

**Board Report**

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Agenda Number: 5.

**AD HOC SUSTAINABILITY COMMITTEE
NOVEMBER 16, 2016**

SUBJECT: UPDATE - METRO/SCAG JOINT WORK PROGRAM

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE update on the **Metro/SCAG Joint Work Program**.

ISSUE

On July 2, 2015, the Southern California Association of Governments (SCAG) adopted the Updated Sustainability Joint Work Program between SCAG and Metro, which was approved by the Metro Board on May 28, 2015. Some of the highlights of the updated program include coordinating efforts for respective planning grant programs, First/Last Mile training, and the implementation of the Regional Active Transportation Safety and Encouragement Campaign. This report is to update the Board of Directors on recent progress made.

DISCUSSION

Staff provides regular progress reports on the SCAG/Metro Joint Work Program. We are reporting on the updated program as adopted on May 28, 2015.

Highlighted Project: SCAG Sustainability Grant Program/Go Human Campaign Events

At prior meetings of the Ad Hoc Sustainability Committee, staff provided an overview of SCAG's Go Human Campaign, a region-wide effort to encourage active transportation usage and safety. Among various activities, the program includes a series of "pop-up" events around the region to highlight active transportation themes and messages and to engage the public. To date, SCAG has implemented three Go Human events in Los Angeles County. The most recent event was implemented in north Long Beach on October 1 to highlight the city's newest protected bikeway on Artesia Boulevard and to gain input on upcoming safety projects on Myrtle Avenue.

SCAG will be providing technical assistance for additional Go Human events, along with other active transportation plans and programs, as part of the 2016 Sustainability Call for Proposals. The Call for Proposals was released on September 29, 2016 and applications are due to SCAG on November 18, 2016. Metro is collaborating with SCAG to promote the program across Los Angeles County, and the two agencies have planned to co-host a workshop for city and county staff focused on opportunities

to apply for first-last mile planning and programs. In addition, SCAG has been providing on-line trainings and presentations to its policy committees and sub-regional agencies, as requested, to increase awareness and interest in the program.

SCAG's Sustainability Call for Proposals is anticipated to award approximately \$11 million to projects in three categories: Active Transportation, Integrated Land Use, and Green Region Initiative. Proposals will be evaluated based on project need, goals, objectives, outcomes and community support. All cities, counties and Councils of Governments (COGs) are encouraged to apply. Guidelines, application forms, and submission information are available on SCAG's Sustainability website at <http://sustain.scag.ca.gov/Pages/default.aspx>.

As part of the Joint Work Program and efforts to better align and leverage regional and local funding, Metro and its counterparts in the other five counties in Southern California collaborated with SCAG to develop a funding strategy for the Call for Proposals that includes a commitment of five percent of the region's share of the 2017 California Active Transportation Program. Metro also supported SCAG's successful application to the Mobile Source Reduction Committee, adding an additional \$2.5 million to the program for active transportation proposals. The guidelines for the Sustainability Call for Proposals establish funding minimums for each county to ensure geographical equity.

Highlighted Project: Arizona State University Study on GHG Impacts Associated with First/Last Mile strategies

Also included in the Joint Work Program is a recently completed study prepared by Arizona State University. The lead researcher, Mikhail Chester, will present on the findings of the study at the November 16, 2016 meeting of the committee.

Updates

- SCAG developed a screening tool for localities considering implementing tax increment financing, including Enhanced Infrastructure Finance Districts and Community Revitalization Investment Authorities. Metro and SCAG will co-host a workshop on use of these financing tools, and Metro staff anticipates including funding for consideration of these tools in the next round of TOD Planning Grants. Any recommended updates to the TOD Grant program will be brought to the Board for consideration.
- First/Last Mile: SCAG and Metro are collaborating on a First/Last Mile Training program for local staff and officials. A consultant is currently under contract with Metro and developing curriculum. Trainings will be scheduled for early 2017.
- SCAG and Metro recently completed a Memorandum of Understanding to collaborate on the Bicycle Data Clearinghouse, including cost-sharing.

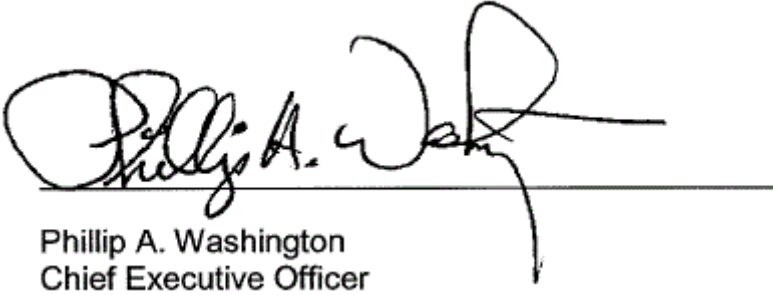
NEXT STEPS

Staff will continue to provide periodic updates to the committee on activities associated with the Joint Work Program.

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First-last mile environmental life-cycle assessment of multimodal transit in Los Angeles

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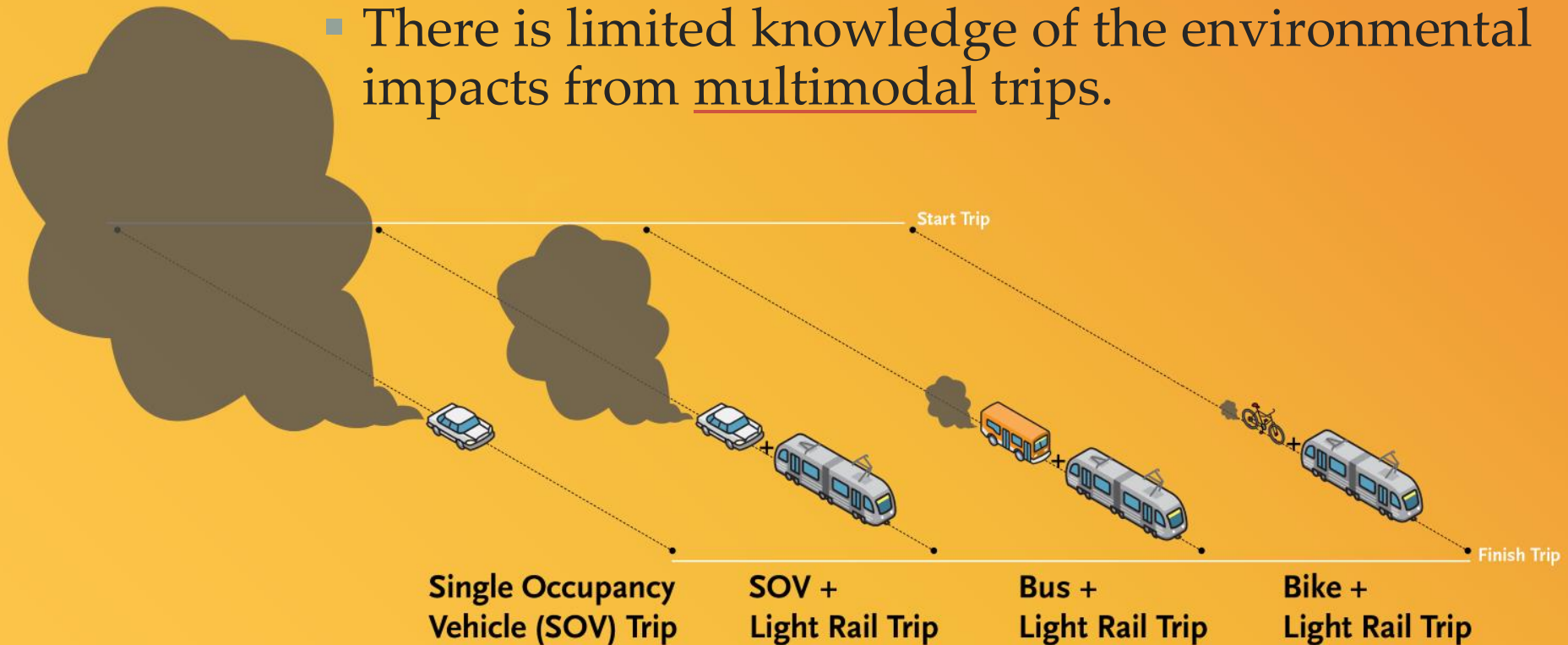
Outline

