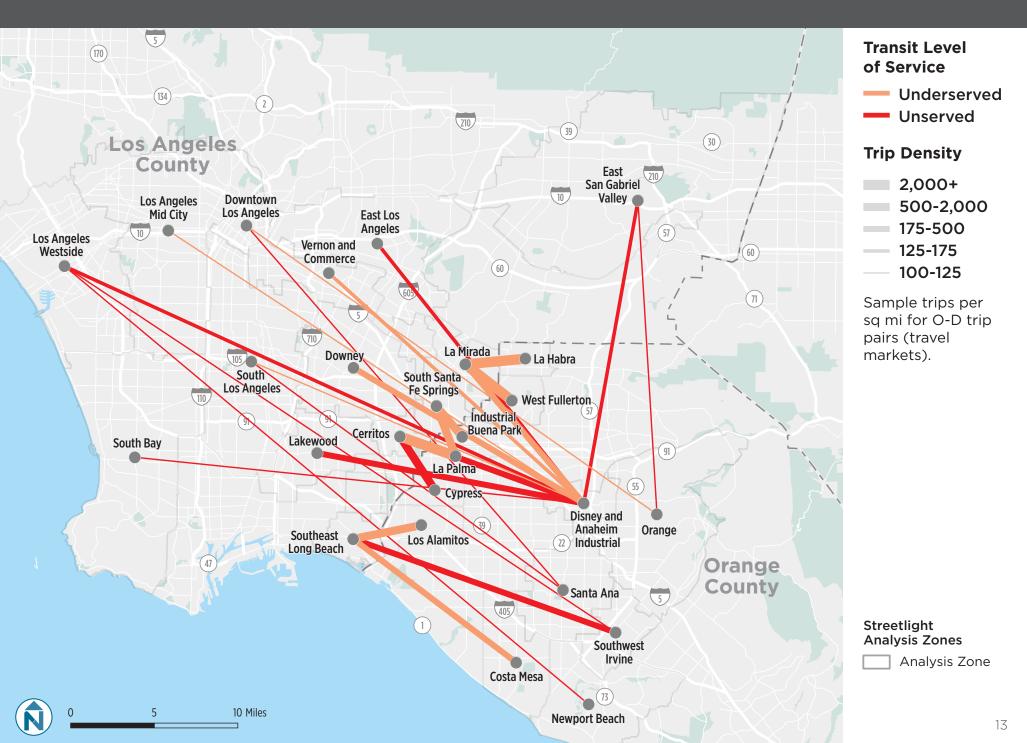
- Trip Density: Bi-directional trips per land area
- **Transit Coverage:** Transit passenger population within bus stop or rail station catchment area
- **Transit Trip Score:** Daily transit trips per 1,000 vehicle trips

Within each trip pattern type (within CBA, into or out of CBA, and through CBA) the results of each performance metric were categorized into three tiers.

An aggregate LOS rating was then determined based on the high-, medium-, low- assignments for each performance metric. O-D pairs were classified as Well Served, Moderately Served, Under served, or Unserved.



### **Unserved and Underserved Intercounty Travel**



## How did we engage the community?



We gathered community feedback from an intercept survey of transit riders taken at 20 key locations near the OC-LA border. The survey—which was available in three languages—collected 151 responses.

Respondents identified predominantly as people of color (84% of those who specified a race or ethnicity, or 72% of all respondents), and as intercounty transit riders (93% of respondents).

The home and destination ZIP codes of respondents indicated that most either live or spend spend time near the OC-LA border. For detailed ZIP code maps and other survey details, refer to the full Existing and Planned Services report.

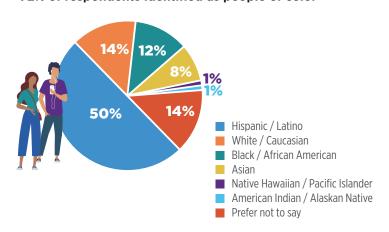
#### 151 surveys collected

#### 93% respondents identified as intercounty transit riders

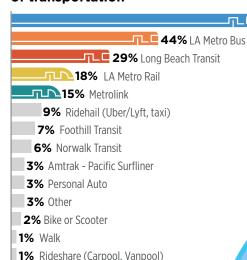


72% OC Rus

#### 72% of respondents identified as people of color



### Frequently used intercounty mode of transportation



#### Survey languages

English, Spanish, & Vietnamese









## What did we hear?

The survey asked respondents about the factors influencing their use of public transit, their level of satisfaction as transit riders, and their overall comments.

#### Frequency and speed are most important

By a wide margin, the two factors that respondents would most like to see are frequency (51%) and speed (46%). Other important factors include span (30%), coverage (27%), and route directness (25%).

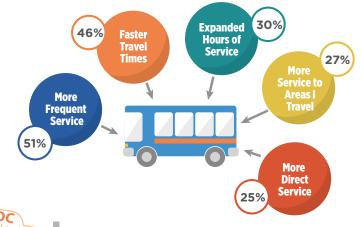
#### High level of satisfaction today

With 6 being the highest rating, respondents rated the transit rider experience at nearly 5.

#### **Open-ended comments**

The word cloud below presents the results of the openended questions on the survey. Common responses included passenger information and amenities; connections to specific places; and connections between different providers.

#### Top 5 factors that encourage use of public transit



Norwalk Downey West Covina

Firestone Los Angeles Lakewood Long Beach Hawaiian Gardens Pacific Palisades Pomona Whittier



Typical transit rider experience (6 being highest)



Huntington Beach to Long Beach Huntington Beach connection to rail Bellflower to Cerritos Los Alamitos to Long Beach PCH, Long Beach

## What are the opportunities for improvement?

Connect OC-LA uses four sets of inputs to identify **preliminary opportunities** for intercounty transit improvements: (1) Plan Review; (2) Fixed Route Ridership and Transfer Potential; (3) Big Data Travel Market Analysis; and (4) Community Engagement.



#### **Plan Review**

The review of previous plans and studies identified future high capacity transit investments and service changes for transit agency stakeholders near the OC-LA County border area.



#### Fixed Route Ridership and Transfer Potential

Analysis of the intercounty fixed route bus network, service levels, and ridership identified several high-volume bus stop locations and roadway segments that could benefit from infrastructure investments to improve speed, reliability, and passenger comfort.



#### Big Data Travel Market Analysis

The analytical tools available through Streetlight data collection were used to consistently determine emerging zone-to-zone travel patterns between the counties that are currently underserved or unserved by transit.



