OCTA Freeway BRT Concept Study

IBI Group in association with: WSP and KKCS

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Contents

1. Introduction

In January 2018, The Orange County Transportation Authority (OCTA) completed the OC Transit Vision, which highlighted the agency's goals and priorities for transit services and capital projects over the next 20 years. The vision statement for the OC Transit Vision is to provide compelling and competitive transit service that expands transportation choices for current riders, attracts new riders, and equitably supports immediate and long-term mobility in Orange County.

To fulfill this vision, OCTA has developed several strategies to provide high-speed, efficient services, while taking into account current and future transportation trends and demographic changes. One such strategy is the identification of Transit Opportunity Corridors (TOC), or corridors through which future investment would most benefit and support the Orange County transit market.

Interstate 5 (I-5) and State Route 55 (SR 55) are two of the identified TOCs. These corridors are among the most dense and congested areas in the County and are both subjects of Comprehensive Multimodal Corridor Plans (CMCP), which will garner further investments to support alternative modes of transportation to single-occupancy vehicles throughout both corridor areas. The implementation of a Bus Rapid Transit (BRT) service is consistent with these efforts to expand transit choices, alleviate congestion and reduce emissions through a multimodal approach.

This study assesses the suitability of BRT service along the I-5 and SR 55 corridors. It focuses on existing and projected conditions along the corridors, lessons learned from other freeway BRT projects in Southern California, opportunities and constraints, and conceptual plans for the development of two potentials BRT routes. The results from this study will guide OCTA's future investment along both corridors.

A partnership between OCTA and the California Department of Transportation (Caltrans) is necessary in order to incorporate Freeway BRT in Orange County. This study is complementary and supplementary to the Orange County Freeway-Arterial Transit Enhancement Study (OC FATES), which is analyzing potential Freeway BRT alternatives along significant portions of State Route 22, State Route 57, and State Route 91 in Orange County.

Three alternative routes were identified through the existing conditions and alternatives development phases. The existing conditions report determined viable catchment areas, or areas with high employment or residential density along the two corridors respective to the rest of the region. Once catchment areas were identified, a constraints analysis was administered to identify the best suited station locations within each area. Station locations were identified that maintain the key features of BRT but fit within the freeway context and the surrounding communities. Routes were then drafted that complement the existing longitudinal employer-household commuter dynamics within Orange County, to attempt to capture the largest market of ridership possible. Finally, cost estimates were detailed for each potential station as well as for operations of the BRT routes.

Three main routes were identified, one of which has an additional alternative:

- **Route 1: from Fullerton Park and Ride to Alton Parkway**
- **Route 2: from Laguna Niguel/Mission Viejo Metrolink Station to Gene Autry Way**
- **Route 2A: from Laguna Niguel/ Mission Viejo Metrolink Station to Fullerton Park and Ride**
- **Route 3: from Santa Ana Regional Transportation Center (SARTC) to Hospital Road (Newport Beach)**

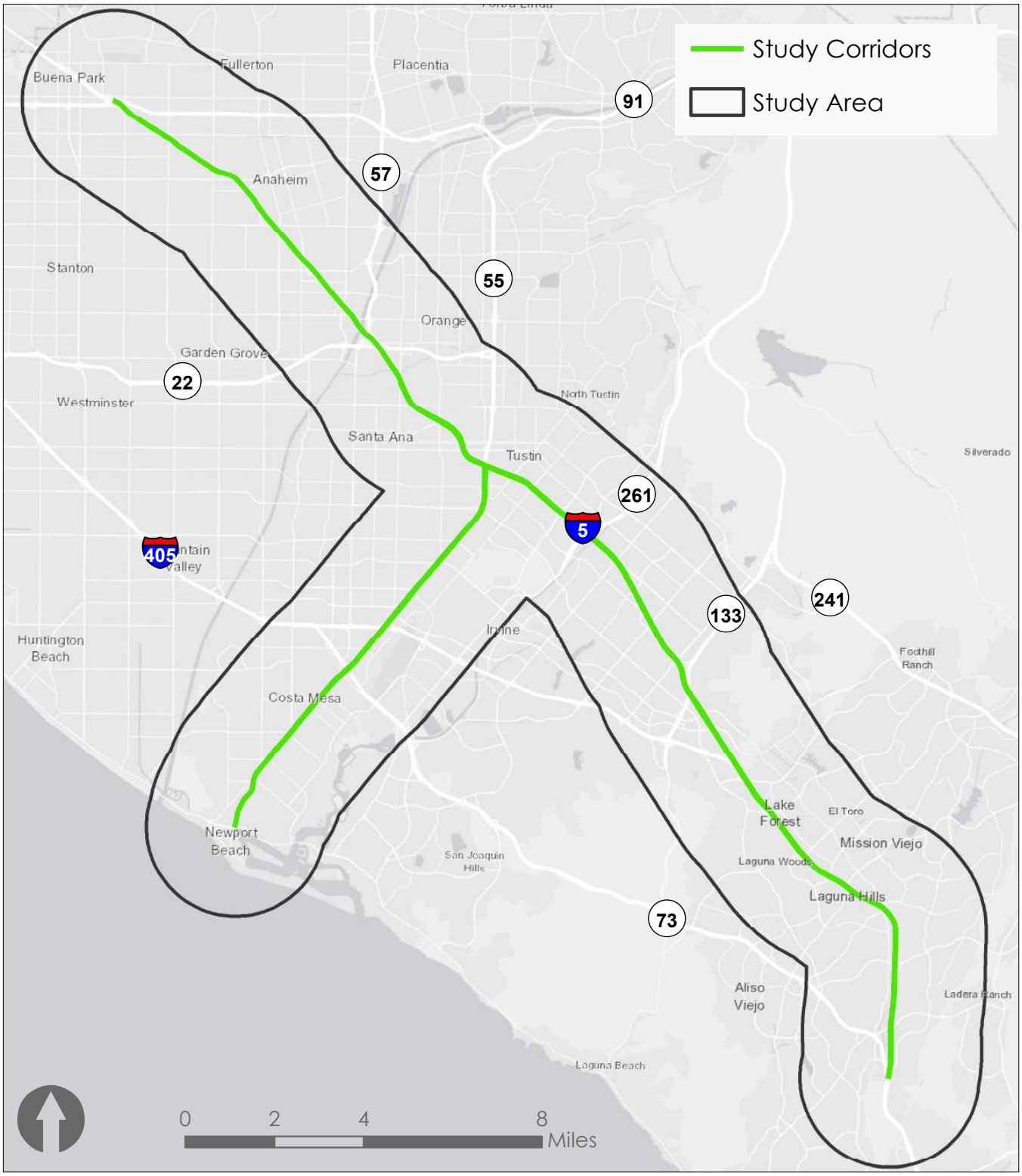
In addition, to these main routes, early implementation routing and commuter period BRT were also identified.

This report ties multiple efforts as part of the OCTA Freeway BRT Concept Study, including the study existing conditions, purpose and need, public and stakeholder outreach, alternatives development, and alternatives evaluation. Although California stay-at-home orders due

to COVID-19 drastically altered travel demand in the County and may have long-term travel demand impacts, modeling data assumes a return to baseline projected conditions before the pandemic began. This evaluation leads to the recommendation of BRT alternatives for consideration for implementation.

The study area for the OCTA Freeway BRT Concept Study includes the two-mile buffer around both Interstate 5 from the Fullerton Park and Ride to the Mission Viejo-Laguna Niguel Metrolink Station, and State Route 55 from Interstate-5 to Hoag Hospital in Newport Beach. The study area map is shown below in Figure 1.1.

Figure 1.1: OCTA Freeway BRT Study Area



1.1 Goals and Objectives

Goals, objectives, and performance measures have been established to determine the key issues the project aims to address and to assess the potential impacts of each route alternative. The six project goals connect high-level planning documents (such as the OC Transit Vision) with those characteristics of BRT that can address the project's purpose and need. Each goal is matched with objectives that can be assessed through quantitative or qualitative analysis, as well as performance measures that follow industry standards. These goals, objectives and criteria were communicated to and reviewed by the public and key stakeholders.

The six project goals are:

1. **Attract new riders to the OCTA transit system**
2. **Provide access to key destinations through a strong multimodal network**
3. **Simplify long-distance travel**
4. **Support state, regional, and local environmental goals**
5. **Collaborate with communities to build freeway BRT service that works for them**
6. **Ensure that projects can be funded and built**

Table 1.1: Goals, Objectives and Performance Measures

Goal Number	Goal	Objectives	Performance Measures
1	**Attract new riders to the OCTA system**	Reduce travel times of transit	▪ Travel time estimates/ comparisons with existing service
		Improve service reliability	▪ On-time performance
2	**Provide access to key destinations through a strong multimodal network**	Connect to transit-supportive land uses	▪ Employment density data ▪ Connections to key activity centers and transit priority areas
		Optimize infrastructure for shared modes	▪ Managed lanes assessment ▪ First/Last Mile needs assessment and safety analysis
3	**Simplify long-distance travel**	Increase network connectivity	▪ Potential for inter-agency coordination (e.g. scheduling and fare payment) ▪ Qualitative assessment of existing/ future bus and rail transit connectivity
		Plan for attractive, comfortable stations	▪ Station and vehicle design features that match community priorities
4	**Support state, regional, and local environmental goals**	Maximize potential VMT/GHG reduction	▪ VMT/GHG modeling /electric bus feasibility ▪ HOV lane person throughput and vehicle occupancy rates
5	**Collaborate with communities to build freeway BRT service that works for them**	Address equity goals through increase service and benefits to riders and disadvantaged communities	▪ CalEnviroScreen ▪ OCTA Transit Propensity Index
		Partner with key stakeholders, destinations, and employers	▪ Stated preference survey from community outreach activities ▪ New partnerships (e.g. employer-provided passes/ benefits)
6	**Ensure that projects can be funded and built**	Balance project goals with long-term constraints	▪ Farebox recovery ▪ O&M costs
		Define funding gaps	▪ Capital costs
		Ensure physical feasibility	▪ Available right-of-way ▪ Constructability

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2. Purpose and Need

Orange County's freeway infrastructures are facing significant overuse and damage, which is expected to become more serious as population, employment and the resulting congestion grow in the future.

Additionally, limited infrastructure expansion capabilities and funding uncertainties are requiring innovative strategies to bring people from their homes to key destinations within the County. California's sustainability goals and standards also entail that significant changes be made to guide behavioral changes and reduce the environmental impacts of single-occupancy vehicles. Finally, the COVID-19 pandemic has demonstrated how transportation trends and needs can quickly change, which sets a precedent for an adaptable transit service that can adjust to changes in land use, work organization, and overall transportation demand. In Orange County, regional efforts to design and increase capacity of Managed and Express Lanes is an opportunity to offer efficient transit services that can further increase vehicle occupancy and person-throughput on existing infrastructures.

Bus Rapid Transit (BRT) on the I-5 and SR 55 Freeways is a cost-effective, flexible, and sustainable alternative that could answer today's and tomorrow's transportation needs in Orange County. These services would be an opportunity to attract new riders by increasing multimodal connections to key destinations in the region, and by increasing transit competitiveness and simplifying long-distance travel through strategic routing and station siting. It is also an opportunity to increase collaboration among stakeholders, and to design a service that address the transportation needs of disadvantaged communities.

This project aims to optimize and enhance existing infrastructure along the I-5 and SR 55 to provide Orange County residents and visitors a safe, efficient, convenient, and sustainable and equitable alternative to single-occupancy freeway vehicle travel.

2.1 Mobility Problem and Travel Market Assessment

As defined in the existing conditions report, the SR 55 and I-5 corridors are facing degradation and congestion issues that are expected to increase in the future under a no-build scenario, that is if no improvements are made to existing services and infrastructure to alleviate the high travel demand along the corridors.

OCTA, Caltrans, and its local partners have identified a series of challenges that are currently affecting transportation patterns and that will have long-term impact on travel conditions in the region. The challenges described in Table 2.1 below were drawn from the OCTA Long-Range Transportation Plan, LOSSAN Corridorwide Strategic Implementation Plan and Metrolink 10-year plan. The Freeway BRT concepts designed as part of this project were designed as a component of the integrated strategy set in place by OCTA, Caltrans and their regional partners, to address these challenges.

Table 2.1: Transportation Challenges that May Impact Travel Patterns in Southern California

Challenge	Impact on Transportation
High Cost of Housing	Projected increases in housing costs will likely require Orange County residents to travel longer distances for work, leading to increases in congestion and greenhouse gas emissions. Transit services need to be efficient to offer a real alternative and support efforts to alleviate congestion.
Transportation Funding Uncertainties / Lack of Stable Long-Term Funding Source	There is limited land available to support service expansion. OCTA will need to optimize existing facilities and focus on services that can travel on existing infrastructures as opposed to large-scale transit projects that would require significant right-of-way acquisition.
Evolving Transit Market	Revenue forecasts predicts that sales tax revenues are bound to decrease over time, just as construction and operating costs and inflation follow an opposite trend. This means that OCTA must plan for cost-effective service and capital improvements in the long-term, optimizing existing stations and fleets.
Disruptive Services and Technologies	The whole country has experienced transit ridership declines. The recent COVID-19 pandemic may also have an impact in perceptions regarding public transit. Transit agencies must leverage new technologies, adjust its services based on key travel-demand information, and focus on enhanced amenities to reverse this trend.
Challenging Emission Standards	Transportation Network Companies and other shared-economy services can become direct competitors to more traditional services unless OCTA designs plans and strategies to integrate these services into its long-term transit vision.
Ensure that projects can be funded and built	The State of California has established very ambitious emission reduction targets and standards to address the region's air quality issues. Transit services is an essential component of regional and local strategies to achieve these targets and standards and improve overall quality of life for residents.

3. Existing Conditions

The Existing Conditions Report considered numerous elements relevant to the study freeway corridors of Interstate 5 (I-5) and State Route 55 (SR 55). These elements included:

- Synopses of Prior and Ongoing Studies
- Demographic Conditions
- Longitudinal Employer-Household Dynamic Conditions
- 2016 Travel Conditions and 2045 No Build Scenarios
- Existing Transit Route, Ridership, and Transit Infrastructure Conditions
- Freeway BRT Peer Review
- Mobility Problem and Travel Market Assessment

These elements are summarized below from the Existing Conditions Report which is found in Appendix A. Information taken from the Existing Conditions Report was used to develop BRT conceptual alternatives.

3.1.1 Prior and Ongoing Studies

Prior and ongoing studies provided relevant information and analysis for the OCTA Freeway Bus Rapid Transit (BRT) Concept Study. Each study, plan, and document from OCTA, LOSSAN, Metrolink, and Caltrans relate in some way to I-5, SR 55, or BRT, and the concepts developed for BRT in this study attempt to align with the goals of each report. All document summaries of prior and ongoing studies are found in Appendix A.

Key Takeaways from Existing and Ongoing Studies

Review of the existing and ongoing studies identified opportunities and elements for consideration as part of the development of route alternatives for Freeway BRT:

- The OC Transit Vision identified the two corridors under study as “Transit Opportunity Corridors” or corridors that should be prioritized for future investment in rail or BRT services. It listed the Freeway BRT Concept Study along Interstate 5 from SR 91 to SR 73 and State Route 55 from I-5 to Hoag Hospital as a short-term recommendation within its Action Plan and Next Steps.
- The Caltrans District 12 Managed Lanes Network Study (MLNS) determined converting the existing I-5 HOV lane to a High-Occupancy Toll (HOT) lane and adding an additional HOT lane from SR 91 to SR 55, as well as converting the existing SR 55 HOV lane to a HOT lane from I-5 to I-405 as highest priorities.
- The Caltrans District 12 Managed Lanes Feasibility Study (MLFS) created a two-phase plan for freeway corridors in Orange County, which would result in Dual HOT lanes for the length of both study segments.
- The OCTA LRTP modeled Express Toll Lanes which typically allow access for 3+ passenger vehicles and tolled access for other vehicles and concluded that Express Toll Lanes met the federal performance standards and doubled use compared to HOV 3+ lanes. These managed lanes would allow BRT access as well.
- The Measure M2 Quarterly Progress Report detailed current projects on the study freeway corridors. Current projects included adding a second I-5 HOV lane in each direction between SR 55 and SR 57, adding one I-5 general purpose lane in each direction between I-405 and SR 55 as well as SR 73 and Alicia Parkway, extending the second I-5 HOV lane from El Toro Road to Alicia Parkway, and adding a SR 55 general purpose lane and second HOV lane in each direction between I-405 and I-5.
- The Caltrans California High-Occupancy Vehicle Facilities Degradation Report recommended the prioritization and construction of the projects listed in the MLFS and MLNS as a strategy for remediation for the I-5 and SR 55 corridors.
- The Caltrans District 12 Upper Interstate 5 Corridor Plan selected a scenario of Priced Managed Lanes, Park and Ride improvements, and a Freeway BRT (as established in the OC Transit Vision) as the recommended long-term scenario.

- The I-5 Managed Lanes Final Project Study Report Traffic Feasibility Study ranked a "most-optimal" scenario of converting existing HOV lanes to Priced Managed Lanes (PML) and adding an additional PML between SR 57 and the LA / Orange County Line based upon LOS performance, vehicle hours of delay and travel time.
- The SR 55 Final Project Study Report determined that adding an auxiliary lane, a general purpose lane, and an additional HOV lane would improve capacity and enhance operations based on current Highway Design Manual (HDM) standards.
- The Caltrans District 12 District System Management Plan identified Bus Rapid Transit as a 'Plan and Action' item within the Local Transit and Intercity Rail Program for the California Strategic Growth Plan.

3.1.2 Demographic Conditions

Baseline demographics of the study corridors allowed for informed decision-making when establishing Freeway BRT alternatives to reach the greatest density of residents and employees. Four demographic characteristics were selected to guide the development of potential routes along the two study corridors:

- **Total Population**
- **Total Employment**
- **Occupied Dwelling Units**
- **Median Household Income**

The demographic data was determined by Transportation Analysis Zone (TAZ) for the baseline year 2016. Data was sourced from the Orange County Council of Governments (OCCOG) and approved by the OCCOG board in 2018. Projected data in this dataset begins in year 2020 and is shown every 5-year period through year 2050. The study area consists of a two-mile radius extending from any location along the I-5 of SR 55 corridors.

Total population shows where residents live in the study area. The total population in the study area is 1,424,913. Population is concentrated in west Anaheim (south of SR 91 and north of I-5), central Santa Ana, Westside Costa Mesa, Irvine north of the I-5 (between SR 261 and SR 133), and a few places in the South Laguna Hills area. There are smaller residential populations south of Ball Road (between Disneyland and Batavia Street), east Santa Ana south of the I-5, the Irvine Business Complex, and the Greater Orange County Great Park Area. Figure 3.1 shows total population in the study area.

Total employment shows where jobs are located within the study area. The total employment in the study area is 935,006. Employment is spread throughout the study area but is most concentrated in select areas in and around the Platinum Triangle, off 17th Street in Tustin, South Coast Metro, the Irvine Business Complex, and a few areas around the Irvine Spectrum area. There is fewer employment in the Greater Orange County Great Park Area and in Eastside Costa Mesa. Figure 3.2 shows total employment in the study area.

Occupied dwelling units show not only where residents are located but can also provide context of density of a populated area. The total number of occupied dwelling units in the study area is 442,642. Similar to population, there are a higher number of occupied dwelling units per TAZ in west Anaheim, select locations near the I-5/ SR 22/ SR 57 interchange, around SR 261 and SR 133 in Irvine, Westside Costa Mesa, east Laguna Woods, and north of the Laguna Niguel / Aliso Viejo Metrolink Station. Figure 3.3 shows the occupied dwelling units in the study area.

Median Household Income is a metric that can be useful to determine areas of captive and choice ridership. Some data per TAZ was unavailable, mainly due to the fact that some TAZs do not have a residential population. Among the 581 TAZ's with data, the median household income ranged from just under $18,000 to just under $190,000. The average qualifying TAZ median household income is $81,406. Low-income areas in the study area are in-most part north of the SR 22, and west of the SR 55 excluding the South Coast Metro area. High-income areas in the study area are south of the Lake Forest, and in Eastside Costa Mesa and Newport Beach. Figure 3.4 shows the median household income in the study area.

Figure 3.1: Total Population

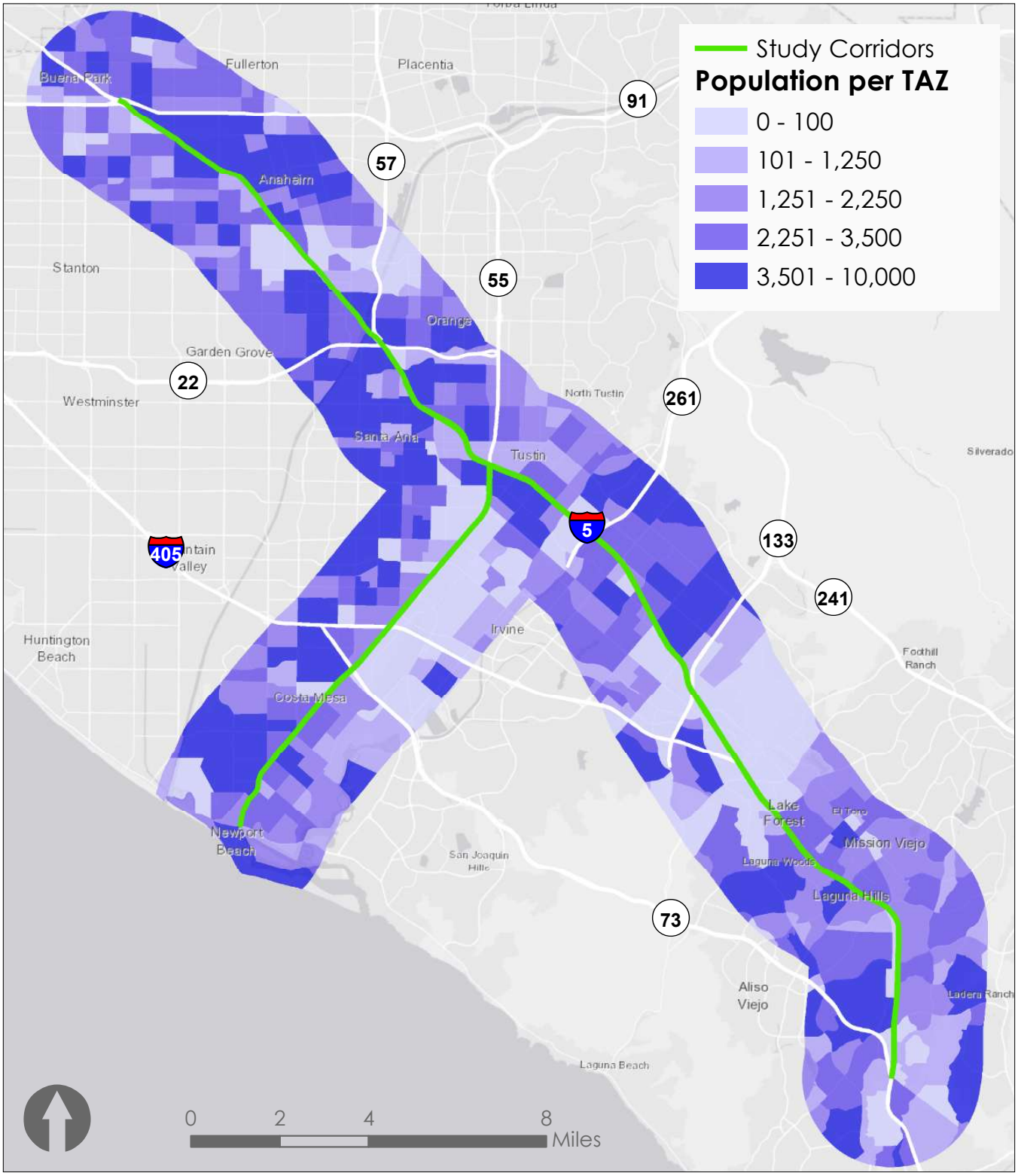


Figure 3.2: Total Employment

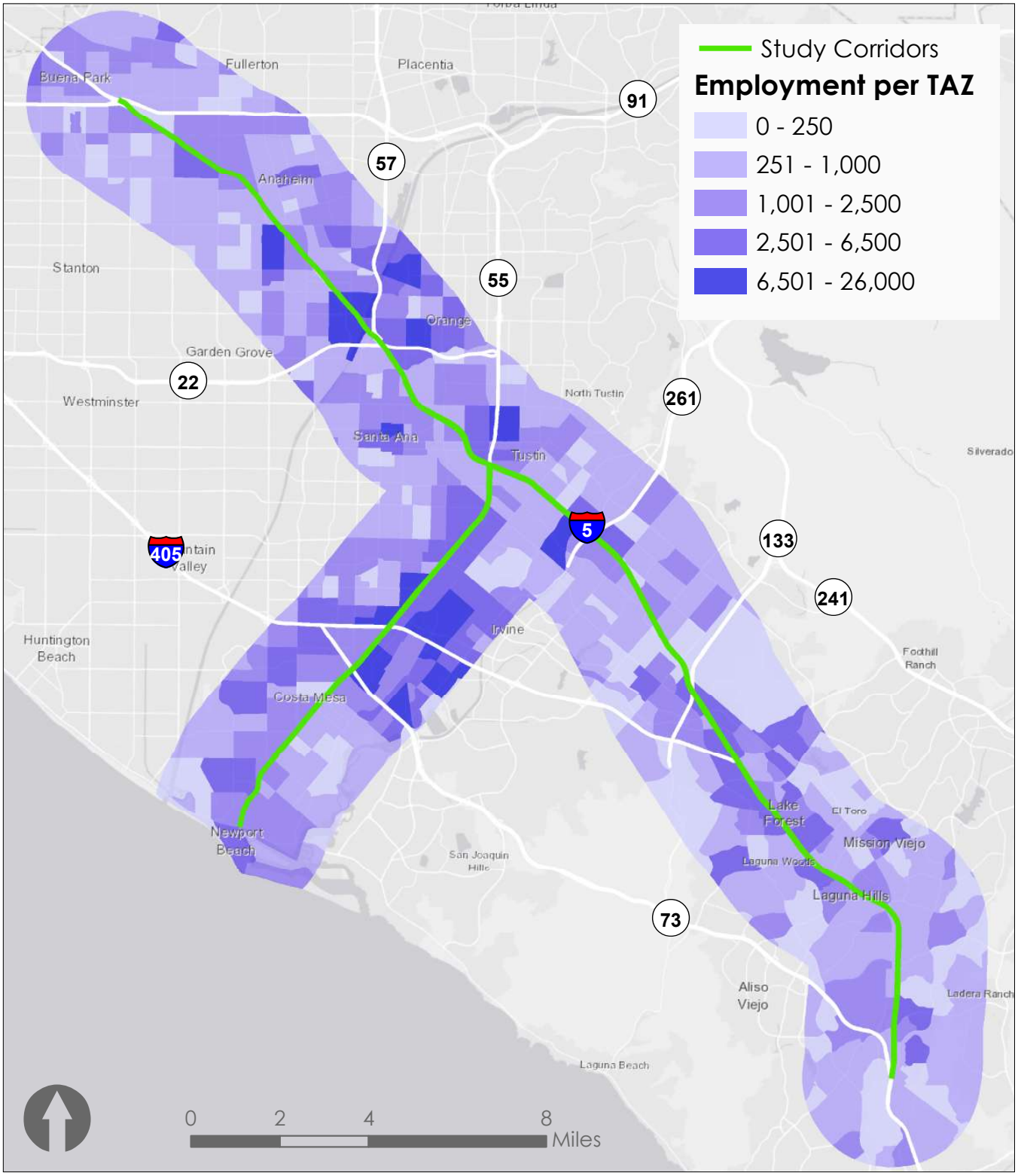


Figure 3.3: Occupied Dwelling Units

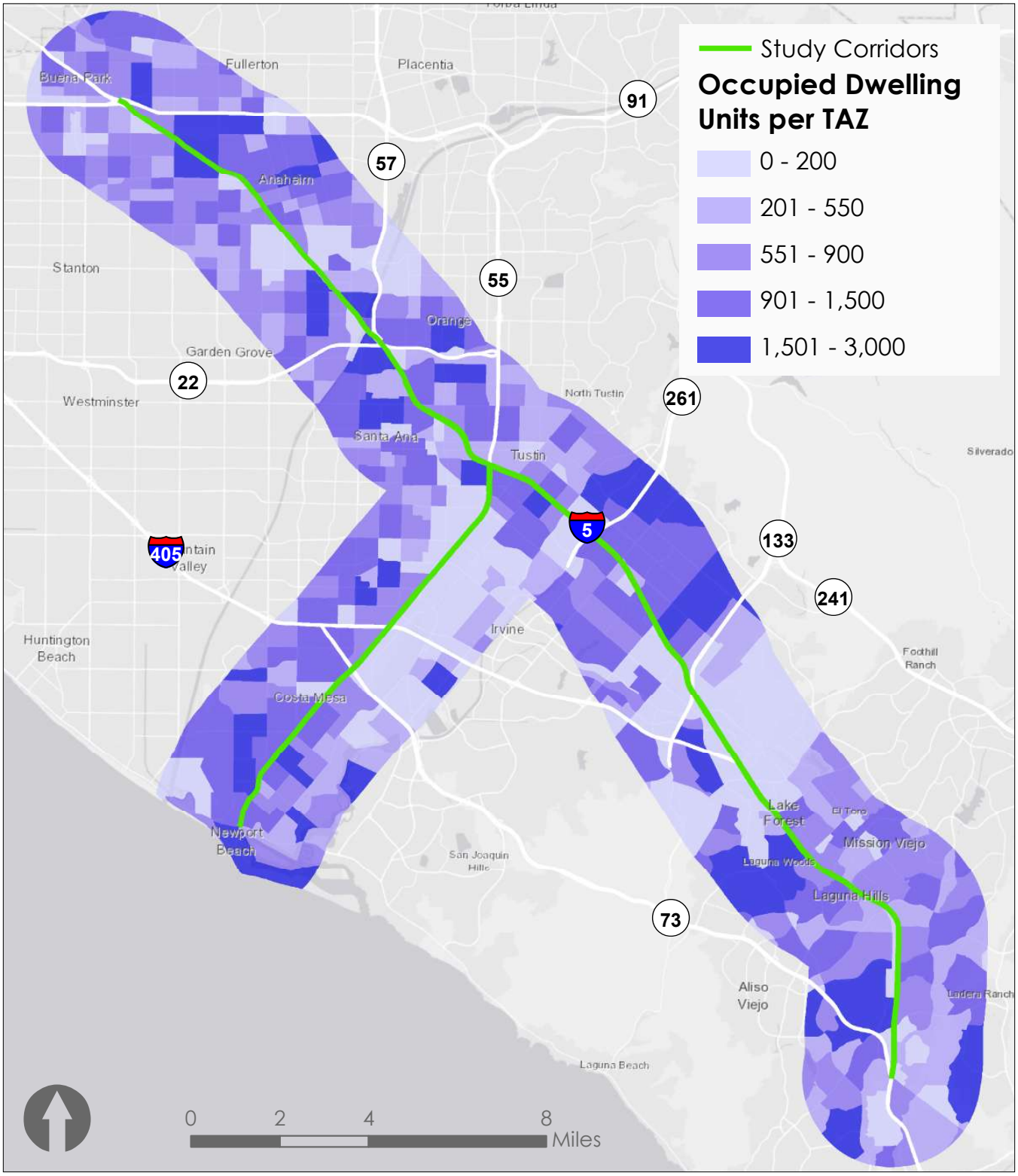
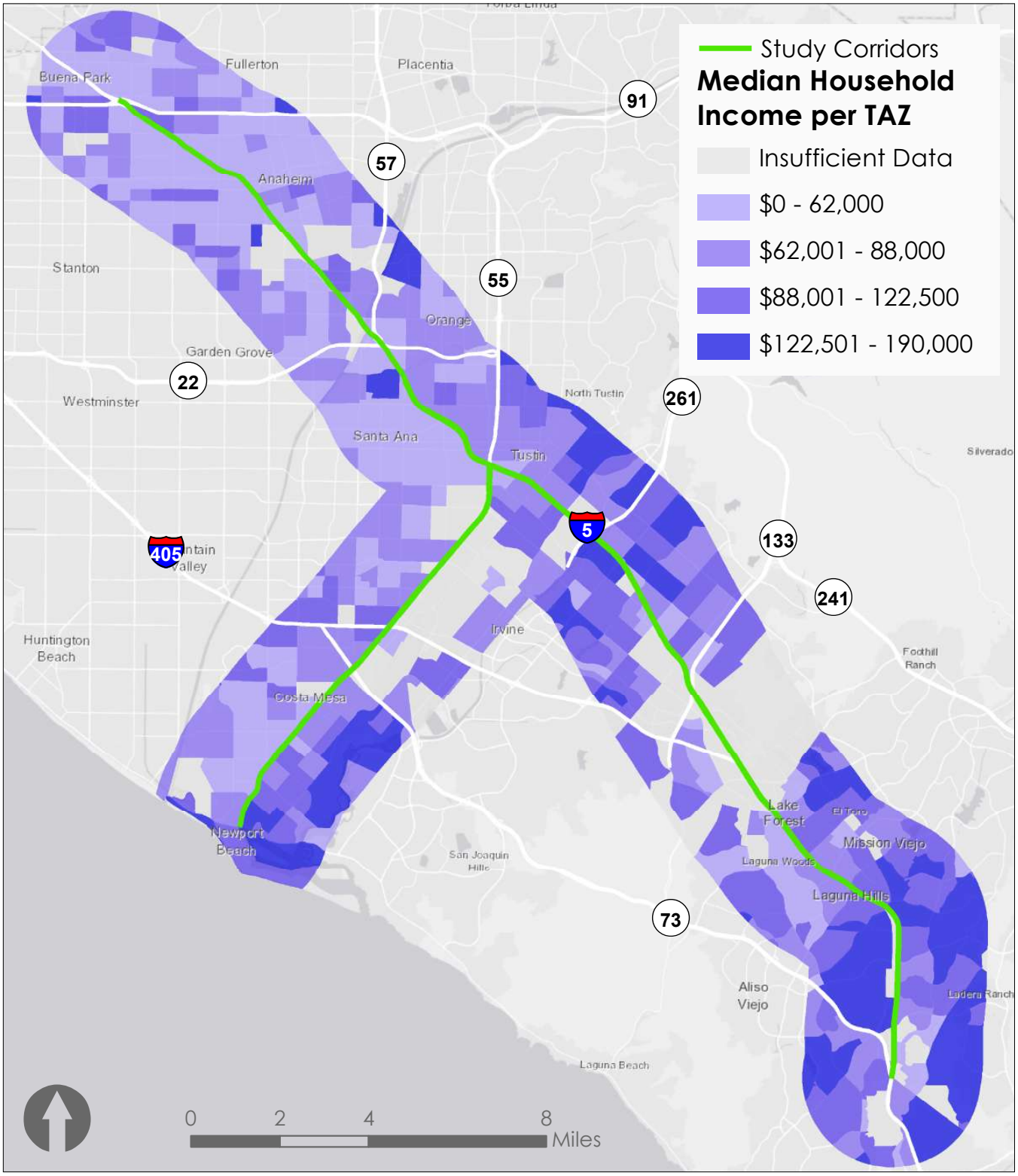


Figure 3.4: Median Household Income



3.1.3 Longitudinal Employer-Household Dynamic Conditions

Longitudinal Employer-Household Dynamic (LEHD) data from the U.S. Census was collected to determine the characteristics of residents, employees, and their travel patterns within a two-mile radius of the two study corridors. All data presented are from 2016. Data was collected for:

- the profile of workers within the study area
- the inflow of employees into the study area
- the outflow of residents outside the study area
- the interior flow of those who both live and work within the study area
- the distance and direction of employees who work in the study area
- the distance and direction of residents who live in the study area

In total, as of 2016, there are 830,449 employees within a two-mile radius of the two study corridors. Jobs that pay over $40,000 a year make up just less than half (48%) of the total number of jobs in the study area. The top jobs by North American Industry Classification System (NAICS) Industry Sectors are healthcare and social assistance (11.8%), followed by professional, scientific, or technical services (10.2%). Other common jobs industries include accommodation/food service (9.2%) and administration/support (9.5%).