- Project motivation
- Project overview and scope
- Project methodology & data
- Life cycle impacts (per passenger mile)
- Multimodal impacts (per passenger trip)
- Reducing 10% of system GHG impacts



Motivation in transportation

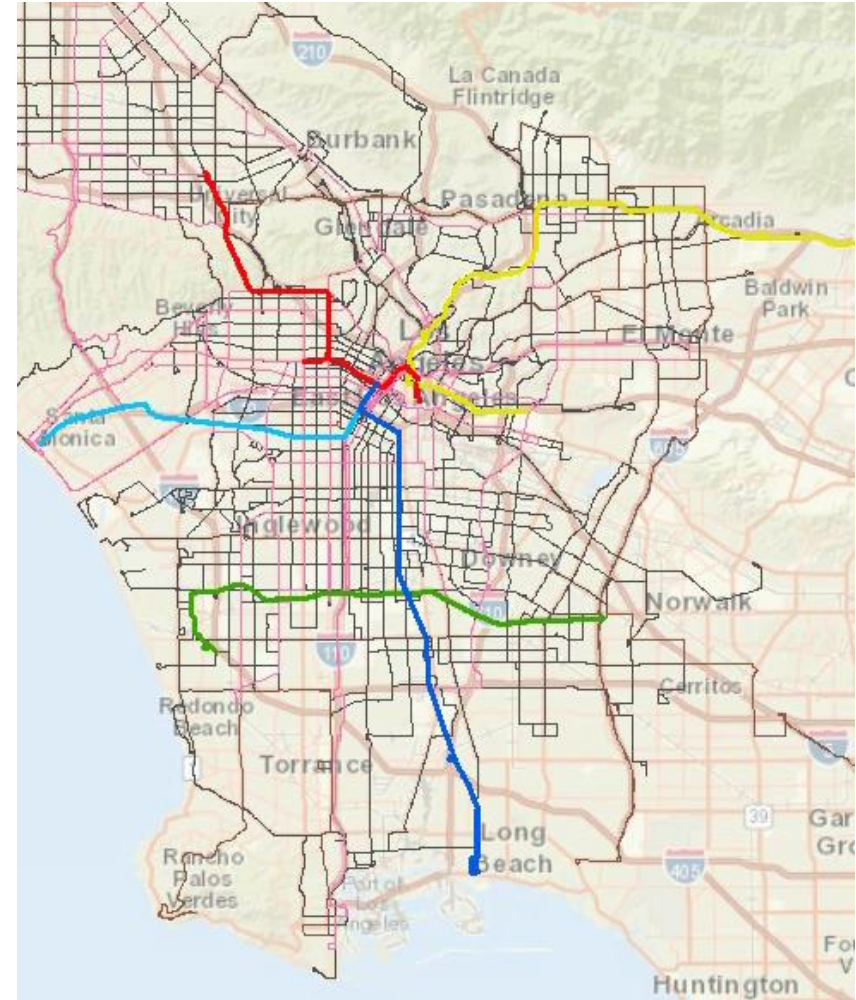
- There is a strong understanding of the environmental impacts from unimodal trips.
- There is limited knowledge of the environmental impacts from multimodal trips.



- Very limited knowledge of impacts from automobile access and egress with transit.

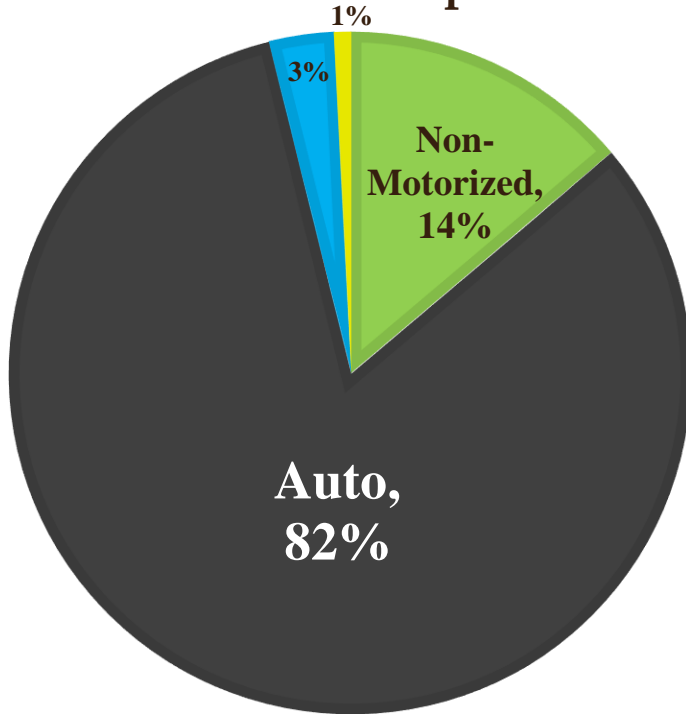
Project Overview

- Assess impacts generated from 10 LA transit systems and LA automobiles.
- Transit systems included:
 - Metro Light Rail Transit (LRT, 4 lines)
 - Metro Heavy Rail Transit (HRT, 1 line)
 - Commuter Rail Transit (CRT, 1 line)
 - Metro Local Bus
 - Metro Rapid Bus
 - Metro Express Bus
 - Bus Rapid Transit (BRT, 1 line)
- LA Auto:
 - 25 MPG sedan



Modal Split in LA

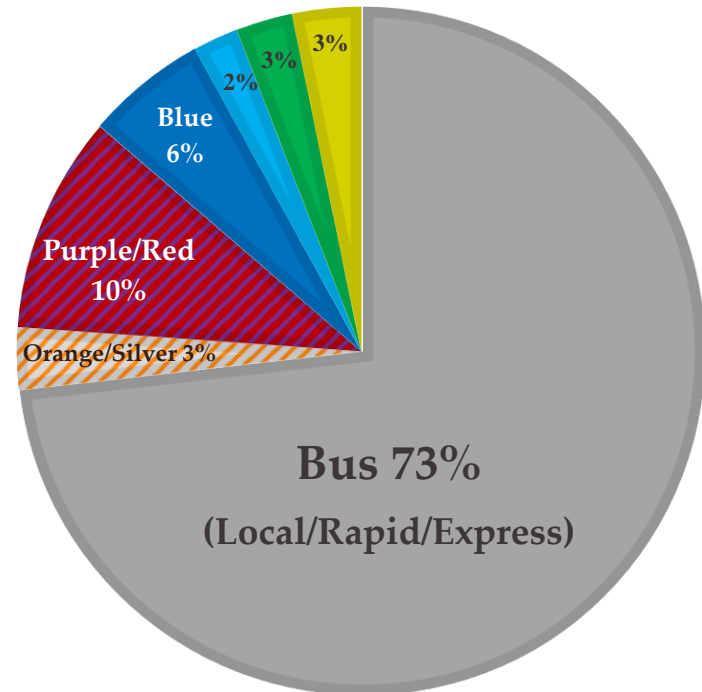
Modal Split



- Non-Motorized
- Auto
- Metro Transit
- Other

Estimate via California Household Travel Survey (Caltrans, 2013)

