SCAG
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SOUTHERN CALIFORNIA
ASSOCIATION OF GOVERNMENTS
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MEETING OF THE

REGIONAL TRANSIT TECHNICAL ADVISORY COMMITTEE

Wednesday, May 31, 2017
10:00 a.m. – 11:50 a.m.

SCAG Los Angeles Main Office
818 W. 7th Street, 12th Floor
Policy Committee Room A
Los Angeles, California 90017
(213) 236-1800

Teleconferencing Available:
To join the meeting: http://scag.adobeconnect.com/rttac/
Conference Number(s): 1 (800) 832-0736
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Imperial SCAG Office
1405 North Imperial Ave., Suite 1
El Centro, CA 92243

Orange SCAG Office
600 South Main St., Suite 964
Orange, CA 92868

Riverside SCAG Office
3403 10th St., Suite 805
Riverside, CA 92501

San Bernardino SCAG Office
1170 West 3rd St., Suite 140
San Bernardino, CA 92410

Ventura SCAG Office
950 County Square Dr., Suite 101
Ventura, CA 93003

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 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) 236-1993. We require at least 72 hours (three days) notice to provide reasonable accommodations. We prefer more notice if possible. We will make every effort to arrange for assistance as soon as possible.

REGIONAL TRANSIT TECHNICAL ADVISORY COMMITTEE
AGENDA
Wednesday, May 31, 2017

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

REVISED 5/30/2017

4.0	**INFORMATION ITEMS**			
4.1	Understanding Transit Trends in the SCAG Region ***(Michael Manville, UCLA Institute of Transportation Studies)***	20	8
4.2	AC Transit Flex Program ***(John Urgo, AC Transit)***	20	25
4.3	RTA First and Last Mile Mobility Plan ***(Joe Forgiarini, RTA)***	20	59
4.4	Transit Asset Management Draft Regional Targets ***(Philip Law, SCAG)***	20	81
4.5	Climate Change Adaptation Assessment ***(Matt Gleason, SCAG)***	25	127
5.0	**STAFF REPORT**	5	
6.0	**ADJOURNMENT**		

The next Regional Transit Technical Advisory Committee meeting is tentatively scheduled for Wednesday, August 30, 2017.

REVISED 5/30/2017

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

March 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
Joyce Rooney (Vice Chair)	Redondo Beach Transit
Conan Cheung	Metro
Medford Auguste	Metro
Robert Payne	Los Angeles DOT
Rawan Aljamal	Caltrans District 7

Video Conference:

Matt Miller	Gold Coast Transit District
Vanessa Rauschenberger	Gold Coast Transit District
Martin Erickson	Ventura County Transportation Commission
Carlos Lopez	Antelope Valley Transportation Authority
Norm Hickling	Antelope Valley Transportation Authority
Geraldina Romo	Antelope Valley Transportation Authority
Eric Jacobsen	SBCTA
Andrea Zureick	SBCTA
Jeremiah Bryant	Omnitrans
David Aguirre	Imperial County Transportation Commission

Teleconference:

Diana Chang	Culver City Transit
Kevin Kane	Victor Valley Transportation Authority
Shirley Hsiao	Long Beach Transit
Denise Longley	Metro

SCAG Staff:

Philip Law	Joseph Briglio
Matthew Gleason	Frank Wen
Stephen Fox	Marco Anderson
Agustin Barajas	

1.0 CALL TO ORDER

Gary Hewitt called the meeting to order at 10:09 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 January 31, 2017 Regional Transit TAC Meeting

3.2 Partnerships with Transportation Network Companies (TNCs)

4.0 INFORMATION ITEMS

4.1 Metro Ridership Task Force

Conan Cheung, Metro, reported on the Regional Ridership Improvement Task Force. Mr. Cheung stated the task force includes key personnel from county transit operators who are engaged in a multi-year effort to track Los Angeles County transit ridership. It was noted key factors affecting ridership have been examined including external factors such as traffic, fuel prices, the advent of transportation network companies and the state of the economy. It was noted the primary objective is to explore how to grow ridership. Mr. Cheung stated primary goals include exploring how to retain existing customers, reclaim former customers, recruit new customers and encourage more ridership. Additionally, transit providers in the county have been asked to forward ridership statistics as well as operational analysis.

Andrea Zurich, SBCTA, asked if Metro's Gold Line and Metrolink will be included in the study. Mr. Cheung responded that it is not part of this effort although there is a separate initiative examining the decline in ridership on Metrolink's San Bernardino Line which may correlate with the opening of the Gold Line extension to Azusa. Rider surveys will be used to understand ridership choices relating to these transit lines.

Gary Hewitt, OCTA, commented that one issue in recruiting new transit customers is funding for marketing is originated from the same budget as service which makes it a challenge to demonstrate the value of marketing and promotions. Mr. Hewitt noted it would be useful if current efforts could investigate how to frame and quantify the cost benefit and ancillary value of marketing transit services.

4.2 Transit Ridership Update

Philip Law, SCAG staff, reported on transit ridership trends. Mr. Law presented data from the National Transit Database (NTD) and noted the data indicates bus ridership continued to decline in 2016 for almost all of the largest transit providers in the region. Additionally, total regional bus ridership experienced a fourth consecutive year of decline in 2016, down by 9.8% from 2015. The rate of decline appears to be accelerating. Data from 2015 show a decline in regional bus ridership

of only 4.1% from 2014 levels. Mr. Law stated rail ridership performance was mixed with Metro heavy rail (Red Line) ridership down by 1.1% in 2016 and Metrolink commuter rail ridership down 13.4%. Metro light rail ridership increased by 8.4% in 2016 with the opening of the Expo Phase 2 and Foothill Gold Line extensions.

Mr. Law stated statewide transit operators experienced bus ridership declines. San Diego bus ridership decreased 7% from 2015 and Sacramento declined 13.7%. San Francisco municipal ridership was steady but other Bay Area systems saw decreases. It was noted light rail ridership in San Francisco was up 3.2% compared to 2015. The Bay Area Rapid Transit (BART) saw its first year-over-year ridership declines in the 3rd and 4th quarters of 2016 but overall annual ridership remained unchanged. Further, light rail ridership decreased 10% in San Jose and 2.4% in Sacramento.

Conan Cheung, Metro, asked if any contributing factors were identified for those areas seeing ridership increases. Mr. Law responded that additional investigation is needed to make that assessment but in preliminary discussions with staff at Metropolitan Transportation Commission the strength of the economy was indicated as relevant to maintaining transit ridership.

Gary Hewitt, OCTA, reported that investigation of Orange County ridership trends indicate that the county's population increased 5% from 2008 to 2015. During that time the number of driver licenses issued increased 10% and the number of registered vehicles increased 17% which indicates an upward trend of private automobile use. Additionally, favorable lending practices have made it easier for those who lack credit to purchase automobiles. AB 60, which allowed undocumented immigrants to obtain drivers licenses and a decrease in immigration were identified as potential factors contributing to ridership declines. Further, research indicates the longer immigrants remain in an area the more closely their travel patterns resemble those of the general population.

4.2 SB 375/2017 GHG Emissions Reduction Targets

Frank Wen, SCAG staff, provided an update on SB 375/2017 GHG Emissions Reduction Targets. Mr. Wen stated this update summarizes SCAG's GHG target recommendation to the California Air Resources Board (CARB) and the SCAG SB 375 Stress Test results presented to the Regional Council (RC) and SCAG's policy committees on November 3, 2016. It was noted current CARB reduction targets include 8% in 2020 and 13% in 2035. Further, SCAG's 2016-2040 RTP/SCS, which was adopted in April 2016, met the per capita GHG reduction target of 8% in 2020 and demonstrated an 18% GHG reduction in 2035 exceeding the CARB target of 13% by five percentage points.

Mr. Wen noted a stress test was conducted to examine if there are any additional policy areas that can be utilized to further reduce GHG emissions. The areas focused on include active transportation, zero emission vehicles and mobility enhancements. SCAG's stress test results indicate that about 2% to 2.5% of per

capita GHG emissions could potentially be reduced further above the 18%n 2035 target. Additionally, impacts from transit and active transportation programs contained in Measure M, which was approved by voters in November 2016, may result in additional per capita GHG reductions.

Gary Hewitt, OCTA, noted that it would be useful for policy makers to understand further the individual mobility innovation programs and their unique benefit toward reducing GHG emissions. For example, employer based ridesharing has proven effective and there are currently employers concerned about GHG emissions but are not aware of the resources available or how they can develop a program to contribute. Additionally, an increased mode split to vanpools, carpools and other types of ridesharing would be beneficial to reducing GHG emissions.

4.4 Metropolitan Planning Agreements

Philip Law, SCAG staff, provided an update on Metropolitan Planning Agreements. Mr. Law stated in 2007 SCAG established Metropolitan Planning Agreements with the county transportation commissions (CTCs) and transit operators in the region. These agreements acknowledge the role of the CTCs for countywide planning and programming and specify that the CTCs will coordinate with transit operators in their respective county to ensure that transit projects, plans and programs are recommended to SCAG for inclusion in the Regional Transportation Plan (RTP) and Federal Transportation Improvement Program (FTIP). Since they were first executed in 2007, there have arisen several new federal requirements that must be incorporated, including the federal rulemaking to implement the performance-based planning provisions from the Moving Ahead for Progress in the 21st Century Act (MAP-21). Additionally, SCAG maintains the RTTAC as a forum for transit operators and the CTCs to participate in the metropolitan planning process.

Mr. Law noted there are specific provisions to be included in the agreements including the development of financial plans supporting the RTP and FTIP. Also, to provide an annual listing of obligated projects as well as the development and cooperative sharing of information related to transportation performance data and the selection of targets. Additionally, a Transit Asset Management (TAM) plan is to be developed including cooperating with the MPO in the selection of performance targets. Further, a provider must make available to the MPO its TAM plan, any supporting records or documents, performance targets, investment strategies and the annual condition assessment report.

Mr. Law noted next steps include drafting proposed revisions to the MOUs, confirm the agencies to be included, circulate drafts for comments and complete the signature process.

Gary Hewitt, OCTA, asked about the timeframe for completing the MOU process. Mr. Law responded that the goal is to complete them during the current year.

4.4 Transit Asset Management Update

Matt Gleason, SCAG staff, provided an update on Transit Asset Management (TAM). Mr. Gleason noted the committee has been briefed over the course of several meetings regarding Federal Transit Administration's (FTA) TAM rule. The rule requires MPOs to coordinate with state and local agencies that provide public transportation services with Chapter 53 federal funds in establishing regional asset management performance targets. To facilitate coordination, SCAG staff began meeting with county commission staff in fall 2016 to identify all agencies in the 6 county region. Mr. Gleason stated a list of those agencies has been compiled and letters were sent to the agencies chief executives seeking information needed to establish regional level targets. Responses have been received from 31 of 38 of the agencies.

Mr. Gleason stated there are four categories of targets; rolling stock, equipment, facilities and infrastructure. Also, rolling stock and equipment targets are based on useful life benchmarks (ULB). The list of responses was reviewed and Mr. Gleason noted 127 targets were received. It was further noted the final regional targets are due June 30, 2017. Additionally, local TAM plans are due in 2018 and the first reporting on performance targets are due in 2019.

5.0 ADJOURNMENT

Gary Hewitt adjourned the meeting at 11:24 a.m.

REPORT

DATE: June 1, 2017

TO: Transportation Committee (TC)

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

SUBJECT: SCAG Region Transit Ridership Trends Study

EXECUTIVE DIRECTOR'S APPROVAL:

RECOMMENDED ACTION:
For Information Only – No Action Required.

EXECUTIVE SUMMARY:
SCAG staff is working with the University of California, Los Angeles (UCLA) Institute of Transportation Studies and Department of Urban Planning to examine the recent declines in transit ridership affecting almost all of the transit operators in the six counties of the SCAG region. Assistant Professor Mike Manville will present results of the research performed to date.

STRATEGIC PLAN:
This item supports SCAG's Strategic Plan, Goal 1: Improve Regional Decision Making by Providing Leadership and Consensus Building on Key Plans and Policies; Objective: (a) Create and facilitate a collaborative and cooperative environment to produce forward thinking regional plans.

BACKGROUND:
Between 1997 and 2007, transit (bus and rail) ridership in the SCAG region grew from 550 million annual trips to a peak of 749 million, an increase of over 36%. Unfortunately, as a result of the Great Recession from December 2007 to June 2009, and during the period immediately thereafter, the SCAG region experienced a decline of critical state and local revenues for transit, prompting many transit operators to cut service and raise fares. By 2011, annual transit ridership had dropped by over 58 million trips, for a loss of 8% compared to 2007.

As the regional economy recovered from the recession, transit agencies began to restore service levels. By 2015, the total vehicle revenue hours of transit service in the region was back up to the levels provided before the recession. However, transit ridership did not experience the same recovery. Beginning in about 2013/2014 and continuing to the present time, the largest operators in the SCAG region saw significant and sustained losses in transit ridership. While by far the greatest declines were in bus ridership, both Los Angeles County Metropolitan Transportation Authority (Metro) Rail and Metrolink also experienced some decreases. It should be noted that this trend of transit ridership loss is also being experienced at the state and national levels.

SCAG staff regularly monitors transit system performance in coordination with the region's transit operators on the Regional Transit Technical Advisory Committee (RTTAC). These discussions with the RTTAC prompted an analysis in summer 2016 by SCAG staff, using available data from the National Transit Database, U.S. Census/American Community Survey, California Employment Development

Department, and the California Department of Motor Vehicles, to identify potential causes. While no single issue appeared to be the root cause, a number of recent trends were identified, including changes in the nature of the regional economy after the recession, falling gas prices, an increase in driver licenses and vehicle registrations, and a reduction of net immigration in the region.

At the same time, operators including Los Angeles Metro and the Orange County Transportation Authority (OCTA), the two largest transit providers in the region, took steps to counteract the ridership trend. In October 2016, OCTA implemented extensive changes to its bus system (called OC Bus 360) to improve efficiency and effectiveness. Through its Regional Ridership Improvement Task Force, Metro is currently coordinating with the municipal operators in Los Angeles County to develop a Ridership Growth Action Plan.

Subsequent to its analysis, in late 2016, SCAG staff sought the assistance of researchers at the UCLA Institute of Transportation Studies and the Department of Urban Planning to conduct a more detailed analysis of the potential underlying causes of the recent ridership losses. This research effort involves examining changes in transit supply, demand, and finance in the region, changes in the population of likely transit users, and changes in rider demographics. By shedding some light on potential causes, the study will help SCAG and the region's transit operators identify effective strategies and solutions. The study is expected to conclude in fall 2017.

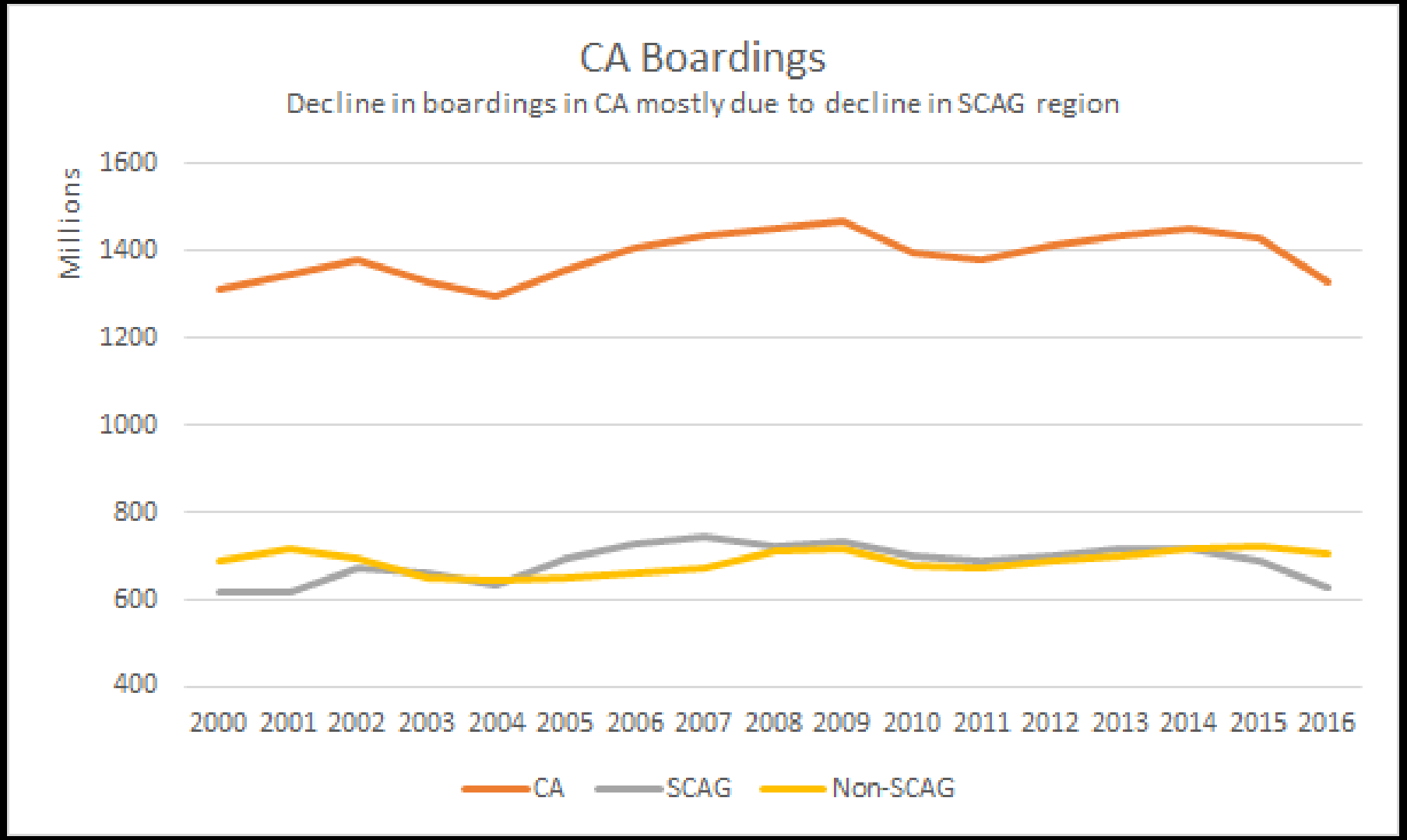
FISCAL IMPACT:
Funding for this study is included in FY 2016-17 and FY 2017-18 Overall Work Program (OWP) under Project No. 015-0159.02 for Transportation User Fee—Planning Groundwork Project Phase II.

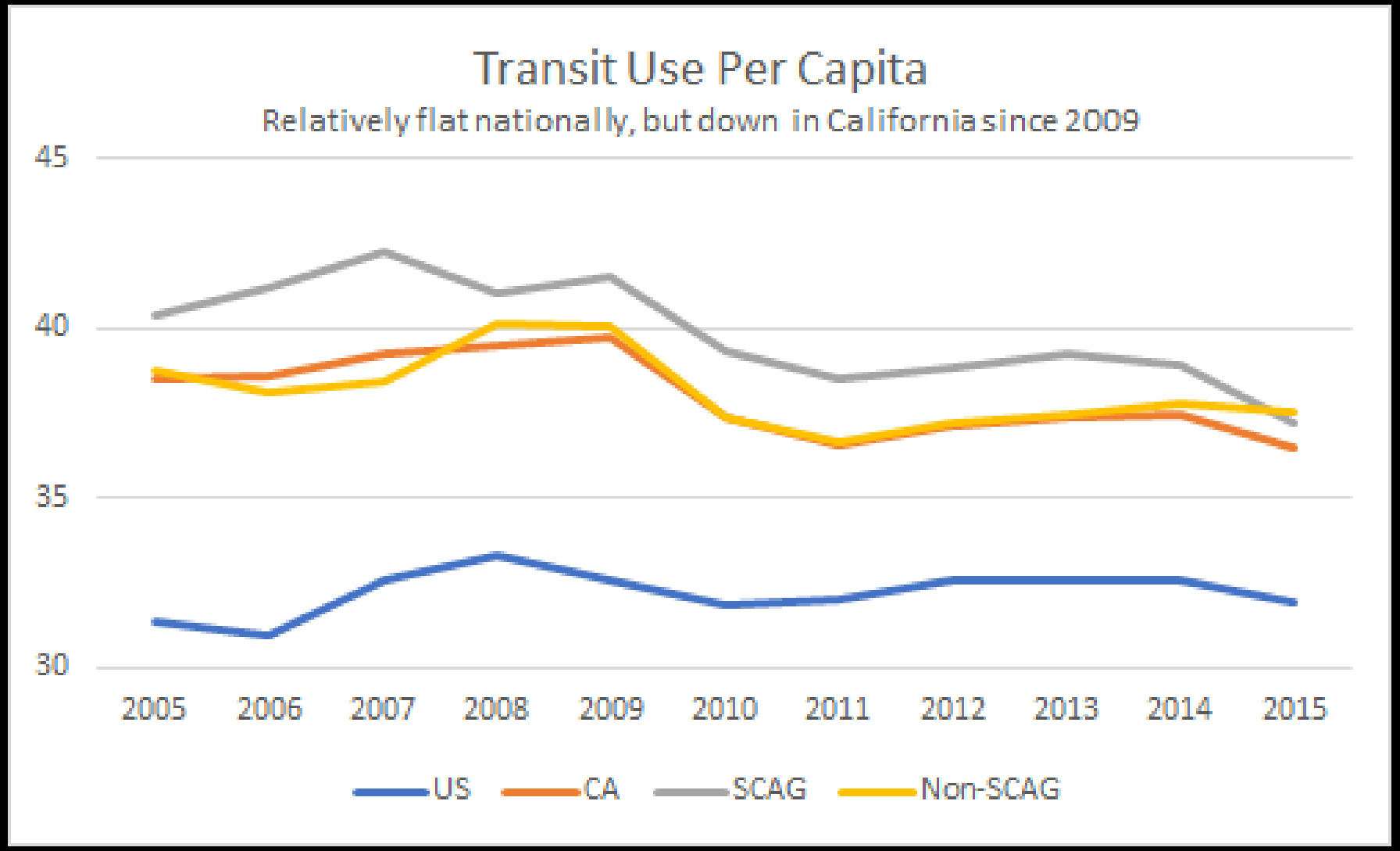
ATTACHMENT:
PowerPoint Presentation: "Understanding Transit Trends in the SCAG Region"

Understanding Transit Trends in the SCAG Region

Michael Manville

UCLA Institute of Transportation Studies


CA Boardings
Decline in boardings in CA mostly due to decline in SCAG region
Millions
1600
1400
1200
1000
800
600
400
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016
CA
SCAG
Non-SCAG


Transit Use Per Capita
Relatively flat nationally, but down in California since 2009
45
40
35
30
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
US
CA
SCAG
Non-SCAG

SCAG Declines: Highly Concentrated Geographically

- LA County and Orange County are 88 percent of lost rides
- Metro and OCTA together represent ¾ of lost SCAG rides
- 59 percent of losses are on LA Metro
- 53 percent of lost riders are on 12 Metro lines
- Nevertheless, ridership has fallen across all six counties

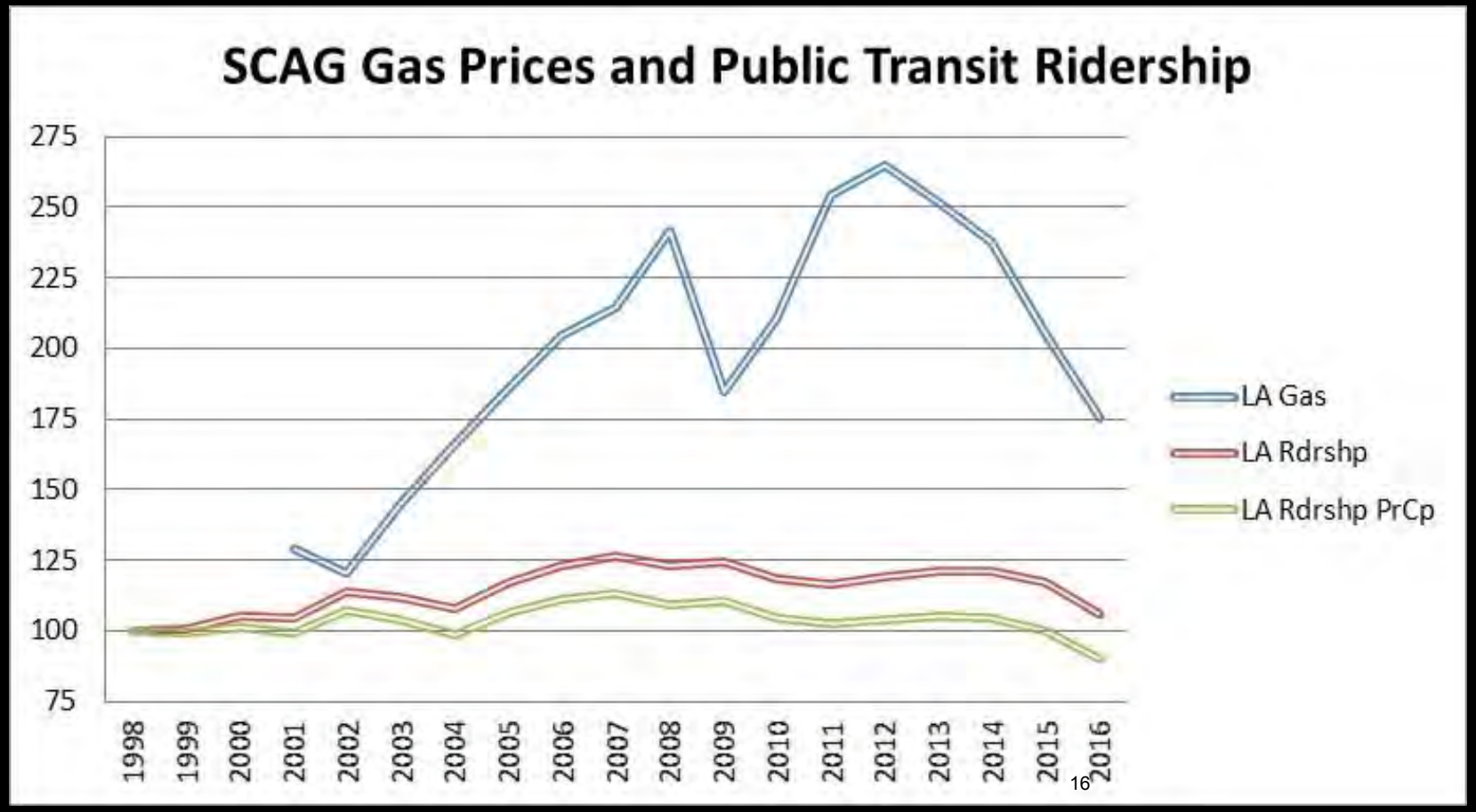
The Challenge of Tracking Lost Ridership

