California High-Speed Rail Authority

Burbank to Los Angeles Project Section

Final Environmental Impact Report/ Environmental Impact Statement

Appendix 2-E: California High-Speed Rail Station Access and Egress Southern California Mode Share Adjustment Methodology

September 2021

CALIFORNIA High-Speed Rail Authority

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being or have been carried out by the State of California pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated July 23, 2019, and executed by the Federal Railroad Administration and the State of California.

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Memorandum

DATE: November 21, 2018

TO: Michelle Boehm, Southern California Regional Director

FROM: Ken Zatarain, Lead Access Planner

CC: Harry Boxler, Mark Chang, John Helsel, Don Hubbard, Ben Lichty, Mike McCormick, Mark McLoughlin, and Lisa Nungesser

SUBJECT: California High-Speed Rail Station Access and Egress
Southern California Mode Share Adjustment Methodology and Review Process

1. PURPOSE AND ORGANIZATION

This memorandum presents the methodology and stakeholder review process used to produce California High-Speed Rail (HSR) station mode of access and egress forecasts in Southern California. It supports the draft project environmental impact reports/environmental impact statements (EIR/EIS) for the following Southern California project sections: Bakersfield to Palmdale, Palmdale to Burbank, Burbank to Los Angeles, and Los Angeles to Anaheim.

This memorandum describes how the statewide forecasting model outputs for the allocation of HSR access and egress trips among modes were refined to provide more detailed information for project-level environmental analysis in Southern California. The refinement was based on:

- Location-specific data for existing rail stations and airports near each station
- Comparisons with other rail stations and airports in California and the nation
- Local, regional, and state plans for transportation and land use
- Consultation with local jurisdictions, including review of preliminary estimates

The refinement changed neither the number of HSR trips predicted to use each station nor the geographic distribution of those trips within each station's catchment area. The new data only resulted in adjustments to the modes by which customers are assumed to arrive at or depart from the station. The forecasts were used as inputs to analyze impacts on transportation networks.

The procedures discussed in this report were needed because the statewide travel demand model serves multiple purposes and uses. In addition to providing information for the *California High-Speed Rail 2016 Business Plan*, the travel demand model provided statewide system ridership forecasts that support the EIR/EIS analysis of broad reductions in vehicle miles traveled, improvements in air quality, and reductions in energy use. The statewide model does not forecast access and egress mode shares for use in analysis and planning at the station level. In addition, it does not include detailed input elements related to each station's

local transportation and land use conditions. Its forecasts are based on regional transportation plans prepared around 2012, so it does not address more recent policies and plans for land use changes and transportation facilities that encourage access and egress alternatives to single-occupant automobile travel.

These procedures were used to adjust the model outputs based on information for specific stations. Transportation planning and analysis best practices include post-processing the outputs of large-scale models (regional or statewide) to improve the accuracy of the forecasts at individual stations (see research review in Section 3).

Section 2, Need for and Use of Adjustments, discusses the rationale for adjustments to the access and egress modal shares and lists the specific outputs that were adjusted.

Section 3, Adjustment Process, describes the adjustment procedures that were used, based on research of national best practices for station access and egress forecasting. It describes the step-by-step adjustment process, including a summary of how the estimates were applied geographically within each station's catchment area for use in transportation network impact analyses.

The appendices include data sources used for each station and the methodology to generate mode splits by traffic analysis zone. Mode share memoranda and emails transmitting those memoranda to local jurisdictions are available for the following Southern California stations: Palmdale, Burbank, Los Angeles, Norwalk/Santa Fe Springs, Fullerton, and Anaheim.

2. NEED FOR AND USE OF ADJUSTMENTS

Decisions relating to multimodal access connections, station area planning, and station site planning depend on how travelers would get to and from each station. Travelers' choices about how to get to and from a station are based on a mix of considerations, including the following:

- Trip characteristics, such as:
    - Going to a station or from a station
    - Time of day
    - Traveling alone or in a group
    - Traveling with or without luggage
- Attractiveness of access and egress options, such as:
    - Convenience of transit connections
    - Quality of facilities for bicyclists and pedestrians
    - Parking availability
    - Cost
    - Intensity of development around station

The forecasts need to consider these factors and project how future conditions may change depending on the availability and cost of transportation services, technological advances, redevelopment of station areas, and local, regional, and state policies and programs.

a. Statewide Forecasts for HSR Ridership and Revenue

Ridership forecasts for the *California High-Speed Rail 2016 Business Plan* were developed using a statewide travel demand model called Business Plan Model Version 3 (BPM-V3). This peer-reviewed model forecasted the number of people who would ride HSR and the revenue that would be generated by ticket sales. Analysts used the model to evaluate how people would choose among HSR, air, automobile, or conventional rail travel for trips by accounting for travel characteristics of each mode. To create the forecasts, the model generates estimates of where people would get on and off the system, and it makes assumptions about cost, travel time, and options for station access and egress. The model incorporates inputs related to access and egress modes, which ensures all elements of a trip are included in the assessment of travel choices.