Among all workers, a majority of employees within the study area are White alone (74.5%), followed by Asian (16.8%). Approximately 36% of workers in the study area identify as Hispanic or Latino. For educational attainment1, 33.5% of workers obtained a bachelor's degree or advanced degree, and 30.26% of workers attended college or have an Associate degree. Just under 19% of workers have a high school equivalency but did not attend college.

Most workers are between 30 to 54 years of age (55.7%). Workers in the study area age 29 or younger (23.4%), slightly edge the number of workers age 55 or older (20.9%). As previously noted, there are 830,449 employees in the two-mile radius of the two study corridors in 2016. There are 532,167 residents in the same study area. This means the net job inflow/outflow into the study area is +298,262. Among the 830,449 employed in the study area, 613,403 of these employees commute from elsewhere into the study area for work (73.9%). Among the 532,167 residents living in the study area, 315,121 of these residents commute elsewhere outside the study area for work (59.2%). Alternatively, there are 217,046 people who both live and work in this study area (40.8%). Among the 830,449 employees in the study area, 42.0% of commuters live within 10 miles, 29.5% are between 10 to 24 miles, 15.3% of jobs are within 25 and 50 miles, and 13.2% of commuters are greater than 50 miles away. To get to their job in the study area, 29.4% of commuters come from the northwest. The second-highest direction of commuters are coming from the southeast (13.7%).

The most common home locations of study area employees are found generally within or just outside of the study area itself. According to the LEHD data, most employees who work in the study area live in central Santa Ana, in pockets around Interstate 5 north of SR 22, central and north Irvine, Lake Forest, and westside Costa Mesa. Generally, most long-distance commuters are coming from south Los Angeles County, south Orange County, and the Fullerton area. LEHD data can determine the commute distance and direction of all employees and residents in the study area. Among the 532,167 residents in the study area, 51.7% residents have a commute within 10 miles, 25.7% commute between 10 to 24 miles, 13.3% of residents commute within 25 and 50 miles, and 9.3% of residents commute greater than 50 miles away from their home. To get to their job from the study area, 28.4% of commuters travel to the northwest. The second-highest direction of commuters are going to the southeast (16%).

The most common employment locations of study area residents are found generally within the study area itself, with a few outliers such as Newport Center and the industrial stretch north of SR 91. According to the LEHD data, most residents who live in the study area work in the Irvine Business Complex, Downtown Santa Ana, the Irvine Spectrum Center, and Disneyland. Generally, most long-distance commuting study area residents are going to L.A. and south Orange Counties, Huntington Beach, and the Inland Empire.

3.1.4 2016 Travel Conditions and 2045 No Build Scenarios

Baseline 2016 travel conditions are crucial for determining the current traffic dynamic within the study area. To accurately model travel conditions, the Orange County Transportation Analysis Model (OCTAM) was used separately for the two corridor study areas. Data was modeled for:

- Daily, AM Peak, and PM Peak Vehicle Miles Traveled (VMT)

- Daily, AM Peak, and PM Peak Congested Vehicle Hours Traveled (CVHT)
- Daily, AM Peak, and PM Peak Vehicle Hours of Congestion Delay (VHCG)

The COVID-19 pandemic and subsequent California stay-at-home orders have affected travel patterns in 2020 and for the future for commuters. Although most transit agencies expect a recovery for ridership similar to pre-pandemic levels, there may be long-lasting impacts as a result of the normalization of flexible schedules and popularity of telecommuting. The modeled travel conditions assume no change from pandemic-related travel patterns.

For the State Route 55 study area, the daily 2016 VMT is nearly 13 million vehicle miles traveled. Almost 6 million vehicle miles are on SR 55 alone. The PM Peak Period VMT (1.6 million) is greater than the AM Peak Period VMT (1.2 million) on SR 55. Daily congested vehicle hours traveled in the SR 55 study area is nearly 660,000, almost double the daily vehicle hours of congestion delay (348,000). The PM Peak Period CVHT and VHCG outnumbers the AM Peak Period for both the SR 55 study area and the SR 55 freeway alone.

For the Interstate 5 study area, the daily VMT is nearly is over 26.8 million vehicle miles traveled. More than 13 million vehicle miles are on Interstate 5 alone. The PM Peak Period VMT (3.5 million) is greater than the AM Peak Period VMT (2.6 million) on Interstate 5. Daily congested vehicle hours traveled in the Interstate 5 study area is over 1.3 million, almost double the daily vehicle hours of congestion delay (701,000). Similar to the State Route 55 study area, the PM Peak Period CVHT and CHCG outnumbers the AM Peak Period for both the Interstate 5 study area and the Interstate 5 freeway alone.

In general, daily freeway VMT will increase from 2016 to 2045 by approximately 10%. Within the entire study area, including arterial, collector, and local streets, daily VMT is modeled to increase by 11% for the SR 55 study area and 14% for the I-5 study area. AM VMT and PM VMT also are projected to rise approximately 13% in both study areas.

Congested vehicle hours traveled (CVHT) also will steadily rise within both study areas. In the SR 55 study area, daily, AM, and PM CVHT will rise by over approximately 9% on the freeway and 10% in total. For the I-5 study area, daily, AM, and PM CVHT will increase by about 11% on the freeway and up to 17% in total.

The projected increase in daily vehicle hours of congestion delay (VHCD) is similar to daily CVHT in both study areas. However, AM VHCD appears to have a more significant increase compared to PM VHCD for both study areas. SR 55 AM VHCD is modeled to show a 7% rise though 2045, compared to 4% PM VHCD growth. Similarly, I-5 AM VHCD will rise 23% compared to a slower growth rate of 18% PM VHCD.

For freeway corridors only, VMT, CVHT, and VHCD are projected to rise by approximately 9% to 11% from 2016 to 2045 in both study areas. Comparatively, the next few decades will see an increase of traffic on six+ divided lanes in the study area, as VMT, CVHT, and VHCD will rise by over 30% in the SR 55 study area and about 20% in the I-5 study area. The model projects a significant rise in VMT, CVHT, and VHCD on Smart Streets and Expressways. Daily VMT on Smart Streets alone will grow by 86% in the SR 55 area, and 265% in the I-5 area.

Despite the projection of significant travel conditions in the area, the model predicts a significant decrease of traffic on four lane divided roads, two lane divided roads, and two-lane undivided roads. For instance, daily VMT on two-lane divided roads are projected to drop 39% in the SR 55 study area and 41% in the I-5 study area.

The OCTAM model predicts the inclusion of new toll facilities and high-occupancy toll lanes in the SR 55 area. By 2045, there will be over 10,000 daily vehicle miles traveled on new toll facilities in the SR 55, and almost 800 daily congested vehicle hours traveled. In addition, the new projected HOT facilities on the SR 55 are projected to have over 92,000 daily VMT and 4,500 daily CVHT. The OCTAM model projects a 21% increase in toll facility daily VMT, but does not project a HOT facility by 2045.

3.1.5 Existing Transit Route, Ridership, and Transit Infrastructure Conditions

Orange County has a substantial High Occupancy Vehicle Lane network along all major freeways, including the study corridor segments along Interstate 5, as well as State Route 55 from Interstate 5 to Interstate 405. Other corridors in the study area include SR 57, SR 91, SR 22, and I-405.

There are numerous programmed or proposed HOV lanes in the study area for either new or additional HOV lanes, including three separate

projects on the study corridor segments. These additional HOV lane projects to create dual HOV lanes in both directions include:

- **Measure M2 Project A:** I-5 between SR 55 and SR 57
- **Measure M2 (portion of) Project C:** I-5 between Alicia Parkway and El Toro Road
- **Measure M2 (portion of) Project F:** SR 55 between I-5 and I-405

For the most part, Regional Express Lane infrastructure in Orange County are in the preliminary stages. Only the SR 91 freeway has Express Lanes, from beyond the Orange County boundary line to the SR 55 interchange. The I-405 within Orange County north of the SR 73 interchange is currently in the design/ build phase of the OC Go project.

The Caltrans Orange County Managed Lanes Feasibility and Network Studies (MLFS and MLNS) established express lane priority for numerous freeway segments in Orange County. The studies identified that Interstate 5 from the SR 91 to the SR 55, and the State Route 55 from the I-5 to the I-405 should be Tier 1 or highest priority segments for express lanes (projects that should be completed by 2030). The studies also determined that Interstate 5 from SR 55 to SR 73 is a Tier 2 or secondary priority segment for express lanes (projects that should be considered by 2030). State Route 55 south of SR 73 was not considered for these studies. The MLFS and MLNS may prioritize different express lanes than OCTA's Express Lanes Network Study.

There are numerous HOV direct access ramps (DARS) along the I-5 and SR 55 study corridors. The following DARS are ramps that connect from the study freeway corridors to arterials while DC's connect to other freeways by use of HOV lanes:

Table 3.1: Study Corridor DARS and Direct Connectors

Direct Access Ramps (DARS):	Direct Connectors (DC):
I-5 South to Disneyland Drive	I-5 North to SR 91 West
I-5 North to Disney Way	I-5 South to SR 91 East
I-5 North to Gene Autry Way	SR 91 West to 1-5 North
I-5 South to Gene Autry Way	91 East to I-5 South
Gene Autry Way to I-5 North	I-5 North to SR 57 North
Gene Autry Way to I-5 South	SR 57 South to I-5 South
Grand Avenue to I-5 South	I-5 South to SR 55 South
I-5 North to Grand Avenue	SR 55 North to I-5 North
I-5 South to Barranca Parkway	I-5 North to I-405 North
Barranca Parkway to I-5 North	I-405 South to I-5 South
	SR 55 South to I-405 South
	SR 55 South to I-405 North
	I-405 South to SR 55 North
	I-405 North to SR 55 North

Bus routes that intersect Interstate 5 and State Route 55 have a high potential for transfer opportunities, especially for routes with high ridership. High-ridership bus routes may have the ability to serve as a local bus transfer point to BRT where the bus route intersects the study freeway corridors. Identifying these intersecting locations can factor into determining potential catchment areas and station siting, whether it be in-line or off-line. Table 3.2 below shows the top performing OCTA routes by average monthly ridership from October 2019 to February 2020, as well as the intersecting location along the study corridor. In addition to local fixed routes, the OC Flex, an on-demand, curb-to-curb shuttle service was launched in October 2018 to better match public-transit services with the changing ways that passengers want to travel. The program allows passengers to request a ride on-demand though a mobile app via shuttles. The pilot program kicked off with two individual zones, one in Huntington Beach/ Westminster, and the other within parts

of Aliso Viejo, Laguna Niguel, and Mission Viejo. In March 2020, service in the Huntington Beach/ Westminster zone was suspended due to significantly low ridership. The one remaining active OC Flex zone in south Orange County provides service to the Laguna Nigel/ Mission Viejo Metrolink station.

The OC Flex service operates seven days a week from 6:00 AM to 9:00 PM on weekdays and from 9:00 AM to 9:00 PM on weekends. Rides are $4.50 for unlimited all-day service. Prices are reduced by 50% of greater when riding in a group. There have been over 12,000 boardings in its first six months of operation. More than 23% of the rides are shared, and nearly 30% of riders transfer to or from an OC Bus or Metrolink train.

Within the study area, defined as a two-mile buffer on either side of the two study corridors, there are seven Metrolink stations. Three Metrolink lines operate in the study area, including:

- Orange County Line (OC)
- Inland Empire – OC Line (IE-OC)
- SR 91/ Perris Valley Line (91/PV)

The seven Metrolink stations are:

- Buena Park (OC; 91/PV)
- Anaheim (OC)
- Orange (OC; IE-OC)
- Santa Ana (OC; IE-OC)
- Tustin (OC; IE-OC)
- Irvine (OC; IE-OC)
- Laguna Niguel/ Mission Viejo (OC; IE-OC)

Two Metrolink Stations are located outside of the study area, including:

- Fullerton (OC; 91/PV)
- Anaheim Canyon (IE-OC)

Within the study area, there are six park and ride locations. Five park and rides are located along Interstate 5 south of State Route 55. One park and ride is located along Interstate 5 north of State Route 55, and one park and ride is found along State Route 55. The park and ride locations are:

- Fullerton Park and Ride (800 parking spaces)
- South Coast Plaza Park and Ride (30 spaces)
- Jeffrey Park and Ride (581 spaces)
- Alicia (William S. Craycraft Park) Park and Ride (38 spaces)
- Laguna Hills Transportation Center (175 spaces)
- San Juan Capistrano (Junipero Serra) – North Park and Ride (35 spaces)

3.1.6 Freeway BRT Peer Review

A Freeway BRT peer review was conducted to understand existing best practices with cities that have successful BRT implementation. The peer review considered capital and operations costs, station siting, BRT operation statistics such as ridership, fares, hours, and headways, parking, technology, and unique BRT characteristics for each peer example. The peer BRT services included:

- San Diego Metropolitan Transit System (MTS) Rapid BRT in San Diego, CA
- Los Angeles County Metropolitan Transportation Authority (Metro) J Line in Los Angeles, CA
- MiWAY Mississauga Transitway in Mississauga, ON, Canada
- OC Transpo Ottawa Transitway in Ottawa, ON, Canada
- Minnesota Valley Transit Authority (MVTA) Red Line in Minneapolis, MN

Project staff met with project managers and operators from Caltrans, Metro, San Diego Association of Governments (SANDAG), and MTS to review the lessons learned from the Rapid and J Line services and determine the best approach for BRT in Orange County. Takeaways from the all existing BRT operations have been consolidated and are presented below.

- Branding and marketing the OCTA freeway BRT service as a unique public transit alternative is crucial to the success for the BRT. The service should be distinct from all OCTA service that is currently provided. In addition, the branding should be uniform throughout for all visual elements, including buses and stations to handouts and advertisements. The BRT service should be identifiable by name, color scheme, icons, and font alone.
- The OCTA freeway BRT service should adapt to the character of the areas it will serve. In more suburban regions, stations should have park and ride/ kiss and ride facilities that directly serve the BRT stations, whether off-line or in-line via a pedestrian overpass. In areas that are denser and more transit-oriented, in-line stations may be more efficient. Off-line stations should be served by direct access ramps that are not at existing interchanges.

- The siting/placement of BRT stations is critical. It is important to site stations within the greatest catchment areas, but siting is also heavily dependent on available freeway right-of-way and land acquisition. Freeway adjacent off-line stations can add approximately 2 to 3 minutes to travel time compared to in-line stations, which can factor into the success of a bus rapid service. The spacing of stations is dependent on size of the catchment areas but should not be further than a half mile from the BRT route.
- In order to reduce journey time, all BRT riders should pay via card readers off vehicle before entering the bus. The buses should have front and rear boarding which, in turn, balances the bus more efficiently.
- Stations should all be made with similar design and should only vary in size due to number of daily boardings and specific site characteristics. The stations should have a simple design to keep capital and maintenance costs to a minimum, but sufficient in size to provide high-level customer amenities. The use of standardized infrastructures is also encouraged, as it allows maintenance staff to install these elements interchangeably across transit services.
- Partnerships are key to the success of a BRT service. OCTA should enter into partnerships during the planning phase to maintain relations with all parties that will help provide input to make the design of freeway BRT a success. Some examples of partnerships include the California Highway Patrol, any adjacent agencies that may be able to assist in station parking, and OCTA's own bus drivers.
- Pedestrian and bicyclist access to the station is just as important as placement of the station itself. Access to and at the station needs to be safe and inviting in order the maximize the number of potential riders. The most important rider needs are sufficient lighting and minimal freeway noise. Proper wayfinding, real-time signage, security, cameras, art installations, and other amenities are also important for a positive user experience. Access to a station from underneath the freeway should be avoided to minimize noise.
- BRT operations should be robust in order to appeal to a wide range of riders. Both the Metro J Line and Rapid 235 line operate nearly all day, 7 days a week, with approximately 15-minute peak headways. OCTA should run zero-emission non-articulated buses.
- The BRT stations will need to overcome the first/last mile dilemma to widen the net of potential riders. Stations need to be equipped with bike racks/lockers to allow for secure, long-term parking to minimize risk of theft, as well as accommodate local bus route docks for transfers, rideshare loading zones, micro mobility options, and park and ride facilities when necessary.
- In-line stations offer more direct travel and shorter dwell times than stations located off of the freeway. OCTA should explore in-line outside and inside shoulder stations for freeway BRT.
- Where buses leave mixed-flow HOV lanes and enter bus-only station areas, the approach should be painted red or otherwise to inform other drivers to not enter. Road dots and stop signs should also be present in bus-only areas to slow drivers who may have entered the lane on accident. Enforcement blitzes and education campaigns may be necessary upon the launch of the service to prevent drivers from entering the lane.
- Operating BRT requires extra training for all staff, especially drivers. Because BRT is unique, all members, from the drivers to the facilities division, should be accustom to the service before operation should begin.

Table 3.2: High-Ridership Routes that Intersect Study Corridors

OCTA Route	From	To	Average Daily Ridership	Study Corridor Intersection
OCTA 57	Brea	Newport Beach	3,176	I-5 at State College Boulevard; SR 55 at Bristol St
OCTA 64	Huntington Beach	Tustin	2,196	I-5 at 1st Street
OCTA 43	Fullerton	Costa Mesa	2,184	I-5 at Harbor Boulevard; SR 55 at 19th Street and 18th Street
OCTA 66	Huntington Beach	Irvine	2,144	I-5 at Newport Avenue; SR 55 at McFadden Avenue
OCTA 47	Fullerton	Newport Beach	2,135	I-5 at Anaheim Boulevard
OCTA 53	Orange	Irvine	2,111	I-5 at Main Street
OCTA 60	Long Beach	Tustin	1,970	I-5 at 17th Street
OCTA 42	Seal Beach	Orange	1,612	I-5 at Lincoln Avenue
OCTA 55	Santa Ana	Newport Beach	1,342	SR 55 at 17th Street
OCTA 50	Long Beach	Orange	1,316	I-5 at Katella Avenue
OCTA 54	Garden Grove	Orange	1,268	I-5 at Chapman Avenue
OCTA 37	La Habra	Fountain Valley	1,149	I-5 at Euclid Street
OCTA 38	Lakewood	Anaheim Hills	1,054	I-5 at La Palma Avenue

4. Public and Stakeholder Engagement

Orange CountyCommunity engagement has been an integral aspect throughout this project. The purpose of the public engagement campaign was to engage the public, build study awareness, and gather community feedback on the proposed BRT alternatives. The goal was to actively engage the community in fall 2020 through an online survey, public webinar, stakeholder roundtable meeting, telephone helpline, and print and online resources and media. In addition, design charettes were held on July 29, 2020, which included public works, engineering, and planning department staff who provided feedback on station location concepts and current relevant plans.

The survey, which was open from September 25, 2020 to November 16, 2020 collected 281 responses. Figures 4.1 and 4.2 below summarizes the survey results. More information about community input can be found in the Freeway BRT Public Outreach Summary Report in Appendix B. Community Input was used to score Evaluation Criteria #9: Stated Preference Survey from Community Outreach Activities.

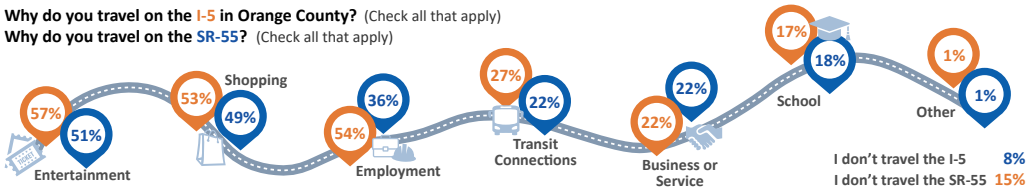
Figure 4.1: BRT Alternative Survey Results Page 1

Bus Rapid Transit on Freeways Study

www.octa.net/freewaybrt

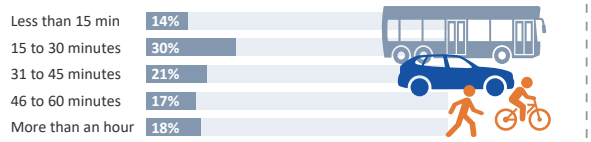
Outreach and Survey Results - Community Responses

Why do you travel on the I-5 in Orange County? (Check all that apply)
Why do you travel on the SR-55? (Check all that apply)

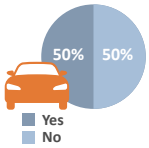


I don't travel the I-5 8%
I don't travel the SR-55 15%

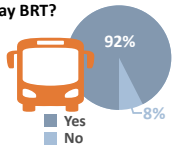
How long is your commute?



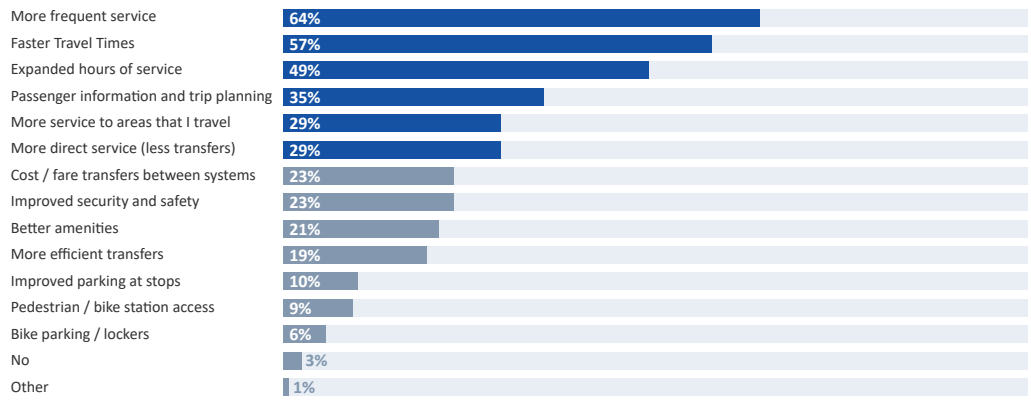
Do you have a car?



Would you consider using Freeway BRT?



Are there any improvements that would make you ride transit more often? (Select up to 5)



Rate your interest in adding each of the three, proposed BRT routes.
(1 being the least important and 6 being the most important)

Concept 1: Fullerton to Costa Mesa / Irvine	47%
Concept 2: Fullerton to Laguna Niguel / Mission Viejo	54%
Concept 3: Santa Ana to Newport Beach	48%

Concept 1

Concept 2

Concept 3

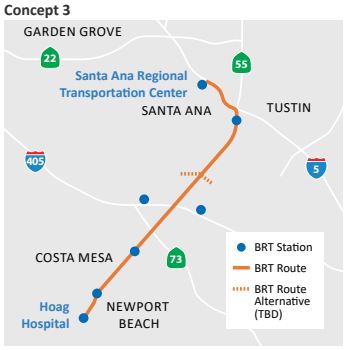


Figure 4.2: BRT Alternative Survey Results Page 2

Bus Rapid Transit on Freeways Study

What ethnic group do you consider yourself a part of or feel closest to?

Caucasian / White	28%
Latino / Hispanic	44%
African American / Black	3%
American Indian or Alaskan Native	3%
Asian	10%
Pacific Islander	0%
Middle Eastern	0%
Mixed Heritage	4%
Other	1%
Preferred not to say	7%

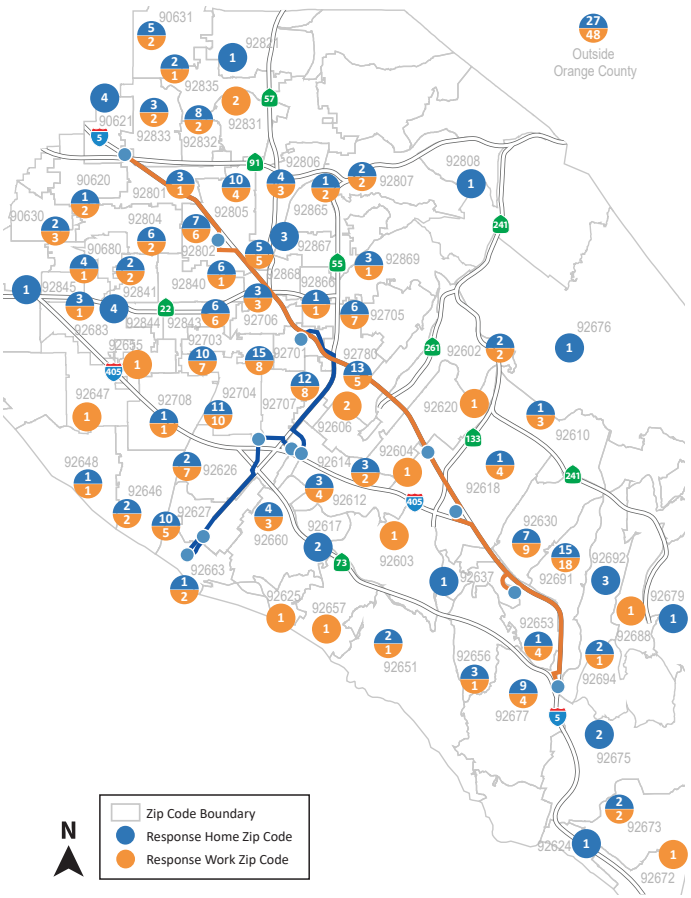
What is your estimated household income?

Under $30,000	33%
$30,000 - $49,000	14%
$50,000 - $64,999	9%
$65,000 - $84,999	6%
$85,000 - $99,999	4%
$100,000 or more	16%
Preferred not to say	18%

What is your age group?

13	0%
13-17	1%
18-24	15%
25-34	22%
35-44	18%
45-59	29%
60-64	7%
65+	6%
Preferred not to say	1%

Where are the responses coming from?



Community Engagement:

- E-mailed **15,775+** project notices to bus riders and project stakeholders
- Advertised in Spanish and Vietnamese newspapers
- Hosted **1** Stakeholder Roundtable webinar and **1** public webinar attracting **38** participants, and uploaded **3** pre-recorded presentation online videos for those that could not attend
- Gathered **279** public comments with survey respondents contributing **141** of the comments
- All materials were shared in **English**, **Spanish**, and **Vietnamese**
- Provided a multi-language hotline for interested parties to take the survey and comment on the study
- Shared an e-communication tool kit with **34** local cities and **9** OCTA committee/stakeholder organizations
- Promoted the project and survey with **5** Twitter posts, **6** OCTA Facebook posts, and **10** Facebook ads and **3** mobile geofencing ads with **485,550+** views
- Announced the project through **OCTA's On-the Move** blog and the press, resulting in **11** news articles and social media, blog and agency website posts
- Collected **281** completed surveys from September 25 to November 16, 2020

Stay Connected

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OCTA Caltrans

February 2021

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5. Alternatives Development

Three conceptual alternatives were developed that are intended to attract the greatest ridership along the SR 55 and I-5 corridors. In order to define the alternatives, multiple catchment areas were identified to determine locations where the most riders would begin or end their trips. The catchment areas define the best locations for BRT station placement, which joined through BRT service will determine the best possible routes. The catchment areas were determined by considering numerous factors, including the existing conditions, the public and stakeholder outreach, and the corridor constraints. The catchment areas along each of the two corridors are shown below:

Table 5.1 Study Corridor Catchment Areas

#	Interstate 5 Catchment Areas
1	Fullerton Park and Ride
2	La Palma Avenue / Lincoln Avenue
3	Disneyland/ Anaheim Boulevard/ Gene Autry Way
4	State College Boulevard/ UCI Medical Center / Outlets at Orange
5	Santa Ana Regional Transportation Center (SARTC) / Downtown Santa Ana
6	1st Street*
7	Newport Boulevard*
8	Jeffrey Road / Northwood Irvine
9	The Irvine Spectrum Center/ Barranca Parkway
10	Laguna Hills Transportation Center/ El Toro Road / Village at Laguna Hills
11	Mission Viejo/ Laguna Niguel Metrolink Station

#	State Route 55 Catchment Areas
12	McFadden Avenue^
13	Irvine Business Complex / John Wayne Airport
14	South Coast Plaza
15	Bristol Street*
16	Fair Drive
17	17th Street / Downtown Costa Mesa
18	Hoag Hospital / Newport Beach

** Catchment area not chosen to move forward during initial planning phase*
^ Catchment area not chosen to move forward during alternative development phase

An extensive analysis of guiding BRT principles was also included to determine the viability of BRT in the region. The analysis included an examination of key features of BRT including managed lanes, drop ramps or direct access ramps, parking facilities, types of stations, station features for comfort and safety, first/last mile amenities, and technology features.

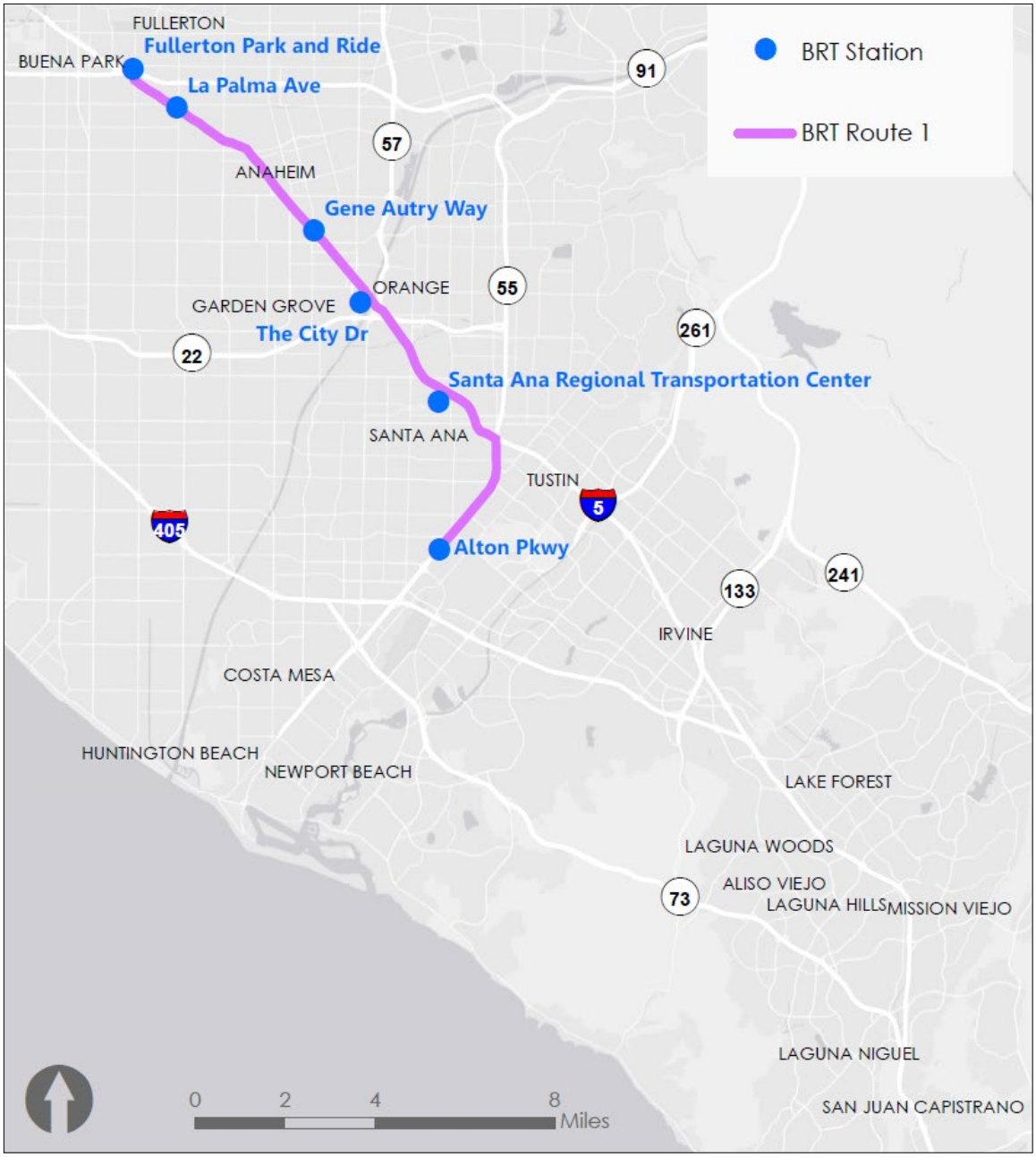
5.1 Corridor Alternatives

In order to serve the greatest number of riders, three main all-day service routes were identified and modeled along the I-5 and SR 55 corridors. Route 2 has an additional service alternative named Route 2A, with a different northern terminus.

5.1.1 Route 1 (Fullerton Park and Ride to Alton Parkway)

Route 1 begins at the Fullerton Park and Ride, which is located just northeast of the I-5 and SR 91 interchange. Route 1 utilizes I-5 starting at Magnolia Street, heading southeast with station locations at La Palma Avenue, Gene Autry Way, (potentially at The City Drive determined through the complementary Caltrans Orange County Freeway-Arterial Enhancement Study), and the Santa Ana Regional Transportation Center (SARTC). After leaving SARTC, the route continues onto the SR 55, and terminates at Alton Parkway/Avenue.

Figure 5.1: Route 1



5.1.2 Route 2 / 2A (Laguna Niguel / Mission Viejo Metrolink to Gene Autry Way)

Route 2 begins at the Laguna Niguel/ Mission Viejo Metrolink Station, which is located just northwest of the I-5 and SR 73 interchange. Route 2 utilizes I-5 starting at Crown Valley Parkway, heading north and northwest with station locations at the Village at Laguna Hills or Laguna Hills Transportation Center, Barranca Parkway, Jeffrey Road, SARTC, (potentially at The City Drive determined through the complementary Caltrans Orange County Freeway-Arterial Enhancement Study), and terminating at Gene Autry Way. Route 2A extends this northern terminus, with two additional stops at La Palma Avenue, and the Fullerton Park and Ride.