- Most people in most places never ride transit
- Even among subgroup where people are *more likely* to ride transit (low-income, foreign-born, no vehicles) most people still are not transit riders
- There is no annual source of data that tracks transit riders within the population over time (Census only tracks commutes)
- Small changes to a small and hard-to-observe group can yield substantial changes in transit ridership

Our Approach

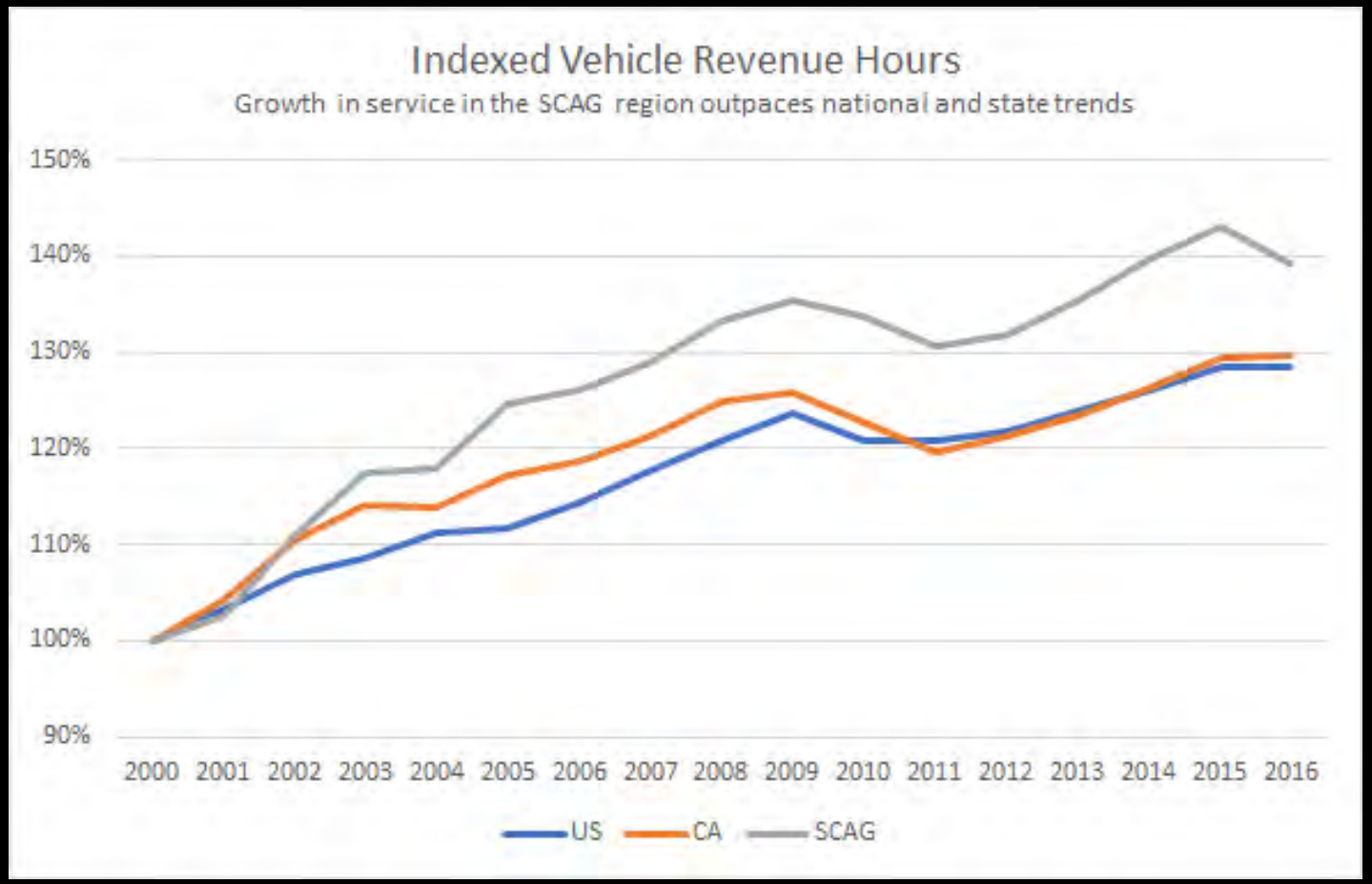
- Use a variety of different data sources to estimate the likely role of different factors in transit's recent decline
  - Census data
  - Data from the 2012 California Household Travel Survey
  - Annual ridership and transit service data from the National Transit Database
  - Gas price data from the Energy Information Administration
  - Rider surveys from some of SCAG region's larger operators

Is it Gas Prices?



- Probably played some role
- But: many transit riders in SCAG region don't own automobiles
- Gas prices are not going to be a big factor for them
- Also – per capita ridership started falling while gas prices were rising

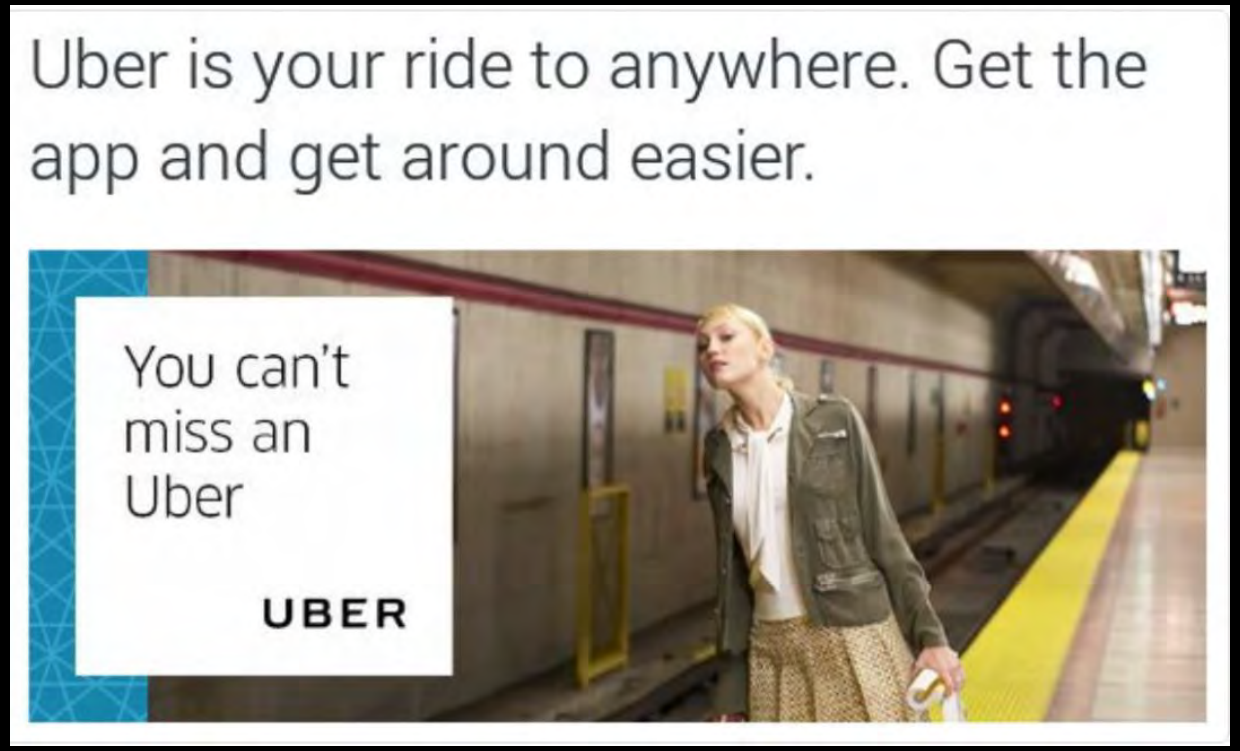
Are Big Operators Cutting Service?



- In the *aggregate*, service levels are rising, not falling
- Service fell during the recession (after ridership fell), but has grown since
- Still possible that service has fallen on some *lines*

Is it Uber and Lyft?

- We know almost nothing about TNC travel patterns – who rides, when they ride, what they would have done in the absence of the TNCs
- Limited survey data suggests that TNCs mostly replace cab trips
  - Disproportionate trips to and from bars and restaurants
  - To and from airports



Is Vehicle Ownership Growing?

- Yes – and it is particularly growing among the foreign born

Some Context:

- Lack of vehicles is strongly associated with transit use
- Almost 70 percent of LA Metro riders report not having a vehicle for their trip
- In 2015, zero vehicle households in SCAG region are ten times as likely to have a transit commuter as households with vehicles
- 26 percent of transit commuters in SCAG region have no HH vehicles (2 percent of other commuters)
- 70 percent of transit commuters have a HH vehicle deficit (fewer vehicles than adults)
- Low levels of vehicle ownership and transit ridership heavily concentrated among the foreign born, and especially foreign born from Mexico

More Vehicle Availability, Especially Among Immigrants

Vehicle Ownership Trends, SCAG Region						
	All SCAG Households		Foreign Born SCAG HHs		Mexican FB HHs	
	Share HHs w/ No Vehicles	Share HHs w/ Vehicle Deficit	Share HHs w/ No Vehicles	Share HHs w/ Vehicle Deficit	Share HHs w/No Vehicles	Share HHs w/ Vehicle Deficit
2000	9.1	40.7	12.4	57.3	15.7	67
2010	5.4	34.6	7	47.8	7	55
2015	4.9	34	6	44.3	5.4	48
Percent Change	*-0.46*	*-0.16*	*-0.52*	*-0.23*	*-0.66*	*-0.28*

Immigrants are a Falling Share of Transit Commuters

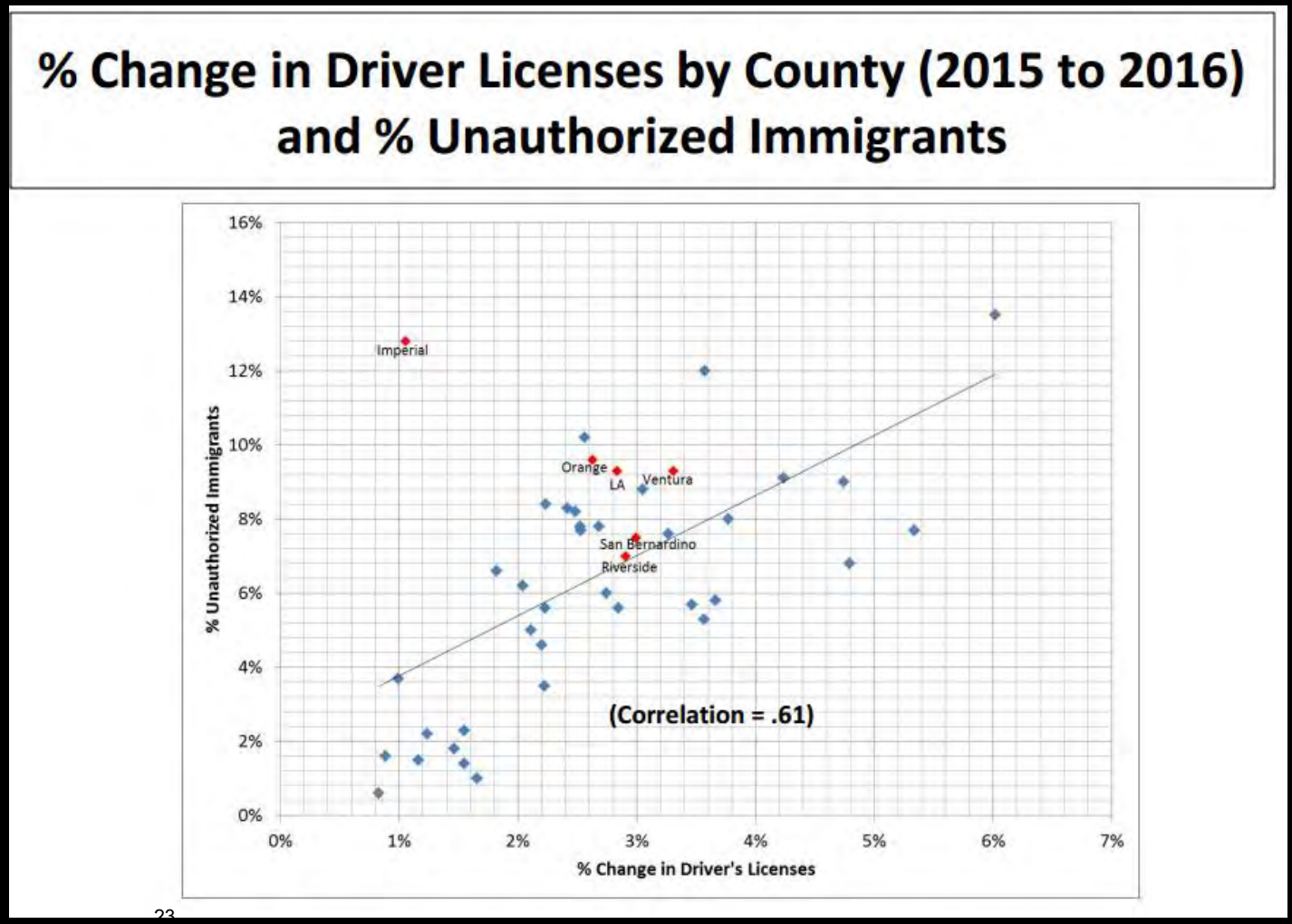
- 2015, 52 percent of transit riders are foreign born
- In 2000, 66 percent had been foreign born
- Most households without vehicles don’t use transit regularly, but many transit using households don’t have vehicles, or have fewer vehicles than adults
- Since 2000, immigrants have become more likely to have vehicles, and less likely to ride transit
- Both a cohort and an assimilation effect
  - Immigrants who arrived in 1990s and 2000s becoming less likely to use transit
  - Recent immigrants are less likely than earlier new arrivals to be on transit

Evidence from Large Operator Surveys

- Metro former rider survey, 2016: 80 percent of former riders now drive alone
- Most common primary reason (36 percent) for bus riders to keep riding was no car
- OCTA former rider survey: 70 percent of former riders report leaving because they got a car

Does Licensure Play a Role?

- AB 60: effective January 2, 2015
- 600,000 licenses issued since then, many in SCAG region
- *But* – we don't know if this represents increased driving or reduced transit
- And transit decline began before 2015



Next Steps

- Examine role of gentrification/suburbanization
- How big of an issue is safety?

- Looking ahead: is transit's core market simply shrinking?

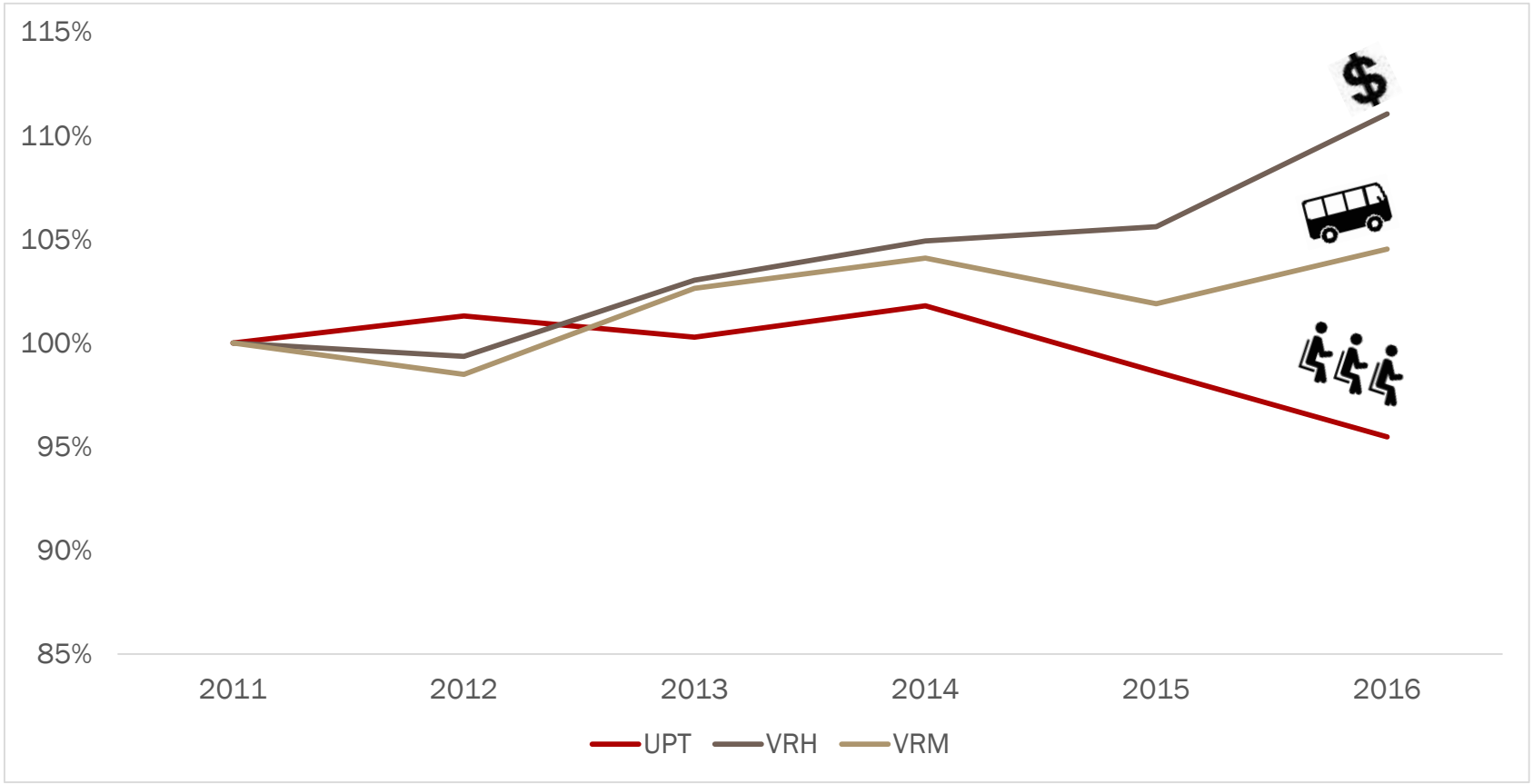
AC TRANSIT FLEX: DEMAND RESPONSE FOR THE 21ST CENTURY

JOHN URGO
TRANSPORTATION PLANNER
AC TRANSIT | OAKLAND, CA


DESTINATION
UNKNOWN
KEEP GOING UNTIL
YOU GET TO THE
END. THEN STOP.

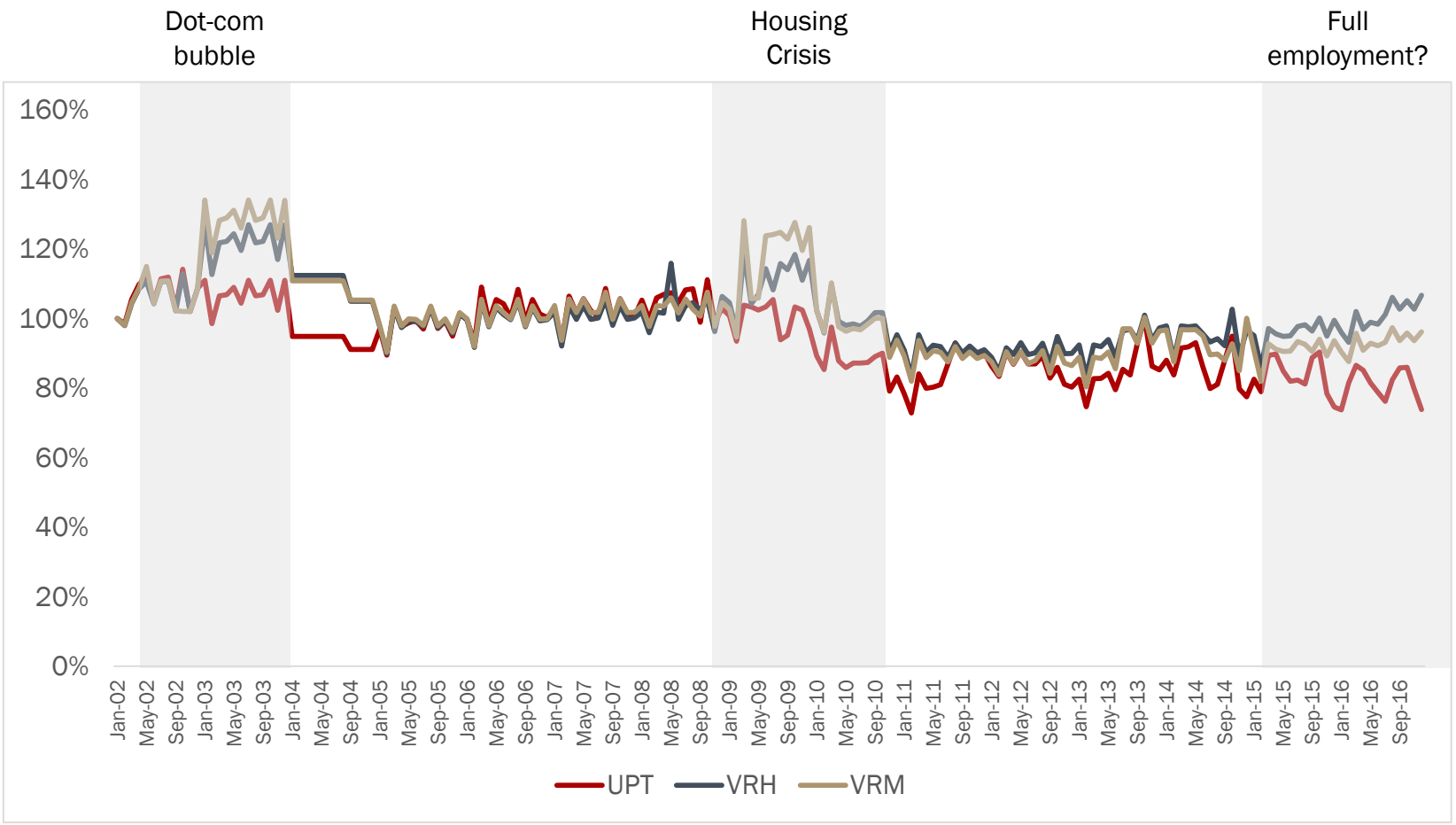
TRENDING DOWNWARD…

Ridership down 6%; Revenue hours up 12%



AC TRANSIT SERVICE SUPPLY AND CONSUMPTION (2011-PRESENT)

…INTO UNCHARTED TERRITORY



AC TRANSIT SERVICE SUPPLY AND CONSUMPTION (2002-PRESENT)

WE HAVE MET THE ENEMY…

Breaking News > Editor's Picks > The City > Featured The City > The City > San Francisco News > Transit

Uber and Lyft use at SFO increases six-fold in two years, BART loses ridership

San Francisco Inte

By Joe Fitzgerald R

And that culprit

Latest Headlines

BART's Oakland Airport Connector losing money; Uber, Lyft to blame?

4

Pier 70

Lyft pay $2M

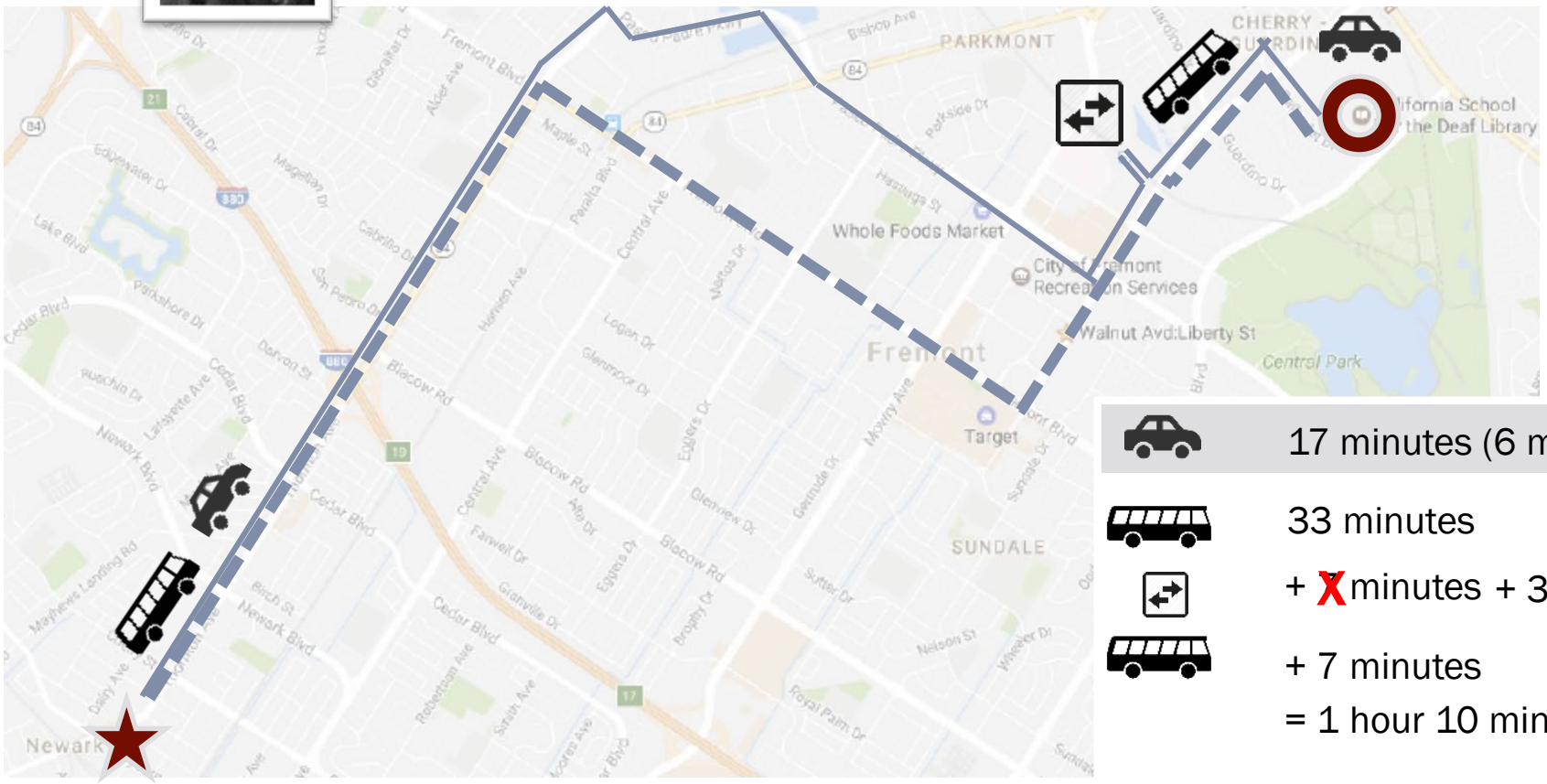
BART ridership slumps; board mulls service cuts, fare increases

Oakland: AC Transit decides to hold community meeting after crowd pleads to save school bus routes

Steve Edelstein
Oakland Interr

AND IT IS US…

Director Davis rides the bus…



17 minutes (6 miles)

33 minutes

+ X minutes + 30 minutes

+ 7 minutes

= 1 hour 10 minutes

CAN WE DO BETTER HERE…

WHILE ADDRESSING THIS…

AND STILL SERVE THOSE IN NEED?