Transit Modal Split



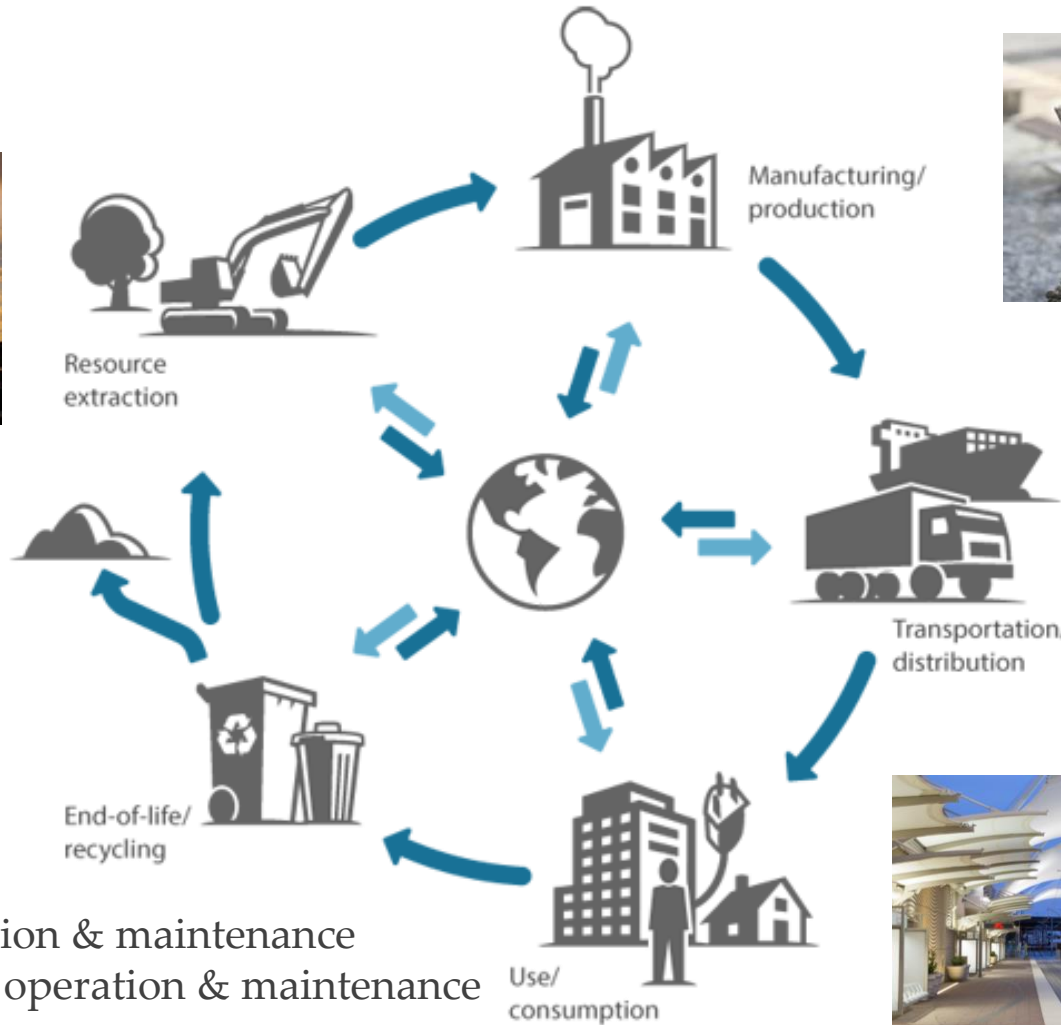
- Bus
- Blue
- Gold
- BRT
- Expo
- Heavy Rail
- Green

Estimate via LA Metro boardings (LA Metro, 2016)

Life-Cycle Assessment Scope



- Material and fuel extraction



- Vehicle manufacturing
- Infrastructure construction
- Electricity production and generation

- Vehicle operation & maintenance
- Infrastructure operation & maintenance



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Data & Tools

Trip data:

- California Household Travel Survey (CHTS, 2012-13)
- LA Metro On-board Surveys (2013 – current)



Transit operational data:

- Ridership & Operation Reports (2013 – current)
- Engineering design documents, Google Earth

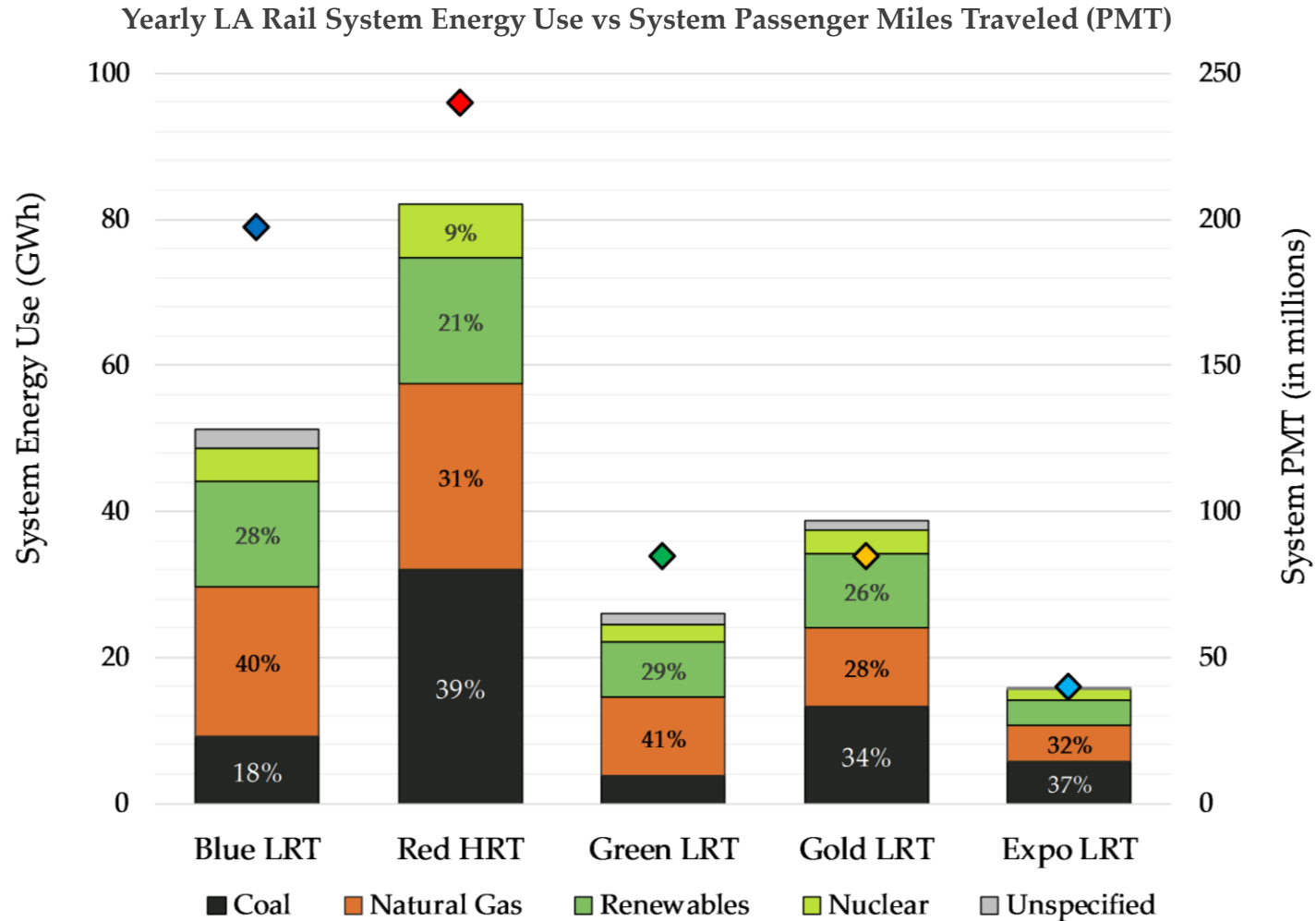


Life-cycle Modeling:

- Modeling tools including SimaPro, GREET, CiRN-LCA, and other components
- EcoInvent and EIOLCA database and empirical studies



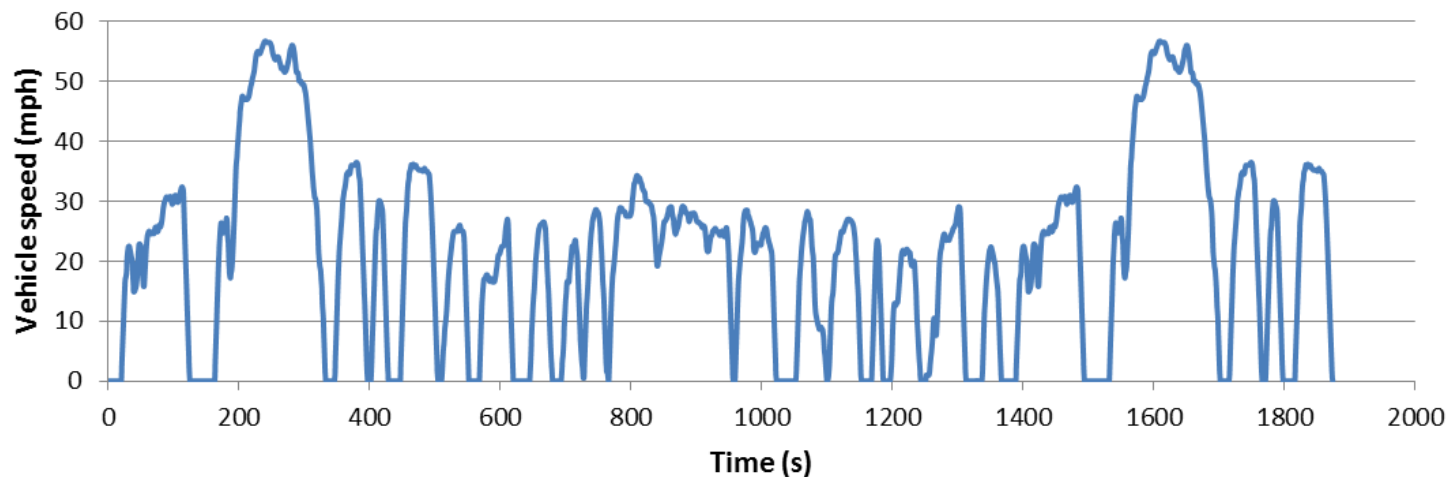
LA Metro Rail Energy Use



* Reflects 2013-2014 data

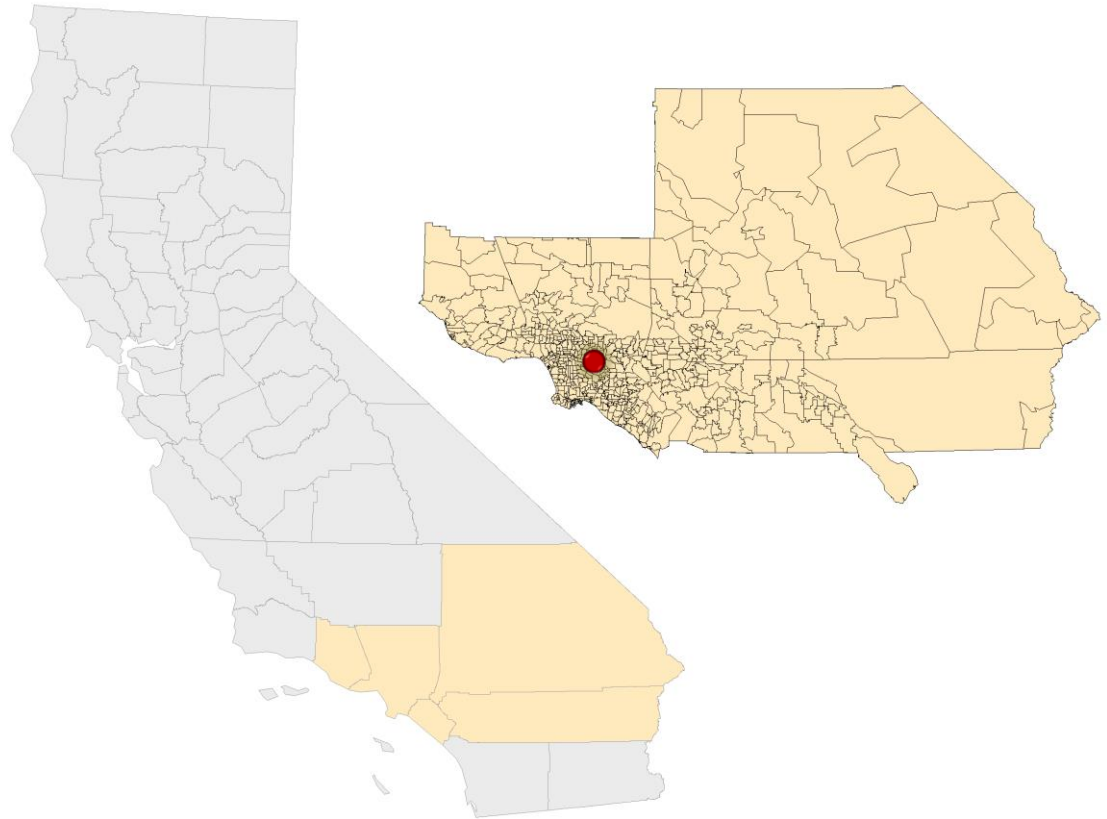
Bus & Metrolink Drive Cycles

- Local, Express, and Rapid Bus drive cycles were estimated by matching similar empirically tested cycles in similar buses (excluding Orange BRT).
- Estimated system fuel consumption (based on mileage) was 4% lower for buses, and 7% lower than locomotives.
- Metrolink drive cycles developed from similar locomotive operation impacts from Fritz (1994).