b. Reasons for Adjustments

The model helped answer broad questions about the statewide ridership and revenue generation potential of HSR. However, the statewide model was not designed to produce detailed forecasts of access and egress mode shares at specific stations. It did not include elements related to local conditions and environment, or recent policies and plans for land use changes and transportation facilities. The model's station-level calibration did not include relative attractiveness and availability of access options and land uses based on comparable rail stations and airports. The reliability of the statewide model decreases as it focuses on smaller geographic areas. In addition, the Transportation Research Board in 2012 concluded that, nationally, transportation models do not reliably forecast rail station access and egress modes.[1] To interpret forecasts at the local level, planners need supplementary tools and methods**,** adjusting the model outputs based on information that pertains to a given location. Adjusting outputs from regional or statewide (i.e., large-scale) models to improve their accuracy at individual sites is an accepted best practice, as summarized in Section 3.

Station boardings and alightings produced by the statewide model are the starting point for estimating access and egress mode shares. Adjustments to these statewide model outputs are needed to answer detailed questions about how people would get to and from specific stations. Within each community, the geographic distribution of access and egress trips by mode needs to be estimated as a basis for potential impacts on transportation networks.

c. Specific Outputs Adjusted

The output from the statewide model for the number of daily station boardings and alightings did not change. Using those totals as a starting point, the proportions of trips accessing and egressing stations by each the following three modes were adjusted, as described in Section 3:

- Transit (local, regional, other intercity rail; local and regional bus transit)

[1] Transportation Research Board. 2012. *TCRP Report 153: Guidelines for Providing Access to Public Transportation Stations.*

- Walking/bicycling
- Automobile (pick-up/drop-off; parked car; rental car; taxi)

3. ADJUSTMENT PROCESS

a. Best Practices Research Review

The need for and common use of "post-processing" adjustment procedures for model outputs is documented in the 2012 report from the Transportation Research Board, *Guidelines for Providing Access to Public Transportation Stations*, which states that "at present, travel demand models generally do not do a good job of evaluating transit access alternatives" (page 16). It notes that "many existing demand models lack the sensitivity needed to adequately assess the impacts of specific transit station access alternatives" (page 44).

Furthermore, the report concludes that "reliable estimates of travel demand both for a station and for the station's individual passenger access modes are important, but elusive challenges. The goal is to produce reasonable and reliable estimates that can be used to evaluate access planning options and to provide input to facility design" (page 44). It also says that procedures for estimating ridership demand at stations along an entirely new proposed line have the lowest levels of existing knowledge. This is compounded by the fact that HSR is a new mode of transportation in North America.

Regarding the planning process, the report states: "Station access planning is integral to the overall station development effort. A major objective of the station access planning process is to achieve agreement from the groups involved in the station planning effort" (page 5). This approach is particularly important for station access planning because implementing multimodal improvements requires coordination among multiple agencies.

Best practices for station access planning prescribe that "collaboration with local governments is essential in defining success—a vision of station build-out should be developed early, defining long range transit-oriented development goals and parking policies" (page 6).

Transportation Research Board's *Special Report 288: Metropolitan Travel Forecasting: Current Practice and Future Direction* Appendix B and Transit Cooperative Research Program (TCRP) *Web-Only Document 44: Literature Review for Providing Access to Public Transportation Stations* review literature on transit access demand. The second document suggests that the following factors appear to be correlated with access decisions (page 45):

- Parking cost and supply
- Quantity and quality of feeder transit service
- Type and diversity of land uses
- Residential and employment density
- Quality and continuity of pedestrian facilities
- Station area demographics
- Safety

- Automobile ownership
- Travel time

Parking supply and automobile ownership positively correlate with automobile access, while residential and employment density and land-use mix positively correlate with walking access. No one model incorporates all the factors listed above, and some are used as proxies for other factors. For example, higher densities and a mix of uses correlates with higher-quality pedestrian infrastructure.

Caltrans Division of Research, Innovation, and System Information produced a report in 2016, *Quantifying Passenger Rail Access Mode Shift*, at the request of the California High-Speed Rail Authority (Authority). It reviewed research on how rail rider behavior is affected when agencies implement strategies to shift rider access and egress modes. The review examined potential factors not directly associated with the rail station that may determine access and egress behavior (page 2). The report notes that much of the research on this topic is qualitative, particularly regarding the expected impact of access investments. While the use of quantitative methods may be limited, research associated with this topic provides practical recommendations for improving and increasing non-automobile access to rail and transit stations (page 4).