WHY AC TRANSIT FLEX?

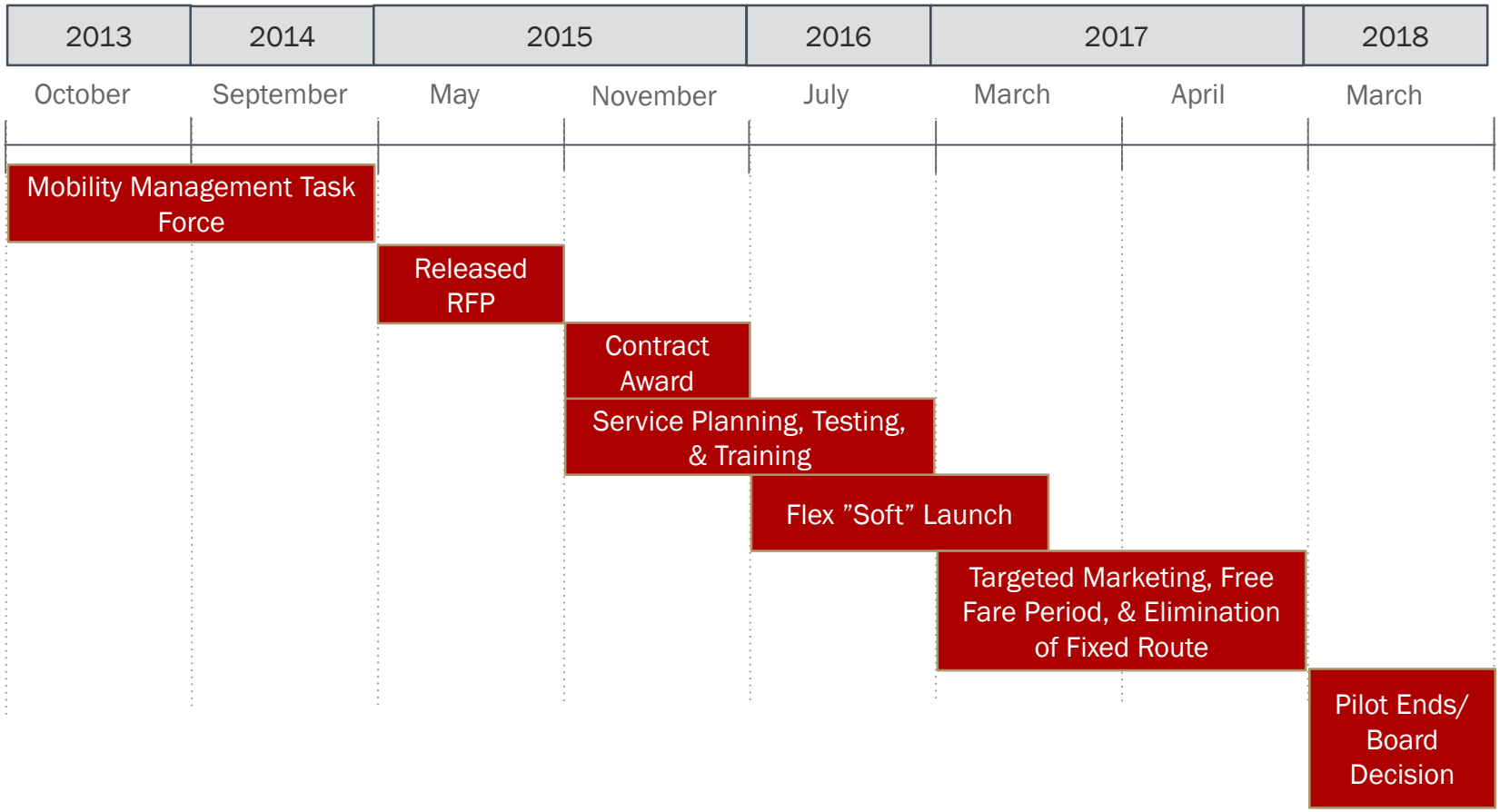
Improve service in **low density** and **low demand** areas

Respond to changing **customer expectations**

Enhance **access** and **equity**

WHY AC TRANSIT FLEX?

Project Timeline



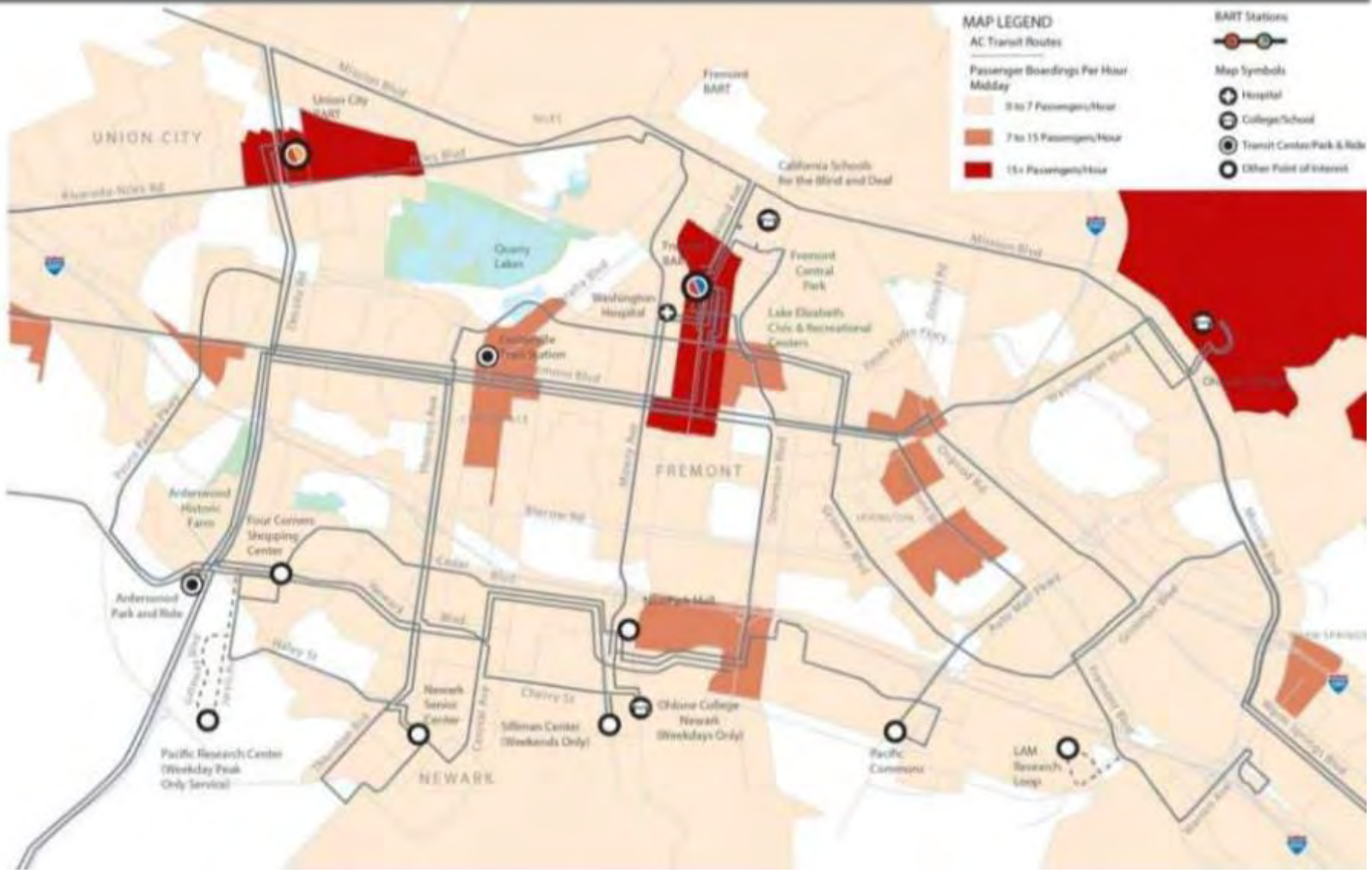
IMPROVING SERVICE IN LOW DENSITY AREAS

Residential and Employment Density | Fremont and Newark, CA

IMPROVING SERVICE IN LOW DEMAND AREAS

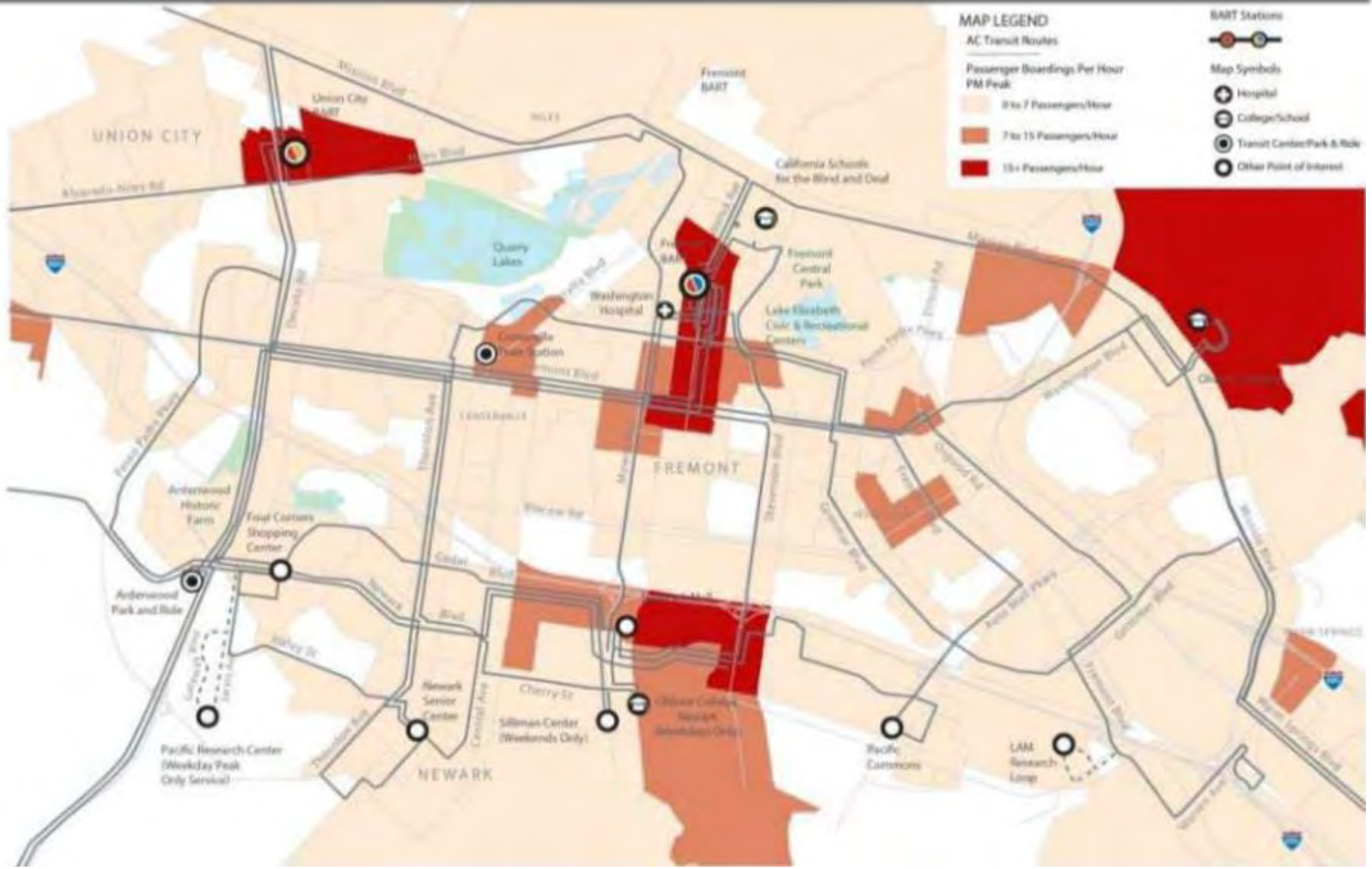
Passengers per Revenue Hour | Fremont and Newark, CA[37]

IMPROVING SERVICE IN LOW DEMAND AREAS



Passengers per Revenue Hour | Fremont and Newark, CA[38]

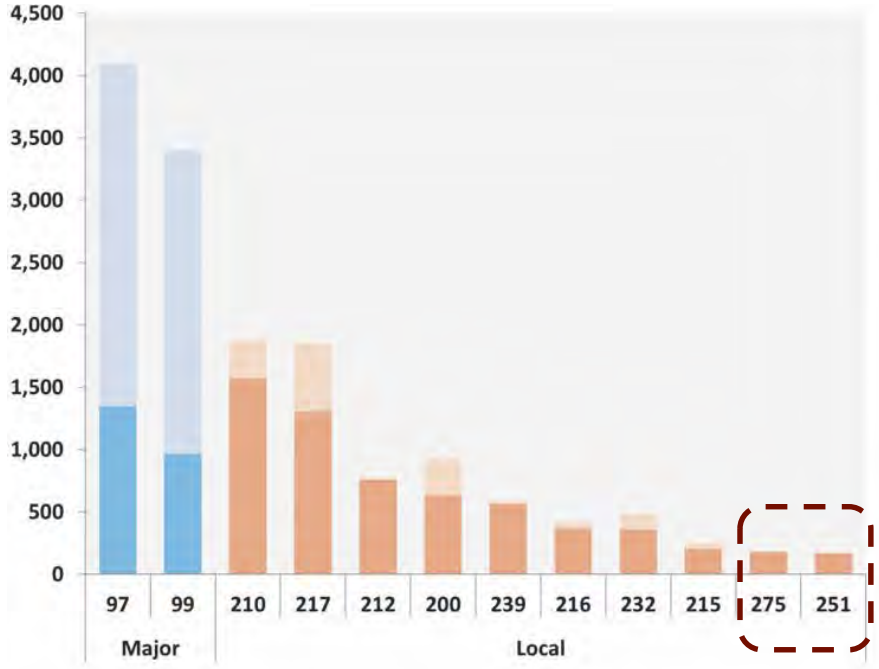
IMPROVING SERVICE IN LOW DEMAND AREAS



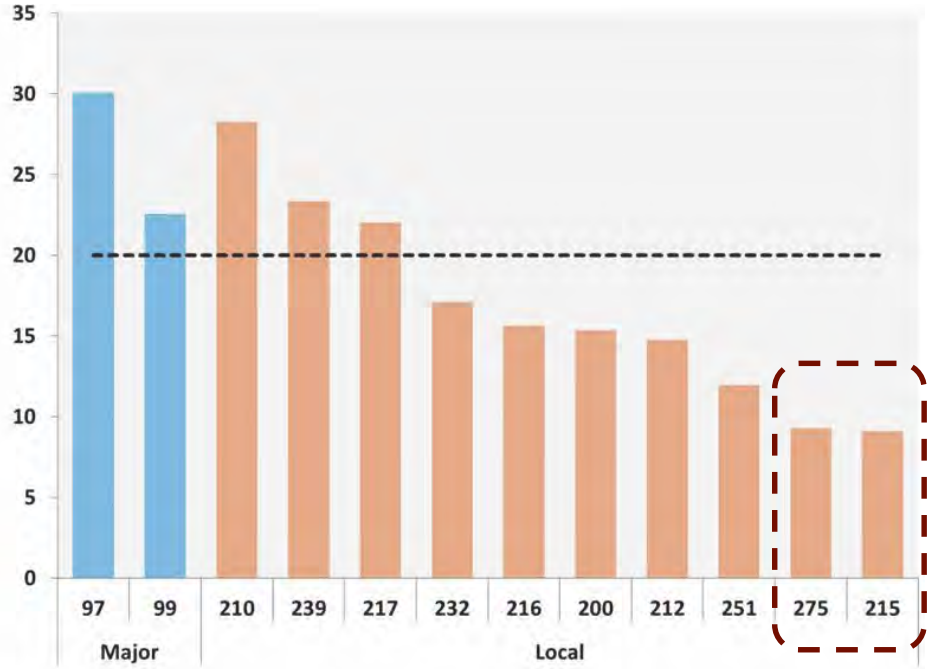
Passengers per Revenue Hour | Fremont and Newark, CA

TARGETING POORLY PERFORMING ROUTES

Average Daily Passengers, Weekday



Average Passengers/Revenue Hour, Weekday



TAKING A NETWORK APPROACH

TASK FORCE CHARRETTE

PREFERRED NETWORK

TAKING A NETWORK APPROACH

AC Transit Service Network - Current | Fremont and Newark, CA

TAKING A NETWORK APPROACH

AC Transit Service Network - Proposed | Fremont and Newark, CA

WHAT IS AC TRANSIT FLEX?

1 **BOOK YOUR TRIP AS LITTLE AS 30 MINUTES IN ADVANCE**

CONFIRM YOUR 10-MINUTE PICKUP WINDOW

2 **WE'LL SEND YOU A PICKUP ETA WHEN YOUR BUS IS ON THE WAY**

THE BUS WON'T LEAVE BEFORE THIS TIME

3 **WALK TO BUS STOP**

4 **TRACK YOUR BUS WHILE WAITING AT INTERSECTION**

BOARD BUS AND PAY WITH CASH, CLIPPER, OR PASS

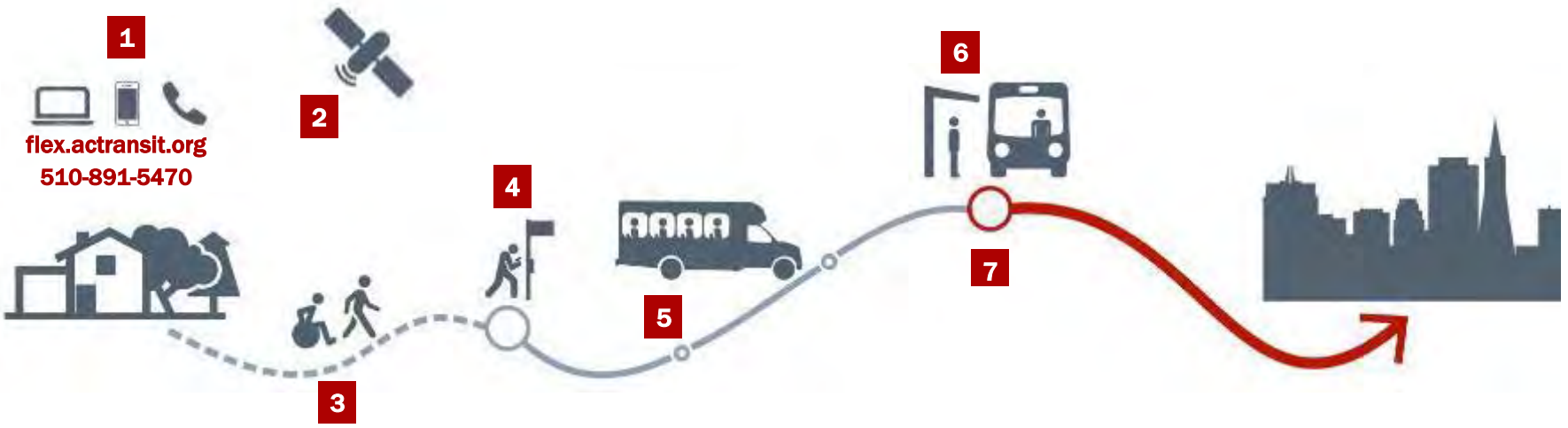
5 **SHARE YOUR RIDE AS OTHER PASSENGERS GET PICKED UP AND DROPPED OFF**

6 **ARRIVE AT DROP-OFF POINT AND WALK TO DESTINATION**

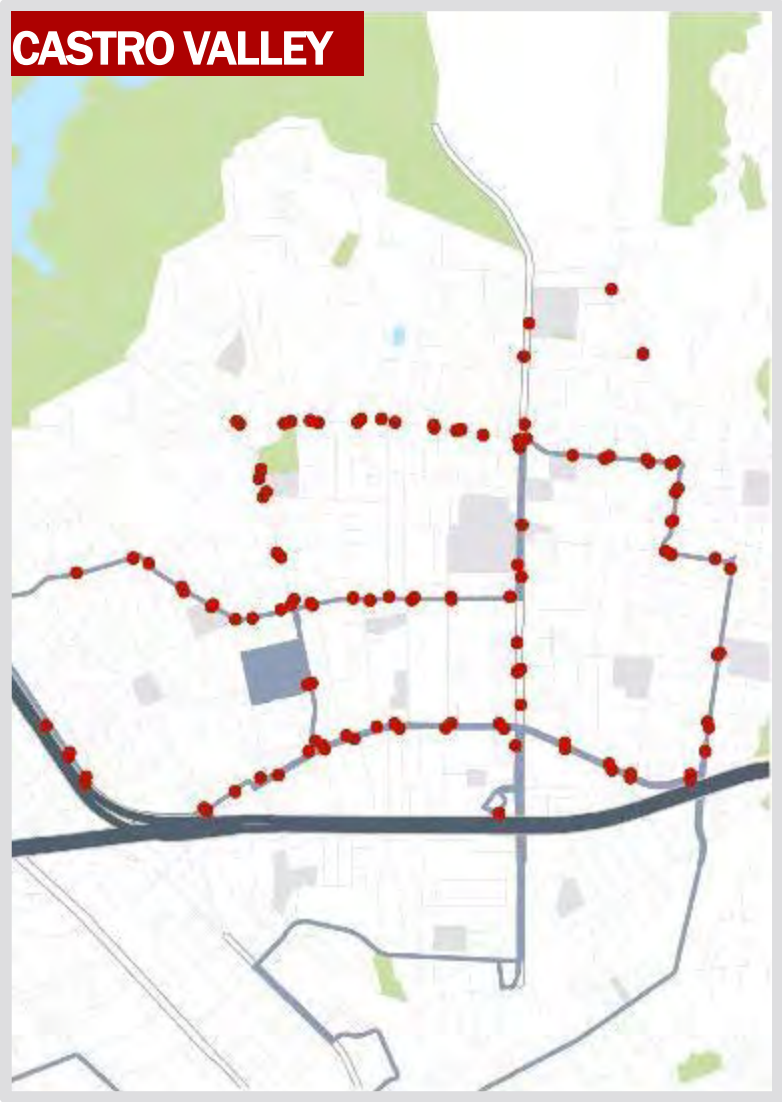
TRANSFER AT BART FOR DESTINATIONS IN THE EAST BAY AND SAN FRANCISCO

7 **ON YOUR RETURN, BOARD FLEX AT BART EVERY 30 MINUTES WITHOUT RESERVATION**

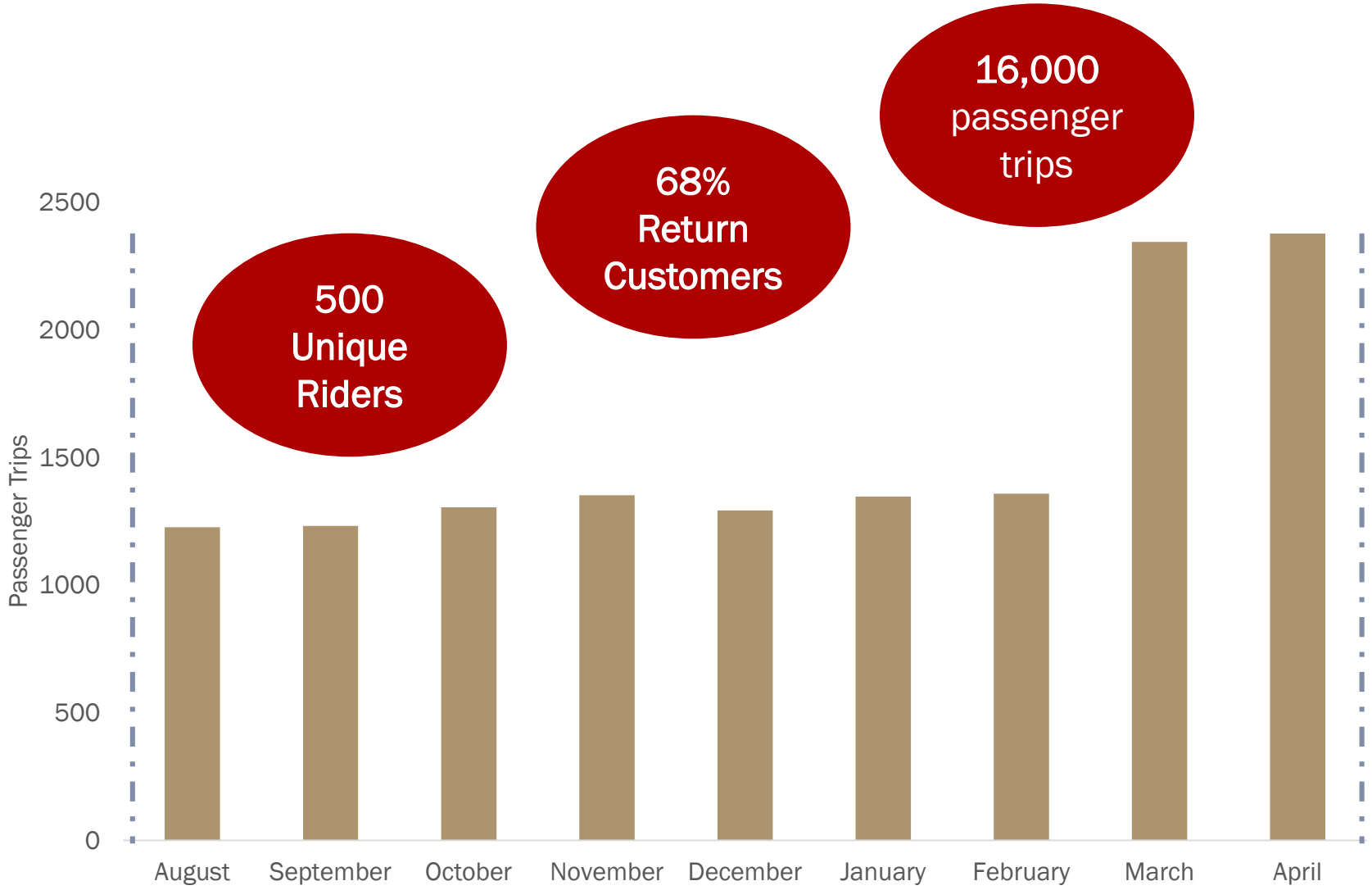
RESERVATIONS CAN ALSO BE MADE IN ADVANCE, OR ON A SUBSCRIPTION BASIS



What is AC Transit Flex?

