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SOUTHERN CALIFORNIA
ASSOCIATION OF GOVERNMENTS
900 Wilshire Blvd., Ste. 1700
Los Angeles, CA 90017
T: (213) 236-1800
www.scag.ca.gov

MEETING OF THE

REGIONAL TRANSIT TECHNICAL ADVISORY COMMITTEE

Wednesday October 31, 2018
10:00 a.m. – 11:45 a.m.

SCAG LOS ANGELES MAIN OFFICE

900 WILSHIRE BLVD., STE. 1700
POLICY COMMITTEE ROOM A
LOS ANGELES, CALIFORNIA 90017
(213) 236-1800

TELECONFERENCE

TO JOIN THE MEETING: https://zoom.us/j/220315897
CONFERENCE NUMBER: 1 (646) 558 8656
MEETING ID: 220 315 897

VIDEOCONFERENCE

Riverside
SCAG Office
3403 10TH STREET, SUITE 805
RIVERSIDE, CA 92501

San Bernardino
SCAG Office
1170 W. 3RD ST, STE. 140
SAN BERNARDINO, CA 92410

Ventura
SCAG Office
950 COUNTY SQUARE DR, STE 101
VENTURA, CA 93003

PLEASE NOTE NEW LOCATION

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, October 31, 2018

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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

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

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4.0 INFORMATION ITEMS

4.1	Integrating Mobility as a Service into TAP ***(Robin O'Hara, LA Metro)***	20
4.2	Peer Regions Performance Benchmarking - Initial Findings ***(Matt Gleason, SCAG)***	30
4.3	2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) High-Quality Transit Corridor (HQTC) and Major Transit Stop Methodology ***(Steve Fox and KiHong Kim, SCAG)***	20
4.4	Draft 2020 RTP/SCS Performance Measures ***(Mike Gainor, SCAG)***	30

5.0 STAFF REPORT

5.1	Asset Management Data Request ***(Philip Law, SCAG)***	5

6.0 ADJOURNMENT

The next Regional Transit Technical Advisory Committee meeting is tentatively scheduled for Wednesday, January 30, 2019.

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

Monday, August 29, 2018

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, OCTA.

Members Present:

Gary Hewitt (Chair)	Orange County Transportation Authority
Joyce Rooney (Vice Chair)	Redondo Beach Transit
Ron Mathieu	Metrolink
Tracy Beidleman	Long Beach Transit
Lori Huddleston	LACMTA

Videoconference:

Guillermo Gonzalez	Imperial County Transportation Commission
David Aguirre	Imperial County Transportation Commission
Geraldina Romo	Antelope Valley Transportation Authority
Rebekah Soto	San Bernardino County Transportation Authority
Claire Grasty	Ventura County Transportation Commission
Matt Miller	Gold Coast Transit District
Monica Morales	Riverside County Transportation Commission
Martha Masters	Riverside County Transportation Commission
Kristin Warsinski	Riverside Transit Agency

Teleconference:

Tim McCormick	Santa Monica Big Blue Bus
Eric Hoch	Santa Monica Big Blue Bus
Conan Cheung	LACMTA
Stephen Tu	LACMTA
Medford Auguste	LACMTA
Robert Calix	LACMTA
Josh Landis	Foothill Transit

SCAG Staff:

Philip Law	Stephen Fox
Matt Gleason	David Salgado

1.0 CALL TO ORDER

Gary Hewitt, OCTA, called the meeting to order at 10:08 a.m.

2.0 PUBLIC COMMENT PERIOD

No members of the public requested to comment.

3.0 RECEIVE AND FILE

3.1 Revised Minutes of the January 31, 2018 Regional Transit TAC Meeting
3.2 Minutes of the April 30, 2018 Regional Transit TAC Meeting
3.3 Eno Transportation Center Policy Brief
3.4 TCRP Reports 188 and 195
3.5 SB-1 Transit Funding
3.6 Public Transportation Agency Safety Plan
3.7 RTTAC 2018 Agenda Look Ahead

Gary Hewitt, OCTA, noted that OCTA is forwarding to its board contingency plans if SB1 is repealed which would include a 10% service reduction. Also, Transit Asset Management Plans should be completed October 1, 2018.

4.0 INFORMATION ITEMS

4.1 Metro NextGen Study

Conan Cheung, Los Angeles Metro, reported on the NextGen Study. Mr. Cheung reviewed current study findings stated that customers have been identified as frequent, occasional, infrequent and non-riders noting that while frequent riders are 5% of all riders they make up 50% of all boardings. He reviewed survey information noting that current riders encourage more frequent and reliable service. He reviewed survey results from non-riders and the reasons given for not taking transit including a lack of information about how to use the service. Further, service parameters were reviewed as well as transit accessibility, population and employment density.

Mr. Cheung reviewed origin and destination results and noted the different aspects of a transit trip most important to customers including travel speed and frequency of service. He noted potential market opportunities such as increasing transit's share of trips 1 – 5 miles in length and to modify service to better match midday and evening travel demand.

Tim McCormick, Big Blue Bus, asked if there were plans to inplement Bus Rapid Transit in short segments to improve service. Mr. Cheung responded that the approach may be to modify service in specific areas showing congestion.

4.2 OCTA Microtransit Pilot

Gary Hewitt, OCTA, reported on OCTA's Microtransit Pilot. Mr. Hewitt stated that OCTA on October 20, 2018 will begin an on-demand microtransit service in selected areas as a one-year pilot named "OC Flex". The service will use a new vehicle type that riders can request using a smart phone. He noted the program is consistent with service goals including providing public transit mobility in lower-

demand areas, to reduce total operating and capital costs and to extend the reach of OC Bus and Metrolink services. Further, OC Flex will be available in two areas of approximately 6-square miles. One service area will be Huntington Beach and Westminster and the other will include Aliso Viejo, Laguna Niguel and Mission Viejo.

Mr. Hewitt noted that small multi-passenger vans with wheelchair lifts will be utilized that seats eight passengers. Also, fares will be $5 for a day pass but will allow free transfers to and from OC Bus, Metrolink and Amtrak. He reviewed the marketing and branding strategies as well as key metrics.

Ron Mathieu, Metrolink, asked if the vehicles would perform a continuous loop to frequent destinations. Mr. Hewitt responded that the vehicles when not in use would be stationed at a central point such as the Metrolink Station for the Laguna Nigel service area. The vehicles would be available for ride requests.

Tracy Beidleman, Long Beach Transit, asked how many vehicles would be in service at one time. Mr. Hewitt responded that each zone would have 2 vehicles in service with an option to add a third vehicle.

4.3 Draft FY 2015-16 Assessment of Transit System Performance

Matt Gleason, SCAG staff, reported on the Draft 2015-16 Assessment of Transit System Performance. Mr. Gleason stated that system performance is used to provide a base year set of existing conditions for the Regional Transporttation Plan/Sustainable Communities Strategy (RTP/SCS). He noted that the RTP/SCS is a federally mandated plan every four years that outlines transportation investments and strategy over at least a 20-years period. Further, the plan ought to conform with the state plan for emmissions per the Clean Air Act. The plan should be financially constrained so there is sufficient revenue to cover the cost of the projects listed.

Mr. Gleason reviewed the transit components of the plan including Transit Existing Conditions Analysis, needs Assessment, Asset Management Target Setting. Next, key focus areas were reviewed including service levels, ridership and total expenditures. Mr. Gleason reviewed mode share and ridership noting that per capita transit trips show a declining trend. Geographic distribution of service was reviewed indicating that 73.6% of regional transit trip occur in Los Angeles County. Orange County had 13% of transit trips and Riverside County 5.7%. Further, average trip length, operating expenditures, cost per revenue hours and farebox recovery. Mr. Gleason asked that committee members submit any comments by October 1, 2018.

5.0 STAFF REPORTS

5.1 Regional Planning Working Groups

Steve Fox, SCAG staff, updated the committee on the Regional Planning Working Groups. Mr. Fox reported that to follow up on requirements to be inclusive of

private sector transportation providers, Public and Private Transportation Working Group. He noted the group will provide input on the 2020 RTP/SCS and will consists of private and public providers of transportation. Private providers include intercity bus operators such as Greyhound and Megabus and vanpool fleet operators. Mr. Fox requested feedback from the committee on the working group.

Gary Hewitt, OCTA, suggested that local citizen advisory committees can be a resource for potential members for the working group.

5.2 FTA Triennial and SCAG Public Participation

Philip Law, SCAG staff, reported that as part of the Section 5307 Triennial Review process, FTA asks recipients that rely on SCAG's Federal Transportation Improvement Program's public participation process to review SCAG's adopted Public Participation Plan to ensure that it describes explicit procedures, strategies, and desired outcomes identified in a compliance checklist. He noted that to assist operators undergoing review, a completed list of the compliance checklist.

6.0 ADJOURNMENT

Gary Hewitt, OCTA, adjourned the meeting at 11:57 a.m.

REPORT

Southern California Association of Governments
900 Wilshire Blvd., Suite 1700, Los Angeles, CA 90017
Agenda Item No. 3_2
October 31, 2018

To: Regional Transit Technical Advisory Committee (RTTAC)

From: Philip Law, Transit/Rail Manager, 213-236-1841, law@scag.ca.gov

Subject: FTA Triennial Reviews, Section 5307 and Public Participation – Updated Checklist

DISCUSSION:
Staff previously reported to the RTTAC regarding the Federal Transit Administration (FTA) compliance checklist used as part of the Section 5307 Triennial Review. FTA asks recipients that rely on SCAG's Federal Transportation Improvement Program (FTIP) public participation process to review SCAG's adopted Public Participation Plan (PPP) using the compliance checklist, to ensure that the PPP describes explicit procedures, strategies, and desired outcomes. To assist operators undergoing FTA review, SCAG staff completed the compliance checklist using SCAG's adopted 2014 PPP, and provided the checklist to the RTTAC at its August 29, 2018 meeting.

Subsequently, on September 6, 2018, the Regional Council adopted the new 2018 PPP, available at http://www.scag.ca.gov/Documents/Final2018PPP.pdf. Staff has updated the compliance checklist to reflect the new PPP, and it is attached to this report.

BACKGROUND:
The FTA allows Section 5307 recipients to rely on SCAG's adopted public participation requirements for the FTIP, in lieu of the process required in the development of the Program of Projects (POP), if the recipient has coordinated with SCAG and ensured that the public is aware that the FTIP development process is being used to satisfy the POP public participation requirements.

To comply with the latter requirement:

- SCAG maintains an adopted Public Participation Plan (PPP).
- SCAG incorporates in the FTIP document(s) explicit statements reflecting that public notice of public involvement activities and time established for public review and comment on the FTIP will satisfy the POP requirements of the Section 5307 Program.

To assist operators undergoing FTA review, SCAG staff has completed the compliance checklist and provided it as an attachment to this report. The compliance checklist is taken from page 18-6 of FTA's FY2018 Comprehensive Review Guide (https://www.transit.dot.gov/fy18-comprehensive-review-guide). The references provided in the checklist are to SCAG's newly adopted 2018 PPP.

ATTACHMENT:

Updated Compliance Checklist

DETERMINING COMPLIANCE

For recipients that rely on the MPO's Public Participation Process (PPP): Obtain and review the MPO's adopted public participation plan to ensure it describes explicit procedures, strategies, and desired outcomes for:

Note: All page references are to the adopted *SCAG 2018 Public Participation Plan* at: http://www.scag.ca.gov/Documents/Final2018PPP.pdf

Element	Addressed in Plan (page #)
Providing adequate public notice of public participation activities and time for public review and comment at key decision points, including a reasonable opportunity to comment on the proposed metropolitan transportation plan and the TIP	*Methods*, pp. 9-13; *Evaluation,* pp. 14-17; *Appendix A,* pp. 18-20; and *Appendix* B, pp. 26-33
Providing timely notice and reasonable access to information about transportation issues and processes	*Methods*, pp. 10-12; *Appendix A,* pp. 16-18; and *Appendix* B, pp. 29-30
Employing visualization techniques to describe metropolitan transportation plans and TIPs	*Overview,* p. 5; *Methods,* p. 8; and *Appendix A,* p. 18
Making public information (technical information and meeting notices) available in electronically accessible formats and means, such as the World Wide Web	*Methods*, p. 8-12; *Evaluation, pp. 14-17;* Appendix A, pp. 18-19, 21, 23; and Appendix B, pp. 25, 29-30
Holding any public meetings at convenient and accessible locations and times	*Methods*, pp. 8-10; *Appendix A, pp. 19, 22 and 24; and Appendix B*, pp. 29-30
Demonstrating explicit consideration and response to public input received during the development of the metropolitan transportation plan and the TIP	*Overview,* p. 5; *Methods.* p. 12; *Evaluation*, p. 14-15; Appendix A, pp. 19-20, 22, and 25-27; and *Appendix B*, p. 30
Seeking out and considering the needs of those traditionally underserved by existing transportation systems, such as low-income and minority households, who may face challenges accessing employment and other services	*Overview*, p. 5 and 7; *Methods*, p. 8 and 11; *Evaluation,* p.15; *Appendix A,* pp.19-22; and Appendix B, pp. 24, 32
Providing an additional opportunity for public comment, if the final metropolitan transportation plan or TIP differs significantly from the version that was made available for public comment by the MPO and raises new material issues that interested parties could not reasonably have foreseen from the public involvement efforts	*Appendix A*, pp. 19-20
Coordinating with the statewide transportation planning public involvement and consultation processes under subpart B of this part	*Overview,* p. 5; *Appendix A*, pp. 18-20 and 22-23; and *Appendix B*, pp. 24-25 and 29-30
Periodically reviewing the effectiveness of the procedures and strategies contained in the participation plan to ensure a full and open participation process	*Methods, p. 11; Evaluation*, pp. 14-16; and *Appendix A*, p. 19

NOTE: Follow-up with the recipient if unable to locate the above items in the PPP.