Figure 5.2: Route 2

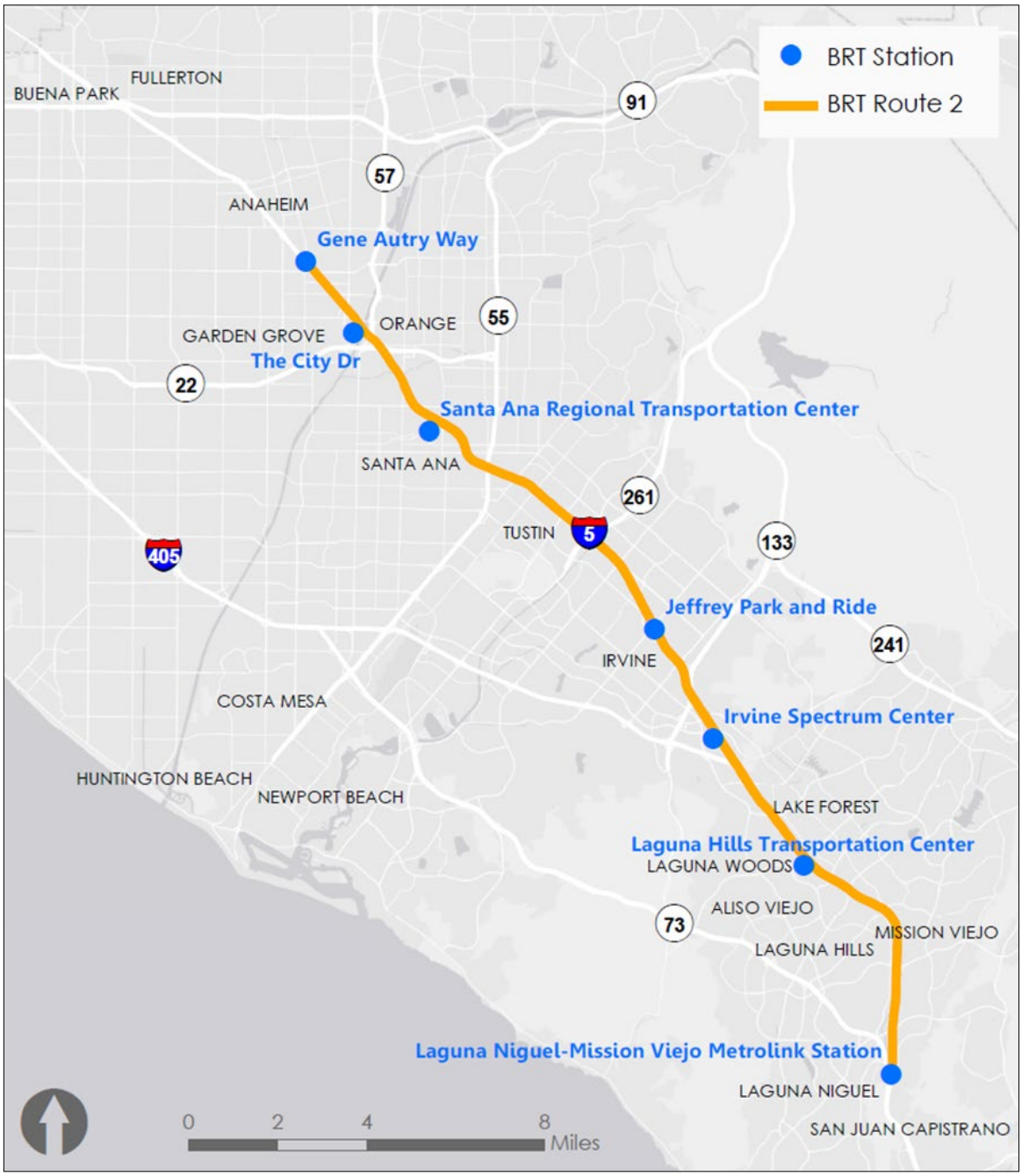
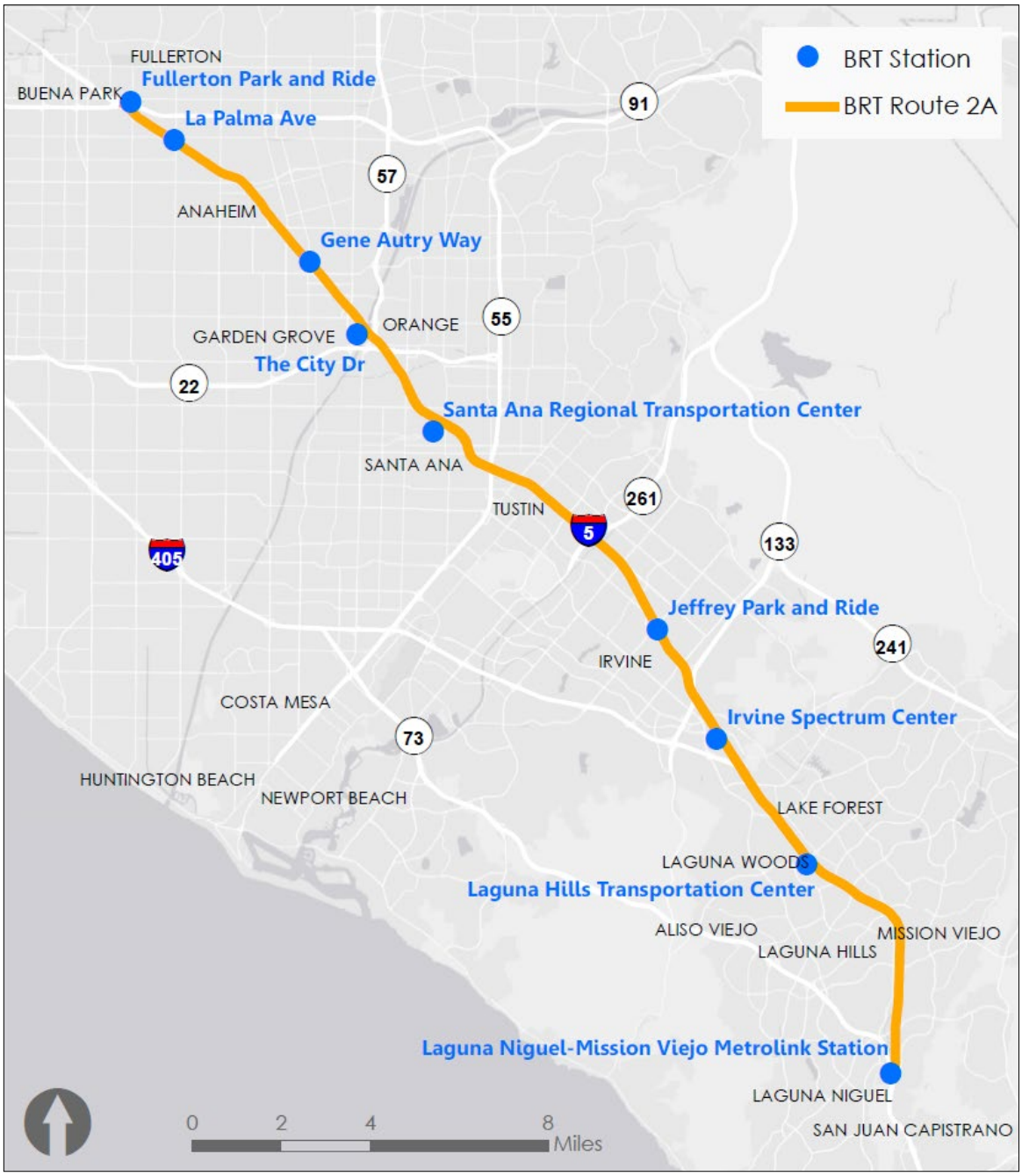


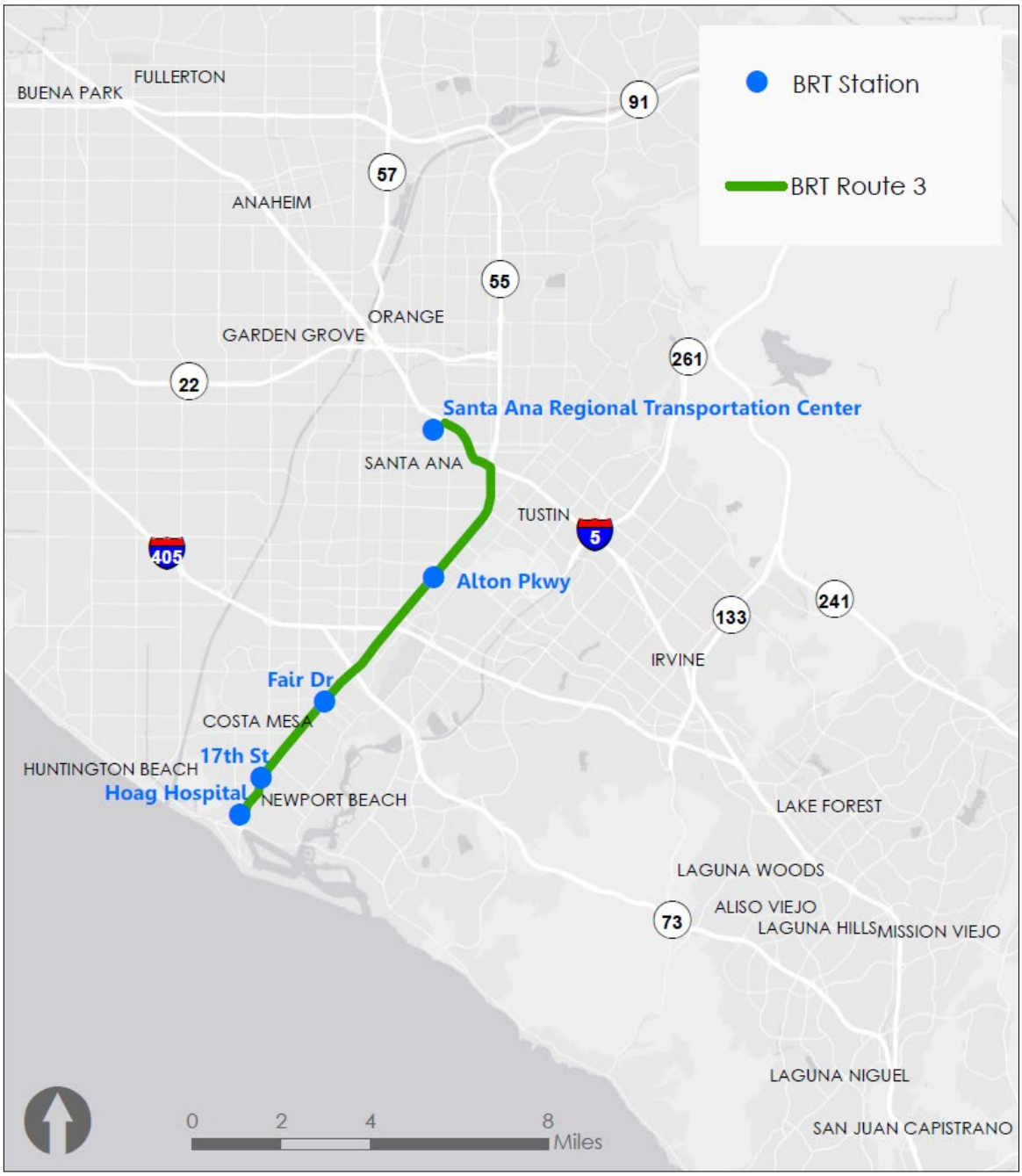
Figure 5.3: Route 2A



5.1.3 Route 3 (SARTC to Hoag Hospital Newport Beach)

Route 3 begins at SARTC, which is located south of the I-5, just northeast of Downtown Santa Ana. Route 3 utilizes the I-5 from SARTC but heads southwest on SR 55 to make stops at Alton Parkway/Avenue, Fair Drive, 17th Street in Costa Mesa, and lastly terminating at Hospital Road in Newport Beach.

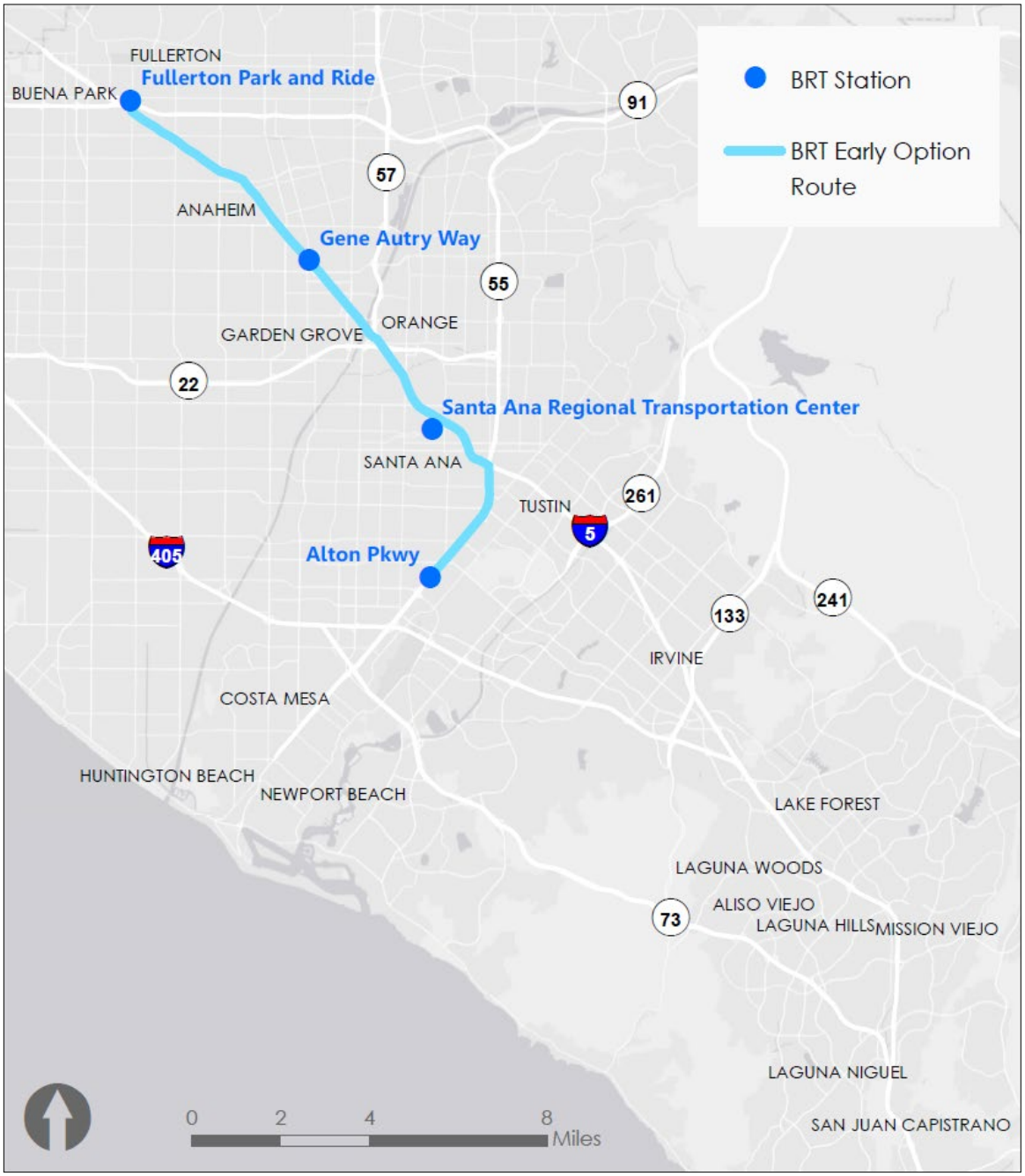
Figure 5.4: Route 3



5.1.4 Early Option BRT Alternatives

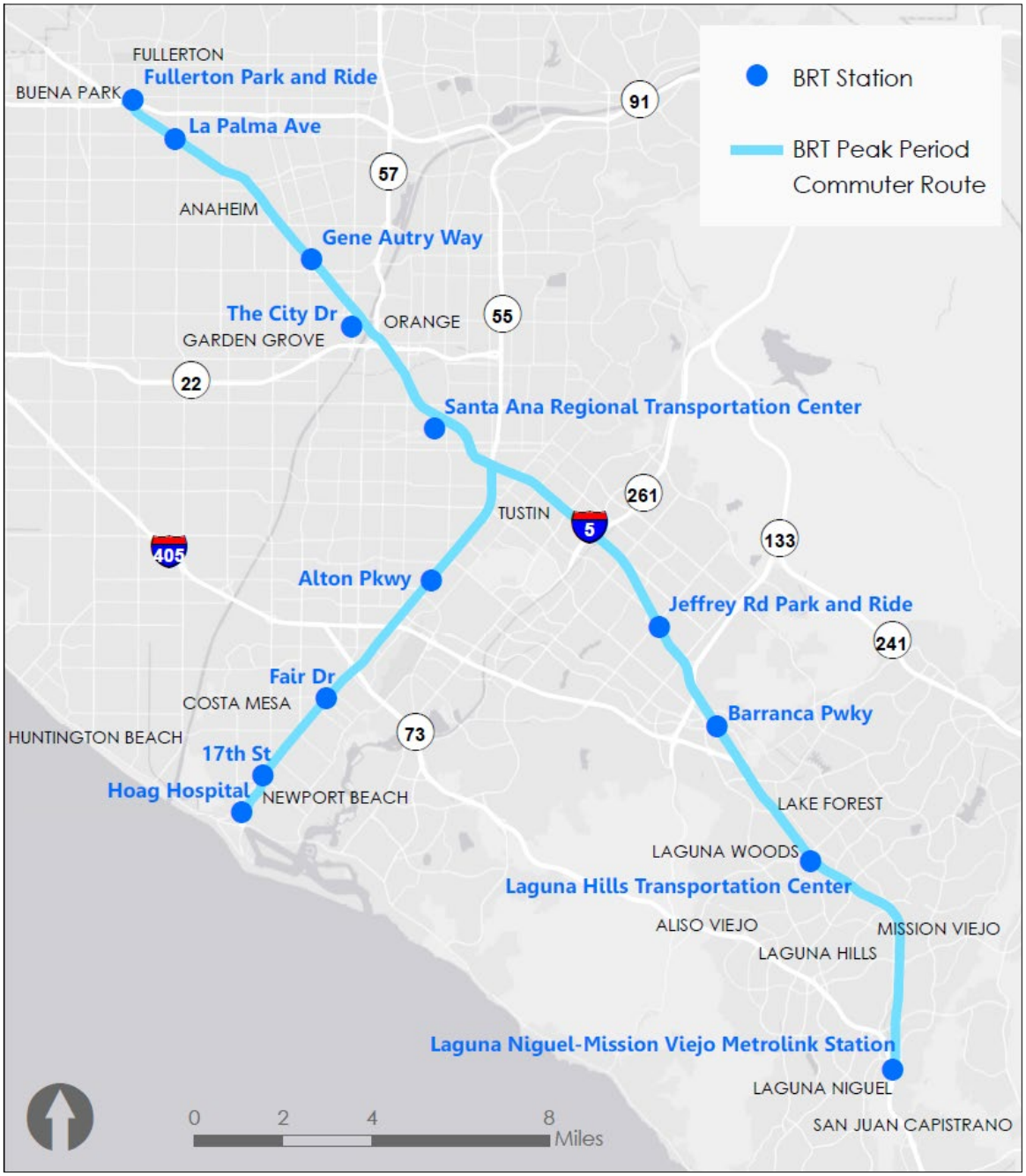
In addition to the main service alternatives, early option BRT and peak period commuter BRT alternatives are possible variations. Early option BRT allows OCTA to implement BRT within the near-term with very little infrastructure improvements. Peak period commuter BRT allows for a streamlined BRT service that takes riders directly from residential areas to major employment centers. Stations of these alternatives are depicted in Figure 5.5 and 5.6.

Figure 5.5: Early Option BRT



Peak Period Commuter BRT is also a form of Early Option BRT. Peak Period Commuter BRT operates similarly to the MTS Rapid service along I-15 in San Diego, where the BRT begins its journey at two or three residential pick-up locations, then continues non-stop to key job centers with local circulation within the job centers. The residential stations are located near freeways and are typically adjacent to park and ride lots. At the end of its journey, the BRT makes freeway and arterial stops at 4 or 5 key locations within job centers, such as South Coast Plaza or the Irvine Business Complex. Peak Period Commuter BRT typically maximizes freeway operations by utilizing freeway shoulder lanes as an interim low-speed bypass, then uses HOV lanes once HOV 3+ lanes become available.

Figure 5.6: Peak Period Commuter BRT



5.1.5 Station Siting

Each station area has numerous design and implementation considerations to optimize the use of the surrounding infrastructure and best serve local communities. Each station location is detailed below summarizing the primary designs, parking requirement, and routes that utilize that station location. The conceptual alternatives for each station location are found in Appendix C, excluding the station at The City Drive, as this station's development was initiated as part of the Caltrans OC Freeway-Arterial Transit Enhancement Study.

Table 5.2 Stations Summary

Station Location	Study Fwy	Primary Design	Route Utilization	Parking Requirement
Fullerton Park and Ride	I-5	Use existing ramp infrastructure with priority left-turn on Magnolia Avenue northbound off-ramp	Routes 1 and 2A, OC FATES SR 91 Route	Existing
La Palma Avenue	I-5	Off-line station northbound; slip-ramp station southbound with pedestrian overcrossing	Routes 1 and 2A	None
Gene Autry Way	I-5	New off-line buttonhook station on Gene Autry Way utilizing existing direct access ramps	Routes 1, 2, and 2A	At Disneyland but partnerships needed
The City Drive	I-5	Use existing ramp infrastructure, existing bus pullouts	Routes 1, 2, and 2A, OC FATES SR 22/ SR 57 Route	Best with park and ride
Santa Ana Regional Transportation Center	I-5	New northerly direct access ramps from Penn Way	Routes 1, 2, 2A, and 3	Existing
Jeffrey Park and Ride	I-5	New side-running station northbound; existing park and ride southbound	Routes 2 and 2A	Existing
Barranca Parkway	I-5	New southerly direct access ramps and off-line buttonhook station at Barranca Parkway	Routes 2 and 2A	Needed
Laguna Hills Transportation Center	I-5	New direct access ramp for off-line station via Calle De Los Caballeros; or new in-line station between El Toro Road and Los Aliso Boulevard	Routes 2 and 2A	At the Village at Laguna Hills/Laguna Hills Transportation Center but partnerships needed
Laguna Niguel/ Mission Viejo Metrolink Station	I-5	Use existing ramp infrastructure	Routes 2 and 2A	At Metrolink Station
Alton Parkway	SR 55	New direct access ramps and off-line buttonhook station on Alton Parkway	Routes 1 and 3	None
Fair Drive	SR 55	New side-running station	Route 3	At fairgrounds but partnerships needed
17th Street	SR 55	On-Street	Route 3	None
Hospital Road	SR 55	New bus bay	Route 3	At hospital but partnerships needed

5.2 Corridor Constraints

The corridor constraints analysis took into consideration policy requirements related to freeway BRT in Orange County and physical constraints at each station location. Relevant policies include carpool lane performance, Caltrans standards related to design of Freeway BRT, standards related to HOV drop ramps, accessibility, and transit policies in alignment with Metrolink and LOSSAN Plans.

5.2.1 Caltrans BRT Design Principles

In 2007, Caltrans published the Bus Rapid Transit: A Handbook for Partners which provides guidance for the development of BRT in California. This handbook defines key design and operation features which can be attributed to BRT. These are:

- **Bus Priority:** BRT operations are given priority over general traffic, which results in reduced travel times. Planners should balance the competing needs between BRT and general traffic objectives in terms of increasing person-throughput capacity, while factoring transit priority measures and high-frequency service in the analysis.
- **Easily Accessible Stations:** Freeway stations should be located on, or immediately adjacent to, the facility and connected with high-speed direct access. Freeway BRT stations should provide safe and easy pedestrian access.
- **Capital Costs:** More effective BRT system exclusivity and customer benefit will yield a higher unit of cost of construction.
- **Cost-to-Effectiveness Conflicts:** Sacrificing BRT features for lower capital costs could diminish a BRT project's benefit to a level below acceptable operating cost effectiveness.
- **Service Attributes:** BRT service attributes such as station amenities, ride comfort, fare collection convenience, and real-time information dissemination, become more important when bus priority declines.
- **Adaptability**: BRT should be designed to take advantage of the inherent flexibility of buses to use a variety of running way opportunities available.
- **System Integration:** BRT must be operated as an integrated part of the overall regional transit network.
- **Service Simplicity:** The BRT route structure should be as direct as possible to enhance BRT customers' understanding and use of the service.

Freeway BRT should maintain these key design and operation features in order to provide the fastest service possible to the greatest number of riders. Specific to Orange County, a successful Freeway BRT service would provide bus priority and the greatest available running way exclusivity, high-end service attributes, and a high-level of network integration.

5.2.2 Carpool Lane Performance

According to the Federal Highway Administration 23 U.S. Code 166 (d)(2) Degraded Facility, the operation of an HOV facility shall be considered degraded if vehicles operating on the facility fail to maintain a minimum average operating speed of 45 miles per hour 90% of the time over a consecutive 180-day period during morning or evening weekday peak hour periods.

According to the Federal Highway Administration 23 U.S. Code 166 (d)(1) HOV Facility Management, the jurisdiction over the facility shall make significant progress toward bringing the facility in compliance wit the minimum average operating speed though either:

- Increasing the occupancy requirement for HOV lanes
- Varying the toll charged to vehicles allowed
- Discontinuing allowing non-HOV vehicle to use HOV lanes
- Increasing the available capacity of the HOV facility

Caltrans determined through the 2017 CA HOV Facilities Degradation Report and Action Plan that Orange County had 168 degraded HOV lane-miles out of 217 total HOV lane-miles. In the report, the Interstate 5 HOV lanes were degraded northbound from Bake Parkway to Lincoln Avenue and southbound from SR 91 to Jeffrey Road. In addition, State Route 55 was degraded both northbound and southbound from Interstate 5 to Interstate 405.

In response to the Facilities Degradation Report, Caltrans gave the 'highest priority' to converting existing carpool infrastructure to dual HOT lanes on the I-5 from SR 91 to SR 55, as well as SR 55 from I-5 to I-405. Dual HOT lanes on the I-5 from SR 55 to SR 73 were a 'secondary priority'.

Freeway BRT is heavily influenced by carpool lane performance if the bus service is not in a dedicated transitway/ busway. Exclusive transitways along the entirety of the two corridors may not be available due to right-of-way conflicts.

If a Freeway BRT service uses carpool lanes, the bus can only travel as fast as the operating speed in the facility. Degraded carpool lanes may slow the Freeway BRT service, which ultimately counters BRT principles and jeopardizes the success of the service. Caltrans and OCTA have begun managing carpool lane degradation by constructing dual HOV lanes and planning for dual HOT lanes. Greater passenger vehicle restrictions on managed lanes along the corridors would benefit Freeway BRT by allowing the service to operate at a high operating speed.

5.2.3 Drop Ramp (Direct Access Ramp) Standards

The addition of drop ramps is critical to the success of Freeway BRT. A drop ramp connects a managed lane facility, usually at the center of a freeway, with an over or undercrossing street. Drop ramps promote Freeway BRT accessibility by allowing buses to access off-line stations without weaving through multiple general-purpose lanes to exit. Speed of service also greatly improves as drop ramps are more direct and avoid additional general purpose lane and on-ramp congestion.

The Caltrans High-Occupancy Vehicle Guidelines for Planning, Design, and Operations (2003) provides guidance on managed lanes, including drop ramps. Drop ramps provide ingress and egress between HOV lanes and streets, roads, or transit facilities. The guidelines state that planners should consider the following factors before the construction of drop ramps:

- Do the benefit/cost analysis for time saving and safety indicate a reasonable rate of return?
- Is there a high concentration of HOV demand, either for attractions or transit facilities?
- Does existing HOV weaving have a negative impact on through traffic?
- Will LOS be improved for the freeway, interchange and cross streets?

5.2.4 Accessibility Requirements

Title 28 Code of Federal Regulations (CFR) Part 35 requires that facilities constructed on behalf of, or for the use of, a public entity shall be designed and constructed so that the facility is accessible to and usable by persons with disabilities.

Title 49 CFR Part 27 requires nondiscrimination on the basis of disability in programs and activities receiving or benefiting from federal financial assistance. The State of California has also adopted regulations in Section 54 of the California Civil Code that specifies all buildings, structures, sidewalks, curbs, and related facilities constructed in California by the use of state, county or municipal funds, or the funds of any political subdivision of the state, shall be accessible to and usable by persons with disabilities.

Freeway BRT services must comply with the 2010 ADA Standards for Accessible Design, which includes accessibility requirements related to:

- Parking spaces within a park and ride facility
- Passenger or bus loading zones within a park and ride facility
- Wheelchair accessible telephones at a transportation facility
- Bus shelters
- Bus boarding and alighting areas
- Bus signs

5.2.5 Transit Policies

The introduction of Freeway BRT service to Orange County makes transit more dynamic and accommodating to the residents and employees in the region. However, the two study corridors have some overlap with existing transit services, most notably the Metrolink and Amtrak. Metrolink and Amtrak run relatively parallel to Interstate 5 throughout the study area. When considering station placement, it is crucial to provide a complementary service to rail services as to build new ridership, and not divert and split ridership between BRT and rail services.

The best way to provide a complementary BRT service is to locate stations in areas that rail may underserve. It is also crucial to align Freeway BRT service with Metrolink and Amtrak services to give riders the convenient option to transfer between them. The following list highlights key factors to consider in an effort to align BRT service with Metrolink and Amtrak. The introduction of Freeway BRT would best address these key factors by mainly locating stations in areas that the rail services currently underserve, while also duplicating service in only the largest catchment areas, such as near transportation centers and major residential/ employment nodes where redundancy would expand the ridership market and transit system carrying capacity.

- Along the immediate I-5 corridor, Amtrak operates from the Santa Ana and Irvine Stations via the Pacific Surfliner service.
- Along the immediate I-5 corridor, Metrolink operates from the Santa Ana, Tustin, Irvine, and Laguna Niguel/ Mission Viejo Stations.

- The LOSSAN 2030 Long Term Preferred Service Plan includes the addition of 14 Orange County intracounty commuter trips between Laguna Niguel and Fullerton.
- The Pacific Surfliner and commuter services is expected to double ridership from 2014 to 2030. Ridership in 2030 is projected to be between 10.1 to 15.2 million.
- The Metrolink Orange County and Inland Empire-Orange County Lines are expected to add four and six new weekday trains, respectively to their fleet from 2015 to 2020.
- The Metrolink Orange County and Inland Empire-Orange County Lines are expected to add one and two new weekend trains, respectively to their fleet from 2015 to 2020.

5.2.6 Physical Constraints

Ten proposed priority station locations were screened at a high-level for the following physical constraints:

- available right-of-way
- existing infrastructure (transit and road)
- existing or lack of managed, HOT, or HOV lanes
- major utilities (if applicable)

The following station descriptions summarizes the constraints, opportunities and considerations identified by the Project Team as well as with representatives from cities where these potential stations would be located. The full constraints analysis with constraints aerials maps can be found in Appendix D.

Fullerton Park and Ride

This proposed BRT station is located at the Fullerton Park and Ride along I-5 in Fullerton on the east and Buena Park on the west. The Park and Ride, which is currently undergoing a joint development, is directly north of the complicated SR 91/I-5 interchange. There is the Orangethorpe Avenue overpass north of the SR 91/I-5 interchange, and south of the interchange, there is Magnolia Avenue, which crosses over I-5 and under SR 91. On the I-5 in this area, in the southbound direction, there is one existing southbound HOV lane north of Orangethorpe Avenue, one southbound through HOV lane and one southbound HOV exit lane to SR 91 E between Orangethorpe and SR 91, two southbound HOV through lanes just south of Magnolia Avenue, which reduces to one HOV lane about 0.25 miles south of Magnolia. In the northbound direction, south of Magnolia Ave, there is one northbound HOV lane. As the I-5 approaches Magnolia, there is one northbound through HOV lane and one HOV exit lane to SR 91 W, then north of Orangethorpe, there are two northbound through HOV lanes, which reduce to one lane about 800' north of Orangethorpe. There are existing railroad tracks parallel to the I-5 on the west side of the I-5. The following are the existing transit services to connect to in this area: routes 25, 30, 26, 529, and 721. This is the northernmost point of the freeway BRT route, so there is no need to connect service to the north, just the south.

La Palma Avenue

This proposed BRT station is located at La Palma Avenue and I-5 in Anaheim. There is an existing overpass at La Palma Avenue, and about 0.2 miles south of La Palma Avenue along the I-5, there is an overpass at Brookhurst Street. There is one existing southbound HOV lane and one existing northbound HOV lane in this area. Route 38 is the existing transit service here that a BRT could connect with. There are existing railroad tracks parallel to the I-5 on the west side of the I-5.

Gene Autry Way

This proposed BRT station is located at Gene Autry Way and I-5 in Anaheim. On the I-5 in this area, in the southbound direction, north of Gene Autry Way, there is one existing southbound HOV through lane and one southbound HOV exit lane to the Gene Autry DAR. South of Gene Autry Way, there are two southbound HOV through lanes. In the northbound direction, south of Gene Autry Way, there is one existing northbound HOV through lane, one HOV exit lane to the Gene Autry DAR, and one HOV exit lane to Disney Way. North of Gene Autry Way, there are two northbound through HOV lanes and one HOV exit lane to Disney Way. In this area, the freeway passes over Katella Avenue, then about 0.3 miles south, there is the Gene Autry Way overpass, with existing DARs on both sides. There are frontage roads here along the I-5, Manchester Avenue to the west, and Anaheim Way to the east. The following are the existing transit services to connect to in this area: Disney shuttles and routes 47 and 50.

Santa Ana Regional Transportation Center (SARTC)

This proposed BRT Station is located at SARTC in Santa Ana. On I-5 in this area, there is currently one existing southbound HOV lane north of Lincoln Avenue, then south of Lincoln Avenue there are two existing southbound HOV lanes. In

the northbound direction, there are two existing northbound through HOV lanes and one HOV exit lane to Grand Avenue south of Grand Avenue, then north of Grand Avenue this reduces to one existing northbound HOV lane. At 17th Street the I-5 freeway passes over 17th Street. About 0.4 mile further down the I-5, there is an overpass at Lincoln Avenue which has an existing railroad line. Another 0.3 miles south along the I-5, the freeway passes over Grand Avenue. At Grand Avenue, there are existing south-facing direct access ramps. There are the following existing transit services to connect to in this area: Streetcar, Metrolink/Amtrak, route 59, 83, 206, 463, 560, and 862.

Jeffrey Road

This proposed BRT station is located at Jeffrey Road and I-5 in Irvine. There is an existing Jeffrey Road overpass over the I-5 here, and there is one existing southbound HOV lane and one existing northbound HOV lane on the I-5 in this area. This location is right next to Jeffrey Park and Ride on the west side of the I-5, so there is sufficient southbound access to the Park and Ride. There is a transit connection to route 167. There is an existing concrete ditch parallel to the I-5 on the east side of the freeway. The existing Jeffrey Open Space Trail is located on the east side, and there is a planned Jeffrey Road pedestrian and bicycle bridge over the I-5 in final design, which will connect Jeffrey Trail from the north to the south side of the freeway, east of Jeffrey Road.

Barranca Parkway

This proposed BRT station is located at Barranca Parkway and I-5 in Irvine. On the I-5 in this area, in the southbound direction north of Barranca Parkway, there is one existing through HOV lane and one existing HOV exit lane to the Barranca DAR. South of Barranca, there is one southbound HOV lane. In the northbound direction, south of Barranca Parkway, there is one northbound HOV lane. North of Barranca Parkway, there are two northbound HOV lanes which merge into one HOV lane before the SR 133 interchange. This location is in close proximity to Irvine Station and provides transit connections to the following services: routes 86, 90, 206, and 480. The BRT would also connect to i-Shuttle, as one of the i-Shuttle routes crosses Barranca Parkway.

Laguna Hills

This proposed BRT station is located at I-5 near Laguna Hills Mall (soon to be the Village at Laguna Hills) in Laguna Hills on the west and Lake Forest to the east. On the I-5 in this area, in the southbound direction, there are two HOV lanes north of El Toro Road, and one southbound HOV lane south of El Toro Road. In the northbound direction, there is one existing northbound HOV lane south of El Toro Road and two existing northbound HOV lanes north of El Toro Road. The interchange at El Toro Road and I-5, where the freeway passes over El Toro Road, is currently under redesign. The Los Alisos Boulevard overpass, about 0.75 miles south of El Toro Road along the I-5, has been redesigned and would now offer limited room for DARs, though the area had been widened in the past to include them. This area will provide a transit connection to route 91 and the Laguna Hills Transportation Center.

Alton Parkway

This proposed BRT station is located at SR 55 and Alton Parkway/Avenue in Santa Ana on the west and Irvine on the east. In this area on the SR 55, in the southbound direction, north of MacArthur Boulevard, there is one existing southbound HOV lane, and south of MacArthur Boulevard, there is one existing southbound through HOV lane and one HOV exit lane to the I-405 N. In the northbound direction, there are two existing northbound HOV lanes south of MacArthur Boulevard and one existing northbound HOV lane north of MacArthur Boulevard. The possible transit connections in this location include: BRT circulation or shuttles, routes 55, 57, 57X, 76, 86, and 463.

At this location, there is Alton Avenue on the west side of the SR 55 in Santa Ana and Alton Parkway on the east side of the SR 55 in Irvine. These streets currently end before the freeway and do not connect. The City of Santa Ana is the lead on the Alton Avenue/Alton Parkway overcrossing project, which would connect these two streets with an overcrossing over SR 55. The 95% plans for the overcrossing did not include DARs, but the environmental document did. The cities have not had the funds to move forward with this project, which has prevented them from moving forward with the design.