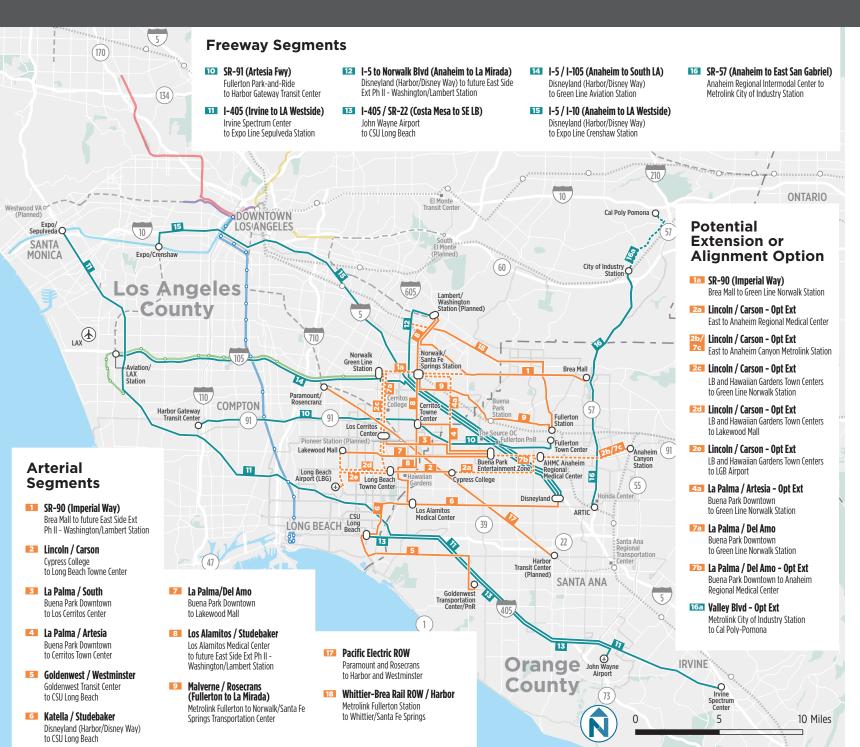
## Community **Engagement**

Feedback from existing intercounty transit riders and Transit Agency Stakeholders Committee (TAS) reinforce the technical justifications for a range of investments to improve the transit options available to residents and employees for intercounty travel needs.





### **Potential Corridor Segments**



- Arterial Segments
- Freeway Segments
- Potential
  Extension or
  Alignment
  Option
- Potential Corridor Terminus

#### **Transit**

.... Metrolink

Metro Rail (Existing)

--- Metro Rail (Planned)

······ OC Streetcar

Bus Route

Only bus routes connecting Orange County and LA County are shown on this map.

## How did we refine and screen these corridors?

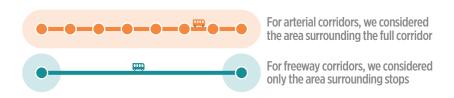
With potential corridor segments identified, we refined their alignments to With potential core corridor segments and extensions identified, we then refined their alignments to define 25 specific OC-LA Corridors that could be compared against one another. Using feedback from members of the Transit Agency Stakeholder (TAS) committee, we logically matched core segments with possible extensions to avoid duplication and test how well the end-to-end segments would address unserved or underserved transit travel demand patterns.

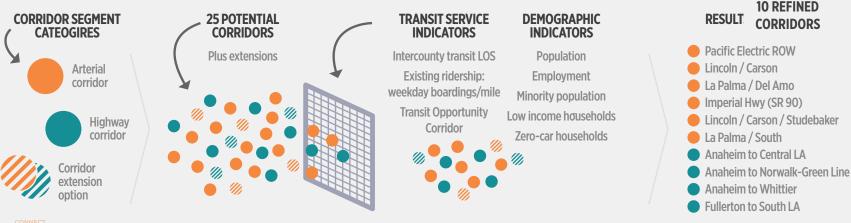
#### **Preliminary Screening**

A preliminary screening process determined which 10 of the 25 Potential Corridors should be the focus of more detailed evaluation.

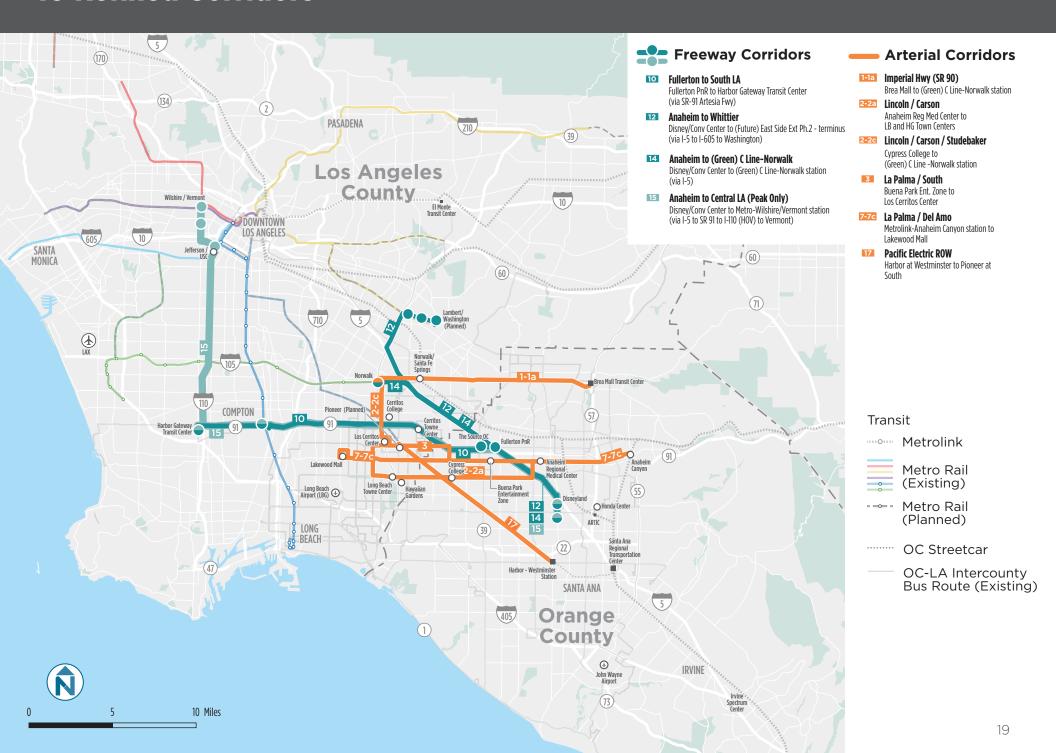
#### Freeway and Arterial Corridor Screening

We screened freeway and arterial corridors using slightly different methods. For arterial corridors, we considered the area around the *entire corridor*. For freeway corridors, we only focused on the area around the proposed stops. This is because freeway corridors have very limited intermediate stops, if any intermediate stops, where the transit service may be accessed by the surrounding community.