Appendix A lists specific data sources used as a basis for estimating mode of access and egress for each Southern California HSR station. Other data sources, including airports and other rail modes, showed a range of access and egress mode shares across different locations. The variance was substantial and supported the finding that mode share adjustments should be made based on specific local conditions. The sources included:

- Mineta Transportation Institute, *International Lessons for Promoting Transit Connections to High-Speed Rail Systems*, April 2016
- Transportation Research Board, *Ground Access to Major Airports by Public Transportation*, 2008.
- Transportation Research Board, *Transportation Network Companies: Challenges and Opportunities for Airport Operators Synthesis of Airport Practice*, 2017

b. Steps to Adjust Access and Egress Mode Shares

The adjustment procedures did not change the total number of passenger trips (boardings and alightings) that were forecast for each station in 2029 and 2040; nor did they change the geographic distribution of those trips within each station's catchment area. Adjustments were limited to the allocation of those trips among access and egress modes.

Table 1 summarizes the sequential methodology and review process used to refine each station's access and egress mode shares. The steps are described below the table.

Table 1 Mode Share Adjustment Process

Step	Action	Product
1	Run BPM-V3 statewide ridership and revenue model for 2029 and 2040 forecast years.	Projections for number of access and egress passenger trips at each station.
2	Prepare draft mode of access and egress adjustments based on multiple factors.	Estimates of mode share for automobile (pick-up/drop-off, parked car, rental car, taxi), transit (rail, bus), bike/walk.
3	Review draft access and egress mode share estimates with stakeholders.	Memoranda to stakeholders on station access and egress mode share estimates.
4	Assign access and egress mode share percentages for each traffic analysis zone (TAZ) in a station's catchment area.	TAZ trip distribution by access and egress mode.

Step 1: Run BPM-V3 statewide ridership and revenue model for 2029 and 2040 forecast years

The California High-Speed Rail Ridership and Revenue Model (BPM -V3)[2] estimates ridership at each station and the choice of main mode (automobile, air, conventional rail, or HSR) as well as access and egress mode (e.g., automobile, transit, bike/walk). The mode choice model uses transportation level-of-service information, zonal characteristics of access and egress, locations of airports and rail stations, and household characteristics.

Step 2: Prepare draft mode of access and egress adjustments based on multiple factors

BPM-V3 outputs were adjusted for access and egress mode shares at each station and used to assess each access and egress mode's availability and attractiveness under existing and future conditions. The process assessed reasonableness based on some or all of the following factors:

- Mode of access passenger surveys and trends for existing intercity, regional, and local rail services and airports that serve the station city
- Mode of access surveys for rail services in comparable markets and airports in other cities
- Existing and planned availability and cost of transportation modes serving the station area and station catchment area, including transportation infrastructure, programs, and policies
- Existing and planned station area land use, development programs, and policies
- Discussions with station partners (including cities, regional agencies, and other stakeholders) regarding desirability and feasibility of achieving levels of demand projections for each mode through infrastructure, management programs, and incentives/regulations
- Consideration of emerging trends and new technological applications

[2] http://hsr.ca.gov/docs/about/ridership/CHSR_Ridership_and_Revenue_Model_BP_Model_V3_Model_Doc.pdf

Based on consideration of these factors, the access/egress mode shares were adjusted for each of the following categories of access and egress modes in the BPM-V3 model:

- Transit
    - Conventional rail, including intercity rail, heavy rail, light rail, and streetcar
    - Bus, including regional, intercity, and local
- Bike/walk
- Automobile
    - Drive and park (at station or nearby facilities)
    - Pick-up/drop-off, including ride-hailing services
    - Taxi
    - Rental car

Access and egress mode share forecasts were documented in a spreadsheet for each station. Projections were made for transit and bike/walk modes. The remaining trips were assigned to the automobile mode to keep the sum of all mode shares at 100 percent. Parked car passenger trips that cannot be accommodated at the station due to physical constraints (e.g., land availability adjacent to the station location) were shifted to pick-up/drop-off so that the control total of passenger trips for these two submodes remained constant.[3] No capacity constraints were assumed for pick-up/drop-off activity.

Step 3: Review draft access and egress mode share estimates with stakeholders

Other regional staff reviewed and verified the estimates produced for each region in Step 2. The estimates were then reviewed with station partner agencies at in-person meetings, on telephone calls, and through email correspondence. Draft memoranda for each station regarding station access and egress mode share estimates were sent to appropriate stakeholders. Each draft memorandum included:

- Existing conditions and access and egress mode shares
- Access and egress mode shares for comparable systems
- Summary of local plans and projects that would influence future access and egress
- Access and egress mode share projections for the station in 2029 and 2040
- Data sources that the Authority reviewed during this process
- Authority staff roles and responsibilities, as well as a chronology of meetings and correspondence

Stakeholders reviewed the draft memoranda for accuracy and consistency.

[3] For the Palmdale station, access and egress submode shares were adjusted based on local conditions.