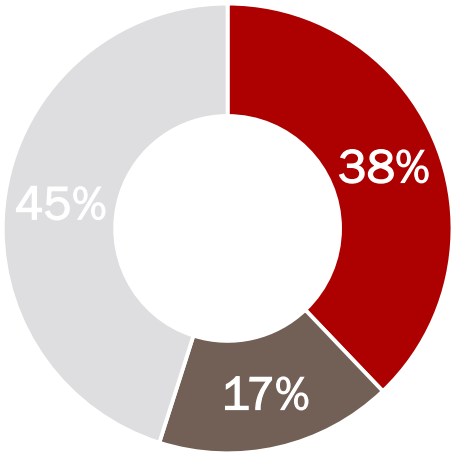


EXPERIENCE TO DATE: RIDERSHIP IS GROWING…



EXPERIENCE TO DATE: RIDERS ARE FIGURING IT OUT…

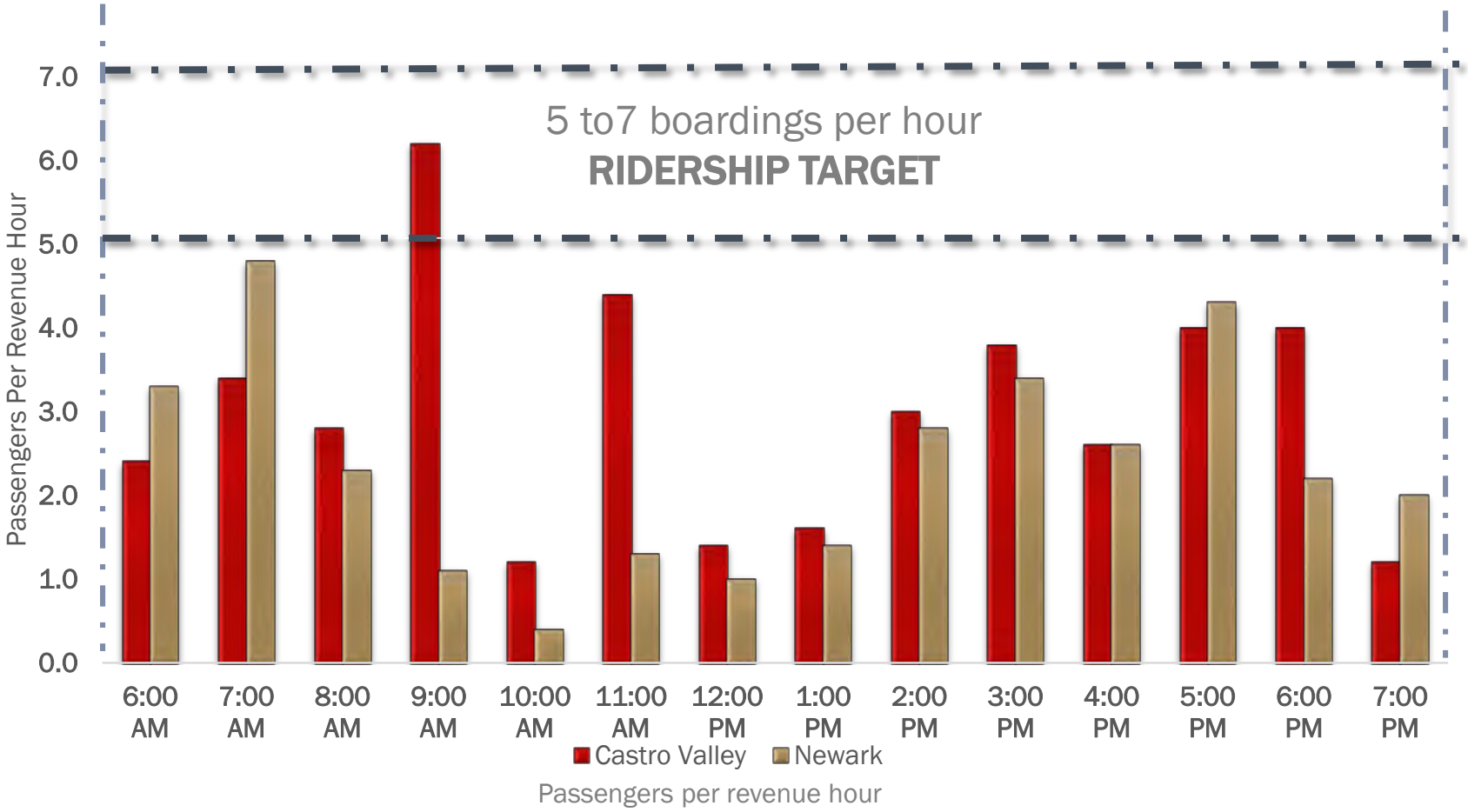
Online Booking



Walk On

Call Agent Booking

BUT PRODUCTIVITY IS STILL LOWER THAN HOPED…



THERE IS ROOM TO GROW.

- **40%** of passengers riding *from* BART are not taking the service *to* BART

Costs and Funding

$5.91/ = revenue hour

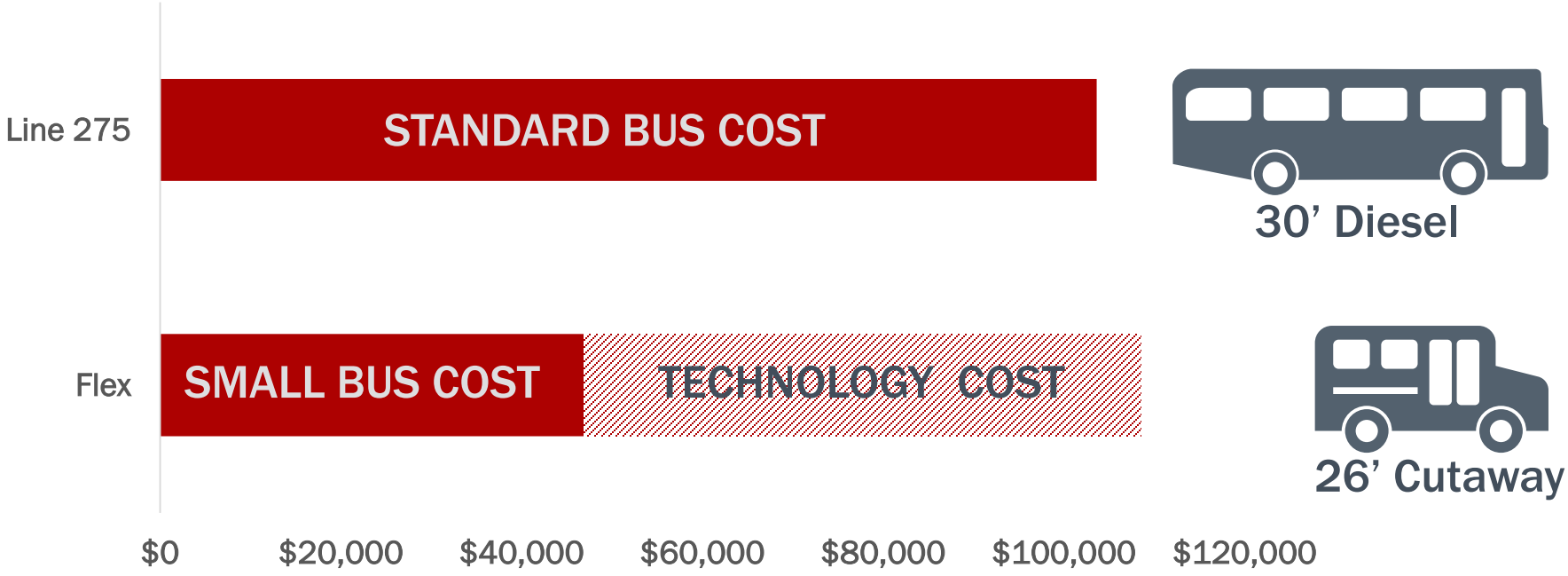
General operating funds/ Cost neutral

2 Buses

FLEX

COSTS AND FUNDING

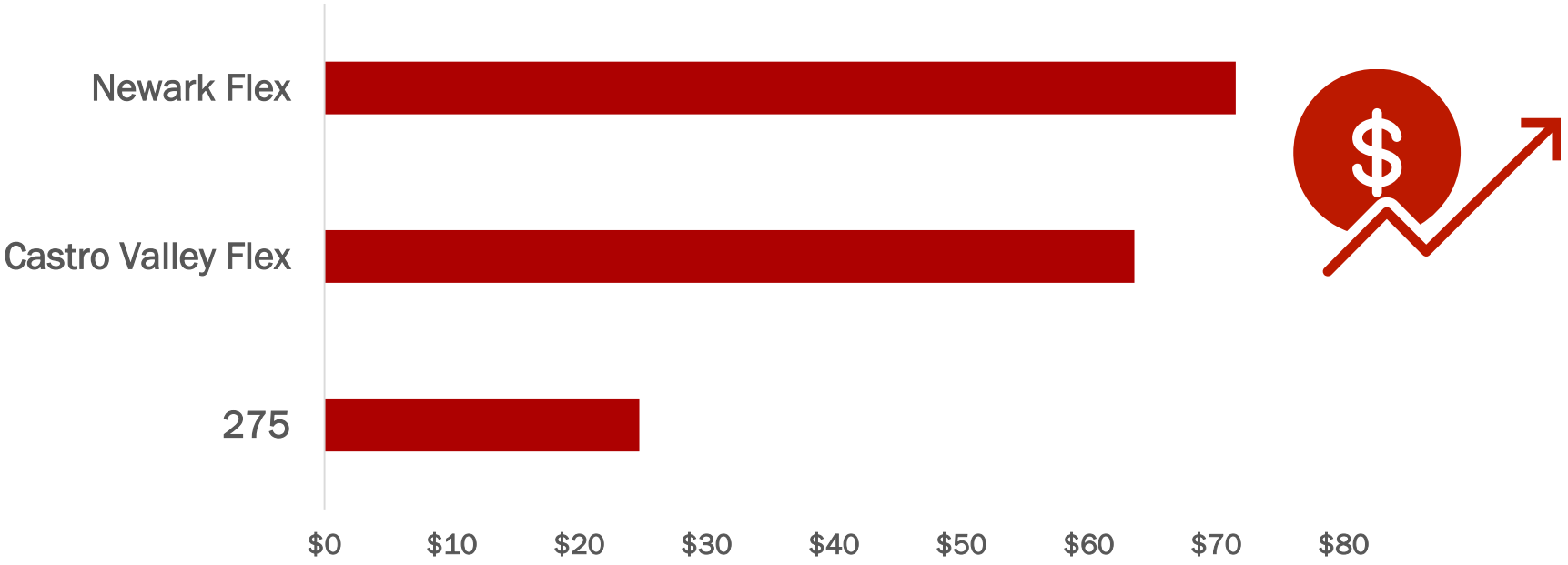
MAINTENANCE AND OPERATING COST NEUTRAL:



ANNUAL VEHICLE MAINTENANCE + TECHNOLOGY COST

COSTS AND FUNDING

OPERATING EXPENSE PER PASSENGER TRIP



Federal Requirements and Equity

Americans with Disabilities Act

Wheelchair Accessible vehicles

Trained Operators

Title VI/ Service Equity

Service Equity Analysis

Unbanked and digital divide

Limited English Proficiency

Spanish and Chinese Translation

TransLink Language Services

MARKETING AND OUTREACH

Billboards on bus shelters, exteriors, and BART stations

At-stop signage and inserts

Bi-lingual street teams

Direct mail; digital and social media

Overcoming Institutional Barriers

Why would we do something differently than we've always done it?

Overcoming Institutional Barriers

Mobility Management Task Force

Design charrettes with representatives from:

- Fremont and Newark Planning Staff
- Alameda County Senior Services and Travel Trainers
- ATU Local 192
- AC Transit Board Reps
- Elected Officials

Memorandum of Understanding with ATU

- Operators chosen based on seniority outside of regular bid process

Operate!

- Soft launch with side by side fixed and flex service

LESSONS LEARNED

Set **realistic** goals (low-density solution)

Configure On-Demand **and** Scheduled Trips

5-7 passengers/ revenue hour

Smaller buses **reduce** operating costs

5-7 square mile service zones

Technology leads to greater **efficiency** and **integration**

QUESTIONS?

Thank you!

- Visit www.actransit.org/flex/ for more information
- Call **(510) 891-5470** for customer service assistance

(510) 891-5470 / Free language assistance / Asistencia gratuita en el idioma / 免費語言協助 / Libreng tulong para sa wika / Hỗ trợ giúp thông dịch miễn phí 무료 언어 지원 / मुफ्त भाषा सहायता / زبان سے متعلق مفت اعانت / 無料の言語支援 / مساعدة لغوية مجانية / Assistência linguagem livre / បកប្រែភាសាមិនគិតថ្លៃ Бесплатная помощь переводчиков / ภาษาช่วยเหลือฟรี / મફત ભાષા કીય સહાયતા / Assistance linguistique gratuite

RIVERSIDE TRANSIT AGENCY
1825 Third Street
Riverside, CA 92507

March 23, 2017

TO: BOARD OF DIRECTORS

THRU: Larry Rubio, Chief Executive Officer

FROM: Rohan Kuruppu, Director of Planning

SUBJECT: First and Last Mile Strategic Plan Executive Summary and Final Report

Summary: California Department of Transportation (Caltrans), Division of Transportation Planning, administers statewide transportation planning grant programs utilizing State and Federal Section 5304 funds. Under the *Transit Planning for Sustainable Communities* section of Statewide Planning Program, Riverside Transit Agency received funds to study access to transit and develop a plan to improve connectivity to transit services. The deliverable of the study is a "First and Last Mile Strategic Plan," providing alternatives and mobility options for the first and last mile experience at a range of transit stops throughout the RTA service area.

A typical transit trip starts with the rider making a journey from home to a transit facility and ends with the rider making their way from a transit facility to their final destination. These two segments of the trip are referred to as the first and last mile segments. Finding the best alternative for the first and last mile segments of a trip is a dilemma faced by many commuters. By studying motorized and non-motorized travel alternatives, not only would the transit network be enhanced, but more commuters would be encouraged to use public transit as a mode of travel. Assembly Bill 32 and Senate Bill 375 set regional goals for reducing greenhouse gas emissions and require the development of "Sustainable Communities Strategies" to best integrate land use, housing, and transportation activities. The recommended strategies outlined in the study may vary by sub-region and community; however this effort will ultimately help satisfy the State goals and objectives by allowing for increased transportation usage.

The Western Riverside Council of Governments (WRCOG) Planning and Public Works Directors Committees have acted as steering committees for the project to allow the consultants to gain input from RTA member cities and the County. The project was also conducted in partnership with Southern California Association of Governments SCAG and Caltrans, with these

agencies managing the federal funds allocated to the project.

The initial efforts of the project focused on three tasks:

- Outreach: Collecting input from RTA customers and the community about their experiences accessing our transit services.
- Toolbox: Documenting tools/best practices commonly used to improve the first mile last mile experience.
- Station Typology: Developing a classification of the RTA network of over 2,500 bus stops and transit centers across the RTA service area.

For the first key task of outreach, a short survey was developed to collect data on people's first mile last mile experience. The survey was made available to the public online through RTA's website as well as distributed through RTA Transportation Now groups, our member cities and the county, RCTC, and WRCOG. Staff and consultants also visited RTA transit centers and various community events to gather input. 64 percent of the 928 people surveyed identified having one or more issues with accessing transit. The most common issues the survey identified were with the physical environment of the first mile and last mile segments:

- Missing Sidewalks (55% of those surveyed)
- Auto Traffic (47%)
- Personal Safety (38%)
- Long distances/Poor Connectivity to Transit Stops (37%)
- Difficulties Crossing Intersections or Streets (33%)

For the second key task, the consultants also compiled a set of tools/best practices commonly used to address such problems. Some of the ideas are new sidewalks, crossing facilities, lighting, etc. to improve the pedestrian experience, new bike lanes and bike parking to enhance bike access, and improved parking at larger transit stops.

The third key task was the classification of transit stops into a typology of six common types of RTA transit stops environments based on a range of characteristics as shown in the table on the next page:

Urban Core (14 stops/stop pairs)	• Highest number of activity centers. • Highest population & employment densities. • Low auto-centric development patterns. • Existing walking facilities. • Grid street network.

Core (201 stops/stop pairs)	• Located just outside of urban core. • Moderate densities. • More auto-centric development connected by high speed arterials / highways.
Suburban (882 stops/stop pairs)	• Moderate to low density single family residential development. • Non-linear street patterns. • Disjointed pedestrian facilities.
Rural (87 stops/stop pairs)	• Remote or underdeveloped area outside of the city or town. • Minimal or non-existent pedestrian facilities. • Low density development patterns.
Commercial (229 stops/stop pairs)	• Commercial development distributed along a major corridor or concentrated within an area. • Includes employment, shopping and community services. • Destinations surrounded by high quantities of parking.
Industrial and Business Parks (158 stops/stop pairs)	• Facilities typically utilize large areas of land which limits the diversity of land uses.

Each of these six categories varied in terms of factors present within the 0.5 mile/10-minute walk and 3 mile/15-minute bicycle ride around transit stops.

The project team reviewed six transit stops, one for each of the six station typology categories representative of transit stops throughout the RTA network. The First and Last Mile Strategic Plans developed for each of these six locations match tools/best practices to existing conditions to improve the first and last mile experience for people accessing transit. These six transit stops will act as pilot locations and provide templates for improvements to other transit stops in each of these categories. The pilot locations were as follows:

- Urban Core: University & Lemon, Downtown Riverside
- Core: Perris Station Transit Center, Downtown Perris
- Suburban: Winchester and Nicolas Roads, Temecula
- Rural: Winchester and Simpson Roads, Winchester
- Commercial: Limonite and Pat's Ranch Roads, Jurupa Valley
- Industrial and Business Parks: Perris Boulevard & Rivard Road Moreno Valley

The recommendations from these plans are contained in the attached Final Report Executive Summary. They were shared with the project steering committee in October 2016 and at a public event in December 2016, as well as reviewed by each of the cities where the pilot studies were located and the County of Riverside for the Winchester location.

The first and last mile recommendations for each pilot study location varied due to differences in surroundings and existing amenities. The most common improvements that encompassed all six pilot studies are:

- Add sidewalks (complete pedestrian networks)
- Add new and/or improve existing crosswalks (provide safe high visibility crossings)
- Provide new and improved bike lanes (complete bike networks)

The First Mile Last Mile Strategic Plan provides templates for first and last mile plans for other locations throughout the RTA service area. These plans are strategic in nature, not capital projects with associated capital funding requests. These templates contain the strategies or "tools" necessary to enhance the first and last mile experience for those accessing the RTA transit system. This will help the system retain and grow ridership.

The project's final report will be shared with all member cities and the County, and the full document is now available on the Agency's website at www.RiversideTransit.com/firstlastmile. This plan will help staff to consider, in partnership with RTA, first mile last mile strategies as part of all new developments and improvement opportunities. Future capital projects will be developed in partnership with cities using these templates as guidance. As opportunities for new or improved development occur throughout the RTA service area, RTA looks forward to working with its membership jurisdictions to implement first and last mile improvements.

Fiscal Impact:

There is no fiscal impact. The Agency was awarded $171,600 in Federal Section 5304 funds under the Caltrans Transportation Planning Grant program, with a local cash match amount of $23,400 in Local Transportation Funds (LTF), which have covered the cost of the project. The recommendations are in the form of strategic pilot location plans, and are not capital projects requiring funding at this time.

Committee Recommendation:

This item was discussed at the Board Administration and Operations Committee meeting of March 1, 2017. The committee members unanimously approved and recommended this item to the full Board of Directors for their consideration.

Recommendation:

- Receive and file the First and Last Mile Strategic Plan Executive Summary and Final Report.

Riverside Transit Agency

First & Last Mile Mobility Plan

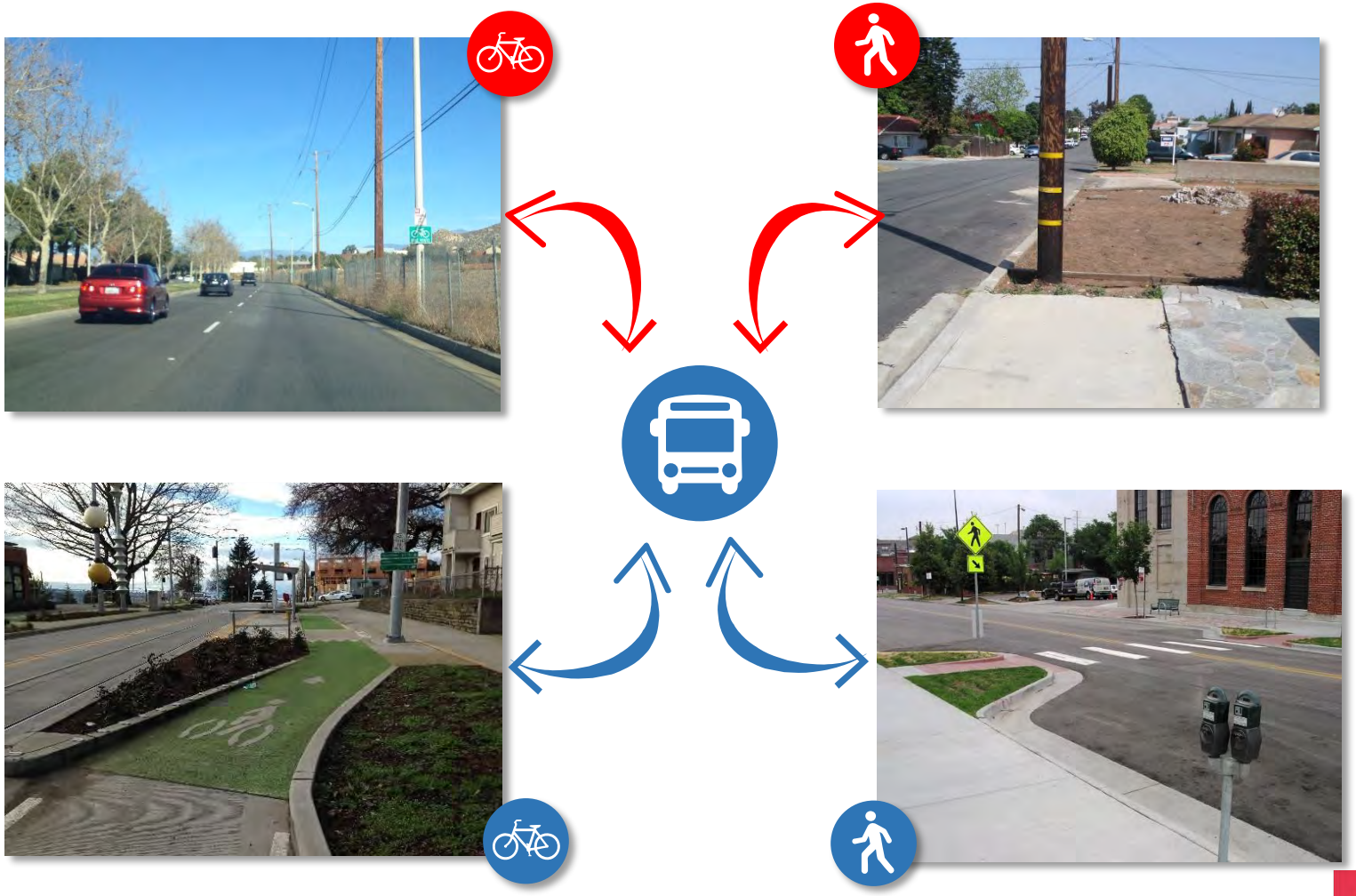
SCAG Regional Transit TAC Meeting May 31, 2017

Riverside Transit Agency

KTUA Planning + Landscape Architecture

What the RTA First Mile/Last Mile IS about.