Fair Drive

This proposed BRT station is located at Fair Drive and SR 55 in Costa Mesa. There are no existing HOV lanes in either direction on SR 55 in this area. There is an existing overpass (about 110' wide) at Fair Drive. The existing SR 55 roadway is about 150' wide near Fair Drive, and the right-of-way along SR 55 is about 440' wide (including the Newport Boulevard frontage roads). The

existing transit services which the BRT will provide connections to are routes 178 and 71.

Hoag Hospital Newport Beach

This proposed BRT station is located at Hospital Road and Newport Boulevard in Newport Beach. The stop location utilizes arterial streets beyond the terminus of SR 55, and therefore there are no existing HOV lanes in either direction in this area. The existing transit services which the BRT will provide connections to are routes 47, 55, and 71.

5.2.7 Future Planned Improvements

There are numerous improvements that have been programmed or planned for the Interstate 5 and State Route 55 study corridors. For both study corridors, programmed improvements have been identified in the OCTA Measure M2 Quarterly Progress Report Period from January 2020 to March 2020. Planned programs have also been identified in the Caltrans Orange County Managed Lanes Network and Feasibility Studies.

Many of the infrastructure programmed and planned projects will enhance managed lanes along the I-5 and SR 55 study corridors, which Freeway BRT will ultimately use for the majority of its running way. The future of managed lanes, direct connectors, and drop ramps on the I-5 and SR 55 may impact and influence the development of a Freeway BRT due to changes in traffic flow and accessibility on managed lanes.

Interstate 5 Programmed Improvements

Project A:

- Add a second HOV lane in each direction from SR 55 to SR 57 (Construction underway)

Project B:

- Add a general-purpose lane in each direction from I-405 to SR 55 (Environmental phase underway)
- Add auxiliary lanes in some segments from I-405 to SR 55 (Environmental phase underway)

Project C:

- Add a general-purpose lane in each direction from SR 73 to Oso Parkway (Design complete)
- Add a general-purpose lane in each direction from Oso Parkway to Alicia Parkway (Construction underway)
- Add a general-purpose lane in each direction from El Toro Road to Alicia Parkway (Design complete)
- Add a second HOV lane in each direction from El Toro Road to Alicia Parkway (Design complete)

Project D:

- Reconstruction of the Avery Parkway Interchange (Design complete)
- Reconstruction of the La Paz Road Interchange (Construction underway)
- Reconstruction of the El Toro Road Interchange (Environmental phase on hold)

Interstate 5 Planned Improvements

Phase 1 (Most Likely Plan):

- Convert Dual HOV Lanes to Dual HOT Lanes from SR 55 to SR 57
- Add an additional HOV lane and convert both HOV lanes to Dual HOT Lanes from SR 57 to SR 91

Phase 2 (Ideal Plan):

- Convert Dual HOV Lanes to Dual HOT Lanes from Alicia Parkway to I-405
- Add an additional HOV lane and convert both HOV lanes to Dual HOT Lanes from SR 73 to Alicia Parkway, and I-405 to SR 55
- Add a Full Direct Connector at SR 73, SR 133, SR 55, SR 57/ SR 22
- Add Full Drop Ramps at Los Alisos Boulevard, Barranca Parkway, Grand Avenue, Disney Way, and Disneyland Drive

State Route 55 Programmed Improvements

Project F:

- Add a general-purpose lane in each direction from I-405 and I-5 (Design phase underway)
- Add a second HOV lane in each direction from I-405 and I-5 (Design phase underway)
- Add auxiliary lanes in some segments from I-405 and I-5 (Design phase underway)

State Route 55 Planned Improvements

Phase 1 (Most Likely Plan):

- Convert Dual HOV Lanes to Dual HOT Lanes from I-405 to I-5

Phase 2 (Ideal Plan):

- Add Dual HOT Lanes from SR 73 to I-405
- Add a Full Direct Connector at SR 73 and I-5
- Add Full Drop Ramps at Alton Parkway

5.3 Cost Estimates

Cost estimates were derived from the conceptual alternatives. The cost estimates include each new infrastructure feature or adaptation proposed at each station location or route section, which is accompanied with a unit quantity and single unit cost assumption. Table 5.3 below is a summary of the approximate proposed costs for each station location, while Table 5.4 shows total low and high cost estimates associated for certain routes or locations. A 'Low Estimate' is the sum of costs for station alternatives who would require minimal interventions, while a 'High Estimate' is the sum of costs for all of the proposed more complex station alternatives. For instance, the price for the Jeffrey Road Side-Running Station is used in the 'Low Estimate', while the Jeffrey Road In-Line Station is used in the 'High Estimate' in Table 4.4. Costs do not include property acquisition or Americans with Disabilities Act (ADA) allowances. A breakdown of costs of each station location or route section as well as the unit cost estimates are shown in Appendix E.

Table 5.3: Station Cost Estimates

Station	Estimate (in millions)
Fullerton Park and Ride	$0.3
La Palma Avenue	$17.1
Gene Autry Way	$3.6
The City Drive*	$0*
Santa Ana Regional Transportation Center	$66.8
Jeffrey Road Park and Ride (Side-Running Station)	$10.6
Jeffrey Road Park and Ride (In-Line Station)	$78.8
Barranca Parkway	$31.1
Laguna Hills Transportation Center (In-Line Station)	$161.1
Laguna Hills Transportation Center (Direct Access Ramp)	$163.6
Laguna Niguel/ Mission Viejo Metrolink Station	$0.5
Alton Parkway	$190.0
Fair Drive (Side-Running Station)	$24.1
Fair Drive (In-Line Station)	$71.7
17th Street*	$0*
Hospital Road (Corner Station)	$1.0
Hospital Road (Superior Avenue Platform)	$0.5

**Stations not costed as there are no infrastructure changes for these station locations*

Table 5.4: Route and Corridor Cost Estimates

Route or Corridor	Low Estimate	High Estimate
All Improvements	$505.7 million	$624.4
Route 1 Estimate*	$277.9 million (one estimate)	
Route 2 Estimate	$203.3 million	$273.9
Route 3 Estimate	$214.6 million	$262.7
Routes 1 & 2 Estimate	$481.1 million	$551.7
Routes 1 & 3 Estimate	$302.4 million	$350.5
Routes 2 & 3 Estimate	$417.9 million	$536.5
Interstate 5 Only	$291.1 million	$361.7
State Route 55 Only	$214.6 million	$262.7

**All station cost estimates for this Route only have one alternative*

5.4 Ridership Modeling

Ridership modeling is an essential function in determining how successful a proposed Freeway BRT Route will be once implemented. OCTA utilizes their own regional travel demand model, called OCTAM, in projecting various factors related to proposed transit alternatives. The OCTAM model assesses baseline and projected factors such as transit boardings by station, transit boardings by mode, linked transit trips, and vehicle miles traveled (VMT) by facility type.

The inputs for the OCTAM model routing included stations by location, total distance on freeway facilities, total distance on non-freeway facilities, number of signals (endpoint inclusive), running travel time, and dwell travel time. Running travel time was determined by multiplying the freeway distance times an average of 40 miles per hour (mph), and multiplying the non-freeway distance by an average of 15 mph. Dwell time (which typically includes station boarding time) was projected for 45 seconds for each station location. Both average freeway and non-freeway speeds, as well as projected dwell time were derived from Freeway BRT modeling for Interstate 15 (I-15) in San Diego. The outputs from the modeling configurations include total distance, total journey time and average running speed for the modeled routes, shown below in Table 5.5. The total daily station boardings is shown in Table 5.6. OCTAM ridership modeling summarized results can be found in Appendix F.

Table 5.5: Modeling Configurations

Route	Origin and Destination	Total Distance	Total Journey Time	Average Running Speed
Route 1	Fullerton Park and Ride – Alton Parkway	16 miles	34 minutes	29.5 MPH
Route 2	Laguna Niguel Metrolink Station – Gene Autry Way	24.9 miles	50 minutes	30.8 MPH
Route 2A	Laguna Niguel Metrolink Station – Fullerton Park and Ride	32 miles	61 minutes	31.1 MPH
Route 3	Santa Ana Regional Transportation Center – Hoag Hospital Newport Beach	12.5 miles	28 minutes	26.4 MPH

**All station cost estimates for this Route only have one alternative*

Table 5.6: OCTAM Modeled Daily Boardings by Station

Station	Route 1	Route 2	Route 2A	Route 3
Fullerton Park and Ride	203	N/A	338	N/A
La Palma Avenue	100	N/A	144	N/A
Gene Autry Way	69	78	78	N/A
The City Drive	103	114	114	N/A
Santa Ana Regional Transportation Center	240	299	299	254
Jeffrey Park and Ride	N/A	123	123	N/A
Barranca Parkway	N/A	288	228	N/A
Laguna Hills Transportation Center	N/A	117	117	N/A
Laguna Niguel-Mission Viejo Metrolink Station	N/A	197	197	N/A
McFadden Avenue*	34	N/A	N/A	30
Alton Parkway	126	N/A	N/A	100
Fair Drive	N/A	N/A	N/A	68
17th Street	N/A	N/A	N/A	101
Hoag Hospital Newport Beach	N/A	N/A	N/A	37
Total	**875**	**1,156**	**1,638**	**590**

**McFadden Avenue station was removed after modeling stage*

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6. Alternatives Evaluation

The alternatives evaluation assesses and scores the chosen conceptual alternatives along the two corridors using a suite of evaluation criteria derived from the project's goals and defined as part of the alternative development process. This evaluation will lead to the recommendation of alternatives for consideration for implementation. The evaluation criteria are shown in Table 6.1 and are further explained below.

Table 6.1: Evaluation Criteria

#	Performance Measure	Data Source	Evaluation Data Point
1	**Travel Time Estimates/ Comparisons with Existing Service**	OCTAM Model	Average BRT Running Speed
2	**On-time Performance**	Corridor Alternatives Development	Managed Lane Utilization
3	**Connections to Employment, Key Activity Centers, and Transit Priority Areas**	U.S. Census	Major Destination Total Employment
4	**Managed Lanes Assessment**	Corridor Alternatives Development	Existing and Proposed Managed Lane Infrastructure
5	**Qualitative Assessment of Existing/ Future Transit Connectivity**	OCTA and Local Agency Plans	Total Daily Linked Trips
6	**VMT/GHG Modeling**	VMT/GHG Model	VMT Reduction
7	**HOV Lane Person Throughput and Vehicle Occupancy Rate**	OCTAM Model	Total Daily Boardings
8	**OCTA Transit Propensity Index**	OCTA Shapefiles	Transit Propensity
9	**Stated Preference Survey from Community Outreach Activities**	Outreach Results	OCTA Freeway BRT Survey Results
10	**Capital Costs**	BRT Cost Estimations	Cost Estimation and Operations Assessment
11	**Operations and Maintenance (O&M) Costs**	BRT Cost Estimations	Cost Estimation and Operations Assessment
12	**Available Right-of-Way Constructability**	Constraints Analysis	Proposed Infrastructure Feasibility

6.1.1 Travel Time Estimates/ Comparisons with Existing Service

Scores for this criteria are based off the OCTA OCTAM travel demand forecasting model. The model determines future ridership rates with and without routes implemented as projected. The OCTAM model simulates baseline conditions, BRT routes, station locations, and journey time based on an average bus speed of 40 MPH on the freeway and an average speed of 15 MPH on other streets. Scores are determined based upon modeled running speed.

- **Route 1:** 29.5 miles per hour
- **Route 2/2A:** 31.1 miles per hour
- **Route 3:** 26.4 miles per hour

6.1.2 On-time Performance

On-time performance is derived quantitatively by comparing the length of the route against the length of the route that utilizes managed lanes. This measure for assessing managed lanes distribution can be used to determine existing and projected congestion along each route. Routes that score higher have greater connectivity to and use of managed lanes and reduced congestion, while routes that utilize general purpose lanes or arterials with high-peak period congestion score lower.

- **Route 1:** 75% vehicle-miles managed lane utilization
- **Route 2/2A:** 73% vehicle-miles managed lane utilization
- **Route 3:** 49% vehicle-miles managed lane utilization

6.1.3 Connections to Employment, Key Activity Centers, and Transit Priority Areas

This criteria uses Longitudinal-Employer-Household Dynamic (LEHD) data to determine the areas with the greatest density of employment. LEHD data is used to show the total number of employees by location adjacent to proposed station locations within the study area two-mile buffer. Routes that capture a greater number of employees adjacent to station areas receive a higher score.

- **Route 1:** 233,000 employees at major destinations
- **Route 2/2A:** 142,000 employees at major destinations
- **Route 3:** 197,000 employees at major destinations

6.1.4 Managed Lanes Assessment

The Managed Lanes Assessment considers existing and proposed BRT infrastructure needed to develop successful BRT routes. Routes with existing or planned managed lane infrastructure receive a higher score. This is a qualitative assessment, and a description of the existing and planned managed lane infrastructure for each route is shown in Table 6.2 through 6.4.

6.1.5 Qualitive Assessment of Existing/ Future Transit Connectivity

Qualitative Assessment of Existing/ Future Transit Connectivity considers existing OCTA local and express bus routes that intersect with proposed stations. This criteria also considers the number of additional linked trips each route provides above the baseline scenario. Routes with a greater number of linked trips receive a higher score.

- **Route 1:** 850 more total daily linked trips than baseline scenario
- **Route 2/2A:** 1,077 more total daily linked trips than baseline scenario
- **Route 3:** 435 more total daily linked trips than baseline scenario

6.1.6 VMT/GHG Modeling

Scores for this criteria are based off the OCTA OCTAM travel demand forecasting model. The model determines vehicle miles traveled (VMT) with and without routes implemented as projected. The OCTAM model simulates baseline conditions, BRT routes, station locations, and journey time based on an average bus speed of 40 MPH on the freeway and an average speed of 15 MPH on other streets. Scores are determined based upon modeled daily VMT.

- **Route 1:** 34,400 fewer VMT than baseline scenario
- **Route 2/2A:** 39,500 fewer VMT than baseline scenario
- **Route 3:** 28,000 fewer VMT than baseline scenario

6.1.7 HOV Lane Person Throughput and Vehicle Occupancy Rate

Scores for this criteria are based off the OCTA OCTAM travel demand forecasting model. The model determines daily transit boardings with and without routes implemented as projected. The OCTAM model simulates baseline conditions, BRT routes, station locations, and journey time based on an average bus speed of 40 MPH on the

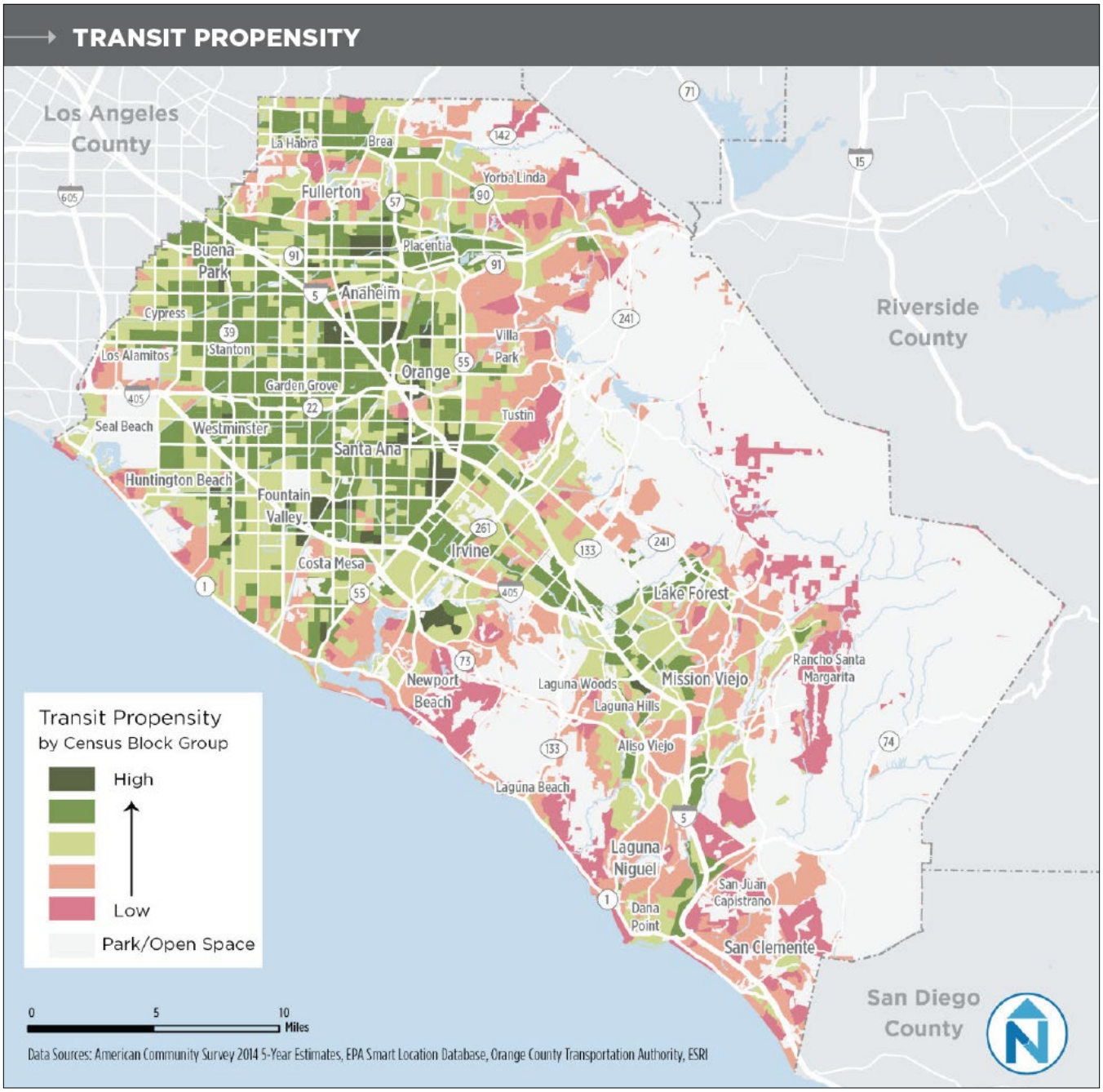
freeway and an average speed of 15 MPH on other streets. Scores are determined based upon daily transit boardings.

- **Route 1:** 277 more daily boardings than baseline scenario
- **Route 2/2A:** 445 more daily boardings than baseline scenario
- **Route 3:** 328 more daily boardings than baseline scenario

6.1.8 OCTA Transit Propensity Index

The OCTA Transit Propensity Index criteria considers OCTA's Transit Propensity Map shown in the OCTA OC Transit Summary Report. The map overlays factors such as traffic volumes, intersection density, total employment, employment density, low-income households, and per capita income to determine transit propensity by census block group. Routes that run adjacent to census block groups with higher transit propensity receive higher scores. The Transit Propensity Map is shown in Figure 6.1 below:

Figure 6.1: Transit Propensity



6.1.9 Stated Preference Survey from Community Outreach Activities

This criteria considers data from the BRT on Freeways Study Outreach and Survey Results. One question asked respondents to rate their interest in riding each of the three proposed BRT routes on a scale of 1 to 6. Routes that yielded greater interest receive higher scores.

- **Route 1:** Average score of 4.50 out of 6
- **Route 2:** Average score of 4.76 out of 6
- **Route 3:** Average score of 4.71 out of 6

6.1.10 Capital Costs

Scores for criteria Capital and O&M Costs are estimated from the conceptual alternatives. The capital cost estimates include each new infrastructure feature or adaptation proposed at each station location or route section, which is accompanied with a unit quantity and single unit cost assumption. Table 5.3 and Table 5.4 in Section 5.3 is a summary of the approximate proposed costs for each station location, along with the costs associated for certain routes or locations. The costs of each station location or route section as well as the unit cost estimates are shown in Appendix E.

- **Route 1:** $277.9 million in capital costs
- **Route 2/2A:** $203.3 million in capital costs
- **Route 3:** $214.6 million in capital costs

6.1.11 Operations and Maintenance (O&M) Costs

Operation and Maintenance (O&M) Costs were determined by calculating the service revenue hours for each route to the average direct operating cost per revenue hour. The OCTA FY 2021-22 Proposed Budget lists the directly operated fixed-route operating cost at $108.76 per revenue hour. The annual revenue hours for each service assumes 15-minute weekday frequency with weekday service spans from 5 AM to 11 PM, and 30-minute evening frequency with weekend service spans from 6 AM to 10 PM. The revenue hour worksheets are located in Appendix E.

- **Route 1:** $3.1 million in annual O&M costs
- **Route 2/2A:** $5.2 million in annual O&M costs
- **Route 3:** $2.8 million in annual O&M costs

6.1.12 Available Right-of-Way Constructability

Available Right-of-Way Constructability considers any constraints facing BRT route implementation or feasibility. Routes that have do not face as many physical limitations receive higher scores. This is a qualitative assessment, and a description of the available right-of-way constructability for each route is shown in Tables 6.2 through 6.4.

6.2 Evaluation Results and Methodology

A 5-point scale is used to evaluate each of the three alternatives. The scale is represented using Harvey balls to differentiate between each alternative's rating in a given category. The scoring methodology varies depending on whether each category is more qualitative or quantitative in nature. Each conceptual alternative is scored against each evaluation criteria on a scale of 1 to 5, 5 being the highest, 3 being average, and 1 being the lowest. In general, most of the ratings range between 2 to 4 points, represented by the one-quarter, one-half, and three-quarters balls. A full black circle represents an alternative criterion that receives complete positive consensus between the technical team, the Project Development Team, and meets the project purpose and need as superior to all others. An empty white ball/1-point score represents an alternative criterion with a fatal flaw, such as an infrastructure improvement need that is deemed infeasible during the constraints analysis. Alternatives that received a higher summed score received recommendations for further study. Scores are found in the "Score" column in Tables 6.2 through 6.5.

Table 6.2: Route 1 Evaluation (Fullerton Park and Ride to Alton Parkway)

#	Criteria	Score	Description
1	**Travel Time Estimates/ Comparisons with Existing Service**		The 16-mile route is projected to have a journey time of less than 33 minutes and a running speed of 29.5 MPH, approximately 8.3 MPH faster than the 2019 OCTA average commuter bus speed and the second-fastest of the three route alternatives.
2	**On-time Performance**		Actual on-time performance cannot be assessed before implementation; however, transit time reliability is enhanced while vehicle-hours of delay is reduced at the portions where the bus utilizes managed lanes. Route 1 would utilize managed lanes for approximately 75% of its vehicle-miles.
3	**Connections to Employment, Key Activity Centers, and Transit Priority Areas**		Route 1 connects residential areas to key activity centers such as Disneyland, Downtown Santa Ana, and the Irvine Business Complex. There are approximately 233,000 employees at major destinations along the route.
4	**Managed Lanes Assessment**		Route 1 will utilize general lanes to and from the Fullerton Park and Ride, La Palma Avenue, and The City Drive stations. Managed lanes infrastructure exists for Gene Autry Way and SARTC southbound stations. Managed lane infrastructure is planned at SARTC northbound and Alton Parkway.
5	**Qualitative Assessment of Existing/ Future Transit Connectivity**		Route 1 would connect to numerous OCTA routes at its six stations (25, 26, 30, 529, 721, 38, 47, 50, 54, 57/57X, 83, 59, 83, 206, 560, 862, 55, 76, 86, 463, Metrolink/Amtrak, Anaheim Resort Transit). It would also connect to the future OC Streetcar and potentially with i-Shuttle and UCI Anteater Routes. Route 1 would result in about 850 more total daily linked trips than the baseline scenario.
6	**VMT/GHG Modeling**		Route 1 is modeled to reduce VMT the second-most among the three BRT alternatives, with 34,400 fewer VMT in Orange County compared to the baseline scenario.
7	**HOV Lane Person Throughput and Vehicle Occupancy Rate**		Route 1 is modeled to increase OCTA express transit boardings the fewest among the three BRT alternatives, yet has about 275 more daily boardings in Orange County than the baseline scenario.
8	**OCTA Transit Propensity Index**		Route 1 is adjacent to the most census blocks with the highest transit propensity. Most census block groups within a half mile radius of the route have high transit propensity.
9	**Stated Preference Survey from Community Outreach Activities**		When asked "Rate your interest in BRT Concept Route 1", 263 respondents gave an average score of 4.5 out of 6. 47% of respondents gave Route 1 the highest rating.
10	**Capital Costs**		The estimated capital cost for this Route is $277.9 million. This estimate is the highest among the three routes when considering each routes' low-cost scenario.
11	**Operations and Maintenance (O&M) Costs**		The project annual revenue hours for this route is 28,779, which is used to estimate the annual O&M cost for this Route at $3.1 million.
12	**Available Right-of-Way Constructability**		Though it is feasible, many of the proposed infrastructure projects needed for this project would come in conjunction with additional freeway enhancements, limiting the constructability of the route as a standalone project.

Table 6.3: Route 2 / 2A Evaluation (Mission Viejo-Laguna Niguel Metrolink to Santa Ana Regional Transportation Center)

#	Criteria	Score	Description
1	**Travel Time Estimates/ Comparisons with Existing Service**		The 32-mile route is projected to have a journey time of 61 minutes and a running speed of approximately 31.1 MPH, approximately 9.9 MPH faster than the 2019 OCTA average commuter bus speed and the fastest of the three route alternatives.
2	**On-time Performance**		Actual on-time performance cannot be assessed before implementation; however, transit time reliability is enhanced while vehicle-hours of delay is reduced at the portions where the bus utilizes managed lanes. Route 2/2A would utilize managed lanes for approximately 73% of its vehicle-miles.
3	**Connections to Employment, Key Activity Centers, and Transit Priority Areas**		Route 2/2A connects heavily residential areas in south Orange County to key activity centers such as the Spectrum, SARTC, and Disneyland. It also connects to Metrolink at its terminus. There are approximately 142,000 employees at major destinations along the route.
4	**Managed Lanes Assessment**		Route 2/2A would utilize managed lanes to and from Barranca Parkway, SARTC, Gene Autry Way, and potentially at the Laguna Hills Village station. Managed lanes infrastructure proposed at Barranca Parkway has the available right-of-way for implementation.
5	**Qualitative Assessment of Existing/ Future Transit Connectivity**		Route 2/2A would connect to numerous OCTA routes at its seven to nine stations (47, 50, 54, 57/57X, 83, 59, 83, 206, 560, 862, 167, 86, 90, 91, 85, 87, Metrolink/ Amtrak, Anaheim Resort Transit in Route 2 in addition to 25, 26, 30, 529, 721, 38 in Route 2A). It would also connect to the future OC Streetcar and potentially with i-Shuttle and UCI Anteater Routes. Route 2/2A would result in 1,077 more total daily linked trips than the baseline scenario.
6	**VMT/GHG Modeling**		Route 2/2A is modeled to reduce VMT the most among the three BRT alternatives, 39,500 fewer VMT in Orange County compared to the baseline scenario.
7	**HOV Lane Person Throughput and Vehicle Occupancy Rate**		Route 2/2A is modeled to increase OCTA express transit boardings the most among the three BRT alternatives, 445 greater daily boardings in Orange County compared to the baseline scenario than the baseline scenario.
8	**OCTA Transit Propensity Index**		Route 2/2A is adjacent to the fewest census blocks with the highest transit propensity. Most census blocks groups within a half mile radius of the route in south Orange County have low transit propensity.
9	**Stated Preference Survey from Community Outreach Activities**		When asked "Rate your interest in adding BRT Concept Route 2", 263 respondents gave an average score of 4.76 out of 6. 54% of respondents gave Route 2 the highest rating.
10	**Capital Costs**		The estimated low-end capital cost for this Route is $203.3 million. This estimate is the lowest among the three routes when considering each routes' low-cost option.
11	**Operations and Maintenance (O&M) Costs**		The project annual revenue hours for this route is 47,834 which is used to estimate the annual O&M cost for this Route at $5.2 million.
12	**Available Right-of-Way Constructability**		Right of way is constricting at Laguna Hills Village, where properties may need to be taken to allow for a median station. Adequate right-of-way exists at Jeffrey Road and Barranca Parkway.

Table 6.4: Route 3 Evaluation (Santa Ana Regional Transportation Center to Hoag Hospital Newport Beach)

#	Criteria	Score	Description
1	**Travel Time Estimates/ Comparisons with Existing Service**		The 12.5-mile route is projected to have a journey time of 28 minutes and a running speed of approximately 26.4 MPH, approximately 5.2 MPH faster than the 2019 OCTA average commuter bus speed but the slowest of the three route alternatives.
2	**On-time Performance**		Actual on-time performance cannot be assessed before implementation; however, transit time reliability is enhanced while vehicle-hours of delay is reduced at the portions where the bus utilizes managed lanes. Route 3 would utilize managed lanes for approximately 49% of its vehicle-miles.
3	**Connections to Employment, Key Activity Centers, and Transit Priority Areas**		Route 3 connects to major destinations including SARTC, the Irvine Business Complex, the OC Fairgrounds, and Hoag Hospital. There are approximately 197,000 employees at major destinations along the route.
4	**Managed Lanes Assessment**		There are no managed lanes on SR 55 south of I-405. Only the segment between SARTC and Alton Parkway will utilize managed lanes.
5	**Qualitative Assessment of Existing/ Future Transit Connectivity**		Route 3 would connect to numerous OCTA routes at its five stations (59, 83, 206, 560, 862, 178, 71, 55, 47, Metrolink/ Amtrak). It would also connect to the future OC Streetcar and potentially with i-Shuttle and UCI Anteater Routes. Route 3 would result in 435 more total daily linked trips than the baseline scenario.
6	**VMT/GHG Modeling**		Route 3 is modeled to reduce VMT the least among the three BRT alternatives, yet 28,000 fewer VMT in Orange County compared to the baseline scenario.
7	**HOV Lane Person Throughput and Vehicle Occupancy Rate**		Route 3 is modeled to increase OCTA express transit boardings the second-most among the three BRT alternatives, 328 more daily boardings in Orange County compared to the baseline scenario.
8	**OCTA Transit Propensity Index**		Route 3 is adjacent to the census blocks with a mix of high and low transit propensity. Most census blocks groups within a half mile radius of the route also have mixed transit propensity.
9	**Stated Preference Survey from Community Outreach Activities**		While Route 3 connects numerous employment When asked “Rate your interest in adding BRT Concept Route 3”, 266 respondents gave an average score of 4.71 out of 6. 49% of respondents gave Route 3 the highest rating.
10	**Capital Costs**		The estimated low-end capital cost for this Route is $214.6 million. This estimate is the second-lowest among the three routes when considering each routes’ low-cost option.
11	**Operations and Maintenance (O&M) Costs**		The project annual revenue hours for this route is 25,564 which is used to estimate the annual O&M cost for this Route at $2.8 million.
12	**Available Right-of-Way Constructability**		Right-of-way is available in most locations, and does not require significant infrastructure modifications beyond Alton Parkway. Part of this BRT route uses non-freeway arterials.

Table 6.5: Evaluation Summary

#	Criteria	Route 1 Scores	Route 2/2A Scores	Route 3 Scores
1	Travel Time Estimates/ Comparisons with Existing Service			
2	On-time Performance			
3	Connections to Employment, Key Activity Centers, and Transit Priority Areas			
4	Managed Lanes Assessment			
5	Qualitative Assessment of Existing/ Future Transit Connectivity			
6	VMT/GHG Modeling			
7	HOV Lane Person Throughput and Vehicle Occupancy Rate			
8	OCTA Transit Propensity Index			
9	Stated Preference Survey from Community Outreach Activities			
10	Capital Costs			
11	Operations and Maintenance (O&M) Costs			
12	Available Right-of-Way Constructability			
	Total Score	**2.83**	**3.25**	**2.75**

6.3 Preferred Alternatives

According to the evaluation results, all three routes have potential as successful BRT routes. Route 2/2A may have the most potential with a score of 3.25, as it provides connectivity to numerous destinations and communities all throughout Orange County along I-5. Route 1 scored 2.83 and Route 3 scored 2.75. The scores were relatively close as they both utilize two major destinations at Santa Ana Regional Transportation Center (SARTC) and Alton Parkway, and both serve various communities and destinations where the routes do not overlap. All three routes show notable benefits to transit users and will strengthen the OCTA transit network in Orange County.

Though each BRT alternative was modeled separately, there are efficiencies for passengers for routes that are implemented together. For instance, a potential rider traveling from south Orange County to Hoag Hospital would not be able to effectively utilize freeway BRT if only Route 2 or Route 3 were implemented alone. If both routes were implemented together, the potential rider could transfer at SARTC to reach their destination. There are thus added benefits that come from the interactions between alternatives, which would further increase each individual score.

Throughout the study, Route 2/2A has received a special focus as its proposed route follows a similar path to existing Metrolink service, which includes identical stops at the Laguna Niguel/ Mission Viejo Metrolink Station and SARTC. A point of consideration has been raised that implementing this route would potentially compete for ridership with Metrolink as both routes are fairly similar in origin, destination, and routing. The ridership modeling results found in Appendix F note that a Freeway BRT service along I-5 could create synergies and show moderate increase in boardings for Metrolink service over the baseline (no-build) scenario. With the addition of Route 2/2A, commuter rail linked trips has been modeled to include 524 more total riders compared to the baseline (no-build) scenario. According to the model data, the addition of Freeway BRT would be complementary to existing Metrolink service to expand mode choice, and would not steal ridership during peak commute hours.

The number of daily rider linked trips modeled utilizing freeway BRT (1,099 daily riders) is on the low end of the spectrum compared to the infrastructure improvements needed to make it a viable and reliable service (upwards of $505 million). Many stations locations face constraints that would make freeway BRT difficult to implement in the short-term, such as the need for a new freeway direct access ramp and crossing at Alton Parkway, and an underground direct access ramp connecting to Penn Way. Yet, this infrastructure would provide benefits to users of the HOV system as well as the BRT services. According to the modeling data and cost estimates, it may be best to include freeway BRT as a priority item when larger freeway infrastructure changes are made in the future. Freeway BRT alone may not be enough to warrant freeway changes at this time. However, Caltrans has created plans to develop and expand managed lanes in Orange County through their recent 2016 Managed Lanes Network Study (MLNS) and 2017 Managed Lanes Feasibility Study (MLFS). The MLFS considers a preferred network for enhancing the Orange County Freeway network, which includes a “Most Likely Plan” and an “Ideal Plan.” Both plans include significant upgrades to I-5 between SR 91 and SR 73, and to SR 55 between I-5 and SR 73. The findings considered implementation of the managed lanes network by 2040. The BRT project proposed can be considered to be implemented in unison with the development of the “Most Likely Plan” managed lanes network.

Alternative modes of transportation, especially transit, are favorable in the current political context. Expanding alternatives mode access such as transit reduces single-occupancy private vehicle VMT and promotes a greater person per vehicle throughput and occupancy rates. Freeway BRT projects are well positioned for national, state, and local funding due to their ability to reduce greenhouse gas emissions, promote equity and environmental sustainability, reduce traffic congestion, and expand alternative mode access. CA SB288 streamlines the environmental review process for specific transportation-related projects, including bus rapid transit projects, encouraging broader use of sustainable transit throughout the state. Though SB 288 is slated to sunset at the start of 2030 potentially before these BRT projects are in place, state policy is gaining momentum to facilitate development of sustainable transportation alternatives and related infrastructure.

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7 . Conclusion

The OCTA OC Transit Vision identified two freeway transit opportunities corridors (TOCs) to be studied for expanded express transit service, or freeway BRT. The two freeway corridors included Interstate 5 from the Fullerton Park and Ride to the Mission Viejo-Laguna Niguel Metrolink Station and State Route 55 from Interstate 5 to Hoag Hospital Newport Beach. The purpose of freeway BRT along these two corridors is to reduce congestion on two of Orange County's busiest corridors, reduce the environmental impacts of single-occupancy vehicles, and expand transit mode choice through increased accessibility, efficiency and flexibility.