Step 4: Assign access and egress mode share percentages for each traffic analysis zone in a station's catchment area

Based on the access and egress mode shares identified in the previous steps, the access and egress trips were distributed to TAZs to match the total ridership by TAZ based on BPM-V3 model outputs. The Burbank-Los Angeles-Anaheim regional consultant team developed the methodology for distributing forecast HSR trips to TAZs by access and egress mode in Southern California. This methodology is described in Appendix B.

4. SELECTED REFERENCES

Caltrans Division of Research, Innovation, and System Information. 2016. *Quantifying Passenger Rail Access Mode Shift*. April 15, 2016.

Cambridge Systematics, Inc. 2016. *California High-Speed Rail Ridership and Revenue Model Business Plan Model-Version 3 Model Documentation Final Report*. Prepared for California High-Speed Rail Authority. February 17, 2016.

Transportation Research Board. 2007. *Special Report 288: Metropolitan Travel Forecasting: Current Practice and Future Direction.*

Transportation Research Board. 2009. *TCRP Web-Only Document 44: Literature Review for Providing Access to Public Transportation Stations.* March 2009.

Transportation Research Board. 2012. *TCRP Report 153: Guidelines for Providing Access to Public Transportation Stations*.

APPENDIX A: DATA SOURCES USED BY STATION

Palmdale

- Metrolink access/egress mode shares at Palmdale station (2010 and FY2014)
- Amtrak access/egress mode shares for national stations (2012)

Burbank

- Metrolink access/egress mode shares at Burbank/Bob Hope station (2010 and FY2014)
- Amtrak access/egress mode shares for national stations (2012)
- Bob Hope Airport access/egress mode shares (2016)

Los Angeles Union Station (LAUS)

- Metrolink access/egress mode shares at LAUS (2010, FY2014, and 2015)
- Amtrak Pacific Surfliner access/egress mode shares at LAUS (2013)
- Amtrak access/egress mode shares for Hiawatha Line (2011)
- Amtrak access/egress mode shares for national stations (2012)

Norwalk/Santa Fe Springs

- Metrolink access/egress mode shares at Norwalk/Santa Fe Springs station (2010 and FY2014)
- Amtrak access/egress mode shares for national stations (2012)

Fullerton

- Metrolink access/egress mode shares at Fullerton station (2010 and FY2014)
- Amtrak access/egress mode shares for national stations (2012)

Anaheim

- Metrolink access/egress mode shares at Anaheim station (2010 and FY2014)
- Amtrak Pacific Surfliner access/egress mode shares at Anaheim (2013)
- ARTIC access/egress mode shares from ridership survey (2015)
- Amtrak access/egress mode shares for national stations (2012)

APPENDIX B: SOUTHERN CALIFORNIA METHODOLOGY TO GENERATE MODE SPLIT BY TRAFFIC ANALYSIS ZONE

1. **Generate Buffers** around each potential access mode to HSR station. Buffers are as follows:

   - Bike/Ped: 3-mile buffer around HSR station, as shown in green below
   - Bus: 0.5-mile buffer around existing and planned bus lines that directly serve station, as shown in red below
   - Rail: 0.5-mile buffer around existing and planned urban rail stations that directly serve HSR station (not applicable in example exhibit below); 5-mile buffer around stations of regional and commuter rail lines that directly serve station, as shown in blue below