Strategic Plan of First and Last Mile Project Concepts for Providing Safe and Efficient Access to Transit…



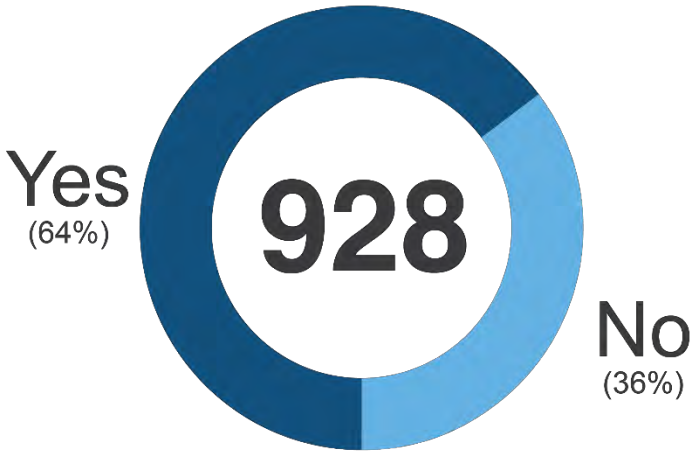
…Not a Set of Projects Seeking Capital Funding

RTA First and Last Mile Mobility Plan

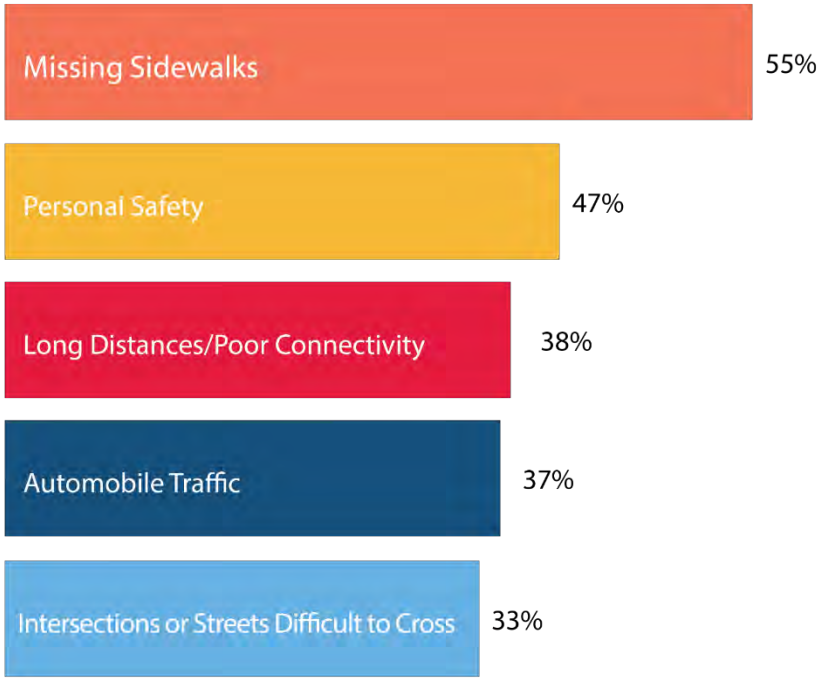
Strategic Plan: Process to assess and develop recommendations

Existing Conditions & Survey Outreach

Do you experience any problems walking, cycling or accessing transit?



Please note specific problems encountered at particular locations or along a particular routes.

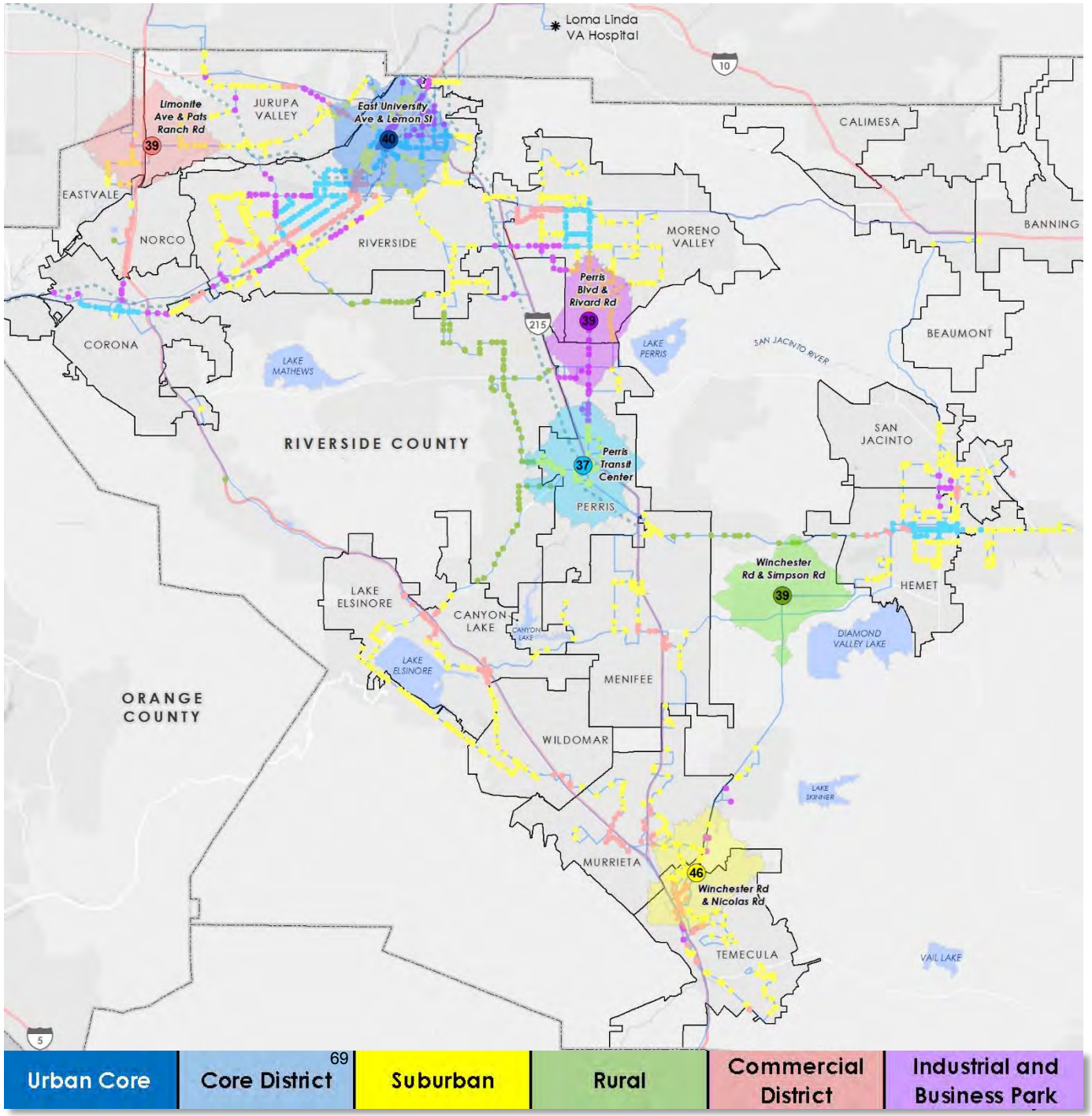


Riverside Transit Agency
First & Last Mile Mobility Plan

Station Typologies

	Urban Core	Core District	Suburban	Rural	Commercial District	Industrial and Business Park
Description	• Highest number of activity centers • Highest population & employment densities • Low auto-centric development patterns • Existing walking facilities • Grid street network	• Located just outside of urban core • Moderate densities • More auto-centric development connected by high speed arterials / highways	• Moderate to low density single family residential development • Non-linear street patterns • Disjointed pedestrian facilities	• Remote or underdeveloped area outside of the city or town • Minimal or non-existent pedestrian facilities • Low density development patterns	• Commercial development distributed along a major corridor or concentrated within an area • Includes employment, shopping and community services • Destinations surrounded by high quantities of parking	• Facilities typically utilize large areas of land which limits the diversity of land uses network
						
Typical Transit Service	Metrolink / Sub-regional, Community, CommuterLink	Metrolink / Sub-regional, Community, CommuterLink	Sub-regional, Community	Sub-regional, Community	Sub-regional, Community	Regional, Community
						

Study Areas



Pilot Stations

- Urban Core
- Core
- Suburban
- Rural
- Commercial
- Industrial and Business Parks

Pilot Station Transitshed

- Urban Core
- Core
- Suburban
- Rural
- Commercial
- Industrial
- Metrolink Line
- Regional Destination
- RTA Route
- City Boundary

RTA staff will work with Hemet and San Jacinto directly with these cities on their specific plan projects to include a First Mile Last Mile element.

Toolkit of Best Practices

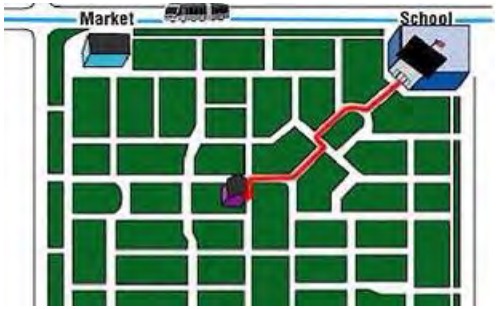
Complete Sidewalk Network

High Visibility Crosswalks

Increased Lighting

Enhanced Bike lanes

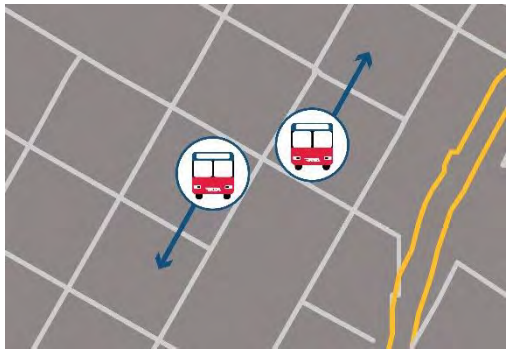
Regional Connectivity



Neighborhood Connectivity

Bicycle Parking

Shelter

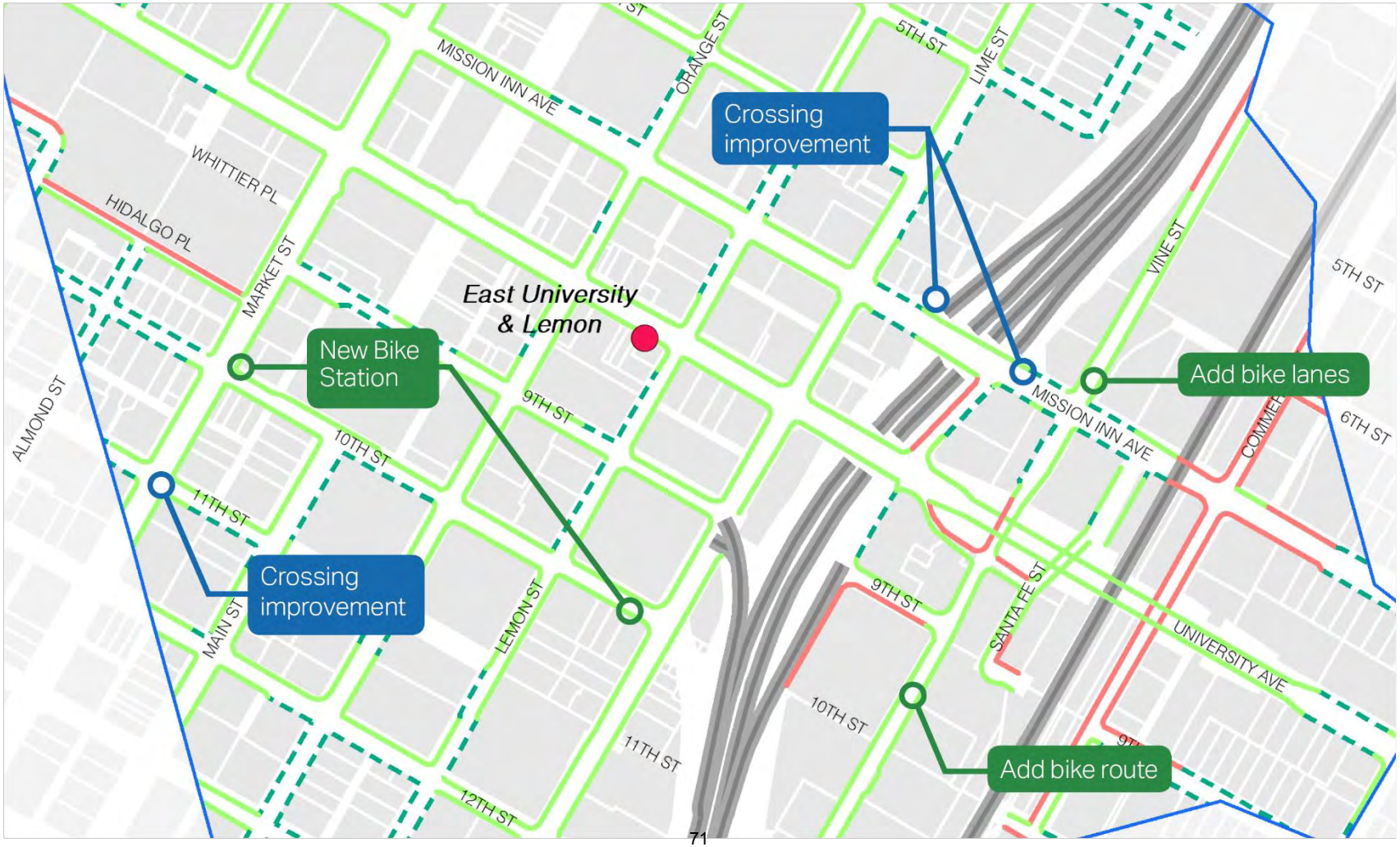


Matching Bus Stop

Pilot Study Recommendations

Urban Core

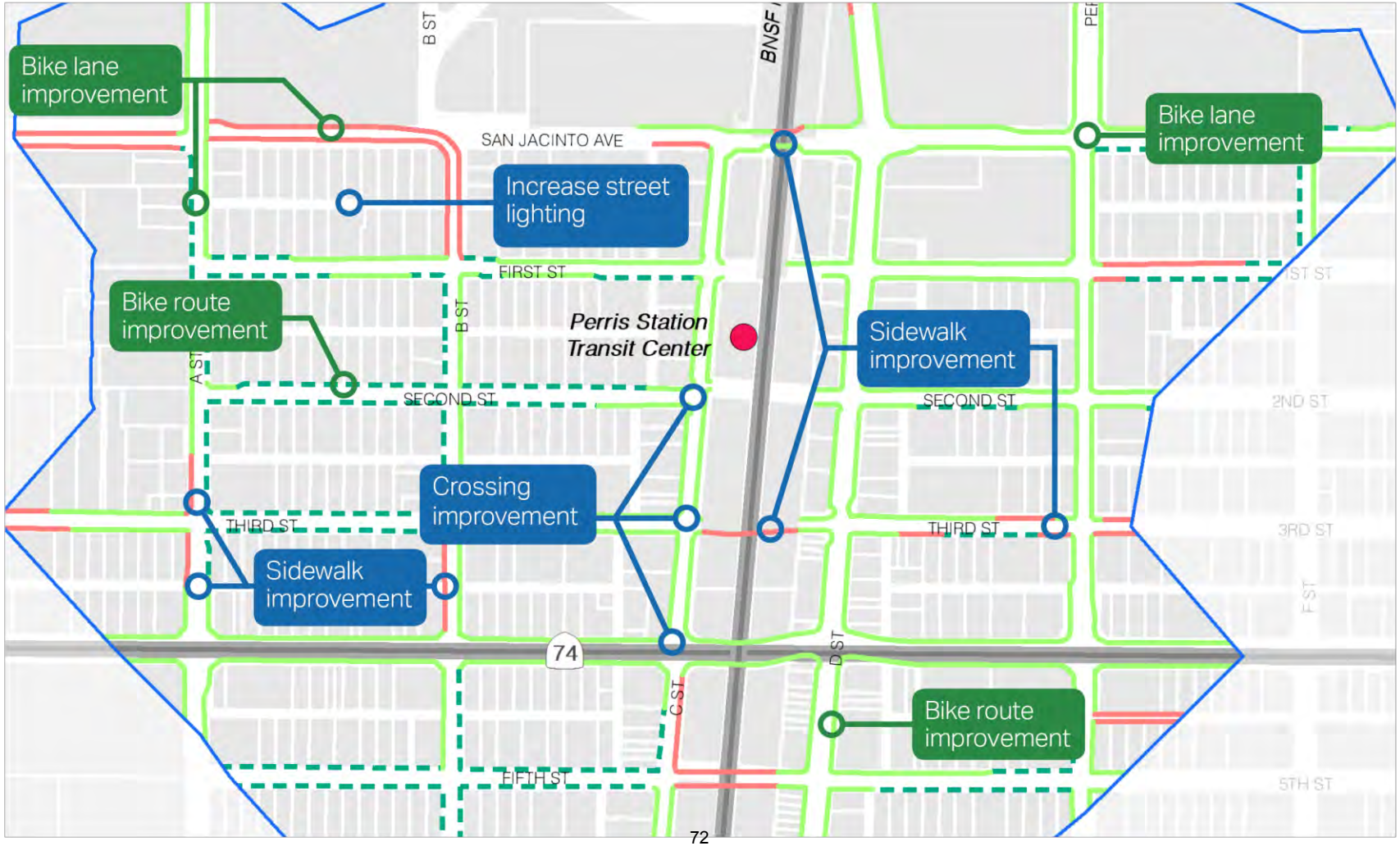
Station: East University Avenue and Lemon Street



Pilot Study Recommendations

Core

Station: Perris Transit Center



Pilot Study Recommendations

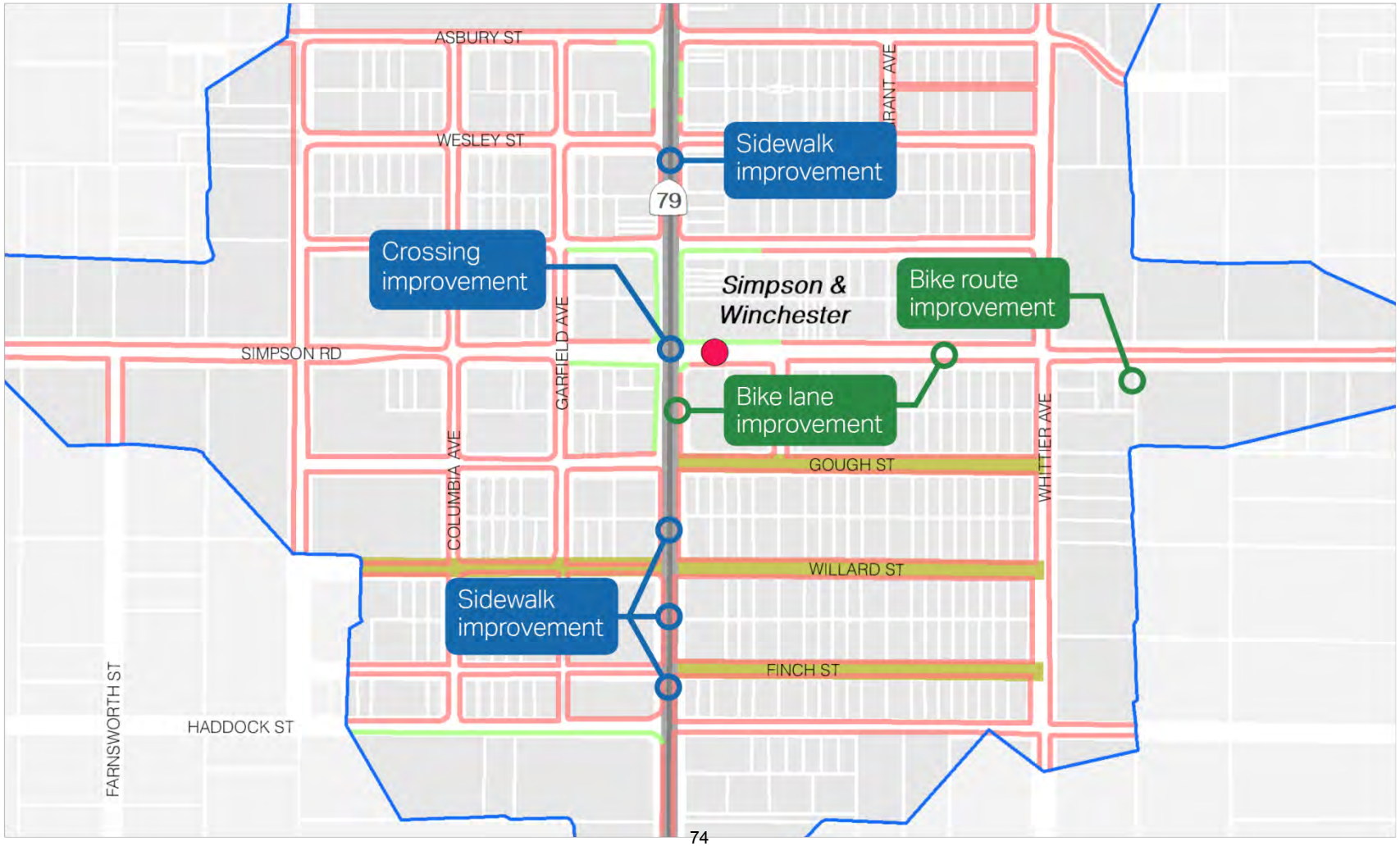
Suburban

Station: Winchester Road and Nicolas Road

Pilot Study Recommendations

Rural

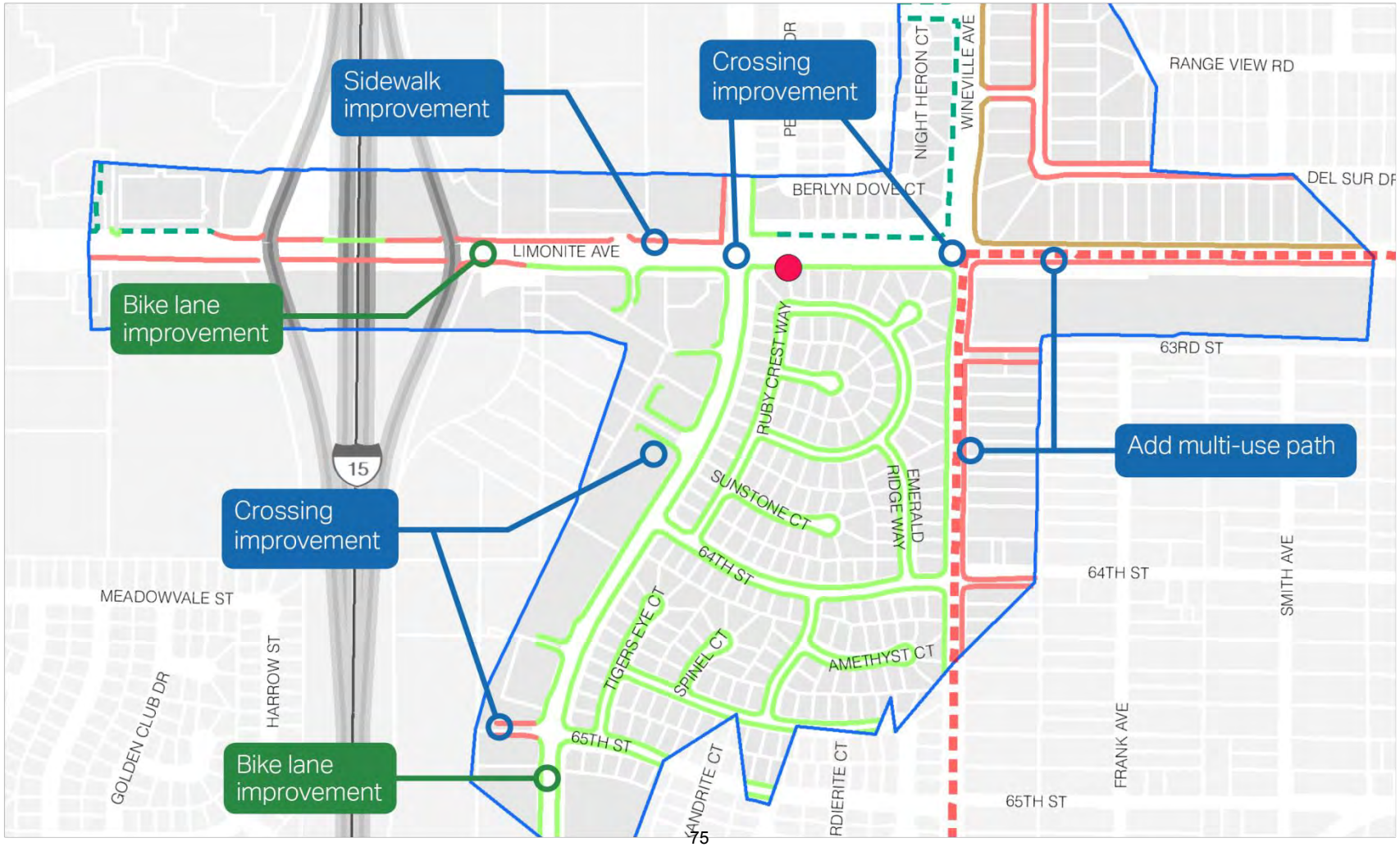
Station: Winchester Road and Simpson Road