TAP

Integrating Mobility as a Service (MaaS) with our legacy TAP smart card system

Robin O'Hara
Executive Officer
Regional TAP Customer Experience
LA Metro

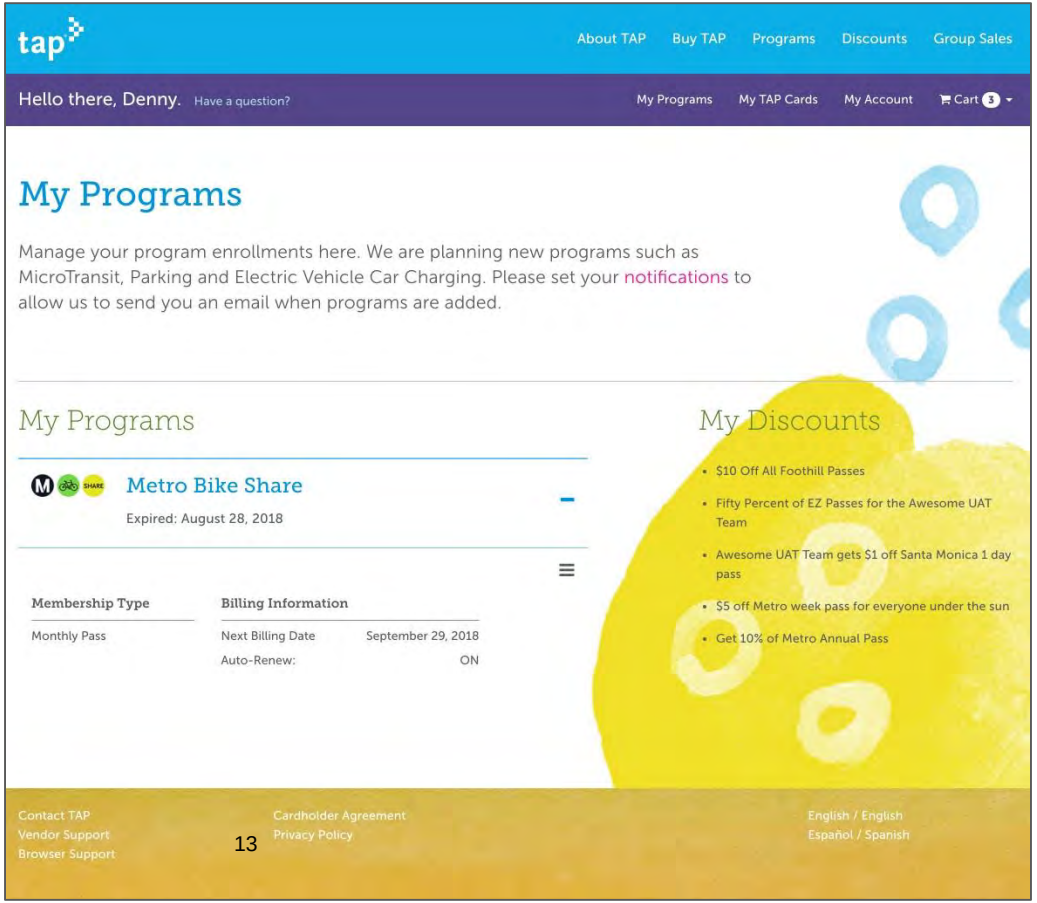
TAP Bio

- Contactless, chip-based smart card system
- 27 TAP agencies including 3800 regional buses, 99 rail stations (growing exponentially!) + paratransit
- 29M regional transactions/month
- Over 750 different products on fare table
- Over 1.5M passes and $12M of Stored Value sold/month
- 440 LA county outlets selling $16M/month
- Website sales of over $1M/month

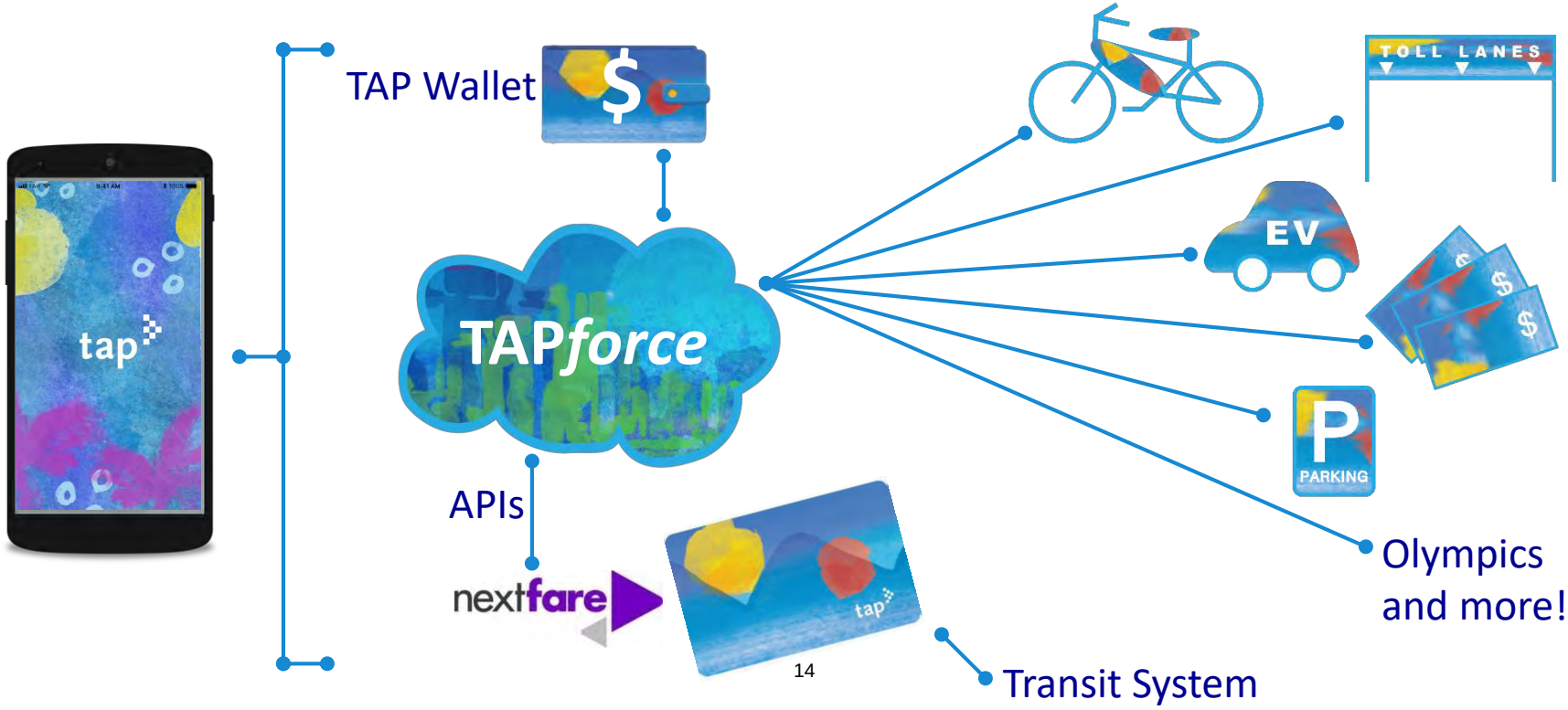
Open Integration Platform

- Regional account system built on Salesforce platform
- Interfaces with TAP back-end systems
- Provides unified payment across programs

TAP now includes Transit and Bikeshare



The Multi-System Approach



Benefit: Offer Equity

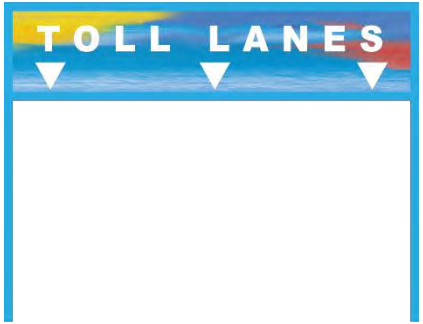
Cash loading offers access to the unbanked for all TAP programs

Benefit: Offer account loading choices

Different options for Mobile App, Computer, Call Center and Retail Locations
Connected by APIs to the programs

Benefit: Offer Rewards

Alternative to transfers:
Let the customer choose



Benefit: Incentivize Behavior

Bad Air Day?
Offer easily configurable discounts that incentivize transit and get people off the freeways.

Benefit: Cross-Program Discounts

Provides discounts across multiple programs

- One sign-up for customers
- Easy customization
- Configurable by programs such as Metro's Low Income Subsidy Program (LIFE)


Q & A

Peer Regions Performance Benchmarking

Initial Findings

Regional Transit Technical Advisory Committee (RTTAC)

Matt Gleason

Senior Regional Planner

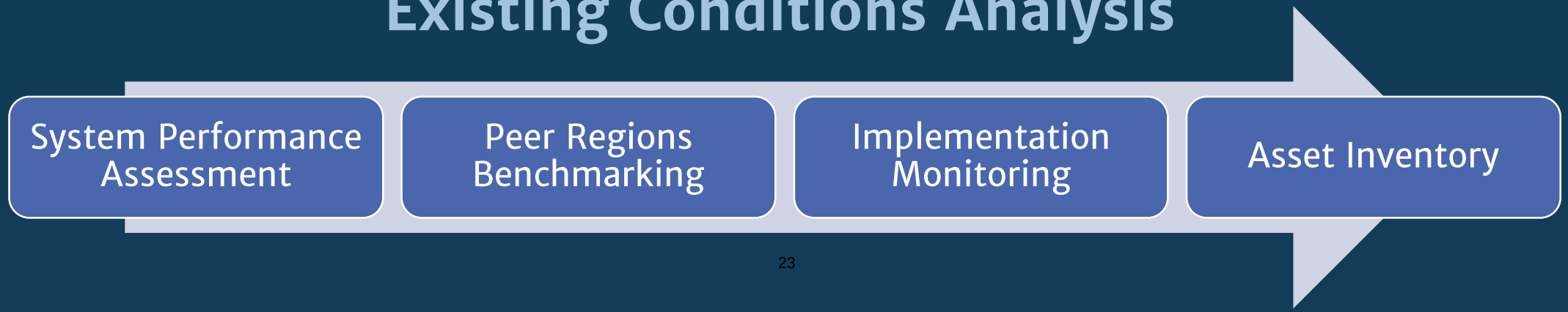
October 31, 2018

Context

Introduction

- This is the second presentation in a series of existing conditions analyses in the run up to the 2020 RTP/SCS
- This morning's most important content is an update on the peer regions benchmarking effort, an effort to compare the SCAG Region's transit investments and their performance to other large metropolitan regions
- Previous Peer Regions Benchmarking Assessments occurred in 2015 and 2011, and were incorporated into 2016 and 2012 RTPs

Existing Conditions Analysis



Introduction
Benchmarking as a Regional Practice

- The system performance of the region's transit can be contextualized through performance benchmarking.
  - Establishes a frame of reference for the cost effectiveness of current operations
  - Identifies areas where other regions are providing service at a lower cost. Further
  - Allows regional stakeholders to identify areas of possible improvement and to identify peer regions and peer agencies that might provide best practices examples
  - In the 2016 RTP cycle, TC and P&P TAC members requested benchmarking efforts
- Metro Council of Minneapolis, Atlanta Regional Commission, and Illinois DOT have all performed system level benchmarking efforts
- This information will be incorporated in the 2020 RTP transit appendix.

2016-17 Data Was Recently Released

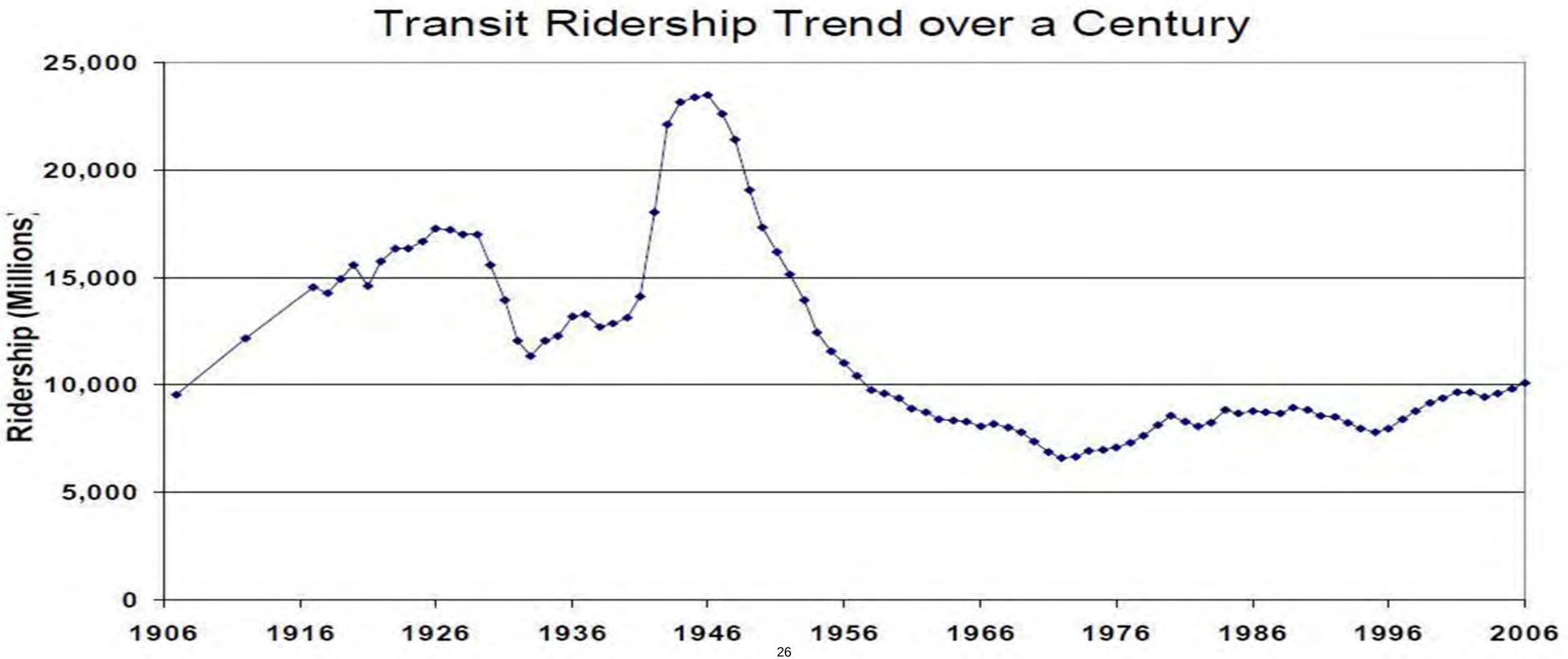
A quick update

Measure	2016-17 Figure	In-house Benchmark	Performance vs Benchmark
Total VRH	20,457,488	20,000,000	2.24%
Per Capita VRH	1.08	n/a	n/a
Total UPT	613,574,409	700,000,000	-14.09%
Per Capita UPT	32.25	38.5	-19.38%

Measure	2014-15	2015-16	2016-17
Total VRH	20,592,590	20,450,060	20,457,488
Per Capita VRH	1.0965	1.0832	1.0752
Total UPT	696,244,507	655,017,452	613,574,409
Per Capita UPT	37.07	34.70	32.25
Trips Per Hour	33.81	32.03	29.99

