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MEETING OF THE

REGIONAL TRANSIT TECHNICAL ADVISORY COMMITTEE

Wednesday, January 31, 2018
10:00 a.m. – 12:10 p.m.

TELECONFERENCE

TO JOIN THE MEETING: http://scag.adobeconnect.com/rttac/
CONFERENCE NUMBER: 1 (800) 832-0736
MEETING ONE CONFERENCE ROOM NUMBER: 8891988

Please Note: This meeting is a teleconference only. There is no in-person meeting.

If members of the public wish to review the attachments or have any questions on any of the agenda items, please contact Matt Gleason at (213) 236-1832 or email gleason@scag.ca.gov

SCAG, in accordance with the Americans with Disabilities Act (ADA), will accommodate persons who require a modification of accommodation in order to participate in this meeting. SCAG is also committed to helping people with limited proficiency in the English language access the agency's essential public information and services. You can request such assistance by calling (213) 236-1908. We request at least 72 hours (three days) notice to provide reasonable accommodations and will make every effort to arrange for assistance as soon as possible.

REGIONAL TRANSIT TECHNICAL ADVISORY COMMITTEE
AGENDA
Wednesday, January 31, 2018

==========

The Regional Transit Technical Advisory Committee may consider and act upon any of the items listed on the agenda regardless of whether they are listed as information or action items.

TIME ***PG#***

1.0 CALL TO ORDER
(Gary Hewitt, OCTA, Regional Transit TAC Chair)

2.0 PUBLIC COMMENT PERIOD - Members of the public desiring to speak on items on the agenda, or items not on the agenda, but within the purview of the Regional Transit Technical Advisory Committee, must fill out and present a speaker's card to the assistant prior to speaking. Comments will be limited to three minutes. The chair may limit the total time for all comments to twenty (20) minutes.

3.0 RECEIVE AND FILE

3.1	Minutes of the October 31, 2017 Regional Transit TAC Meeting	5	3
3.2	RTTAC 2018 Agenda Look Ahead		8
3.3	Broadening Understanding of the Interplay between Public Transit, Shared Mobility, and Personal Automobiles		10

4.0 INFORMATION ITEMS

4.1	Metro Ridership Growth Action Plan ***(Conan Cheung, LA Metro)***	30	11
4.2	Metro NextGen Bus Study ***(Conan Cheung, LA Metro)***	30	33
4.3	OCTA Transit Strategic Plan ***(Gary Hewitt, OCTA)***	30	40
4.4	Draft 2020 RTP/SCS HQTC and Major Transit Stop Methodology ***(Steve Fox, SCAG)***	20	49

5.0 STAFF REPORT

5.1	Metropolitan Planning Agreements ***(Philip Law, SCAG)***	5
5.2	SCAG/UCLA Falling Transit Ridership Report ***(Philip Law, SCAG)*** ***http://www.scag.ca.gov/Documents/ITS_SCAG_Transit_Ridership.pdf*** (This link will go live January 31, 2018)	5
5.3	Transit Resiliency Workshop ***(Matt Gleason, SCAG)***	5

6.0 ADJOURNMENT

The next Regional Transit Technical Advisory Committee meeting is tentatively scheduled for Monday, April 30, 2018.

Regional Transit Technical Advisory Committee (RTTAC)
of the
Southern California Association of Governments

November 29, 2017

Minutes

THE FOLLOWING MINUTES ARE A SUMMARY OF ACTIONS TAKEN BY THE REGIONAL TRANSIT TECHNICAL ADVISORY COMMITTEE (RTTAC). AN AUDIO RECORDING OF THE MEETING IS AVAILABLE FOR LISTENING IN SCAG'S OFFICE.

The Regional Transit Technical Advisory Committee held its meeting at SCAG's Downtown Los Angeles Office. The meeting was called to order by Chair Gary Hewitt.

Members Present:

Gary Hewitt (Chair)	Orange County Transportation Authority
Josh Landis	Foothill Transit
Joe Raquel	Foothill Transit
Medford Auguste	LACMTA
Lori Huddleston	LACMTA
Barkev Tatevosian	LACMTA
Kirk Schneider	Caltrans District 7
Tracy Beidleman	Long Beach Transit
Joyce Rooney (Vice Chair)	Redondo Beach Transit
David Feinstein	Santa Monica
Christy Wegener	Livermore Amador Valley Transit Authority

Video Conference:

Norm Hickling	Antelope Valley Transit Authority
Geraldina Romo	Antelope Valley Transportation Authority
Carlos Lopez	Antelope Valley Transportation Authority
Kevin Kane	Victor Valley Transit Authority
Martin Erickson	Ventura County Transportation Commission

Teleconference:

Conan Cheung	LACMTA
Jeremiah Bryant	Omnitrans
Sheldon Peterson	Riverside County Transportation Commission
Diana Chang	Culver City Bus
Tom Frank	City of San Clemente

SCAG Staff:

Philip Law	Joseph Briglio
Kome Ajise	Stephen Fox
Matthew Gleason	

1.0 CALL TO ORDER

Gary Hewitt, OCTA, called the meeting to order at 10:06 a.m.

2.0 PUBLIC COMMENT PERIOD

No members of the public requested to comment.

3.0 RECEIVE AND FILE

3.1 Minutes of the August 30, 2017 Regional Transit TAC Meeting

4.0 INFORMATION ITEMS

4.1 Go Dublin Pilot Project

Christy Wegener, Livermore Amador Valley Transit Authority (LAVTA), reported on the Go Dublin Pilot Project. Ms. Wegener stated that LAVTA serves the cities of Dublin, Livermore and Pleasanton located in eastern Alameda County with annual ridership of 1.5 million. She noted the pilot project was developed after review of current fix route service indicated some routes were unproductive with few riders. Further, the Go Dublin project is a partnership with Uber, Lyft and De Soto Cab Company where LAVTA reimburses one-half the cost of rides taken on these providers. The rides need to be within the city of Dublin and the maximum reimbursement is $5 per ride. Ms. Wegener stated riders enter a code when requesting service to utilize the discount. ADA riders and those who are unbanked can use De Sotto Cab. The project was launched January 2017 and will continue through June 2018.

Ms. Wegener noted challenges include creating a fare structure that is similar to bus service. Further, the discount code can be used without interfacing with the agency. She noted this as a drawback as it prevents data collection by the agency and the TNC companies have not been forthcoming with usage data and communication with them can be difficult. Additionally, close monitoring is needed to insure ADA riders are served quickly and at a reasonable fee. Also, it is important to evaluate the impacts on fixed route service. Ms. Wegener indicated some lines are seeing increased ridership but it is important to monitor effects over the long term. She noted the project will be evaluated and recommendations will be made to continue, change, expand or end the pilot.

David Feinstein, Santa Monica, asked if fixed route service hours were cut during the pilot. Ms. Wegener responded that service hours were not cut. They were reassigned to provide increased frequency on other routes.

Joyce Rooney, Redondo Beach Transit, asked if they require Uber and Lyft to provide ADA service. Mr. Wegener responded those providers are not asked to provide ADA service. Only De Soto Cab provides ADA service.

Kome Ajise, SCAG staff, asked if data standards were required by contract to provide consistent data from all pilot providers. Ms. Wegener responded that data standards were requested by contract but that was not honored by TNC providers.

4.2 City of San Clemente Rideshare Beta Test Rider Program

Tom Frank, San Clemente, reported on the city's Rideshare Beta Test Rider Program. He noted San Clemente is a coastal city of approximately 19 square miles with 65,000 residents. Mr. Frank noted the rideshare program is an effort to improve productivity and reposition transit service in response to changing market conditions and the termination of two underutilized bus routes in the city. Mr. Frank stated that an agreement was reached with Lyft to provide service on the terminated bus routes and the city developed unique street signage to indicate designated Lyft pick-up locations along the terminated bus routes. Riders access the service through the Lyft application entering the code "SCrides" to receive a discounted fare with an average of $2 per ride. Rides are accessed at zones which are within 1000 feet of former bus stops. He noted there are approximately 180 Lyft stops along the terminated bus routes.

Mr. Frank stated that it has been a challenge to receive information from Lyft about ridership specifics but current ridership is near 70 riders per day. He indicated this is the first stage of the program and as it enters a more formal stage wheelchair accessible vehicles will be added and a call-in option will be provided. He noted that other entities seeking to develop a similar program ought to first work with an effective partner and that the goals and objectives of the program are clear. Also to address ADA needs and all others legally mandated requirements. Also, to consider assigning additional labor at the start of a program to provide guidance and support to transit users who are not familiar with the technology.

Philip Law, SCAG staff, asked about service to minors and what measure would be used to determine the program's success. Mr. Frank responded that rideshare companies will not serve minors so they are not able to use the SCRides service. Additionally, he noted the program would be viewed as successful if a long term funding source is established, issues with reporting are resolved, ADA vehicles are added to the service and that mobility is provided to transit constituents affected by the loss of two fixed bus routes.

Joyce Rooney, Redondo Beach Transit, asked about verifying invoices and usage data if Lyft is not providing data regularly. Mr. Frank responded that reporting requirements are part of continuing discussions with Lyft and an effort is being made to close the data gaps as familiarity with the partnership is achieved by all participants.

4.3 Transit Patronage Study Update

Mike Manville, UCLA, provided an update on the Transit Patronage Study which examines the trend of declining transit ridership in the region. He noted from 2000 to 2015 there has been a sharp decline in households without vehicles particularly

those in foreign born and lower income households which have traditionally been regular transit users. Additionally, recent immigrants are more likely to achieve car ownership much sooner than those in previous decades. Mr. Manville stated the most likely cause of transit ridership decline is a significant increase in private vehicle ownership. He noted that between 2000 and 2015 the region added 2.3 million new residents and an additional 2.1 private vehicles or .95 vehicles per new resident. By comparison in the 1990s the region added 1.8 million residents and 456,000 vehicles or .25 vehicles per new resident. Since 2000 SCAG households increased private vehicle ownership at nearly 4 times the rate of the 1990's leading to an investment in private vehicles far greater than that spent on major transit infrastructure improvements. This has increased vehicle access to residents such as recent immigrants who traditionally experienced limited vehicle access and were therefore the heaviest users of public transit.

Next, he reviewed data which links the likelihood of an increase in private vehicle ownership to the decline in transit ridership showing a correlation. Further, he noted 60% of regional transit commuters live in census tracts that comprise less than 1% of the region's land. Also, fewer than 10% of the region's transit operators carry about 80% of all transit passengers. He noted that concentrated transit use means concentrated ridership losses, for example, LAMetro, OCTA, LA DOT and Santa Monica Big Blue Bus accounted for 88% of the state's ridership losses between 2010 and 2016. Additionally, LA Metro alone accounted for 72% of the state's ridership losses. This could indicate that census tracts that had previously contained significant transit customers are losing those transit users further contributing to ridership decline.

Kirk Schneider, Caltrans, asked if the country of origin and incomes of recent immigrants could be a contributing factor. Mr. Manville responded that the composition of immigrants has changed substantially as recently fewer are from Central America and are increasingly Asian, however; immigrant incomes has not changed.

Martin Erickson, Ventura County Transportation Commission, stated from his experience concerns of safety are legitimate and may have an effect on transit ridership.

4.4 Draft 2020 RTP/SCS HQTC and Major Transit Stop Methodology

Item deferred to a future meeting. Philip Law, SCAG staff, noted that the draft document is in the agenda packet and asked if members could forward it to an appropriate person in their agency to review and provide input.

5.0 STAFF REPORT

Philip Law, SCAG staff, stated that SCAG is moving its offices to a building across the street and meeting rooms may not be fully functional for the next scheduled RTTAC meeting. If that is the case a webinar format may be used for the next meeting.

6.0 ADJOURNMENT

Gary Hewitt, OCTA, adjourned the meeting at 12:01 p.m.

The RTTAC meets quarterly on the fifth Wednesday of the month. Following is a tentative look-ahead to the proposed RTTAC agendas for 2018. It includes three standing items requested by the Chair and Vice Chair for:

1) Regulatory Compliance – items addressing compliance with MAP - 21 and FAST Act rulemakings, as well as state regulations including SB 375 or ARB fleet rules
2) Performance – items related to understanding why ridership has declined, and highlighting steps local agencies are taking to address these losses
3) Technology and Mobility Innovations – items related to transportation network companies, ITS, advanced technologies, and other mobility innovations

The discussion items below are proposed and speakers have not yet been contacted. Suggestions from RTTAC members are welcome.

April 30, 2018

- Regulatory Compliance Standing Item
  - Metropolitan Planning Agreements
- Performance Standing Item
  - 2020 RTP/SCS Base Year System Performance Initial Findings
- Technology and Mobility Innovations Standing Item
  - LA Metro Pilots/Office of Extraordinary Innovations
  - OC Flex Pilot
- SCAG General Assembly
- 2016 RTP/SCS Implementation Update
- SCAG ITS Architecture Update (Receive and File)

August 29, 2018

- Regulatory Compliance Standing Item
  - ARB SB375 GHG Emissions Reduction Targets Update
- Performance Standing Item
  - 2020 RTP/SCS Base Year System Performance Final
- Technology and Mobility Innovations Standing Item
  - SBCTA Customer Based Ridesharing and Interconnectivity Study
  - TCRP Report 188: Shared Mobility and the Transformation of Public Transit*.
- 2020 RTP/SCS Trends and Challenges
- SCAG Climate Adaptation Assessment
- FY2017-18 Caltrans 5304 Program Completed Work (Receive and File)
- 2020 RTP/SCS Goals and Performance Measures (Impact of Map 21 Final Rules)

October 31, 2018

- Regulatory Compliance Standing Item
    - Transit Asset Management (SCAG work effort)
- Performance Standing Item
    - Rand Corporation Future of Mobility Report*
- Technology and Mobility Innovations Standing Item
    - Impact of Emerging Technologies Methodology for Public Transportation
    - SCAG ITS Architecture Update: Findings from Private Sector Outreach
- 2020 RTP/SCS Scenario Planning Development
- HQTC/A Future Corridor Development
- Private Sector Providers of Transportation Services (FAST ACT compliance)

**Speakers not yet contacted*

REPORT

Southern California Association of Governments
900 Wilshire Blvd., Suite 1700, Los Angeles, CA 90017
Agenda Item No. 3.3
January 31, 2018

To: Regional Transit TAC
From: Philip Law, Transit/Rail Manager, 213-236-1841, law@scag.ca.gov
Subject: Pre-publication Draft Report: *Broadening Understanding of the Interplay Between Public Transit, Shared Mobility, and Personal Automobiles.*

SUMMARY:

From http://nap.edu/24996: TRB's Transit Cooperative Research Program (TCRP) has released a pre-publication, non-edited, draft version of Research Report 195: Broadening Understanding of the Interplay Between Public Transit, Shared Mobility, and Personal Automobiles. The study broadens the understanding of the interplay among emerging and established modes of transportation. Built upon the findings of TCRP Research Report 188, this report explores how shared modes—and ridesourcing companies in particular—interact with the use of public transit and personal automobiles.

DISCUSSION:

This pre-publication draft report explores evidence of how TNCs are affecting the use of public transit and personal automobiles, using TNC trip origin-destination data for five regions (Chicago, Los Angeles, Nashville, Seattle, and Washington, DC) and similar modeled information for San Francisco. The full draft report can be accessed at the link provided above.

The authors report the following key findings.

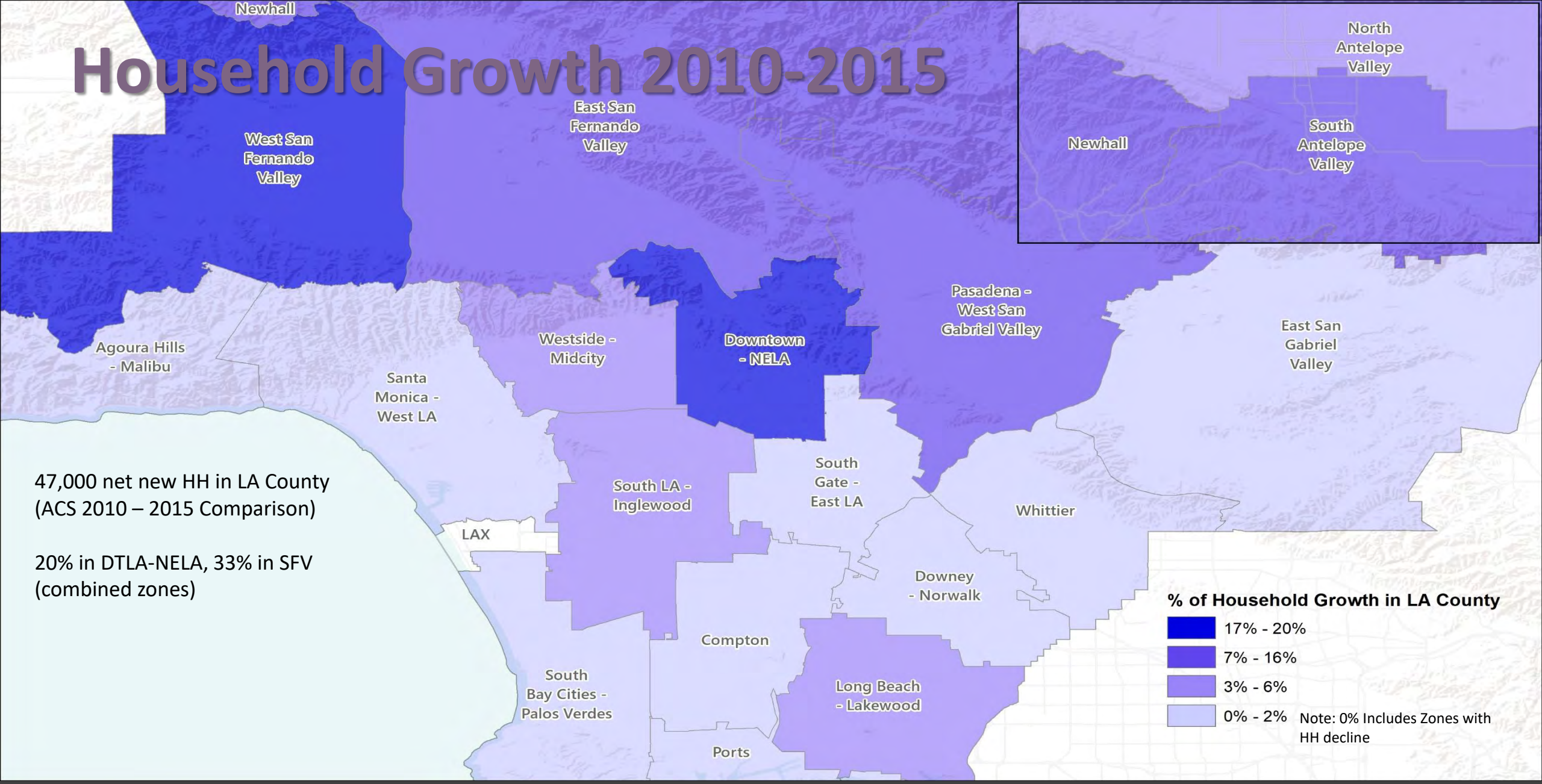
1. The heaviest TNC use across the regions in this study is during evening hours and weekends.
2. Most TNC trips in the study regions are short and concentrated in downtown core neighborhoods.
3. There is no clear relationship between the level of peak‐hour TNC use and longer term changes in the study regions' public transit usage.
4. Among survey respondents, people who use transit or commute by driving solo do so as part of a routine; TNCs are used on a more occasional basis.
5. Transit travel and wait times were top concerns of survey respondents who replaced transit trips with TNC trips.
6. TNC usage takes place in communities of all income levels.
7. TNC use is associated with decreases in respondents' vehicle ownership and single‐occupancy vehicle trips.