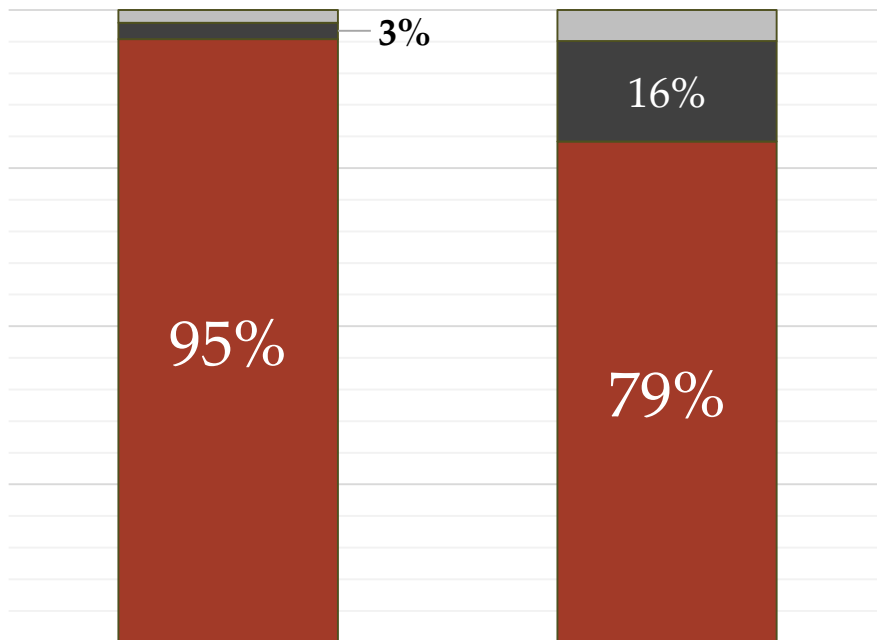
Trip Characteristics (CHTS)

- Trip characteristics determined for each region/transit system.
- Aggregation at the zip code level, over 900 sub-regions.
- Auto trips are shorter distance than transit for same ODs.



Transit Access & Egress in LA

Access & Egress Modes
(2012-13 CHTS)

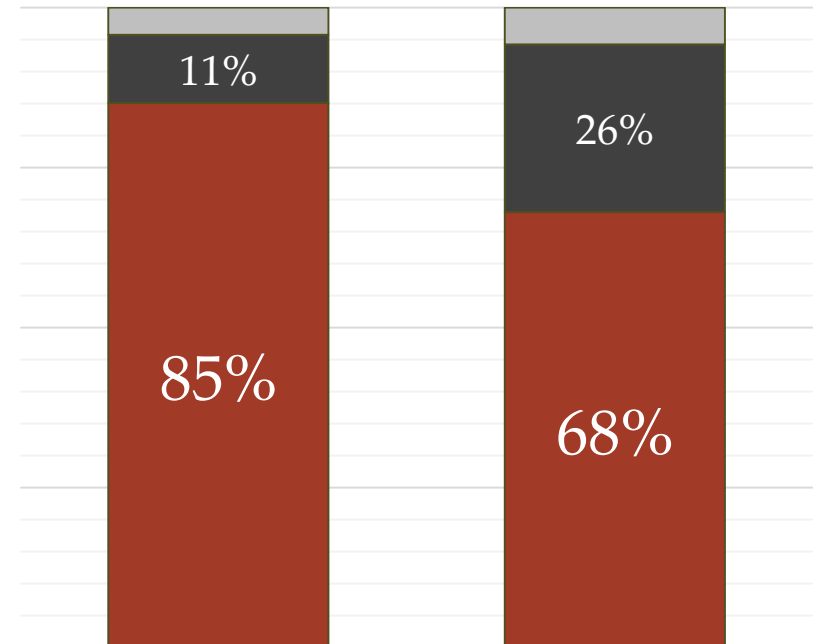


Metro Bus

Metro Rail

■ Walk/Bike ■ Auto ■ Other

Access Mode
(2012-13 Metro Surveys)



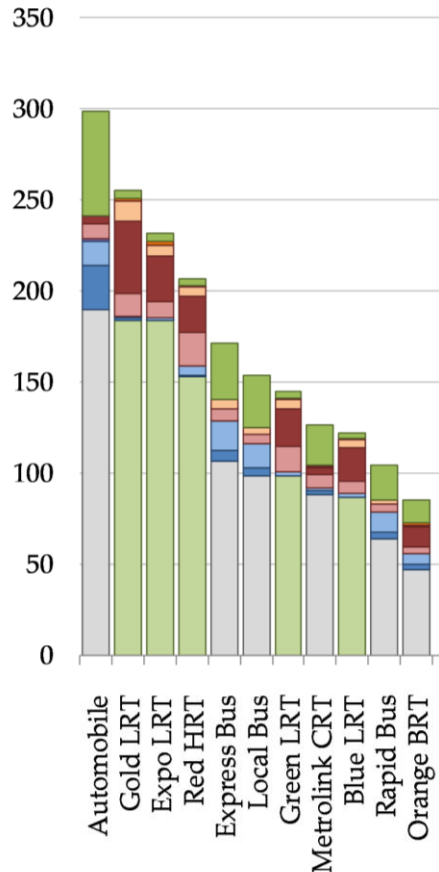
Metro Bus

Metro Rail

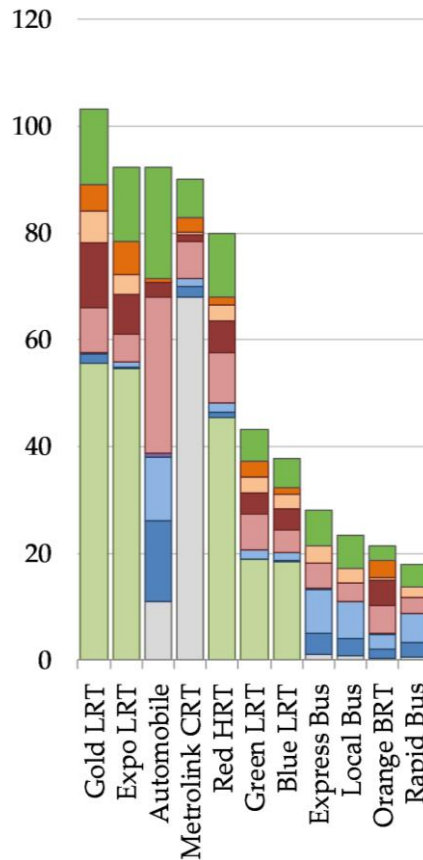
■ Walk/Bike ■ Auto ■ Other

Per Passenger-mile Impacts

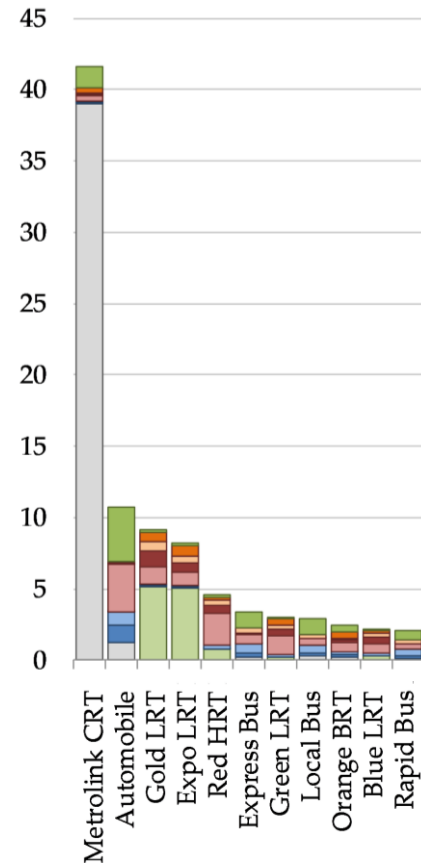
GHGs (g CO₂e/PMT)