### **10 Refined Corridors**



## What are the characteristics of the 10 refined corridors?

Before we evaluated the final corridors, we assigned high-level operational characteristics to each one. These characteristics were inputs to the evaluation:

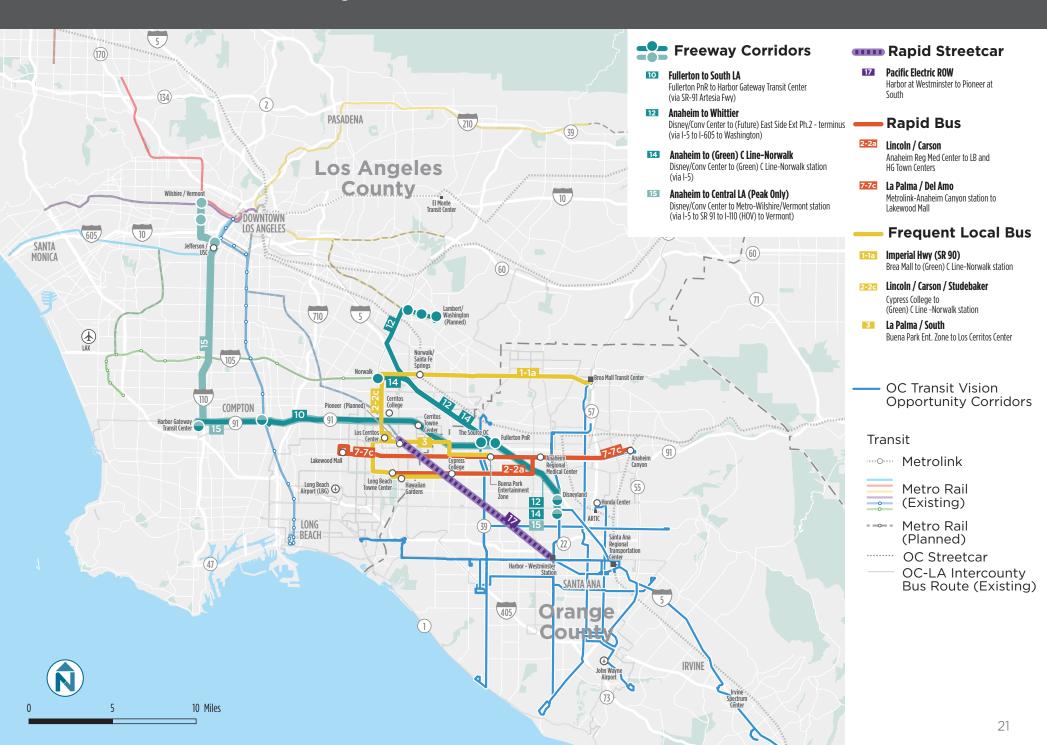
- **Mode.** Mode explains the type of transit service, such as bus rapid transit (BRT) or frequent local bus.
- **Frequency.** Frequency describes how often the transit runs, e.g., every 10 minutes or every 30 minutes.
- **Stop spacing.** The space between each stop or station, which partly determines how fast the vehicle can travel.

The table below describes each mode as well as its typical frequency and stop spacing. It also identifies the modes associated with the Connect OC-LA corridors.

Mode	Description	Frequency	Stop Spacing	OC-LA Corridors
LRT / RAPID STREETCAR	Light rail transit (LRT)—including rapid streetcar has a fully dedicated right-of-way and wide stop spacing	Service every to to 10 mins 15 mins	0.75 – 1.5 miles	Pacific Electric ROW
BRT	Arterial bus rapid transit (BRT) is a high-quality bus service that uses dedicated lanes, but may not have a fully dedicated right-of-way	Service every to 10 mins 20 mins	0.5 – 1 mile	(N/A)
RAPID BUS	Rapid bus is very similar to BRT, but does not necessarily operate in dedicated transit lanes	Service every to 10 mins 20 mins	0.5 – 1 mile	Lincoln / Carson La Palma / Del Amo
FREQUENT LOCAL BUS	Frequent local bus is traditional all-day service with short frequency, particularly during peak periods	Service every to to 15 mins 40 mins	0.2 - 0.5 miles	Imperial Hwy (SR 90) Lincoln / Carson / Studebaker La Palma / South
FREEWAY BRT	Freeway BRT operates on freeways, either in regular traffic lanes, high-occupancy vehicle (HOV)/managed lanes, or along the shoulders	Service every to to 15 mins 30 mins	point-to-point	Anaheim to Central LA Anaheim to (Green) C Line-Norwalk Anaheim to Whittier Fullerton to South LA



## **10 Refined Corridors by Mode**



## How did we evaluate the 10 refined corridors?

The purpose of evaluating the corridors is to understand which ones best meet OC Transit Vision goals, as well as the goals specific to Connect OC-LA. In other words, the evaluation tells us how well we expect each corridor to perform.

Our corridor evaluation replicates the OC Transit Vision evaluation, which includes 11 categories of metrics based on the five Transit Vision goals. By using the same metrics, we can compare our corridors' results with those of the OC Transit Vision Opportunity Corridors.

The table on the next page presents each evaluation category, the Transit Vision goals that it relates to, and the evaluation metrics it contains.

#### **Evaluation Scoring**

Scores for each evaluation metric range from 1 to 5 (highest). For the quantitative metrics, the scores were distributed based on natural breakpoints in data. For the qualitative metrics, scores were based on relative comparisons between corridor mode or service operations assumptions, with the higher capacity modes and operating frequencies receiving higher scores.