Ridership Growth Action Plan

Regional Ridership Improvement Task Force
Update To The SCAG RRTAC
January 31, 2018

DEMOGRAPHIC CHANGE

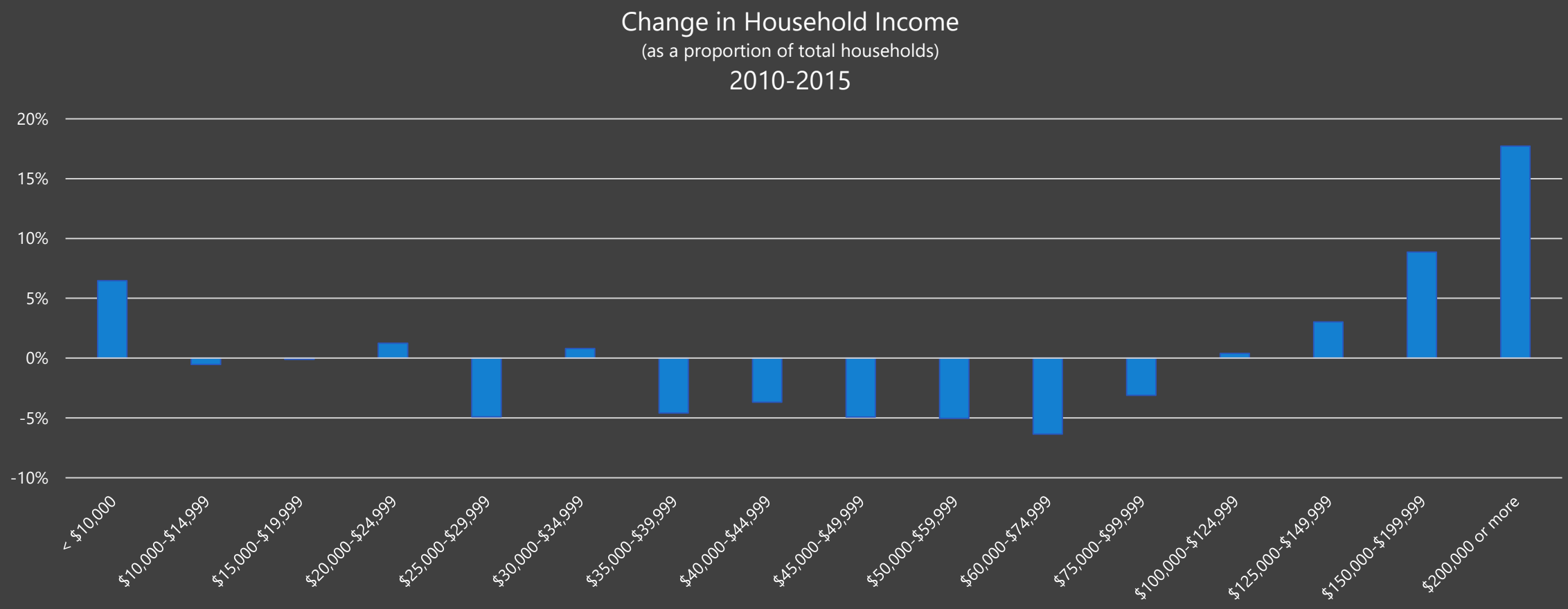
Household Growth 2010-2015



47,000 net new HH in LA County
(ACS 2010 – 2015 Comparison)

20% in DTLA-NELA, 33% in SFV
(combined zones)

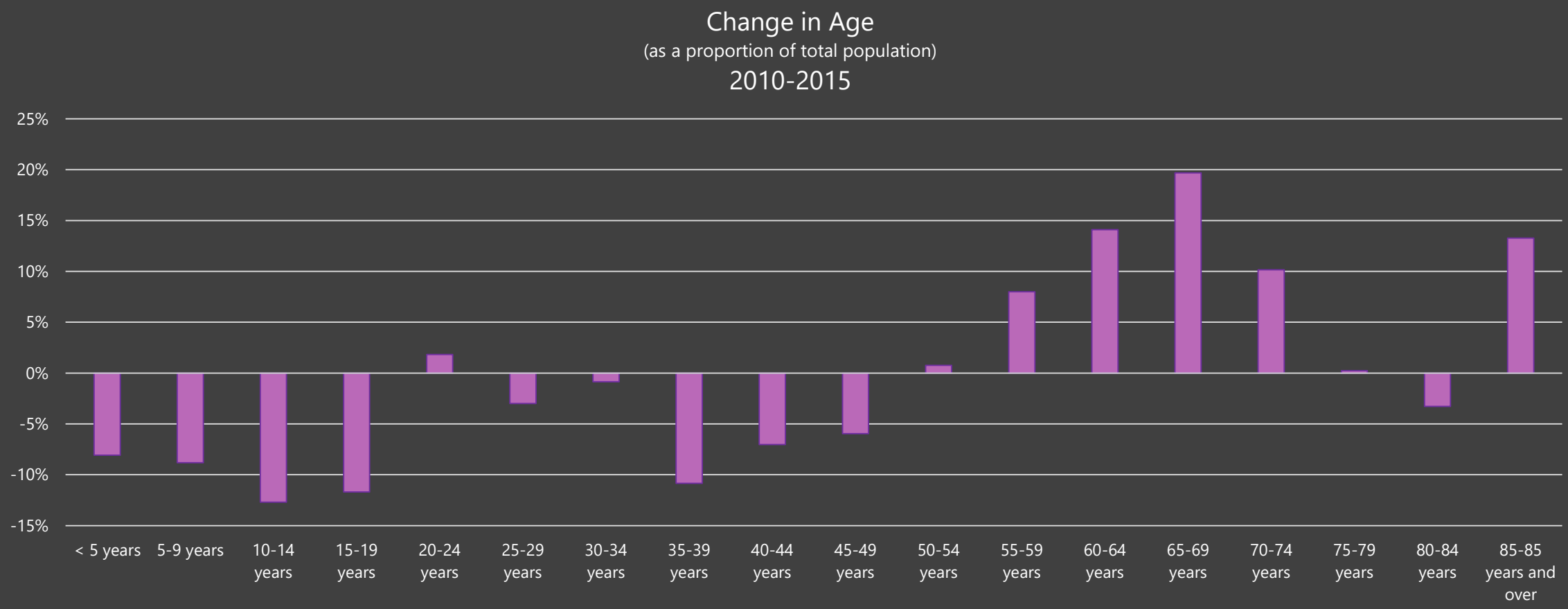
Change in Household Income



Change in Household Income & Vehicles

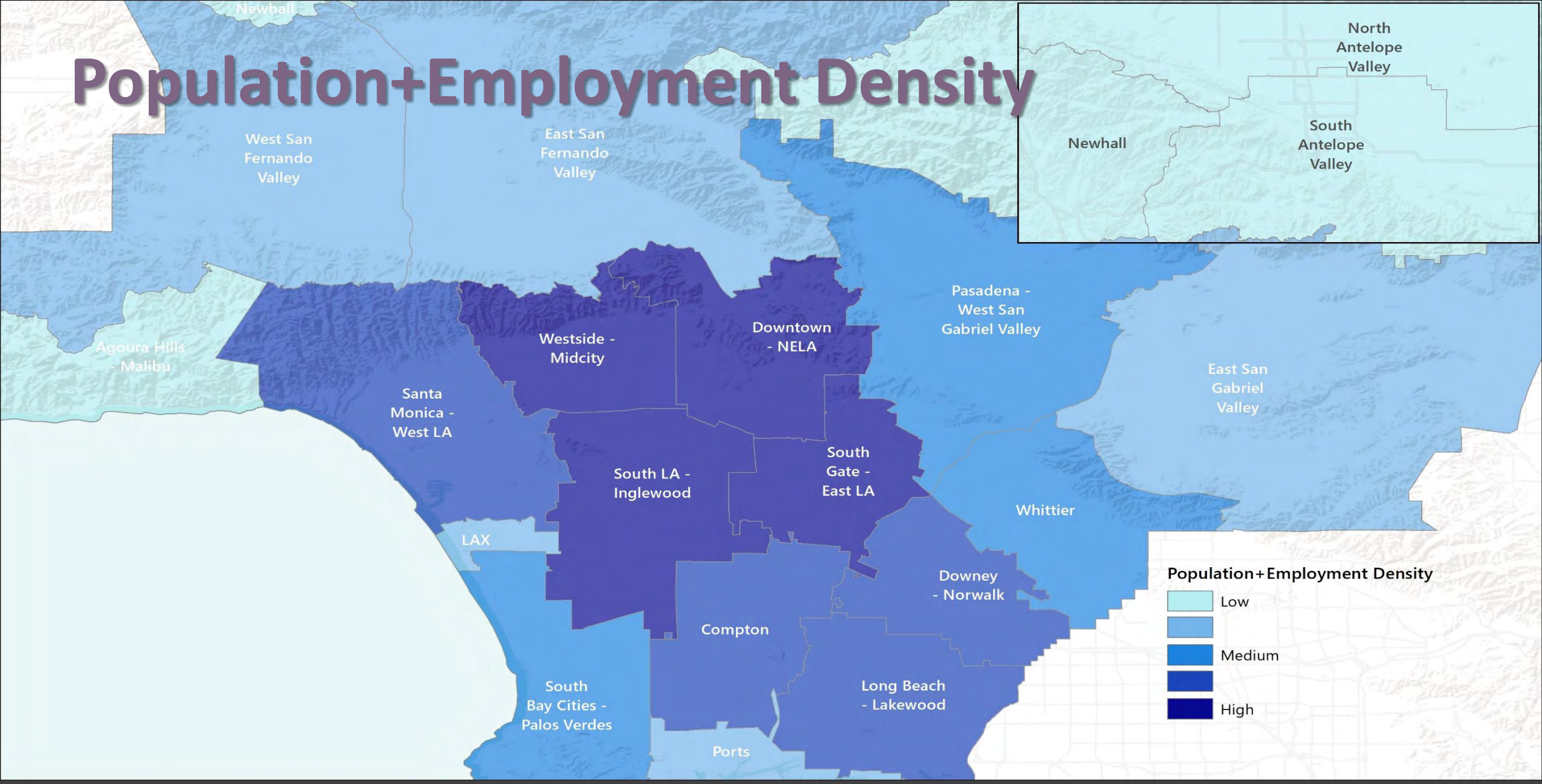
- **Zones w/ largest share of increase in HH w/ $100K+ Income (44% of total):**
  - East San Fernando Valley
  - Pasadena - West San Gabriel Valley
  - Downtown LA – Northeast LA
  - Westside - Mid City
- **Zones w/ largest share of increase in HH w/ <$25k Income (71% of total):**
  - Pasadena - West San Gabriel Valley
  - East San Fernando Valley
  - West San Fernando Valley
  - South Antelope Valley
- **Zones w/ largest share of increase in Zero Car HH (75% of total):**
  - Downtown LA – Northeast LA
  - East San Fernando Valley

Change in Age

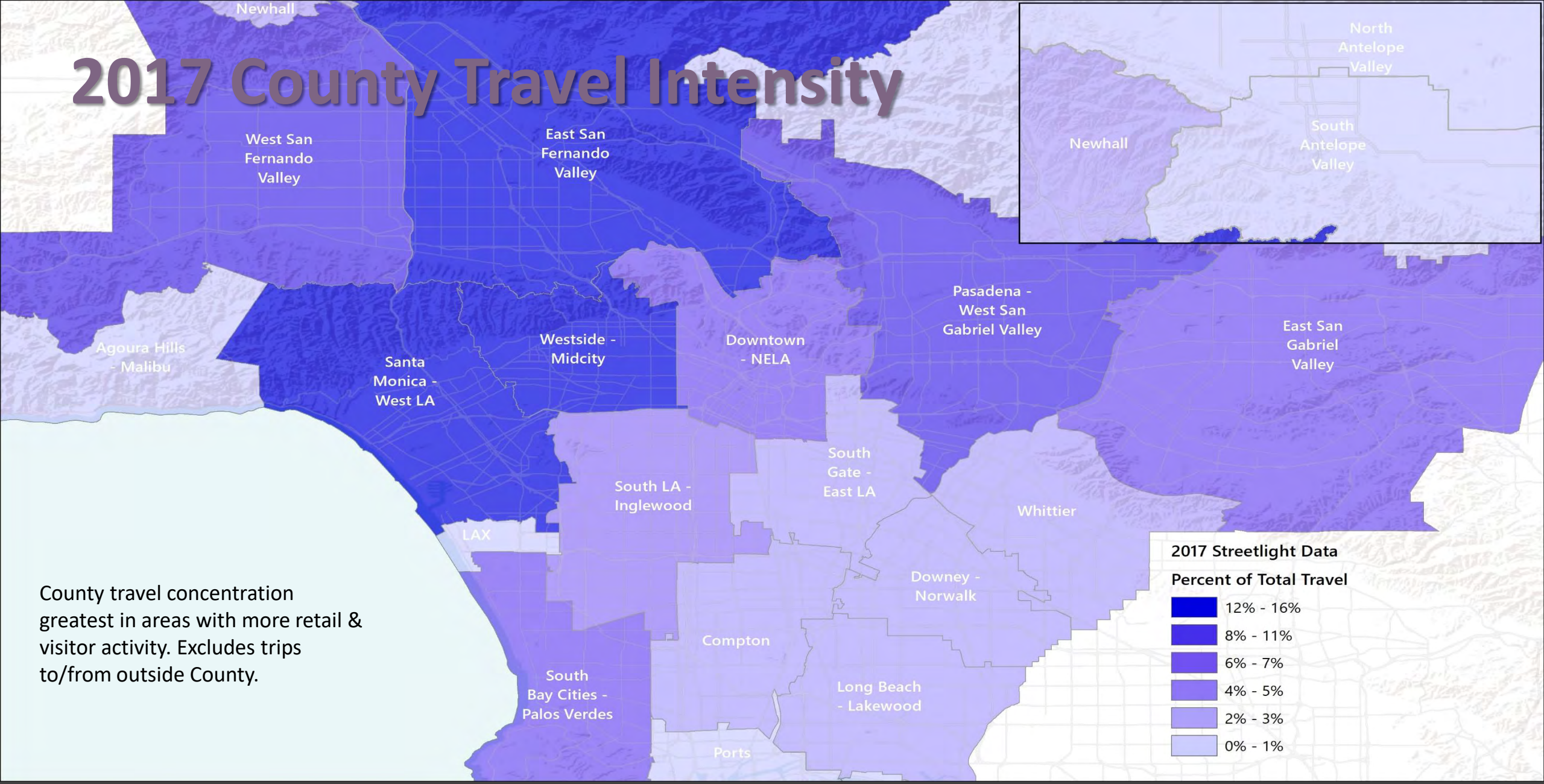


TRAVEL PATTERNS

Population+Employment Density



2017 County Travel Intensity



County travel concentration greatest in areas with more retail & visitor activity. Excludes trips to/from outside County.

2017 Travel Patterns

Shown with Frequent Bus Network

Top O-D Pairs and Percent of Total Interzonal Travel

2017

Rank	From	To	% of total in 2017	Rank in 2014	% of total in 2014	Shift in rank
1	Santa Monica - West LA	Westside - Midcity	6.8%	1	4.9%	0
2	Westside - Midcity	Santa Monica - West LA	6.7%	2	4.8%	0
3	Downtown - NELA	Westside - Midcity	3.8%	5	2.8%	2
4	East San Fernando Valley	West San Fernando Valley	3.7%	3	3.7%	-1
5	West San Fernando Valley	East San Fernando Valley	3.7%	4	3.6%	-1
6	Westside - Midcity	Downtown - NELA	3.6%	6	2.8%	0
7	East San Fernando Valley	Westside - Midcity	3.2%	7	2.2%	0
8	Westside - Midcity	East San Fernando Valley	3.1%	8	2.1%	0
9	East San Fernando Valley	Downtown - NELA	1.9%	11	1.5%	2
10	Downtown - NELA	East San Fernando Valley	1.9%	13	1.5%	3

Top O-D Pairs and Percent of Total Interzonal Travel

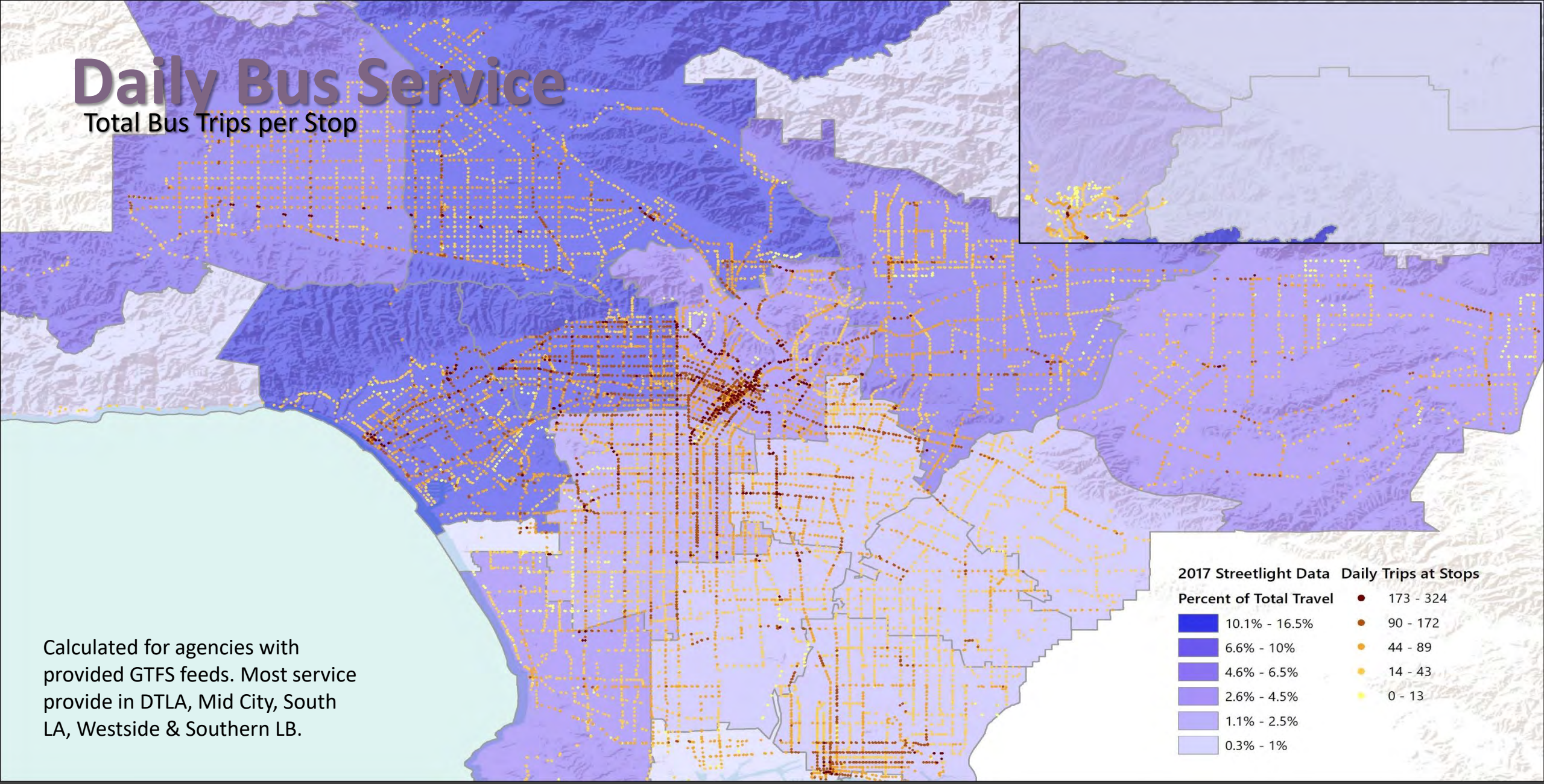
2017

Rank	From	To	% of total in 2017	Rank in 2014	% of total in 2014	Shift in rank
11	Pasadena - West San Gabriel Valley	Downtown - NELA	1.6%	21	1.1%	10
12	Pasadena - West San Gabriel Valley	East San Fernando Valley	1.6%	19	1.1%	7
13	East San Fernando Valley	Pasadena - West San Gabriel Valley	1.6%	18	1.1%	5
14	Downtown - NELA	Pasadena - West San Gabriel Valley	1.6%	20	1.1%	6
15	Pasadena - West San Gabriel Valley	East San Gabriel Valley	1.5%	9	1.6%	-6
16	East San Gabriel Valley	Pasadena - West San Gabriel Valley	1.5%	10	1.6%	-6
17	Santa Monica - West LA	East San Fernando Valley	1.4%	24	1.0%	7
18	East San Fernando Valley	Santa Monica - West LA	1.4%	23	1.0%	5
19	West San Fernando Valley	Santa Monica - West LA	1.3%	27	0.9%	8
20	Santa Monica - West LA	West San Fernando Valley	1.3%	31	0.8%	11