Pilot Study Recommendations

Commercial

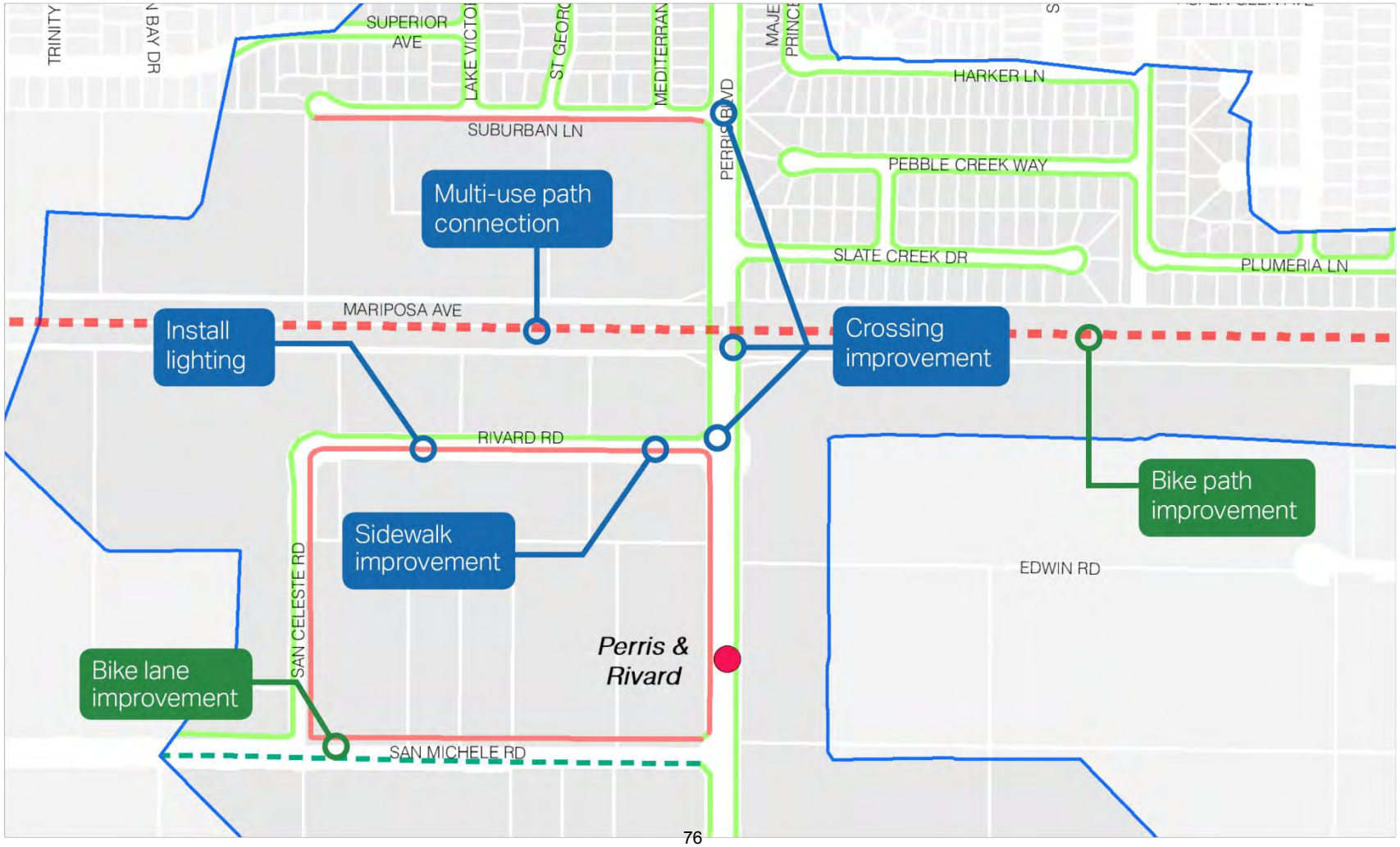
Station: Limonite Avenue and Pats Ranch Road



Pilot Study Recommendations

Industrial and Business Parks

Station: Perris Blvd and Rivard Road



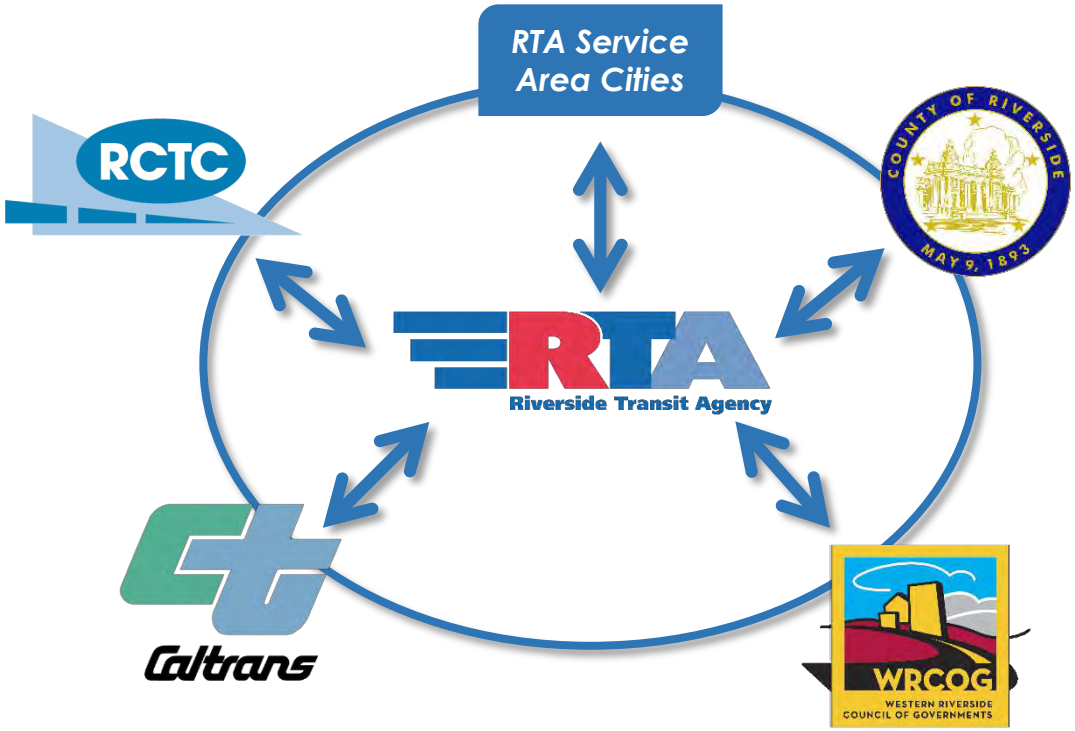
Partnerships

Strategic Plan: Process to assess and develop recommendations

Pilot Study Recommendations

Best Practices First and Last Mile Toolkit for RTA

Partnerships: Identifying projects and funding opportunities



Riverside Transit Agency
First & Last Mile Mobility Plan

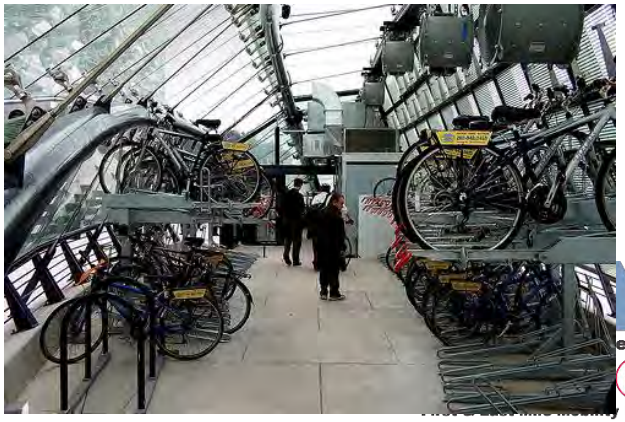
Mobility Hubs

New/Emerging First and Last Mile Options

Ridesharing / Ridehailing Services

Carshare Services

Bikeshare and Bike Station Services



Riverside Transit Agency

First & Last Mile Mobility Plan

Joe Punsalan
joe@ktua.com

Joe Forgiarini
jforgiarini@riversidetransit.com

REPORT

DATE: May 31, 2017

TO: Regional Transit Technical Advisory Committee (RTTAC)

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

SUBJECT: Transit Asset Management Draft Regional Targets

DISCUSSION:

Staff previously reported to the RTTAC regarding the TAM requirements in the Federal Transit Administration (FTA) Final Rule, including the requirement that transit operators establish initial TAM targets by January 1, 2017. SCAG is required to establish initial regional TAM targets within 180 days, or by July 1, 2017 (see https://www.transit.dot.gov/regulations-and-guidance/asset-management/dear-colleague-letter-tam-performance-targets). Staff reported to the RTTAC at its March 29, 2017 meeting regarding the initial targets received from the region's transit operators, and proposed to utilize the operators' initial targets to calculate weighted averages at the county level. Collectively, these county targets and the multi-county commuter rail targets from Metrolink would constitute the initial regional TAM targets. Using this approach, staff has developed the county-level weighted averages and discussed the results with the county transportation commissions. These draft initial regional targets are included in this report on the following page and in the report attachments.

The regional targets reflect the FTA-defined TAM performance measures, described in the table below.

TAM Performance Measures Established by FTA (see 49 CFR 625.43)

Category	Capital Assets	Measure/Target
Rolling Stock	Revenue vehicles by asset class	Age (Useful Life Benchmark or ULB) % of revenue vehicles within a particular asset class that have met or exceeded their ULB
Equipment	Non-revenue, support-service and maintenance vehicles equipment	Age (ULB) % of vehicles that have met or exceeded their ULB
Facilities	Maintenance and administrative facilities, passenger stations, and parking facilities	Condition (TERM) % of facilities within an asset class, rated below 3.0 on the TERM scale (1=poor to 5=excellent)
Infrastructure	Rail fixed-guideway, track, signals and systems	Performance (%) % of track segments with performance restrictions

DRAFT REGIONAL TAM TARGETS FOR DISCUSSION:

Imperial County

Category	Target
Rolling Stock	
Option A	
All Modes Combined	0.0%
Option B	
Bus	0.0%
Demand Response	0.0%
Equipment	0.0%
Facilities	N/A
Infrastructure	N/A

Los Angeles County

Category	Target
Rolling Stock	
Option A	
All Modes Combined	20.8%
Option B	
Bus	22.9%
Demand Response*	7.8%
Rail	0.0%
Equipment	24.7%
Facilities	6.3%
Infrastructure	0.0%

*Does not include Access Services, which did not provide quantifiable targets. 2015 NTD data suggests 10% of Access Services fleet exceeds the FTA standard ULB. If included, this would raise the LA County Demand Response target to 9.6%.

Orange County

Category	Target
Rolling Stock	
Option A	
All Modes Combined	10.0%
Option B	
Bus	10.0%
Demand Response	10.0%
Equipment	20.8%
Facilities	0.0%
Infrastructure	N/A

Riverside County

Category	Target
Rolling Stock	
Option A	
All Modes Combined	8.0%
Option B	
Bus	2.2%
Demand Response	13.9%
Equipment	22.5%
Facilities	0.0%
Infrastructure	N/A

San Bernardino County

Category	Target
Rolling Stock	
Option A	
All Modes Combined	4.2%
Option B	
Bus	4.2%
Demand Response	4.2%
Equipment	4.9%
Facilities	2.0%
Infrastructure	N/A

Ventura County

Category	Target
Rolling Stock	
Option A	
All Modes Combined	4.6%
Option B	
Bus	0.0%
Demand Response	12.1%
Equipment	16.1%
Facilities	0.0%
Infrastructure	N/A

Metrolink

Category	Target
Rolling Stock	5%
Equipment	5%
Facilities	5%
Infrastructure	5%

Methodology and Supporting Data

The methodology and calculations are presented in the attachments to this staff report. The Imperial County Transportation Commission (ICTC)/Imperial Valley Transit (IVT) is the only public transportation provider in Imperial County, therefore its targets constitute the county targets and are incorporated unchanged into the regional targets. The Metrolink targets are the only commuter rail targets in the region, and are similarly incorporated unchanged into the regional targets.

There may be an issue with respect to reporting and target setting for Metrolink station facilities, such as parking structures or parking lots. These facilities are generally owned by the local jurisdiction in which the Metrolink station is located. Unless a station owner is also a transit operator, it may not be participating in the overall FTA TAM process. SCAG will work with Metrolink and the county transportation commissions to identify a coordinated strategy to address this issue and report back to the RTTAC at a future date.

NEXT STEPS:

Based upon discussion with the RTTAC at the May 31 meeting, and ongoing coordination with the county transportation commissions, staff intends to finalize the initial regional TAM targets and present them to the SCAG Transportation Committee on July 6.

Future Targets and Performance Reporting

Looking beyond the initial targets, SCAG will next establish regional targets as part of the development of the 2020 Regional Transportation Plan (RTP). By October 2018, transit operators must complete their first TAM plans, establish targets for Fiscal Year (FY) 2019, and report those targets to the National Transit Database (NTD). Operators must also share their TAM plans, data, and targets with SCAG. At that point, SCAG expects to have a more comprehensive set of data to use to develop regional targets for the 2020 RTP. In setting the 2020 RTP targets, SCAG will continue to coordinate with the county transportation commissions and transit operators, through the RTTAC. The development of regional TAM targets for the 2020 RTP is anticipated to occur during Fall 2018 through Spring/Summer 2019.

The phase-in schedule of the new performance-based planning requirements into SCAG's RTP and Federal Transportation Improvement Program (FTIP) is identified in the Metropolitan Transportation Planning Final Rule at 23 CFR 450.340. The Final Rule requires that any RTP and FTIP developed on or after May 27, 2018, must meet the new performance-based planning requirements. Furthermore, any RTP or FTIP adopted on or after October 1, 2018, must be developed according to the performance-based provisions and requirements in the TAM Final Rule.

Once the TAM targets are established in the adopted 2020 RTP, future RTPs must report on progress achieved in meeting the targets, in comparison with system performance recorded in previous reports (23 CFR 450.324(f)(4)(i)). Additionally, future FTIPs must describe the anticipated effect toward achieving the TAM targets set in the RTP, linking investment priorities to those targets (23 CFR 450.326(d)). It is expected that SCAG will require additional information from county transportation commissions and transit agencies as part of the RTP and FTIP development and project submittal processes to support these new reporting requirements.

ATTACHMENTS:

The tables on the following pages identify how the draft regional TAM targets were calculated.

Attachment A

Draft Regional TAM Targets

Imperial County

ROLLING STOCK

OPTION A

One County Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Imperial County	Imperial Valley Transit/Imperial County Transportation Commission	Fixed-route bus (29) Demand response vehicles incl. ADA paratransit, dial-a-ride, non-emergency medical transportation (26)	0%	55
Imperial County Target			0.0%	

OPTION B

County Bus Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Imperial County	Imperial Valley Transit/Imperial County Transportation Commission	Fixed-route bus (29)	0%	29
Imperial County Bus Target			0.0%	

OPTION B

County Demand Response Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Imperial County	Imperial Valley Transit/Imperial County Transportation Commission	Demand response vehicles incl. ADA paratransit, dial-a-ride, non-emergency medical transportation (26)	0%	26
Imperial County Demand Response Target			0.0%	

Rolling Stock Methodology
Rolling stock targets were developed by constructing a weighted average using the sum of the products of the number of revenue vehicles by reported targets and then divided by the county total number of revenue vehicles. Where self-reported revenue vehicle numbers were available, those were used. Where they were not available, 2015 NTD asset data were used. Two options were developed for county level rolling stock targets. Option A consists of a simplified county target including all revenue vehicles, regardless of mode. Option B separates the targets into modal categories for bus, demand response, and rail.

EQUIPMENT

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Imperial County	Imperial Valley Transit/Imperial County Transportation Commission	Non-revenue service vehicles (MV1) (4)	0%	4
Imperial County Target			0.0%	

Equipment Methodology
Methodology for equipment targets varies by county, depending on the information available. In Orange, Riverside and San Bernardino Counties, all targets were reported with numbers of vehicles and therefore a weighted average was calculated using the sum of the products of the targets and numbers of vehicles, divided by the number of vehicles. In Los Angeles and Ventura Counties, county targets were developed by constructing a weighted average using an agency's share of the total rolling stock, multiplied by the agency quantified target, and then totaled. Where self-reported revenue vehicle numbers were available, those were used. Where they were not available, 2015 NTD asset data were used.

Attachment B

Draft Regional TAM Targets

Los Angeles County

ROLLING STOCK

OPTION A
One County Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Los Angeles County	Access Services	Non Quantifiable		
	Antelope Valley Transit Authority	40ft transit (45) 55%	55%	45
		45ft commuter (30) 43%	43%	30
	Beach Cities Transit (City of Redondo Beach)	0%	0%	22
	City of Arcadia Transit	Non Responsive		
	City of Commerce	25%	25%	18
	City of Los Angeles Department of Transportation (LADOT)	Over the road bus (104) 10%	10%	104
		Bus (220) 10%	10%	220
		Cutaway bus (44) 20%	20%	44
	Culver CityBus	10%	10%	57
	Foothill Transit	0%	0%	327
	Gardena Municipal Bus Lines (GTrans)	40' Buses 0%	0%	60
		Vans/Cutaways 25%	25%	8
	La Mirada Transit	Non Quantifiable		
	Long Beach Transit	Articulated Bus (13) 0%	0%	13
		Over-the-road coach (1) 100%	100%	1
		Bus (210) 20%	20%	210
		Ferryboat (4) 0%	0%	4
		Minivan (10) 0%	0%	10
	Los Angeles County Group Plan (Metro)	Motor Bus (115) 10%	10%	115
		Articulated Bus (5) 0%	0%	5
		Cutaway Bus (66) 8%	8%	66
		Minivan (24) 0%	0%	24
		Van (10) 10%	10%	10
		Trolley Bus (1) 100%	100%	1
		Vintage Trolley (3) 67%	67%	3
	Los Angeles County Metropolitan Transportation Authority (Metro)	Motor Bus (2,235) 35%	35%	2235
		Articulated Bus (391) 2%	2%	391
		Light Rail Vehicles (224) 0%	0%	224
		Heavy Rail Vehicles (104) 0%	0%	104
	Montebello Bus Lines	Non Responsive		
	Norwalk Transit System	20%	20%	39
	Santa Clarita Transit	10%	10%	104
	Santa Monica's Big Blue Bus	0%	0%	195
	Torrance Transit System	43%	43%	61
		Sum of Products	989.34	4750
Los Angeles County Target			20.8%	

OPTION B

County Bus Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Los Angeles County	Antelope Valley Transit Authority	40ft transit (45) 55%	55%	45
		45ft commuter (30) 43%	43%	30
	Beach Cities Transit (City of Redondo Beach)	0%	0%	14
	City of Arcadia Transit	Non Responsive		
	City of Commerce	25%	25%	13
	City of Los Angeles Department of Transportation (LADOT)	Over the road bus (104) 10%	10%	104
		Bus (220) 10%	10%	220
		Cutaway bus (44) 20%	20%	44
	Culver CityBus	10%	10%	54
	Foothill Transit	0%	0%	327
	Gardena Municipal Bus Lines (GTrans)	40' Buses 0%		60
	La Mirada Transit	Non Quantifiable		
	Long Beach Transit	Articulated Bus (13) 0%	0%	13
		Over-the-road coach (1) 100%	100%	1
		Bus (210) 20%	20%	210
		Ferryboat (4) 0%	0%	4
	Los Angeles County Group Plan (Metro)	Motor Bus (115) 10%	10%	115
		Articulated Bus (5) 0%	0%	5
		Trolley Bus (1) 100%	100%	1
		Vintage Trolley (3) 67%	67%	3
	Los Angeles County Metropolitan Transportation Authority (Metro)	Motor Bus (2,235) 35%	35%	2235
		Articulated Bus (391) 2%	2%	391
	Montebello Bus Lines	Non Responsive		
	Norwalk Transit System	20%	20%	32
	Santa Clarita Transit	10%	10%	87
	Santa Monica's Big Blue Bus	0%	0%	188
	Torrance Transit System	43%	43%	61
		Sum of Products	976.41	4257
Los Angeles County Bus Target			22.9%	

OPTION B

County Demand Response Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Los Angeles County	Access Services	Non Quantifiable (see note)		
	Beach Cities Transit (City of Redondo Beach)	0%	0%	8
	City of Commerce	25%	25%	5
	Culver CityBus	10%	10%	3
	Gardena Municipal Bus Lines (GTrans)	Vans/Cutaways 25%	25%	8
	Long Beach Transit	Minivan (10) 0%	0%	10
	Los Angeles County Group Plan (Metro)	Cutaway Bus (66) 8%	8%	66
		Minivan (24) 0%	0%	24
		Van (10) 10%	10%	10
	Norwalk Transit System	20%	20%	7
	Santa Clarita Transit	10%	10%	17
	Santa Monica's Big Blue Bus	0%	0%	7
	Sum of Products		12.93	165
Los Angeles County Demand Response Target			7.8%	

Note: Based on 2015 NTD data, of Access Services' fleet of 709 vehicles, 73 vans (approx. 10%) exceed the FTA standard ULB of 8 years.

OPTION B

County Rail Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Los Angeles County	Los Angeles County Group Plan (Metro)	Light Rail Vehicles (224) 0%	0%	224
		Heavy Rail Vehicles (104) 0%	0%	104
	Sum of Products		0	328
Los Angeles County Rail Target			0.0%	

Rolling Stock Methodology
Rolling stock targets were developed by constructing a weighted average using the sum of the products of the number of revenue vehicles by reported targets and then divided by the county total number of revenue vehicles. Where self-reported revenue vehicle numbers were available, those were used. Where they were not available, 2015 NTD asset data were used. Two options were developed for county level rolling stock targets. Option A consists of a simplified county target including all revenue vehicles, regardless of mode. Option B separates the targets into modal categories for bus, demand response, and rail.

EQUIPMENT

County	Agency	Reported Target	Quantified Target	Weights*
Los Angeles County	Antelope Valley Transit Authority	Automobiles (20) 13%	20%	0.018
		Vans (4) 75%		
		Trucks (5) 25%		
		Trailers (5) 0%		
	Beach Cities Transit (City of Redondo Beach)	N/A		
	City of Commerce Municipal Bus lines	10%	10%	0.004
	City of Los Angeles Department of Transportation (LADOT)	N/A		
	Culver CityBus	25%	25%	0.013
	Foothill Transit	0%	0%	0.077
	Gardena Municipal Bus Lines (GTrans)	30%	30%	0.016
	La Mirada Transit	N/A		
	Long Beach Transit	Automobile (15) 30%	30%	0.056
		Trucks/other rubber tire vehicles (33) 30%		
	Los Angeles County Group Plan (Metro)	Automobiles (incl. SUVs) (11) 9%	21%	0.053
		Trucks/other rubber tire vehicles (1) 0%		
		Van (1) 100%		
		Cutaway Bus (1) 100%		
	Los Angeles County Metropolitan Transportation Authority (Metro)	Automobiles (incl. SUVs) (658) 14%	26%	0.694
		Trucks/other rubber tire vehicles (610) 39%		
		Steel Wheel Vehicles (17) 22%		
	Norwalk Transit System	50%	50%	0.009
	Santa Clarita Transit	N/A		
	Santa Monica's Big Blue Bus	25%	25%	0.046
	Torrance Transit System	73%	73%	0.014
		Sum of Products	0.247	1.000
Los Angeles County Target			24.7%	

Equipment Methodology
Methodology for equipment targets varies by county, depending on the information available. In Orange, Riverside and San Bernardino Counties, all targets were reported with numbers of vehicles and therefore a weighted average was calculated using the sum of the products of the targets and numbers of vehicles, divided by the number of vehicles. In Los Angeles and Ventura Counties, county targets were developed by constructing a weighted average using an agency's share of the total rolling stock (see Table 1)*, multiplied by the agency quantified target, and then totaled. Where self-reported revenue vehicle numbers were available, those were used. Where they were not available, 2015 NTD asset data were used. In Los Angeles County (see Table 2), where an agency reported multiple targets and separate numbers of non-revenue service vehicles, theagency quantified target was calculated using the sum of the products of the number of non-revenue vehicles by reported targets and then divided by the agency total number of non-revenue vehicles.

Table 1. Calculation of Weight Based on Rolling Stock

County	Agency	Total Rolling Stock	* Share of Rolling Stock (Used as Weight for Averaging Equipment Targets)
Los Angeles County	Antelope Valley Transit Authority	75	0.018
	City of Commerce Municipal Bus Lines	18	0.004
	Culver CityBus	57	0.013
	Foothill Transit	327	0.077
	Gardena Municipal Bus Lines (GTrans)	68	0.016
	Long Beach Transit	238	0.056
	Los Angeles County Group Plan (Metro)	224	0.053
	Los Angeles County Metropolitan Transportation Authority (Metro)	2954	0.694
	Norwalk Transit System	39	0.009
	Santa Monica's Big Blue Bus	195	0.046
	Torrance Transit System	61	0.014
Sum		4256	1.000

Table 2. Calculation of Quantified Target (multiple vehicle types)

County	Agency	Non-Revenue Vehicle	Reported Target	Number of Applicable Vehicles	Quantified Target (weighted average)
Los Angeles County	Antelope Valley Transit Authority	Automobiles	13%	20	
		Vans	75%	4	
		Trucks	25%	5	
		Trailers	0%	5	
		Sum of Products	6.85	34	20%
	Long Beach Transit	Automobile	30%	15	
		Trucks/other rubber tire vehicles	30%	33	
		Sum of Products	14.4	48	30%
	Los Angeles County Group Plan (Metro)	Automobiles (incl. SUVs)	9%	11	
		Trucks/other rubber tire vehicles	0%	1	
		Van	100%	1	
		Cutaway Bus	100%	1	
		Sum of Products	2.99	14	21%
	Los Angeles County Metropolitan Transportation Authority (Metro)	Automobiles (incl. SUVs)	14%	658	
		Trucks/other rubber tire vehicles	39%	610	
		Steel Wheel Vehicles	22%	17	
		Sum of Products	333.76	1285	26%

FACILITIES

County	Agency	Reported Target	Quantified Target	Number of Facilities
Los Angeles County	Access Services	N/A		
	Antelope Valley Transit Authority	Admin/maintenance facility 0%	0%	1
	Beach Cities Transit (City of Redondo Beach)	0%	0%	1
	City of Commerce Municipal Bus lines	25%	25%	1
	City of Los Angeles Department of Transportation (LADOT)	Downtown Bus Maintenance & Fueling Facility (under construction) 0%	0%	1
		Metrolink Stations (5) 0%	0%	5
		Park-and-Ride (1) 0%	0%	1
		Warner Center Transit Hub 0%	0%	1
	Culver CityBus	20%	20%	1
	Foothill Transit	Non Quantifiable		
	Gardena Municipal Bus Lines (GTrans)	20%	20%	1
	La Mirada Transit	N/A		
	Long Beach Transit	Admin/Maint Facilities (5) 30%	30%	5
	Los Angeles County Group Plan (Metro)	Passenger Facilities (stations) (5) 20%	20%	5
		Passenger Parking Facilities (3) 0%	0%	3
		Maintenance Facilities (10) 20%	20%	10
		Administration Facilities (1) 0%	0%	1
	Los Angeles County Metropolitan Transportation Authority (Metro)	Passenger Facilities (stations) (123) 0%	0%	123
		Passenger Parking Facilities (1) 0%	0%	1
		Maintenance Facilities (22) 23%	23%	22
		Administration Facilities (3) 33%	33%	3
	Norwalk Transit System	0%	0%	2
	Santa Clarita Transit	0%	0%	2
	Santa Monica's Big Blue Bus	20%	20%	1
	Torrance Transit System	62%	62%	1
		Sum of Products	12.02	192
Los Angeles County Target			6.3%	

Facilities Methodology
Facilities targets were developed by constructing a weighted average using the sum of the products of the number of facilities multiplied by the reported targets, and then divided by the total number of county facilities. Where self-reported facility numbers were available, those were used. Where they were not available, 2015 NTD asset data were used.