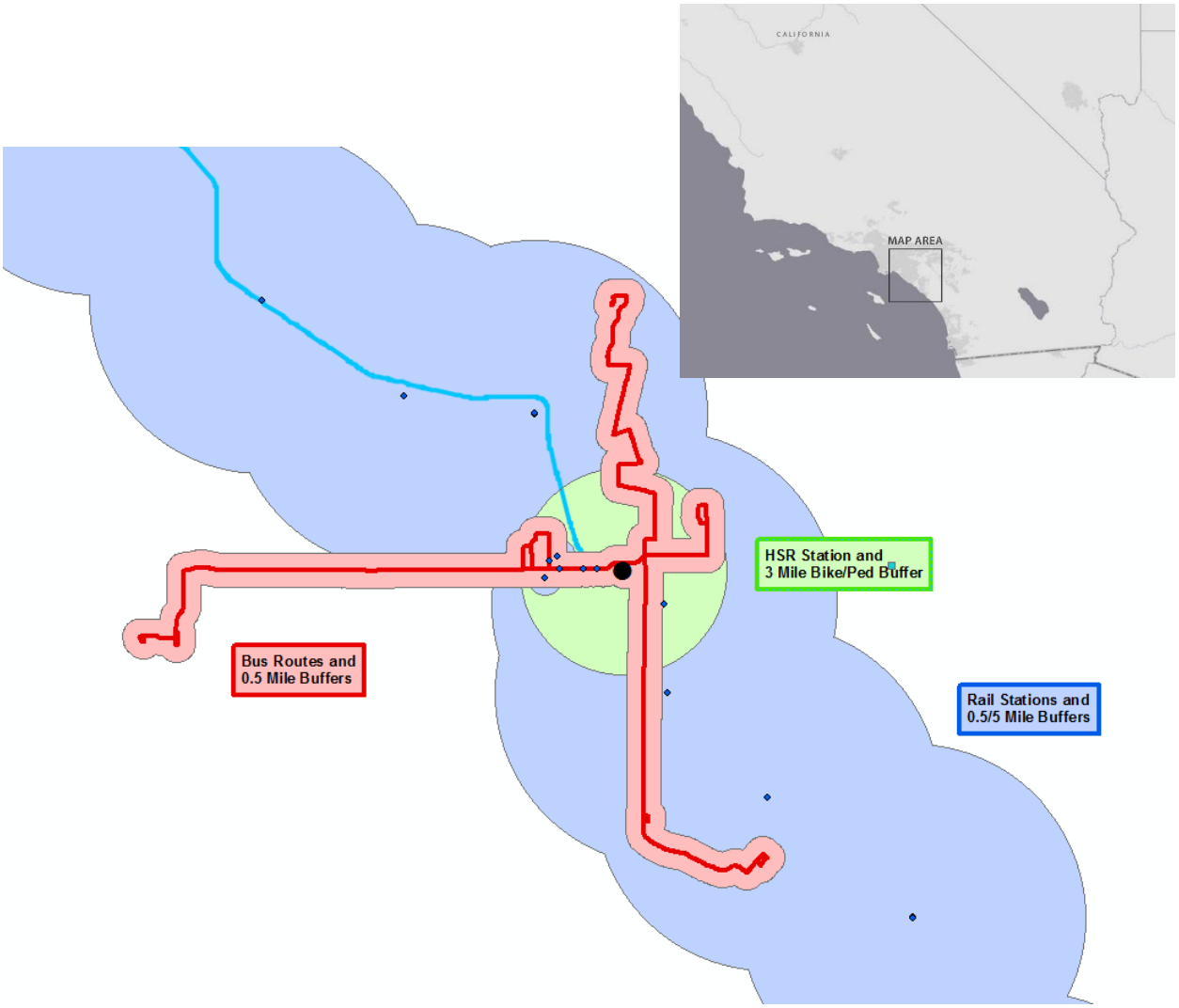

Figure B1 Example of Buffer (Anaheim Station)

2. **Intersect Buffers and TAZs** to determine which TAZs have the potential to be served by bike/pedestrian, bus, or rail service.