Public Transportation in the US

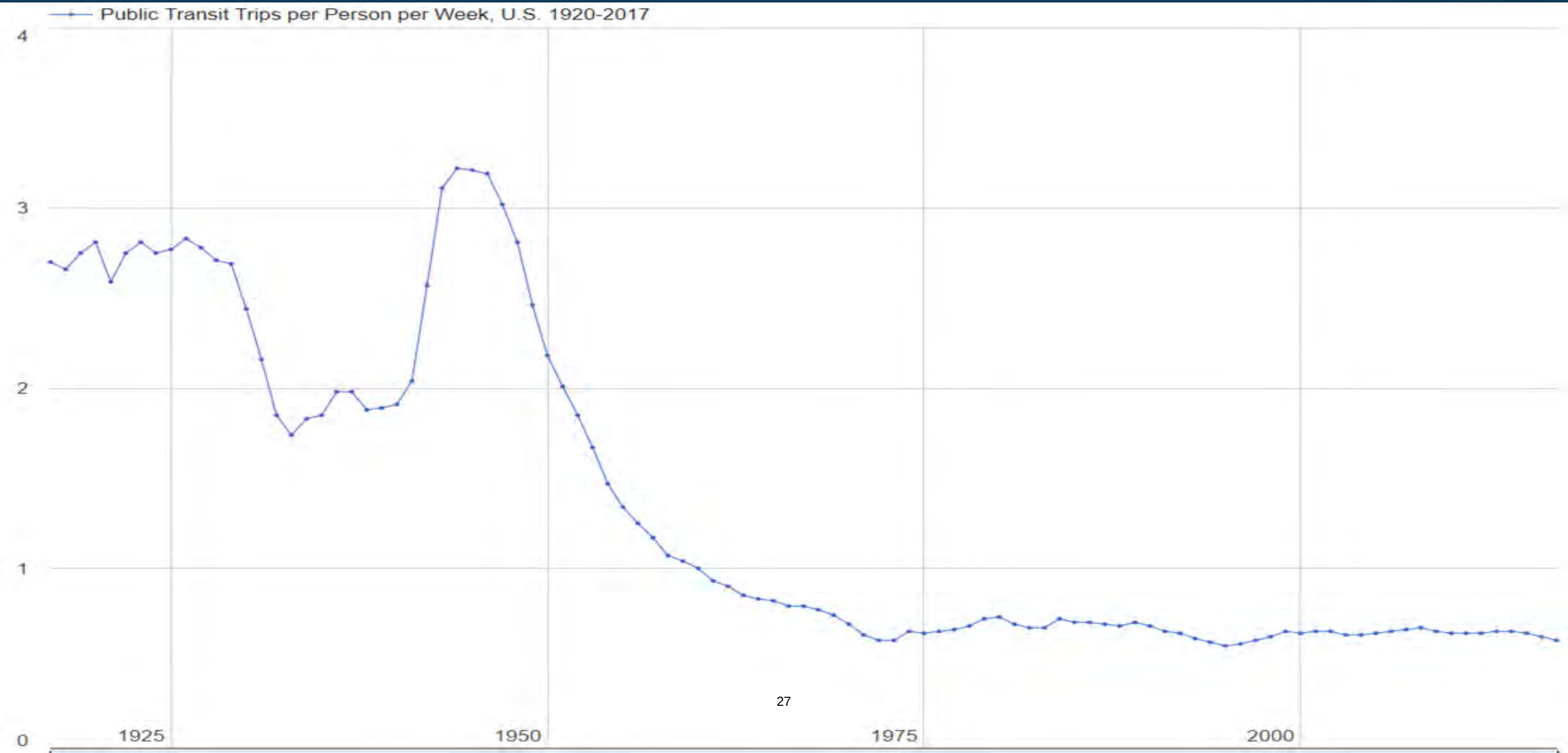
The Long View – National Transit Datapalooza 6/17/15, K. Gates



Public Transit by Grey and Hoel, second edition 1992, table 2.1, page 31, also in APTA Transit Fact books thru 1999

Public Transportation in the US

The Long View – Professor Mike Smart, Rutgers University



National Ridership Trends
1990-91, 2007-08, 2015-16

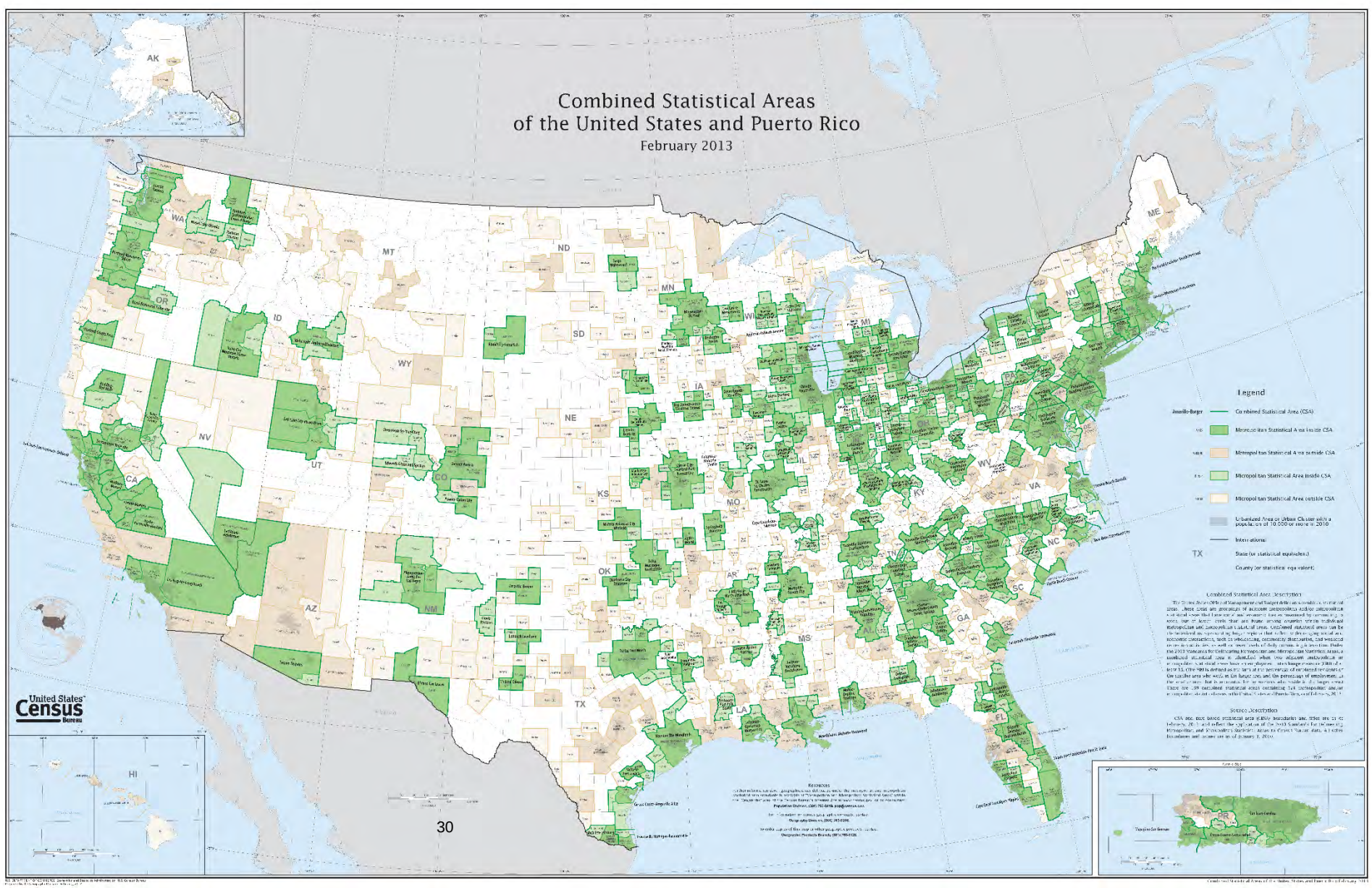
- Growth in total trips
- 7B to 8.5B during 1990
- 8.5B to 10B by 2007-08
- Stable since 2008
  - 2015-16 is 0.16% below 2007-08
- Per capita ridership grew slightly then declined
  - 1990-91 vs. 2015-16
    Grew by 3.5%
  - 2007-08 vs. 2015-16
    Declined by 6.1%

Defining Peer Regions
Combined Statistical Areas (CSAs)

- This analysis uses the Combined Statistical Area (CSA) as the level of analysis – a combination of smaller units, including the UZA and the MSA
  - They're very large not & 100% contiguous – appropriate for comparing to SCAG Region
- Definition of CSAs
  - "A combined statistical area (CSA) is composed of adjacent metropolitan (MSA) and micropolitan statistical areas (µSA) in the United States and Puerto Rico that can demonstrate economic or social linkage." ---https://en.wikipedia.org/wiki/Combined_statistical_area
    - Minimum 15% employment interchange
  - Most recently delineated in OMB 17-01, from August 15, 2017
  - In use since 2000, and intended for use by regional authorities
  - Do not immediately map onto MPAs, but useful for NTD data since they combine MSAs and UZAs

Defining Peer Regions
Combined Statistical Areas (CSAs)

- 171 designated CSAs in States and 3 in Puerto Rico
  - Biggest is New York-Newark, NY-NJ-CT-PA 23.8 million residents
  - Smallest is Steamboat Springs-Craig Co 38,351 residents



Defining Peer Regions

CSAs with More than 5 Million Residents

US Combined Statistical Area	2016 Population
New York-Newark, NY-NJ-CT-PA CSA	23,822,395
Los Angeles-Long Beach, CA CSA	18,703,010
Chicago-Naperville, IL-IN-WI CSA	9,916,244
Washington-Baltimore-Arlington, DC-MD-VA-WV-PA CSA	9,685,252
San Jose-San Francisco-Oakland, CA CSA	8,785,277
Boston-Worcester-Providence, MA-RI-NH-CT CSA	8,188,440
Dallas-Fort Worth, TX-OK CSA	7,692,965
Philadelphia-Reading-Camden, PA-NJ-DE-MD CSA	7,186,302
Houston-The Woodlands, TX CSA	6,997,796
Miami-Fort Lauderdale-Port St. Lucie, FL CSA	6,764,075
Atlanta--Athens-Clarke County--Sandy Springs, GA CSA	6,457,065
Detroit-Warren-Ann Arbor, MI CSA	5,326,961

Similar analyses were performed for the 2012 and 2016 RTPs

- These analyses focused on productivity and financial performance

TABLE 17 Benchmarking Assessment of Regional Performance

Benchmarking Assessment of Regional Performance		
	Benchmarked Performance Measure	Ranking Among Peer Regions
MEASURES OF FUNDING AND SERVICE PROVIDED	Populations Estimates 7/1/2012, US Census	2
	Total Operating Expenditures	3
	Capital Expenditures	4
	Total Expenditures Combined	3
	Vehicle Revenue Hours	2
MEASURES OF SERVICE CONSUMED	Unlinked Passenger Trips	2
	Passenger Miles Travelled	3
	Per Capita Trips	7
	Unlinked Passenger Trip per Vehicle Revenue Hour	8
	Passenger Miles Travelled per Vehicle Revenue Hour	8
COST PERFORMANCE MEASURES	Operating Cost per Unlinked Passenger Trip	3
	Operating Cost per Passenger Mile Travelled	3
	Operating Cost per Revenue Hour	3
CONSUMPTION BY MODE	Combined Bus Unlinked Passenger Trips	2
	Demand Response Unlinked Passenger Trips	2
	Heavy Rail Unlinked Passenger Trips	8
	Light Rail Unlinked Passenger Trips	3
	Commuter Rail Unlinked Passenger Trips	7
DEMAND RESPONSE SPECIFIC MEASURES	Demand Response Passenger Miles	2
	Demand Response Average Trip Length	2
	Demand Response Trips per Bus Trips	2

Source: 2012 NTD

Methodological Changes

Since 2016 RTP

- Changes
  - No New York – values are so large that they obscure value of comparison
  - Vehicle Maintenance Cost/Revenue Mile as opposed to Operating Cost/Revenue Mile
    - Provides more focused maintenance measure
  - Comparisons to Rest of Country and New York
  - More focus on
    - Per capita numbers – adjusting for population size difference. LA-LB (the SCAG Region) is almost twice as large as the next largest and per capita benchmarks provide better comparisons
    - Service deployment – how are regions providing transit?

Defining Peer Regions

No New York

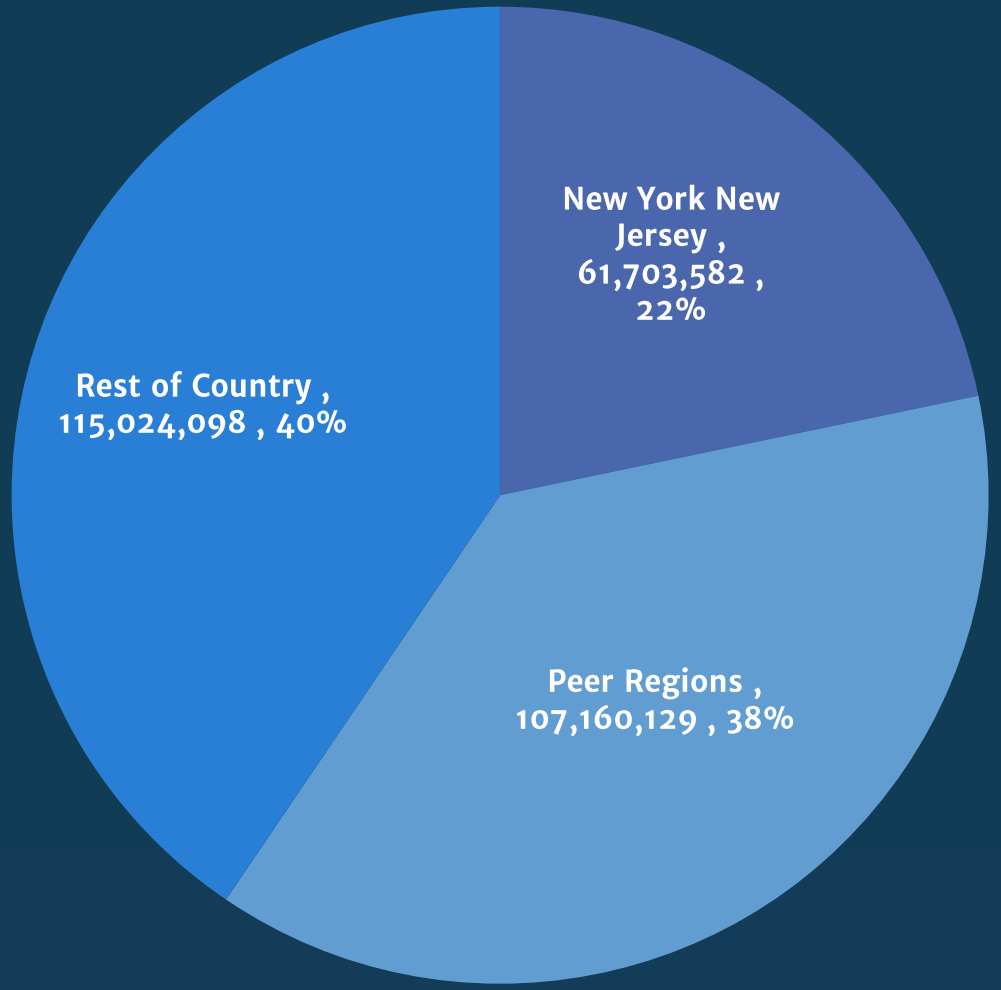
- New York-Newark, NY-NJ-CT-PA CSA
  - 23,822,395 residents – largest region
  - Offers an enormous amount of service, provides an enormous amount of trips
    - 61.7 million hours (3xs the next highest)
    - 4.284 billion trips (5xs the next highest)
    - $20.9B Combined O&M/Cap Expenditures (4xs the next highest)
  - Not a great comparison for other big CSAs