INFRASTRUCTURE

County	Agency	Reported Target	Quantified Target
Los Angeles County	Los Angeles County Metropolitan Transportation Authority (Metro)	Heavy Rail (31.9 miles) 0%	0%
		Light rail (172.1 miles) 0%	0%
Los Angeles County Target			0.0%

Attachment C

Draft Regional TAM Targets

Orange County

ROLLING STOCK

OPTION A

One County Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Orange County	Anaheim Transportation Network	Non Quantifiable		
	Orange County Transportation Authority (OCTA)	60' bus (36) 10%	10%	36
		40' bus (501) 10%	10%	501
		27'-32' fixed-route cutaways (18) 10%	10%	18
		24' demand-response cutaways (273) 10%	10%	273
		Sum of Products	82.80	828
Orange County Target			10.0%	

OPTION B

County Bus Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Orange County	Anaheim Transportation Network	Non Quantifiable		
	Orange County Transportation Authority (OCTA)	60' bus (36) 10%	10%	36
		40' bus (501) 10%	10%	501
		27'-32' fixed-route cutaways (18) 10%	10%	18
		Sum of Products	55.50	555
Orange County Bus Target			10.0%	

OPTION B

County Demand Response Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Orange County	Anaheim Transportation Network	Non Quantifiable		
	Orange County Transportation Authority (OCTA)	24' demand-response cutaways (273) 10%	10%	273
		Sum of Products	27.30	273
Orange County Demand Response Target			10.0%	

Rolling Stock Methodology
Rolling stock targets were developed by constructing a weighted average using the sum of the products of the number of revenue vehicles by reported targets and then divided by the county total number of revenue vehicles. Where self-reported revenue vehicle numbers were available, those were used. Where they were not available, 2015 NTD asset data were used. Two options were developed for county level rolling stock targets. Option A consists of a simplified county target including all revenue vehicles, regardless of mode. Option B separates the targets into modal categories for bus, demand response, and rail.

EQUIPMENT

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Orange County	Anaheim Transportation Network	Non Quantifiable		
	Orange County Transportation Authority (OCTA)	Utility sedans (93) 20%	20%	93
		Patrol cars/SUVs (12) 0%	0%	12
		SUVs (10) 10%	10%	10
		Fork lifts, tractors (32) 25%	25%	32
		Electric cars (13) 25%	25%	13
		Trucks/vans (56) 25%	25%	56
		Sum of Products	44.85	216
Orange County Target			20.8%	

Equipment Methodology
Methodology for equipment targets varies by county, depending on the information available. In Orange, Riverside and San Bernardino Counties, all targets were reported with numbers of vehicles and therefore a weighted average was calculated using the sum of the products of the targets and numbers of vehicles, divided by the number of vehicles. In Los Angeles and Ventura Counties, county targets were developed by constructing a weighted average using an agency's share of the total rolling stock, multiplied by the agency quantified target, and then totaled. Where self-reported revenue vehicle numbers were available, those were used. Where they were not available, 2015 NTD asset data were used.

FACILITIES

County	Agency	Reported Target	Quantified Target	Number of Facilities
Orange County	Anaheim Transportation Network	Non Quantifiable		
	Orange County Transportation Authority (OCTA)	O&M facility (5) 0%	0%	5
		Control center (1) 0%	0%	1
		Transportation centers (5) 0%	0%	5
		Park and ride lots (2) 0%	0%	2
		Sum of Products	0	13
Orange County Target			0.0%	

Facilities Methodology
Facilities targets were developed by constructing a weighted average using the sum of the products of the number of facilities multiplied by the reported targets, and then divided by the total number of county facilities. Where self-reported facility numbers were available, those were used. Where they were not available, 2015 NTD asset data were used.

Attachment D

Draft Regional TAM Targets

Riverside County

ROLLING STOCK

OPTION A

One County Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Riverside County	City of Corona	Fixed Route Bus (7) 25%	25%	7
		Dial-A-Ride Cutaway Light Duty (11) 100%	100%	11
	City of Riverside	Cutaway (35) 1%	1%	35
		Van (1) 1%	1%	1
	Riverside Transit Agency	Non Quantifiable		
	SunLine Transit Agency	Bus (74) 0%	0%	74
		Cutaway buses (35) 0%	0%	35
		Sum of Products	13.11	163
Riverside County Target			8.0%	

OPTION B

County Bus Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Riverside County	City of Corona	Fixed Route Bus (7) 25%	25%	7
	Riverside Transit Agency	Non Quantifiable		
	SunLine Transit Agency	Bus (74) 0%	0%	74
		Sum of Products	1.75	81
Riverside County Bus Target			2.2%	

OPTION B

County Demand Response Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Riverside County	City of Corona	Dial-A-Ride Cutaway Light Duty (11) 100%	100%	11
	City of Riverside	Cutaway (35) 1%	1%	35
		Van (1) 1%	1%	1
	Riverside Transit Agency	Non Quantifiable		
	SunLine Transit Agency	Cutaway buses (35) 0%	0%	35
		Sum of Products	11.36	82
Riverside County Demand Response Target			13.9%	

Rolling Stock Methodology
Rolling stock targets were developed by constructing a weighted average using the sum of the products of the number of revenue vehicles by reported targets and then divided by the county total number of revenue vehicles. Where self-reported revenue vehicle numbers were available, those were used. Where they were not available, 2015 NTD asset data were used. Two options were developed for county level rolling stock targets. Option A consists of a simplified county target including all revenue vehicles, regardless of mode. Option B separates the targets into modal categories for bus, demand response, and rail.

EQUIPMENT

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Riverside County	City of Corona	N/A		
	City of Riverside	Automobiles (1) 1%	1%	1
	Riverside Transit Agency	Non Quantifiable		
	SunLine Transit Agency	Automobiles (44) 23%	23%	44
		Sum of Products	10.13	45
Riverside County Target			22.5%	

Equipment Methodology
Methodology for equipment targets varies by county, depending on the information available. In Orange, Riverside and San Bernardino Counties, all targets were reported with numbers of vehicles and therefore a weighted average was calculated using the sum of the products of the targets and numbers of vehicles, divided by the number of vehicles. In Los Angeles and Ventura Counties, county targets were developed by constructing a weighted average using an agency's share of the total rolling stock, multiplied by the agency quantified target, and then totaled. Where self-reported revenue vehicle numbers were available, those were used. Where they were not available, 2015 NTD asset data were used.

FACILITIES

County	Agency	Reported Target	Quantified Target	Number of Facilities
Riverside County	City of Corona	0%	0%	1
	City of Riverside	Admin facility (1) 0%	0%	1
		CNG Maintenance Bay (1) 0%	0%	1
	Riverside Transit Agency	Non Quantifiable		
	SunLine Transit Agency	Admin facility 0%	0%	1
		Maintenance facility 0%	0%	1
		Sum of Products	0	5
Riverside County Target			0.0%	

Facilities Methodology
Facilities targets were developed by constructing a weighted average using the sum of the products of the number of facilities multiplied by the reported targets, and then divided by the total number of county facilities. Where self-reported facility numbers were available, those were used. Where they were not available, 2015 NTD asset data were used.

Attachment E

Draft Regional TAM Targets

San Bernardino County

ROLLING STOCK

OPTION A

One County Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
San Bernardino County	Omnitrans	Fixed-route 40'-60' (188) 0%	0%	188
		Paratransit (107) 0%	0%	107
	Victor Valley Transit Authority	Class H Transit buses (33), Class E Transit buses (24), Class H commuter/intercity buses (11), MCI coaches/commuter (5), Class C & D ADA cutaway buses and vans (41) 15%	15%	114
		Sum of Products	17.10	409
San Bernardino County Target			4.2%	

OPTION B

County Bus Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
San Bernardino County	Omnitrans	Fixed-route 40'-60' (188) 0%	0%	188
	Victor Valley Transit Authority	Class H Transit buses (33), Class E Transit buses (24), Class H commuter/intercity buses (11), MCI coaches/commuter (5) 15%	15%	73
		Sum of Products	10.95	261
San Bernardino County Bus Target			4.2%	

OPTION B

County Demand Response Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
San Bernardino County	Omnitrans	Paratransit (107) 0%	0%	107
	Victor Valley Transit Authority	Class C & D ADA cutaway buses and vans (41) 15%	15%	41
		Sum of Products	6.15	148
San Bernardino County Demand Response Target			4.2%	

Rolling Stock Methodology
Rolling stock targets were developed by constructing a weighted average using the sum of the products of the number of revenue vehicles by reported targets and then divided by the county total number of revenue vehicles. Where self-reported revenue vehicle numbers were available, those were used. Where they were not available, 2015 NTD asset data were used. Two options were developed for county level rolling stock targets. Option A consists of a simplified county target including all revenue vehicles, regardless of mode. Option B separates the targets into modal categories for bus, demand response, and rail.

EQUIPMENT

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
San Bernardino County	Omnitrans	Vans, cars, trucks (64) 0%	0%	64
	Victor Valley Transit Authority	Cars, suvs, vans, and pickups (31) 15%	15%	31
		Sum of Products	4.65	95
San Bernardino County Target			4.9%	

Equipment Methodology
Methodology for equipment targets varies by county, depending on the information available. In Orange, Riverside and San Bernardino Counties, all targets were reported with numbers of vehicles and therefore a weighted average was calculated using the sum of the products of the targets and numbers of vehicles, divided by the number of vehicles. In Los Angeles and Ventura Counties, county targets were developed by constructing a weighted average using an agency's share of the total rolling stock, multiplied by the agency quantified target, and then totaled. Where self-reported revenue vehicle numbers were available, those were used. Where they were not available, 2015 NTD asset data were used.

FACILITIES

County	Agency	Reported Target	Quantified Target	Number of Facilities
San Bernardino County	Omnitrans	Facilities (4) 0%	0%	4
	Victor Valley Transit Authority	Facilities (1) 10%	10%	1
		Sum of Products	10%	5
San Bernardino County Target			2.0%	

Facilities Methodology
Facilities targets were developed by constructing a weighted average using the sum of the products of the number of facilities multiplied by the reported targets, and then divided by the total number of county facilities. Where self-reported facility numbers were available, those were used. Where they were not available, 2015 NTD asset data were used.

Attachment F

Draft Regional TAM Targets

Ventura County

ROLLING STOCK

OPTION A

One County Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Ventura County	Camarillo Area Transit	0%	0%	13
	City of Moorpark	Non Responsive		
	Gold Coast Transit	0%	0%	82
	Simi Valley Transit	Non Responsive		
	Thousand Oaks Transit	Fixed Route and Commuter Bus 0%	0%	29
		Demand Response 50%	50%	16
	Ventura Intercity Service Transit Authority	0%	0%	34
		Sum of Products	8.00	174
Ventura County Target			4.6%	

OPTION B

County Bus Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Ventura County	Camarillo Area Transit	0%	0%	1
	City of Moorpark	Non Responsive		
	Gold Coast Transit	0%	0%	54
	Simi Valley Transit	Non Responsive		
	Thousand Oaks Transit	Fixed Route and Commuter Bus 0%	0%	29
	Ventura Intercity Service Transit Authority	0%	0%	24
		Sum of Products	0.00	108
Ventura County Bus Target			0.0%	

OPTION B

County Demand Response Target

County	Agency	Reported Target	Quantified Target	Number of Applicable Vehicles
Ventura County	Camarillo Area Transit	0%	0%	12
	City of Moorpark	Non Responsive		
	Gold Coast Transit	0%	0%	28
	Simi Valley Transit	Non Responsive		
	Thousand Oaks Transit	Demand Response 50%	50%	16
	Ventura Intercity Service Transit Authority	0%	0%	10
		Sum of Products	8.00	66
Ventura County Demand Response Target			12.1%	

Rolling Stock Methodology
Rolling stock targets were developed by constructing a weighted average using the sum of the products of the number of revenue vehicles by reported targets and then divided by the county total number of revenue vehicles. Where self-reported revenue vehicle numbers were available, those were used. Where they were not available, 2015 NTD asset data were used. Two options were developed for county level rolling stock targets. Option A consists of a simplified county target including all revenue vehicles, regardless of mode. Option B separates the targets into modal categories for bus, demand response, and rail.

EQUIPMENT

County	Agency	Reported Target	Quantified Target	Weights*
Ventura County	Camarillo Area Transit	N/A		
	City of Moorpark	Non Responsive		
	Gold Coast Transit	25%	25%	0.646
	Simi Valley Transit	Non Responsive		
	Thousand Oaks Transit	0%	0%	0.354
	Ventura Intercity Service Transit Authority	N/A		
Ventura County Target			16.1%	

Equipment Methodology
Methodology for equipment targets varies by county, depending on the information available. In Orange, Riverside and San Bernardino Counties, all targets were reported with numbers of vehicles and therefore a weighted average was calculated using the sum of the products of the targets and numbers of vehicles, divided by the number of vehicles. In Los Angeles and Ventura Counties, county targets were developed by constructing a weighted average using an agency's share of the total rolling stock*, multiplied by the agency quantified target, and then totaled. Where self-reported revenue vehicle numbers were available, those were used. Where they were not available, 2015 NTD asset data were used.

County	Agency	Total Rolling Stock	* Share of Rolling Stock (Used as Weight for Averaging Equipment Targets)
Ventura County	Camarillo Area Transit	N/A	
	City of Moorpark	Non-Responsive	
	Gold Coast Transit	82	0.646
	Simi Valley Transit	Non-Responsive	
	Thousand Oaks Transit	45	0.354
	Ventura Intercity Service Transit Authority	N/A	
Sum		127	

FACILITIES

County	Agency	Reported Target	Quantified Target	Number of Facilities
Ventura County	Camarillo Area Transit	N/A		
	City of Moorpark	Non Responsive		
	Gold Coast Transit	0%	0%	2
	Simi Valley Transit	Non Responsive		
	Thousand Oaks Transit	0%	0%	2
	Ventura Intercity Service Transit Authority	N/A		
		Sum of Products	0%	4
Ventura County Target			0.0%	

Facilities Methodology
Facilities targets were developed by constructing a weighted average using the sum of the products of the number of facilities multiplied by the reported targets, and then divided by the total number of county facilities. Where self-reported facility numbers were available, those were used. Where they were not available, 2015 NTD asset data were used.

Transit Asset Management (TAM) Draft Regional Targets

Regional Transit Technical Advisory Committee

Philip Law, Transit/Rail Manager

May 31, 2017

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Initial Targets Due Jan. 1, 2017

Category	Capital Assets	Measure/Target
Rolling Stock	Revenue vehicles by asset class	Age (Useful Life Benchmark or ULB) % of revenue vehicles within a particular asset class that have met or exceeded their ULB
Equipment	Non-revenue, support-service and maintenance vehicles equipment	Age (ULB) % of vehicles that have met or exceeded their ULB
Facilities	Maintenance and administrative facilities, passenger stations, and parking facilities	Condition (TERM) % of facilities within an asset class, rated below 3.0 on the TERM scale (1=poor to 5=excellent)
Infrastructure	Rail fixed-guideway, track, signals and systems	Performance (%) % of track segments with performance restrictions

Initial TAM Targets

- Final Rule effective Oct. 1, 2016
  - Operators set initial targets within 3 months (Jan. 1, 2017)
  - MPOs set initial targets within 180 days (July 1, 2017)
- SCAG received 127 targets from 31 (out of 38) operators responding to data request
  - Not all responses included quantifiable targets
- FTA expects MPOs to develop unified regional targets, but provides flexibility for cooperative development with operators

Data Limitations

- Operators' initial targets are based on best available data, and may change once more data becomes available
  - Initial targets do not need to be reported to NTD
  - Operators' asset inventory, condition reporting, and first TAM plans due to NTD Oct. 2018
  - Operators' first reporting on performance related to targets due to NTD Oct. 2019

Approach to Initial Regional Targets

- Calculate weighted county-level targets based upon initial targets received from operators
  - Supplement with inventory data from 2015 NTD where needed
- Maintain flexibility for operators to use their own asset classes, but simplify/combine to develop regional targets
- Collectively, the county and Metrolink targets constitute the regional targets
- Finalize regional targets and present to SCAG Transportation Committee on July 6, 2017
- Targets and methodology will be revisited during development of 2020 Regional Transportation Plan (RTP)

Draft Regional TAM Targets

Imperial County

Category	Target
Rolling Stock	
Option A	
All Modes	0.0%
Combined	
Option B	
Bus	0.0%
Demand	0.0%
Response	
Equipment	0.0%
Facilities	N/A
Infrastructure	N/A

Orange County

Category	Target
Rolling Stock	
Option A	
All Modes	10.0%
Combined	
Option B	
Bus	10.0%
Demand	10.0%
Response	
Equipment	20.8%
Facilities	0.0%
Infrastructure	N/A

Metrolink

Category	Target
Rolling Stock	5%
Equipment	5%
Facilities	5%
Infrastructure	5%

Draft Regional TAM Targets

Riverside County

Category	Target
Rolling Stock	
Option A	
All Modes Combined	8.0%
Option B	
Bus	2.2%
Demand Response	13.9%
Equipment	22.5%
Facilities	0.0%
Infrastructure	N/A

San Bernardino County

Category	Target
Rolling Stock	
Option A	
All Modes Combined	4.2%
Option B	
Bus	4.2%
Demand Response	4.2%
Equipment	4.9%
Facilities	2.0%
Infrastructure	N/A

Draft Regional TAM Targets

Los Angeles County

Category	Target
Rolling Stock	
Option A	
All Modes Combined	20.8%
Option B	
Bus	22.9%
Demand Response*	7.8%
Rail	0.0%
Equipment	24.7%
Facilities	6.3%
Infrastructure	0.0%

Ventura County

Category	Target
Rolling Stock	
Option A	
All Modes Combined	4.6%
Option B	
Bus	0.0%
Demand Response	12.1%
Equipment	16.1%
Facilities	0.0%
Infrastructure	N/A

*Does not include Access Services, which did not provide quantifiable targets. 2015 NTD data suggests 10% of Access Services fleet exceeds the FTA standard ULB. If included, this would raise the LA County Demand Response target to 9.6%.

Performance Reporting

- Phase-in schedule
  - May 27, 2017 – any RTP/FTIP adopted after this date must meet performance-based planning requirements in Metropolitan Transportation Planning Final Rule
  - Oct. 1, 2018 – any RTP/FTIP adopted after this date must meet requirements in TAM Final Rule
- 2020 RTP will be first to include TAM targets
  - Future RTPs must report on progress achieved in meeting targets
  - Future FTIPs must describe anticipated effect toward achieving RTP targets, linking investment priorities to those targets
  - Additional information to be required in project submittals from operators and county transportation commissions

Thank You

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REPORT

DATE: May 31, 2017

TO: Regional Transit Technical Advisory Committee (RTTAC)

FROM: Matt Gleason, Senior Regional Planner, 213-236-1832, gleason@scag.ca.gov

SUBJECT: Climate Change Adaptation Assessment

EXECUTIVE SUMMARY:
Staff have concluded a procurement for a Transit Climate Adaptation and Resilience Assessment. A consultant has been selected and a contract has been executed. Staff will provide an overview of the technical background and methodology of the study.

BACKGROUND
The earth's climate is rapidly changing, due to increasing atmospheric concentrations of greenhouse gasses. Increased concentrations of greenhouse gasses are mainly due to the burning of fossil fuels, the production of cements, and increasing animal agriculture.

Ongoing and expected changes to the earth's climate are likely to be more drastic than any since the development of settled human civilizations. The climate is expected to be much hotter, wetter, and more instable than at any point in the last 10,000 years. These changes will result increased risk of and from wildfire, more extreme and erratic precipitation, reduction in snow and ice accumulation, glacial ice melt/sea level rise, increased high heat days, oceanic acidification, and ecosystem disruption/wildlife loss. Many of these effects will have local impacts on transit providers in the SCAG Region.

Historically, scientists have used Global Circulation Models (GCMs) to analyze changes to the climate. These are mathematically based computer models that reproduce fluid and heat energy transfer through oceanic and atmospheric circulations. They are typically based on large grids, including icosahedral zones of 100^3 miles in size. Given the relatively large size of these zones, it has been difficult to predict localized impacts from global climate change.

EVOLVING RESOURCES FOR LOCALIZED ADAPTATION PLANNING
In the past ten to fifteen years, new techniques and data sets have evolved to produce localized predictions. These new techniques and data sets have led to a rapid growth in the field of planning for climate change adaptation.

In 2011 the FTA embarked on its Climate Change Adaptation Initiative and committed just over $1 million in research funding to pilot projects in seven geographically-diverse locations involving nine transit agencies: San Francisco Bay Area Rapid Transit (BART), Chicago Transit Authority (CTA), the Gulf Coast (Houston Metro, Tampa HART, and Island Transit), Los Angeles County Metropolitan Transportation Authority (Metro), Metropolitan Atlanta Rapid Transit Authority (MARTA[GA]), Southeastern Pennsylvania Transportation Authority (SEPTA, Philadelphia), and Central Puget Sound

Regional Transit Authority (Sound Transit, Seattle).

The State of California has also begun providing resources for adaptation planning, including the Cal-Adapt web portal (http://beta.cal-adapt.org/about). The data and tools available on that site offer projections of how climate change might affect California at local levels. The data used within the Cal-Adapt visualization tools have been gathered from California's scientific community, and represent peer-reviewed, high quality science.

In addition, a collaboration between the City of Los of Angeles and researchers at UCLA has used statistical downscaling to model potential climate change impacts for 2050 and 2100 for Southern California and the Sierra Nevada, including the impacts of temperature change, precipitation change,

In 2013, SCAG was awarded a grant to study the impacts of climate change on local transportation systems, and to produce a resource for local agencies to use in incorporating climate change adaptation and resilience into their long range capital and asset management planning.

TRANSIT CLIMATE ADAPTATION AND RESILIENCY ASSESSMENT

The Transit Climate Adaptation and Resiliency Assessment will evaluate the potential effects of changes in storm activity, sea levels, temperature, and precipitation patterns and other climate change stressors, and develop strategies to ensure the continuing robustness and resilience of transportation infrastructure and services. The study will provide an asset class based inventory of regional transit assets, seek out regional climate forecast information, discuss the assessment of vulnerability to and risk from climate stressors, and develop an adaptation strategies toolbox for use by local agencies. SCAG intends that when complete, this toolbox will serve as a resource to agencies throughout the region to inform transit asset management, long range, and capital planning. Focusing on an asset class approach will allow partner agencies to employ the study's findings while implementing their own Climate Change Adaptation Strategies.

The study will focus on building the capacity of transit agencies to complete their own assessments and plans. Agencies that choose to participate in the project's workshops will make substantial progress toward doing so, under the guidance of the Consultant team. Transit agencies unable to participate at this time will still benefit from the resources developed under this contract and can complete their assessments and plans at a later date. The Adaptation Toolbox resources developed will assist agencies in completing vulnerability assessments and adaptation plans in an efficient manner.

The overall project objectives are as follows:

- Provide a Climate Change Adaptation and Resiliency toolbox for use by providers of public transportation in the SCAG Region, particularly for small and midsized agencies with constrained financial resources. The final document is intended to be an actionable, decision-assisting resource for providers of public transportation in the SCAG Region.
- Assist local agencies in identifying critical assets and routes likely to be affected by climatic stressors resulting from climate change.
- Assist local agencies in integrating climate change forecast data into local and regional transit planning process, particularly regarding asset management and system preservation.

- Assist local agencies in increasing regional transit system disaster recovery and resilience.

TECHNICAL METHOLOGY

The study's methodology will consist of three key steps:

1. **Assessment of Asset Inventories and Screening of Assets for Criticality**: The consultant team will combine existing SCAG data resources with NTD resources and data requests from local agencies to produce an asset inventory. The consultant shall then draft criteria for screening criticality of assets and routes, based on local priorities.
2. **Application of Climate Forecast Data**: The consultant team will obtain climatic forecast data related to possible local impacts from sea level rise, precipitation, inland flooding, and warming temperatures. The consultant team will then identify and analyze stressor types and thresholds, and develop sensitivity matrices.
3. **Vulnerability and Risk Assessment:** The consultant team will compare the asset data with forecast data, and prepare a demonstration of how local agencies can determine their level of risk, and the magnitude of the consequences of that risk. The team will also develop a toolbox of strategies for responding to and mitigating the risks posed by climatic stressors.

OUTREACH

Local agency input will be key to developing locally actionable products, in the form of criticality criteria and the toolbox of strategies. The RTTAC will be the key venue for ongoing guidance from local agencies for the consultant team. Staff expects that there will be several presentations to the RTTAC about this project over the course of Fiscal Year 2017-18, and that the consultant team will contact members to address any gaps in available data sources. Staff will also use RTTAC and asset management contacts as key points of contact for this effort.

In addition, there will be two outreach workshops with invited staff from participating transit provider agencies. The first workshop will focus on vulnerability and criticality. The consultant team intends to share climate forecast information and exposure maps, illustrate how routes might be exposed to key stressors, and provide guidance for obtaining climate information in a cost effective manner. The consultant will also be sharing a data wish list with invitees, and conduct small group break outs to discuss individual agency exposures.

The second workshop will focus on potential adaptation strategies, evaluation of their feasibility and effectiveness, and the development of a plan for incorporating these strategies into normal planning processes. The team will also provide methodological guidance for identifying and evaluating adaptation strategies for cost, feasibility, effectiveness, and co-benefits. The team shall also provide resources that enable transit providers to engage in similar efforts at a local level.