The OCTA Freeway BRT Concept Study was conducted to determine the feasibility of Freeway BRT on the two corridors. A feasibility analysis included developing conceptual alternatives, which considered highest-demand routes and station locations. Three routes were developed, one of which included an alternative route addition. These are:

- **Route 1: Fullerton Park and Ride to Alton Parkway**
- **Route 2: Mission Viejo-Laguna Niguel Metrolink Station to Gene Autry Way**
- **Route 2A: Mission Viejo-Laguna Niguel Metrolink Station to Fullerton Park and Ride**
- **Route 3: Santa Ana Regional Transportation Center to Hoag Hospital Newport Beach**

The route alternatives were developed with consideration of numerous elements, including consistency with recently adopted and ongoing transit studies, existing study area conditions, BRT and freeway standards and physical constraints, and examination of successful peer freeway BRT systems. This study is complementary and supplementary of the Caltrans OC Freeway-Arterial Transit Enhancement Study, which is considering the feasibility of BRT on all remaining freeway and arterials in Orange County, namely State Route 91, State Route 22, and State Route 57.

The routes were modeled in OCTA's OCTAM model, and cost estimates were developed and based upon the necessary infrastructure improvements needed to adequately operate the BRT service. As the service would mostly de designed for daily commuters, there are opportunities to establish early-option or commuter BRT route alternatives spurring from the initial four route concepts. In general, the proposed BRT routes utilize a mix of in-line, off-line, and side running stations within or adjacent to the freeway, to maintain short journey and dwell times.

The four route alternatives were evaluated against a host of twelve evaluation criteria from a variety of data sets including ridership/VMT modeling, managed lane performance, community preference, transit propensity, cost estimation, demographic conditions, and constructability. The three routes, excluding the Route 2 alternative, were compared against each other to determine which route would fare the best in Orange County. Though Route 2/2A received the highest score, all routes or a combination of several routes implemented in unison would have the greatest benefit to the region due to increased accessibility to more origins and destinations with minimal transfers.

Considering the substantial costs associated with the capital improvements necessary for the implementation of freeway BRT, the recommended approach is to implement freeway BRT when larger managed lane freeway improvement projects enter the planning stage, such as those developed in the 2017 Caltrans Orange County Managed Lanes Feasibility Study. During the development of freeway or managed lane expansion projects, the alternatives presented in this study should be considered.

Appendix A: Existing Conditions Report

Freeway BRT Concept Study

Task 2: Purpose and Need Report - DRAFT

Prepared for Orange County Transportation Authority
by IBI Group
With support from WSP and KKCS
July 20, 2020

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1 Introduction and Purpose

The Orange County Transportation Authority (OCTA) completed in January 2018 the OC Transit Vision, which highlighted the agency's goals and priorities for transit services and capital projects over the next 20 years. The vision statement for the OC Transit Vision is to **provide compelling and competitive transit service that expands transportation choices for current riders, attracts new riders, and equitably supports immediate and long-term mobility in Orange County.**

To fulfill this vision, OCTA has developed several strategies to provide high-speed, efficient services, while taking into account current and future transportation trends and demographic changes. One such strategies is the identification of **Transit Opportunity Corridors (TOC)**, or corridors through which future investment would most benefit and support the Orange County transit market.

Interstate 5 (I-5) and State Route 55 (SR 55) are two of the identified TOCs. These corridors are among the most dense and congested areas in the County and are both subjects of Comprehensive Multimodal Corridor Plans (CMCP), which will garner further investments to support alternative modes of transportation to single-occupancy vehicles throughout both corridor areas. The implementation of a Bus Rapid Transit (BRT) service is consistent with these efforts to alleviate congestion and reduce emissions through a multimodal approach.

This study aims to assess the suitability of a BRT along the I-5 and SR 55 corridors. It will focus on existing and projected conditions along the corridors, lessons learned from other freeway BRT projects in Southern California, opportunities and constraints, and conceptual plans for the development of two potentials BRT routes. The results from this study will guide OCTA's future investment along both corridors.

This Purpose and Need report delves into existing conditions along the two corridors, transit and ridership data, demographic conditions and long-term prospects for the region. Although California stay-at-home orders due to COVID-19 will alter travel demand in the County and may have long-term impacts that are hard to assess at this time, evaluating baseline travel modeling will still be useful in informing projections. The report also documents the key takeaways from the SR 15 Freeway BRT project in San Diego and the Metro J Line (Silver) project in Los Angeles County, as well as other examples from Minnesota and Ontario, Canada. This initial analysis led to the definition of a Purpose and Need statement, as well as the development of goals, objectives and performance metrics to guide project outcomes and future decision-making.

2 Prior Studies

This section documents previous and ongoing studies, plans and documents that provide relevant information and analysis for the OCTA Freeway Bus Rapid Transit Study. Each study, plan and document below has been synthesized based upon their relation to the study area along Interstate 5 and State Route 55. Key points from all documents regarding Freeway BRT, High-Occupancy Vehicle (HOV) lanes, and the future of the freeway corridors is presented:

- The OC Transit Vision identified the two corridors under study as "Transit Opportunity Corridors" or corridors that should be prioritized for future investment in rail or BRT services. It listed the *Freeway BRT Concept Study* along Interstate 5 from SR 91 to SR 73 and State Route 55 from I-5 to Hoag Hospital as a short-term recommendation within its Action Plan and Next Steps.
- The Caltrans District 12 Managed Lanes Network Study (MLNS) determined converting the existing I-5 HOV lane to a High-Occupancy Toll (HOT) lane and adding an additional HOT lane from SR 91 to SR 55, as well as converting the existing SR 55 HOV lane to a HOT lane from I-5 to I-405 as highest priorities.
- The Caltrans District 12 Managed Lanes Feasibility Study (MLFS) created a two-phase plan for freeway corridors in Orange County, which would result in Dual HOT lanes for the length of both study segments.
- The OCTA LRTP modeled Express Toll Lanes which typically allow access for 3+ passenger vehicles and tolled access for other vehicles, and concluded that Express Toll Lanes met the federal performance standards and doubled use compared to HOV 3+ lanes. These managed lanes would allow BRT access as well.
- The Measure M2 Quarterly Progress Report details current projects on the study freeway corridors. Current projects include adding a second I-5 HOV lane in each direction between SR 55 and SR 57, adding one I-5 general purpose lane in each direction between I-405 and SR 55 as well as SR 73 and Alicia Parkway, extending the second I-5 HOV lane from El Toro Road to Alicia Parkway, and adding a SR 55 general purpose lane and second HOV lane in each direction between I-405 and I-5.
- The Caltrans California High-Occupancy Vehicle Facilities Degradation Report recommended the prioritization and construction of the projects listed in the MLFS and MLNS as a strategy for remediation for the I-5 and SR 55 corridors.
- The Caltrans District 12 Upper Interstate 5 Corridor Plan selected a scenario of Priced Managed Lanes, Park and Ride improvements, and a Freeway BRT (as established in the OC Transit Vision) as the recommended long-term scenario.
- The I-5 Managed Lanes Final Project Study Report Traffic Feasibility Study ranked a most-optimal scenario of converting existing HOV lanes to Priced Managed Lanes (PML) and adding an additional PML between SR 57 and the LA / Orange County Line based upon LOS performance, vehicle hours of delay and travel time.
- The SR 55 Final Project Study Report determined that adding an auxiliary lane, a general-purpose lane, and an additional HOV lane would improve capacity and enhance operations based on current Highway Design Manual (HDM) standards.
- The Caltrans District 12 District System Management Plan identified Bus Rapid Transit as a 'Plan and Action' item within the Local Transit and Intercity Rail Program for the California Strategic Growth Plan.

2.1 OCTA Documents

2.1.1 OC Transit Vision

The *OC Transit Vision* (January 2018) is a 20-year plan for enhancing and expanding public transit service in Orange County. The Transit Vision features numerous elements to help improve transit service today, and in the future, including identifying the most promising corridors for major future investments in high-quality transit. The OC Transit Vision also includes an action plan that acknowledges the potential for success of higher capacity, fixed-route transit such as bus rapid transit (BRT).

2.1.1.1 Transit Opportunity Corridors

The *OC Transit Vision* identified Transit Opportunity Corridors (TOCs) for future investment in rail or BRT service. Based on the analysis of more than 30 potential TOCs, ten have been identified as candidates for capital investment. The selection of the ten TOCs were based upon multiple factors, including:

- Public input
- Identification in previous studies
- Demographic, land use, and existing transit service analysis
- The Transit Investment Framework
    - The Transit Investment Framework guides OCTA in allocating operating resources for bus service and capital resources for bus and rail projects, and guides Orange County cities and other agencies in developing transit-supportive land use, street design, and other transportation policies.
- Discussion with OCTA staff, the OCTA board, and the OCTA Citizens Advisory Committee
- Additional OCTA analysis of high-ridership segments of existing bus routes

Out of the ten TOC's identified, two freeway BRT corridors were selected, including Interstate 5 from Fullerton Park and Ride to Laguna Niguel/Mission Viejo Station, and State Route 55 from Santa Ana Regional Transportation Center to Hoag Hospital Newport Beach. The Freeway BRT projects performed well during the evaluation process due to their speed advantage over other modes and the proximity of major travel demand generators to Interstate 5 and State Route 55 interchanges.

It was determined that OCTA should proceed with a network study of the two potential Freeway BRT corridors. This network study would provide more detailed analysis of potential costs and ridership, determine routing, and begin to shape infrastructure and operations characteristics. As explained in the *OC Transit Vision*, there is much to be defined about potential Freeway BRT. The Freeway BRT may have its own infrastructure, including transit-only ramps and stations in the freeway right-of-way; or it may use existing park and rides and street stops near freeway interchanges; or a combination of the two. A goal of the Freeway BRTs would be to operate all day in both directions relatively frequently.

2.1.1.2 Long-term goals for future transit development in the County

The *OC Transit Vision* established an Action Plan and Next Steps for all transit recommendations, including for the *Freeway BRT Concept Study*. Within the Short-Term Recommendations, OCTA calls for a study to shape Freeway BRT infrastructure and operational characteristics. The Interstate 5 Freeway BRT is a transit project that may be implemented in the mid-term (2023-2032) based upon project development and funding availability. The State Route 55 Freeway BRT

service is projected as a long-term (2033+) recommendation based upon project development, performance, and funding availability.

Cost estimates vary widely for Freeway BRT, as costs for these projects are heavily dependent on project design. Estimated capital costs are projected anywhere from $915,000 per vehicle to $11,500,000 per mile. A breakdown of estimated capital cost per TOC Freeway BRT Project is shown below in Table 2.1. The "high" estimate is based upon one-way miles due to the assumption of key BRT infrastructure additions and improvements along the corridors; the "low" estimate is based upon vehicles, as additional BRT vehicles can utilize existing HOV and transit infrastructure for its service.

Table 2.1: Estimated Capital Cost per TOC Freeway BRT Project (Year 2017 Dollars)

TOC PROJECT	UNITS	COST
"High" Estimate		
I-5 Freeway BRT	34.52 one-way miles	$400,000,000
SR 55 Freeway BRT	15.10 one-way miles	$170,000,000
"Low" Estimate		
I-5 Freeway BRT	14 vehicles	$12,810,000
SR 55 Freeway BRT	9 vehicles	$8,235,000

2.1.2 OCTA Long Range Transportation Plan

OCTA's 2018 Long Range Transportation Plan (LRTP), *Designing Tomorrow*, is the vision for mobility over the next 20+ years. The LRTP aims to improve system performance, expand system choices, and support sustainability though a series of transportation improvement projects.

The LRTP highlights the 2040 Improvement Plan which lists numerous highways, streets, and transit projects through Measure M or otherwise. Within the list of additional transit projects, Interstate 5 from Fullerton Park and Ride to Mission Viejo/Laguna Niguel Metrolink Station and State Route 55 from Santa Ana Regional Transportation Center to Hoag Hospital Newport Beach were identified for Freeway Bus Rapid Transit projects.

The LRTP references a series of studies by Caltrans on carpool lane performance for Carpool 2+ lanes, Carpool 3+ lanes, and Express Toll lanes. In summary, Carpool 3+ and Express Toll lanes both meet federal performance standards while Carpool 2+ do not due to overuse. While Carpool 3+ meet federal performance standards, these lanes are typically underused. In Caltrans's studies, Express Toll lanes, which typically allow access for 3+ passenger vehicles and tolled access for other vehicles, meet the federal performance standards and doubles use compared to Carpool 3+. These managed lanes would allow BRT access as well.

2.1.3 Measure M2 Quarterly Progress Report for the Period of October 2019 Through December 2019

In 2006, Orange County voters approved the Measure M2 half-cent sales tax for transportation improvements, which provides a 30-year revenue stream for a broad range of transportation projects. The OC Board of Directors (Board) approved rebranding M2 as OC Go to promote OCTA's Measure M awareness and public perception. The October 2019 to December 2019 progress of OC Go projects is summarized in the Measure M2 Quarterly Progress Report.

The Measure M2 Projects cover a wide range of freeway and transit projects, including improvements on Interstate 5, State Route 55, and Metrolink station enhancements. In November 2016, the Board approved the Next 10 Delivery Plan, which provides guidance to OCTA staff on delivery of M2 projects between 2017 and 2026. The Next 10 was updated to incorporate the 2019 sales tax revenue forecast of $13.4 billion. The Next 10 deliverables include the delivery of $3.5 billion of freeway improvements approved through construction on many freeway projects including on Interstate 5 and State Route 55, as well as extend Metrolink service from Orange County into Los Angeles County.

The following is a summary of select freeway and transit projects from the M2 progress report:

- Project A: I-5, between SR 55 and SR 57
    - Construction Underway – 65% complete
    - This project will increase HOV capacity by adding a second HOV lane in both directions for approximately three miles in Santa Ana. Most recent work includes the completion of retaining walls and the demolition of the HOV ramp bridge at Main Street. The Project is expected to be completed in early 2021.
- Project B: I-5, between I-405 to SR 55
    - Environmental Phase Underway – 92% Complete
    - This project is studying the addition of one general purpose lane in each direction in Tustin and Irvine. Auxiliary lanes will be added in some areas. The Project development Team recommended a preferred alternative mid-March 2019. The final Environmental Document was approved in January 2020 and the final project report was approved in February 2020. Design efforts are anticipated to begin in early 2021.
- Projects C: I-5, between SR 73 and El Toro Road
    - Varying Status
    - Improvements included the addition of a general purpose lane in each direction from SR 73 to Alicia Parkway, the extension of the second HOV lane from El Toro Road to Alicia Parkway, and the reconstruction of the Avery Parkway and La Paz Road interchanges. Construction between the SR 73 and Oso Parkway (including the Avery Parkway interchange) began in March of 2020. Construction continues between Oso Parkway and Alicia Parkway (including the La Paz Road interchange). For improvements between Alicia Parkway and El Toro Road, the project was advertised for construction in May 2020 and bids were opened June 2020.
- Project D: I-5, El Toro Interchange
    - Environmental Phase On Hold
    - This project includes the study of four build alternatives that consider modifications to the existing interchange. The three stakeholder cities are not in consensus on a preferred alternative and costs for the alternatives are significantly higher than the assumed cost in the Next 10 Plan. OCTA will not support finalization without city consensus and has requested Caltrans put the completion of the environmental document on hold.
- Project F: SR 55, from I-405 to I-5
    - Design Phase Underway – 90% Complete

  - This project will widen the SR 55 in the cities of Irvine, Santa Ana, and Tustin. Improvements include a four-mile general purpose lane and a second HOV lane in both directions. Auxiliary lanes will also be added and extended in some segments. Design was completed in April 2020. The project is anticipated to be right-of-way certified and ready to list by December 2020. The Board has approved $103 million in federal funds, and OCTA has received $80 million in state funds. Caltrans as committed $45 million in State Highway Operation and Protection Program (SHOPP) funds, and OCTA seeks to capture another $75 million in future SB1 funding to fund the carpool elements of the project.

- Project R: Metrolink Service Expansion Program
  - Service Ongoing
  - OCTA deployed ten new Metrolink intracounty trains operating between Fullerton and Laguna Niguel/Mission Viejo. In October 2019, three weekday intracounty round trips between Fullerton and Laguna Niguel/ Mission Viejo were replaced with two round trips between Laguna Niguel/Mission Viejo and Los Angeles. Average daily passenger boardings increased by 385 percent. In April 2020, the OC Line will see the addition of one evening weekday round trip from Oceanside to Los Angeles.
- Project R: New Placentia Metrolink Station and Parking Structure
  - Design Complete
  - The design has been completed by OCTA for a station including platforms, parking, a bus stop, and passenger amenities. The project includes a third track which will assist with the on-time performance of train operations and provide operation flexibility for both freight and passenger trains. The project is ready for advertisement subject to a construction and maintenance agreement with BNSF.

2.1.4 Santa Ana Boulevard Grade Separation Project

The City of Santa Ana and OCTA proposed to grade separate the at-grade crossing of Santa Ana Boulevard with the Southern California Regional Rail Authority (SCRRA) double tracks. The objective is to eliminate the at-grade crossing to improve safety for pedestrians, bicyclists, and motorists, provide unimpeded access for emergency responders, enhance traffic operations, and reduce existing traffic congestion and delay. The Santa Ana Regional Transportation Center (SARTC) is located at the southwest corner of the crossing, adjacent to both Santa Ana Boulevard and the rail line.

The preferred alternative will construct a railroad underpass structure to carry SCRRA trains over Santa Ana Boulevard, depressing the current grade of the roadway, and maintaining the railroad profile. Project cost for the preferred alternative has been estimated to be approximately $71.2 million, which includes $43.3 million for construction. In 2019, the City of Santa Ana solicited a bid to provide environmental and engineering update, final right-of-way and engineering, and construction engineering support for the Sana Ana Boulevard Grade Separation Project.

2.2 LOSSAN and Metrolink Planning Documents

The Southern California Regional Rail Authority (SCRRA, operating as Metrolink) and the LOSSAN Rail Corridor Agency oversee rail services in Southern California, including Amtrak Pacific Surfliner, Coast Starlight, COASTER, and Metrolink. Studying LOSSAN and SCRRA planning documents provides insight on existing and future conditions of similar transit services compared to Freeway BRT that operate in Orange County, which may also feature dedicated right-of-way corridors and express, reliable transit service.

2.2.1 LOSSAN Corridorwide Strategic Implementation Plan

The Los Angeles-San Diego-San Luis Obispo (LOSSAN) Rail Corridor Agency adopted the *LOSSAN Corridorwide Strategic Implementation Plan* in April 2012. The strategic plan aims to provide infrastructure to allow more peak period trains, faster through-express trains, and additional service improvements, among other goals. The plan noted the OCTA's main interest lies with expanding rail track capacity for expanded commuter rail service and eliminating rail grade crossings.

The Strategic Implementation Plan laid out a Business Case for a Preferred Service Plan, based upon two time periods: a short-term service plan for 2014, and a long-term service plan for 2030. The 2014 preferred service plan was expected to complete capital projects for additional intercity service, and to improve capacity for additional commuter rail services, including select Metrolink-COASTER trains to serve travel markets across the Orange/ San Diego County line but are currently unserved. For the 2030 preferred service plan, the Surfliner will operate during peak hours on an hourly frequency between LA and San Diego due to limited stop operation and additional commuter trains. By 2030, train operations are projected to increase by 50.5%.

For Orange County projects, the 2014 preferred service plan called for a new control point (CP) stadium near Anaheim Station. The 2030 preferred service plan identified four infrastructure projects in Orange County:

Table 2.2: Orange County Specific 2030 Preferred Service Plan Projects

PROJECT	COST	ADDITIONAL TRACK	LOCATION IN STUDY AREA
Laguna Niguel to San Juan Capistrano Passing Siding	$30,000,000	1.8 miles	Yes
Irvine 3rd Main Track Extension	$75,000,000	8.5 miles	Yes
Anaheim Canyon Station Double Track	$30,000,000	0.2 miles	No
Serra Siding Extension	$15,000,000	1.0 miles	No

2.2.2 Metrolink Short-Range Transit Plan (2015-2020)

The Metrolink Short-Range Transit Plan (SRTP), prepared by the Southern California Regional Rail Authority (SCRRA), identifies short-term challenges, provides an analysis of financial resources, proposes an action plan for commuter rail, addresses future funding strategies, and measures the SRTP's performance. The SRTP focuses on goals and growth scenarios by adopting an investment strategy with focus on strengthening core institutional functions, evaluating the potential for additional reverse commute trips, and establishing strategic partnerships to tap new sources of funds and better serve transit markets.

The SRTP projected growth of 24% for the number of trains from 2015 to 2020 for both weekday and weekends. The Orange County Line is projected to expand from 29 to 33 weekday trains and from eight to nine weekend trains in the five-year time frame. The Inland Empire-Orange County Line is projected to expand from 16 to 22 weekday trains and from four to six weekend trains from 2015 to 2020.

There was only one Short Range Track Capacity Investment Project within Orange County: the Fullerton Junction to West Riverside Third Track (BNSF Railway Company) Project. This project

will be for the Inland Empire - Orange County and 91/ Perris Valley Metrolink lines. The project is estimated to cost $90.1 million. This project is more than two miles away from the Interstate 5 corridor and is outside the BRT study area.

2.2.3 Metrolink 10-Year Strategic Plan (2015-2025)

The Metrolink 10-Year Strategic Plan includes an assessment of the current Metrolink system, the environment in which it operates, the definitions of functions that can improve and evolve, and the identification and evaluation of future growth scenarios. The Strategic Plan evokes a “back to basics” approach to strengthen core functions while balancing future customer needs and demands within an operational and fiscal context.

The portion of Metrolink service between Fullerton and Laguna Niguel/Mission Viejo is benefited by having few line capacity and service constraints, such as single track only lines or freight railroad agreements. Service growth could be hindered on the 91/ Perris Valley Line, where there are agreements with freight railroads, or the Anaheim Canyon section which is single track only for over a four-mile stretch.

Metrolink is implementing a two-part strategy, the second of which focuses on accommodating growth and reaching markets. There were four scenarios identified in the Strategic Plan, including:

- No Service Growth Scenario
- Scenario 1: Enhancement of Existing Network
- Scenario 2: Overlay of Additional Service Patterns
- Scenario 3: High-Speed Rail Service Integration

Each of the growth scenarios requires investment in additional track capacity, which are needed to enable increases in reverse-peak and off-peak service to transition from a Los Angeles Central Business District (CBD) one-way network to a regional rail system with balanced travel options. Two Orange County projects were identified, including the Fullerton Junction to West Riverside Third Track (BNSF) Project (Project G) and the Laguna Niguel to San Juan Passing Siding Project (Project P). Project G is estimated to cost $90.1 million and was identified as required for operation of all three service growth scenarios. Project P is estimated at $22.8 million and was identified as potentially avoidable or deferrable to a later phase for all three service growth scenarios.

Both Scenario 1 and 2 showed an increase in average daily ridership along the Orange County and Inland Empire – OC Lines, but not significantly greater than the no service growth scenario (Data for Scenario 3 was unavailable).

A projected parking demand study was conducted due to driving being the primary mode that passengers take to access the station. There are currently 8,304 parking spaces for all Orange County stations. The no service growth scenario showed an 894-parking space surplus in Orange County, while Scenario 1 showed a 166-parking space surplus. However, Scenario 2 showed a 107-parking space deficit.

2.2.4 Metrolink SCORE Program

Metrolink’s Southern California Optimized Rail Expansion (SCORE) program is an approximate $10 billion capital improvement program for additional track, improved stations and signaling, expanded and lower emissions fleet, upgraded and enlarged maintenance facilities, grade crossing treatments, and required asset rehabilitation. These capital improvements will improve safety and access to job centers and affordable housing, accommodate more regular and frequent service and seamless connections to rail providers, and accelerate jobs and economic development as well as progress towards Metrolink’s zero-emissions future. SCORE projects are underway and will be completed from 2023 through 2028.

With a full buildout of the Metrolink SCORE program, there will be 175,000 projected daily passengers, a 170% increase from the Southern California Association of Governments (SCAG) Connect SoCal Plan's 2045 baseline. The set of infrastructure improvements will result in 15-minute peak period service on much of the network. The Los Angeles Economic Development Corporation (LAEDC) forecasted that the impacts of the SCORE program will add $173 billion and 396,300 jobs to the Orange County economy by 2050.

2.3 Caltrans Planning Documents

Caltrans has jurisdiction over the two corridors and provides guidance on state guidelines and objectives for the development of transformative transportation projects throughout the State. Caltrans has produced several studies to address HOV degradation, as required by the Federal Highway Administration (FHWA), which provides insight on the agency's vision for the region. This BRT Concept Study will take direction and guidance from the Caltrans Bus Rapid Transit Handbook (February 2007) as well as other Caltrans BRT policies and tools to support BRT implementation that will benefit Caltrans, local governments, transit agencies, private sector business, and the traveling public in improving mobility in the state.

2.3.1 Caltrans California High-Occupancy Vehicle Facilities Degradation Report and Action Plan

Caltrans prepared the HOV Facilities Degradation Report and Action plan to report the performance of the high-occupancy vehicle facilities in California and identify remediation strategies to bring degraded HOV lanes into compliance with federal performance standards.

Federal law considers an HOV facility degraded if the average traffic speed during the morning or evening weekday commute hour is less than 45 miles per hour for more than 10 percent of the time. In 2017, Orange County had 168 miles of degraded lane-miles, compared to just 49 lane-miles that were not degraded.

Through the last five years of degradation statuses from 2013 to 2017, Caltrans concluded Interstate 5 was degraded northbound from Bake Parkway to Lincoln Avenue, as well as southbound from the SR 91 to Jeffrey Road. As for SR 55, the entire northbound and southbound segments from Interstate 5 to Interstate 405 are degraded.

The report highlighted potential causes and remediation strategies for these degraded segments. The action plan recommended the prioritization and construction of the projects listed in the MLFS and MLNS as a strategy for remediation for the I-5 and SR 55 corridors. Causes for degradation along Interstate 5 include:

- Peak period recurrent congestion in all lanes reduces HOV lane performance and speed.
- Demand exceeds capacity.
- Vehicle weaving conflict at ingress/egress locations due to congestion in the general-purpose lanes.
- Bottlenecks at I-5/SR 55 HOV direct connector and I-5/SR 57 HOV direct connector.
- Second HOV lane drop in the SB direction at Los Alisos Boulevard creates a bottleneck.

Causes for degradation along State Route 55 include:

- Peak period recurrent congestion in all lanes reduces HOV lane performance and speed.
- Demand exceeds capacity.
- Bottlenecks at SR 55/I-405 HOV direct connector and I-5 HOV direct connector.
- Mainline bottlenecks at SR 55/SR 22 interchange and SR 55/SR 91 interchange.
- NB HOV lane ends and transitions into general-purpose lane prior to joining the SR 91 express lane.

2.3.2 Caltrans Orange County Managed Lanes Network Study

The *Orange County Managed Lanes Network Study (MLNS) Summary of Findings and Implementation Plan* by Caltrans analyzes "managed lanes", or freeway lanes that are actively managed to improve operations or utilization. This study focuses on priced managed lanes, which carry tolled and High Occupancy Vehicle (HOV) traffic. Managed lanes are an innovative solution to promote carpooling and transit usage, improve travel-time reliability, reduce greenhouse gas emissions, and maximize the efficiency of a freeway by increasing person and vehicle throughput while reducing congestion and delay.

This study focuses on investing in potential managed lanes improvements to reduce congestion and degradation and improve reliability. An HOV lane is considered degraded if the average speed falls below 45 miles per hour during peak periods for more than 10 percent of the time. Most HOV lanes in Orange County are degraded, including the I-5 northbound from the SR 22 to the I-405 the I-5 southbound from the SR 22 to the SR 55, and the SR 55 from the I-5 to the I-405. The goal of the study is to identify specific implementation priorities for investment in managed lanes projects, stemming from both policy and current vehicle operations.

Two scenarios were evaluated to determine the extent of improvement for each freeway segment in Orange County. Each freeway segment was evaluated on managed lanes operations, speed and delay, funding, connectivity and planning, and stakeholders and policy. The two scenarios were:

- Scenario 1: Convert existing HOV lanes (2+ occupancy) to Express Lanes (tolled).
- Scenario 2: Create two managed lanes by adding an additional lane, as needed. Convert new and existing HOV lanes to Express Lanes.

A technical evaluation of each segment was conducted through a process of data gathering, conditions analysis, forecast preparation, and post-processing analysis. The results of the analysis of delay, managed lanes operations, speed, and revenue is found below in Table 2.3.

Table 2.3: Managed Lanes Network Analysis Summary for I-5 and SR 55

ANALYSIS CATEGORY	SCENARIO 1	SCENARIO 2
Peak Hour Delay Reduction (2035)		
Interstate 5	Minimal	30,000 hours per both peak periods in a typical day
State Route 55	Minimal	12,500 hours per both peak periods in a typical day
Reduction in managed lane degradation (%)		
Interstate 5	43%	42%
State Route 55	4%	10%
Speed Improvement for general purpose lanes (mph)		
Interstate 5	Minimal	10.5 mph
State Route 55	Minimal	8 mph
Toll Revenue		
Interstate 5	Medium	HOT-2: Low HOT-3: Medium High

State Route 55	Low	HOT-2: Low HOT-3: Low

Caltrans introduced implementation priorities based upon evaluation results. Prioritization of implementation was categorized in two tiers, 'highest priority' corridors and 'secondary priority' corridors. Highest priority corridors should initiate studies as soon as practical, with construction completed before 2030. The second tier of projects would likely not be considered until after 2030.

The I-5 segment from SR 91 to SR 55 listed converting the HOV lane to a HOT lane and adding another HOT lane a 'highest priority', while the I-5 segment from SR 55 to SR 73 listed converting the HOV lane to a HOT lane and adding another HOT lane as a 'secondary priority'. The SR 55 segment from SR 73 to I-5 listed converting the HOV lane to an HOT lane as 'highest priority', and adding another HOT lane as a 'secondary priority'. The SR 55 segment south of SR 73 was not included in this study.

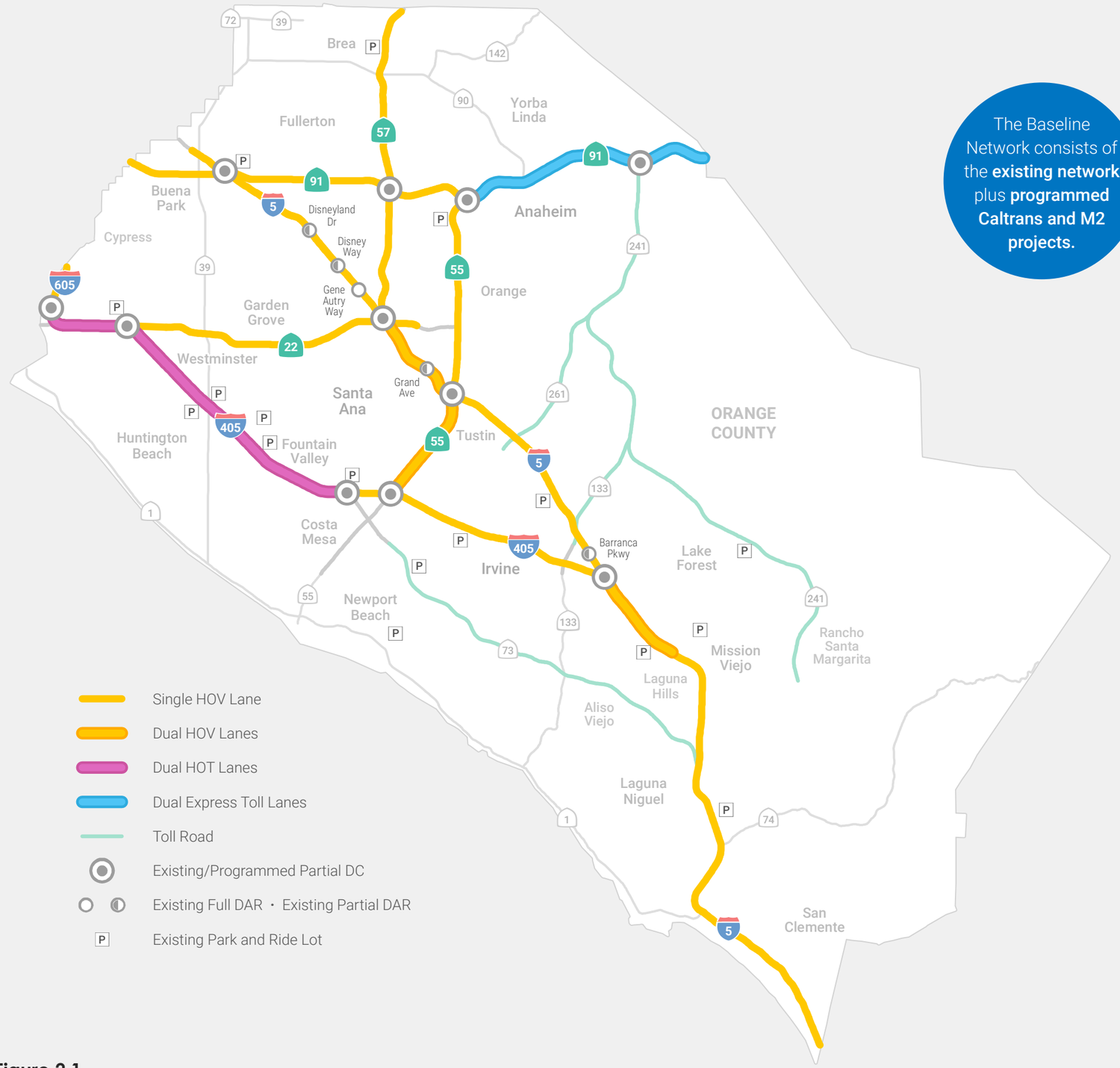
2.3.3 Caltrans Orange County Managed Lanes Feasibility Study (MLFS)

A companion to the Caltrans Managed Lanes Network Study, this feasibility study provides a planning-level cost analysis for implementing a High-Occupancy Toll lane network in Orange County. Caltrans is aiming to provide a sustainable transportation system, mainly focusing on efficient lane management by enhancing managed lanes.

This study evaluates the costs of implementing multiple conceptual scenarios, including countywide networks of either dual HOV lanes or dual HOT lanes. The scenarios generated two managed lanes networks for implementation by 2040: the "Most Likely Pan" and the "Ideal Plan". Figure 2.1 though Figure 2.5 highlights the existing, scenario, and phased implementation for managed lanes along the I-5 and SR 55 corridors.

A phased implementation addresses immediate needs, while providing a framework for long-range improvements. The "Most Likely Plan" improves throughput at a fraction of the cost of implementing additional general purpose lanes while providing continuity with the 91 Express Lanes and 405 Express Lanes. The "Ideal Plan" would account for significant population growth and intensified land uses, by supporting improvements to provide even greater reliability and shortened trip times compared to the "Most Likely Plan" network.