BUS SERVICE & RIDERSHIP TRENDS

Daily Bus Service

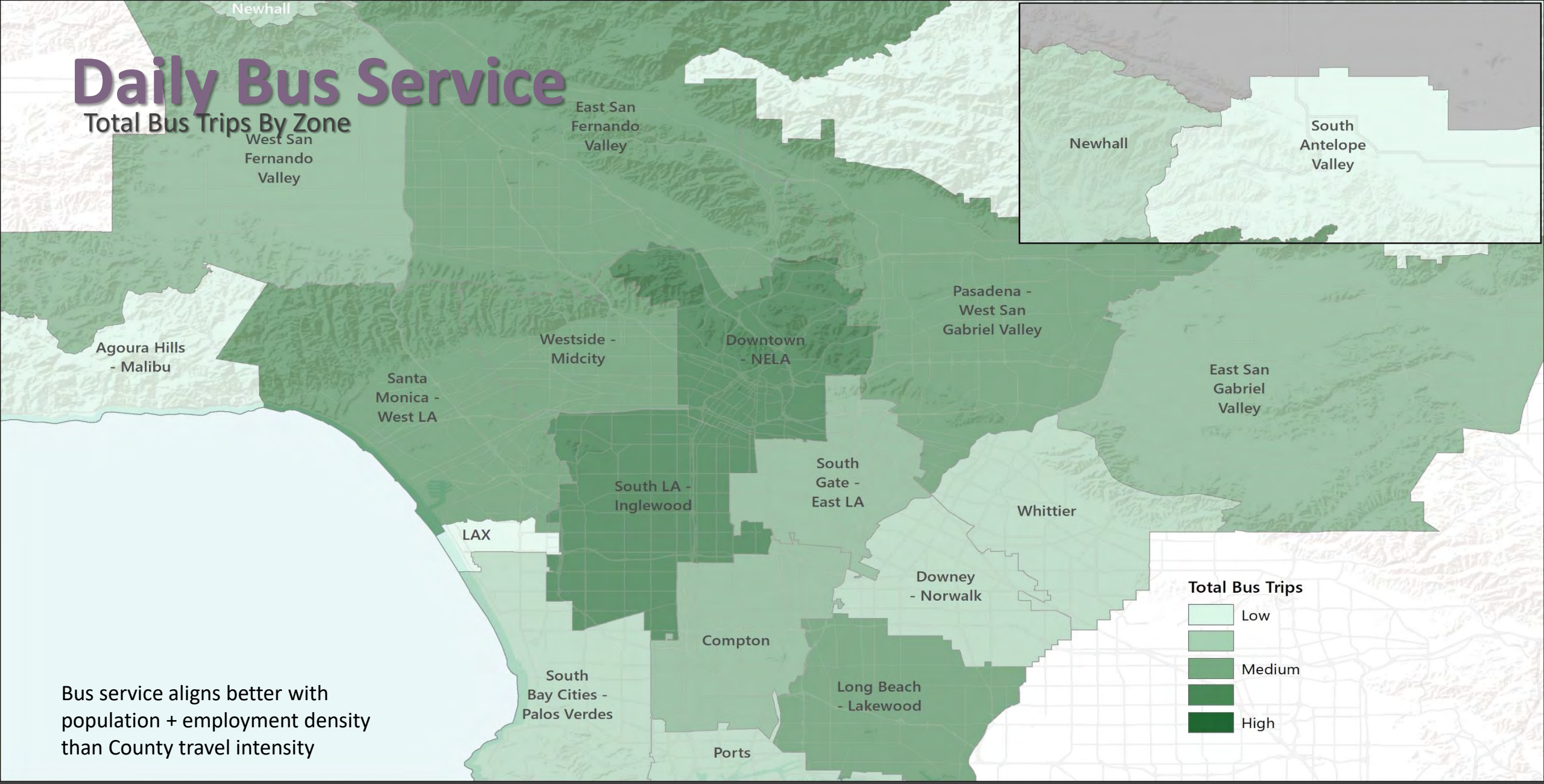
Total Bus Trips per Stop



Calculated for agencies with provided GTFS feeds. Most service provide in DTLA, Mid City, South LA, Westside & Southern LB.

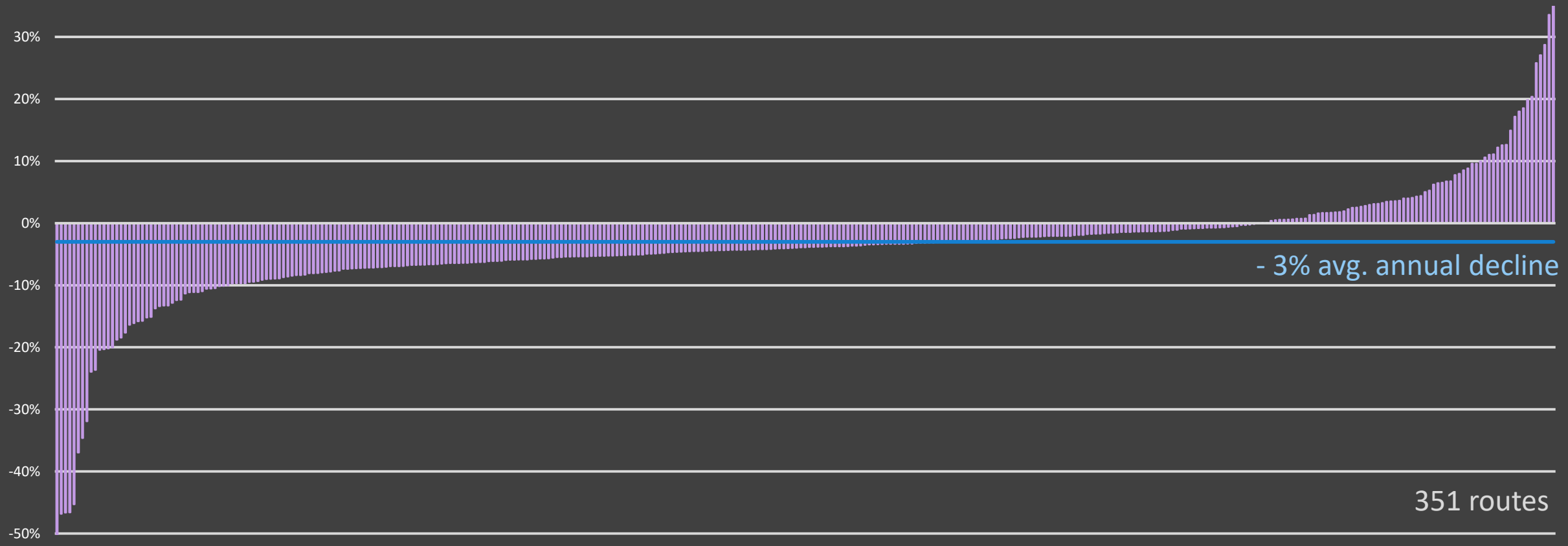
Daily Bus Service

Total Bus Trips By Zone



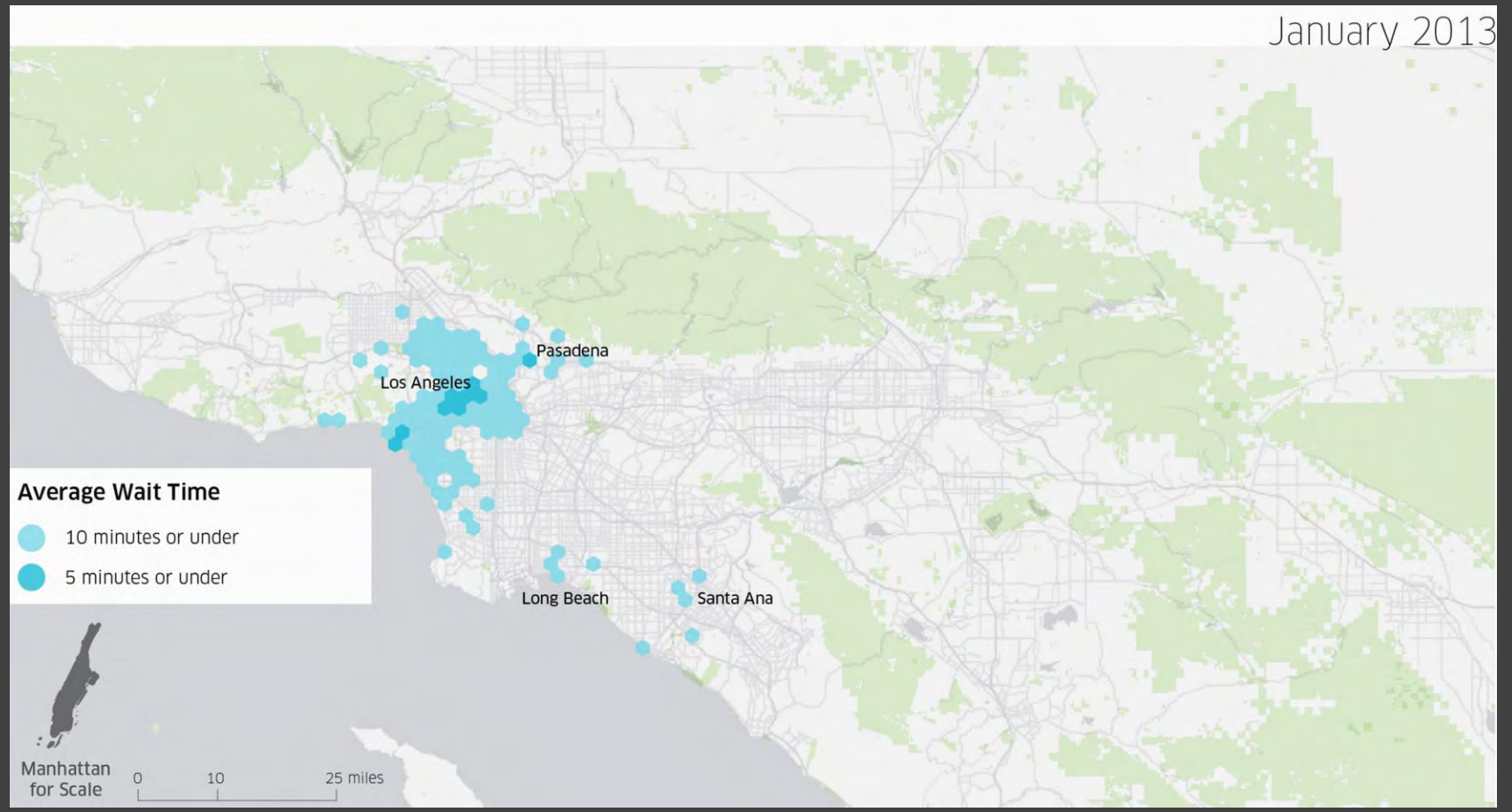
Bus service aligns better with population + employment density than County travel intensity