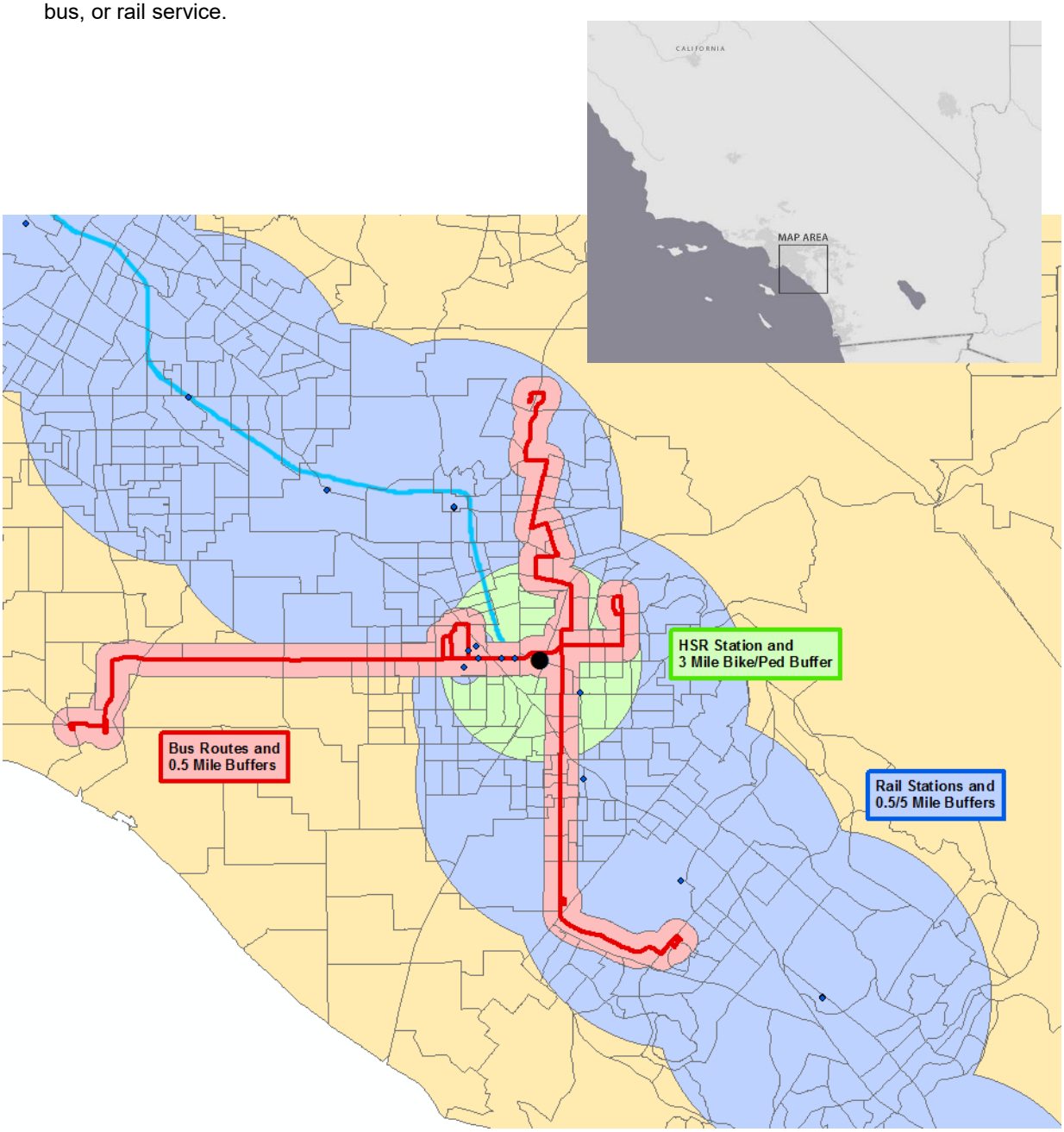

Figure B2 Example of Buffer and TAZ (Anaheim Station)

3. **Sum Overall Ridership in Bike/Bus/Rail TAZs** to determine the overall ridership predicted by ridership model in TAZs that have potential for non-automobile HSR access.

	A	B	C
1	**FINAL_TAZ**	**ANA_Access**	**ANA_Egress**
415	5971	9	2
416	5972	14	14
417	5973	29	10
418	5974	14	5
419	5975	43	8
420	5976	9	2
421	5977	14	7
422	5978	6	6
423	5979	<null>	10
424	5980	7	2
425	5981	24	28
426	5982	33	7
427	5983	13	5
428	5984	35	4
429	5985	<null>	11
430	5987	50	7
431	5988	24	7
432	5989	76	43
433	5990	27	4
434	5991	15	166
435	5994	<null>	0
436	5995	1	32
437	5996	9	20
438	5997	0	0
439	5998	14	72
440	6000	<null>	0
441	6001	32	38
442	6691	9	5
443	6693	6	4
444	6697	0	10
445	6698	0	10
446	**Total**	**6320**	**11052**
447			

Figure B3 Example of Ridership by TAZ Data, Access versus Egress (Anaheim Station, Select TAZs)

4. **Compare Forecasted Ridership by Mode to Numbers from Geographic Information System (GIS) Analysis.** This provides an estimate of the percentage of riders in a TAZ that can be captured by non-automobile modes.

	A	B	C	D	E	F	G	H
2			Optimistic					
3		Originating Passengers	Phase 1	Phase 1		Riders within Buffer - GIS	% Riders - Mode	
4		Mode	2029	2040				
5		Station access/egress trips	5,860	11,830				
6	Vehicle trips	Drop-Off/Pick-up	1,310	2,460				
7		Parking Arrivals/Departures	2,130	4,090				
8		Rental Car Arrivals/Departures	-	-				
9		Taxi Arrivals/Departures	90	160				
10		Local/Regional Transit Buses	6	14				
11		Unconstrained Parking Demand	1,290	2,470				
12	Passenger trips	Arriving/Departing by Drop-Off/Pick-up	1,880	3,520				
13		Arriving/Departing by Parked Car	2,800	5,380				
14		Arriving/Departing by Rental Car	-	-				
15		Arriving/Departing by Taxi	120	230				
16		Arriving/Departing by Transit	790	2,030				
17		by dedicated HSR Bus	-	-				
18		by Local/Regional Bus	130	290		1744	17%	
19		by Local/Regional/Intercity Rail	660	1,740		6320	28%	
20		Arriving/Departing by Bike/Walk	280	660		1219	54%	
21								
22			Optimistic					
23		Destination Passengers	Phase 1	Phase 1				
24		Mode	2029	2040				
25		Station access/egress trips	8,760	18,630				
26	Vehicle trips	Drop-Off/Pick-up	1,320	2,360				
27		Parking Arrivals/Departures	-	-				
28		Rental Car Arrivals/Departures	1,180	2,110				
29		Taxi Arrivals/Departures	470	900				
30		Local/Regional Transit Buses	9	20				
31		Unconstrained Parking Demand	-	-				
32	Passenger trips	Arriving/Departing by Drop-Off/Pick-up	1,880	3,350				
33		Arriving/Departing by Parked Car	-	-				
34		Arriving/Departing by Rental Car	1,700	3,030				
35		Arriving/Departing by Taxi	590	1,120				
36		Arriving/Departing by Transit	4,310	10,470				
37		by dedicated HSR Bus	-	-				
38		by Local/Regional Bus	180	390		2945	13%	
39		by Local/Regional/Intercity Rail	4,130	10,080		11052	91%	
40		Arriving/Departing by Bike/Walk	290	640		1837	35%	

Figure B4 Example of Forecasted Ridership by Mode Comparison to GIS Analysis (Anaheim Station)

5. **Validate Information against Other Stations and Existing Conditions** to ensure that outputs from ridership model and GIS Analysis are reasonable.