#### **OC Transit Vision Goals**



#### **Enhance**

Make it more desirable to take transit



#### Connect

Connect Orange County's people and places with effective transit



#### **Simplify**

Make transit easier to use and more convenient



#### Collaborate

Make Orange County a more attractive place to live, work, and visit by providing transit service that supports community priorities



#### Sustain

Create a system that is resilient over the long term



## How do evaluation metrics relate to OC Transit Vision goals?

Evaluation Category	Goals	Metrics
SPEED AND RELIABILITY		<ul> <li>Percent of route with transit-only right-of-way</li> <li>Percent of route with grade separation</li> <li>Peak and base frequency</li> <li>Average speed</li> </ul>
RIDERSHIP, MODE SHIFT, AND VMT REDUCTION		<ul><li>New transit trips</li><li>Vehicle miles traveled/CO2 emissions</li></ul>
DENSITY AND CONNECTIONS TO ACTIVITY CENTERS		<ul> <li>Population density within 1/2 mile</li> <li>Employment and postsecondary enrollment density within 1/2 mile</li> <li>Density of hospital beds and retail stores within 1/2 mile</li> <li>Additional major destinations within 1/2 mile</li> <li>Traffic volumes at arterial intersections per corridor mile</li> </ul>
MULTIMODAL CONNECTIVITY		<ul> <li>Number of connections to existing or future Metrolink stations, transit centers, major routes, and park-and-rides</li> <li>Intersection density per square mile</li> <li>Pedestrian network serving transit</li> <li>Number of connections to existing or planned high-quality bicycle facilities (off-street or protected on-street)</li> </ul>
CAPACITY		<ul><li>Person throughput</li><li>Traffic impact</li></ul>
SAFETY		Potential for reduction in collision rates and severity
PASSENGER COMFORT AND AMENITIES		Passenger comfort     System legibility
EQUITY		<ul> <li>Density of households with annual incomes &lt; \$40,000</li> <li>Density of seniors and people with disabilities</li> <li>CalEnviroScreen scores</li> </ul>
ECONOMIC DEVELOPMENT		Support for retail activity
TRANSIT-SUPPORTIVE POLICY		Support for transit-oriented development
COST-EFFECTIVENESS AND PRODUCTIVITY		<ul> <li>Capital cost per boarding</li> <li>Operating cost per boarding</li> <li>Boardings per revenue hour</li> <li>Boardings per revenue mile</li> </ul>

## How did each corridor score?

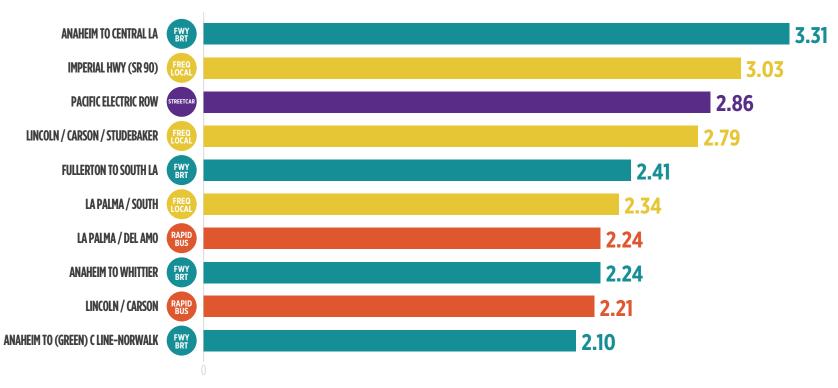
This section presents the evaulation results for the 10 refined corridors, using the 29 metrics listed on the previous page. More detailed information about the methodology is available in *OC-LA Corridor Evaluation and Recommendations Report*.

The chart below lists the average score for OC-LA corridors based on the 29 evaluation metrics. The tables on subsequent pages reveal individual scores for each evaluation metric, for the 10 refined corridors.

The top performing corridors were:

- Anaheim to Central LA (Freeway BRT)
- Imperial Hwy (SR 90) (Frequent Local Bus)
- Pacific Electric ROW (LRT/Rapid Streetcar)
- Lincoln/Carson/Studebaker (Frequent Local Bus)
- Fullerton to South LA (Freeway BRT)

#### **Overall Corridor Evaluation Scores (1 to 5)**



### **Speed and Reliability**

### Ridership, Mode Shift, and VMT Reduction

	Corridor	Percent of route with transit-only right-of-way	Percent of route with grade separation	Peak and base frequency	Average speed	New transit trips	Vehicle miles traveled/ CO2 emissions
STREETCAR	PACIFIC ELECTRIC ROW	••••	•••••	••••	•••••	•••••	•••••
RAPID	LINCOLN / CARSON	•••••	•••••	••••	•••••	•••••	•••••
RAPID	LA PALMA / DEL AMO	•••••	••••	••••	•••••	••••	••••
FREQ	IMPERIAL HWY (SR 90)				•••••	•••••	••••
FREQ	LINCOLN / CARSON / STUDEBAKER				•••••	••••	••••
FREQ	LA PALMA / SOUTH				••••	••••	••••
FWY BRT	ANAHEIM TO CENTRAL LA	•••••	••••	•••••	••••	•••••	•••••
FWY	ANAHEIM TO (GREEN) C LINE- NORWALK	••••	••••	•••••	••••	•••••	•••••
FWY	ANAHEIM TO WHITTIER	••••	••••	•••••	••••	•••••	•••••
FWY	FULLERTON TO SOUTH LA	••••	••••	•••••	••••	•••••	•••••

### **Density and Connections to Activity Centers**

			1				I
		Corridor	Population density within 1/2 mile	Employment and postsecondary enrollment density within 1/2 mile	Density of hospital beds and retail stores within 1/2 mile	Additional major destinations within 1/2 mile	Traffic volumes at arterial intersections per corridor mile
ST	TREETCAR	PACIFIC ELECTRIC ROW	•••••	•••••	••••	•••••	•••••
F	RAPID BUS	LINCOLN / CARSON	••••	•••••	•••••	••••	•••••
F	RAPID BUS	LA PALMA / DEL AMO	••••	••••	•••••	•••••	•••••
L	FREQ .OCAL	IMPERIAL HWY (SR 90)	••••	•••••	••••	••••	•••••
L	FREQ LOCAL	LINCOLN / CARSON / STUDEBAKER	•••••	••••		••••	••••
L	FREQ LOCAL	LA PALMA / SOUTH		••••	••••	•••••	
	FWY BRT	ANAHEIM TO CENTRAL LA	•••••	•••••	•••••	•••••	•••••
	FWY BRT	ANAHEIM TO (GREEN) C LINE- NORWALK	•••••	•••••	•••••	••••	••••
	FWY BRT	ANAHEIM TO WHITTIER	••••	••••	•••••	•••••	••••
	FWY BRT	FULLERTON TO SOUTH LA	•••••	•••••	•••••	••••	•••••
		<u> </u>					