Ridership – Route Change

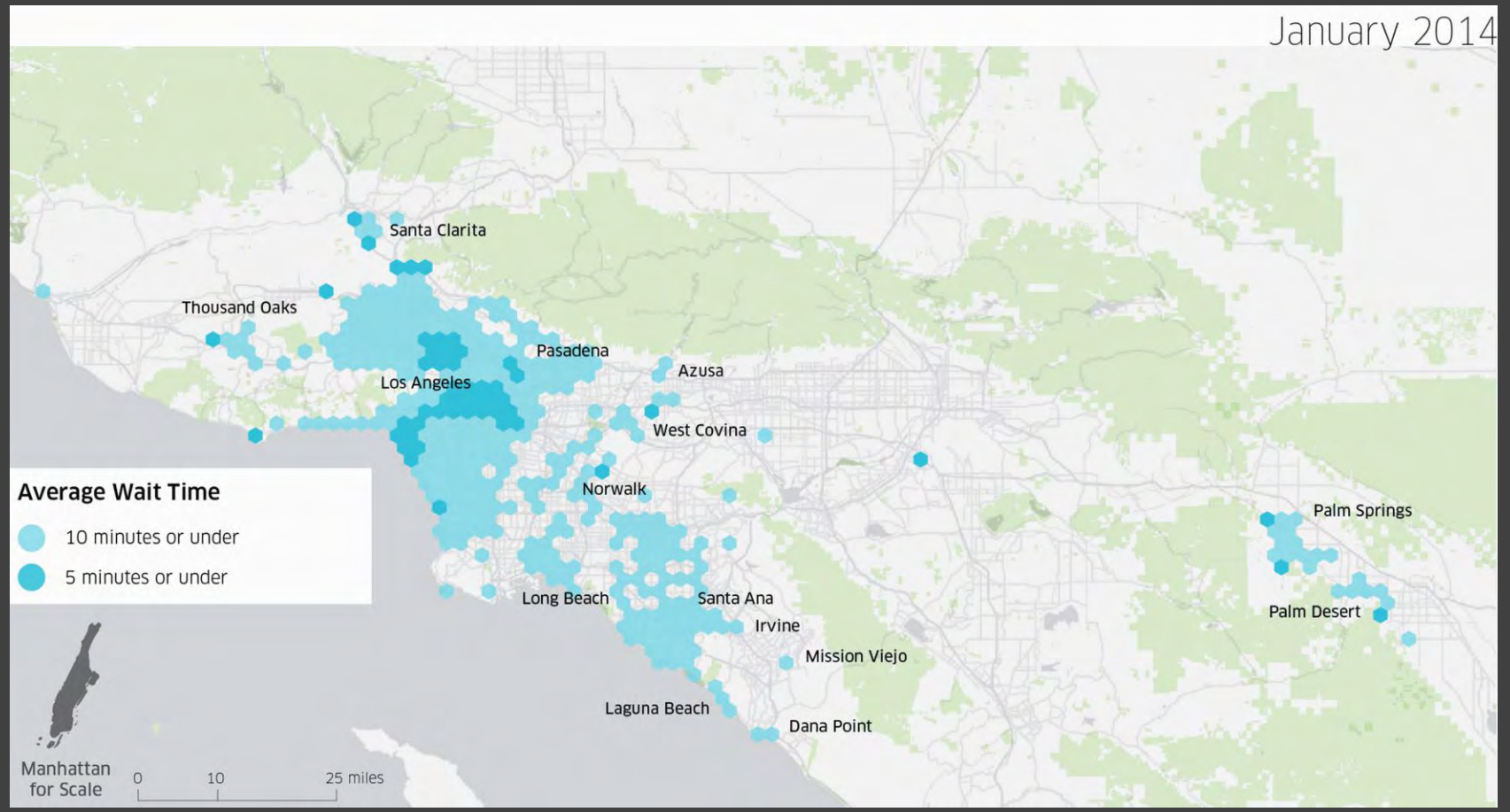


OTHER MOBILITY OPTIONS

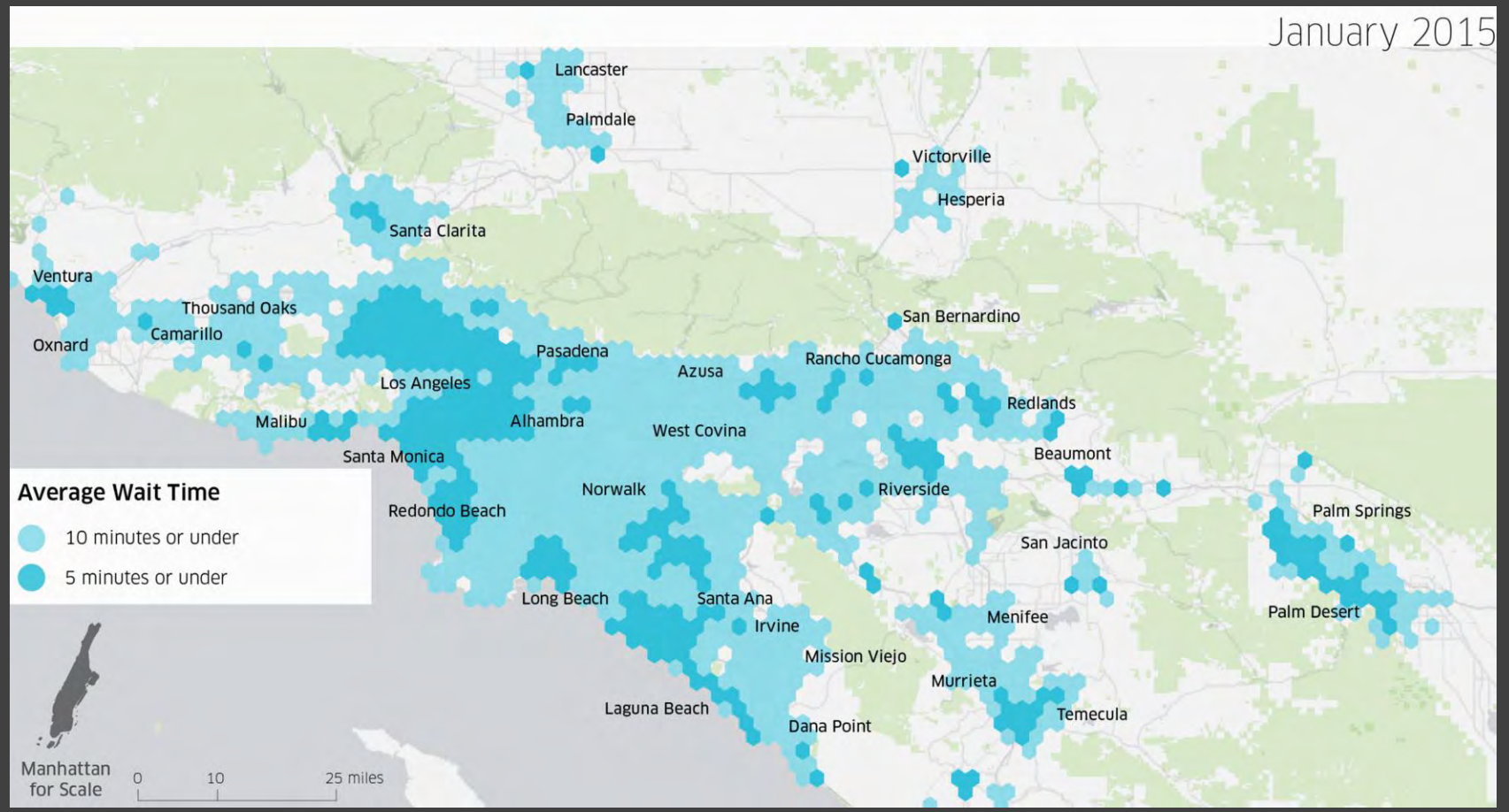
UBER Expansion



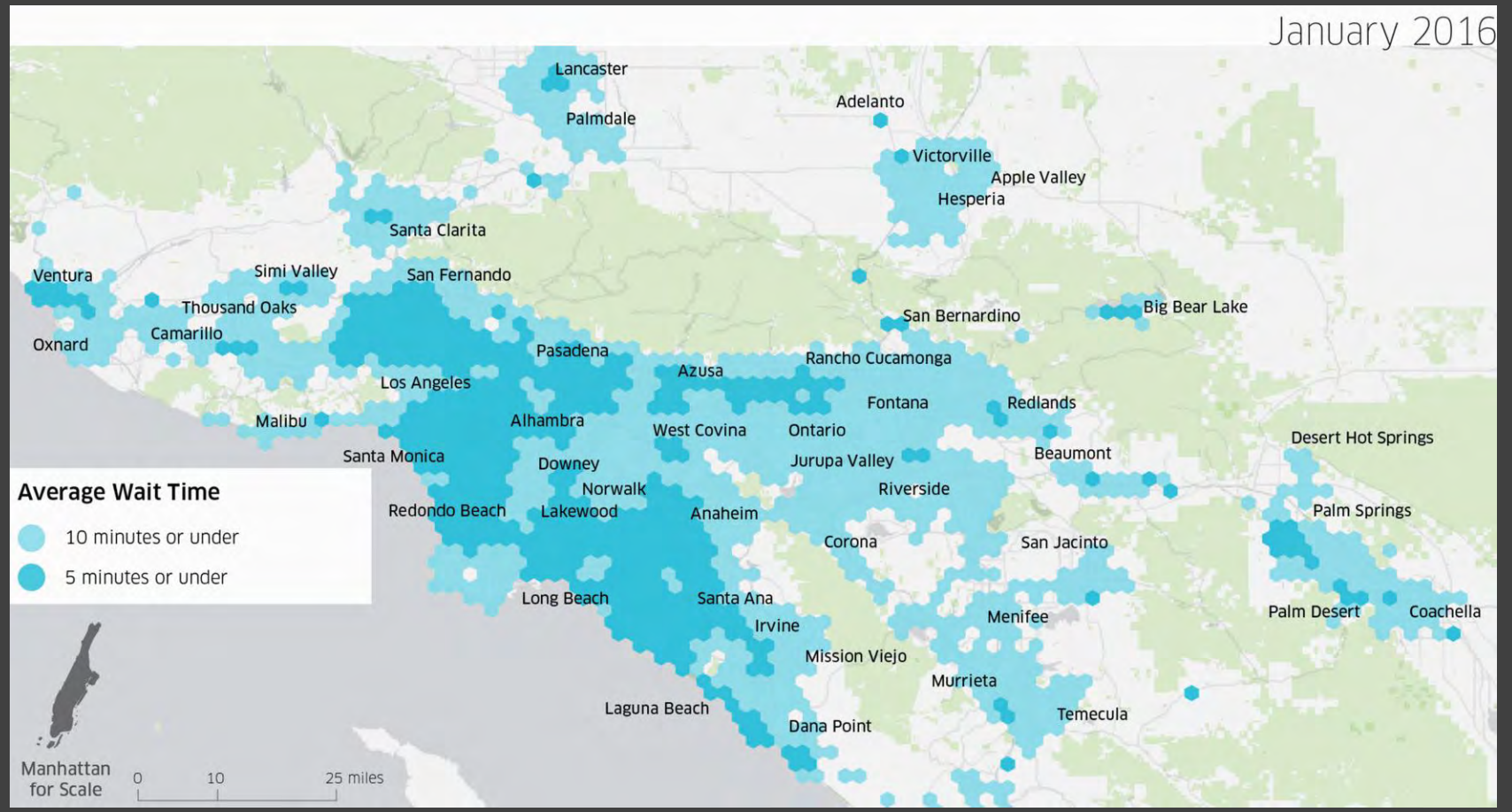
UBER Expansion

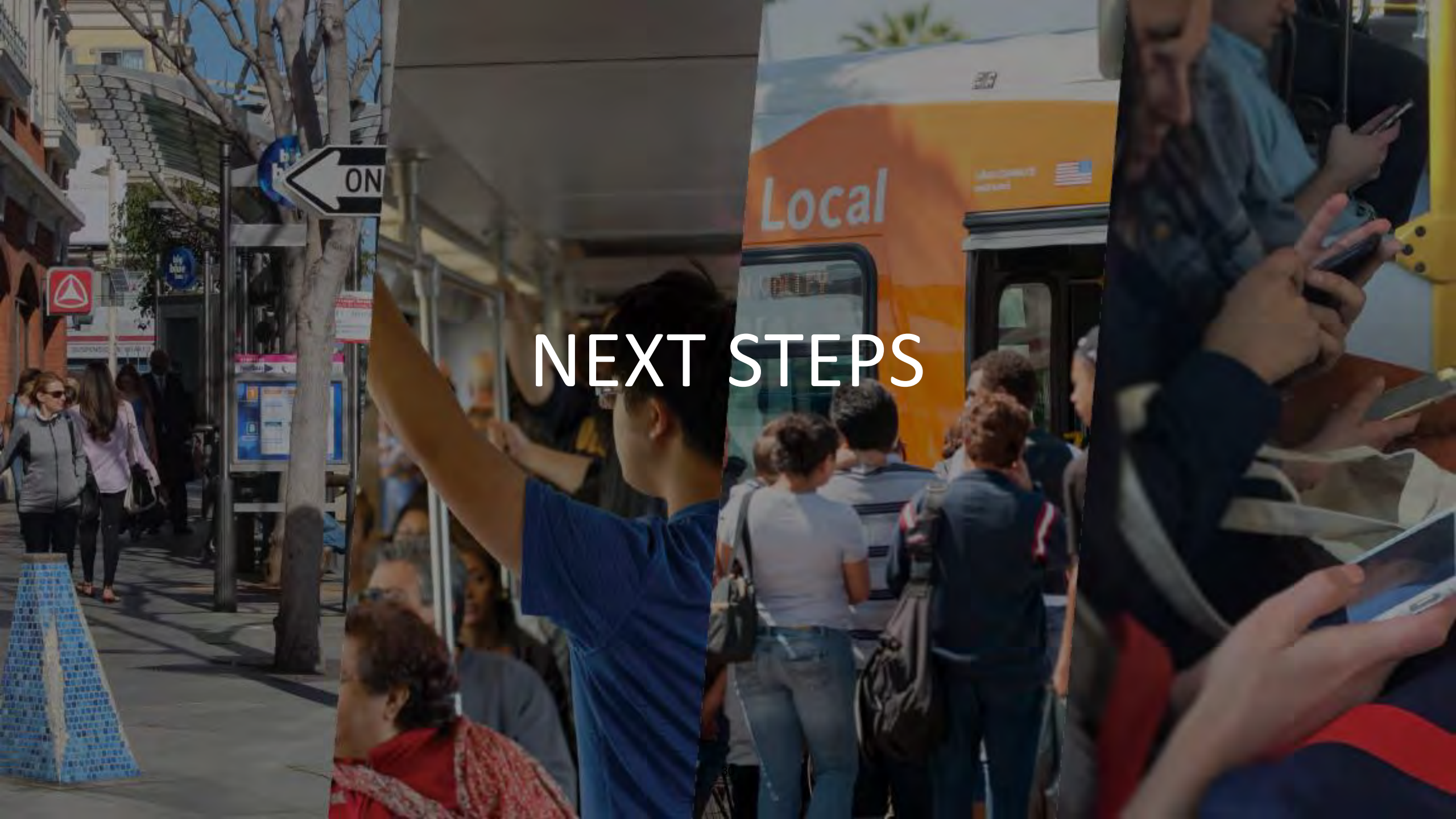


UBER Expansion



UBER Expansion





NEXT STEPS

Next Steps

1. Implement survey & focus group research
2. Complete agency interviews
3. Analyze case–study corridors
4. Reconvene Task Force with survey results & draft strategy development

Market Research Segment Themes

Existing Riders - Most at Risk of Leaving
More Available Research

New/ Former Riders - Most Potential to Enter
Limited Available Research

Mitigating
"Almost the last straw"

Life Transitions
Geographic
Work Status
School Status
Income Change

Customer Experience
Customer Appreciation
Incident Response
Fares

Welcoming
"First impressions"

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NEXTGEN Bus Study

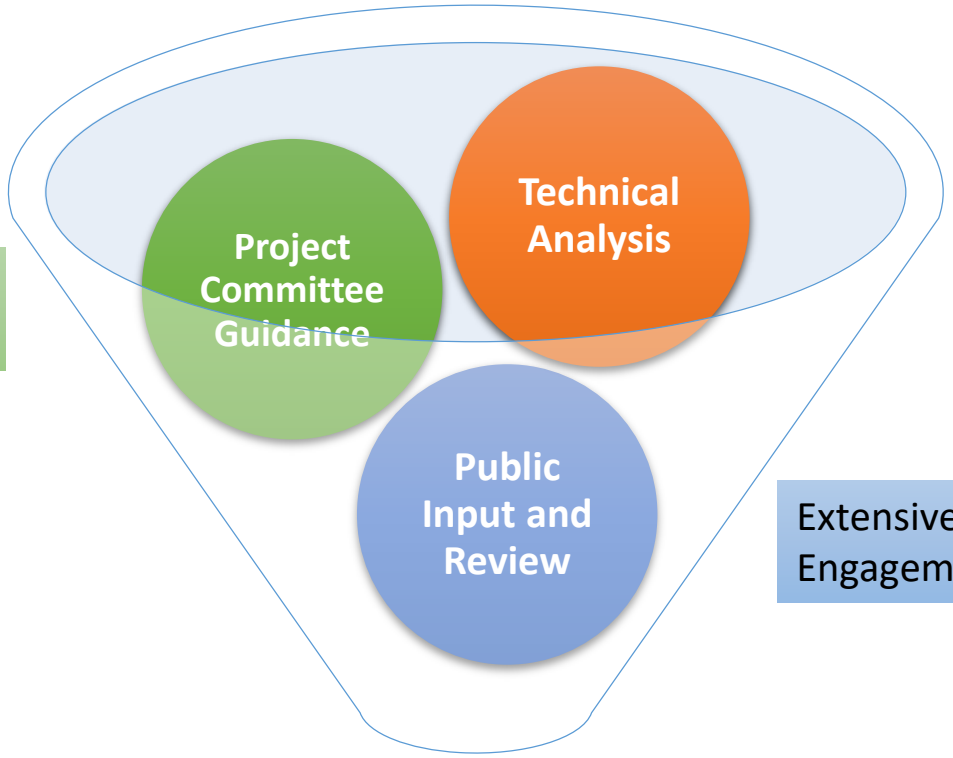
Project Update

SCAG RRTAC

January 31, 2018

Metro

NextGen Guiding Principles



Broad Stakeholder Representation

Analytical Rigor

Extensive Public Engagement

Consultant Team Expertise

	Market Analysis /Travel Demand	Existing Service Evaluation	Service Concepts	Design Guidelines	Transit Supportive Infrastructure	Service Restructuring Plan	Final Report/ Presentations
Cambridge Systematics (Prime)	●		●	●		●	
Transportation Management and Design		●	●	●		●	
Conifer Research	●						
HDR, Inc.					●		
Here LA						●	●

Stakeholder and Public Involvement

Project Standing Committees:

- NextGen External Working Group – provide policy guidance on Vision for Metro's bus network, service priorities and tradeoffs, and measures of success
- Technical Advisory Committee (TAC) – coordination with local jurisdiction mobility/land use plans and municipal operator service
- Internal Working Group – coordination with other Metro plans and programs (e.g. Strategic Plan, LRTP, BRT Planning, Active Transportation, Micro Transit, etc.)
- Metro Service Councils – Public forum, public hearings and service change approvals

Other Stakeholder Outreach:

- General Public (current, former, and potential new customers)
- Metro Labor Representatives
- Transit Advocates (e.g. Bus Riders Union, SOCATA, Transit Coalition)

Metro

Project Milestones

Project Phase	Objective	Deliverable
Travel Markets	Comprehensive understanding of current and potential riders, what travel attributes are important and what their travel patterns are	**Board approval** of service priorities based on market needs
Service Concept (network)	Establish service concepts and strategies that most effectively and efficiently address service priorities within available resources	**Board approval** of a Regional Service Concept and measures of success
Service Plan (line by line)	Restructure routes and schedules based on the guidelines from the Regional Service Concept	**Service Council approval** of specific route and schedule changes from the redesigned bus network
Implementation	Launch new bus network to current, potential and future riders	Provide information and support to customers navigating the new network

Next Steps

Technical Analysis:

- Market Segmentation/Travel Demand - Who are our customers and what are their travel needs?
- Existing Service Evaluation - Given our customer's needs, what are the strengths, deficiencies, gaps and opportunities of our existing bus network?

Stakeholder Guidance:

- Establish Project Committees – Monthly workshops with External Working Group to establish policy guidance on service priorities and trade offs. Coordinate efforts through TAC and Internal Working Group

Public Engagement :

- Establish project Website, telephone townhall, meetings and other forums to provide and solicit information
- Brief Metro bus operators, supervisors, and customer service representatives

Thank You

Metro

Transit Master Plan -
Draft Final Plan and Action Plan

Context of Transit Master Plan

- Countywide Study of Long-Term Transit Needs
- Input for Long-Range Transportation Plan
- Guides Future Bus Service Recommendations
- First Step in Project Development Process
  - Master Plan
  - Feasibility Studies
  - Environmental Review
  - Engineering/Design

Board Feedback on Potential Next Steps

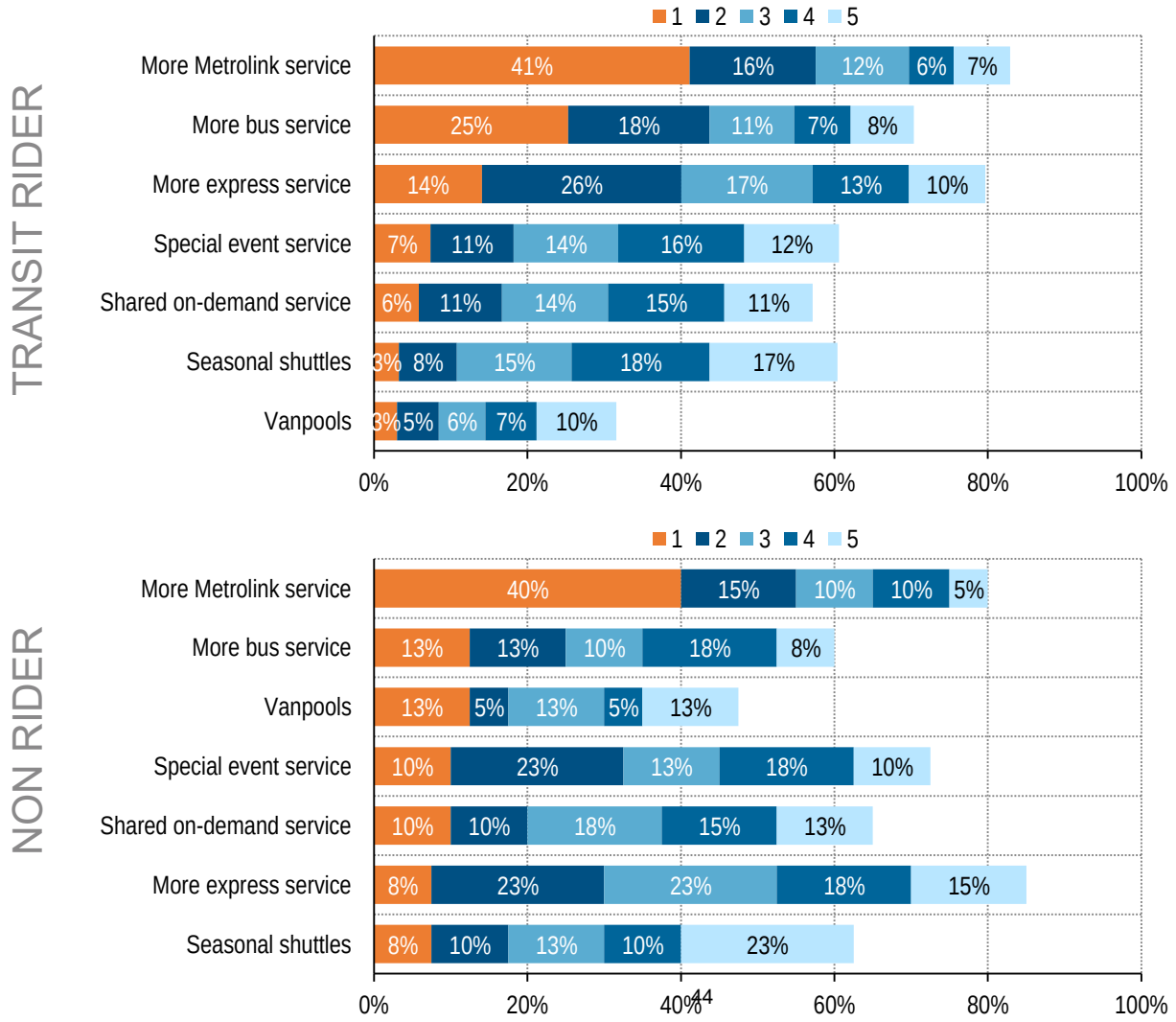
- Connecting JWA to the Anaheim Resort
  - Private providers meeting existing need
  - Westminster Avenue – Bristol Street line connection
  - Work with JWA on short-term connection improvements
- Connecting Orange County to Metro Rail
  - Connections considered and did not screen well
  - Work with Metro on cross-county transportation study
  - Monitor Metro project development
- Geographic Equity
  - 20 of 34 cities containing 78 percent of the population would have at least one transit opportunity line
  - Plan includes recommendation for other transit options
  - Revisit plan in five years with update land-use and demographics

Board – Board of Directors
JWA – John Wayne Airport
Metro – Los Angeles County Metropolitan Transportation Authority

Recommended Corridors

Corridor	Limits	Technical Score (1-5)	Survey Support	Rapid Streetcar	Bus Rapid Transit (BRT)	Rapid Bus
Harbor Boulevard/ Santa Ana Boulevard	California State University, Fullerton to Santa Ana Regional Transportation Center	4.0	MID	✓	✓	
Westminster Avenue/ Bristol Street	Goldenwest Transportation Center to UC Irvine	3.7	MID	✓	✓	
Harbor Boulevard (South)	17th Street/Westminster to Hoag Hospital Newport Beach	2.6	MID		✓	✓
State College Boulevard	Brea Mall to Downtown Santa Ana	2.9	MID		✓	✓
Beach Boulevard	Fullerton Park-and-Ride to Downtown Huntington Beach	2.8	HIGH			✓
Main Street	Anaheim Regional Transportation Intermodal Center to South Coast Plaza Park-and-Ride	3.2	HIGH			✓
La Palma Avenue/Lincoln Avenue	Hawaiian Gardens to Anaheim Canyon Station	2.7	LOW			✓
Chapman Avenue	Hewes Street to Beach Boulevard	2.4	LOW			✓
McFadden Avenue/Bolsa Street	Goldenwest Transportation Center to Larwin Square	3.0	LOW			✓
Interstate 5 Freeway	Fullerton Park-and-Ride to Mission Viejo/Laguna Niguel Station	2.6	HIGH		✓	
State Route 55 Freeway	Santa Ana Regional Transportation Center to Hoag Hospital	2.6	MID		✓	

Survey: Other Improvements



Short-Term Action Plan

- Implement OC Flex Microtransit Pilot Zones (2018)
- Issue Project V Call for Projects for Seasonal and Special Event Services (2018)
- Develop and Implement Strategies for Incremental Improvements to Existing and Future Rapid Bus (Bravo!) Routes (2018-2019)
- Analyze Regional Bus-Rail Connections as Part of Upcoming Los Angeles–Orange County Transportation Study (2018-2019)
- Conduct Transit Corridor Study of Bristol Street from Initial OC Streetcar Alignment to South Coast Metro Area (2018-2020)
- Implement Beach Boulevard Rapid Bus (2019)
- Expand OC Flex (2019, pending successful pilot)
- Conduct Freeway BRT Network Study (2019-2020)
- Begin Operations of Initial OC Streetcar Service and Implement Bus-Rail Interface Plan (2020)
- Improve Service on Bus Routes to meet Transit Investment Framework Guidelines (Ongoing)

Mid/Long-Term Recommendations

- **Mid-Term Recommendations (2023-2032)**
  - Update OC Transit Vision
  - Main Street rapid bus
  - OC Flex expansion
  - La Palma Avenue/Lincoln Avenue rapid bus
  - Interstate 5 Freeway BRT
  - Westminster Avenue/Bristol Street streetcar extension or BRT from Goldenwest Transportation Center to UC Irvine
  - State College Boulevard BRT or rapid bus
- **Long-Term Recommendations (2033+)**
  - Harbor Boulevard/Lemon Street/Anaheim Boulevard streetcar extension, or BRT from Westminster Avenue to California State University, Fullerton
  - Harbor Boulevard south BRT or rapid bus
  - McFadden Avenue/Bolsa Street rapid bus
  - Chapman Avenue rapid bus
  - State Route 55 freeway BRT

TRANSIT RECOMMENDATIONS

Next Steps

- Finalize plan with Board feedback
- Communicate final recommendations to public and stakeholders
- Direct staff to implement short-term recommendations
- Consider medium-term and long-term recommendations in the upcoming Long-Range Transportation Plan process

REPORT

DATE: January 31, 2018

TO: Regional Transit Technical Advisory Committee (RTTAC)

FROM: Steve Fox, Senior Regional Planner, 213-236-1855, fox@scag.ca.gov

SUBJECT: 2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) High-Quality Transit Corridor (HQTC) and Major Transit Stop Methodology

SUMMARY:
This report updates RTTAC members on SCAG's Draft 2020 RTP/SCS HQTC and Major Transit Stop Methodology and external vetting process. Refinements have been made to the 2016 RTP/SCS process due to inquiries and input from local jurisdictions and transit agencies.

BACKGROUND:
The Sustainable Communities and Climate Protection Act of 2008, SB 375, allows for residential or mixed-use residential projects that may be exempt from, or subject to a limited review of, CEQA. The bill specifically states that these "transit priority projects" should, among other factors, be located within one-half mile of a major transit stop or HQTC.

SB 743 provides further opportunities for CEQA exemption and streamlining to facilitate transit-oriented development (TOD). Specifically, certain types of projects within "transit priority areas" (TPAs) can benefit from a CEQA exemption if they are also consistent with an adopted specific plan and the regional SCS. The State Office of Planning and Research (OPR) was tasked to develop guidelines for streamlined CEQA analysis for transportation impacts of projects within TPAs.

Statute Language

Government Code Section 65088.1(e) "High-quality transit corridor" means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

Public Resources Code Section 21064.3 "Major transit stop" means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

Public Resources Code Section 21099 (a)(7) "Transit priority area" means an area within one-half mile of a major transit stop that is existing or planned, if the planned stop is scheduled to be completed within the planning horizon included in a Transportation Improvement Program adopted pursuant to Section 450.216 or 450.322 of Title 23 of the Code of Federal Regulations.

High Quality Transit Areas

"High Quality Transit Areas" or "HQTAs" is a SCAG-defined term. They are defined in SCAG's 2016 RTP/SCS as areas within one-half mile of a fixed guideway transit stop or a bus transit corridor where buses

arrive at a frequency of every15 minutes or less during peak commuting hours. HQTAs are not defined in statute; however, they are based on the preceding legal definitions of "major transit stop" and "high quality transit corridor" in the State Public Resources Code.

DISCUSSION:

Draft 2020 RTP/SCS HQTC and Major Transit Stop Methodology

SCAG staff is beginning the process of updating its inventory of existing and planned HQTCs and major transit stops for the 2020 RTP/SCS. The base year transit network for the 2020 RTP/SCS is 2016, and will be based primarily on data from June 2016.