	Burbank			Los Angeles Union Station			Norwalk/Santa Fe Springs		
Originating Passengers	Mode of Access - Model	Riders within GIS Buffer	% Riders - Mode	Mode of Access - Model	Riders within GIS Buffer	% Riders - Mode	Mode of Access - Model	Riders within GIS Buffer	% Riders - Mode
Arriving/Departing by Auto Mode	11,860			16,900			6,950		
Arriving/Departing by Local/Regional Bus	700	5,180	14%	1,140	14,540	8%	170	2,171	8%
Arriving/Departing by Local/Regional/Intercity Rail	890	5,595	16%	1,310	15,097	9%	440	1,964	22%
Arriving/Departing by Bike/Walk	1,050	2,053	51%	2,620	3,338	78%	540	1,022	53%
Total Access Trips	**14,500**			**21,970**			**8,100**		

	Fullerton			Anaheim			Average	
Originating Passengers	Mode of Access - Model	Riders within GIS Buffer	% Riders - Mode	Mode of Access - Model	Riders within GIS Buffer	% Riders - Mode	% Riders - Mode	Standard Deviation
Arriving/Departing by Auto Mode	9,340			9,140				
Arriving/Departing by Local/Regional Bus	140	2,898	5%	290	1,744	17%	10%	0.05
Arriving/Departing by Local/Regional/Intercity Rail	2,100	6,126	34%	1,740	6,320	28%	22%	0.10
Arriving/Departing by Bike/Walk	880	1,794	49%	660	1,219	54%	57%	0.12
Total Access Trips	**12,460**			**11,830**				

Figure B5 Validation of Model and GIS Analysis Data with Other Stations

6. **Distribute Trips by TAZ and Mode Split.** Use the buffers to estimate which TAZs can have access by bike/pedestrian, bus, or rail, and the percentages from Step 4 to split riders by TAZs between the different modes.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	TAZ	ANA_Access	A_Auto_A	A_Bus_A	A_Rail_A	A_Ped_A	A_Bus	A_Rail	A_Ped	A_Bus_A	A_Rail_A	A_Ped_A_C	
2	264	0	0	0	0	0	NO	NO	NO	17%	28%	54%	
3	265	6	6	0	0	0	NO	NO	NO				
4	266	0	0	0	0	0	NO	NO	NO				
5	267	0	0	0	0	0	NO	NO	NO				
6	268	11	11	0	0	0	NO	NO	NO				
7	269	1	1	0	0	0	NO	NO	NO				
8	270	2	2	0	0	0	NO	NO	NO				
9	271	4	4	0	0	0	NO	NO	NO				
10	272	1	1	0	0	0	NO	NO	NO				
11	273	1	1	0	0	0	NO	NO	NO				
12	274	0	0	0	0	0	NO	NO	NO				
13	280	0	0	0	0	0	NO	NO	NO				
14	690	1	1	0	0	0	YES	NO	NO				
15	707	16	16	0	0	0	NO	NO	NO				
16	708	1	1	0	0	0	NO	NO	NO				
17	709	0	0	0	0	0	NO	NO	NO				
18	710	10	8	2	0	0	YES	NO	NO				
19	711	14	12	2	0	0	YES	NO	NO				
20	712	13	13	0	0	0	NO	NO	NO				
21	713	26	22	4	0	0	YES	NO	NO				
22	714	8	7	1	0	0	YES	NO	NO				
23	816	2	2	0	0	0	YES	NO	NO				
24	818	1	1	0	0	0	NO	NO	NO				
25	820	0	0	0	0	0	YES	NO	NO				
26	822	22	18	4	0	0	YES	NO	NO				
27	823	19	16	3	0	0	YES	NO	NO				
28	825	0	0	0	0	0	YES	NO	NO				
29	839	10	8	2	0	0	YES	NO	NO				
30	841	18	15	3	0	0	YES	NO	NO				
31	842	69	69	0	0	0	NO	NO	NO				
32	843	27	27	0	0	0	NO	NO	NO				
33	844	18	18	0	0	0	NO	NO	NO				
34	845	27	27	0	0	0	NO	NO	NO				
35	846	61	61	0	0	0	NO	NO	NO				
36	847	70	70	0	0	0	NO	NO	NO				
37	848	81	81	0	0	0	NO	NO	NO				
38	849	119	86	0	33	0	NO	YES	NO				
39	851	65	65	0	0	0	NO	NO	NO				
40	854	173	96	29	48	0	YES	YES	NO				
41	855	90	75	15	0	0	YES	NO	NO				
42	857	130	130	0	0	0	NO	NO	NO				
43	858	63	63	0	0	0	NO	NO	NO				