BASELINE NETWORK



The Baseline Network consists of the **existing network** plus **programmed Caltrans and M2 projects.**

EXISTING MANAGED LANES NETWORK

Single HOV Lane — 101.5 mi

I-5	San Juan Creek Rd to El Toro Rd, I-405 to SR 39	32.0 mi
I-405	I-5 to SR 22	20.5 mi
I-605	I-405 to LA County line	1.5 mi
SR 22	I-405 to Grand Ave	12.0 mi
SR 55	I-405 to SR 91	11.0 mi
SR 57	I-5/SR 22 to LA County line	12.0 mi
SR 91	LA County line to SR 55	12.5 mi

Dual HOV Lanes — 5.5 mi

I-5	El Toro Rd to I-405	2.0 mi
I-405	SR 22 to I-605	3.5 mi

Dual Express Toll Lanes — 10.0 mi

SR 91	91 Express Lanes from SR 55 to RIV County line	10.0 mi

Partial DCs — 8

Various — I-5/SR 91, I-5/SR 57, I-5/SR 55, I-5/I-405, I-405/SR 22, I-405/SR 55, I-405/I-605, SR 57/SR 91

Partial DARs — 5

I-5 — Barranca Pkwy, Grand Ave, Main St, Disney Way, Disneyland Dr

Full DARs — 1

I-5 — Gene Autry Way

Park and Ride Lots — 17

Various — Near I-5, I-405, SR 22, SR 55, SR 57, SR 73, SR 91, SR 241

PROGRAMMED MANAGED LANES PROJECTS

Add Single HOV Lane — 9.0 mi

I-5	SD County line to Ave Pico (planning phase); Ave Pico to San Juan Creek Rd (M2 Project C)	9.0 mi

Add 1 HOV Lane for Dual HOV Lanes — 9.0 mi

I-5	Alicia Pkwy to El Toro Rd (M2 Project C); SR 55 to SR 22/SR 57 (M2 Project A)	4.5 mi
SR 55	I-405 to I-5 (M2 Project F)	4.5 mi

Convert Dual HOV Lanes to Dual HOT Lanes — 3.5 mi

I-405	SR 22 to I-605 (M2 Project K)	3.5 mi

Add 1 Lane to Single HOV Lane, Convert to Dual HOT Lanes — 10.5 mi

I-405	SR 73 to SR 22 (M2 Project K)	10.5 mi

Add Partial DCs — 2

Various — I-405/SR 73, SR 91/SR 241

Remove Partial DAR — 1

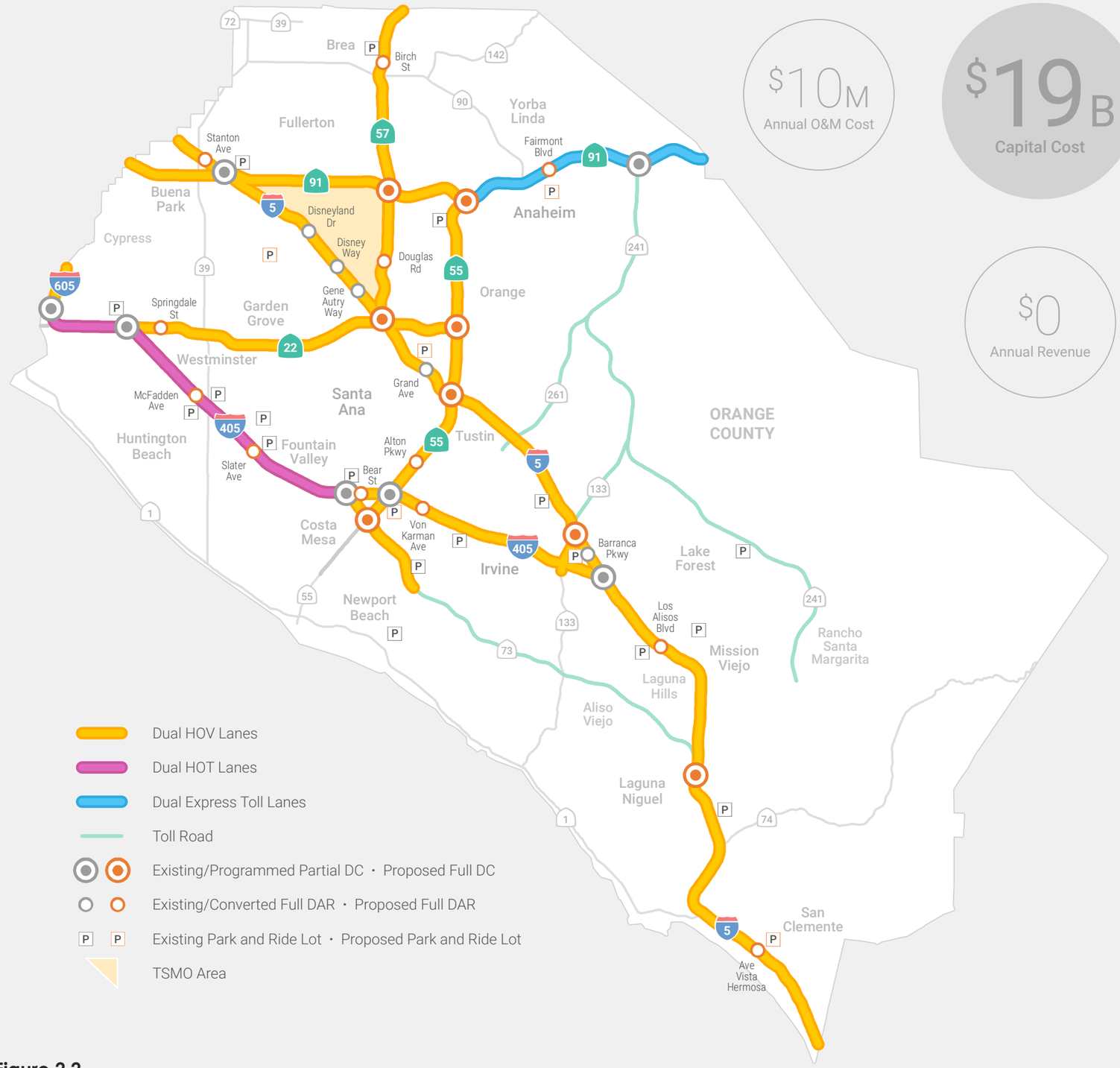
I-5 — Main St

All distances are in centerline miles.

Figure 2.1

Scenario 1

DUAL HOV SYSTEM



$10M
Annual O&M Cost

$19B
Capital Cost

$0
Annual Revenue

IMPROVEMENTS to Baseline Network

Add 1 HOV Lane for Dual HOV Lanes — 82.5 mi

I-5	SD County line to Alicia Pkwy, I-405 to SR 55, SR 91 to SR 39	28.5 mi
I-405	I-5 to SR 73	9.5 mi
I-605	I-405 to LA County line	1.5 mi
SR 22	I-405 to Grand Ave	12.0 mi
SR 55	I-5 to SR 91	6.5 mi
SR 57	I-5/SR 22 to LA County line	12.0 mi
SR 91	LA County line to SR 55	12.5 mi

Add Dual HOV Lanes — 9.0 mi

I-5	SR 39 to LA County line	1.0 mi
SR 22	Grand Ave to SR 55	1.5 mi
SR 55	SR 73 to I-405	1.0 mi
SR 73	Bison Ave to I-405	4.5 mi
SR 133	I-405 to I-5	1.0 mi

Add Full DCs — 8

Various	I-5/SR 55, I-5/SR 73, I-5/SR 133, I-5/SR 22, SR 55/SR 73, SR 55/SR 22, SR 55/SR 91, SR 57/SR 22, SR 57/SR 91

Convert Partial DARs to Full DARs — 4

I-5	Barranca Pkwy, Grand Ave, Disney Way, Disneyland Dr

Add Full DARs — 13

I-5	Ave Vista Hermosa, Los Alisos Blvd, Stanton Ave
I-405	Von Karman Ave, Bear St, Slater Ave, McFadden Ave
SR 22	Springdale St
SR 55	Alton Pkwy
SR 57	Douglas Rd, Birch St
SR 91	Stanton Ave, Fairmont Blvd

Add Park and Ride Lots — 6

I-5	Near Ave Vista Hermosa DAR, near Barranca Pkwy DAR, near Grand Ave DAR, near Disney Way DAR
SR 55	Near SR 55/I-405 interchange
SR 91	Near Fairmont Blvd DAR

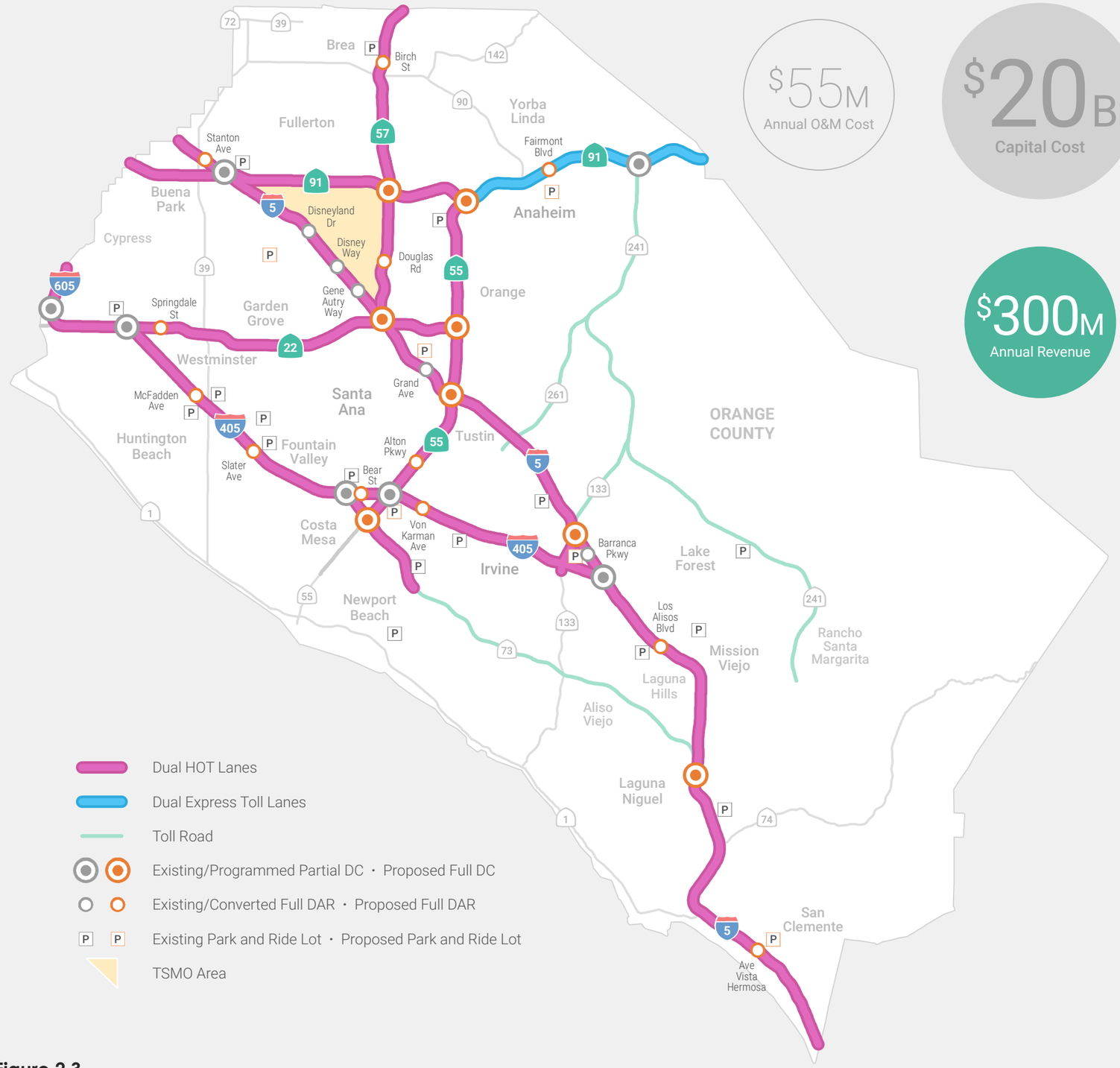
All distances are in centerline miles.

Capital, O&M, and revenue projections are based on 2015 dollars and are planning-level estimates only. The 91 Express Lanes and 405 Express Lanes are excluded from the projections.

Figure 2.2

Scenario 2

DUAL HOT SYSTEM



$55M Annual O&M Cost

$20B Capital Cost

$300M Annual Revenue

IMPROVEMENTS to Baseline Network

Convert Dual HOV Lanes to Dual HOT Lanes — 10.0 mi

I-5	Alicia Pkwy to I-405, SR 55 to SR 22/SR 57	5.5 mi
SR 55	I-405 to I-5	4.5 mi

Add 1 Lane to Single HOV Lane, Convert to Dual HOT Lanes — 82.5 mi

I-5	SD County line to Alicia Pkwy, I-405 to SR 55, SR 91 to SR 39	28.5 mi
I-405	I-5 to SR 73	9.5 mi
I-605	I-405 to LA County line	1.5 mi
SR 22	I-405 to Grand Ave	12.0 mi
SR 55	I-5 to SR 91	6.5 mi
SR 57	I-5/SR 22 to LA County line	12.0 mi
SR 91	LA County line to SR 55	12.5 mi

Add Dual HOT Lanes — 9.0 mi

I-5	SR 39 to LA County line	1.0 mi
SR 22	Grand Ave to SR 55	1.5 mi
SR 55	SR 73 to I-405	1.0 mi
SR 73	Bison Ave to I-405	4.5 mi
SR 133	I-405 to I-5	1.0 mi

Add Full DCs — 8

Various	I-5/SR 55, I-5/SR 73, I-5/SR 133, I-5/SR 22, SR 55/SR 73, SR 55/SR 22, SR 55/SR 91, SR 57/SR 22, SR 57/SR 91

Convert Partial DARs to Full DARs — 4

I-5	Barranca Pkwy, Grand Ave, Disney Way, Disneyland Dr

Add Full DARs — 13

I-5	Ave Vista Hermosa, Los Alisos Blvd, Stanton Ave
I-405	Von Karman Ave, Bear St, Slater Ave, McFadden Ave
SR 22	Springdale St
SR 55	Alton Pkwy
SR 57	Douglas Rd, Birch St
SR 91	Stanton Ave, Fairmont Blvd

Add Park and Ride Lots — 6

I-5	Near Ave Vista Hermosa DAR, near Barranca Pkwy DAR, near Grand Ave DAR, near Disney Way DAR
SR 55	Near SR 55/I-405 interchange
SR 91	Near Fairmont Blvd DAR

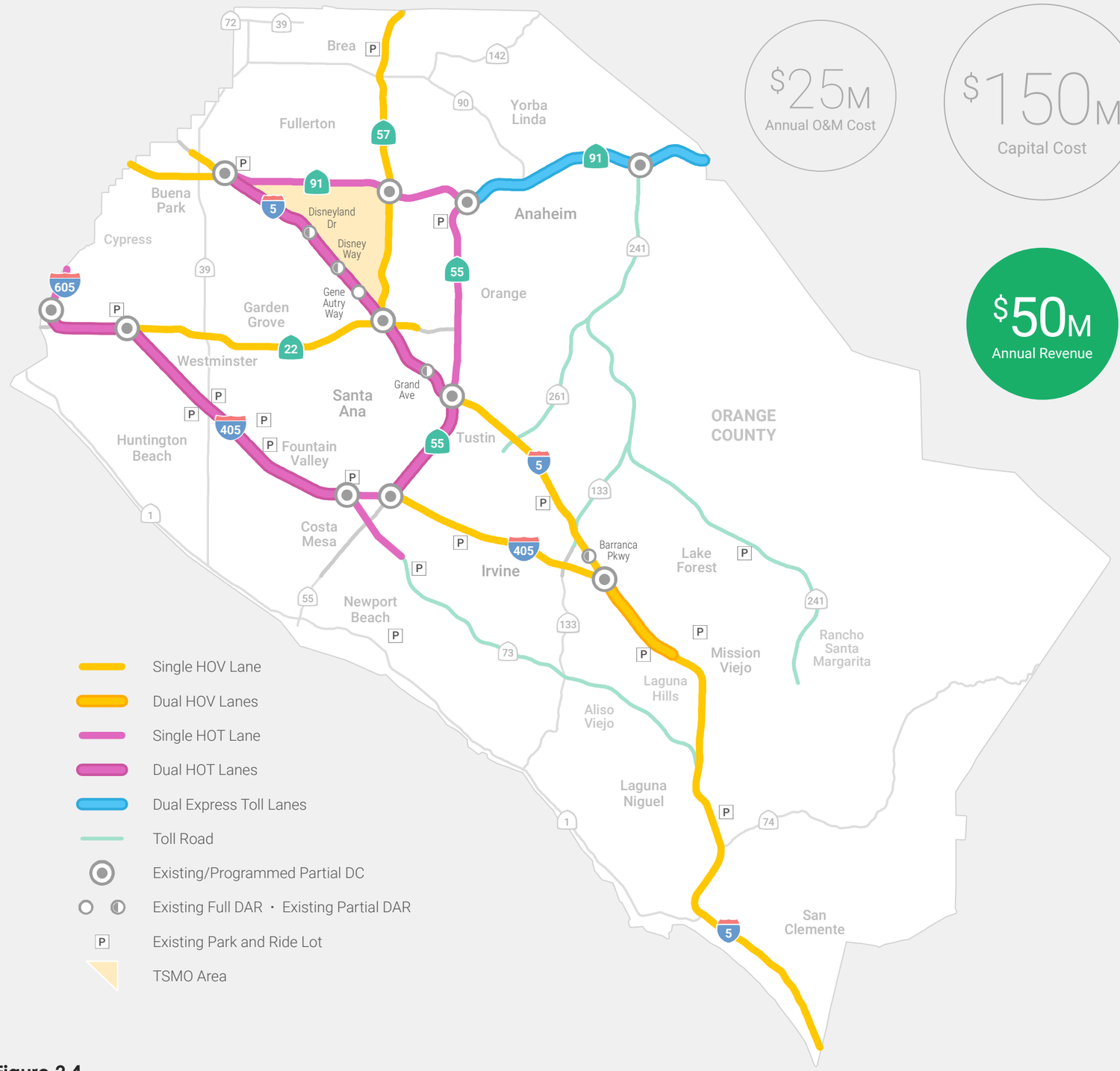
All distances are in centerline miles.

Capital, O&M, and revenue projections are based on 2015 dollars and are planning-level estimates only. The 91 Express Lanes and 405 Express Lanes are excluded from the projections.

Figure 2.3

Phase 1

MOST LIKELY PLAN



$25M
Annual O&M Cost

$150M
Capital Cost

$50M
Annual Revenue

PROPOSED IMPROVEMENTS to Baseline Network by 2040

Convert Single HOV Lane to Single HOT Lane — 18.5 mi

I-405	SR 55 to SR 73	1.5 mi
I-605	I-405 to LA County line	1.5 mi
SR 55	I-5 to SR 91	6.5 mi
SR 91	I-5 to SR 55	9.0 mi

Add Single HOT Lane — 4.5 mi

SR 73	Bison Ave to I-405	4.5 mi

Convert Dual HOV Lanes to Dual HOT Lanes — 7.5 mi

I-5	SR 55 to SR 22/SR 57	3.0 mi
SR 55	I-405 to I-5	4.5 mi

Add 1 Lane to Single HOV Lane, Convert to Dual HOT Lanes — 8.0 mi

I-5	SR 22/SR 57 to SR 91	8.0 mi

All distances are in centerline miles.

Capital, O&M, and revenue projections are based on 2015 dollars and are planning-level estimates only. The 91 Express Lanes and 405 Express Lanes are excluded from the projections.

Figure 2.4

Phase 2

IDEAL PLAN

$55M
Annual O&M Cost

$15B
Capital Cost

$300M
Annual Revenue

PROPOSED IMPROVEMENTS to Phase 1 Network

Convert Dual HOV Lanes to Dual HOT Lanes — 3.5 mi

I-5	Alicia Pkwy to I-405	3.5 mi

Add 1 Lane to Single HOT Lane for Dual HOT Lanes — 23.0 mi

I-405	SR 55 to SR 73	1.5 mi
I-605	I-405 to LA County line	1.5 mi
SR 55	I-5 to SR 91	6.5 mi
SR 73	Bison Ave to I-405	4.5 mi
SR 91	I-5 to SR 55	9.0 mi

Add 1 Lane to Single HOV Lane, Convert to Dual HOT Lanes — 64.5 mi

I-5	SD County line to Alicia Pkwy, I-405 to SR 55, SR 91 to SR 39	28.5 mi
I-405	I-5 to SR 55	8.5 mi
SR 22	I-405 to Grand Ave	12.0 mi
SR 57	I-5/SR 22 to LA County line	12.0 mi
SR 91	LA County line to I-5	3.5 mi

Add Dual HOT Lanes — 4.5 mi

I-5	SR 39 to LA County line	1.0 mi
SR 22	Grand Ave to SR 55	1.5 mi
SR 55	SR 73 to I-405	1.0 mi
SR 133	I-405 to I-5	1.0 mi

Add Full DCs — 8

Various	I-5/SR 55, I-5/SR 73, I-5/SR 133, I-5/SR 22, SR 55/SR 73, SR 55/SR 22, SR 55/SR 91, SR 57/SR 22, SR 57/SR 91

Convert Partial DARs to Full DARs — 4

I-5	Barranca Pkwy, Grand Ave, Disney Way, Disneyland Dr

Add Full DARs — 13

I-5	Ave Vista Hermosa, Los Alisos Blvd, Stanton Ave
I-405	Von Karman Ave, Bear St, Slater Ave, McFadden Ave
SR 22	Springdale St
SR 55	Alton Pkwy
SR 57	Douglas Rd, Birch St
SR 91	Stanton Ave, Fairmont Blvd

Add Park and Ride Lots — 6

I-5	Near Ave Vista Hermosa DAR, near Barranca Pkwy DAR, near Grand Ave DAR, near Disney Way DAR
SR 55	Near SR 55/I-405 interchange
SR 91	Near Fairmont Blvd DAR

All distances are in centerline miles.

Capital, O&M, and revenue projections are based on 2015 dollars and are planning-level estimates only. The 91 Express Lanes and 405 Express Lanes are excluded from the projections.

Figure 2.5

2.3.4 Caltrans District 12 Upper Interstate 5 Corridor Plan 2019

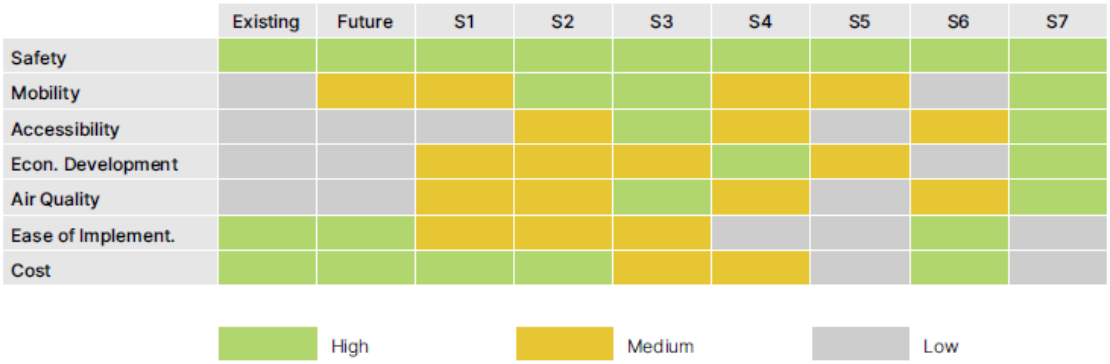
The Upper Interstate 5 Corridor Plan strives to enhance the safety, operations, multi-mobility, and sustainability of the corridor between SR 55 and the Los Angeles/ Orange County Line. These goals were subsequently utilized to develop a set of recommendations and strategies.

The Corridor Plan evaluated seven scenarios, in addition to existing year and future baseline conditions. The scenarios are detailed with a short description below:

- Existing Year
    - Existing Conditions during Plan development
- Future Baseline
    - Includes projects on the financially-constrained project list in the SCAG 2016 RTP/SCS and the Preferred Plan in OCTA's 2014 LRTP
- S1: Additional HOV Capacity
    - Future Baseline + Second HOV lane from SR 57 to SR 91
- S2: Priced Managed Lanes + Park and Ride
    - Converts 2 HOV lanes in S1 to HOT lanes
- **S3: Priced Managed Lanes + Park and Ride + BRT**
    - **S2 + Freeway BRT service as proposed in OCTA's Transit Vision**
- S4: TSM&O/ICM/ITS/TDM
    - CMS, CCTV, and advanced traffic management systems
- S5: Operational Improvements
    - Addition of a Direct Connector (DC) connecting the HOV facilities on I-5 with those of SR 22
- S6: Intersection Improvements
    - Implementing active transportation and ADA improvements in high opportunity areas along I-5 within State right-of-way
- S7: Off-System Transit Improvements
    - Fullerton Interlocking Project, Metrolink electrification project, among other projects outside of the state highway system

The recommendations were prioritized for implementation based upon a broad set of criteria, including safety, mobility, accessibility, economic development, air quality, and ease of implementation, and cost. The results of the evaluation process are shown below in Figure 2.6.

Figure 2.6: Scenario Evaluation Results



Based upon the Scenario Evaluation Results, the following short-, medium-, and long-term scenarios were chosen to enhance the Upper I-5 in Orange County:

- Short-Term: Scenario 6 – Intersection Improvements
- Medium-Term: Scenario 4 – TSM&O/ICM/ITS/TDM
- Long-Term: Scenario 3 – Priced Managed Lanes + Park and Ride + BRT
    - An integrated managed lanes system inclusive of BRT services would promote forms of transportation that would enhance carpooling and transit usage, improve travel-time reliability, reduce GHG and VMT, and maximize efficiency by increasing person and vehicle throughput while reducing congestion and delay. BRT and park and ride a complementary of enhanced managed lanes facilities such as HOV, HOT, and Express Toll Lanes. Orange County Travelers would be incentivized to shift away from single-occupancy vehicle trips for BRT.

2.3.5 I-5 Managed Lanes Final Project Study Report (PSR) Traffic Feasibility Study and Supplemental PSR

Caltrans proposes to address Interstate 5 high-occupancy vehicle (HOV) degradation and improve mobility between the Orange County/ LA County Line and Red Hill Avenue. The PSR (2019) and subsequent Supplemental PSR (2020) introduced three build alternatives, one No-Build Alternative, and one No-Build Alternative with HOV modifications. The scenarios are as follows:

- Alternative 1: No-Build Alternative
- Alternative 2: No-Build Alternative with modification of HOV 2+ to HOV 3+ between Red Hill Avenue and LA/ Orange County Line
- Alternative 3: Convert existing HOV lanes to Price Managed Lanes (PMLs) between Red Hill Avenue and LA/ Orange County Line
- Alternative 4A: Alternative 2 + an additional PML between SR 57 and SR 91
- Alternative 4B: Alternative 3 + an additional PML between SR 91 and the LA/ Orange County Line

Potential funding sources will likely be a combination of federal, state, and private bonds and/or Transportation Infrastructure Finance and Innovation Act (TIFIA) loan backed by revenues. The goals of this project are to reduce existing and future congestion in the corridor, apply technology and/or design features to help manage traffic, improve traffic flow and circulation, among others. This study analyzed factors such as average travel time, vehicle hours of delay, average speed,

and percent of corridor at level-of-service E or F as comparative factors. For summary, operational performance scores for multiple factors is shown for each of the five alternatives:

Table 2.4: I-5 Alternatives Operational Performance Scores (Year 2035)

I-5 FACILITY	NO-BUILD	NO-BUILD WITH MODIFICATIONS	BUILD ALTERNATIVES		
	1	2	3	4A	4B
Travel Time Reliability Index	3.2	N/A	4.4	6.4	6.8
LOS Performance Index	2.7	N/A	3.8	5.8	6.1
Vehicle Hours of Delay	2.2	N/A	4	5.6	6
Travel Time	1.1	N/A	1.6	4.1	4.3
Total:	**9.2**	**N/A**	**13.8**	**21.9**	**23.2**
Current Cost Estimate:	**$0**	**$18.3M**	**$329M**	**$364M**	**$1.064B**

The Project is currently in the Project Initiation Document (PID) phase. Ongoing outreach will continue throughout the project delivery process.

2.3.6 SR 55 Project Study Report

OCTA in cooperation with Caltrans District 12 evaluated alternatives to increase freeway capacity and improve traffic operations on State Route 55 from Interstate 405 to Interstate 5. Six alternatives were prepared for analysis to improve traffic operations and increase freeway capacity. The SR 55 currently operates at LOS E or F during peak periods, due to limited general purpose land capacity, inadequate merging distances, and non-standard lane and shoulder widths. The purpose of the project is to improve mobility, traffic operations, and capacity, and reduce congestion. The six scenarios are presented below:

- No Build- Baseline Alternative
- Alternative 1: Auxiliary Only ($103 M)
- Alternative 2: One General Purpose Lane Only ($127 M)
- Alternative 3: Auxiliary + One General Purpose Lane ($210 M)
- Alternative 4: Auxiliary + One General Purpose Lane + One HOV Lane
- Alternative 5: Auxiliary + One HOV Lane ($180 M)

The six alternatives were analyzed on various conditions, including volume throughput, general purpose, weaving section, and ramp junction level of service, and HOV lane volume per capacity.

Conclusions show that Alternatives 2, 3, and 5 will enhance capacity as well as bring non-standard features of the freeway to current HDM standards. Operations for both HOV lanes and general purpose lanes would improve for scenarios that provide auxiliary lanes to reduce heavy traffic weaving.

2.3.7 Caltrans District 12 System Management Plan (DSMP)

In 2014, Caltrans District 12 created the District System Management Plan to advance future approaches toward resolution of the regions' transportation needs. The DSMP develops the District's vision of how the transportation system will be maintained, managed, and developed over the next 20 years and beyond.

The DSMP identified Bus Rapid Transit as part of the State of California Strategic Growth Plan, within the Local Transit and Intercity Rail Program.

As of 2014, there were 44.4 centerline miles and 487.5 lane miles for Interstate 5 within Orange County. In addition, there were 37.7 HOV centerline miles and 81.2 HOV lane miles along the same Interstate 5 corridor. As for State Route 55, there were 17.9 centerline miles, 156 lane miles, 11.3 HOV centerline miles, and 22.6 HOV lane miles in Orange County.

2.4 Relevant Studies Yet to Be Completed

2.4.1 OCTA Express Lanes Network Study

The Express Lanes Network Study began in June 2019 and is currently wrapping up. With growing congestion and limited availability of land, as well as the need to meet federal performance standards for carpool lanes, Caltrans has proposed operating carpool lanes as express lanes to improve speeds and avoid underutilized lanes.

The goal of the ELNS was to identify OCTA's priorities in converting select carpool lanes to express lanes into three tiers - generally by 2030, 2045, and beyond 2045.

OCTA analyzed 5 network concepts using metrics such as mobility, financial, connectivity, opportunities, and impacts. More specifically, in regard to the BRT Study, OCTA looked at express lanes as an opportunity to facilitate bus rapid transit (future freeway BRT Corridors the I-5 from Crown Valley to Magnolia and the SR 55 from I-5 to its southern terminus).

As OCTA is wrapping up the study, a concept has been recommended based on select metrics - mobility benefits, opportunity to address degradation, and avoidance of M2 HOV impacts. The financial feasibility of the recommended concept was also reviewed, but not used as a metric in the evaluation process. Final recommendations are expected to be presented to OCTA's Board of Directors in the fall of 2020.

2.4.2 Connect OC – LA Transit Study

OCTA is studying existing and future transit connections between Orange County and Los Angeles County. The study will identify both short- and long-term transit infrastructure and service improvements between the two counties. The study will improve regional connectivity for cross-country travelers. The study is to be completed by summer 2020.

The objective of the study is to:

- Define near term recommendation to improve existing transit services and facilities
- Identify long-term solutions to connect underserved populations
- Identify transit services needed between the counties for the 2028 Olympics

2.4.3 OCTA SR 55 Comprehensive Multimodal Corridor Plan

The OCTA SR 55 CMCP is a planning document that will look at infrastructures along the SR 55 and develop a holistic strategy to improve alternatives to single-occupancy-vehicle trips along the corridor. It will identify projects improving active transportation, signal synchronization, transit service, and freeway capacity. The projects listed in the plan aim to decrease daily person hours of delay by 4,000 hours (50%), daily vehicle hours of delay (43%), as well as increase daily carpool trips by 6,000 (8%), and daily vehicle miles traveled by 3%.

The main freeway project identified in the plan will add one HOV lane, one general purpose lane, and auxiliary lanes in both directions on the SR 55 from I-5 to I-405. The project is anticipated to increase SR 55's capacity and reduce congestion. OCTA's travel demand model estimates this

project will results in a 50% decrease in daily person hours of delay and will improve LOS E and F conditions to LOS D. The project is also anticipated to support an 8% increase in carpooling. Currently, this project is in the environmental phase.

2.4.4 Caltrans Orange County Freeway-Arterial Transit Enhancement Study (FATES)

FATES is a study to develop a conceptual plan for Bus Rapid Transit service on freeway corridors in Orange County, including recommendations on route alignment and station locations that would connect with key transit routes and other first and last-mile transportation options. BRT services would leverage existing HOV and planned HOT lanes to increase corridor throughput and provide additional travel options, consistent with efforts by OCTA to increase transit ridership. Opportunities exist to maximize transit accessibility by leveraging other modes of transport and the park and ride system. The study is being performed in complementarity to the Freeway BRT Concept Study for I-5 and SR 55 led by OCTA.

FATES will define the mobility problem, establish purpose, need, and performance measures, develop, evaluate, and recommend BRT alternatives.

2.4.5 South Orange County Multimodal Transportation Study

The South Orange County Multimodal Transportation Plan Study will identify a broad range of recommendations for the south Orange County area, including multimodal improvements and transportation demand management strategies to reduce congestion by providing more transportation choices for residents, commuters, and visitors while preserving the local community character and creating opportunities for neighborhood enhancement projects. The study is intended, in part, to update the South Orange County Major Investment Study completed in 2008. It will evaluate transportation system performance, define transportation deficiencies, develop a purpose and need statement, establish goals, objectives, and performance measures, and evaluate a set of viable conceptual alternatives for future project development processes.

2.4.6 Bristol Street Transit Corridor Study

The OCTA Bristol Street Transit Corridor Study is working to improve transit service along the Bristol Street Corridor, which was identified in the OC Transit Vision as a Transit Opportunity Corridor (TOC). The corridor is a critical north-south connection linking residents, businesses, schools, and key destinations in Santa Ana, Costa Mesa, Newport Beach, and Irvine. The study will analyze and develop options to improve the flow of traffic and public transit on Bristol Street from W 17th Street to Sunflower Avenue and connections to John Wayne Airport. The study will help improve the frequency, service, and reliability of public transportation, improve connections with crosstown routes and the OC Streetcar, and support first and last mile connections to jobs, services, retail centers, and residential developments.

3 Existing Conditions

This section details the existing conditions along Interstate 5 from the Fullerton Park and Ride to the Laguna Niguel / Mission Viejo Metrolink Station, as well as State Route 55 from Interstate 5 to Hoag Hospital Newport Beach. To determine the study area, a 2-mile buffer was extended on either end of both study segments, including a rounded 2-mile cap at the end of the segments at the Fullerton Park and Ride, the Laguna Niguel/ Mission Viejo Metrolink Station, and Hoag Hospital Newport Beach. A two-mile buffer was chosen as this area would likely contain most of the potential Freeway BRT users, and is consistent with other OCTA corridor planning efforts. This buffer serves as the existing conditions study area for demographic, longitudinal employer-household dynamic, and traveling conditions data discussed in Sections 3.1 through 3.4. Catchment areas, found in Section 3.5, are identified based upon existing conditions along the corridors. The study area is presented below in Figure 3.1.