RTTAC members were involved in the 2016 RTP/SCS process, and helped SCAG staff resolve issues involving interpretation of the statute and methodology, and vetting the HQTC network. At that time, SCAG staff also contacted Sacramento Area Council of Governments (SACOG), the San Francisco Bay Area Metropolitan Transportation Commission (MTC), San Diego Association of Governments (SANDAG), and OPR. It was determined that at least a couple of issues--such as whether or not to include express route alignments along freeways as HQTCs, or whether or not to average the combined frequency of multiple-line corridors to determine HQTC eligibility—were being addressed differently among the state's major metropolitan planning organizations (MPOs). Based on consultation with OPR, the SCAG staff developed a draft methodology that was reviewed with the RTTAC at its July 2014 meeting.

Since the adoption of the 2016 RTP/SCS, SCAG has received numerous questions regarding the identification of HQTCs and major transit stops, which prompted further development and refinement of the methodology. SCAG staff have incorporated these refinements into a methodology and guidance document (attached) to be shared with transit agencies and local jurisdictions. This methodology will be updated periodically, as needed, and brought forward to the RTTAC for review and input. Following is a discussion of the updated methodology with refinements called out.

High Quality Transit Corridors. High-Quality Transit Corridors are corridors with bus service of every 15-minutes or better in the peak periods. Peak hours are defined as 6:00 AM to 9:00 AM and 3:00 PM to 7:00 PM, based on SCAG's regional travel demand model. If a transit operator uses a different span of hours for their peak period, SCAG will accommodate a different peak period on a case-by-case basis. The total population of a transit route's trips during the combined seven-hour AM and PM periods will be used to determine average frequency of service, separately for each direction. Average frequency is calculated by dividing 420 minutes (the seven-hour peak converted to minutes) by the total peak trips.

A transit route's trip that begins or ends outside of the AM and PM peak hours will only be counted if the trip's halfway point occurs within the peak period. This is a clarification to the methodology that was not previously discussed with the RTTAC, but is necessary to ensure consistency with how the SCAG regional travel demand model determines peak period trips. Please see Examples #1 and #2 in the attached draft methodology document for more detail.

Additional requirements for a HQTC include:

- For transit routes that have different route patterns, the average frequency of service for each pattern will be calculated. The combined route patterns with common endpoints that meet the 15-minute threshold will be identified as high quality transit corridors. This is a refinement of the methodology that was previously not discussed with the RTTAC, but is necessary to address routes operating with different route patterns. Please see Example #3 in the attached draft methodology document for more detail.

- HQTCs must have at least one bus route with 15-minute or better service. If a certain corridor or arterial has more than one route operating along it for a defined length, and none of the routes has 15-minute or better frequency, then averaging the frequency of the different routes for a given segment along this corridor that would result in arriving at a better than 15-minute service does not qualify as a HQTC and is not within the intent of statute.

- Transit routes that operate in one direction only for the entire route or a portion of the route, and meet the 15-minute threshold, qualify as HQTCs. This includes, but is not limited to, routes operating on either one-way or two-way streets, one-way circulators and routes with one-way terminal loops. This is a refinement to the methodology that was not previously discussed with the RTTAC, but is necessary to include bus routes providing one-way service. Please see Example #4 in the attached draft methodology for more detail.

Route Alignment Buffering. The entire route alignment of a service that operates at better than 15-minute service must be included as a HQTC. This includes express bus services even when they are running along freeways and are not accessible via stops on the freeway right-of-way.

Major Transit Stops and Intersecting Service Transfer Zones. As defined in statute, major transit stops include the intersection of two or more HQTCs. For purposes of transferring between intersecting bus routes, SCAG uses a 500-foot buffer to determine a major transit stop. A 500-foot buffer was chosen as this distance is assumed to be a reasonable limit that a transit patron would walk to transfer between buses. This issue is not addressed in statute, and is at the discretion of the MPO. For example, MTC uses a 200-foot buffer for this purpose. SCAG will use its GIS database of stop locations to identify major transit stops. A caveat is that the spatial accuracy of bus stop locations is therefore limited to that of the data source. The draft methodology advises local jurisdictions to verify this data using aerial photography, site visits or other methods. Please see Example #5 in the attached draft methodology for more detail.

The intersecting bus routes must diverge into separate corridors or generally be perpendicular to each other. There may be rare instances where two bus routes that operate in parallel for a short distance, but otherwise diverge to separate corridors, may be justified as intersecting bus routes. This clarification to the methodology was not previously discussed with the RTTAC, but was developed in response to questions received from a local jurisdiction.

Lastly, Amtrak stations with only limited long-distance service are not automatically included as a major transit stop unless requested by a local agency. This clarification to the methodology was not previously discussed with the RTTAC, but was developed in response to questions received from a local jurisdiction.

2020 Process Schedule

Below is a tentative schedule for the 2020 RTP/SCS HQTC and major transit stop development and external vetting process.

Identify initial 2016 HQTCs and Major Transit Stops. SCAG staff will identify the 2016 HQTC network based on the SCAG base year model network. - November 2017 through April 2018

Verify 2016 Transit Network 15-Minute Frequency Services. SCAG staff will verify 15-minute or better frequency services with transit operators and county transportation commissions (CTCs) to accurately inventory transit services. - May 2018

Complete Draft Data Set and Maps. SCAG staff will complete the draft 2016 HQTC and major transit stop data set and maps, incorporating input received from transit operators and CTCs. – June 2018

Complete External Review of Draft Data Set and Maps. The final draft 2016 HQTC and major transit stop data set and maps will be vetted externally with transit operators and CTCs. – July 2018

Finalize Data Set and Maps. Once all outstanding issues with transit operators and CTCs are resolved, the final 2016 HQTCs and major transit stops will be incorporated into the 2020 RTP/SCS. - August 2018

NEXT STEPS:
SCAG staff will incorporate comments and feedback from the RTTAC, other MPOs and OPR, and then finalize the HQTC and Major Transit Stop Methodology document.

ATTACHMENTS:
1. Draft HQTC and Major Transit Stop Methodology
2. Presentation

DRAFT FOR DISCUSSION – HIGH QUALITY TRANSIT CORRIDOR AND MAJOR TRANSIT STOP METHODOLOGY

INTRODUCTION

SCAG developed this guidance to assist local jurisdictions and transit agencies in identifying existing major transit stops and high quality transit corridors in accordance with applicable state law and consistent with SCAG's adopted Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). This guidance is not intended to supersede or replace state law defining high quality transit corridors, major transit stops, and transit priority areas. This guidance may be periodically updated to incorporate revisions or clarifications. Questions regarding the guidance should be directed to Steve Fox, at fox@scag.ca.gov and 213-236-1855, or Philip Law, at law@scag.ca.gov and 213-236-1841.

BACKGROUND

SCAG updates its inventory of existing and planned major transit stops and high quality transit corridors with each full update of the RTP/SCS, once every four years. Data for the "existing" or "base year" condition for the RTP/SCS are typically obtained several years before plan adoption. For example, the base year transit network for the upcoming 2020 RTP/SCS is based primarily on data for June 2016. This inventory of existing major transit stops and high quality transit corridors is therefore only a snapshot in time as of June 2016, and does not reflect the existing levels of transit service for any other timeframe.

Transit agencies make adjustments to bus service on a regular basis. Therefore, given the limits of the base year transit network in SCAG's RTP/SCS, local jurisdictions are encouraged to consult with their appropriate transit provider(s) to obtain the latest information on existing transit routes and frequencies.

METHODOLOGY

SCAG uses the following definitions of terms and methodology for updating the existing and planned major transit stops and high quality transit corridors in the RTP/SCS.

<u>High Quality Transit Corridor</u>

A "high-quality transit corridor" means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours. (CA Public Resources Code Section 21155(b))

- Peak hours are 6 AM-9 AM and 3 PM-7 PM, based on SCAG's regional travel demand model. A transit operator may have a slightly different, board-adopted or de facto peak period; in such cases SCAG will accept requests to use operator-specific peak-hour periods on a case-by-case basis.
- The total population of a transit route's trips during the combined seven-hour AM and PM periods will be used to determine average frequency of service, separately for each direction. Average frequency is calculated by dividing 420 minutes (the seven-hour peak converted to minutes) by the total peak trips. The average frequency in each direction should be 15 minutes

or less in order for the route to qualify. The threshold is strict, at 15.0 minutes. See Examples #1 and #2 for more detail.

- A transit route's trip that begins or ends outside of the AM and PM peak hours will only be counted if the trip's halfway point occurs within the peak period. This is consistent with how SCAG's regional travel demand model distinguishes bus peak period service from off-peak period service.
- For a transit route that has different route patterns (e.g., certain trips begin and/or end at different stops), the average frequency of service for each pattern will be calculated. The combined route patterns with common endpoints that meet the 15-minute threshold are identified as high quality transit corridors. See Example #3 for more detail.
- The corridor must have at least one bus route with average frequency of service interval of 15 minutes or less, in each direction. Separate but overlapping bus routes that do not individually meet the 15-minute threshold may not be combined in order to qualify as a high quality transit corridor.
- The entire alignment of a bus route with average frequency of service interval of 15 minutes or less must be included, such as express bus services that operate along freeways where there are no stops along the freeway right-of-way.
- Transit routes that operate in one direction only for the entire route or a portion of the route, and meet the 15-minute threshold, qualify as high quality transit corridors. This includes, but is not limited to, routes operating on either one-way or two-way streets, one-way circulators and routes with one-way terminal loops. See Example #4 for more detail.

Major Transit Stop and Transit Priority Area

A "major transit stop" means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. (CA Public Resources Code Section 21064.3)

> Note that, regarding implementation of the Sustainable Communities Strategy, CA Public Resources Code Section 21155(b) states, "A major transit stop is as defined in Section 21064.3, except that, for purposes of this section, it also includes major transit stops that are included in the applicable regional transportation plan."

A "transit priority area" means an area within one-half mile of a major transit stop that is existing or planned, if the planned stop is scheduled to be completed within the planning horizon included in a Transportation Improvement Program adopted pursuant to Section 450.216 or 450.322 of Title 23 of the Code of Federal Regulations. (CA Public Resources Code Section 21099(a)(7))

- Where two bus routes intersect, both of the intersecting routes must meet the 15-minute threshold (and therefore, each must be a high quality transit corridor) for the intersection to qualify as a major transit stop.

- For purposes of transferring between intersecting bus routes, SCAG uses a 500-foot buffer to determine a major transit stop. In other words, two intersecting high quality transit corridors must have stops that are within 500 feet of each other to qualify as a major transit stop. A 500-foot buffer is assumed to be a reasonable limit to the distance that a transit patron would walk to transfer between bus routes. See Example #5 for more detail.
- SCAG uses its geographic information systems (GIS) database of stop locations to identify major transit stops. The spatial accuracy of bus stop locations is therefore limited to that of the source data. Local jurisdictions should verify that bus stops are within 500 feet of each other using aerial photography, site visits or other methods.
- The intersecting bus routes must diverge into separate corridors or generally be perpendicular to each other. There may be rare instances where two bus routes that operate in parallel for a short distance, but otherwise diverge to separate corridors, may be justified as intersecting bus routes.
- Amtrak stations with only limited long-distance service are not automatically included as a "major transit stop" unless requested by a local agency.

<u>High Quality Transit Area</u>

"High quality transit areas" or "HQTAs" are defined in SCAG's 2016 RTP/SCS as areas within one-half mile of a fixed guideway transit stop or a bus transit corridor where buses arrive at a frequency of every 15 minutes or less during peak commuting hours. HQTAs are not defined in statute; however, they are based on the definitions of "major transit stop" and "high quality transit corridor" as identified in the State Public Resources Code.

EXAMPLES

The following examples demonstrate SCAG's application of the methodology using published bus schedules.

1. High quality transit corridor
2. Not a high quality transit corridor
3. Bus route with multiple patterns
4. Bus routes with one-way directional service
5. Major transit stop

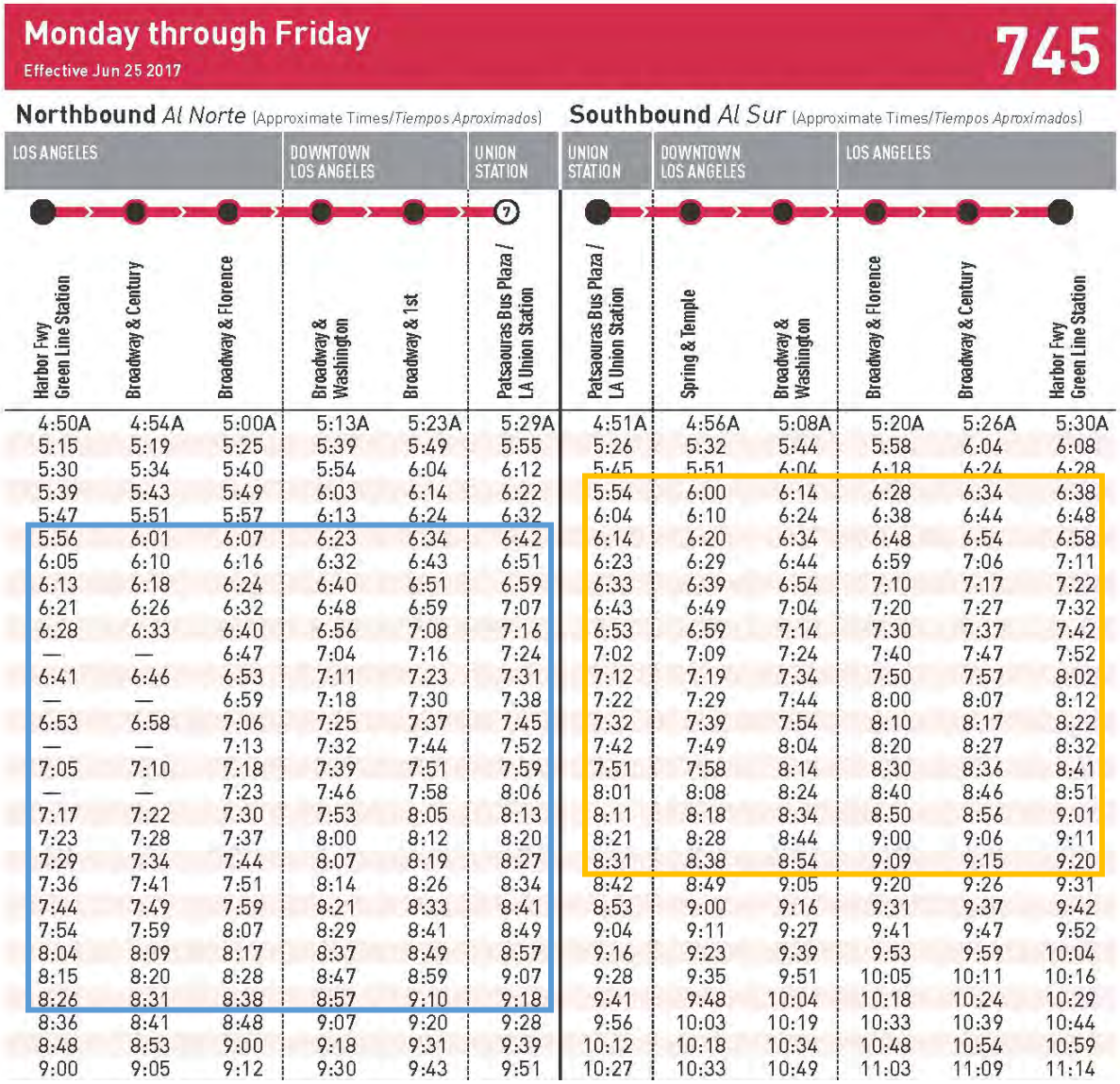
Example 1 – High Quality Transit Corridor

Metro Line 745 qualifies as a high quality transit corridor.

Direction	AM Peak Trips	PM Peak Trips	Total Peak Trips	Average Headway
Northbound	17	22	39	10.8 minutes
Southbound	17	25	42	10.0 minutes

Note that, in the northbound direction, the trip beginning at 8:36am is not counted. That trip ends at 9:28am, with the halfway point occurring at 9:02am, which is outside of the AM peak period. (The four truncated northbound AM trips that begin at Broadway & Florence are not counted – see Example 3 for further discussion of bus routes with multiple patterns.)

In the southbound direction, the trip beginning at 5:54am is counted. That trip ends at 6:38am, with the halfway point occurring at 6:16am, which is the within the AM peak period.



Monday through Friday — Effective Jun 25 2017 — **745**

Northbound *Al Norte* (Approximate Times/*Tiempos Aproximados*)

LOS ANGELES			DOWNTOWN LOS ANGELES		UNION STATION
Harbor Fwy Green Line Station	Broadway & Century	Broadway & Florence	Broadway & Washington	Broadway & 1st	Patsaouras Bus Plaza / LA Union Station
4:50A	4:54A	5:00A	5:13A	5:23A	5:29A
5:15	5:19	5:25	5:39	5:49	5:55
5:30	5:34	5:40	5:54	6:04	6:12
5:39	5:43	5:49	6:03	6:14	6:22
5:47	5:51	5:57	6:13	6:24	6:32
5:56	6:01	6:07	6:23	6:34	6:42
6:05	6:10	6:16	6:32	6:43	6:51
6:13	6:18	6:24	6:40	6:51	6:59
6:21	6:26	6:32	6:48	6:59	7:07
6:28	6:33	6:40	6:56	7:08	7:16
—	—	6:47	7:04	7:16	7:24
6:41	6:46	6:53	7:11	7:23	7:31
—	—	6:59	7:18	7:30	7:38
6:53	6:58	7:06	7:25	7:37	7:45
—	—	7:13	7:32	7:44	7:52
7:05	7:10	7:18	7:39	7:51	7:59
—	—	7:23	7:46	7:58	8:06
7:17	7:22	7:30	7:53	8:05	8:13
7:23	7:28	7:37	8:00	8:12	8:20
7:29	7:34	7:44	8:07	8:19	8:27
7:36	7:41	7:51	8:14	8:26	8:34
7:44	7:49	7:59	8:21	8:33	8:41
7:54	7:59	8:07	8:29	8:41	8:49
8:04	8:09	8:17	8:37	8:49	8:57
8:15	8:20	8:28	8:47	8:59	9:07
8:26	8:31	8:38	8:57	9:10	9:18
8:36	8:41	8:48	9:07	9:20	9:28
8:48	8:53	9:00	9:18	9:31	9:39
9:00	9:05	9:12	9:30	9:43	9:51

Southbound *Al Sur* (Approximate Times/*Tiempos Aproximados*)

UNION STATION	DOWNTOWN LOS ANGELES		LOS ANGELES		
Patsaouras Bus Plaza / LA Union Station	Spring & Temple	Broadway & Washington	Broadway & Florence	Broadway & Century	Harbor Fwy Green Line Station
4:51A	4:56A	5:08A	5:20A	5:26A	5:30A
5:26	5:32	5:44	5:58	6:04	6:08
5:45	5:51	6:04	6:18	6:24	6:28
5:54	6:00	6:14	6:28	6:34	6:38
6:04	6:10	6:24	6:38	6:44	6:48
6:14	6:20	6:34	6:48	6:54	6:58
6:23	6:29	6:44	6:59	7:06	7:11
6:33	6:39	6:54	7:10	7:17	7:22
6:43	6:49	7:04	7:20	7:27	7:32
6:53	6:59	7:14	7:30	7:37	7:42
7:02	7:09	7:24	7:40	7:47	7:52
7:12	7:19	7:34	7:50	7:57	8:02
7:22	7:29	7:44	8:00	8:07	8:12
7:32	7:39	7:54	8:10	8:17	8:22
7:42	7:49	8:04	8:20	8:27	8:32
7:51	7:58	8:14	8:30	8:36	8:41
8:01	8:08	8:24	8:40	8:46	8:51
8:11	8:18	8:34	8:50	8:56	9:01
8:21	8:28	8:44	9:00	9:06	9:11
8:31	8:38	8:54	9:09	9:15	9:20
8:42	8:49	9:05	9:20	9:26	9:31
8:53	9:00	9:16	9:31	9:37	9:42
9:04	9:11	9:27	9:41	9:47	9:52
9:16	9:23	9:39	9:53	9:59	10:04
9:28	9:35	9:51	10:05	10:11	10:16
9:41	9:48	10:04	10:18	10:24	10:29
9:56	10:03	10:19	10:33	10:39	10:44
10:12	10:18	10:34	10:48	10:54	10:59
10:27	10:33	10:49	11:03	11:09	11:14

Monday through Friday

Effective Jun 25 2017

745

Northbound *Al Norte* (Approximate Times/*Tiempos Aproximados*)