ATTACHMENTS:

A: PowerPoint Presentation

Climate Change Adaptation Assessment

Regional Transit Technical Advisory Committee

May 31, 2017

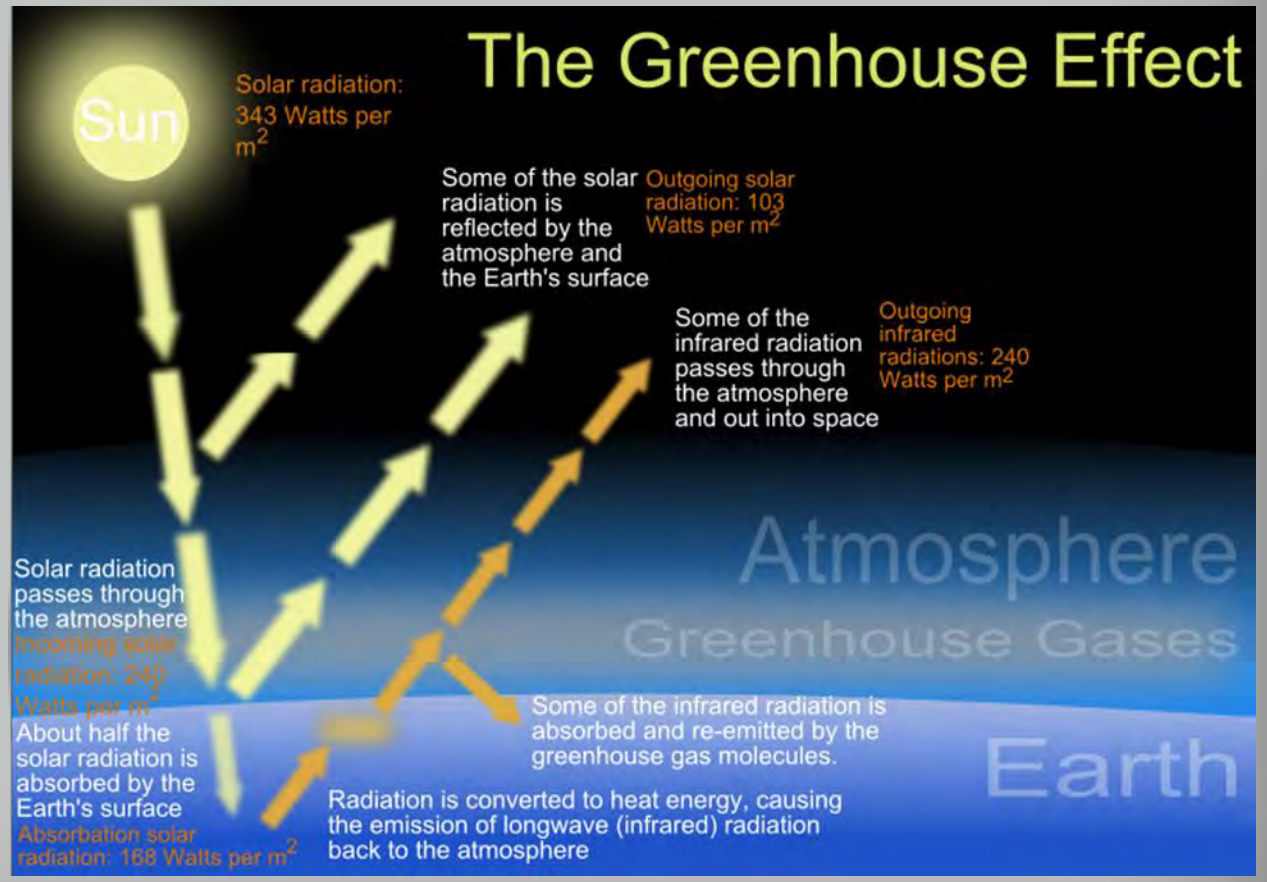
Climate Change Adaptation Assessment
Staff recently executed a consultant contract

- To assess vulnerability to impacts from climate
- To provide a toolbox of resources and strategies for local operators to use in planning their own climate change response
  - Help in evaluating criticality, exposure, vulnerability and consequences, and evaluating feasible adaptation measures.

Global Climate Change
The Physical Science Context

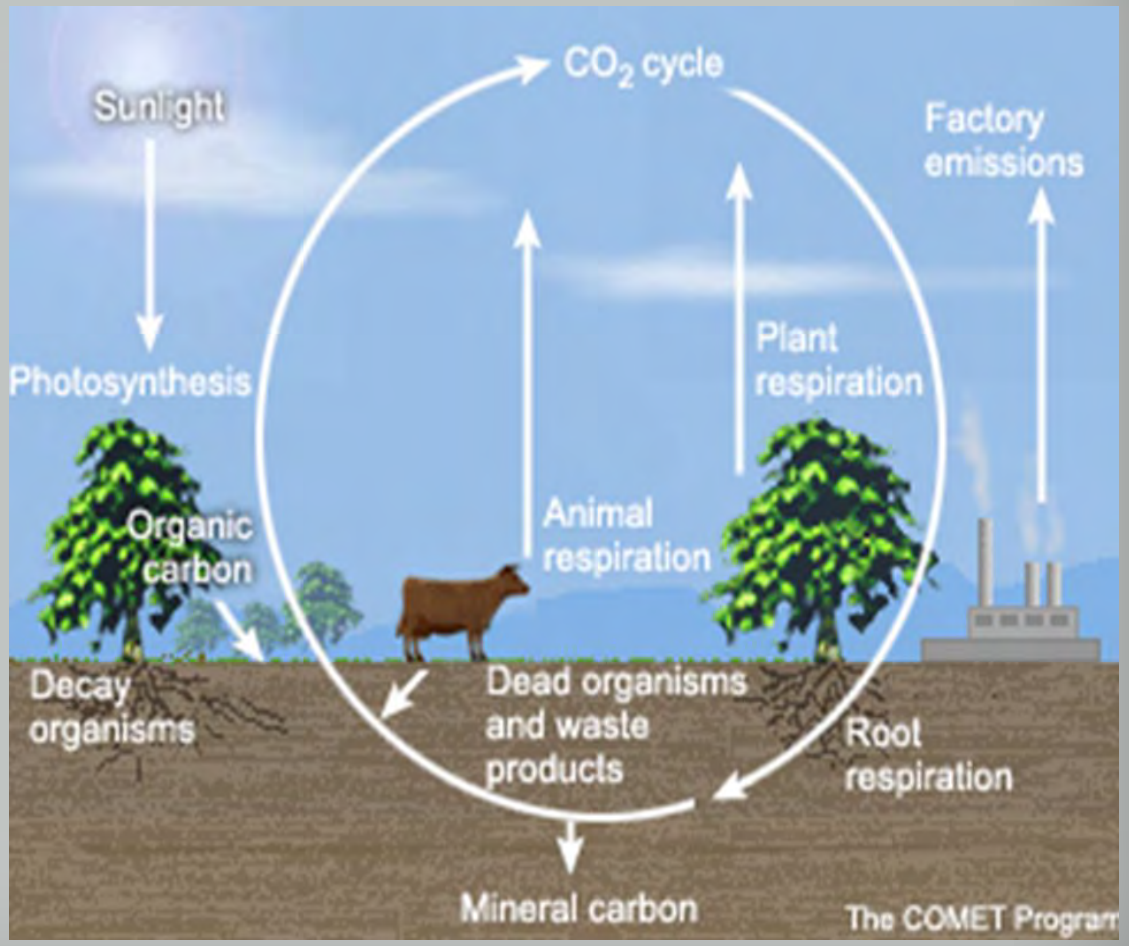
A Changing Climate
The Greenhouse Effect

- Greenhouse Gases Trap Heat on Atmospheric Planets
  - This is why the surface temperature of Venus is hotter and more stable than Mercury's
  - Changes in atmospheric concentrations of GHGs can lead to climatic change



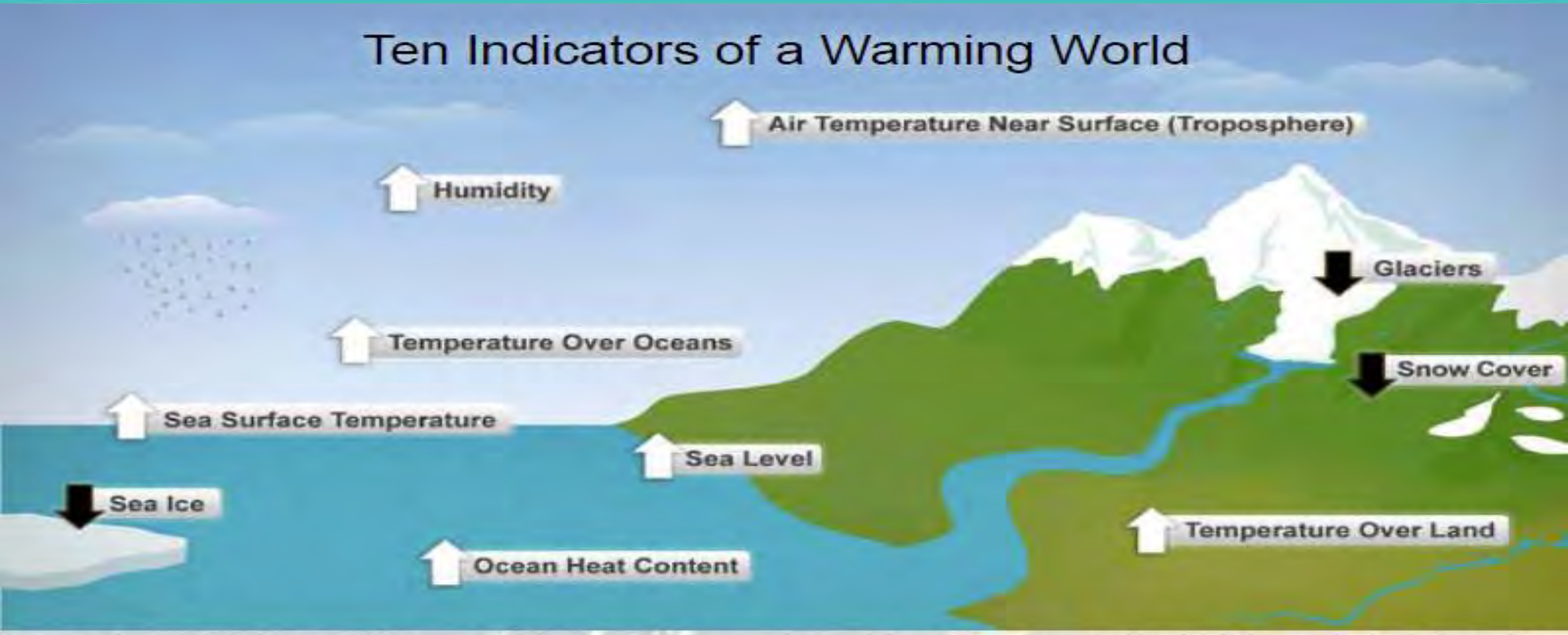
A Changing Climate
The Carbon Cycle

- CO_2 concentrations in Earth's atmosphere are typically regulated by photosynthesis, respiration, and decomposition
- Rapid burning of fossil fuels has added additional CO_2, outside of the cycle
- This CO_2 is accumulating in the atmosphere, trapping additional heat energy



Source :University Cooperative for Atmospheric Research

A Changing Climate
Ten Indicators of Change

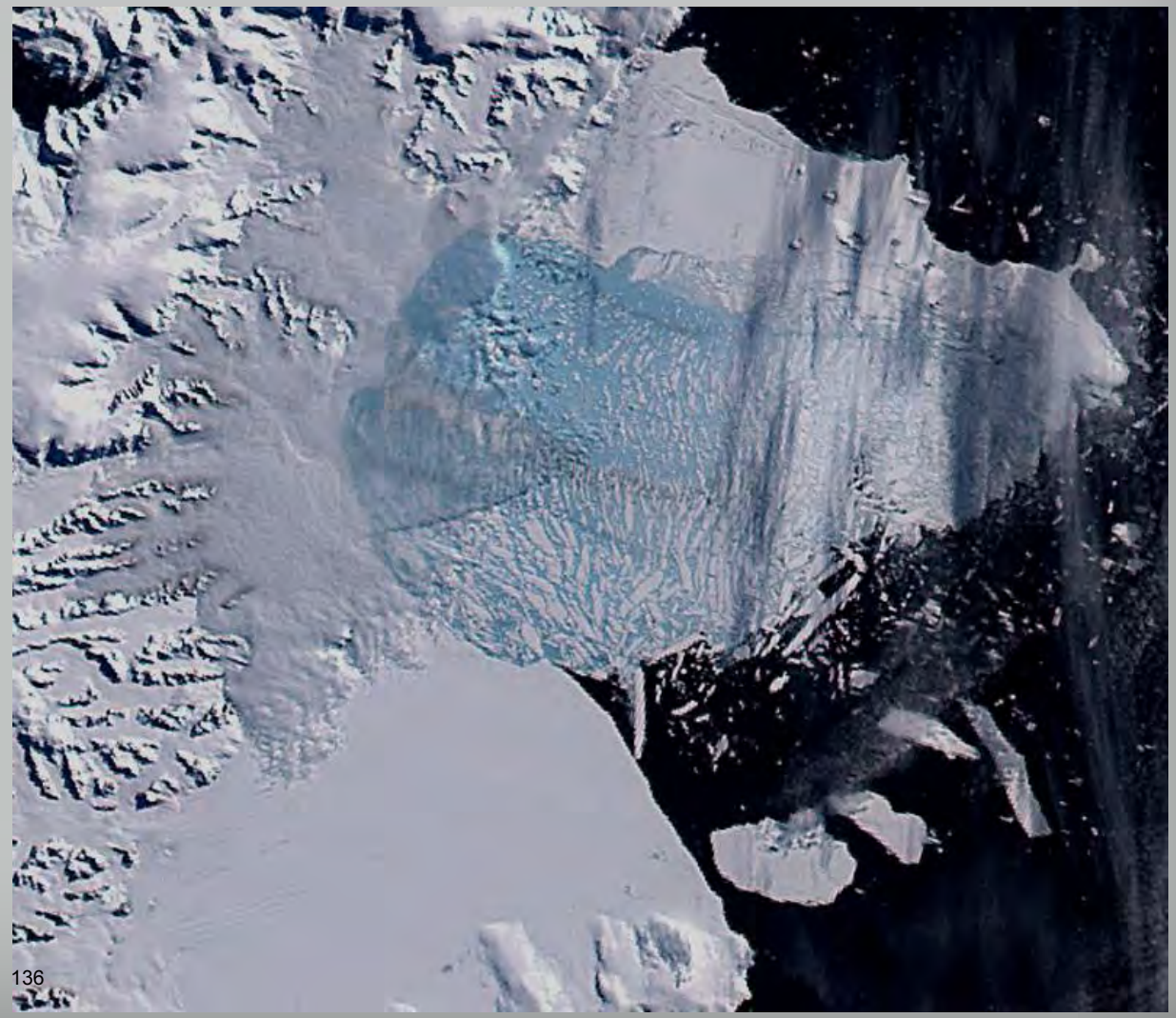


Seven of these indicators would be expected to increase in a warming world and observations show that they are, in fact, increasing. Three would be expected to decrease and they are, in fact, decreasing.

Source: NOAA

A Changing Climate
Leaving an Epoch of Stability

- Earth's climate is rapidly changing
  - The most recent past, the Holocene, was a time of marked climatic stability, following the recurrent ice ages of the Pleistocene
  - All recorded human civilizations evolved during this period of stability



Source: NASA SVS

Adapting to the New Climate
2 broad strategies to respond to climate change

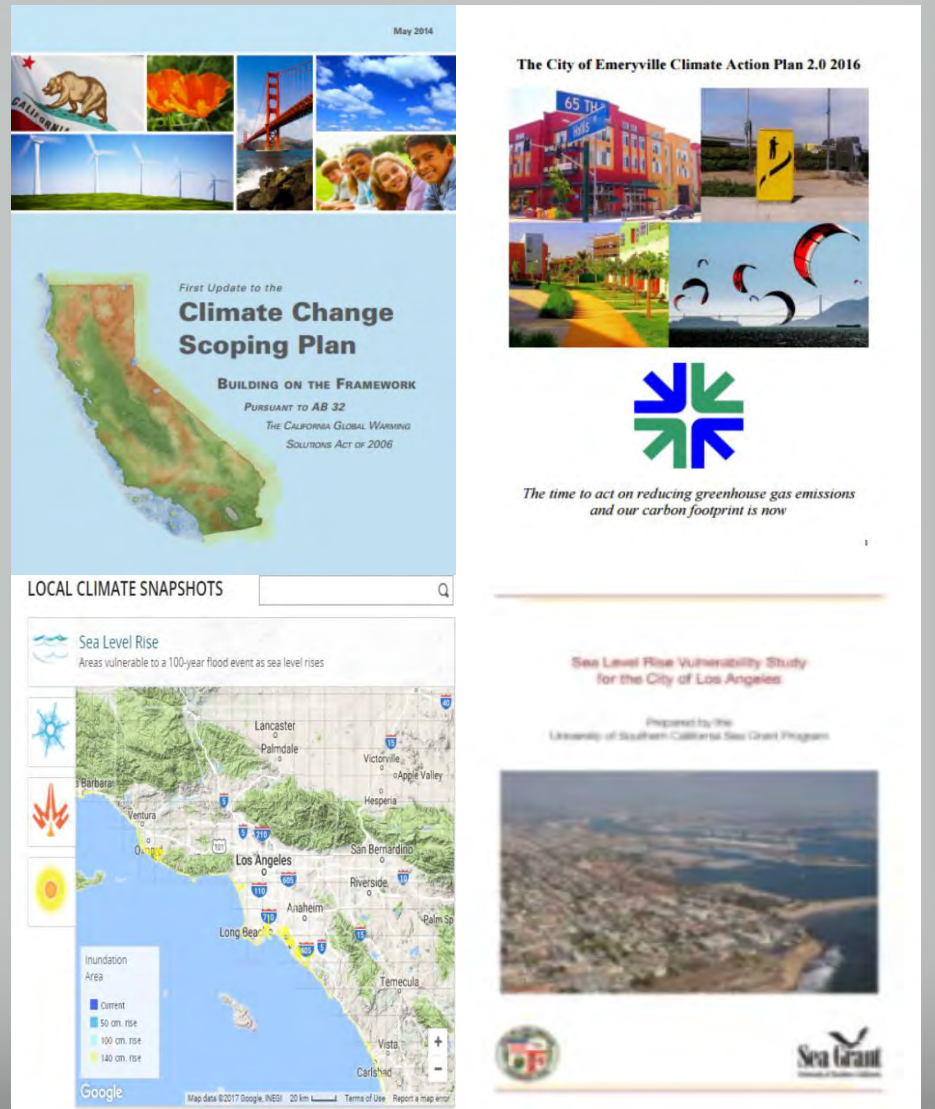
- Mitigation - Emissions reductions or otherwise reducing atmospheric concentrations of GHGs
- Adaptation – Making assets and systems more resilient to the impacts of climate change

Source: Transport for London

A Changing Climate

Understanding and Predicting Future Change

- Earth Systems Scientists use Global Circulation Models (GCM) to analyze past climates and predict change
- Large analytical zones (100^3 miles) –not useful for predicting local change
- Recently developed techniques have improved local forecasts and tools
- Rapid development of field of adaptation and resiliency planning



A Changing Climate
Mitigating Future Change

- GCM forecasts are collected and analyzed in the UN's Intergovernmental Panel on Climate Change Process (IPCC)
- This group has provided the scientific framework United Nations Framework Convention on Climate Change (UNFCCC) Emissions Reductions Agreements
  - RIO 1991 -- 2˚C above preindustrial levels by 2100
  - Paris 2015 – 1.5 ˚C above preindustrial levels by 2100

2016 was an atypical year due to ENSO, but initial estimates have varied from 1.2˚C to 1.6 ˚C above preindustrial levels

A Changing Climate
Projecting Future Change

- GCMs predict that the new climate will be:
  - Hotter – higher average temperatures and more high heat days
  - Wetter – increased precipitation and more frequent extreme precipitation
  - Less stable – more frequent drought, less typically seasonable weather, more extreme weather events including very large storms

Thinking about this change needs to be informed by two factors:

The extent and timing of change

A Changing Climate
Projecting the Global Impacts of Change

- A hotter, wetter, less stable climate leads to:
  - Decreased polar and terrestrial glaciers
  - Rising Sea Levels
  - Larger, more intense precipitation and storms
  - More acidic oceans
  - Ecosystem disruption/loss of biodiversity

A Changing Climate

Projecting the Local Impacts of Change

- Locally these changes will lead to:
  - Coastline loss, sea level rise, and increased storm surges
  - More intense precipitation and storms interspersed with more frequent drought
  - Increased likelihood of wildfire
  - More frequent high heat days
  - Reduced snow accumulation

Adapting to Change

- While mitigating climate change is a global issue, adapting to the impacts of climate change is primarily a local issue
- It requires local agencies to assess their vulnerability to potential climate stressors, and to plan for resilience
  - For transit providers, this requires critical thinking about how vulnerability to potential climate change impacts will affect asset management, long range and capital planning

Adaptation is a response to global warming and climate change, that seeks to reduce the vulnerability of social and biological systems to relatively sudden change and thus offset the effects of global warming.

--UN Framework Convention on Climate Change

Southern California Transit Climate Change Adaptation Assessment

Transit Climate Adaptation Assessment

Overall Project Objectives

- Capitalize on recent developments in local forecasting and adaptation planning efforts at Metro
- Provide Adaptation and Resiliency Assessment for use by providers
  - Particularly for small and midsized agencies with constrained financial resources
  - Intended to be an actionable, decision-assisting resource for providers of public transportation in the SCAG Region
  - Regarding asset management, long range and capital planning and system preservation
- Increase regional transit system disaster recovery and resilience

Technical Process

Assets

I. Assets
   a. Inventory
   b. Criticality Criteria /Screening
   c. Asset Mapping

Technical Process

Climate Forecasts

II. Apply Climate Information

a. Obtain Forecast Data

i. Sea level Rise

ii. Precipitation

iii. Flooding

iv. Warming Temperatures

b. Identify Stressor Types and Thresholds

Technical Process

Vulnerability Assessment

III. Vulnerability and Risk Assessment

a. Determine Stressor Exposure

b. Determine Risk and Magnitude of Consequences

Climate Adaptation Toolbox

Resources and Guidance for Resiliency

The end product of the study is intended to be an adaptation strategies toolbox for the use of local transit providers to incorporate these concerns into long range and capital planning

It will contain resources that will assist transit agencies in collecting data, assessing criticality, evaluating vulnerability /consequences, and identifying and implementing adaptation measures.

Climate Adaptation Toolbox

Resources and Guidance for Resiliency

- Resources for
  - Criticality criteria.
  - Transit sensitivity matrix.
  - Example adaptation strategies for transit, organized by asset class and climate stressor
  - Timeline development and prioritization
  - Resources for establishing roles /responsibilities and identifying next steps, including guidance on mapping adaptation to the agency's key decision-making processes.
  - A template for contingency planning
- Guidance on how to:
  - Obtain climate data.
  - Evaluate vulnerability and consequences.
  - Evaluate adaptation measures for effectiveness, cost-efficiency, political viability, and co-benefits—
  - Select a suite of adaptation measures that work well together.

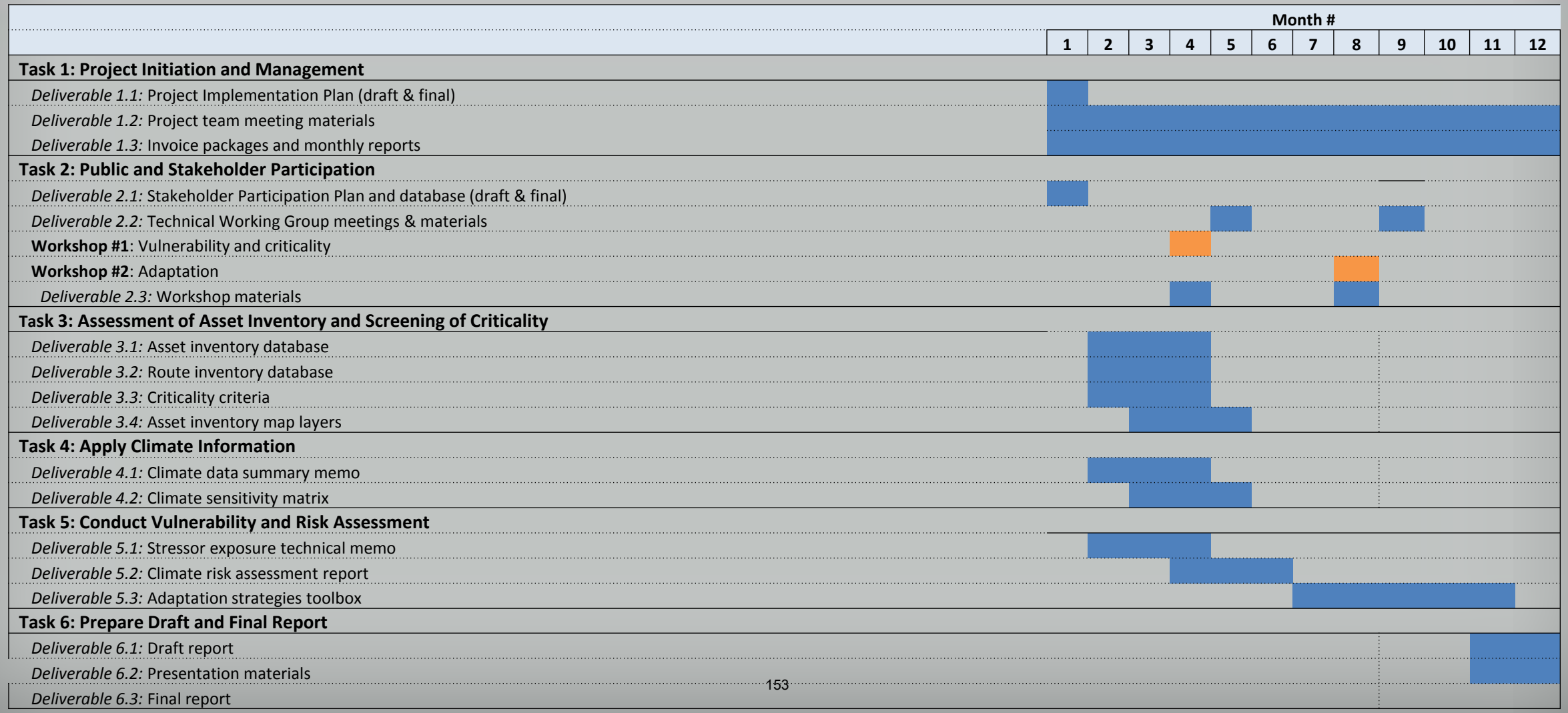
Outreach

- The key point for transit provider input will be the RTTAC. The RTTAC will serve as a TAC for this project.
- We will return to you for input on key findings, criteria, and methodology
- We will also seek data regarding routes and key fixed assets, where we do not already have it

Outreach

- There will also be two workshops, where we will seek wider participation from staff at local transit agencies
  1. Vulnerability/Criticality
  2. Adaptation Strategies

Project Schedule



Thank You

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