ANA-2040-Access | ANA-2040-Egress | NOR-2040-Access | NOR-2040-Egress | LAUS-2040-Access | LAUS-2040-Egress | BUR

Figure B6 Example of Distribution of Ridership by TAZ Data by Access Mode (Anaheim Station, Select TAZs)

7. **Show Graphically to Confirm Splits are Logical.** Produce a dot-density diagram by mode and riders to allow visual assessment.

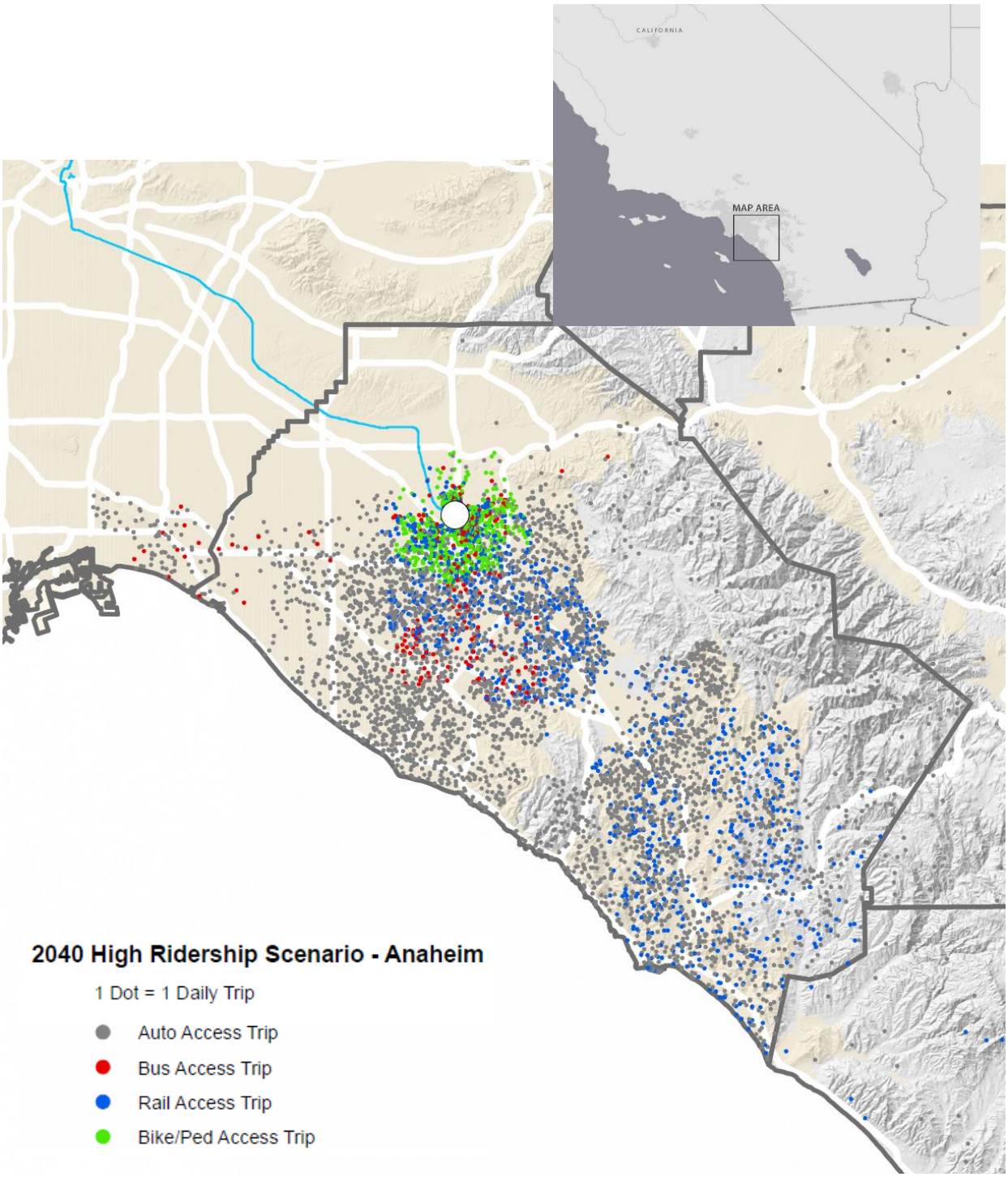

Figure B7 Example of Dot-Density Diagram by Access Mode (Anaheim Station)