LOS ANGELES			DOWNTOWN LOS ANGELES		UNION STATION
Harbor Fwy Green Line Station	Broadway & Century	Broadway & Florence	Broadway & Washington	Broadway & 1st	Patsaouras Bus Plaza / LA Union Station
12:13P	12:18	12:25	12:41	12:54	1:02
12:28	12:33	12:40	12:56	1:09	1:17
12:43	12:48	12:55	1:11	1:24	1:32
12:58	1:03	1:10	1:26	1:39	1:47
1:12	1:17	1:24	1:40	1:53	2:01
1:25	1:30	1:37	1:53	2:06	2:14
1:37	1:42	1:49	2:05	2:18	2:26
1:48	1:53	2:00	2:16	2:29	2:37
2:00	2:05	2:13	2:29	2:43	2:51
2:12	2:17	2:25	2:41	2:55	3:03
2:24	2:29	2:37	2:53	3:07	3:15
2:35	2:40	2:48	3:04	3:18	3:26
2:45	2:50	2:58	3:15	3:29	3:37
2:55	3:00	3:08	3:25	3:39	3:47
3:05	3:10	3:18	3:35	3:49	3:57
3:15	3:20	3:28	3:45	4:00	4:09
3:25	3:30	3:38	3:55	4:10	4:19
3:34	3:40	3:48	4:06	4:21	4:30
3:44	3:50	3:58	4:16	4:31	4:40
3:54	4:00	4:08	4:26	4:41	4:50
4:04	4:10	4:18	4:36	4:51	5:00
4:14	4:20	4:28	4:46	5:01	5:10
4:24	4:30	4:38	4:56	5:13	5:22
4:34	4:40	4:48	5:06	5:24	5:33
4:43	4:49	4:57	5:16	5:34	5:43
4:53	4:59	5:07	5:26	5:44	5:53
5:03	5:09	5:17	5:36	5:54	6:03
5:13	5:19	5:27	5:46	6:04	6:13
5:25	5:31	5:38	5:57	6:13	6:22
5:36	5:42	5:49	6:08	6:24	6:32
5:49	5:55	6:02	6:21	6:36	6:42
6:04	6:09	6:16	6:35	6:49	6:55
6:31	6:36	6:43	7:01	7:14	7:20
7:01	7:06	7:12	7:28	7:41	7:47
7:29	7:34	7:40	7:56	8:08	8:14
7:59	8:04	8:10	8:24	8:35	8:41
8:30	8:35	8:41	8:55	9:06	9:12

Southbound *Al Sur* (Approximate Times/*Tiempos Aproximados*)

UNION STATION	DOWNTOWN LOS ANGELES		LOS ANGELES		
Patsaouras Bus Plaza / LA Union Station	Spring & Temple	Broadway & Washington	Broadway & Florence	Broadway & Century	Harbor Fwy Green Line Station
1:39	1:45	2:03	2:19	2:26	2:31
1:51	1:58	2:16	2:32	2:39	2:44
2:04	2:11	2:29	2:47	2:54	2:59
2:15	2:22	2:41	2:59	3:06	3:11
2:25	2:32	2:51	3:09	3:16	3:21
2:35	2:42	3:01	3:19	3:26	3:31
2:45	2:52	3:11	3:30	3:37	3:42
2:54	3:01	3:20	3:39	3:46	3:51
3:03	3:10	3:29	3:48	3:55	4:00
3:12	3:19	3:38	3:57	4:04	4:09
3:21	3:28	3:47	4:07	4:14	4:19
3:29	3:36	3:56	4:16	4:23	4:28
3:37	3:44	4:04	4:24	4:31	4:36
3:45	3:52	4:12	4:32	4:39	4:44
3:53	4:00	4:20	4:40	4:47	4:52
4:01	4:08	4:28	4:48	4:55	5:00
4:09	4:16	4:36	4:56	5:03	5:08
4:17	4:24	4:45	5:05	5:12	5:17
4:26	4:33	4:54	5:15	5:22	5:27
4:35	4:42	5:03	5:25	5:32	5:37
4:44	4:51	5:12	5:34	5:41	5:46
4:53	5:00	5:21	5:43	5:50	5:55
5:03	5:10	5:31	5:54	6:01	6:06
5:12	5:19	5:41	6:04	6:11	6:16
5:20	5:27	5:51	6:14	6:21	6:26
5:30	5:37	6:01	6:24	6:31	6:36
5:40	5:47	6:11	6:34	6:41	6:46
5:52	5:59	6:22	6:43	6:50	6:55
6:05	6:12	6:34	6:53	7:00	7:05
6:22	6:29	6:46	7:05	7:12	7:17
6:36	6:43	7:00	7:18	7:25	7:30
6:51	6:58	7:15	7:32	7:38	7:43
7:12	7:19	7:35	7:52	7:58	8:02
7:37	7:43	7:58	8:12	8:18	8:22
8:03	8:09	8:23	8:36	8:42	8:46
8:30	8:36	8:50	9:03	9:09	9:13

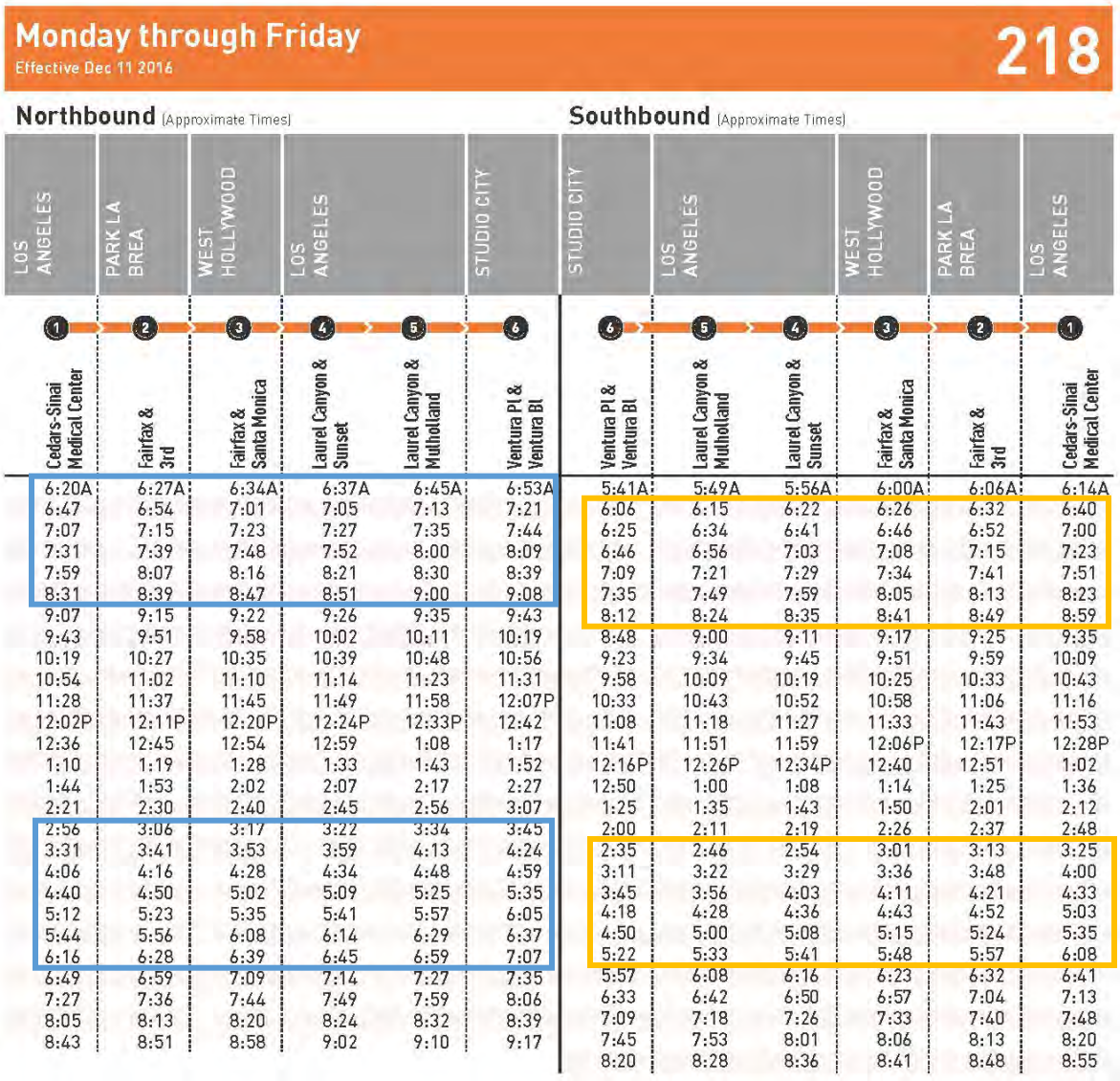
Example 2 – Not a High Quality Transit Corridor

Metro Line 218 does not qualify as a high quality transit corridor.

Direction	AM Peak Trips	PM Peak Trips	Total Peak Trips	Average Headway
Northbound	6	7	13	32.3 minutes
Southbound	6	6	12	35.0 minutes

Note that, in the northbound direction, the trip beginning at 6:49pm is not counted. That trip ends at 7:35pm, with the halfway point occurring at 7:12pm, which is outside of the PM peak period.

In the southbound direction, the trip beginning at 2:35pm is counted. That trip ends at 3:25pm, with the halfway point occurring at 3:00pm, which is the beginning of the PM peak period.



Monday through Friday — Effective Dec 11 2016 — **218**

Northbound (Approximate Times)

1 LOS ANGELES Cedars-Sinai Medical Center	2 PARK LA BREA Fairfax & 3rd	3 WEST HOLLYWOOD Fairfax & Santa Monica	4 LOS ANGELES Laurel Canyon & Sunset	5 LOS ANGELES Laurel Canyon & Mulholland	6 STUDIO CITY Ventura Pl & Ventura Bl
6:20A	6:27A	6:34A	6:37A	6:45A	6:53A
6:47	6:54	7:01	7:05	7:13	7:21
7:07	7:15	7:23	7:27	7:35	7:44
7:31	7:39	7:48	7:52	8:00	8:09
7:59	8:07	8:16	8:21	8:30	8:39
8:31	8:39	8:47	8:51	9:00	9:08
9:07	9:15	9:22	9:26	9:35	9:43
9:43	9:51	9:58	10:02	10:11	10:19
10:19	10:27	10:35	10:39	10:48	10:56
10:54	11:02	11:10	11:14	11:23	11:31
11:28	11:37	11:45	11:49	11:58	12:07P
12:02P	12:11P	12:20P	12:24P	12:33P	12:42
12:36	12:45	12:54	12:59	1:08	1:17
1:10	1:19	1:28	1:33	1:43	1:52
1:44	1:53	2:02	2:07	2:17	2:27
2:21	2:30	2:40	2:45	2:56	3:07
2:56	3:06	3:17	3:22	3:34	3:45
3:31	3:41	3:53	3:59	4:13	4:24
4:06	4:16	4:28	4:34	4:48	4:59
4:40	4:50	5:02	5:09	5:25	5:35
5:12	5:23	5:35	5:41	5:57	6:05
5:44	5:56	6:08	6:14	6:29	6:37
6:16	6:28	6:39	6:45	6:59	7:07
6:49	6:59	7:09	7:14	7:27	7:35
7:27	7:36	7:44	7:49	7:59	8:06
8:05	8:13	8:20	8:24	8:32	8:39
8:43	8:51	8:58	9:02	9:10	9:17

Southbound (Approximate Times)

6 STUDIO CITY Ventura Pl & Ventura Bl	5 LOS ANGELES Laurel Canyon & Mulholland	4 LOS ANGELES Laurel Canyon & Sunset	3 WEST HOLLYWOOD Fairfax & Santa Monica	2 PARK LA BREA Fairfax & 3rd	1 LOS ANGELES Cedars-Sinai Medical Center
5:41A	5:49A	5:56A	6:00A	6:06A	6:14A
6:06	6:15	6:22	6:26	6:32	6:40
6:25	6:34	6:41	6:46	6:52	7:00
6:46	6:56	7:03	7:08	7:15	7:23
7:09	7:21	7:29	7:34	7:41	7:51
7:35	7:49	7:59	8:05	8:13	8:23
8:12	8:24	8:35	8:41	8:49	8:59
8:48	9:00	9:11	9:17	9:25	9:35
9:23	9:34	9:45	9:51	9:59	10:09
9:58	10:09	10:19	10:25	10:33	10:43
10:33	10:43	10:52	10:58	11:06	11:16
11:08	11:18	11:27	11:33	11:43	11:53
11:41	11:51	11:59	12:06P	12:17P	12:28P
12:16P	12:26P	12:34P	12:40	12:51	1:02
12:50	1:00	1:08	1:14	1:25	1:36
1:25	1:35	1:43	1:50	2:01	2:12
2:00	2:11	2:19	2:26	2:37	2:48
2:35	2:46	2:54	3:01	3:13	3:25
3:11	3:22	3:29	3:36	3:48	4:00
3:45	3:56	4:03	4:11	4:21	4:33
4:18	4:28	4:36	4:43	4:52	5:03
4:50	5:00	5:08	5:15	5:24	5:35
5:22	5:33	5:41	5:48	5:57	6:08
5:57	6:08	6:16	6:23	6:32	6:41
6:33	6:42	6:50	6:57	7:04	7:13
7:09	7:18	7:26	7:33	7:40	7:48
7:45	7:53	8:01	8:06	8:13	8:20
8:20	8:28	8:36	8:41	8:48	8:55

Example 3 – Bus Route with Multiple Patterns

Metro Line 10 has multiple trip patterns, where all trips serve the eastern terminus at Main & Venice in Downtown Los Angeles during the peak period, but not all trips serve the western terminus at San Vicente Blvd in West Hollywood.

During the peak period, certain eastbound trips begin at timepoint 3 at Melrose & Arden, rather than at San Vicente. Also, certain westbound trips terminate at timepoint 4 at Melrose & Vine, rather than at San Vicente.

Counting only those trips serving the western terminus at San Vicente, the line does not qualify as a high quality transit corridor. This is because the eastbound average headway exceeds the 15-minute threshold. Service in both directions must each meet the 15-minute frequency threshold to qualify as a high quality transit corridor. (Refer to the trips encompassed in the light blue and yellow boxes on the next page.)

Direction	AM Peak Trips	PM Peak Trips	Total Peak Trips	Average Headway
Eastbound	15	12	27	15.6 minutes
Westbound	15	14	29	14.5 minutes

Counting those trips serving the line as far west as timepoint 3 at Melrose Ave & Arden Blvd, this section of Line 10 does qualify as a high quality transit corridor. (Refer to the trips encompassed by the dark blue and dark gold boxes on next page.)

Direction	AM Peak Trips	PM Peak Trips	Total Peak Trips	Average Headway
Eastbound	17	21	38	11.1 minutes
Westbound	17	19	36	11.7 minutes

In summary, Line 10 qualifies as a high quality transit corridor between Melrose & Arden and the eastern terminus at Main & Venice. The western section of Line 10 between Melrose Ave & Arden Blvd and the western terminus at San Vicente does not qualify as a high quality transit corridor.

Monday through Friday

Effective Jun 25 2017

10

Eastbound *Al Este* (Approximate Times / *Tiempos Aproximados*)

WEST HOLLYWOOD	LOS ANGELES			DOWNTOWN LOS ANGELES	
1	3	5	6	7	8
San Vicente & Melrose	Melrose & Arden	Melrose & Western	Temple & Rampart	Temple & Figueroa	Main & Venice B
4:00A	4:10A	4:13A	4:23A	4:30A	4:41A
4:21	4:31	4:34	4:44	4:51	5:02
4:41	4:51	4:54	5:04	5:12	5:24
—	5:11	5:14	5:25	5:33	5:46
5:18	5:28	5:31	5:42	5:50	6:03
—	5:42	5:46	5:57	6:06	6:21
5:43	5:54	5:58	6:10	6:19	6:34
—	6:04	6:08	6:20	6:29	6:45
—	6:14	6:18	6:30	6:39	6:55
6:12	6:23	6:27	6:40	6:49	7:06
6:20	6:31	6:36	6:50	6:59	7:17
6:28	6:39	6:44	6:58	7:09	7:27
6:37	6:48	6:53	7:08	7:19	E7:37
6:44	6:55	7:00	7:16	7:27	7:46
6:51	7:03	7:08	7:24	7:35	E7:54
6:57	7:10	7:15	7:31	7:43	8:02
7:04	7:17	7:22	7:39	7:51	E8:11
7:12	7:25	7:30	7:48	8:00	8:20
7:20	7:34	7:39	7:57	8:09	E8:29
7:28	7:44	7:49	8:07	8:19	8:39
7:40	7:56	8:01	8:18	8:30	E8:50
7:52	8:08	8:14	8:31	8:41	9:01
8:11	8:27	8:33	8:49	8:59	9:19
8:32	8:48	8:54	9:09	9:19	9:39
8:52	9:08	9:14	9:29	9:39	9:59
9:12	9:28	9:34	9:49	9:59	10:19
9:32	9:48	9:54	10:09	10:19	10:39
9:52	10:08	10:14	10:29	10:39	10:59
—	10:28	10:34	10:49	10:59	11:19
10:31	10:48	10:54	11:09	11:19	11:39
—	11:08	11:14	11:29	11:39	11:59
11:11	11:28	11:34	11:49	11:59	12:19P
—	11:48	11:54	12:09P	12:19P	12:39
11:49	12:08P	12:14P	12:29	12:39	12:59
—	12:28	12:34	12:49	12:59	1:19
12:29P	12:48	12:54	1:10	1:20	1:40
—	H12:57	1:03	1:19	1:29	E1:49
—	1:05	1:11	1:27	1:37	1:57
1:01	1:22	1:28	1:44	1:54	2:14
—	1:39	1:45	2:01	2:11	2:31
1:35	1:56	2:02	2:18	2:28	2:48
—	D1:59	2:05	2:21	2:31	E2:51
1:50	2:12	2:18	2:34	2:44	3:04
—	2:24	2:30	2:46	2:56	3:16
2:12	2:35	2:42	2:58	3:08	3:28
2:24	2:47	2:54	3:10	3:20	3:41
—	2:59	3:06	3:22	3:32	3:53
2:47	3:11	3:18	3:34	3:44	4:05
2:56	3:20	3:27	3:44	3:54	4:16
—	L3:30	3:37	3:54	4:04	E4:26
F3:05	3:34	3:41	3:58	4:08	4:30
—	3:44	3:51	4:08	4:18	4:41
3:30	3:55	4:02	4:19	4:29	4:54
—	4:05	4:13	4:30	4:40	5:05
3:50	4:16	4:24	4:41	4:51	5:16
—	4:27	4:35	4:52	5:02	5:27
—	4:38	4:46	5:03	5:13	5:38
4:21	4:48	4:56	5:14	5:24	5:49
—	4:59	5:07	5:25	5:35	6:00
4:43	5:10	5:18	5:36	5:46	6:10
—	5:21	5:29	5:47	5:57	6:19
5:05	5:33	5:41	5:59	6:09	6:31
—	5:44	5:52	6:11	6:21	6:41
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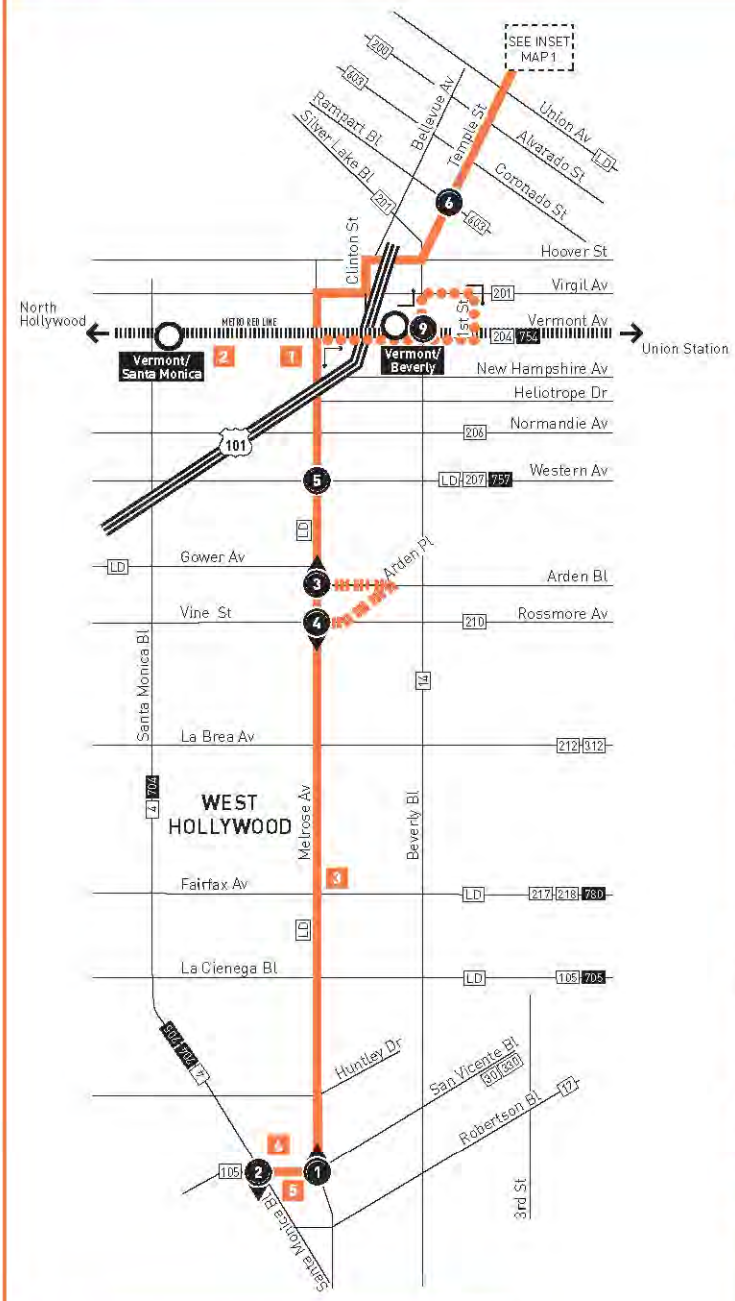
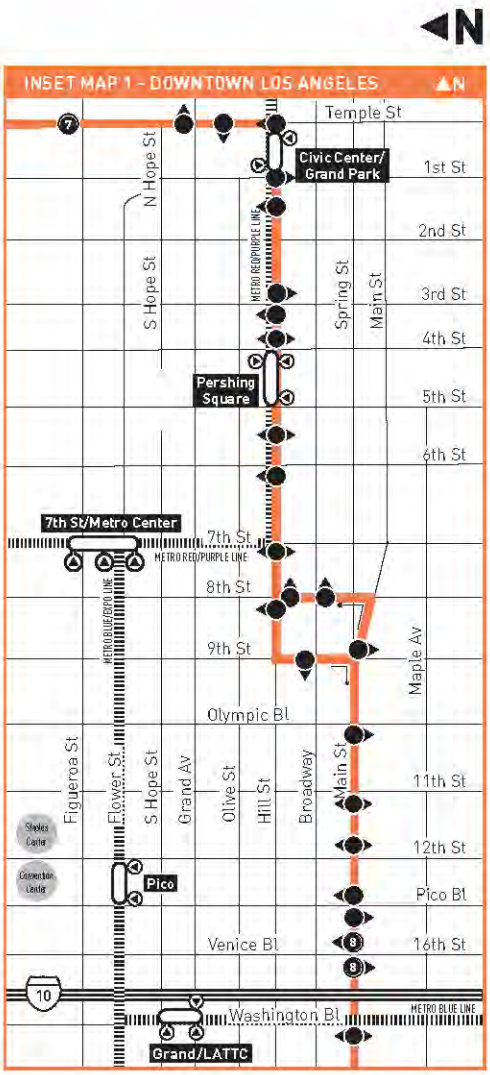
7:07	7:29	7:35	7:51	8:00	8:14
7:44	8:02	8:07	8:21	8:29	8:42
8:17	8:33	8:38	8:51	G8:58	9:17
8:51	9:05	9:09	9:22	9:28	9:39
9:23	9:35	9:39	9:52	G9:58	10:17
10:25	10:37	10:41	10:52	G10:58	11:17
11:30	11:40	11:43	11:52	N12:06A	—
12:30A	12:40A	12:43A	12:52A	12:58A	E1:08