		Mu	ultimodal	Сар	acity		
	Corridor	Number of connections to existing or future Metrolink stations, transit centers, major routes, and park-and-rides	Intersection density per square mile	Pedestrian network serving transit	Number of connections to existing or planned high-quality bicycle facilities (off-street or protected on-street)	Person throughput	Traffic impact
STREETCAR	PACIFIC ELECTRIC ROW	•••••	•••••	•••••	•••••	•••••	••••
RAPID	LINCOLN / CARSON	•••••	••••	•••••	••••	•••••	••••
RAPID	LA PALMA / DEL AMO	••••	•••••	•••••	•••••	•••••	••••
FREQ	IMPERIAL HWY (SR 90)	•••••	•••••	•••••	••••	•••••	••••
FREQ	LINCOLN / CARSON / STUDEBAKER		••••			•••••	••••
FREQ	LA PALMA / SOUTH		•••••	•••••		•••••	•••••
FWY	ANAHEIM TO CENTRAL LA	•••••	•••••	•••••	•••••	••••	•••••
FWY	ANAHEIM TO (GREEN) C LINE- NORWALK	•••••	••••	•••••	•••••	••••	•••••
FWY	ANAHEIM TO WHITTIER	••••	••••	•••••	•••••	••••	••••
FWY	FULLERTON TO SOUTH LA	••••	•••••	•••••	•••••	••••	••••

## **Evaluation Results** (5 of 6)

		Safety	Pasenger Comfort and Amenities			Equity		
	Corridor	Potential for reduction in collision rates and severity	Passenger comfort	System legibility	Density of households with annual incomes < \$40,000	Density of seniors and people with disabilities	CalEnviroScreen scores	
STREETCAR	PACIFIC ELECTRIC ROW	•••••	•••••	••••	••••	•••••	••••	
RAPID	LINCOLN / CARSON	••••	•••••	•••••	•••••	•••••	••••	
RAPID	LA PALMA / DEL AMO	••••	•••••	•••••	••••	•••••	•••••	
FREQ	IMPERIAL HWY (SR 90)	•••••		••••	•••••	••••	••••	
FREQ	LINCOLN / CARSON / STUDEBAKER	••••		•••••	•••••	••••	••••	
FREQ	LA PALMA / SOUTH	••••		•••••		••••	•••••	
FWY	ANAHEIM TO CENTRAL LA	•••••	••••	•••••	•••••	•••••	•••••	
FWY	ANAHEIM TO (GREEN) C LINE- NORWALK	•••••	••••	•••••	•••••	•••••	•••••	
FWY	ANAHEIM TO WHITTIER	•••••	••••	•••••	•••••	••••	•••••	
FWY	FULLERTON TO SOUTH LA	•••••	••••	•••••	•••••	•••••	•••••	

		ment	for TOD	Cost-Ef	fectivenes	s and Prod	ductivity	
			Support for transit-	Capital cost	Operating cost	Boardings	Boardings	
	Corridor	Support for retail activity	oriented development	per boarding	per boarding	per revenue hour	per revenue mile	
STREETCAR	PACIFIC ELECTRIC ROW	•••••	••••	•••••	•••••	•••••	••••	
RAPID	LINCOLN / CARSON	•••••	••••	•••••	•••••	•••••	•••••	
RAPID	LA PALMA / DEL AMO	••••	••••	••••	•••••	•••••	••••	
FREQ	IMPERIAL HWY (SR 90)	•••••			••••	•••••	•••••	
FREQ	LINCOLN / CARSON / STUDEBAKER	•••••		••••	••••		••••	
FREQ	LA PALMA / SOUTH	••••	••••	••••	••••	•••••	••••	
FWY	ANAHEIM TO CENTRAL LA	•••••	••••	•••••	••••	•••••	•••••	
FWY	ANAHEIM TO (GREEN) C LINE- NORWALK	••••	••••	•••••	•••••	•••••	•••••	
FWY	ANAHEIM TO WHITTIER	••••	•••••	•••••	••••	•••••	•••••	

••••• ••••

**Economic** 

FWY BRT

**FULLERTON TO SOUTH LA** 

**Develop- Support** 

••••

00000 00000

## Which corridors should we consider for implementation?

Five corridors were selected for further study and potential implementation based on the evaluation results:



#### 1. Anaheim to Central LA

Highest performing Freeway corridor due to connectivity to multiple urbanized areas, regional transit facilities, and job centers.



#### 2. Imperial Hwy (SR 90)

Performed well in terms of ridership, cost-effectiveness, environment, connectivity to regional rail stations, and underlying service quality.



#### 3. Pacific Electric ROW\*

Strong ridership potential and cost-effectiveness, as well as environmental and safety benefits.

\* Further study recommended for Pacific Electric ROW prior to implementation



#### 4. Lincoln / Carson / Studebaker

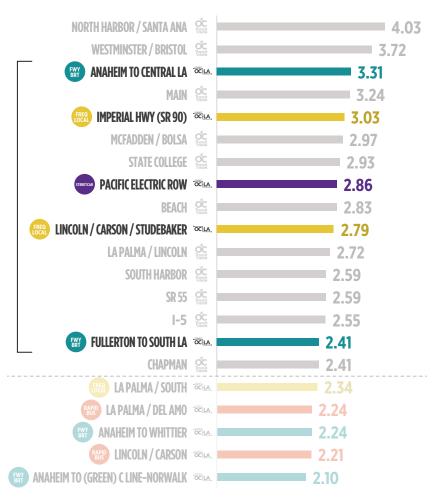
Serves several local and regional trip generators in areas of high density and residential growth within the CBA.



#### 5. Fullerton to South LA

High ridership among Freeway corridors, primarily due to frequent regional transit connectivity with the Metro Blue (A) and Silver (J) Lines.

How do these five corridors compare with OC Transit Vision's opportunity corridors?