OC BRT Freeway Corridors

Existing Conditions Study Area

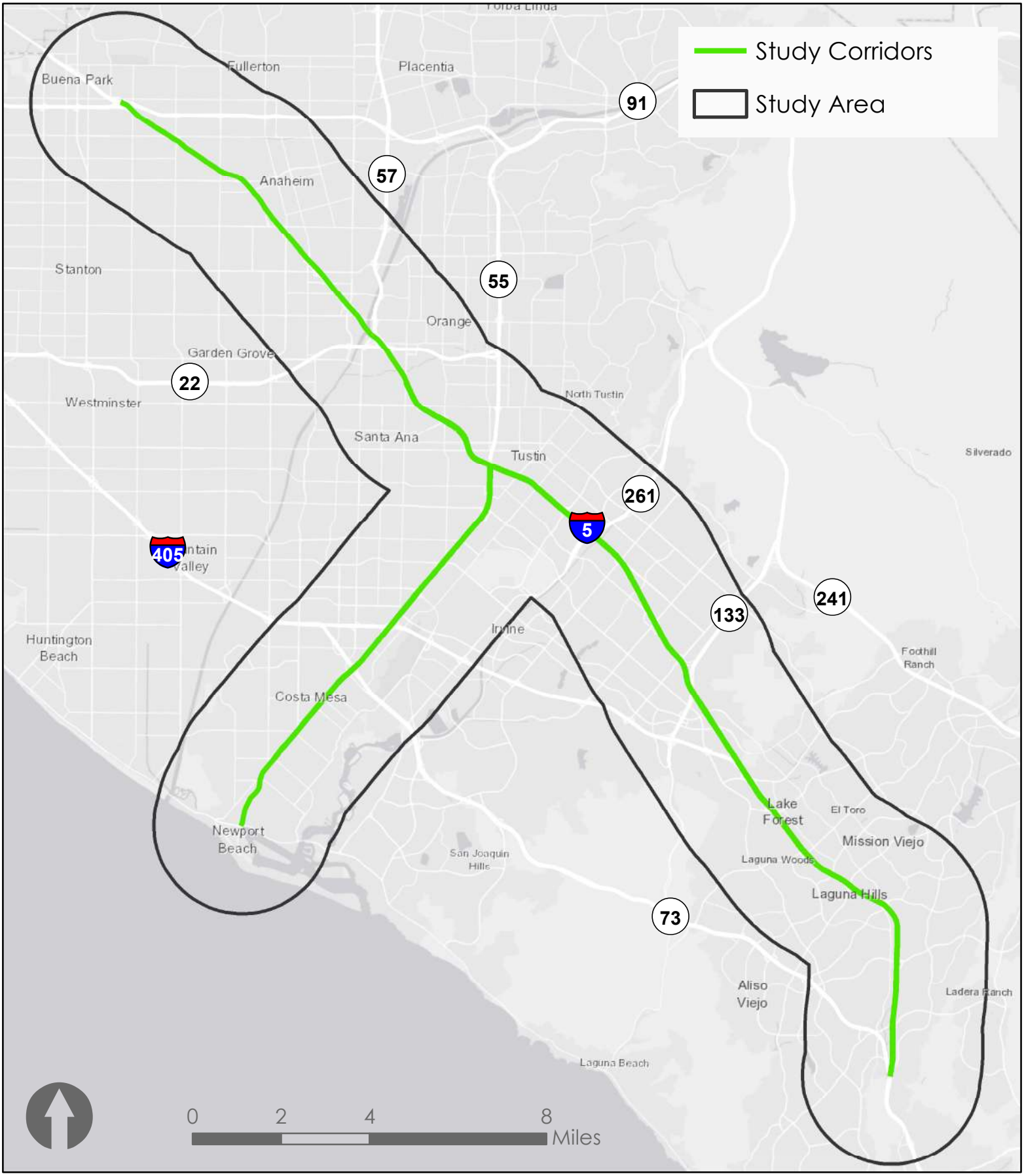


Figure 3.1

Source: IBI Group, 2020

3.1 Demographics

Establishing the baseline demographics of the study corridors allows for informed decision-making when establishing Freeway BRT alternatives that reach the greatest concentration of residents and employees possible. Four demographic characteristics were chosen that may play a significant role in shaping the future of Freeway BRT along the two study corridors:

- Total Population
- Total Employment
- Occupied Dwelling Units
- Median Household Income

The demographic data is presented by Transportation Analysis Zone (TAZ) for the baseline year 2016. Data is sourced from the Orange County Council of Governments (OCCOG) and approved by the OCCOG board in 2018. Projected data in this dataset begins in year 2020 and is shown every 5-year period through year 2050.

Total population shows where residents live in the study area. The total population in the study area is 1,424,913. Population is concentrated in west Anaheim (south of SR 91 and north of I-5), central Santa Ana, Westside Costa Mesa, Irvine north of the I-5 (between SR 261 and SR 133), and a few places in the South Laguna Hills area. There are smaller residential populations south of Ball Road (between Disneyland and Batavia Street), east Santa Ana south of the I-5, the Irvine Business Complex, and the Greater Orange County Great Park Area. Figure 3.2 shows total population in the study area.

Total employment shows where jobs are located within the study area. The total employment in the study area is 935,006. Employment is spread throughout the study area but is most concentrated in select areas in and around the Platinum Triangle, off 17th Street in Tustin, South Coast Metro, the Irvine Business Complex, and a few areas around the Irvine Spectrum area. There is fewer employment in the Greater Orange County Great Park Area and in Eastside Costa Mesa. Figure 3.3 shows total employment in the study area.

Occupied dwelling units shows not only where residents are located but can also provide context of density of a populated area. The total number of occupied dwelling units in the study area is 442,642. Similar to population, there are a higher number of occupied dwelling units per TAZ in west Anaheim, select locations near the I-5/ SR 22/ SR 57 interchange, around SR 261 and SR 133 in Irvine, Westside Costa Mesa, east Laguna Woods, and north of the Laguna Niguel / Aliso Viejo Metrolink Station. Figure 3.4 shows the occupied dwelling units in the study area.

Median Household Income is a metric that can be useful to determine areas of captive and choice ridership. Some data per TAZ was unavailable, mainly due to the fact that some TAZs do not have a residential population. Among the 581 TAZ's with data, the median household income ranged from just under $18,000 to just under $190,000. The average qualifying TAZ median household income is $81,406. Low-income areas in the study area are in-most part north of the SR 22, and west of the SR 55 excluding the South Coast Metro area. High-income areas in the study area are south of the Lake Forest, and in Eastside Costa Mesa and Newport Beach. Figure 3.5 shows the median household income in the study area.

OC BRT Freeway Corridors

Total Population (2016)

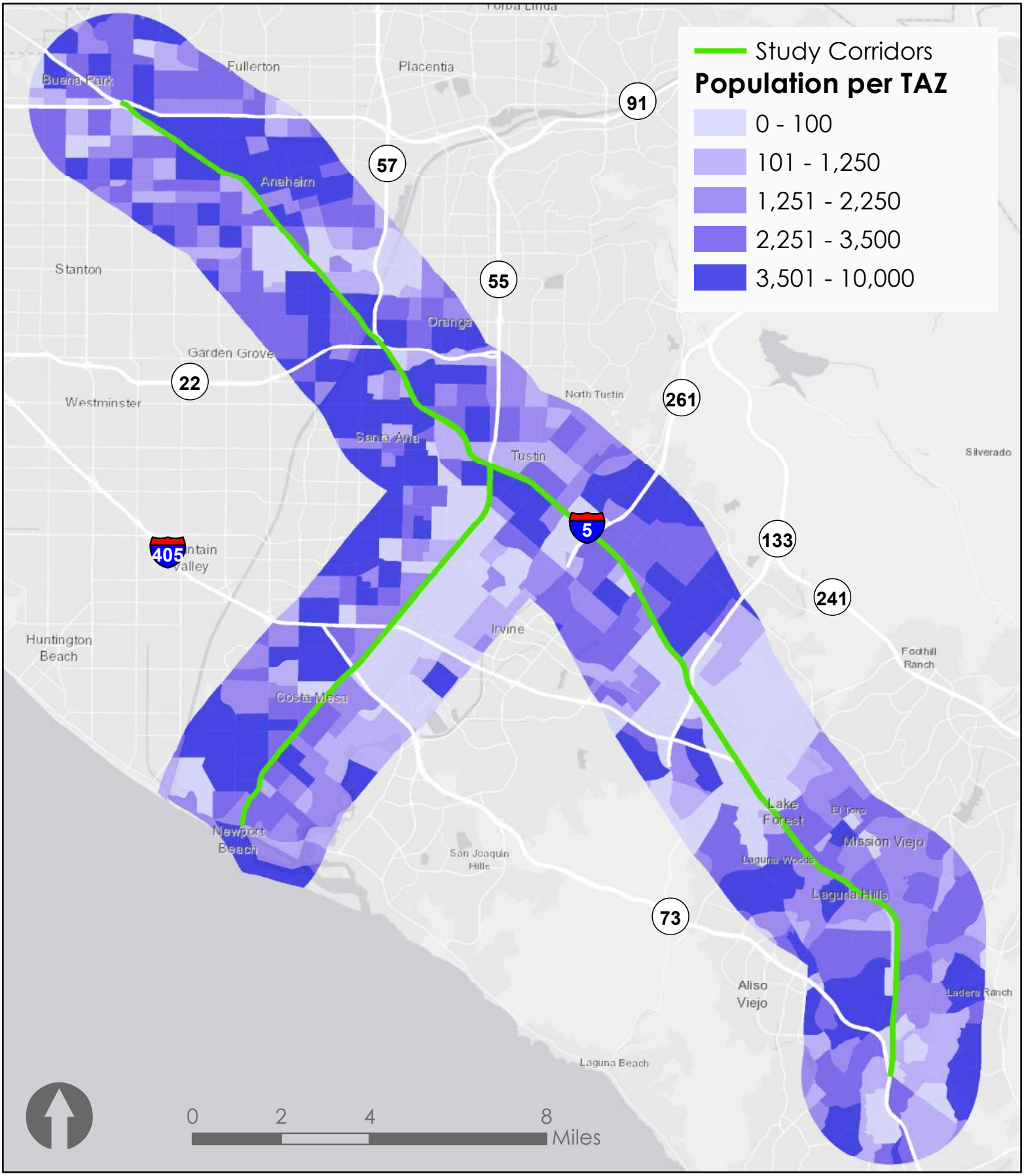


Figure 3.2

Source: Orange County Council of Governments: Orange County Projections - 2018

OC BRT Freeway Corridors

Total Employment (2016)

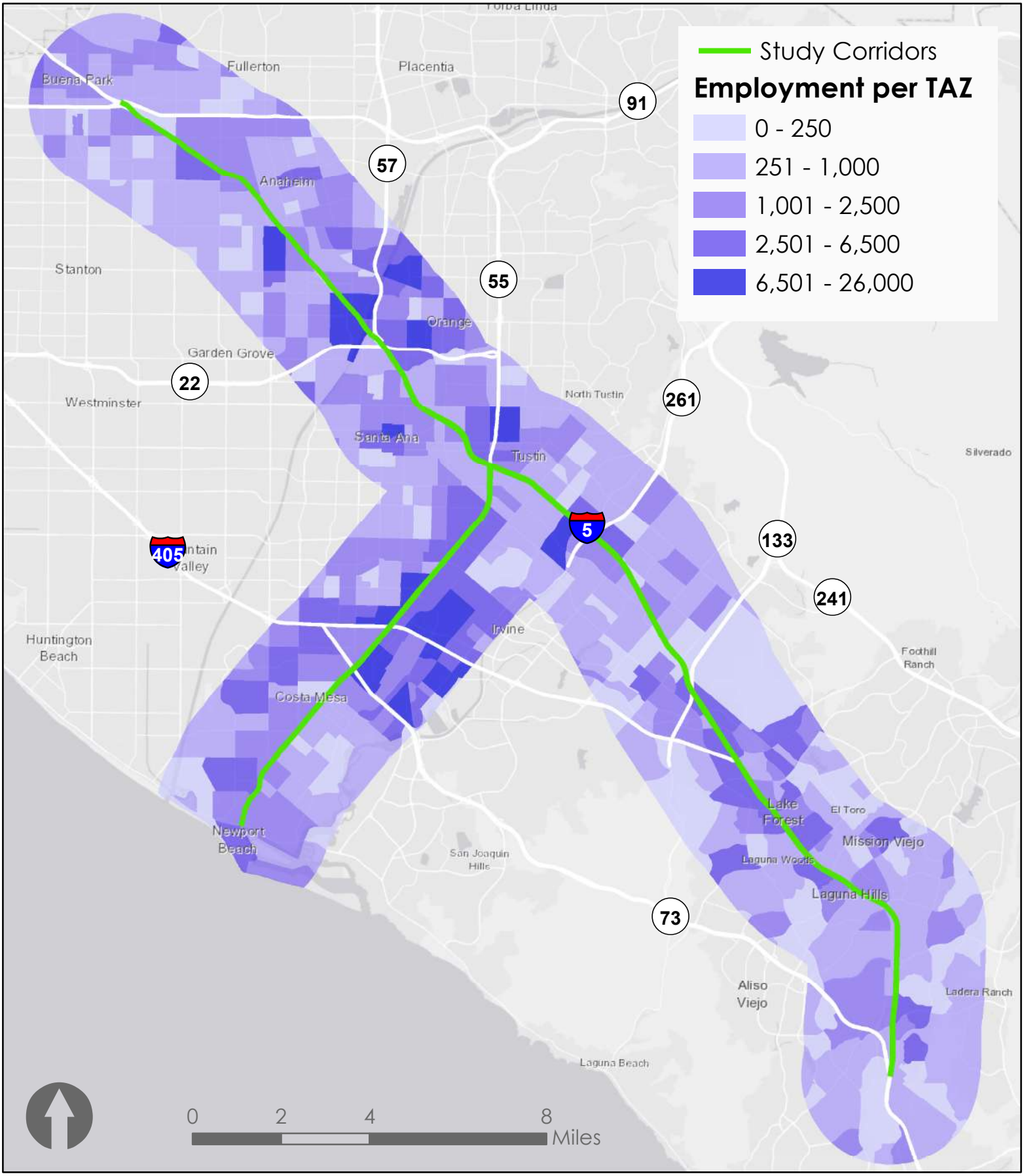


Figure 3.3

Source: Orange County Council of Governments: Orange County Projections - 2018

OC BRT Freeway Corridors

Occupied Dwelling Units (2016)

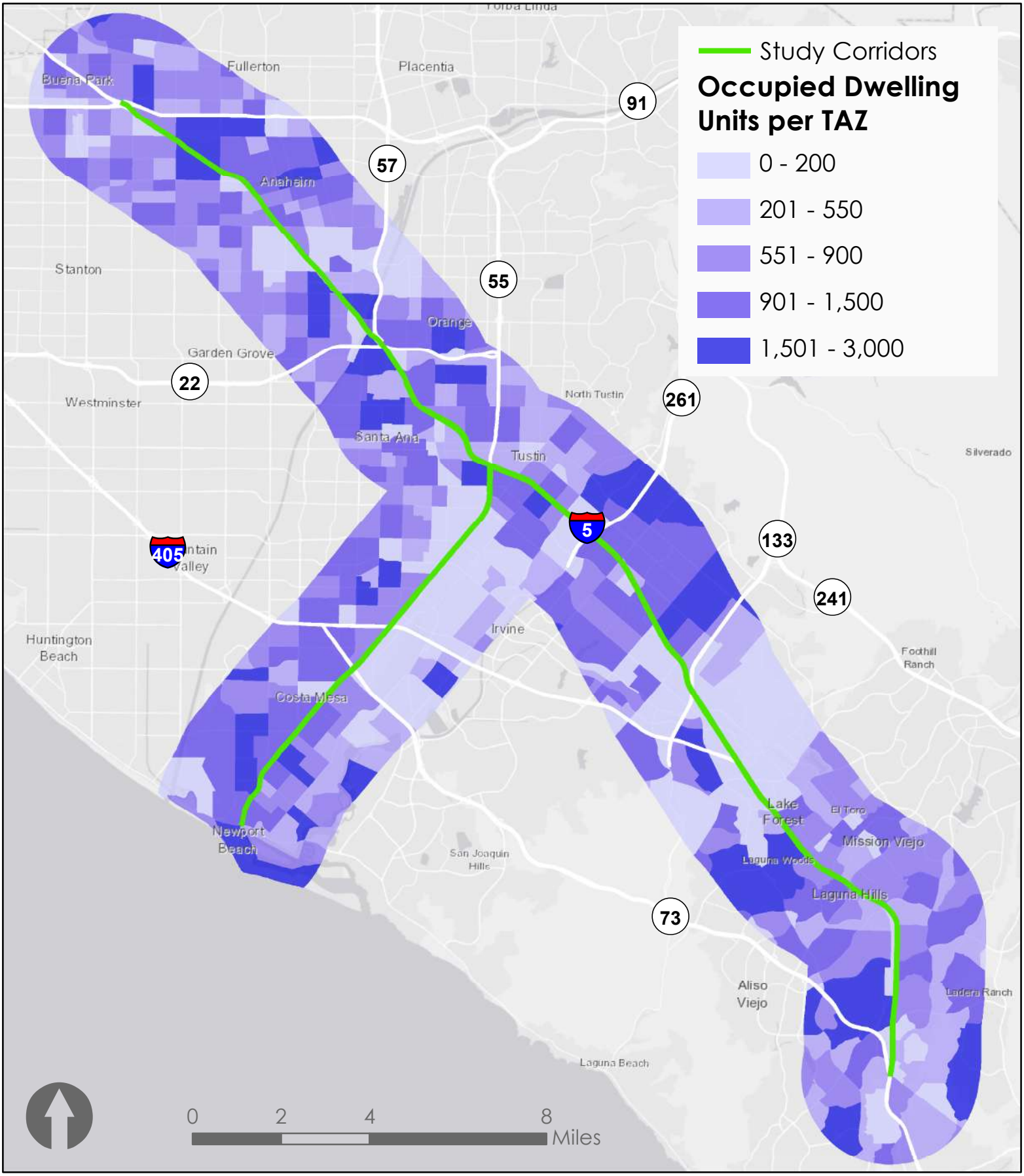


Figure 3.4

Source: Orange County Council of Governments: Orange County Projections - 2018

OC BRT Freeway Corridors

Median Household Income (2016)

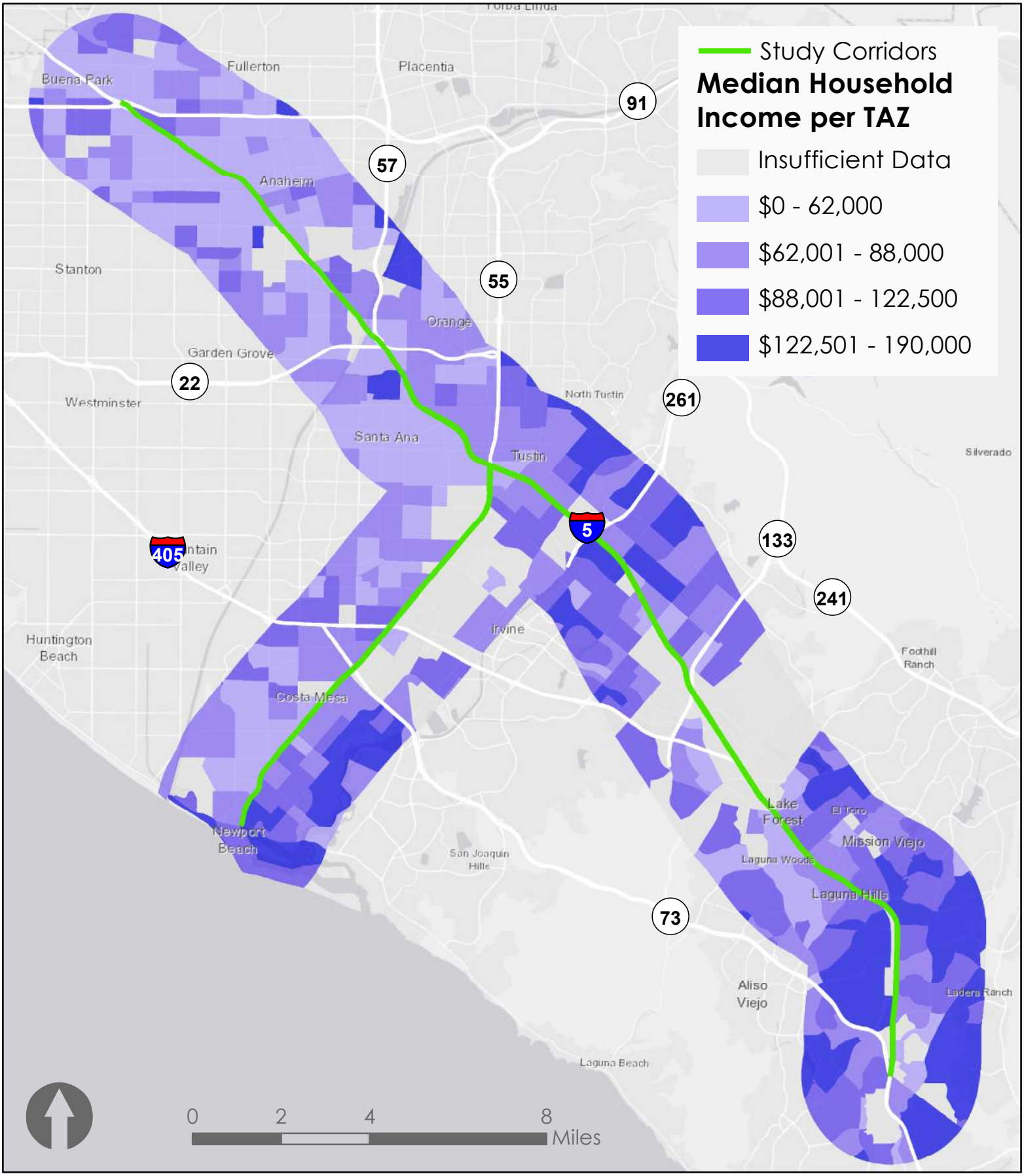


Figure 3.5

Source: Orange County Council of Governments: Orange County Projections - 2018

3.2 Longitudinal Employer-Household Dynamic

Longitudinal Employer-Household Dynamic (LEHD) data from the U.S. Census was collected to determine the characteristics of residents, employees, and their travel patterns within a two-mile radius of the two study corridors. All data presented are from 2016. Data was collected for:

- the profile of workers within the study area
- the inflow of employees into the study area
- the outflow of residents outside the study area
- the interior flow of those who both live and work within the study area
- the distance and direction of employees who work in the study area
- the distance and direction of residents who live in the study area

3.2.1 Work Area Profile

In total there are 830,449 employees within a two-mile radius of the two study corridors. Jobs that pay over $40,000 a year make up just less than half (48%) of the total number of jobs in the study area. The top jobs by North American Industry Classification System (NAICS) Industry Sector are healthcare and social assistance (11.8%), followed by professional, scientific, or technical services (10.2%). Other common jobs industries include accommodation/food service (9.2%) and administration/support (9.5%).

Among all workers, a majority of employees within the study area are White alone (74.5%), followed by Asian (16.8%). Approximately 36% of workers in the study area identify as Hispanic or Latino. For educational attainment[1], 33.5% of workers obtained a bachelor's degree or advanced degree, and 30.26% of workers attended college or have an Associate degree. Just under 19% of workers have a high school equivalency but did not attend college.

Most workers are between 30 to 54 years of age (55.7%). Workers in the study area age 29 or younger (23.4%), slightly edge the number of workers age 55 or older (20.9%).

3.2.2 Inflow, Outflow, and Interior Flow of Employees

As previously noted, there are 830,449 employees in the two-mile radius of the two study corridors in 2016. There are 532,167 residents in the same study area. This means the net job inflow/outflow into the study area is +298,262.

Among the 830,449 employed in the study area, 613,403 of these employees commute from elsewhere into the study area for work (73.9%).

Among the 532,167 residents living in the study area, 315,121 of these residents commute elsewhere outside the study area for work (59.2%). Alternatively, there are 217,046 people who both live and work in this study area (40.8%).

3.2.3 Distance and Direction of Commute by Study Area Employees

LEHD data can determine the commute distance and direction of all employees and residents in the study area. Among the 830,449 employees in the study area, 42.0% of commuters live within 10 miles, 29.5% are between 10 to 24 miles, 15.3% of jobs are within 25 and 50 miles, and 13.2% of commuters are greater than 50 miles away. To get to their job in the study area, 29.4% of commuters come from the northwest. The second-highest direction of commuters are coming from the southeast (13.7%).

[1] Educational attainment is only produced for workers aged 30 or over.

The most common home locations of study area employees are found generally within or just outside of the study area itself. According to the LEHD data, most employees who work in the study area live in central Santa Ana, in pockets around Interstate 5 north of SR 22, central and north Irvine, Lake Forest, and westside Costa Mesa. Generally, most long-distance commuters are coming from south Los Angeles County, south Orange County, and the Fullerton area. Figure 3.6 shows the cardinal direction and general distance of each commuter into the study area. Figures 3.7 and 3.8 show the location and density of commuters.

Figure 3.6: Distance and Direction of Commute by Employees in the Study Area

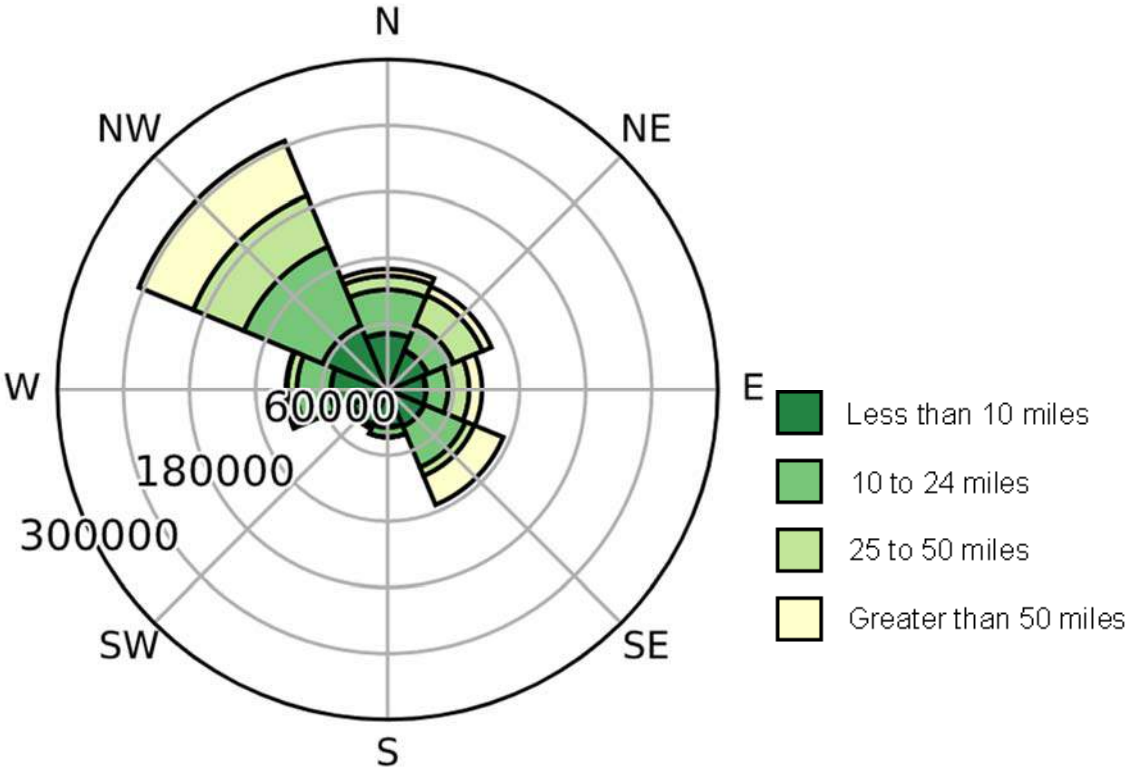


Figure 3.7: Home Location of Study Area Employees - Corridors

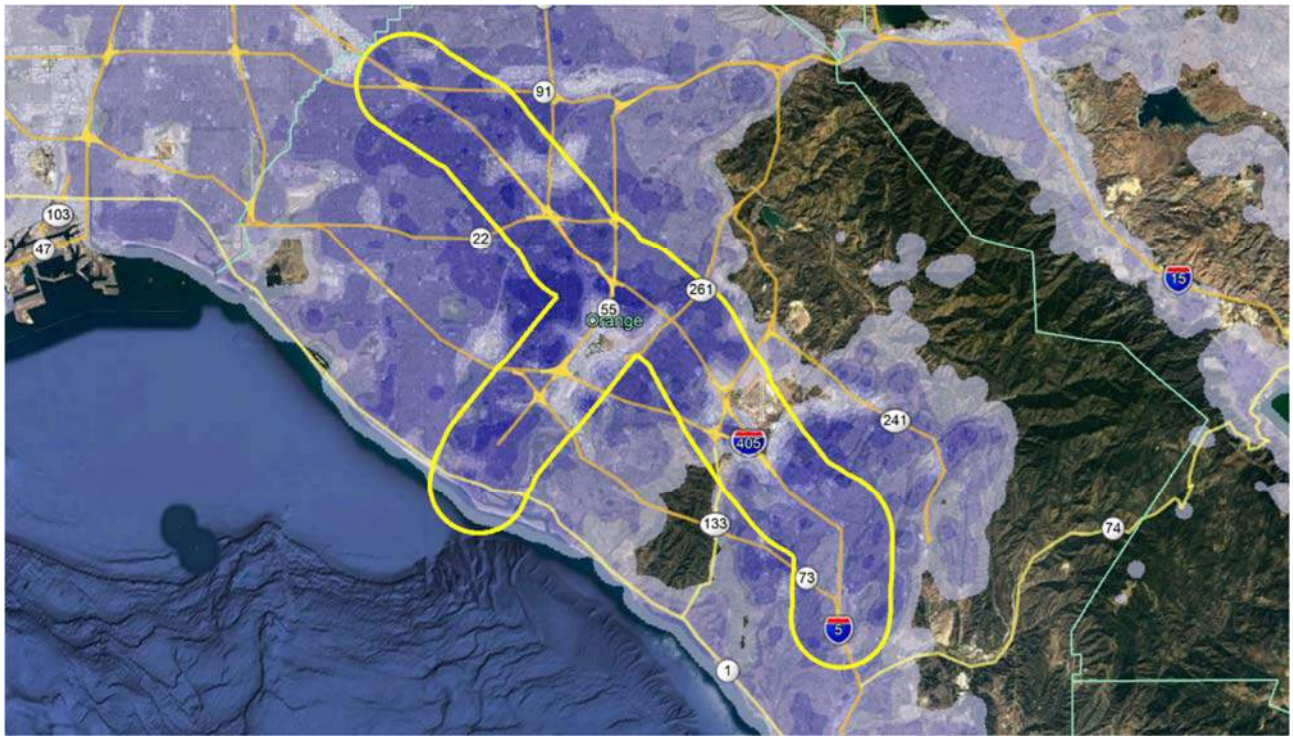


Figure 3.8: Home Location of Study Area Employees - Region

3.2.4 Direction and Distance of Commute Study Area Residents

LEHD data can determine the commute distance and direction of all employees and residents in the study area. Among the 532,167 residents in the study area, 51.7% residents have a commute within 10 miles, 25.7% commute between 10 to 24 miles, 13.3% of residents commute within 25 and 50 miles, and 9.3% of residents commute greater than 50 miles away from their home. To get to their job from the study area, 28.4% of commuters travel to the northwest. The second-highest direction of commuters are going to the southeast (16%).

The most common employment locations of study area residents are found generally within the study area itself, with a few outliers such as Newport Center and the industrial stretch north of SR 91. According to the LEHD data, most residents who live in the study area work in the Irvine Business Complex, Downtown Santa Ana, the Irvine Spectrum Center, and Disneyland. Generally, most long-distance commuting study area residents are going to Los Angeles County, south Orange County, Huntington Beach, and the Inland Empire. Figure 3.9 shows the cardinal direction and general commute distance of each resident living in the study area. Figures 3.10 and 3.11 show the location and density of their commute destinations.

Figure 3.9: Direction and Distance of Commute by Residents from the Study Area

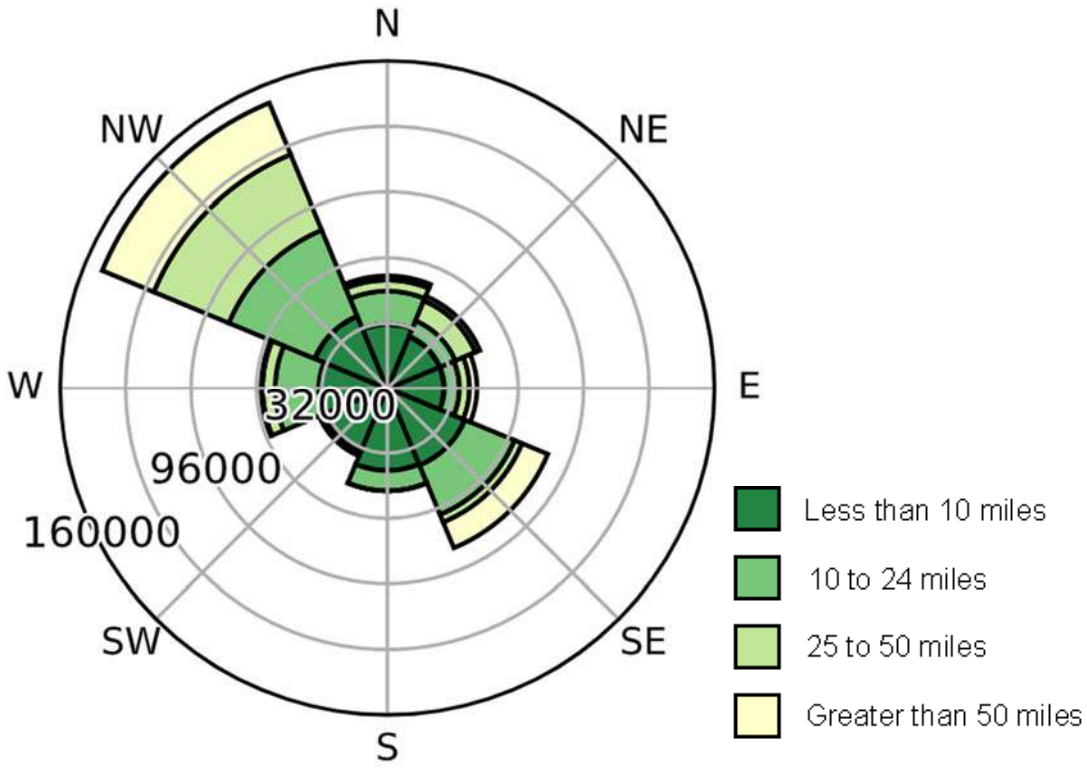


Figure 3.10: Commute Location of Study Area Residents - Corridor

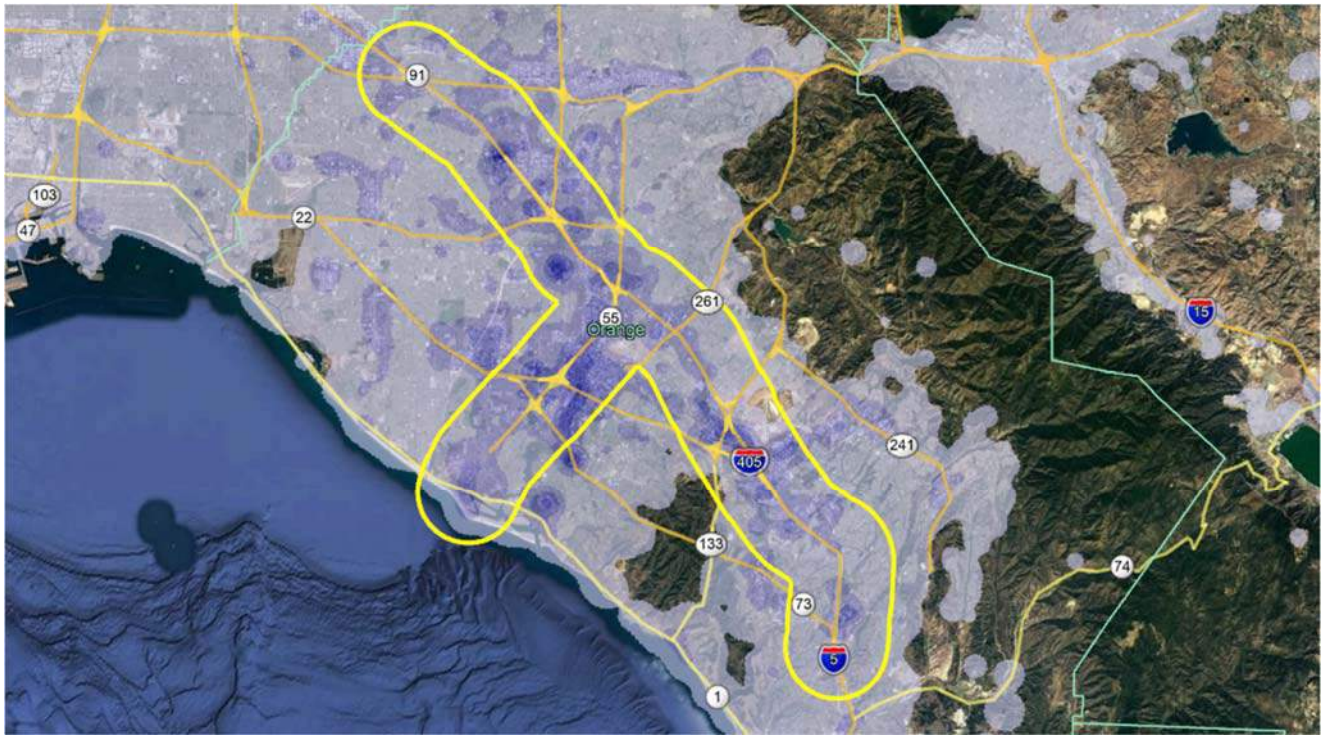


Figure 3.11: Commute Location of Study Area Residents – Region

3.3 Travel Conditions

Baseline 2016 travel conditions are crucial for determining the current traffic dynamic within the study area. To accurately model travel conditions, the Orange County Transportation Analysis Model (OCTAM) was used separately for the two corridor study areas. Data was modeled for:

- Daily, AM Peak, and PM Peak Vehicle Miles Traveled (VMT)
- Daily, AM Peak, and PM Peak Congested Vehicle Hours Traveled (CVHT)
- Daily, AM Peak, and PM Peak Vehicle Hours of Congestion Delay (VHCG)

Figure 3.12 shows the two study areas for both OCTAM models.