Westbound *Al Oeste* (Approximate Times / *Tiempos Aproximados*)

DOWNTOWN LOS ANGELES		LOS ANGELES			WEST HOLLYWOOD
8	7	6	5	4	2
Main & Venice C	Temple & Figueroa	Temple & Rampart	Melrose & Western	Melrose & Vine	Santa Monica & San Vicente
5:01A	5:14A	5:21A	5:31A	5:35A	5:47A
5:27	5:42	5:49	5:59	6:03	6:16
5:42	5:57	6:05	6:17	6:21	6:34
5:53	6:08	6:16	6:28	6:33	6:47
6:03	6:18	6:26	6:39	6:44	6:58
6:13	6:28	6:37	6:50	6:55	7:11
6:20	6:36	6:45	6:58	7:04	7:22
6:28	6:45	6:54	7:09	7:16	7:36
6:34	6:52	7:01	7:17	7:25	7:46
6:47	7:06	7:17	7:33	7:41	—
6:59	7:20	7:31	7:48	7:56	8:19
7:15	7:36	7:48	8:05	8:12	8:35
7:23	7:44	7:56	8:13	8:20	8:43
7:32	7:53	8:04	8:21	8:28	8:51
7:42	8:03	8:13	8:30	8:37	9:00
7:52	8:13	8:23	8:40	8:47	9:09
8:03	8:24	8:34	8:51	8:58	9:19
8:14	8:36	8:46	9:03	9:10	9:31
8:27	8:49	8:59	9:14	D9:20	—
8:39	9:01	9:11	9:26	9:33	9:52
8:53	9:15	9:25	9:40	9:47	10:06
9:08	9:30	9:40	9:55	D10:01	—
9:26	9:48	9:58	10:13	10:19	10:38
9:46	10:08	10:18	10:33	D10:39	—
10:06	10:28	10:38	10:53	10:59	11:18
10:26	10:48	10:58	11:13	D11:19	—
10:46	11:08	11:18	11:33	11:39	11:58
11:06	11:28	11:38	11:53	D11:59	—
11:26	11:48	11:58	12:13P	12:19P	12:38P
11:46	12:08P	12:18P	12:33	D12:39	—
12:06P	12:28	12:38	12:53	12:59	1:18
12:26	12:48	12:58	1:13	D1:19	—
12:46	1:08	1:18	1:33	1:39	1:58
1:06	1:28	1:38	1:53	D1:59	—
1:26	1:48	1:58	2:13	2:19	2:38
1:46	2:08	2:19	2:34	D2:40	—
2:06	2:28	2:39	2:54	3:00	3:19
2:25	2:47	2:58	3:13	D3:19	—
2:42	3:04	3:16	3:31	3:37	3:56
2:55	3:18	3:30	3:45	D3:51	—
3:05	3:29	3:41	3:56	4:02	4:21
3:16	3:40	3:52	4:07	4:14	4:33
3:27	3:51	4:03	4:18	D4:24	—
3:38	4:02	4:14	4:29	4:36	4:55
3:48	4:13	4:25	4:40	D4:46	—
3:58	4:24	4:36	4:51	4:58	5:17
4:09	4:35	4:47	5:02	D5:08	—
4:20	4:46	4:58	5:14	5:21	5:40
4:31	4:57	5:09	5:25	D5:31	—
4:44	5:10	5:22	5:38	5:45	6:03
4:56	5:22	5:34	5:50	5:57	6:15
5:09	5:35	5:47	6:03	6:10	6:28
5:20	5:46	5:58	6:14	6:21	6:39
5:32	5:58	6:10	6:26	6:33	6:51
5:44	6:10	6:22	6:38	6:44	7:02
6:02	6:28	6:38	6:54	7:00	7:18
6:09	6:34	6:44	7:00	7:06	7:24
6:27	6:50	7:00	7:14	7:20	7:37
6:37	7:00	7:10	7:24	7:30	7:45
6:57	7:15	7:25	7:38	7:44	7:59
7:17	7:33	7:42	7:55	8:01	8:16
7:39	7:53	8:02	8:14	8:18	8:33
8:05	8:18	8:27	8:39	8:43	8:57
8:36	8:48	8:56	9:08	9:12	9:25
G9:00	9:22	9:30	9:42	9:46	9:59
G10:00	10:20	10:27	10:38	10:42	10:55
G11:00	11:20	11:26	11:36	11:40	11:52
—	M12:12A	12:32A	12:42A	12:46A	12:58A

ROUTE MAP





LEGEND

- Line 10 Route
- Line 10 Owl Route to Vermont & Beverly
- Line 10 Turnaround Loop
- Local StopTimepoint
- Local Stop Timepoint - Single Direction Only
- Metro Rail Station
- LD LADOT DASH

INSET 1 – DOWNTOWN LOS ANGELES

- Line 10 Route
- Local Stop
- Local Stop - Single Direction Only
- Metro Rail Station
- Metro Rail Station Entrance
- Metro Rail

MAP NOTES

1. **Braille Institute**
2. **LA City College**
3. **Fairfax High School**
4. **Pacific Design Center**
5. **West Hollywood Library**

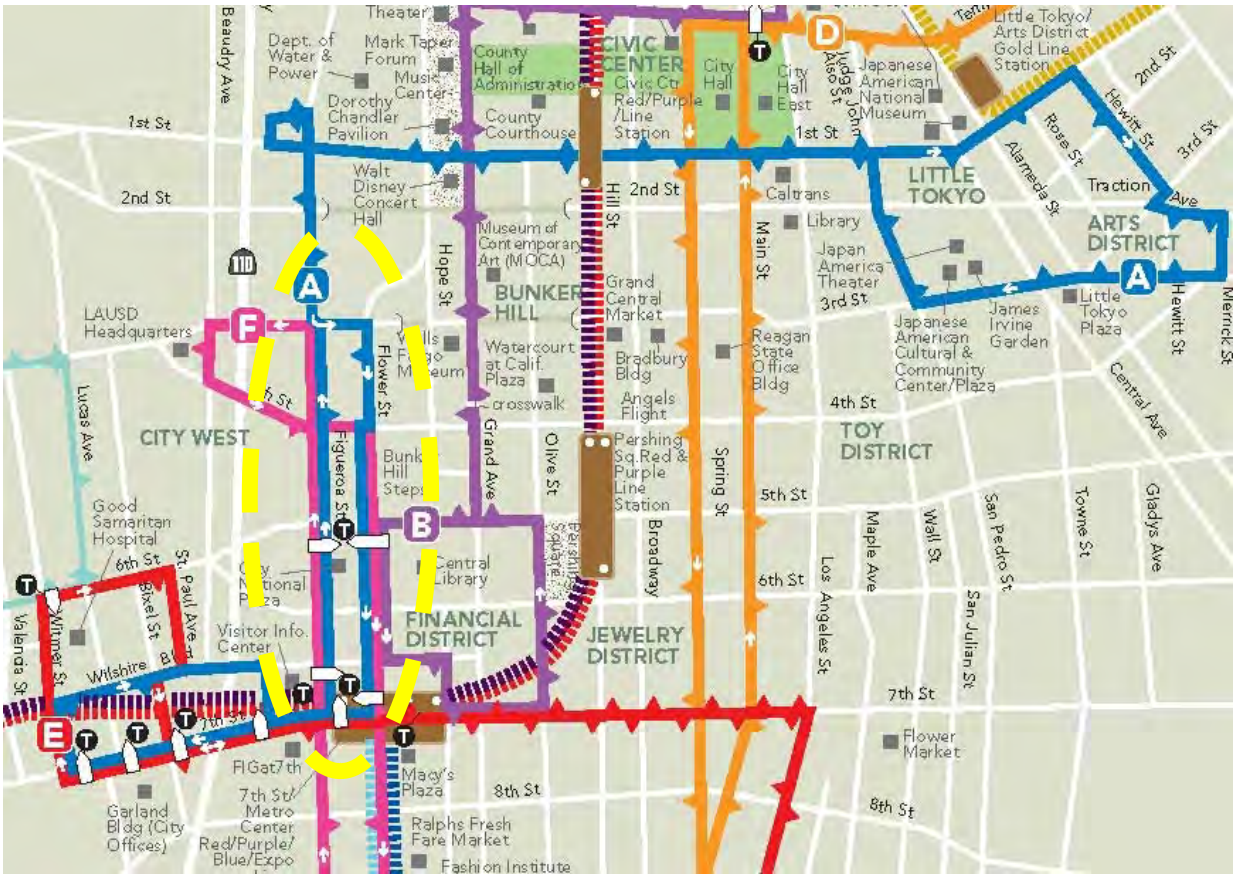
Example 4 – Bus Routes with One-Way Directional Service

To qualify as a high quality transit corridor, a bus route should provide an average frequency of service of 15-minutes or less in both directions during the peak period. However, some routes operate only in one direction on all or a portion of the route.

On one-way streets, it is not possible to operate service in both directions. A bus route (or route pattern) meeting the 15-minute threshold in one direction on a one-way street, qualifies as a high quality transit corridor.

On two-way streets, buses may make a turnaround via a one-way loop at the terminus of the route. This frequently occurs where the street configuration prevents buses from making a u-turn. In this case, a bus route meeting the 15-minute threshold in one direction on a two-way street, qualifies as a high quality transit corridor.

The City of Los Angeles Department of Transportation (LADOT) DASH route A in Downtown Los Angeles demonstrates both of these cases. Along Figueroa and Flower, route A operates on one-way streets (shown in yellow oval below). At the western terminus, buses make a one-way loop using two-way streets including 7th and Wilshire. At the eastern terminus, buses make a one-way loop using two-way streets (1st and Hewitt) and a one-way street (3rd). With service every 7 minutes from 6am to 6:30pm, the entire route A qualifies as a high quality transit corridor.



Bus routes may operate for a segment in only one direction on a two-way street, such as to connect to a transit center or transfer station in the middle of the route. In this case, a bus route meeting the 15-minute threshold with service in only one direction on a two-way street, qualifies as a high quality transit corridor.

Omnitrans Line 61 operates a one-way loop on two-way streets to serve the transfer center at the Ontario Mills Mall (see yellow circle below). Based on the current schedule, Line 61 falls short of the 15-minute criteria in both the eastbound or westbound direction. If it did meet the criteria, the high quality transit corridor would include the one-way service on two-way streets at the Ontario Mills Mall.

Direction	AM Peak Trips	PM Peak Trips	Total Peak Trips	Average Headway
Eastbound	11	15	26	16.2 minutes
Westbound	9	15	24	17.5 minutes

ROUTE 61: MONDAY - FRIDAY

EASTBOUND

A Pomona Transit Center	B Holt & Ramona	C Holt & Vineyard	D Ontario Mills	E Fontana Metrolink
4:39	4:50	5:10	5:25	5:57
4:54	5:05	5:25	5:40	6:12
5:09	5:20	5:40	5:55	6:27
5:27	5:38	5:58	6:13	6:45
5:55	6:06	6:26	6:41	7:13
6:09	6:22	6:43	6:58	7:30
6:23	6:36	6:57	7:12	7:44
6:39	6:52	7:13	7:28	8:00
6:53	7:06	7:27	7:42	8:14
7:08	7:22	7:43	7:58	8:30
7:23	7:37	7:58	8:13	8:45
7:38	7:52	8:13	8:28	9:00
7:53	8:07	8:28	8:43	9:15
8:08	8:22	8:43	8:58	9:30
8:23	8:37	8:58	9:13	9:45
8:38	8:52	9:13	9:28	10:00
8:53	9:07	9:28	9:43	10:15
9:08	9:22	9:43	9:57	10:32
9:23	9:37	9:58	10:12	10:47
9:38	9:52	10:13	10:27	11:02
9:53	10:07	10:28	10:42	11:17
10:08	10:22	10:43	10:57	11:32
10:23	10:37	10:58	11:12	11:47
10:38	10:52	11:13	11:27	**12:02**
10:53	11:07	11:28	11:42	**12:17**
11:08	11:23	11:44	11:58	**12:35**
11:23	11:38	11:59	**12:13**	**12:50**
11:38	11:53	**12:14**	**12:28**	**1:05**
11:54	**12:09**	**12:30**	**12:44**	**1:21**
12:08	**12:23**	**12:46**	**1:00**	**1:38**
12:24	**12:39**	**1:02**	**1:16**	**1:54**
12:40	**12:55**	**1:18**	**1:32**	**2:10**
12:56	**1:11**	**1:34**	**1:48**	**2:26**
1:12	**1:27**	**1:52**	**2:06**	**2:44**
1:28	**1:43**	**2:08**	**2:22**	**3:00**
1:44	**1:59**	**2:24**	**2:38**	**3:16**
2:00	**2:15**	**2:41**	**2:55**	**3:33**
2:16	**2:31**	**2:57**	**3:11**	**3:49**
2:32	**2:47**	**3:13**	**3:27**	**4:05**
2:48	**3:03**	**3:29**	**3:43**	**4:21**
3:04	**3:20**	**3:46**	**4:00**	**4:38**
3:20	**3:36**	**4:02**	**4:16**	**4:54**
3:36	**3:52**	**4:18**	**4:32**	**5:10**
3:52	**4:08**	**4:34**	**4:48**	**5:26**
4:08	**4:24**	**4:50**	**5:04**	**5:42**
4:24	**4:40**	**5:06**	**5:20**	**5:58**
4:40	**4:56**	**5:22**	**5:36**	**6:14**
4:56	**5:12**	**5:38**	**5:52**	**6:30**
5:12	**5:28**	**5:53**	**6:07**	**6:41**
5:27	**5:43**	**6:08**	**6:22**	**6:56**
5:42	**5:58**	**6:23**	**6:37**	**7:11**
6:00	**6:14**	**6:39**	**6:52**	**7:26**
6:35	**6:49**	**7:14**	**7:27**	**8:01**
7:12	**7:24**	**7:45**	**7:58**	**8:27**
7:42	**7:54**	**8:15**	**8:28**	**8:57**
8:12	**8:24**	**8:45**	**8:58**	**9:27**
8:37	**8:49**	**9:10**	**9:23**	**9:52**
9:13	**9:24**	**9:42**	**9:53**	**10:21**

WESTBOUND

E Fontana Metrolink	D Ontario Mills	C Holt & Vineyard	B Holt & Ramona	A Pomona Transit Center
4:08	4:37	4:49	5:05	5:16
4:45	5:19	5:34	5:55	6:08
5:15	5:49	6:04	6:25	6:38
5:50	6:24	6:39	7:00	7:13
6:12	6:47	7:02	7:25	7:38
6:27	7:02	7:17	7:40	7:53
6:42	7:17	7:32	7:55	8:08
7:00	7:35	7:50	8:12	8:25
7:28	8:03	8:18	8:40	8:53
7:45	8:20	8:35	8:57	9:10
7:59	8:34	8:49	9:11	9:24
8:15	8:50	9:05	9:27	9:40
8:29	9:04	9:19	9:41	9:54
8:45	9:20	9:35	9:57	10:10
9:00	9:35	9:50	10:12	10:27
9:15	9:50	10:05	10:27	10:42
9:30	10:05	10:20	10:42	10:57
9:45	10:20	10:35	10:57	11:12
10:00	10:37	10:52	11:14	11:29
10:15	10:52	11:07	11:29	11:44
10:30	11:07	11:22	11:44	11:59
10:45	11:22	11:37	11:59	**12:14**
11:00	11:38	11:53	**12:15**	**12:30**
11:15	11:53	**12:08**	**12:30**	**12:45**
11:30	**12:08**	**12:23**	**12:45**	**1:00**
11:45	**12:23**	**12:38**	**1:00**	**1:15**
12:00	**12:38**	**12:54**	**1:16**	**1:31**
12:16	**12:54**	**1:10**	**1:32**	**1:47**
12:32	**1:10**	**1:26**	**1:48**	**2:03**
12:48	**1:26**	**1:42**	**2:04**	**2:19**
1:04	**1:42**	**1:58**	**2:22**	**2:37**
1:20	**1:58**	**2:14**	**2:38**	**2:53**
1:36	**2:14**	**2:30**	**2:54**	**3:09**
1:52	**2:30**	**2:46**	**3:10**	**3:25**
2:08	**2:46**	**3:02**	**3:26**	**3:41**
2:24	**3:02**	**3:18**	**3:42**	**3:57**
2:40	**3:18**	**3:34**	**3:58**	**4:13**
2:56	**3:34**	**3:50**	**4:14**	**4:29**
3:12	**3:50**	**4:07**	**4:31**	**4:46**
3:28	**4:06**	**4:23**	**4:47**	**5:02**
3:44	**4:22**	**4:39**	**5:03**	**5:18**
4:00	**4:38**	**4:55**	**5:19**	**5:34**
4:16	**4:54**	**5:11**	**5:35**	**5:50**
4:32	**5:10**	**5:27**	**5:51**	**6:06**
4:48	**5:26**	**5:43**	**6:07**	**6:22**
5:04	**5:42**	**5:57**	**6:17**	**6:32**
5:19	**5:57**	**6:12**	**6:32**	**6:47**
5:34	**6:12**	**6:27**	**6:47**	**7:02**
5:49	**6:27**	**6:42**	**7:02**	**7:17**
6:04	**6:40**	**6:55**	**7:13**	**7:28**
6:19	**6:55**	**7:10**	**7:28**	**7:43**
6:39	**7:15**	**7:30**	**7:48**	**8:03**
7:05	**7:38**	**7:51**	**8:09**	**8:22**
7:34	**8:07**	**8:20**	**8:38**	**8:5**
8:19	**8:50**	**9:03**	**9:18**	**9:31**
8:44	**9:15**	**9:28**	**9:43**	**9:56**
9:37	**10:08**	**10:21**	**10:36**	**10:49**
9:59	**10:30**	**10:43**	**10:58**	**11:11**

Circular or loop routes operate in one direction along all, or a major portion, of the route, on one-way or two-way streets.