- In 2015-16, The New York – Newark CSA
  - Spent almost as much on operations as the 11 peer regions combined
  - $16.086B for New York – Newark vs $17.190B for the rest combined

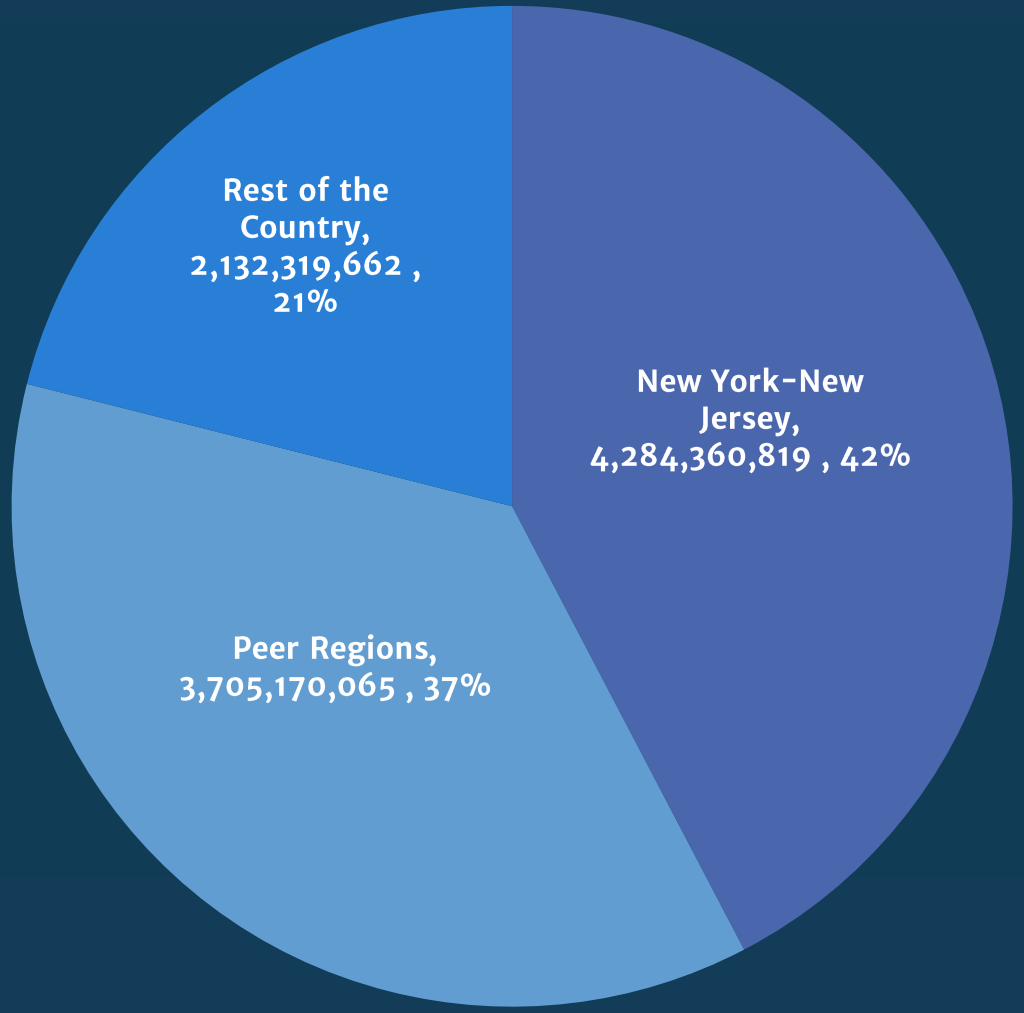
No New York

New York – Newark provided 42% of all US UPTs in 2015-16

2015-16 Share of Total Revenue Hours
New York New Jersey vs Peer Regions vs Rest of Country



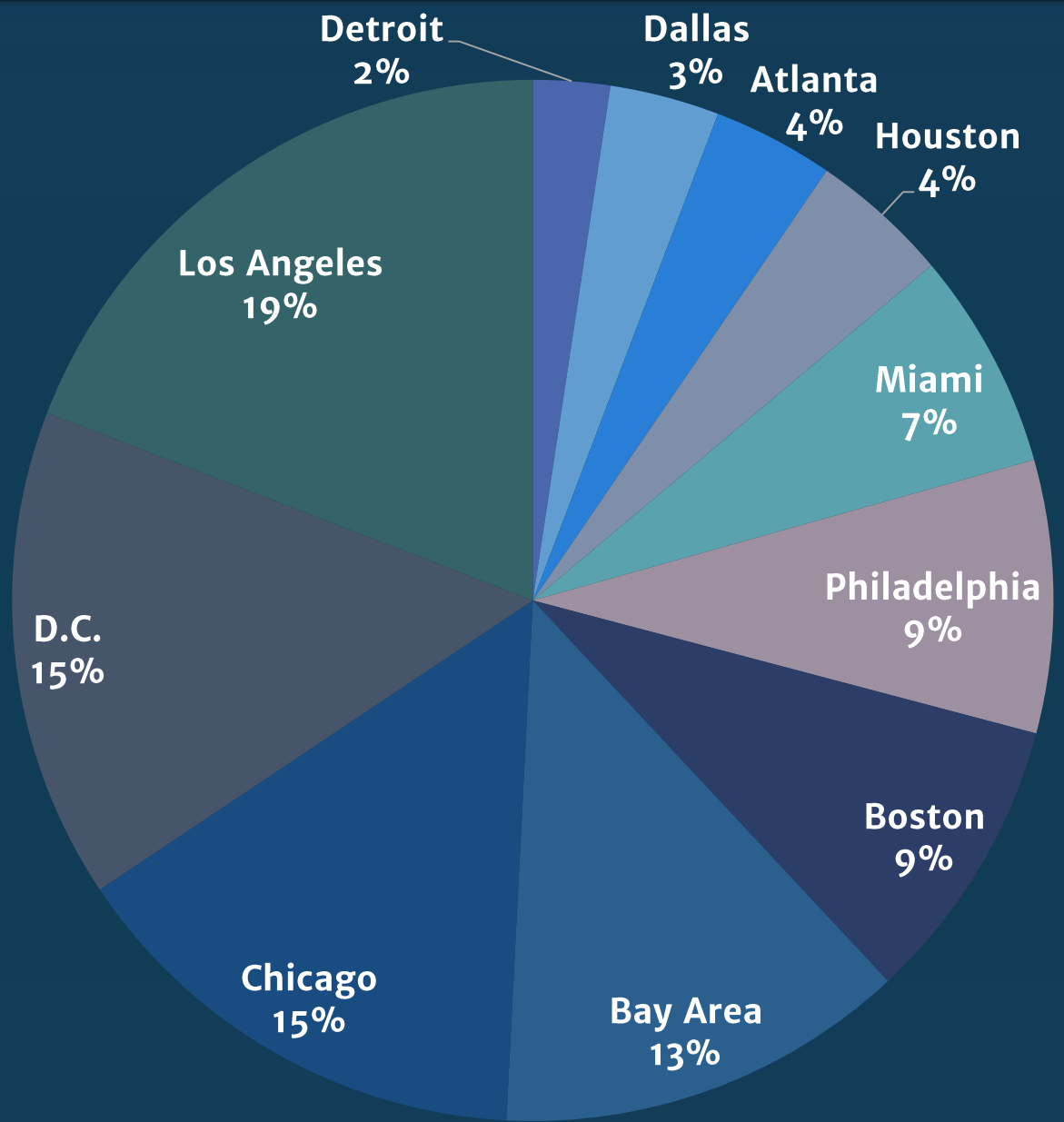
2015-16 Share of Trips,
New York New Jersey vs Peer Regions vs Rest of Country