Respiratory (mg PM_{2.5}e/PMT)



Smog (g O₃e/PMT)

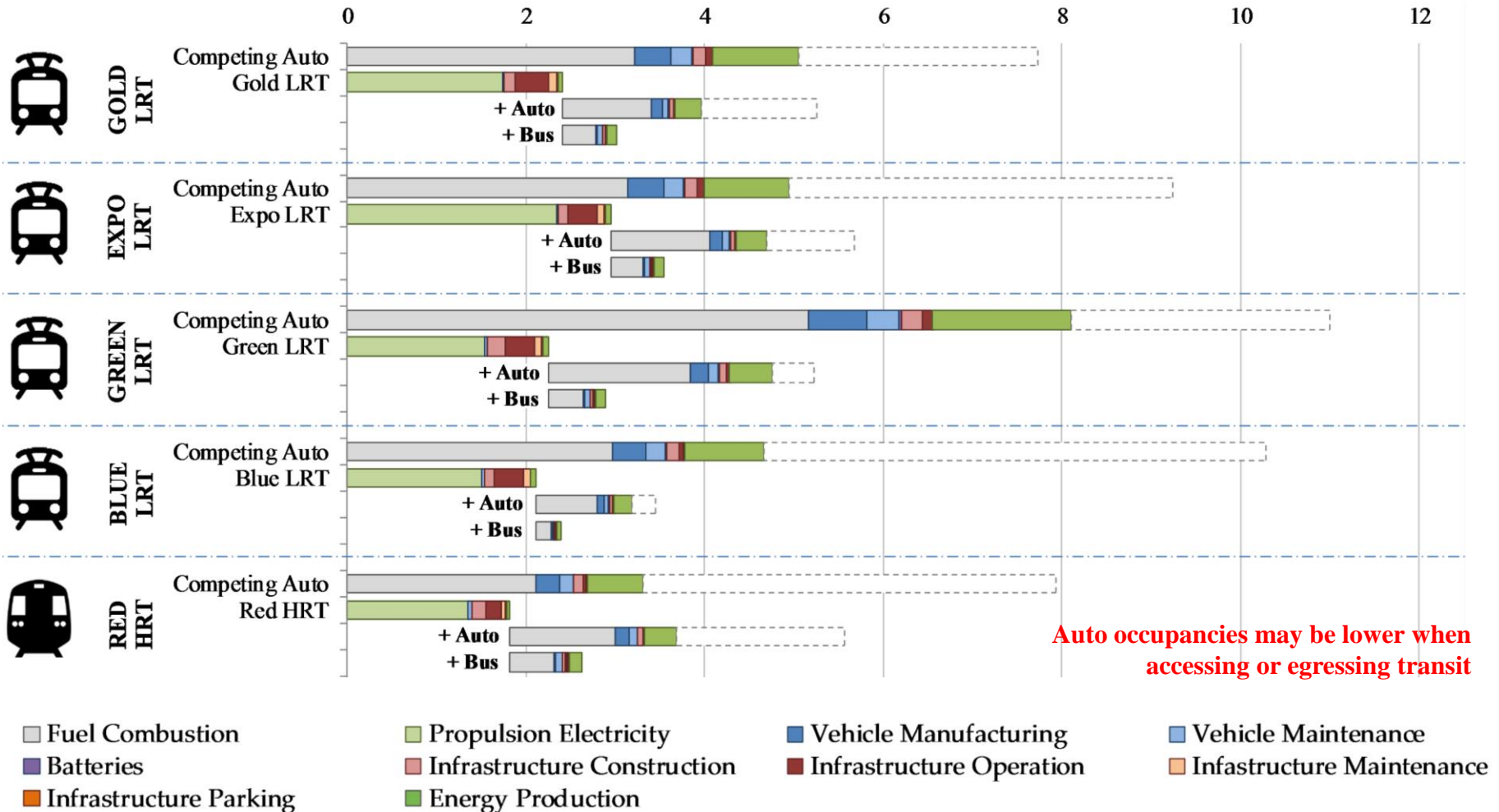


Note that auto trips in LA are ~2 pax per trip

- Fuel Combustion
- Propulsion Electricity
- Vehicle Manufacturing
- Vehicle Maintenance
- Batteries
- Infrastructure Construction
- Infrastructure Operation
- Infrastructure Maintenance
- Infrastructure Parking
- Energy Production

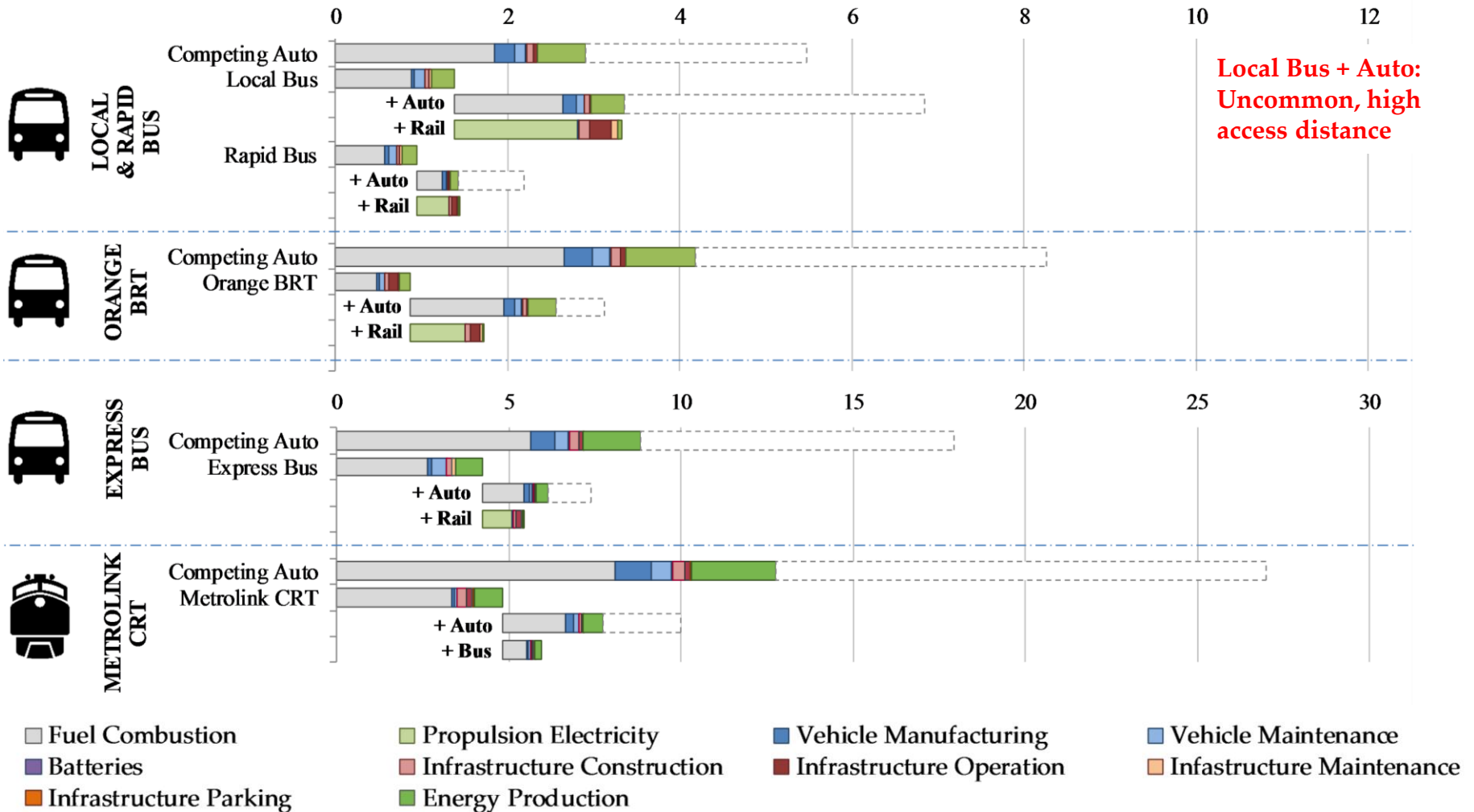
GHGs per Passenger-Trip

GREENHOUSE GAS EMISSIONS (kg CO₂e per passenger trip)