#### **Anaheim to Central LA**

Freeway BRT from ARTIC to Wilshire/ Vermont via I-5, SR 91, and I-110

#### **Frequency**

Weekday peak: 30 minutes

Weekday off-peak: NA

Weekend: NA

#### **Opportunities/Constraints**

- Extend eastern terminus to ARTIC station over turnaround at Convention Center
- Opportunity for additional stop at Fullerton PnR
- Metro is interested in more direct Line 460 routing between (Green) C Line-Norwalk station and Disney
- Underserved markets from Anaheim and Fullerton to South LA and Downtown LA

#### Recommendations

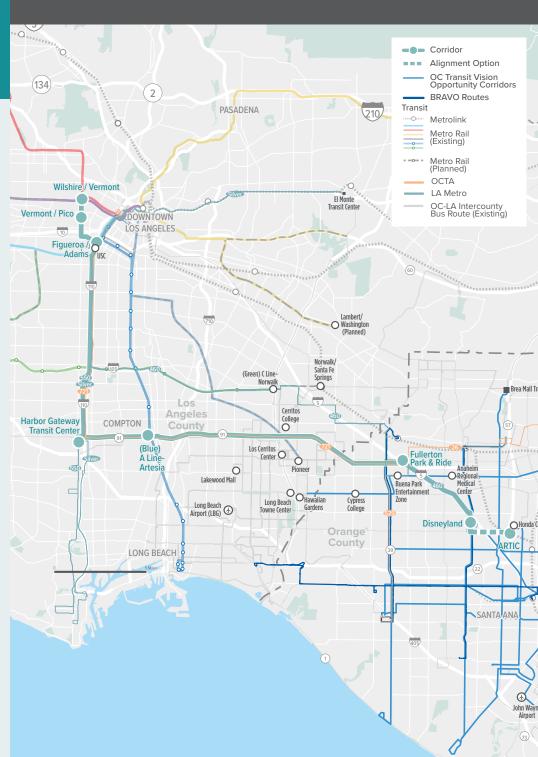
Extend existing OCTA Route 721 to Central LA

#### **Short-Term Actions**

- Identify operating requirements to extend Route 721
- Coordinate LA Metro terminal layover and station interface accommodations
- Begin operations

#### **Medium-Term Actions**

 Monitor performance for extension beyond peak periods and identify funding



## Frequent Local Bus from Brea Mall to (Green) C Line-Norwalk station

#### Frequency

Weekday peak: 15 minutes

Weekday off-peak: 20 minutes

Weekend: 40 minutes

#### **Opportunities/Constraints**

- Regional transit connections at (Green) C Line and Metrolink, Brea Mall Transit Center
- Bus capacity constraints at (Green) C Line-Norwalk station (improvements may not be needed if only modifying Norwalk Transit Route 4)
- Underserved markets from La Habra, La Palma, and W Fullerton to La Mirada and S Santa Fe Springs

 OCTA used to operate a Route 20 to Brea Mall, but discontinued due to low performance

#### Recommendations

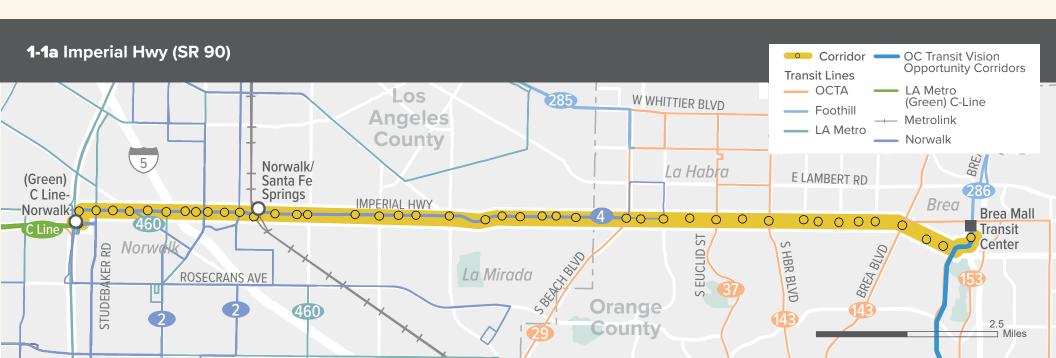
Extend Norwalk Transit Route 4 to Brea Mall

#### **Short-Term Actions**

- Work with Norwalk Transit to determine operational requirements and potential service costs
- Determine funding for extension of service

#### **Medium-Term Actions**

• Begin operations and monitor performance





Rapid Streetcar from Santa Ana (Harbor & Westminster) to Los Cerritos (Pioneer & South)

#### Frequency

Weekday peak: 10 minutes

Weekday off-peak: 15 minutes

Weekend: 15 minutes

#### **Opportunities/Constraints**

- Vehicle technology compatible with OC Streetcar and would extend operations from streetcar terminus at (new) Santa Ana transit hub
- Opportunity for dedicated guideway, with minimal at-grade crossings of major arterials. Potential stations impacts to adjacent ROW
- Safety considerations at additional grade crossings and jurisdictional coordination required
- High cost of construction and continued operations, but high ridership potential

#### Recommendations

This project merits further study to determine the appropriate HCT service and roadmap for implementation

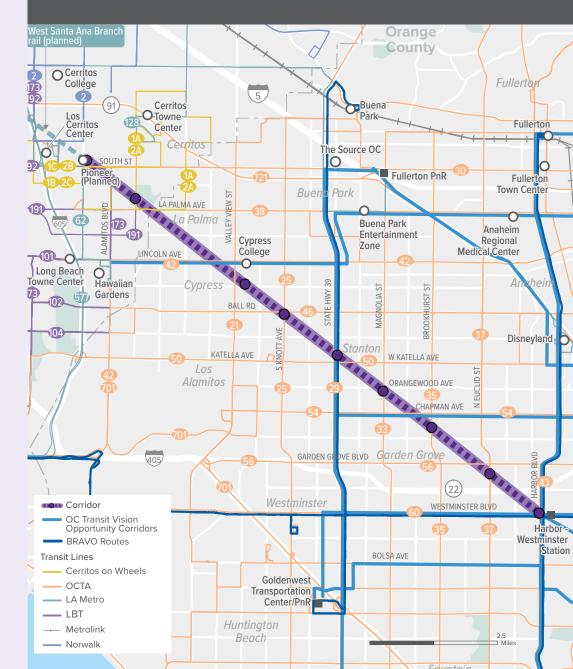
#### **Short-Term Actions**

• Identify funding for further study

#### **Medium-Term Actions**

- Coordinate with LA Metro West Santa Ana Branch (WSAB) Project and terminus at Pioneer station
- Conduct corridor study to select preferred solution
- Identify potential funding sources for project development and implementation