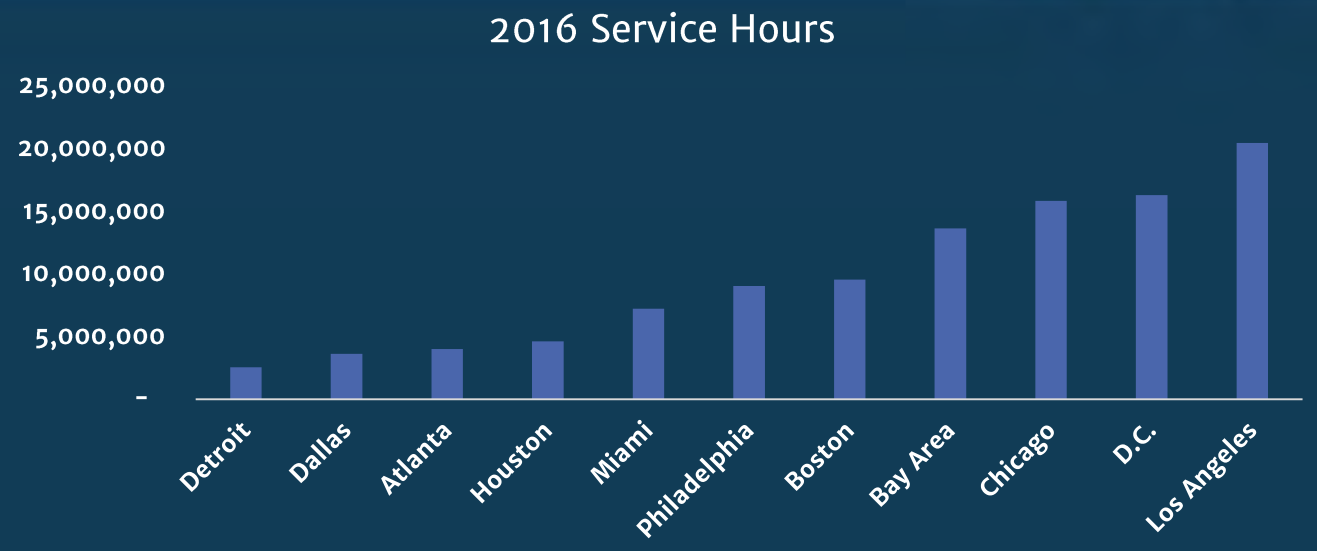


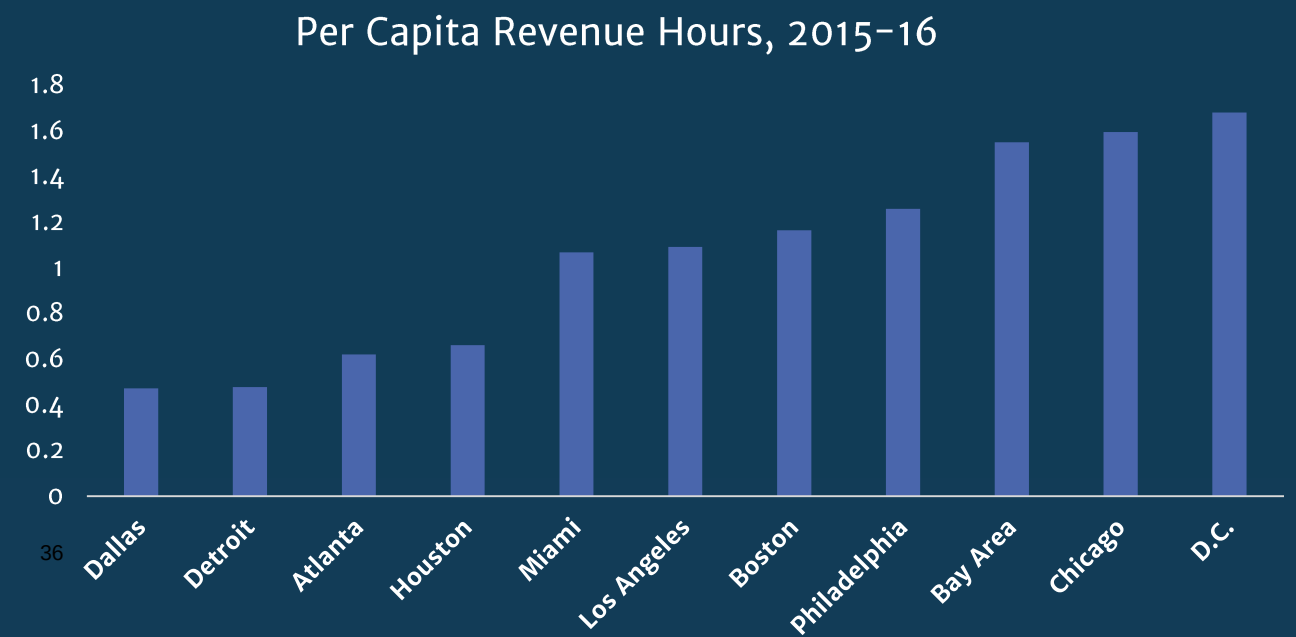
Peer Regions Comparisons

Peer Regions Revenue Hours in 2015-16

Total and Per Capita

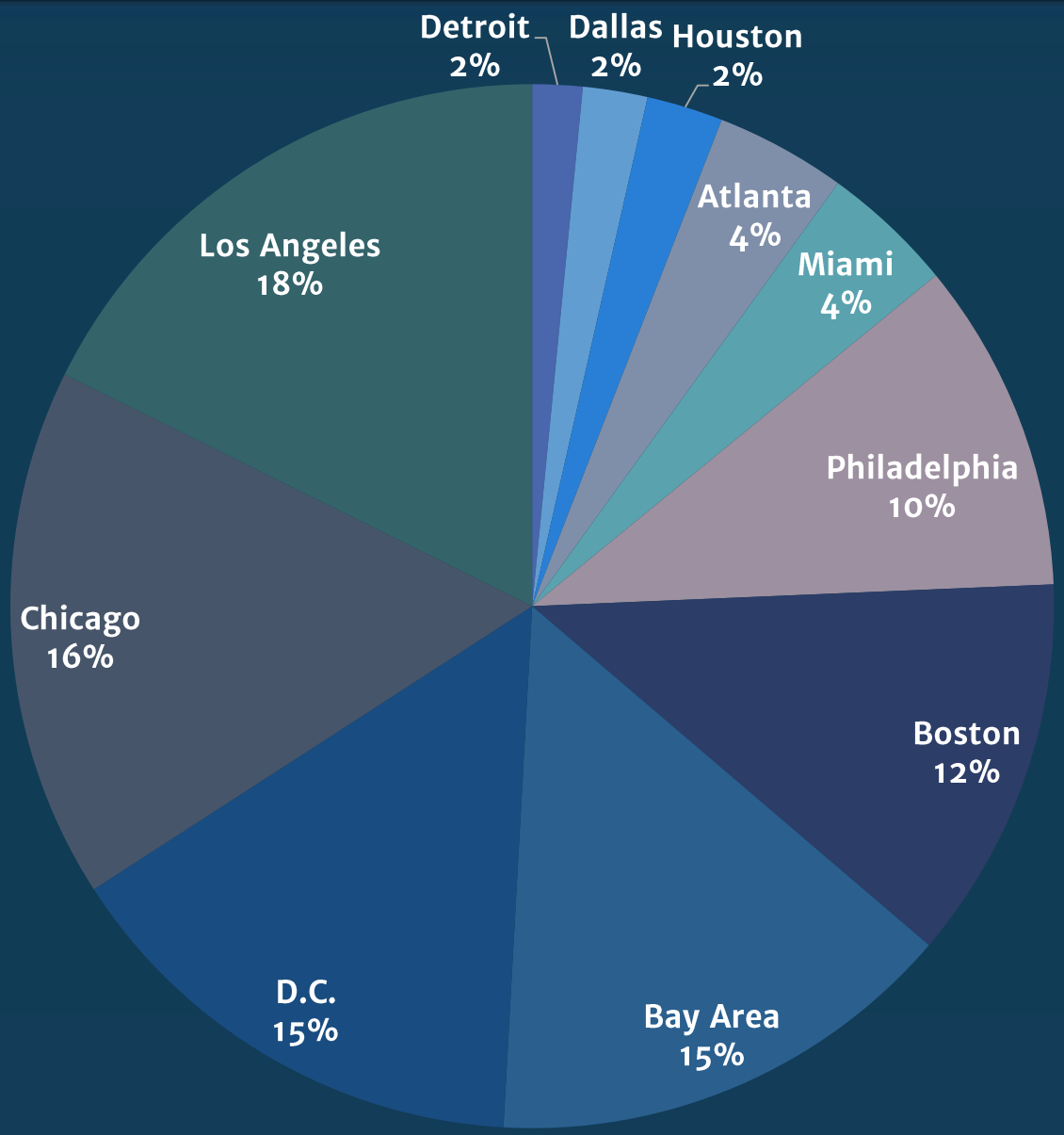


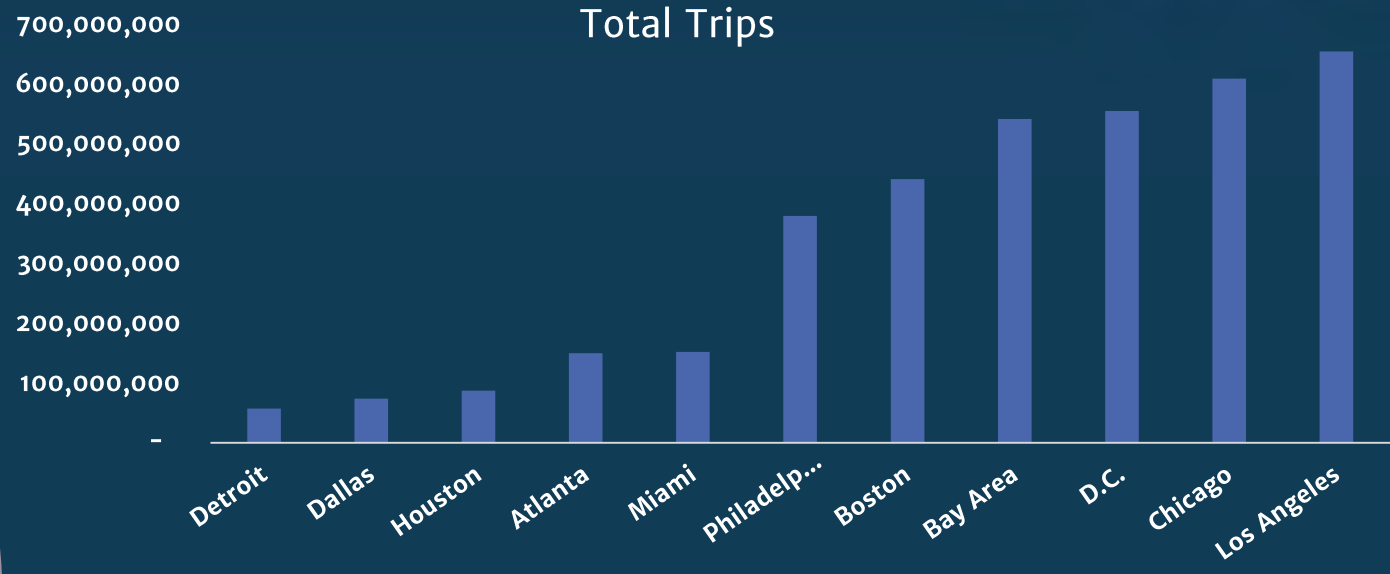


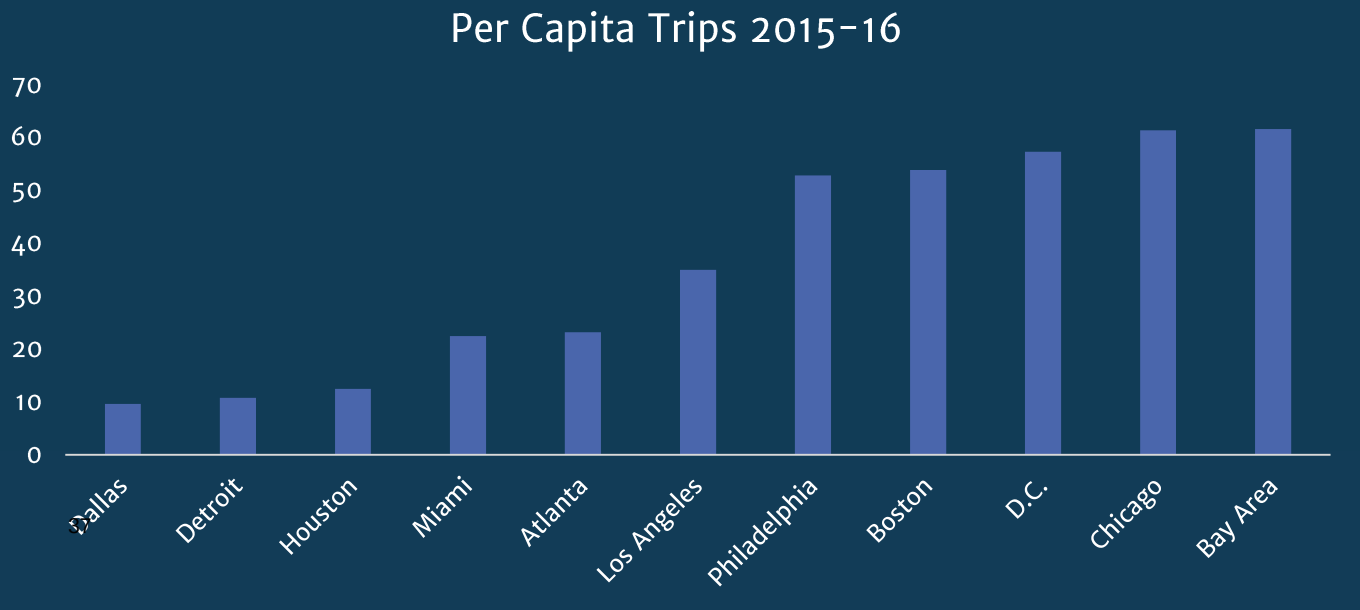


Peer Regions Unlinked Trips in 2015-16

Total and Per Capita







Service Deployment Strategies

What mode are regions choosing to operate, and how much?

Demand Response

Commuter Modes

- Commuter Bus
- Commuter Rail

Urban Rail

- Cable Cars
- Heavy Rail
- Light Rail
- Street Cars
- Monorail

Urban Bus

- Motor Bus
- Rapid Bus
- Trolley Bus

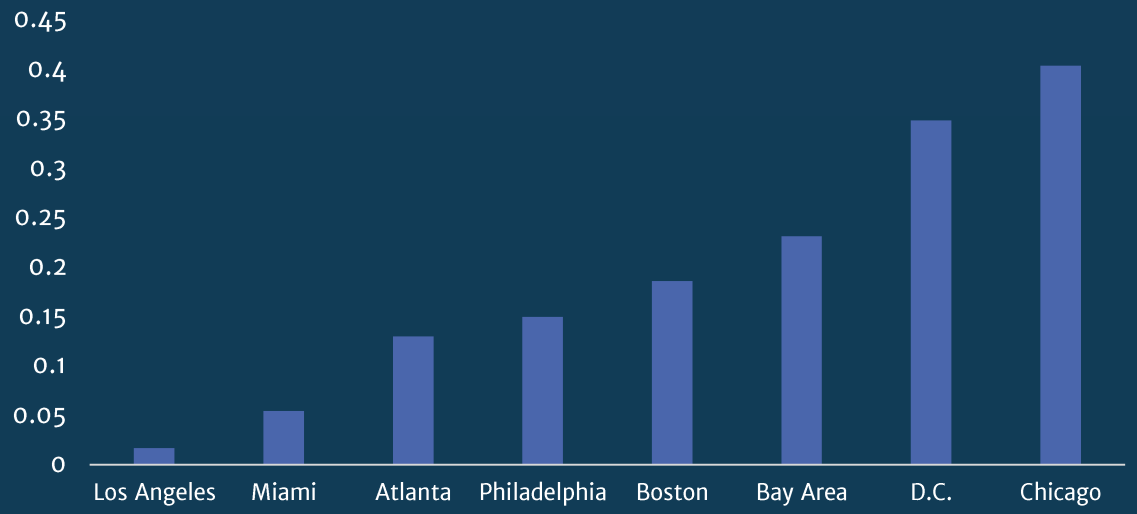
- The Peer Regions operate a total of 11 modes
- Service deployment strategies can be radically different, based on policy choices, past investments, and topographies
  - Chicago vs LA-LB
    MB VRH 0.5Xs
    HR VRH 2.5Xs
  - MB VRH vs HR VRH (within region)

Chicago	1.87
LA-LB	47.4

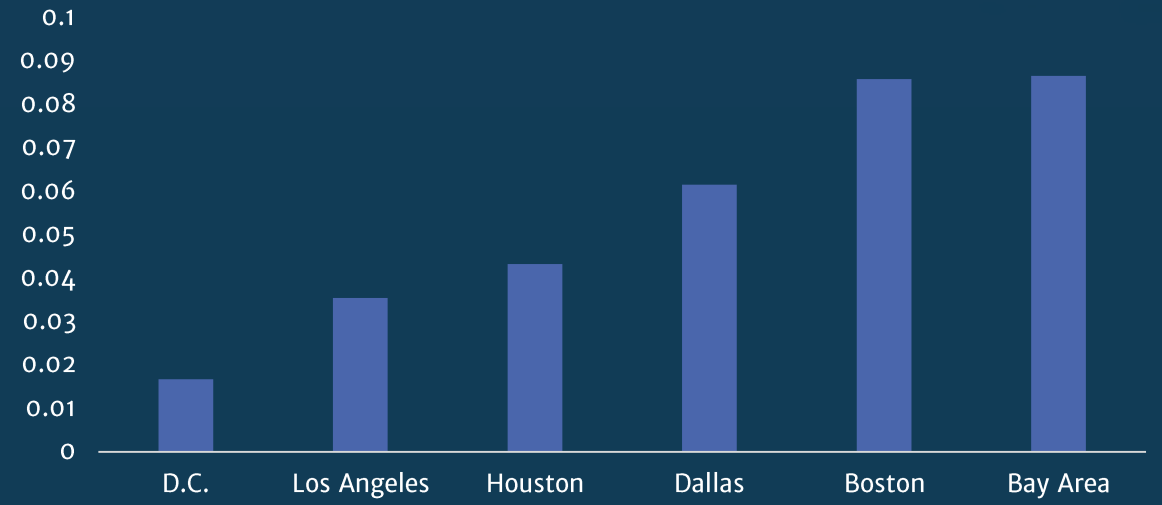
Per Capita Service Deployment

What mode are regions choosing to operate, and how much?