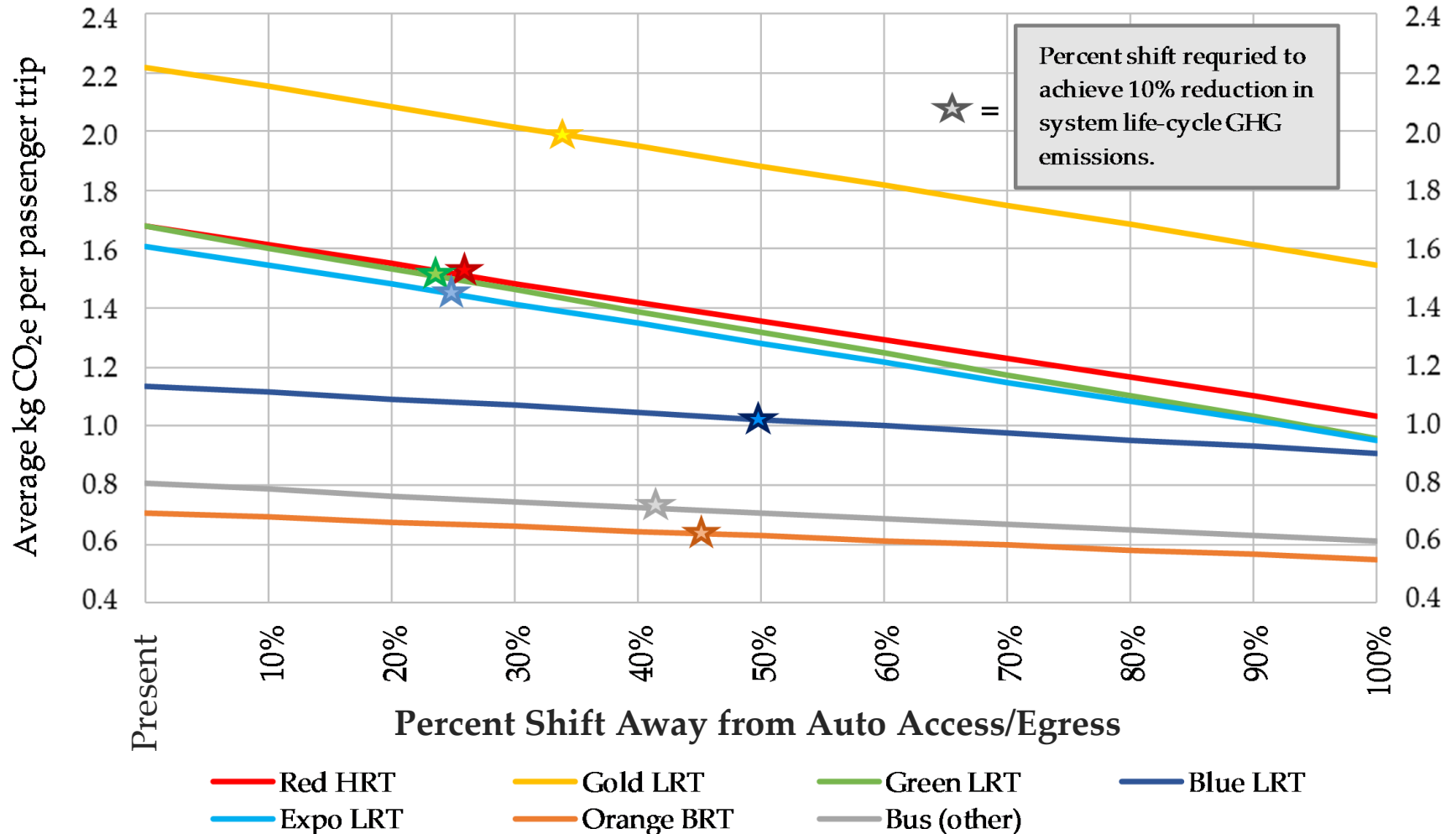
GHGs per Passenger-Trip

GREENHOUSE GAS EMISSIONS (kg CO₂e per passenger trip)



Reducing 10% of GHG Impacts

Average GHG emissions per passenger trip vs auto shift



la.transportationlca.org

REPORT and DATA



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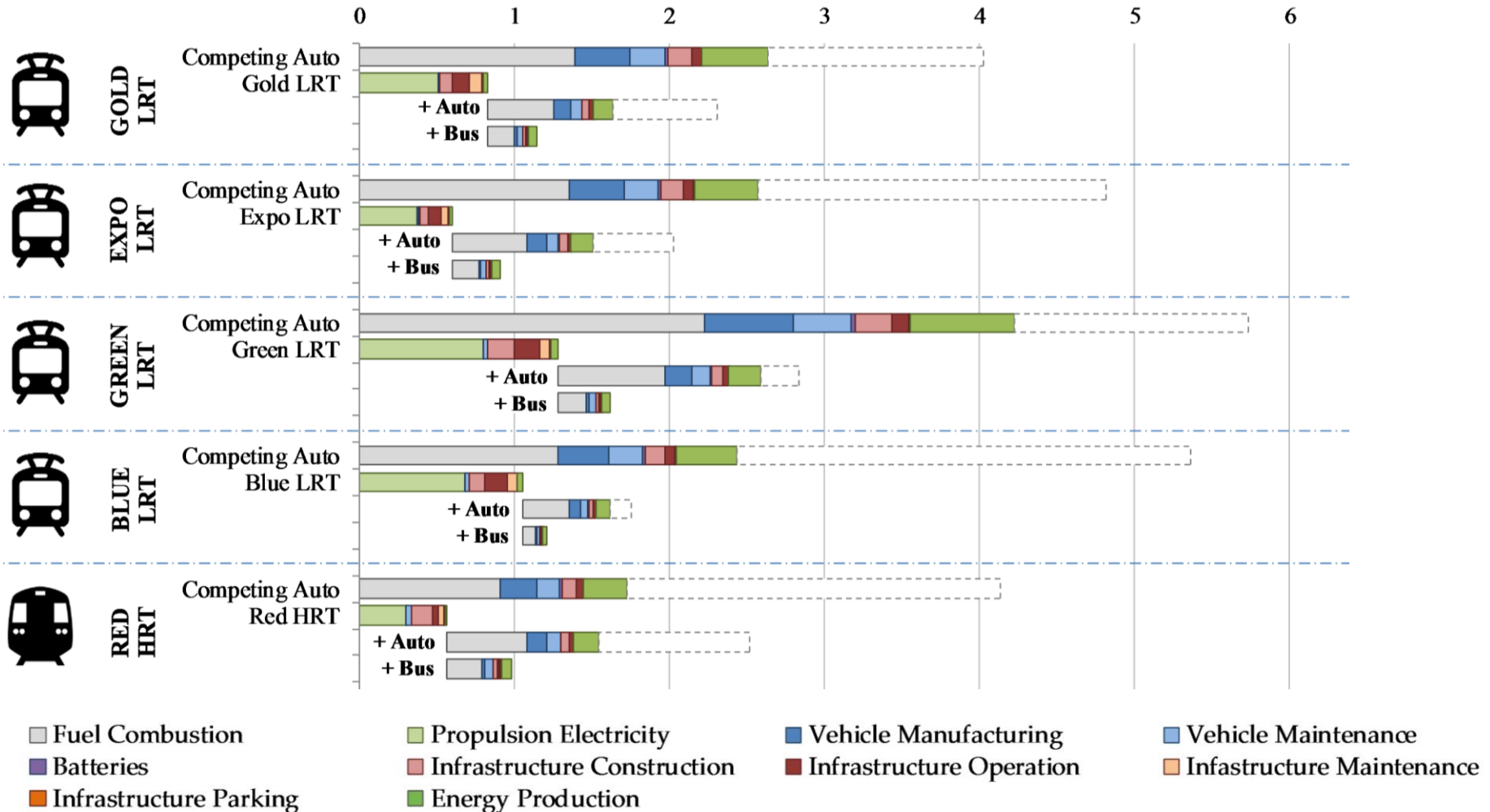
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System Boundary