#### **14** Pacific Electric ROW



## Frequent Local Bus from Cypress College to (Green) C Line-Norwalk station

#### Frequency

Weekday peak: 15 minutes

Weekday off-peak: 20 minutes

Weekend: 40 minutes

#### **Opportunities/Constraints**

• Bus capacity constraints at (Green) C Line-Norwalk station

- Multiple Operators and fixed routes converging in different corridor segments
- Unlikely going to be a new route -- requires coordinate with Norwalk Transit (Route 2), Long Beach Transit (Route 172/173) for potential route modification options or extensions of service.
- Moderately served existing transit markets connecting Cypress College, Hawaiian Gardens Town Center, LB Town Center, Los Cerritos Center, C Line-Norwalk

#### Recommendations

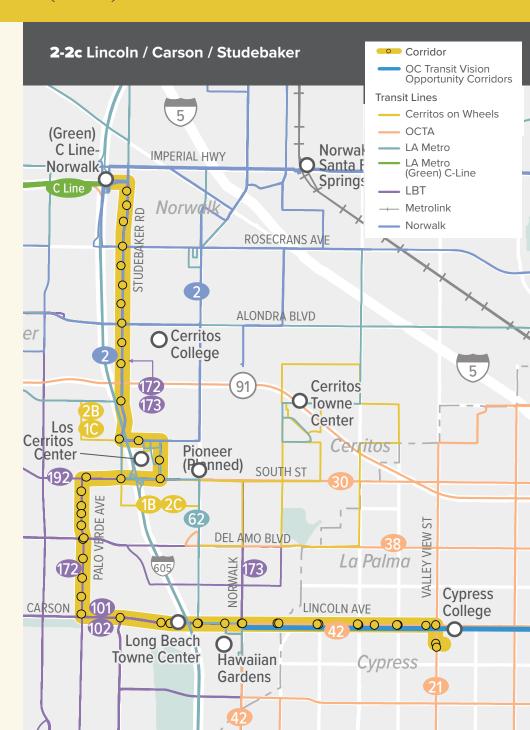
Coordinate with Norwalk and Long Beach to determine potential solution, including (1) existing fixed route modification or extensions of service; and (2) location for potential mobility hub and surface transfers

#### **Short-Term Actions**

- Establish operational requirements and costs
- Determine funding for extension of service

#### **Medium-Term Actions**

• Begin operations and monitor performance



## Freeway BRT from Fullerton PnR to Harbor Gateway Transit Center

#### Frequency

Weekday peak: 15 minutes

Weekday off-peak: 30 minutes

Weekend: 30 minutes

#### **Opportunities/Constraints**

- Short-term opportunity to integrate OC-LA Route 10 into Route 15 to test market demand and consider all-day vs peak-only service options
- Consider final terminal, intermediate stations/ connection options. adding Fullerton PnR stop, A Line-Artesia (would change service to pk hour only for short term implementation)
- Regional transit connections opportunities, but bus capacity and layover constraints, at (Blue) A Line-Artesia station and Harbor Gateway Transit Center

 Supports Unserved and Underserved transit markets from Anaheim and W Fullerton to Lakewood and South Los Angeles

#### Recommendations

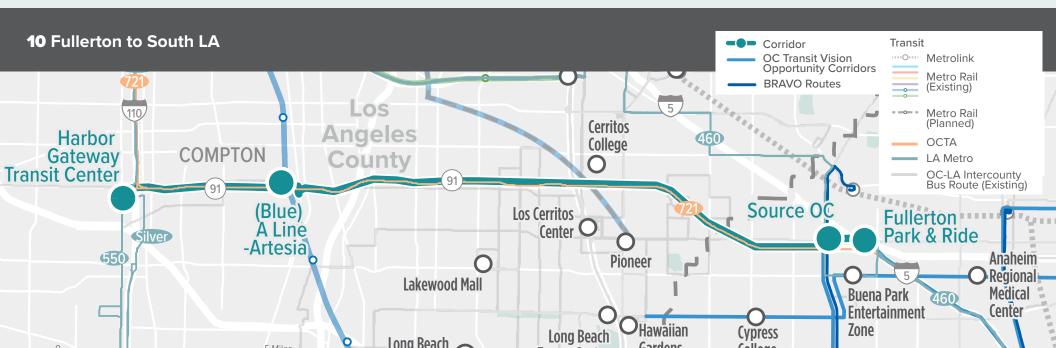
Consider incorporating route within the OC-LA Anaheim to Central LA route operations

#### **Short-Term Actions**

- Monitor performance of Anaheim to Central LA; implement independent service as needed
- Work with LA Metro to identify future operator responsibilities and potential costs of service

#### **Medium-Term Actions**

Accommodate layover space at HGTC



## What about the other corridors?

In addition to the top performing OC-LA corridors identified as a result of the detailed corridor evaluation, we also identified opportunities to improve transit service connectivity within the remaining corridors.

RAPID BUS

#### La Palma / Del Amo

Buena Park Entertainment Zone to Los Cerritos Center

#### Recommendation

- Consider replacement and extension of existing OCTA route 38.
- Identify potential station improvements in Lakewood, Hawaiian Gardens, and Anaheim.
- OCTA, LA Metro, Long Beach coordinate modifications to current service operations and potential costs.

RAPID BUS

#### Lincoln / Carson

Metrolink-Anaheim Canyon station to Lakewood Mall

#### Recommendation

- OCTA and Long Beach coordinate to determine potential solution, including modification or extensions of existing service; and potential locations for surface transfers or mobility hub
- Develop funding mechanism for service extension



FWY BRT

#### **Anaheim to Whittier**

ARTIC to Future East Side Extension
Phase 2 terminus

#### Recommendation

 OCTA and LA Metro to consider service development opportunities aligning with implementation of future (Gold) L Line extension. Coordinate potential bus interface accommodations, as needed. FWY BRT

## Anaheim to (Green) C Line-Norwalk

Anaheim Regional Medical Center to Long Beach Town Center and Hawaiian Gardens Town Center

#### Recommendation

 Consider opportunities between OCTA and LA Metro to improve existing fixed route connections within existing bus bay capacity constraints at Norwalk station. FREQ LOCAL

#### La Palma / South

Via I-5, I-605, and Washington

#### Recommendation

- OCTA, Cerritos on Wheels (COW) coordinate to modify existing fixed routes and associated agreements, as needed.
- Consider future rail connection opportunities.



# What are the implementation considerations?

We used five key considerations when making implementation decisions regarding Connect OC-LA corridors.