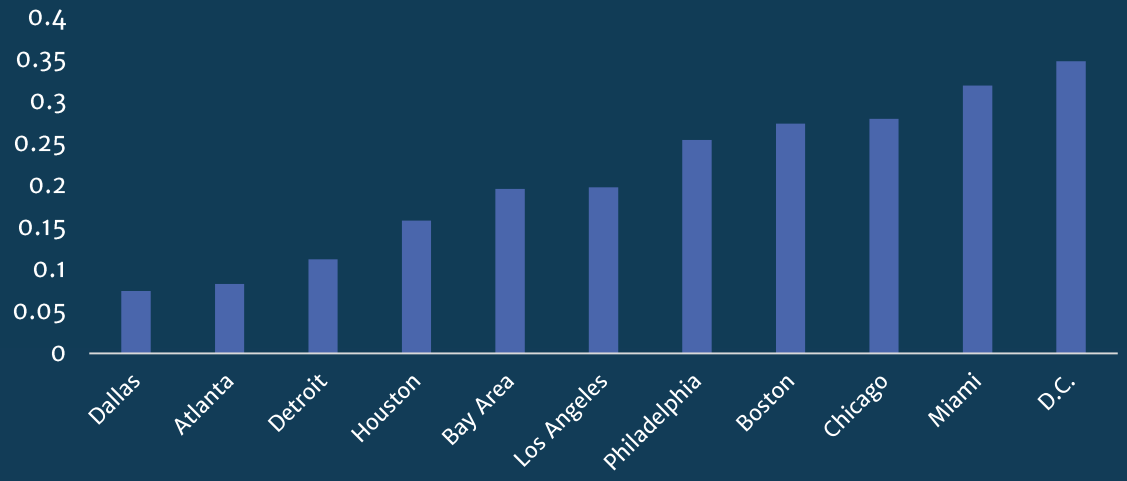
Per Capita Heavy Rail VRH 2015-16



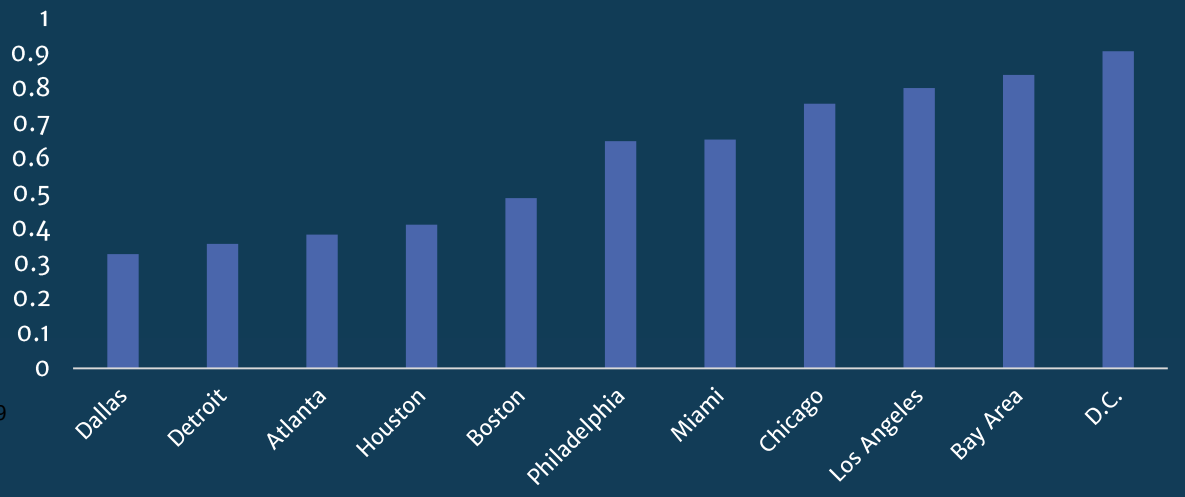
Per Capita Light Rail VRH 2015-16



Per Capita DR VRH 2015-16

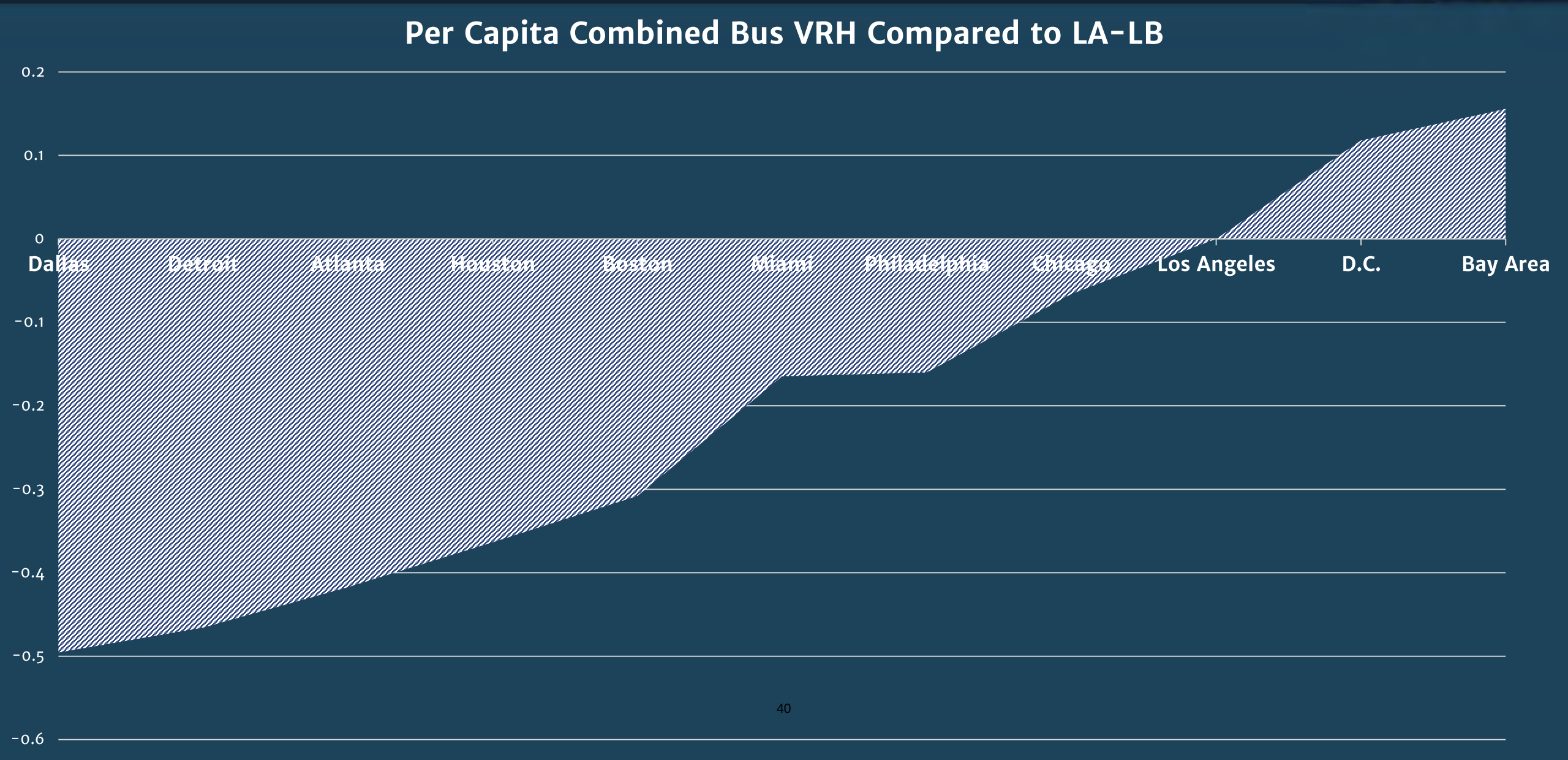


Per Capita MB VRH 2015-16



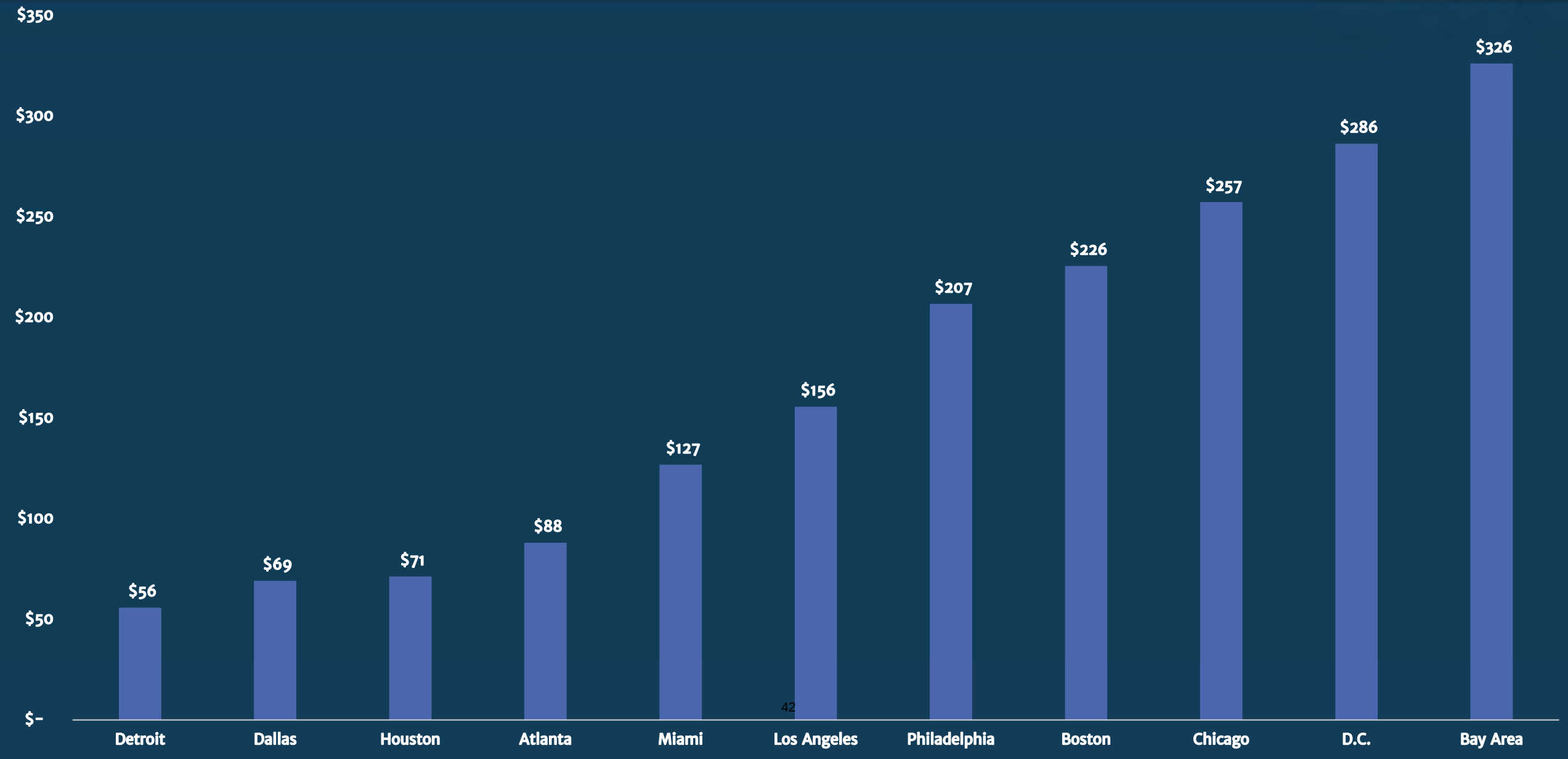
Comparing Per Capita Combined Bus Service

LA=0



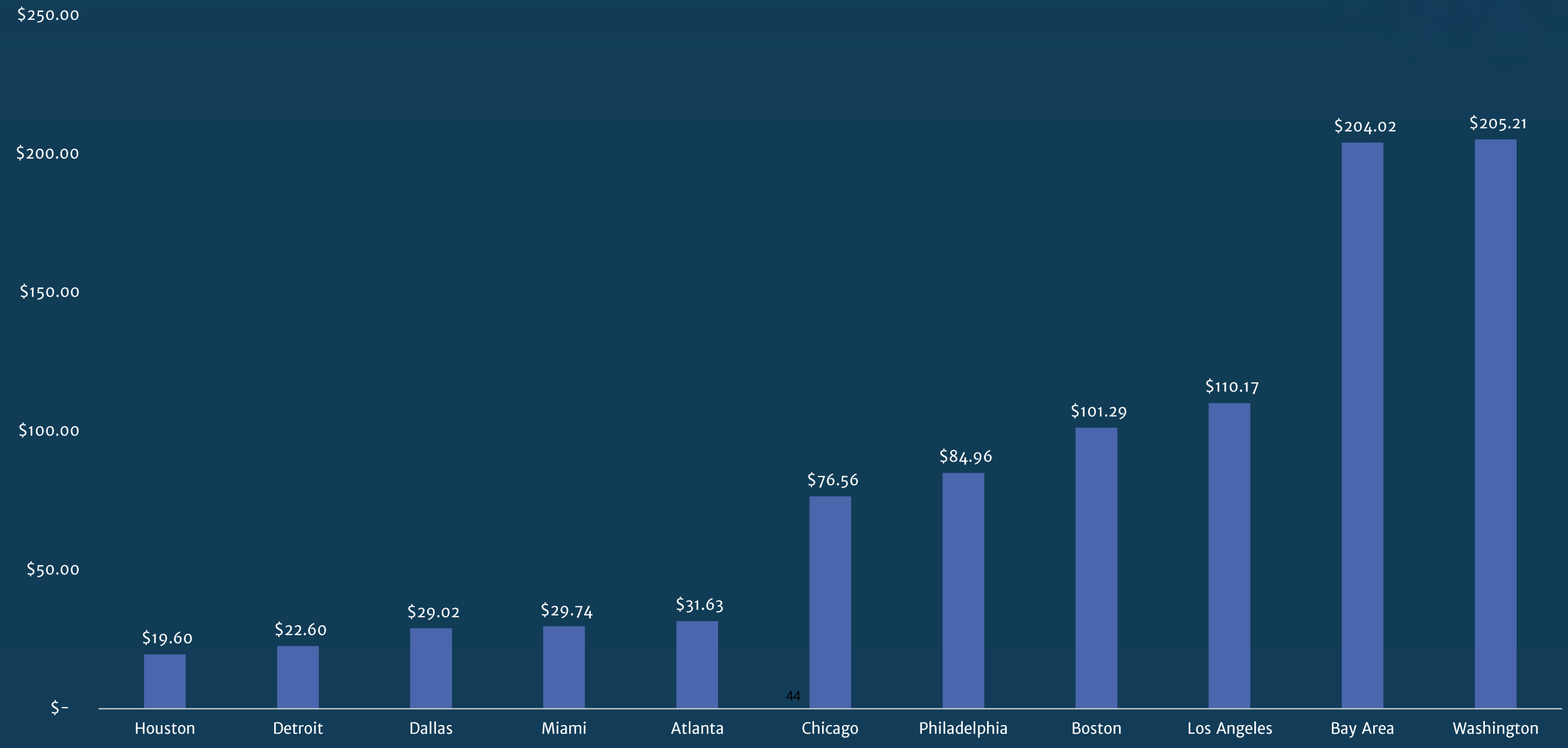
Peer Regions
Total Operations Spending 2015-16

Peer Regions
Per Capita Operations Spending 2015-16



Peer Regions
Total Capital Spending 2015-16

Peer Regions
Per Capita Capital Spending 2015-16



Handful of Projects Account for Big Capital Expenditures

D.C and the Bay Area

D.C. and the Bay Area are the other productive regions in involved in multibllion dollar capital programs

- BART
  - Extension to Berryessa
  - Transbay Corridor Core Capacity Program
  - “Fleet of the Future”
- WMATA
  - Silver Line Extension to Dulles

Initial Takeaways

Takeaways
The big picture

- There are three categories transit operating environment in the US --
  1. New York - Newark,
  2. Other very large Metro Areas ('Peer Regions CSAs')
  3. The rest of the country
- The Peer Regions can be divided into two groups
  - Northern and Western Regions that carry a lot of trips – productive regions
    - LA-LB, Chicago, Philadelphia, D.C., Bay Area, Boston
  - Sunbelt Regions that carry fewer trips (and Detroit)
    - Dallas, Miami, Houston, Atlanta, Detroit
- Population Size Effects
  - SCAG Region is twice as big as other very large CSAs (excepting New York) - it provides a ton of service and carries the most trips, as a result
  - On a per capita basis the SCAG Region is not as competitive compared to most northern and western peer regions -- it is very competitive compared to the sunbelt regions (and Detroit)

Takeaways
Service Deployment Strategies

- The SCAG Region's service deployment strategy is categorically different
  - Rail
    - Much less focus on heavy rail than other productive transit regions
    - More focus on building light rail than other productive transit regions who are engaged in major capital programs – only Boston is spending a somewhat similar share on LR
  - Bus
    - More focus on bus service
    - On a per capita basis, the Region is in the top three providers of bus service
  - Investment
    - SCAG Region is in the middle of the pack for combined per capita expenditures
    - SCAG Region is much more focused on capital investment than other regions
      - 1.4 -- Second lowest ratio of operating expenditures, after D.C. – 72% below the median OPEX/CAPEX ratio (2.4)
      - Only other comparable regions are Bay Area (1.4) and D.C. (1.6)

2020 RTP/SCS Existing Conditions
Next Steps

- Benchmarking
  - Tabulate service deployment ratios (VRH)
    - HR vs MB
    - LR vs MB
    - DR vs MB
  - Apply key measures and metrics to peer regions and measure performance
    - OPEX/VRH
    - OPEX/UPT
    - VM/VRM
    - PMT/UPT
    - UPT/VRH
    - VRM/VRH
- Release final system performance assessment
- Draft benchmarks report, released late winter/early spring
- Technology/emerging trends methodology
- Asset inventory/framework

Thank you

Matt Gleason

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REPORT

Southern California Association of Governments
900 Wilshire Blvd., Suite 1700, Los Angeles, CA 90017

October 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. Additionally, staff seeks RTTAC input on several elements of the methodology.