Life Cycle Grouping	Automobiles/Buses	Rail
Vehicle		
Manufacturing	<ul style="list-style-type: none"> ▪ Vehicle Manufacturing ▪ Battery Manufacturing ▪ Transport to Point of Sale 	<ul style="list-style-type: none"> ▪ Train ▪ Transport to Point of Sale
Operation	<ul style="list-style-type: none"> ▪ Propulsion ▪ Idling 	<ul style="list-style-type: none"> ▪ Propulsion ▪ Idling
Maintenance	<ul style="list-style-type: none"> ▪ Typical Maintenance ▪ Tire Replacement ▪ Battery Replacement 	<ul style="list-style-type: none"> ▪ Typical Train Maintenance ▪ Train Cleaning ▪ Flooring Replacement
Infrastructure		
Construction	<ul style="list-style-type: none"> ▪ Roadway 	<ul style="list-style-type: none"> ▪ Track ▪ Station
Operation	<ul style="list-style-type: none"> ▪ Roadway Lighting ▪ Herbicide Use 	<ul style="list-style-type: none"> ▪ Track, Station, and Parking Lighting ▪ Herbicide Use ▪ Train Control ▪ Miscellaneous (Escalators, Equipment)
Maintenance	<ul style="list-style-type: none"> ▪ Roadway Maintenance 	<ul style="list-style-type: none"> ▪ Track and Station Maintenance
Parking	<ul style="list-style-type: none"> ▪ Curbside Parking 	<ul style="list-style-type: none"> ▪ Dedicated Parking
Energy Production		
Extraction, Processing, & Distribution	<ul style="list-style-type: none"> ▪ Gasoline/Diesel/Natural Gas Extraction, Processing, & Distribution 	<ul style="list-style-type: none"> ▪ Raw Fuel Extraction and Processing, Electricity Generation, Transmission & Distribution

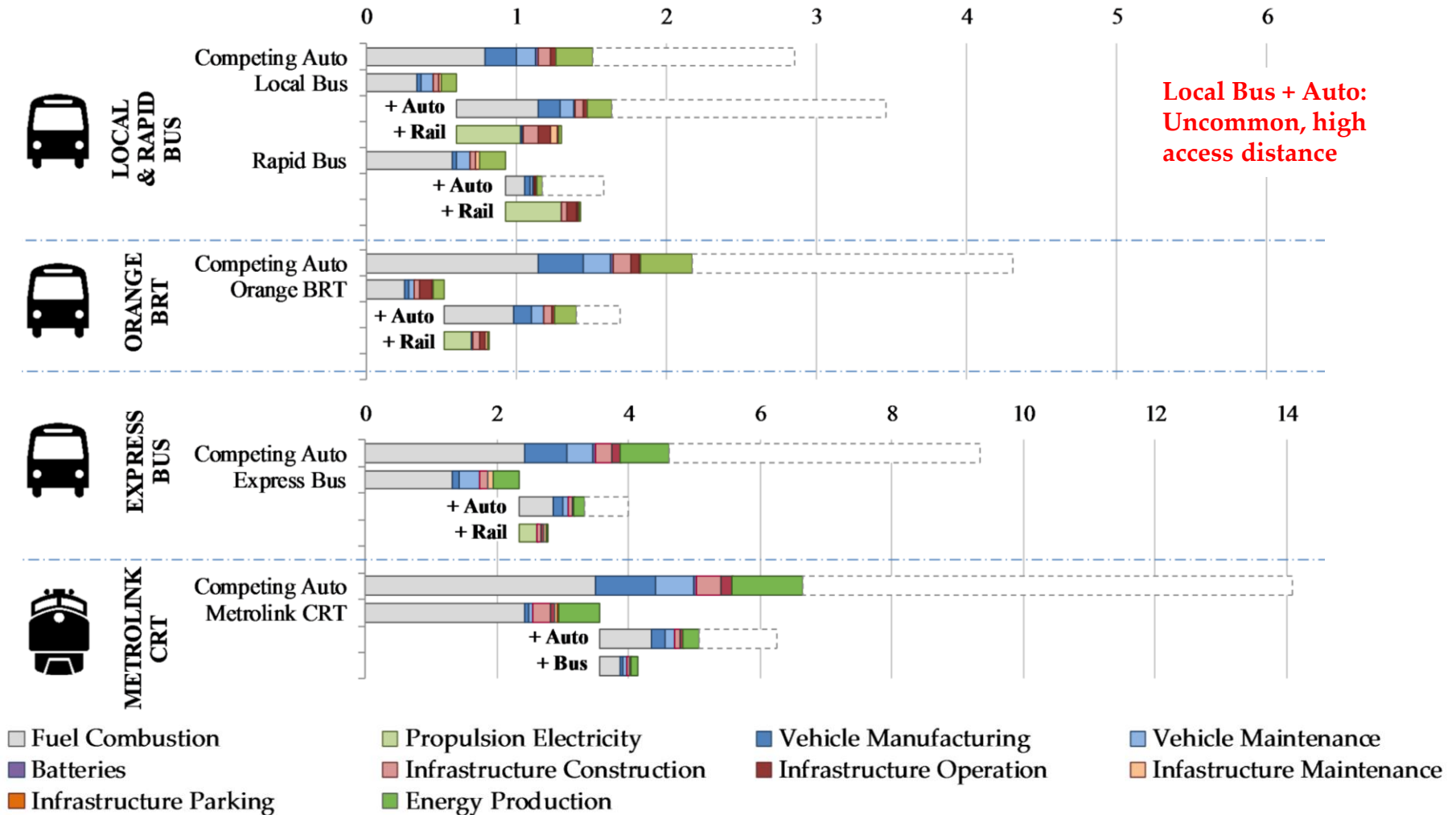
GHGs per Passenger-Trip (LT)

GREENHOUSE GAS EMISSIONS (kg CO₂e per passenger trip)



GHGs per Passenger-Trip (LT)

GREENHOUSE GAS EMISSIONS (kg CO₂e per passenger trip)



Local vs Remote Impacts Per Passenger Trip