The NoHo to Media District line operated by the City of Burbank is primarily a large one-way circular route that meets the 15-minute threshold. It operates in both directions between the North Hollywood Red Line subway station and the intersection of Magnolia and Hollywood Way, at which point it proceeds in a one-directional loop south on Hollywood Way, east on Olive and Alameda, north on Buena Vista, and west on Magnolia back to the intersection of Magnolia and Hollywood Way. With buses running every 12 minutes from 6:05-9:17am and 2:50-6:38pm, this route qualifies as a high quality transit corridor.

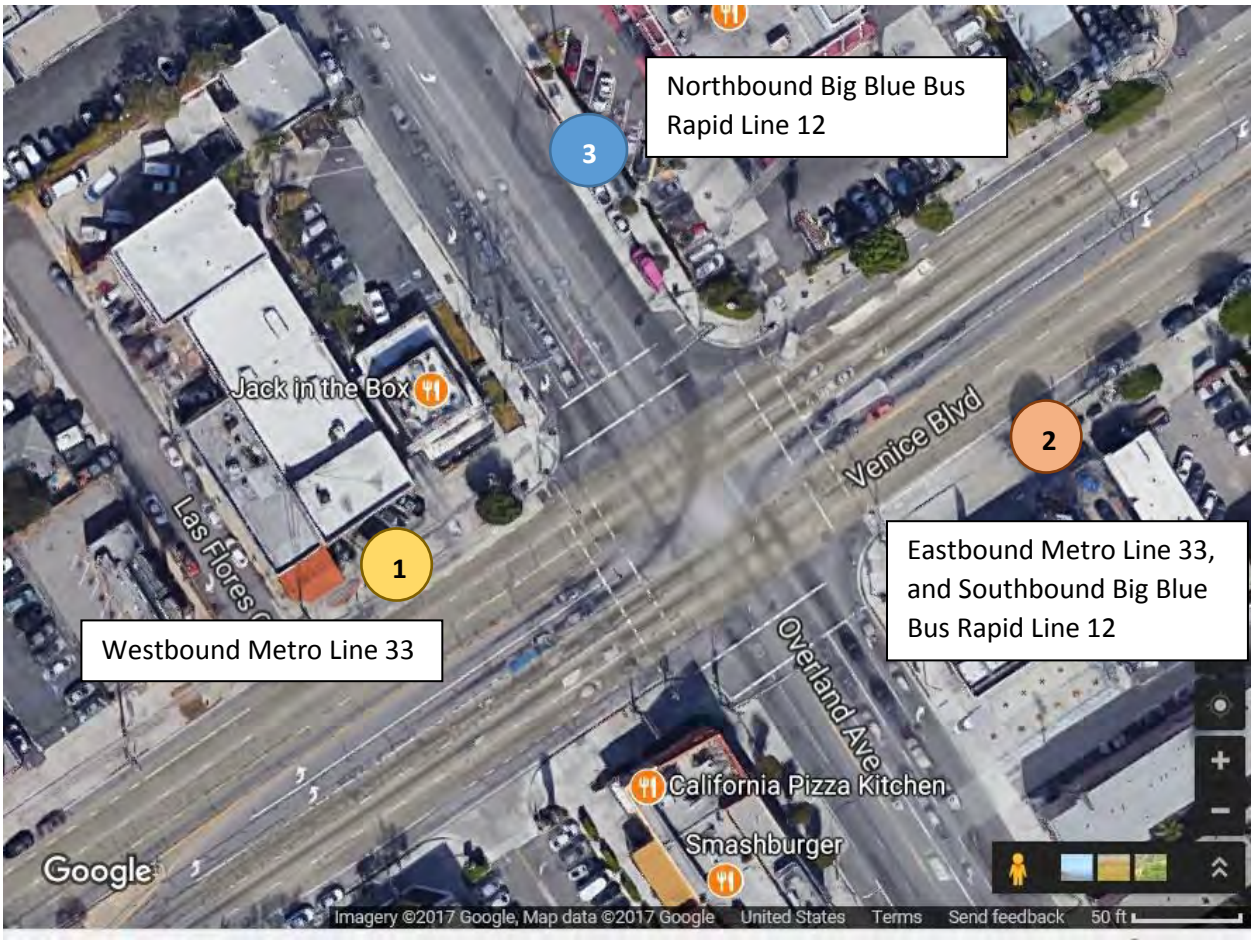
Example 5 – Major Transit Stop

A "major transit stop" as it relates to bus service, occurs at the intersection of two or more high quality transit corridors. The bus stops on the intersecting routes must be within 500 feet of each other to qualify as an intersection.

Metro Line 33 is a high quality transit corridor on Venice Blvd, with far-side stops at Overland westbound (shown as stop 1 below) and eastbound (stop 2).

Santa Monica's Big Blue Bus Rapid Line 12 is a high quality transit corridor on Overland Ave. Southbound buses turn left onto Venice and serve the far-side stop (stop 2), then make a clockwise loop before heading back north on Overland Ave with a far-side stop northbound at Venice (stop 3).

The stops are within less than 500 feet of each other, therefore this intersection qualifies as a major transit stop.



Draft 2020 RTP/SCS HQTC and Major Transit Stop Methodology

Regional Transit Technical Advisory Committee

January 31, 2018

Steve Fox, Senior Regional Planner

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Draft 2020 RTP/SCS HQTCs/MTSs

- Staff beginning to update its inventory of existing and planned HQTCs and major transit stops for the 2020 RTP/SCS.
- Base year transit network is 2016--based primarily on June 2016 schedules.
- Since the 2016 RTP/SCS, staff received numerous questions regarding identification of HQTCs and major transit stops from local jurisdictions.
- Further development and refinement of the 2016 methodology has been completed in draft format.

Draft 2020 RTP/SCS HQTCs/MTSs

- RTTAC members were involved in the 2016 RTP/SCS process.
- Helped resolve issues involving interpretation of the statute and methodology, and vetting the HQTC network.

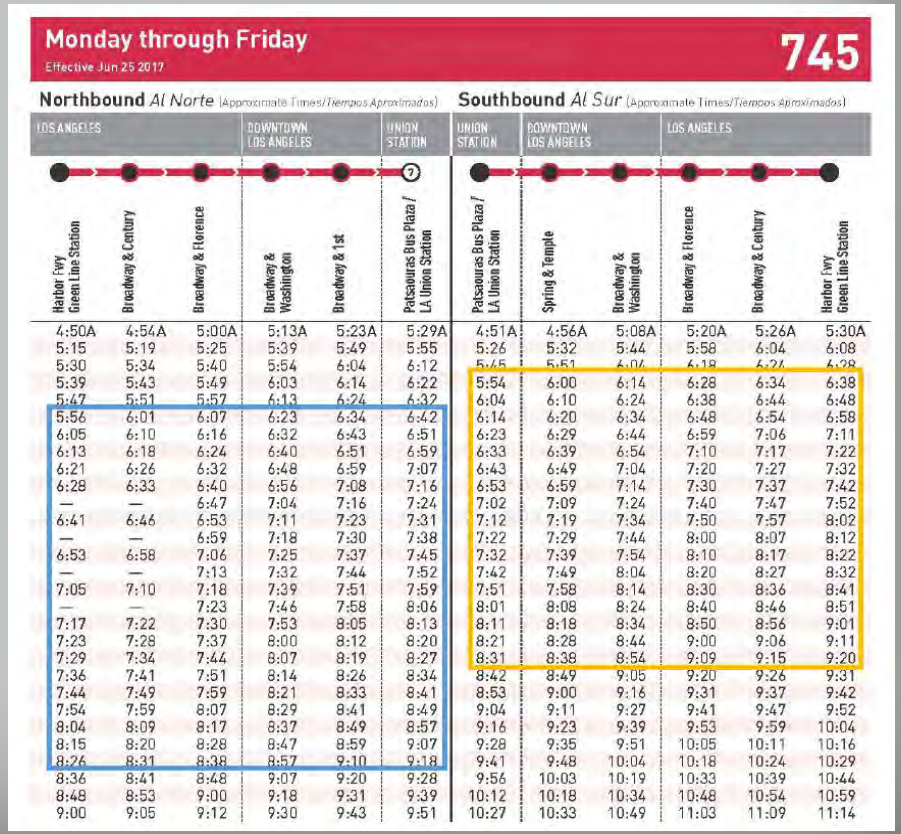
2016 Methodology

- High Quality Transit Corridor
  - 15-minutes or better
  - Seven hour peak period (some exceptions)
  - Number of trips beginning in peak period
  - Multi-route corridor cases
- Route Alignment Buffering
  - Express services
- Major Transit Stops
  - Intersection of 15-minute services
  - 500-foot transferring buffer

2020 Refinements - HQTC

Halfway Point Criterion -

A transit route's trip that begins or ends outside of the AM and PM peak hours is counted if the trip's halfway point occurs within the peak period. Provides consistency with regional travel demand model.



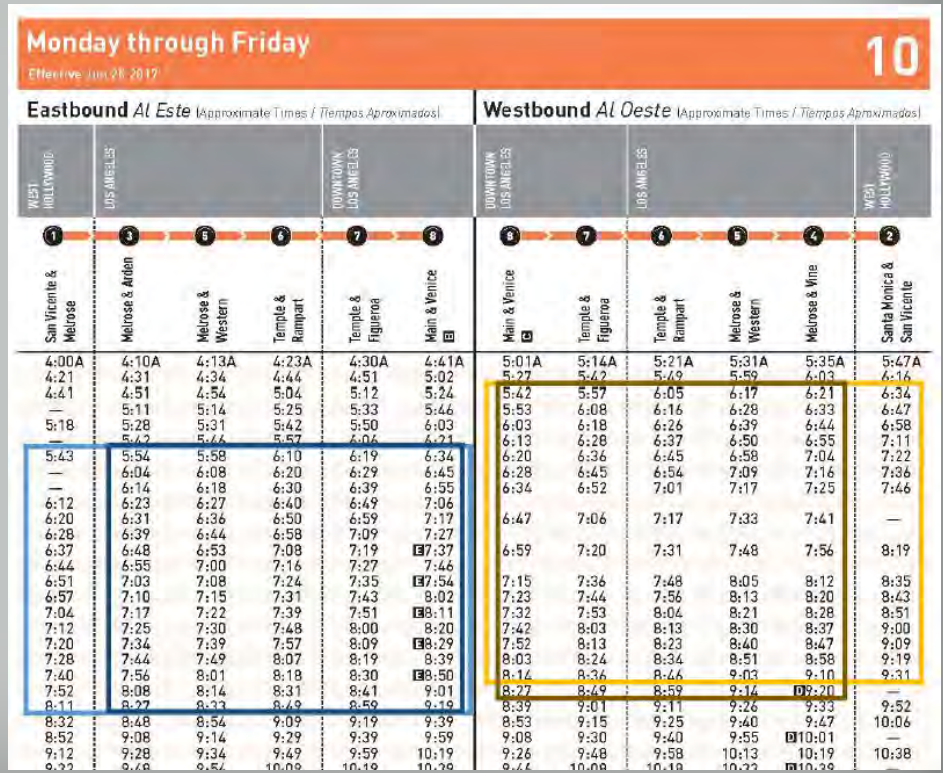
Monday through Friday — Effective Jun 25 2017 — **745**

Northbound *Al Norte* (Approximate Times/*Tiempos Aproximados*) | **Southbound** *Al Sur* (Approximate Times/*Tiempos Aproximados*)

LOS ANGELES			DOWNTOWN LOS ANGELES		UNION STATION	UNION STATION	DOWNTOWN LOS ANGELES		LOS ANGELES		
Harbor Fwy Green Line Station	Broadway & Century	Broadway & Florence	Broadway & Washington	Broadway & 1st	Patsaouras Bus Plaza / LA Union Station	Patsaouras Bus Plaza / LA Union Station	Spring & Temple	Broadway & Washington	Broadway & Florence	Broadway & Century	Harbor Fwy Green Line Station
4:50A	4:54A	5:00A	5:13A	5:23A	5:29A	4:51A	4:56A	5:08A	5:20A	5:26A	5:30A
5:15	5:19	5:25	5:39	5:49	5:55	5:26	5:32	5:44	5:58	6:04	6:08
5:30	5:34	5:40	5:54	6:04	6:12	5:45	5:51	6:04	6:18	6:24	6:28
5:39	5:43	5:49	6:03	6:14	6:22	5:54	6:00	6:14	6:28	6:34	6:38
5:47	5:51	5:57	6:13	6:24	6:32	6:04	6:10	6:24	6:38	6:44	6:48
5:56	6:01	6:07	6:23	6:34	6:42	6:14	6:20	6:34	6:48	6:54	6:58
6:05	6:10	6:16	6:32	6:43	6:51	6:23	6:29	6:44	6:59	7:06	7:11
6:13	6:18	6:24	6:40	6:51	6:59	6:33	6:39	6:54	7:10	7:17	7:22
6:21	6:26	6:32	6:48	6:59	7:07	6:43	6:49	7:04	7:20	7:27	7:32
6:28	6:33	6:40	6:56	7:08	7:16	6:53	6:59	7:14	7:30	7:37	7:42
—	—	6:47	7:04	7:16	7:24	7:02	7:09	7:24	7:40	7:47	7:52
6:41	6:46	6:53	7:11	7:23	7:31	7:12	7:19	7:34	7:50	7:57	8:02
—	—	6:59	7:18	7:30	7:38	7:22	7:29	7:44	8:00	8:07	8:12
6:53	6:58	7:06	7:25	7:37	7:45	7:32	7:39	7:54	8:10	8:17	8:22
—	—	7:13	7:32	7:44	7:52	7:42	7:49	8:04	8:20	8:27	8:32
7:05	7:10	7:18	7:39	7:51	7:59	7:51	7:58	8:14	8:30	8:36	8:41
—	—	7:23	7:46	7:58	8:06	8:01	8:08	8:24	8:40	8:46	8:51
7:17	7:22	7:30	7:53	8:05	8:13	8:11	8:18	8:34	8:50	8:56	9:01
7:23	7:28	7:37	8:00	8:12	8:20	8:21	8:28	8:44	9:00	9:06	9:11
7:29	7:34	7:44	8:07	8:19	8:27	8:31	8:38	8:54	9:09	9:15	9:20
7:36	7:41	7:51	8:14	8:26	8:34	8:42	8:49	9:05	9:20	9:26	9:31
7:44	7:49	7:59	8:21	8:33	8:41	8:53	9:00	9:16	9:31	9:37	9:42
7:54	7:59	8:07	8:29	8:41	8:49	9:04	9:11	9:27	9:41	9:47	9:52
8:04	8:09	8:17	8:37	8:49	8:57	9:16	9:23	9:39	9:53	9:59	10:04
8:15	8:20	8:28	8:47	8:59	9:07	9:28	9:35	9:51	10:05	10:11	10:16
8:26	8:31	8:38	8:57	9:10	9:18	9:41	9:48	10:04	10:18	10:24	10:29
8:36	8:41	8:48	9:07	9:20	9:28	9:56	10:03	10:19	10:33	10:39	10:44
8:48	8:53	9:00	9:18	9:31	9:39	10:12	10:18	10:34	10:48	10:54	10:59
9:00	9:05	9:12	9:30	9:43	9:51	10:27	10:33	10:49	11:03	11:09	11:14

2020 Refinements – Route Patterns

Route Patterns – For transit routes with different patterns, the average frequency of service for each pattern is calculated. The combined route patterns with common endpoints that meet the 15-minute threshold qualify as HQTCs.



Monday through Friday — **10**

Effective Jun 25, 2017

Eastbound *Al Este* (Approximate Times / *Tiempos Aproximados*)

1	3	5	6	7	8
San Vicente & Melrose	Melrose & Arden	Melrose & Western	Temple & Rampart	Temple & Figueroa	Main & Venice B
4:00A	4:10A	4:13A	4:23A	4:30A	4:41A
4:21	4:31	4:34	4:44	4:51	5:02
4:41	4:51	4:54	5:04	5:12	5:24
—	5:11	5:14	5:25	5:33	5:46
5:18	5:28	5:31	5:42	5:50	6:03
—	5:42	5:46	5:57	6:06	6:21
5:43	5:54	5:58	6:10	6:19	6:34
—	6:04	6:08	6:20	6:29	6:45
—	6:14	6:18	6:30	6:39	6:55
6:12	6:23	6:27	6:40	6:49	7:06
6:20	6:31	6:36	6:50	6:59	7:17
6:28	6:39	6:44	6:58	7:09	7:27
6:37	6:48	6:53	7:08	7:19	E 7:37
6:44	6:55	7:00	7:16	7:27	7:46
6:51	7:03	7:08	7:24	7:35	E 7:54
6:57	7:10	7:15	7:31	7:43	8:02
7:04	7:17	7:22	7:39	7:51	E 8:11
7:12	7:25	7:30	7:48	8:00	8:20
7:20	7:34	7:39	7:57	8:09	E 8:29
7:28	7:44	7:49	8:07	8:19	8:39
7:40	7:56	8:01	8:18	8:30	E 8:50
7:52	8:08	8:14	8:31	8:41	9:01
8:11	8:27	8:33	8:49	8:59	9:19
8:32	8:48	8:54	9:09	9:19	9:39
8:52	9:08	9:14	9:29	9:39	9:59
9:12	9:28	9:34	9:49	9:59	10:19
9:32	9:48	9:54	10:09	10:19	10:39

Westbound *Al Oeste* (Approximate Times / *Tiempos Aproximados*)

8	7	6	5	4	2
Main & Venice C	Temple & Figueroa	Temple & Rampart	Melrose & Western	Melrose & Vine	Santa Monica & San Vicente
5:01A	5:14A	5:21A	5:31A	5:35A	5:47A
5:27	5:42	5:49	5:59	6:03	6:16
5:42	5:57	6:05	6:17	6:21	6:34
5:53	6:08	6:16	6:28	6:33	6:47
6:03	6:18	6:26	6:39	6:44	6:58
6:13	6:28	6:37	6:50	6:55	7:11
6:20	6:36	6:45	6:58	7:04	7:22
6:28	6:45	6:54	7:09	7:16	7:36
6:34	6:52	7:01	7:17	7:25	7:46
6:47	7:06	7:17	7:33	7:41	—
6:59	7:20	7:31	7:48	7:56	8:19
7:15	7:36	7:48	8:05	8:12	8:35
7:23	7:44	7:56	8:13	8:20	8:43
7:32	7:53	8:04	8:21	8:28	8:51
7:42	8:03	8:13	8:30	8:37	9:00
7:52	8:13	8:23	8:40	8:47	9:09
8:03	8:24	8:34	8:51	8:58	9:19
8:14	8:36	8:46	9:03	9:10	9:31
8:27	8:49	8:59	9:14	D 9:20	—
8:39	9:01	9:11	9:26	9:33	9:52
8:53	9:15	9:25	9:40	9:47	10:06
9:08	9:30	9:40	9:55	D 10:01	—
9:26	9:48	9:58	10:13	10:19	10:38
9:46	10:08	10:18	10:33	D 10:39	—

2020 Refinements – One-Way Service

One-Way Service - Transit routes that operate in one direction only for the entire route or a portion of the route at 15 minutes qualify as HQTCs. This includes routes operating on either one-way or two-way streets, one-way circulators and routes with one-way terminal loops.

2020 Refinements – Major Transit Stops

Major Transit Stops - Intersecting bus routes must diverge into separate corridors or generally be perpendicular to each other. There can be rare instances where two bus routes that operate in parallel for a short distance, but otherwise diverge to separate corridors, may be justified as intersecting bus routes.

2020 Refinements – Amtrak

Amtrak Stations - Amtrak limited, long-distance services are not automatically included as a major transit stop unless requested by a local agency.

Next Steps

- Incorporate RTTAC input.
- Consult with other MPOs and OPR.
- Return to next RTTAC with final methodology.

2020 Process Schedule

- Identify Initial 2016 HQTCs and Major Transit Stops – November 2017 - April 2018
- Verify 2016 Transit Network 15-Minute Frequency Services – May 2018
- Complete Draft Data Set and Maps – June 2018
- Complete External Review of Draft Data Set and Maps - July 2018
- Finalize Data Set and Maps - August 2018

Thank You

Steve Fox
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