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.

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.

DISCUSSION:
SCAG staff has been refining its HQTC and Major Transit Stop methodology for the 2020 RTP/SCS through discussions with the RTTAC several times in the last year. While consensus has been reached on some of the process elements, there are several pending items for which staff are seeking RTTAC input. Revisions to the process are based on discussions with the RTTAC, other California Metropolitan Planning Organizations (MPOs), the Governor's Office of Planning & Research (OPR) and city stakeholders. SCAG will use the revised methodology to update its inventory of HQTCs and major transit stops for the 2020 RTP/SCS. The base year transit network for the 2020 RTP/SCS is 2016, and is based primarily on data from June 2016. The horizon year is 2045. Following is a discussion on pending and finalized methodology elements.

Pending Elements for RTTAC Input

Stop-Based Methodology. Previously, HTQCs were identified using a corridor-based approach. That is to say, if a transit line or route operated with 15-minute frequency or better during the peak, the entire line or portion of the line (a particular route pattern) would be defined as a HQTC. Issues arose when trying to identify which trips were considered peak period trips, and staff's methodology was to use the mid-point of the trip, consistent with SCAG's regional travel demand model.

Based on discussions with the RTTAC, MPOs, Metro and City of Los Angeles, staff will now use a stop-based approach as a superior methodology, since it is more true to the land-use intent of the statue and reflects the real-world experience of transit patrons. Therefore, if a particular stop does not have 15-minute service, that location would not be included as part of a HQTC. The stop-based approach: 1) eliminates the question of which bus trips should be counted as "peak period" trips, 2) eliminates the issues related to bus routes with multiple route and one-way patterns, and 3) is consistent with how other MPOs interpret the statute.

Bi-Directional Frequency. The 2016 RTP/SCS methodology required a route to meet the 15-minute threshold in both directions. Some transit agencies operate very peak-directional service, so for example, eastbound trips may have 15-minute frequency while westbound trips may not. At previous RTTAC discussions, Metro and City of Los Angeles requested that this be revised such that a route must only meet the 15-minute frequency in one direction to qualify.

Rapid/Local Corridors. In the 2016 methodology, BRT and local services operating on the same corridor were treated as two distinct lines. In practice however, many transit patrons board the first bus that comes along, be it a BRT or Local line. At previous RTTAC discussions, Metro and City of Los Angeles proposed that Local/Rapid routes as well as line "families" serving the same corridor should be treated as the same line for purposes of calculating frequency.

Finalized Elements

Peak Period. 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.

Multi-Route Corridors. With the exception of Local/Rapid lines and line "families" discussed above, 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.

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. There must be an existing stop on each intersecting HQTC and the stops must be within 500 feet of each other. 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 is also consistent with the Metro Transfers Design Guide definition of a transfer zone.

Amtrak Stations. Amtrak rail stations with only limited long-distance service are not automatically included as a major transit stop unless requested by a local agency. They may be included at SCAG's discretion upon request by a local agency.

2020 Process Schedule

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

Identify Draft 2016 HQTCs and Major Transit Stops. SCAG staff will identify the draft 2016 HQTC network based on the SCAG base year model network. – December 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. - January 2019

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. – March 2019

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. – May 2019

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. - June 2019

NEXT STEPS:
SCAG staff will incorporate comments and feedback from the RTTAC into the final HQTC and Major Transit Stop Methodology for the 2020 RTP/SCS.

ATTACHMENT:
1. Presentation

Draft 2020 RTP/SCS HQTC and Major Transit Stop Methodology

Regional Transit Technical Advisory Committee

Steve Fox

Senior Regional Planner

October 31, 2018

Draft 2020 RTP/SCS HQTCs/Major Transit Stops

- Staff in on-going discussions regarding 2020 refinements. Significant comments from L.A. Metro and L.A. City Planning.
- Staff seeks RTTAC input on several remaining items.
- Staff will update existing HQTCs and major transit stops for the 2020 RTP/SCS using revised methodology.
- Will poll transit operators on future 15-minute services.
- Base year transit network is 2016--based primarily on June 2016 schedules. Horizon year is 2045.

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.
- Last discussed at April 2018 RTTAC meeting.
- Further refinements presented today.

2016 Methodology

- High Quality Transit Corridor
  - 15-minutes or better peak frequency
  - Seven-hour peak period (some exceptions)
  - Number of trips included in peak period
  - Multi-route corridor cases
  - Route Alignment Buffering (freeway express services)
- Major Transit Stops
  - Rail stations
  - Ferry station served by bus or rail
  - Intersection of high quality transit corridors
    - 500-foot transfer distance

Stop-Based Methodology

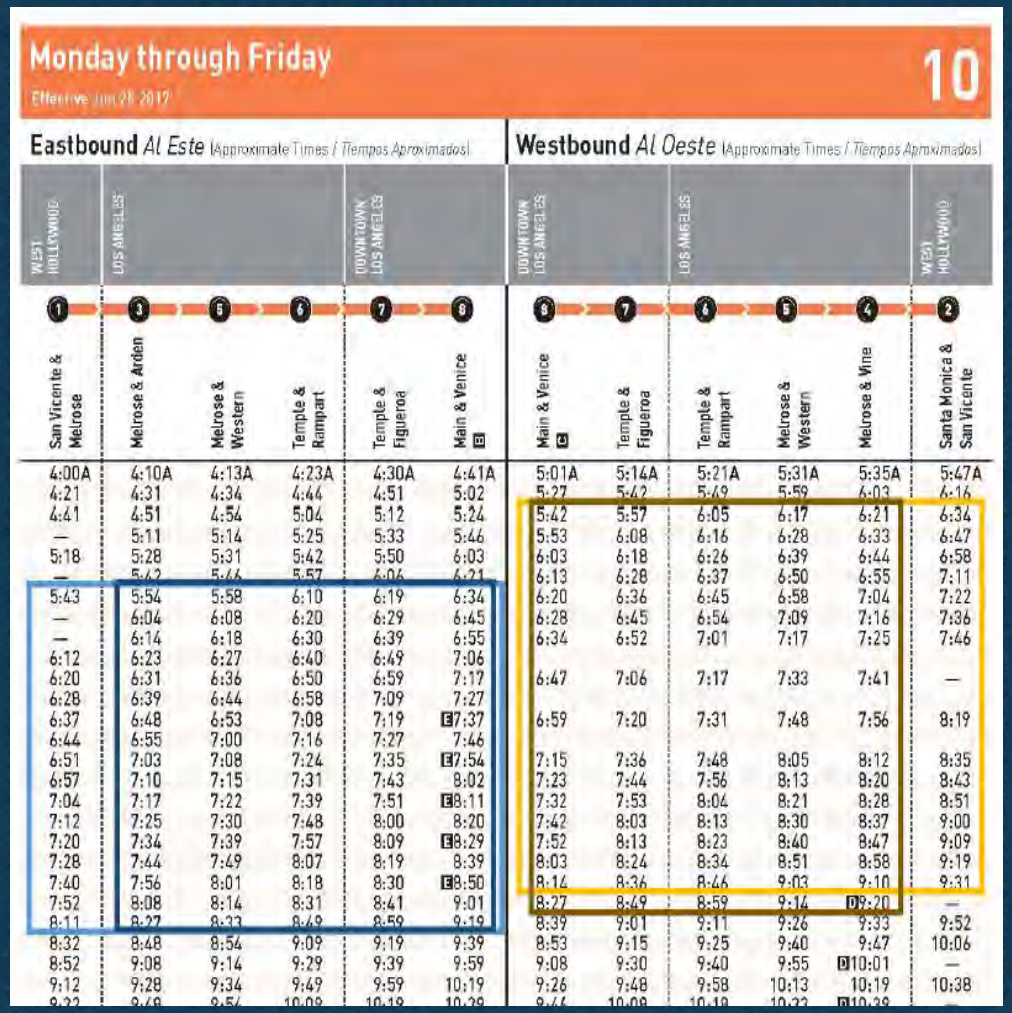
Revision: Stop-Based Methodology

- Bus stop is included in HQTC if bus arrives every 15 minutes or better during peak.
- Eliminates question of which bus trips should be counted as "peak period" trips (Midpoint Based methodology).
- Eliminates issues related to bus routes with multiple route patterns.
- Consistent with other MPOs.

Intersecting HQTCs

- Retain 500-ft transfer distance for intersecting routes.

2020 Refinements – Route Patterns



Monday through Friday

Effective Jun 25, 2017

10

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

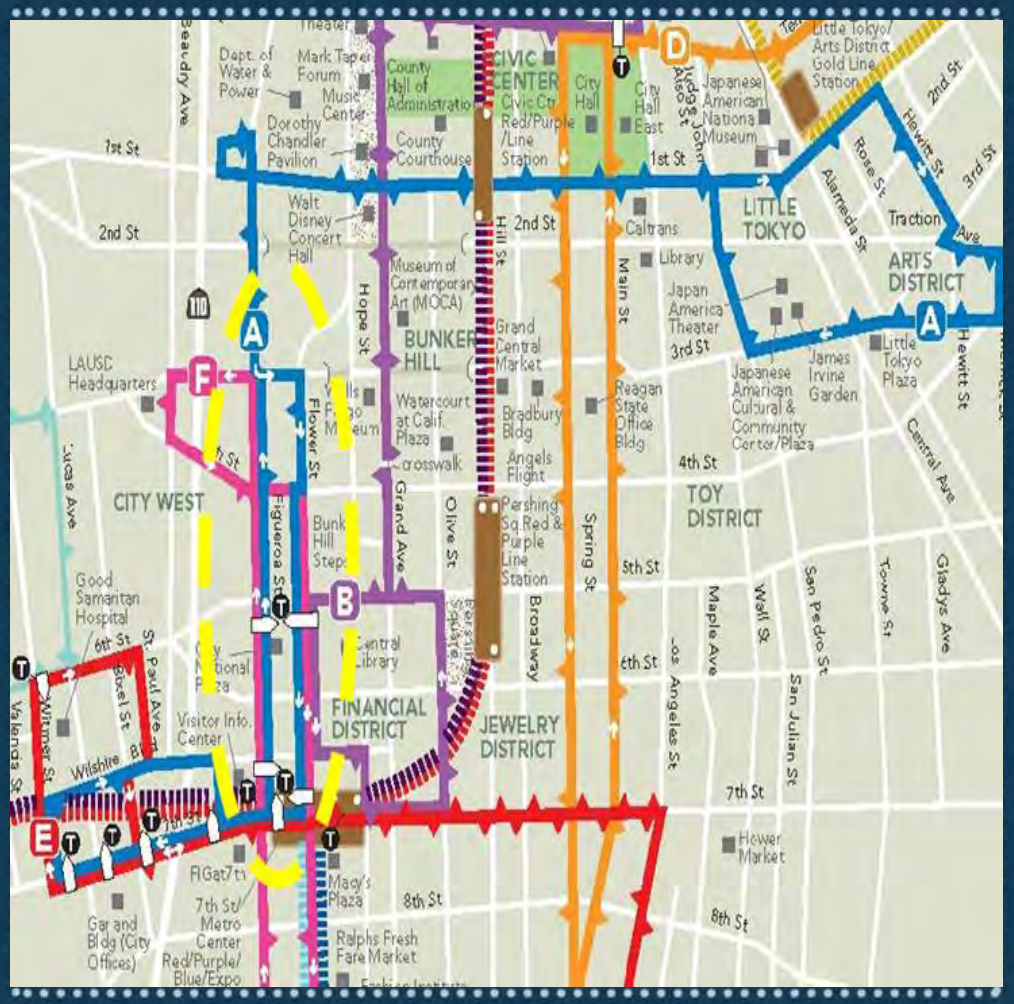
Westbound *Al Oeste* (Approximate Times / *Tiempos Aproximados*)