TAS member service areas and networks



improvements



TAS member feedback and public input





#### Impacts of COVID-19

The data collected and analyzed for this study reflect the time prior to the first positive test for COVID-19 and the State of California's Shelter in Place order.

At the time of study completion, Transit Agency Stakeholders (TAS) are developing their pandemic response plans; their transit network service resiliency efforts are not included in the Connect OC-LA recommendations.

The Connect OC-LA near-, mid-, and long-term recommendations assume transit travel patterns will return to (near) previous levels in the next several years.

The recommendations of this study are viewed by TAS members as integral to support long term mobility needs and multimodal transportation alternatives.

Near-term recommendations may be delayed until funding revenues or network demand are restored to levels appropriate for deployment.

## What are the recommended strategies?



#### OC-LA Priority Corridors

While the five (5) top performing OC-LA corridors are highlighted for potential implementation, the opportunities to improve intercounty transit service along the remaining five corridor are also recommended for further coordination. They may require more detailed study and/or be contingent upon implementation of complementary HCT projects by TAS members.



#### **Fare Integration**

Many agencies have reciprocal agreements to recognize fares paid by passengers transferring into their systems from neighboring TAS members. Within Los Angeles County, the LA Metro TAP fare payment system is compatible with fare media from many regional operators (including Metrolink, Foothill Transit, and Long Beach Transit).



#### Intercounty Service Adjustments and Interagency Agreements

All proposed OC-LA corridors identified through this study span multiple TAS service areas. Whether improved transit connectivity between the counties requires new and/or modified infrastructure or service operations, solutions will require the potentially affected parties to assess operational and funding responsibilities that may require execution of contractual agreements.



## Transit Priority and HOV

The implementation of HCT modes such as rapid streetcar, BRT, and Rapid Bus is an investment in speed and reliability treatments such as transit priority lanes, queue jump lanes, and signal priority technology on key corridors or fixed routes.



#### Future Regional High-Capacity Transit Projects

Significant capital and operational investments in regional rail are planned by LA Metro and Metrolink. As these future HCT projects and other programmed transit network improvements are implemented, surface connections and feeder service adjustments will be advanced by TAS members to support intermodal connectivity, including potential Mobility Hubs.



#### 2028 Olympics

Los Angeles (and Southern California) has been awarded host city honors for the 2028 Games by the International Olympic Committee (IOC). Additional information related anticipated impacts and opportunities associated with the Games are discussed in page 40-41.



## What is next for Connect OC-LA?

Selecting high priority corridors is just the beginning of Connect OC-LA. The OC-LA Corridor Identification and Evaluation Report contains additional discussion of potential programs of projects to support intercounty service improvement recommendations Successful implementation will require phased actions, as well as ongoing interagency coordination.

Category	Short-Term Recommendations	Medium-Term Recommendations	Long-Term Recommendations
OC-LA PRIORITY CORRIDORS	Anaheim to Central LA     Imperial Hwy	Lincoln / Carson / Studebaker     Fullerton to South LA	Pacific Electric ROW
ADDITIONAL INTERCOUNTY SERVICE ADJUSTMENTS AND INTERAGENCY AGREEMENTS	Coordinate potential intercounty route prog     Coordinate intermodal capacity constraints,     OCTA and Metro mobility hub recommendat	potential funding agreements	Integrated fare collection system operations and revenue sharing agreements
FUTURE REGIONAL HIGH-CAPACITY TRANSIT PROJECTS	Metro D Line extension	<ul><li>Vermont BRT</li><li>MetroLink improvements</li></ul>	WSAB, East Side Extension     Phase 2
FARE INTEGRATION	Explore potential for OCTA to read Metro TAP cards with existing card readers	<ul> <li>Support statewide efforts for integrated transit payments</li> <li>Identify technology options and preferences</li> </ul>	Pilot testing of integrated fare system
TRANSIT PRIORITY AND HOV	OCTA Freeway BRT study     OCTA Short Range Transit Plan (SRTP)	Develop and refine transit priority implementation guidelines	Identify transit signal priority     opportunities on OC Transit Vision     and OC-LA corridors
2028 OLYMPICS	Coordinate with Olympic planners to identify impacts to existing services near venues	<ul> <li>Coordinate development of Olympic Freeway transportation network</li> <li>Implement 2028 pilot projects and execution of Games</li> </ul>	Consider permanent implementation of special event lessons learned

## Spotlight on the 2028 Olympics

The City of Los Angeles has been awarded the 2028 Olympic and Paralympic Games (the "Games"), presenting a tremendous opportunity for the Southern California region to advance important initiatives that help to welcome the world to Los Angeles and Southern California in eight years. As combined events, the Olympics and Paralympics will run roughly 30 days of competitions that include representation from over 200 countries.

The core concepts for the LA 2028 transport program are aligned with the main constituent groups that will be influencing or impacted by the mobility needs for the Games:

- 1. Move key Games constituents efficiently and effectively
- 2. Move spectators to and from their venues via existing and enhanced public transport
- 3. Keep the region moving

To mitigate the additional demand on existing public transportation providers, the Games organizers will contract transportation services for movement of athletes, staff, media, and other workers. The public transit operators are not expected to provide new services or capital projects. beyond those already programmed in the fiscally constrained regional transportation plan. The support required of existing transit service providers will primarily be in the form of maintaining planned service levels (to the greatest extent possible), coordinating priority Games transportation network routes, and coordinating the use of freeways and large off-street staging areas to facilitate the movement of people.

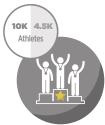
While the venue plan is still evolving, Orange County is slated to host volleyball at the Honda Center in Anaheim. Volleyball is a mainstay

event of the Olympics, running 16 days, with two sessions a day. With a nearly 18,000 seat capacity at the Honda Center, there will be a significant and constant flow of athletes, officials, media, workforce, and spectators over the two week period of the Olympics. presenting key transport needs to be considered for each of those groups. The venue is served by the Anaheim Regional Transportation Intermodal Center (ARTIC), located less than one half mile to the South. The transit center offers a sports complex shuttle service for special events and is served by the Metrolink Orange County Line, Amtrak Pacific Surfliner and coach bus. as well as Greyhound bus and OCTA Routes 50, 53 and 153 bus service.

The OC-LA Los Angeles 2028 Olympics Memorandum describes additional considerations for OCTA and regional transit agency stakeholders.

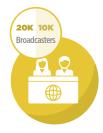


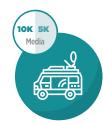














### **2028 Olympics Venues and Connect OC-LA Corridors**