WEST HOLLYWOOD	LOS ANGELES			DOWNTOWN LOS ANGELES		DOWNTOWN LOS ANGELES		LOS ANGELES			WEST HOLLYWOOD
1	3	5	6	7	8	9	7	6	5	4	2
San Vicente & Melrose	Melrose & Arden	Melrose & Western	Temple & Rampart	Temple & Figueroa	Main & Venice E	Main & Venice E	Temple & Figueroa	Temple & Rampart	Melrose & Western	Melrose & Vine	Santa Monica & San Vicente
4:00A	4:10A	4:13A	4:23A	4:30A	4:41A	5:01A	5:14A	5:21A	5:31A	5:35A	5:47A
4:21	4:31	4:34	4:44	4:51	5:02	5:27	5:42	5:49	5:59	6:03	6:16
4:41	4:51	4:54	5:04	5:12	5:24	5:42	5:57	6:05	6:17	6:21	6:34
—	5:11	5:14	5:25	5:33	5:46	5:53	6:08	6:16	6:28	6:33	6:47
5:18	5:28	5:31	5:42	5:50	6:03	6:03	6:18	6:26	6:39	6:44	6:58
—	5:42	5:46	5:57	6:06	6:21	6:13	6:28	6:37	6:50	6:55	7:11
5:43	5:54	5:58	6:10	6:19	6:34	6:20	6:36	6:45	6:58	7:04	7:22
—	6:04	6:08	6:20	6:29	6:45	6:28	6:45	6:54	7:09	7:16	7:36
—	6:14	6:18	6:30	6:39	6:55	6:34	6:52	7:01	7:17	7:25	7:46
6:12	6:23	6:27	6:40	6:49	7:06						
6:20	6:31	6:36	6:50	6:59	7:17	6:47	7:06	7:17	7:33	7:41	—
6:28	6:39	6:44	6:58	7:09	7:27						
6:37	6:48	6:53	7:08	7:19	E7:37	6:59	7:20	7:31	7:48	7:56	8:19
6:44	6:55	7:00	7:16	7:27	7:46						
6:51	7:03	7:08	7:24	7:35	E7:54	7:15	7:36	7:48	8:05	8:12	8:35
6:57	7:10	7:15	7:31	7:43	8:02	7:23	7:44	7:56	8:13	8:20	8:43
7:04	7:17	7:22	7:39	7:51	E8:11	7:32	7:53	8:04	8:21	8:28	8:51
7:12	7:25	7:30	7:48	8:00	8:20	7:42	8:03	8:13	8:30	8:37	9:00
7:20	7:34	7:39	7:57	8:09	E8:29	7:52	8:13	8:23	8:40	8:47	9:09
7:28	7:44	7:49	8:07	8:19	8:39	8:03	8:24	8:34	8:51	8:58	9:19
7:40	7:56	8:01	8:18	8:30	E8:50	8:14	8:36	8:46	9:03	9:10	9:31
7:52	8:08	8:14	8:31	8:41	9:01	8:27	8:49	8:59	9:14	D9:20	—
8:11	8:27	8:33	8:49	8:59	9:19	8:39	9:01	9:11	9:26	9:33	9:52
8:32	8:48	8:54	9:09	9:19	9:39	8:53	9:15	9:25	9:40	9:47	10:06
8:52	9:08	9:14	9:29	9:39	9:59	9:08	9:30	9:40	9:55	D10:01	—
9:12	9:28	9:34	9:49	9:59	10:19	9:26	9:48	9:58	10:13	10:19	10:38
9:32	9:48	9:54	10:09	10:19	10:39	9:46	10:08	10:18	10:33	D10:39	—

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.

New stop-based methodology incorporates this.

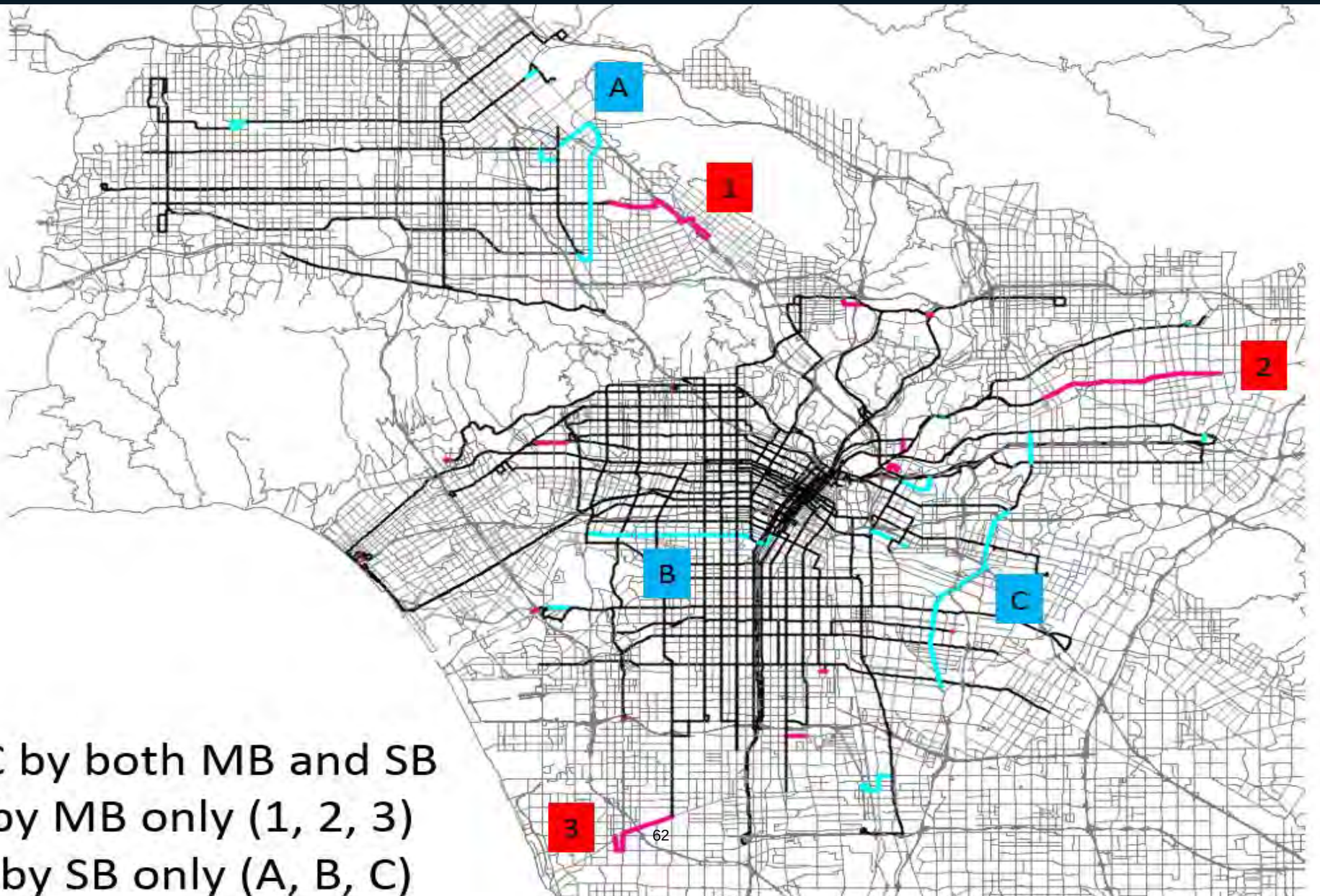
2020 Refinements – One-Way Service



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.

New stop-based methodology incorporates this.

Midpoint-Based (MB) versus Stop-Based (SB)



Black: HQTC by both MB and SB
Red: HQTC by MB only (1, 2, 3)
Blue: HQTC by SB only (A, B, C)

Bi-Directional Frequency and Rapid/Local Lines

- AM & PM peak periods are combined and frequency is calculated for the combined period, by direction.
- Revision: 15-minute frequency in only one direction may be sufficient to qualify as HQTC.
  - Captures corridors with peak direction travel.
  - Eliminates issues related to one-way routes or routes with one-way segments.
- One route must itself meet the 15-minute threshold; cannot combine routes to improve frequency and qualify as HQTC
- Revision: Combine headways of BRT/Rapid and Local lines and line "families" serving the same corridor (e.g., Metro Rapid, RTA RapidLink, Omnitrans sbX).

Next Steps and Schedule

- Incorporate RTTAC input.
- Identify Draft 2016 HQTCs and Major Transit Stops – December 2018.
- Verify 2016 Transit Network 15-Minute Frequency Services with operators– January 2019
- Complete Draft Data Set and Maps – March 2019
- Complete External Review of Draft Data Set and Maps - May 2019
- Finalize Data Set and Maps for Draft 2020 RTP/SCS - June 2019

Thank you

Steve Fox

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Draft 2020 RTP/SCS Performance Measures

Draft 2020 RTP/SCS Goals	2016 RTP/SCS Performance Measures	Draft 2020 RTP/SCS Performance Measures
Encourage regional economic prosperity & global competitiveness.	Additional jobs supported by improved economic competitiveness	Additional jobs supported by improved economic competitiveness
	Additional jobs supported by transportation investments	Additional jobs supported by transportation investments
	Investment benefit/cost ratio	Investment benefit/cost ratio
Improve mobility, accessibility, reliability, & travel safety for people & goods.	Average distance travelled for work & non-work trips	Average distance travelled for work & non-work trips
	Percent of trips less than 3 miles in distance	Percent of trips less than 3 miles in distance
	Work trip length distribution	Work trip length distribution
	Collision rates by severity & by mode	Rate of fatalities per 100 million VMT*
		Rate of serious injuries per 100 million VMT*
Enhance the preservation, security, & resilience of the regional transportation system.	Cost per capita to preserve regional multimodal transportation system in current state of good repair	Cost per capita to preserve regional multimodal transportation system in current state of good repair
	State highway system pavement condition	Interstate highway system pavement condition*
	Local roads pavement condition	Non-Interstate NHS pavement condition*
		National Highway System bridge condition*
Increase person & goods throughput & travel choices within the transportation system.	Person delay per capita	Person delay per capita
	Person hours of delay by facility type	Person hours of delay by facility type
	Truck delay by facility type	Truck delay by facility type
		Non-SOV mode share*
Reduce GHG emissions & improve air quality.	VMT per capita	VMT per capita
	Criteria pollutant & GHG emissions	Criteria pollutant emissions (tons per day)
		GHG emissions per capita

Draft 2020 RTP/SCS Performance Measures

Draft 2020 RTP/SCS Goals	2016 RTP/SCS Performance Measures	Draft 2020 RTP/SCS Performance Measures
Support healthy & equitable communities.	Air pollution related health measures	Air pollution related health measures
	Physical activity related health measures	Physical activity related health measures
Adapt to a changing climate & support an integrated regional development pattern & transportation network.	Share of regional employment growth in HQTAs	Share of regional employment growth in HQTAs
	Mode share for walking & biking	Mode share for walking & biking
	Transit mode share	Transit mode share
		Transit boardings per capita
		Climate resiliency metrics**
Leverage new transportation technologies & data-driven solutions that result in more efficient travel.	Travel time distribution for transit, SOV, & HOV modes	Travel time distribution for transit, SOV, & HOV modes
		Mean commute time
Encourage development of diverse housing types in areas well supported by multiple transportation options.	Share of regional household growth in HQTAs	Share of regional household growth in HQTAs
Promote conservation of natural & agricultural lands & restoration of critical habitats.	Land consumption	Land consumption
		Natural lands conservation/carbon sequestration/habitat preservation**
Environmental Justice Performance Measures	Meet Federal Environmental Justice requirements: No unaddressed disproportionately high and adverse effects for low income or minority communities (EJ performance measures are described in greater detail in a separate table)	

Legend
2016 RTP/SCS performance measures carrried over for 2020
Potential new performance measures for 2020 RTP/SCS
* MAP-21 federal performance measure
** Pending SCAG evaluation of new SPM Natural Lands Conservation Module data output

Draft 2020 RTP/SCS Goals & Performance Measures

ID	Draft 2020 RTP/SCS Goals	RTP PM	EJ PM
1	Encourage regional economic prosperity & global competitiveness.	1, 2, 3	
2	Improve mobility, accessibility, reliability, & travel safety for people & goods.	4, 5, 6, 7, 8	7, 8, 14
3	Enhance the preservation, security, & resilience of the regional transportation system.	9, 10, 11, 12	
4	Increase person & goods throughput & travel choices within the transportation system.	13, 14, 15, 16	
5	Reduce greenhouse gas emissions & improve air quality.	17, 18, 19	10, 11
6	Support healthy & equitable communities.	20, 21, 22, 23, 24	1, 2, 3, 4, 5, 12, 13, 15, 16, 18, 19
7	Adapt to a changing climate & support an integrated regional development pattern & transportation network.	26, 27, 28, 31	17
8	Leverage new transportation technologies & data-driven solutions that result in more efficient travel.	29, 30	
9	Encourage development of diverse housing types in areas well supported by multiple transportation options.	25	6, 9
10	Promote conservation of natural & agricultural lands & restoration of critical habitats.	10	

ID	Draft 2020 RTP/SCS Performance Measures	RTP Goals
1	New jobs supported by improved economic competitiveness	1
2	New jobs supported by transportation system investments	1
3	Transportation system investment benefit/cost ratio	1
4	Average distance traveled for work & non-work trips	2
5	Percent of trips less than 3 miles in distance	2
6	Work trip length distribution (10 miles or less/25 miles or less)	2
7	Collision fatality rate (per 100 million vehicle miles)	2

ID	Draft 2020 RTP/SCS Performance Measures	RTP Goals
8	Collision serious injury rate (per 100 million vehicle miles)	2
9	Cost per capita to preserve regional multimodal transportation system in current state of good repair	3
10	Interstate highway system pavement condition	3
11	Non-interstate National Highway System pavement condition	3
12	National Highway System bridge condition	3
13	Person delay per capita	4
14	Person delay by facility type (highway/arterial)	4
15	Truck delay by facility type	4
16	Non-SOV mode share	4
17	VMT per capita	5
18	Criteria pollutant emissions (tons per day)	5
19	GHG emissions per capita	5
20	Air pollution-related health measures (annual incidence & cost)	6
21	Physical activity-related health measures: Obesity rate	6
22	Physical activity-related health measures: Hypertension rate	6
23	Physical activity-related health measures: Heart disease rate	6
24	Physical activity-related health measures: Diabetes (type 2) rate	6
25	Share of household growth in HQTAs	9
26	Share of employment growth in HQTAs	7
27	Transit mode share	7
28	Transit boardings per capita	7
29	Travel time distribution by mode (transit, SOV, HOV)	8
30	Mean commute time	8
31	Mode share for walking & biking (combined)	7
32	Land consumption (square miles)	10

ID	Draft 2020 RTP/SCS EJ Performance Measures	RTP Goals
1	2016 RTP/SCS revenue sources in terms of tax burdens	6
2	Share of transportation system usage	6
3	2016 RTP/SCS investments	6
4	Distribution of travel time savings & travel distance reductions	6
5	Geographic distribution of transportation investments	6
6	Jobs/housing imbalance	9
7	Accessibility to employment & services	2
8	Accessibility to parks & schools	2
9	Gentrification & displacement	9
10	Emissions impact analysis	5
11	Air quality impacts along freeways & highly traveled corridors	5
12	Aviation noise impacts	6
13	Roadway noise impacts	6
14	Active transportation hazard	2
15	Rail-related impacts	6
16	Public health impacts	6
17	Climate resilience	7
18	Proposed Mileage-Based User Fee (MBUF) impacts	6
19	Seismic risk	6