For the State Route 55 study area, the daily 2016 VMT is nearly 13 million vehicle miles traveled. Almost 6 million vehicle miles are on SR 55 alone. The PM Peak Period VMT (1.6 million) is greater than the AM Peak Period VMT (1.2 million) on SR 55. Daily congested vehicle hours traveled in the SR 55 study area is nearly 660,000, almost double the daily vehicle hours of congestion delay (348,000). The PM Peak Period CVHT and VHCG outnumbers the AM Peak Period for both the SR 55 study area and the SR 55 freeway alone. Table 3.1 show the modeled data characteristics listed above by selected freeway and street types within the State Route 55 study area.

For the Interstate 5 study area, the daily VMT is nearly is over 26.8 million vehicle miles traveled. More than 13 million vehicle miles are on Interstate 5 alone. The PM Peak Period VMT (3.5 million) is greater than the AM Peak Period VMT (2.6 million) on Interstate 5. Daily congested vehicle hours traveled in the Interstate 5 study area is over 1.3 million, almost double the daily vehicle hours of congestion delay (701,000). Similar to the State Route 55 study area, the PM Peak Period CVHT and CHCG outnumbers the AM Peak Period for both the Interstate 5 study area and the Interstate 5 freeway alone. Table 3.2 shows the modeled data characteristics listed above by selected freeway and street types within the Interstate 5 study area.

OC BRT Freeway Corridors

OCTAM Travel Conditions Study Area

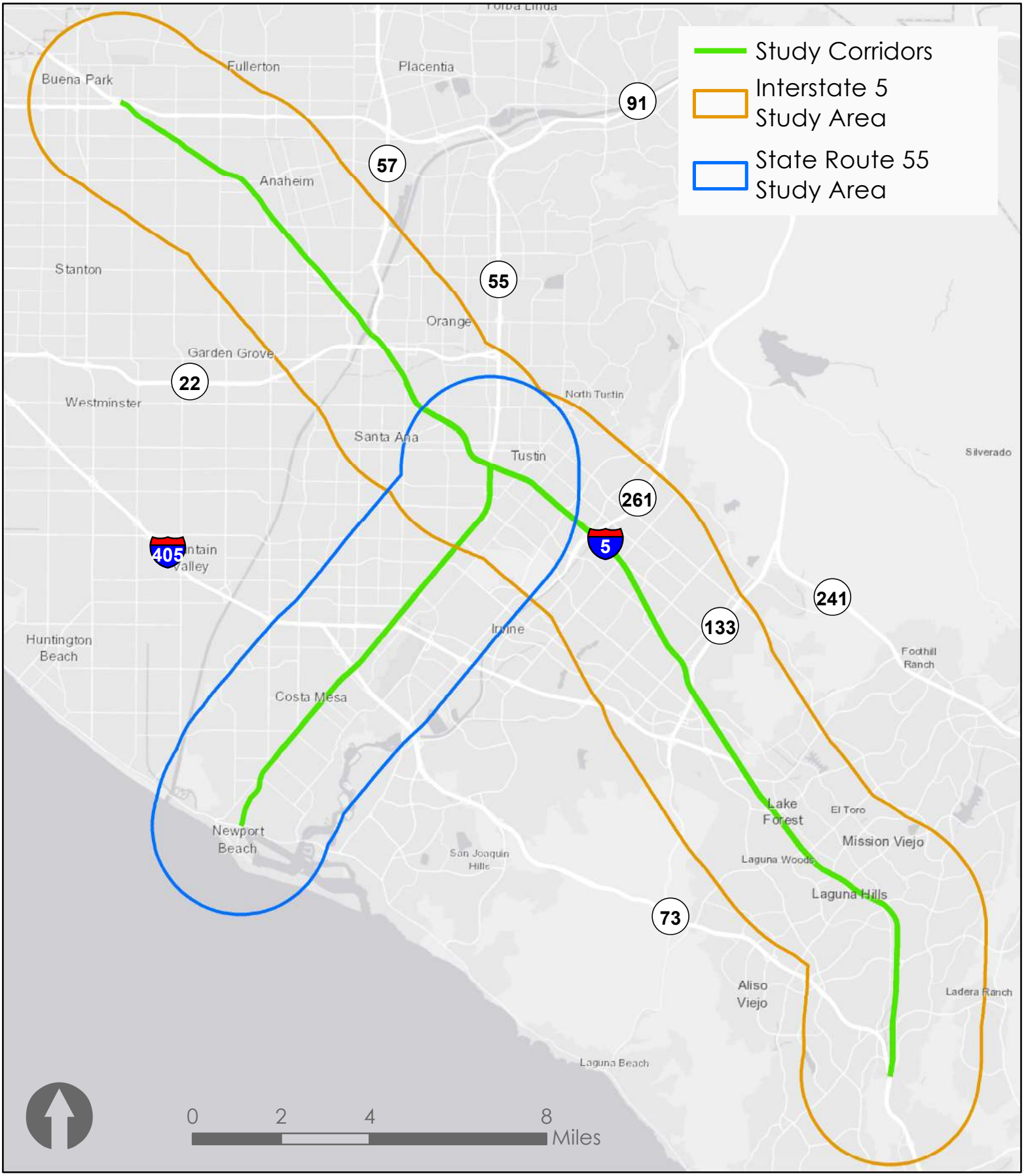


Figure 3.12

Source: OCTA, 2020

Table 3.1:State Route 55 Study Area Travel Conditions (2016, in thousands)

	DAILY VMT	AM VMT	PM VMT	DAILY CVHT	AM CVHT	PM CVHT	DAILY VHCD	AM VHCD	PM VHCD
Freeway	5,983	1,213	1,589	291	33	40	197	14	15
Six+ Lane Divided	2,352	616	867	107	25	34	29	5	5
Four Lane Divided	1,679	457	626	80	20	25	23	4	4
Four Lane Undivided	160	44	59	7	2	2	2	0	0
Two Lane Divided	90	26	36	5	1	2	1	0	0
Two Lane Undivided	248	65	89	14	3	5	4	1	1
Smart Street/Expressway	131	35	48	5	1	1	2	0	0
HOV Facility	549	180	251	28	4	5	20	1	2
Ramp	870	175	229	87	10	12	64	5	6
Toll Facility	0	0	0	0	0	0	0	0	0
Centroid	841	176	269	36	6	10	5	0	0
Connector	0	0	0	0	0	0	0	0	0
HOT	0	0	0	0	0	0	0	0	0
Total	12,903	2,986	4,064	659	105	137	348	31	34

Table 3.2: Interstate 5 Study Area Travel Conditions (2016, in thousands)

	DAILY VMT	AM VMT	PM VMT	DAILY CVHT	AM CVHT	PM CVHT	DAILY VHCD	AM VHCD	PM VHCD
Freeway	13,292	2,642	3,453	669	76	92	459	35	37
Six+ Lane Divided	4,293	1,154	1,529	176	42	55	37	5	5
Four Lane Divided	3,178	870	1,141	141	35	44	35	6	6
Four Lane Undivided	560	165	210	25	6	8	6	1	1
Two Lane Divided	145	44	55	7	2	2	1	0	0
Two Lane Undivided	423	120	153	20	5	6	4	1	1
Smart Street/Expressway	324	81	107	13	3	4	4	1	1
HOV Facility	1,370	464	626	67	10	13	45	3	3
Ramp	1,337	280	367	128	14	18	92	7	8
Toll Facility	392	129	140	15	2	2	9	0	0
Centroid	1,523	320	485	64	12	18	9	0	0
Connector	0	0	0	0	0	0	0	0	0
HOT	0	0	0	0	0	0	0	0	0
Total	26,836	6,270	8,266	1,324	209	261	701	58	62

3.4 Existing Transit Routes, Ridership, and Transit Infrastructures

3.4.1 Existing HOV and Express Lanes Infrastructure

Orange County has a substantial High Occupancy Vehicle Lane network along all major freeways, including the study corridor segments along Interstate 5, as well as State Route 55 from Interstate 5 to Interstate 405. Other corridors in the study area include SR 57, SR 91, SR 22, and I-405.

There are numerous programmed or proposed HOV lanes in the study area for either new or additional HOV lanes, including three separate projects on the study corridor segments. These additional HOV lane projects to create dual HOV lanes in both directions include:

- Measure M2 Project A: I-5 between SR 55 and SR 57
- Measure M2 (portion of) Project C: I-5 between Alicia Parkway and El Toro Road
- Measure M2 (portion of) Project F: SR 55 between I-5 and I-405

Figure 3.13 shows all existing, programmed, and proposed HOV lanes in the study area.

For the most part, Regional Express Lane infrastructure in Orange County are in the preliminary stages. Only the SR 91 freeway has Express Lanes, from beyond the Orange County boundary line to the SR 55 interchange. The I-405 within Orange County north of the SR 73 interchange is currently in the design/ build phase of the OC Go project.

The Caltrans Orange County Managed Lanes Feasibility and Network Studies (MLFS and MLNS) established express lane priority for numerous freeway segments in Orange County. The studies identified that Interstate 5 from the SR 91 to the SR 55, and the State Route 55 from the I-5 to the I-405 should be Tier 1 or highest priority segments for express lanes (projects that should be completed by 2030). The studies also determined that Interstate 5 from SR 55 to SR 73 is a Tier 2 or secondary priority segment for express lanes (projects that should be considered by 2030). State Route 55 south of SR 73 was not considered for these studies. The MLFS and MLNS may prioritize different express lanes than OCTA's Express Lanes Network Study. Figure 3.14 shows the status of Express Lanes in the study area.

There are numerous HOV direct access ramps (DARS) along the I-5 and SR 55 study corridors. The following DARS show ramps that connect from the study freeway corridors to arterials or other freeways by use of HOV lanes:

- I-5 North to SR 91 West
- I-5 South to SR 91 East
- SR 91 West to 1-5 North
- 91 East to I-5 South
- I-5 South to Disneyland Drive
- I-5 North to Disney Way
- I-5 North to Gene Autry Way
- I-5 South to Gene Autry Way
- Gene Autry Way to I-5 North
- Gene Autry Way to I-5 South
- I-5 North to SR 57 North
- SR 57 South to I-5 South
- Grand Avenue to I-5 South
- I-5 North to Grand Avenue
- I-5 South to SR 55 South
- SR 55 North to I-5 North
- I-5 South to Barranca Parkway
- Barranca Parkway to I-5 North
- I-5 North to I-405 North
- I-405 South to I-5 South
- SR 55 South to I-405 North
- I-405 South to SR 55 North
- I-405 North to SR 55 North
- SR 55 South to I-405 South

OC BRT Freeway Corridors

High Occupancy Vehicle (HOV) Lanes

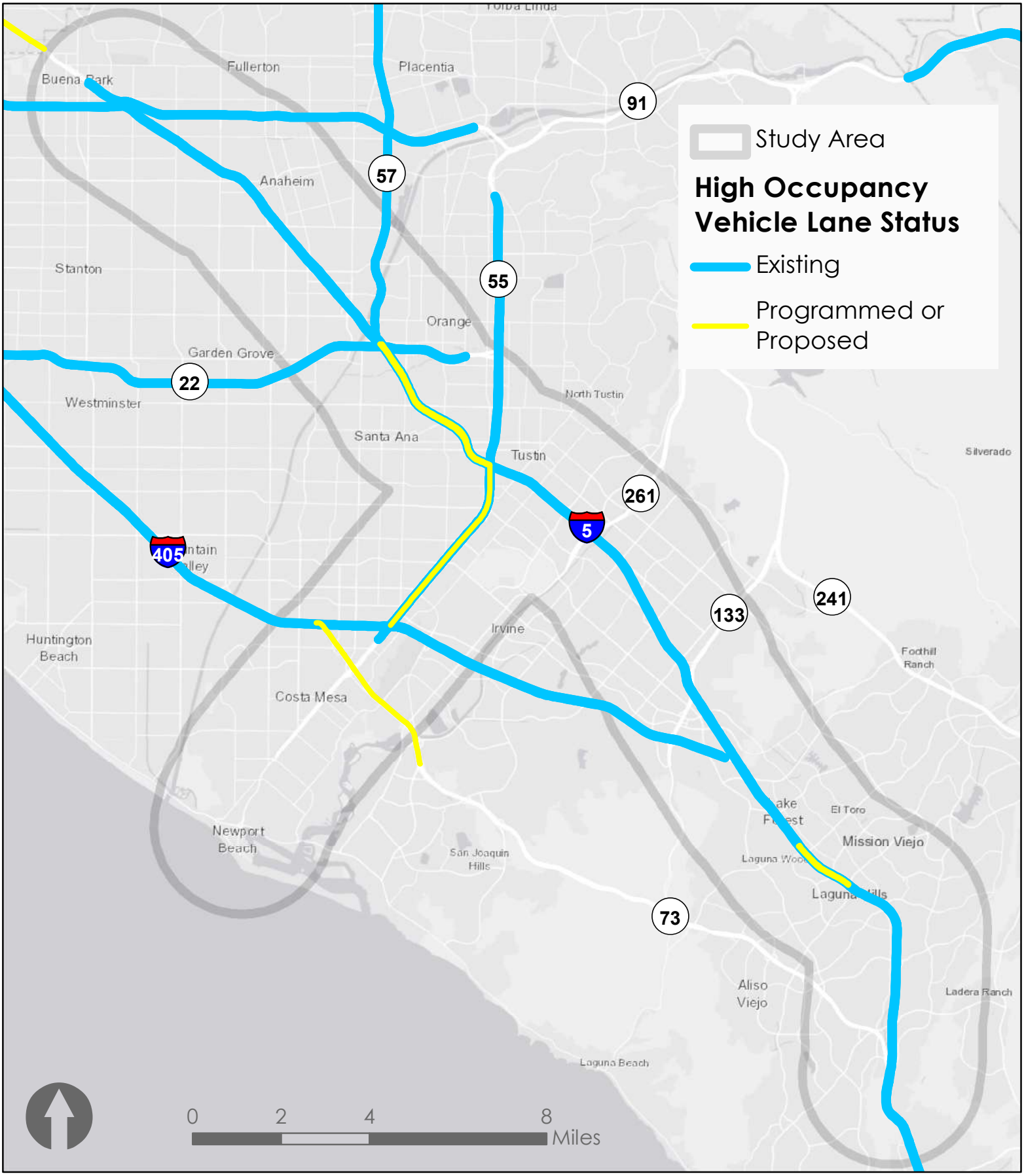


Figure 3.13

Source: OCTA, 2019

OC BRT Freeway Corridors

Regional Express Lanes

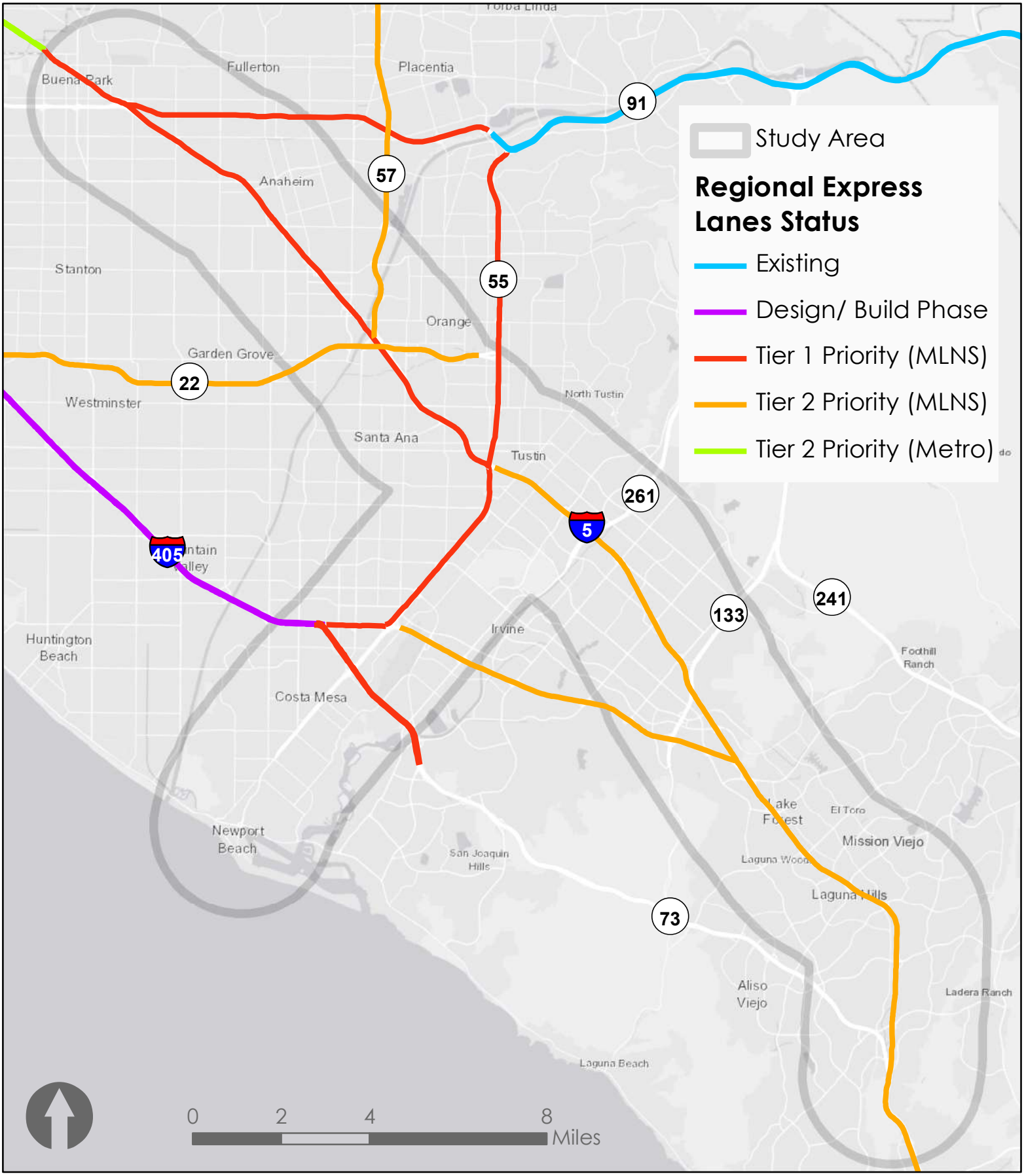


Figure 3.14

Source: OCTA, 2019

3.4.2 Existing Bus/ Shuttle Services

There are eight existing transit routes that utilize either of the two study corridors along the I-5 or SR 55 segments. One bus route, OCTA Bus Route 463, utilizes both freeways. All routes are operated by OCTA, apart from LA Metro Bus 460. The existing transit routes that use the study freeway corridors are:

- **OCTA Local Route 71:** SR 55 from 19th Street to Hospital Road
- **OCTA Local Route 76:** SR 55 from MacArthur Boulevard to I-405 South
- **OCTA Local Route 83:** I-5 from Katella Avenue to La Veta Ave and Grand Avenue to El Toro Road
- **OCTA OC Express Route 206:** I-5 from Grand Avenue to Barranca Parkway
- **OCTA OC Express Route 213:** SR 55 from Katella Avenue to I-405 South
- **OCTA Metrolink Stationlink Route 463:** I-5 from Grand Avenue to 4th Street and SR 55 from 4th Street to Edinger Avenue
- **OCTA Express Service (Weekday Rush Hour Only) Route 794:** SR 55 from SR 91 West to MacArthur Boulevard
- **Metro Express Bus 460:** I-5 from Magnolia Street to Harbor Boulevard

The existing transit routes are presented below in Table 3.3 with their origin, destination, and average daily boardings in either route direction from October 2019 to February 2020. Note that OCTA Route 76 and 794 are eastbound and westbound routes. Figure 3.15 below shows the routes of these eight bus services.

Table 3.3: Existing Study Corridor Transit Routes Average Daily Boardings

ROUTE	SERVICE	FROM	TO	NORTHBOUND AVERAGE DAILY BOARDINGS	SOUTHBOUND AVERAGE DAILY BOARDINGS	PEAK HEADWAYS
OCTA 71	Local	Yorba Linda	Newport Beach	968	940	30 Weekday 45 Weekend
OCTA 76	Local	Huntington Beach	John Wayne	165 (Eastbound)	150 (Westbound)	60 Weekday N/A Weekend
OCTA 83	Local	Anaheim	Laguna Hills	786	704	18 Weekday 35 Weekend
OCTA 206	Express	Santa Ana	Lake Forest	14	35	Variable
OCTA 213	Express	Brea	Irvine	17	19	Variable
OCTA 463	Stationlink	Santa Ana	Hutton Centre	30	37	Variable
OCTA 794	Rush Hour Express	Riverside	South Coast Metro	59 (Eastbound)	59 (Westbound)	Variable
Metro 460	Metro Express	Downtown LA	Disneyland	4,185 (Both Directions)		16 Weekday 25 Weekend

OC BRT Freeway Corridors

Bus Routes on Study Corridors

Figure 3.15

Source: OCTA/ Metro, 2019

Among all routes, OCTA Route 83 in particular follows the Interstate 5 study corridor for a majority of its route. Existing ridership and boardings on OCTA Route 83 show the importance of each stop location, which could factor into Freeway BRT routing/design if the BRT serves as a replacement to the existing Route 83 service. Tables 3.4 and 3.5 show the largest northbound and southbound stops by average daily boardings along Route 83 from October 2019 to February 2020.

Table 3.4: Greatest Average Daily Boardings by Stop along Route 83 Northbound

LARGEST NORTHBOUND ROUTE 83 STOPS BY BOARDINGS	AVERAGE DAILY BOARDINGS
Laguna Hills Trans. Center- Dock 5	183
El Toro - Paseo De Valencia	134
Main - Civic Center	67
Main - 17th	65
Main - Town & Country	29

Table 3.5: Greatest Average Daily Boardings by Stop along Route 83 Southbound

LARGEST SOUTHBOUND ROUTE 83 STOPS BY BOARDINGS	AVERAGE DAILY BOARDINGS
Harbor- East Shuttle Area	105
Katella - Harbor	68
Katella - Haster	60
Civic Center - Main	99
Santa Ana - Santiago	100

The OCTAM model forecasts bus ridership from 2016 and 2045 for no-build scenarios. Table 3.6 below shows modeled boardings from 2016, 2045 and the change in projected ridership.

Table 3.6: Modeled Daily Ridership for 2016 and 2045

ROUTE	SERVICE	FROM	TO	2016 DAILY RIDERSHIP	2045 DAILY RIDERSHIP	GROWTH IN RIDERSHIP
OCTA 71	Local	Yorba Linda	Newport Beach	3,631	3,900	7.4%
OCTA 76	Local	Huntington Beach	John Wayne	254	263	3.5%
OCTA 83	Local	Anaheim	Laguna Hills	1,699	1,762	3.7%
OCTA 206	Express	Santa Ana	Lake Forest	178	126	-29.2%
OCTA 213	Express	Brea	Irvine	166	97	-41.6%
OCTA 463	Stationlink	Santa Ana	Hutton Centre	245	204	-16.8%
OCTA 794	Rush Hour Express	Riverside	South Coast Metro	82	41	-50%

In addition to studying routes that utilize the study corridors, it is important to analyze bus routes that intersect freeway corridors as well. Bus routes that intersect Interstate 5 and State Route 55 have a high potential for transfer opportunities, especially for routes with high ridership. High-ridership bus routes may have the ability to serve as a local bus transfer point to BRT where the bus route intersects the study freeway corridors. Identifying these intersecting locations can factor into determining potential catchment areas and station siting, whether it be in-line or off-line. Table 3.7 below shows the top performing OCTA routes by average monthly ridership from October 2019 to February 2020, as well as the intersecting location along the study corridor.

Table 3.7: High-Ridership Routes which Intersect Study Corridors

OCTA ROUTE	FROM	TO	AVERAGE DAILY RIDERSHIP	STUDY CORRIDOR INTERSECTION
OCTA 57	Brea	Newport Beach	3,176	I-5 at State College Blvd; SR 55 at Bristol St
OCTA 64	Huntington Beach	Tustin	2,196	I-5 at 1st St
OCTA 43	Fullerton	Costa Mesa	2,184	I-5 at Harbor; SR 55 at 19th St and 18th St
OCTA 66	Huntington Beach	Irvine	2,144	I-5 at Newport Ave; SR 55 at McFadden Ave
OCTA 47	Fullerton	Newport Beach	2,135	I-5 at Anaheim Blvd
OCTA 53	Orange	Irvine	2,111	I-5 at Main St
OCTA 60	Long Beach	Tustin	1,970	I-5 at 17th St
OCTA 42	Seal Beach	Orange	1,612	I-5 at Lincoln Ave
OCTA 55	Santa Ana	Newport Beach	1,342	SR 55 at 17th St
OCTA 50	Long Beach	Orange	1,316	I-5 at Katella Ave
OCTA 54	Garden Grove	Orange	1,268	I-5 at Chapman Ave
OCTA 37	La Habra	Fountain Valley	1,149	I-5 at Euclid St
OCTA 38	Lakewood	Anaheim Hills	1,054	I-5 at La Palma Ave

In addition to local fixed routes, the OC Flex, an on-demand, curb-to-curb shuttle service was launched in October 2018 to better match public-transit services with the changing ways that passengers want to travel. The program allows passengers to request a ride on-demand though a mobile app via shuttles. The pilot program kicked off with two individual zones, one in Huntington Beach/ Westminster, and the other within parts of Aliso Viejo, Laguna Niguel, and Mission Viejo. In March 2020, service in the Huntington Beach/ Westminster zone was suspended due to

significantly low ridership. The one remaining active OC Flex zone in south Orange County provides service to the Laguna Nigel/ Mission Viejo Metrolink station.

The OC Flex service operates seven days a week from 6:00 AM to 9:00 PM on weekdays and from 9:00 AM to 9:00 PM on weekends. Rides are $4.50 for unlimited all-day service. Prices are reduced by 50% of greater when riding in a group. There have been over 12,000 boardings in its first six months of operation. More than 23% of the rides are shared, and nearly 30% of riders transfer to or from an OC Bus or Metrolink train.

3.4.3 Existing Metrolink Service

Within the study area, defined as a two-mile buffer on either side of the two study corridors, there are seven Metrolink stations. Three Metrolink lines operate in the study area, including

- Orange County Line (OC)
- Inland Empire – OC Line (IE-OC)
- SR 91/ Perris Valley Line (91/PV)

The seven Metrolink stations are:

- Buena Park (OC; 91/PV)
- Anaheim (OC)
- Orange (OC; IE-OC)
- Santa Ana (OC; IE-OC)
- Tustin (OC; IE-OC)
- Irvine (OC; IE-OC)
- Laguna Niguel/ Mission Viejo (OC; IE-OC)

Two Metrolink Stations are located outside of the study area, including:

- Fullerton (OC; 91/PV)
- Anaheim Canyon (IE-OC)

3.4.4 Existing Park and Ride Facilities

Within the study area, there are six park and ride locations. Five park and rides are located along Interstate 5 south of State Route 55. One park and ride is located along Interstate 5 north of State Route 55, and one park and ride is found along State Route 55. The park and ride locations are:

- Fullerton Park and Ride (800 parking spaces)
- South Coast Plaza Park and Ride (30 spaces)
- Jeffrey Park and Ride (581 spaces)
- Alicia (William S. Craycraft Park) Park and Ride (38 spaces)
- Laguna Hills Transportation Center (175 spaces)
- San Juan Capistrano (Junipero Serra) – North Park and Ride (35 spaces)

The locations of all park and rides in the vicinity are also found in Figure 3.16.

OC BRT Freeway Corridors

Existing Metrolink, Park & Rides, and Ramps

Figure 3.16

Source: OCTA, 2019

3.5 Catchment Areas

Catchment areas are specific areas along Interstate 5 and State Route 55 that would best suit BRT stations to serve as many potential BRT riders as possible. Catchment areas typically have high density population or employment, and often utilize existing transit infrastructure where possible.

From the data collected through existing conditions, a preliminary list is presented below which documents potential BRT stations based upon catchment areas along Interstate 5 and State Route 55. For Interstate 5, these include:

1. Fullerton Park and Ride
2. Disneyland/ Harbor Boulevard
3. State College Boulevard (In-line)
4. Anaheim Boulevard (In-line)
5. Santa Ana Regional Transportation Center (SARTC)
6. 1st Street (In-line)
7. Newport Avenue (In-line)
8. Jeffrey Park and Ride
9. Irvine Spectrum Center
10. Laguna Hills Transportation Center (LHTC)
11. Laguna Niguel/ Mission Viejo Metrolink Station

For State Route 55, these include:

1. Santa Ana Regional Transportation Center (SARTC)
2. McFadden Avenue (In-line)
3. Irvine Business Complex
4. John Wayne Airport
5. South Coast Plaza
6. Bristol Street (In-line)
7. 17th Street in Costa Mesa
8. Hoag Hospital/ Newport Beach

Table 3.8 below provides a breakdown of each catchment area. Distance from the Study Corridors was measured from the off-ramp to the most logical bus dock location. Catchment areas are determined based upon a number of existing conditions, including AM and PM peak level of service of study freeway segments, high-ridership freeway-intersecting bus routes, and catchment area residential and employment density. A catchment analysis showcasing the origins and destinations of workers and residents along the study corridors was conducted as part of this review. The analysis can be found in Appendix A.

Table 3.8: Potential BRT Station/Stop Locations

NAME	EXISTING TRANSIT STATUS	DISTANCE FROM STUDY CORRIDORS	BUS DOCKS	CONNECTING ROUTES
Fullerton Park and Ride	Park and Ride	2,000 feet	14 docks	OCTA 25, 26, 30, 33, 35, 529, 721; Metro 460
Disneyland/ Harbor Boulevard	Local Bus Stops	3,000 feet	N/A	OCTA 43, 46, 50, 83, 543; Metro 460; Riverside Transit Agency (RTA) 200; Anaheim Resort Transportation (ART) All lines
I-5 at State College Blvd	None	In-line	N/A	OCTA 57
I-5 at Anaheim Blvd	None	In-line	N/A	OCTA 47
SARTC	Transportation Center	2,500 feet	10 docks	OCTA 59, 83, 206, 463, 560, 862; Metrolink; Amtrak; Greyhound
I-5 at 1st St	None	In-line	N/A	OCTA 64
I-5 at Newport Ave	None	In-line	N/A	OCTA 66
Jeffrey Park and Ride	Park and Ride	1,000 feet	220 feet of loading	OCTA 167
Irvine Spectrum Center	Local Bus Stops	2,000 feet	N/A	OCTA 86, 90
LHTC	Transportation Center	1.1 miles	12 docks	OCTA 83, 87, 89, 91, 177
Laguna Hills/ Mission Viejo Metrolink Station	Metrolink Station	4,000 feet	260 feet of loading	OC Flex, OCTA 85, 91
SR 55 at McFadden Ave	None	In-line	N/A	OCTA 66
Irvine Business Complex	Local Bus Stops	1.2 miles	N/A	OCTA 53, 55, 794
John Wayne Airport	Local Bus Stops	May vary	N/A	OCTA 53, 55, 794
South Coast Plaza	Local Bus Stops	2.2 miles minimum	N/A	OCTA 55, 57, 86, 150, 463, 794
SR 55 at Bristol St	None	In-line	N/A	OCTA 57
17th Street	Local Bus Stops	Adjacent/ at-grade	N/A	OCTA 55
Hoag Hospital/ Newport Beach	Local Bus Stops	800 feet	N/A	OCTA 47, 71

3.6 2045 No Build Scenarios

3.6.1 Projected Demographics

Establishing the 2045 no build demographics of the study corridors allows for informed decision-making when looking at Freeway BRT alternatives that reach the greatest concentration of residents and employees as possible in the future. Four demographic characteristics were chosen that may play a significant role in shaping the future of Freeway BRT along the two study corridors:

- Total Population
- Total Employment
- Occupied Dwelling Units
- Median Household Income

The demographic data is presented by Transportation Analysis Zone (TAZ) for the baseline year 2045. Data is sourced from the Orange County Council of Governments (OCCOG) and approved by the OCCOG board in 2018. Projected data in this dataset begins in year 2020 and is shown every 5-year period through year 2050. These demographic characteristics can be compared to data presented for year 2016 in Section 3.1.

Total population shows where residents live in the study area. The 2045 total population in the study area is projected to be 1,613,710, up almost 189,000 from 2016. Population is concentrated in west Anaheim (south of SR 91 and north of I-5), central Santa Ana, Westside Costa Mesa, Irvine north of the I-5 (between SR 261 and SR 133), and a few places in the South Laguna Hills area. There is a lack of residential population south of Ball Road (between Disneyland and Batavia Street), east Santa Ana south of the I-5, the Irvine Business Complex, and the Greater Orange County Great Park Area. Figure 3.17 shows total population in the study area. Figure 3.18 shows the change in total population between 2016 and 2045 per TAZ.

Total employment shows where jobs are located within the study area. The total employment in the study is projected to be 1,104,086, up over 169,000 from 2016. Employment is typically spread throughout the study area but is most concentrated in select areas in and around the Platinum Triangle, off 17th Street in Tustin, South Coast Metro, the Irvine Business Complex, and a few areas around the Irvine Spectrum area. There is a lack of employment in the Greater Orange County Great Park Area and in Eastside Costa Mesa. Figure 3.19 shows total employment in the study area. Figure 3.20 shows the change in total employment between 2016 and 2045 per TAZ.

Occupied dwelling units shows not only where residents are located but can also provide context of density of a populated area. The total number of dwelling units in the study area is projected to be 517,012, up over 74,000 from 2016. Similar to population, there are a higher number of occupied dwelling units per TAZ in west Anaheim, select locations near the I-5/ SR 22/ SR 57 interchange, around SR 261 and SR 133 in Irvine, Westside Costa Mesa, east Laguna Woods, and north of the Laguna Niguel / Aliso Viejo Metrolink Station. Figure 3.21 shows the occupied dwelling units in the study area. Figure 3.22 shows the change in occupied dwelling units between 2016 and 2045 per TAZ.

Median Household Income is a metric that is can be useful to determine areas of captive and choice ridership. Some data per TAZ was unavailable, mainly due to that some TAZs do not have a residential population. Among the 593 TAZ's with data, the median household income ranged from just under $18,000 to just under $190,000. The average qualifying TAZ median household income is nearly $82,000, only slightly higher than 2016. Low-income areas in the study area are in-most part north of the SR 22, and west of the SR 55 excluding the South Coast Metro area. High-income areas in the study area are south of the Lake Forest, and in Eastside Costa Mesa and Newport Beach. Figure 3.23 shows the median household income in the study area. Figure 3.24 shows the change in median household income between 2016 and 2045 per TAZ.

OC BRT Freeway Corridors

Total Population (2045)

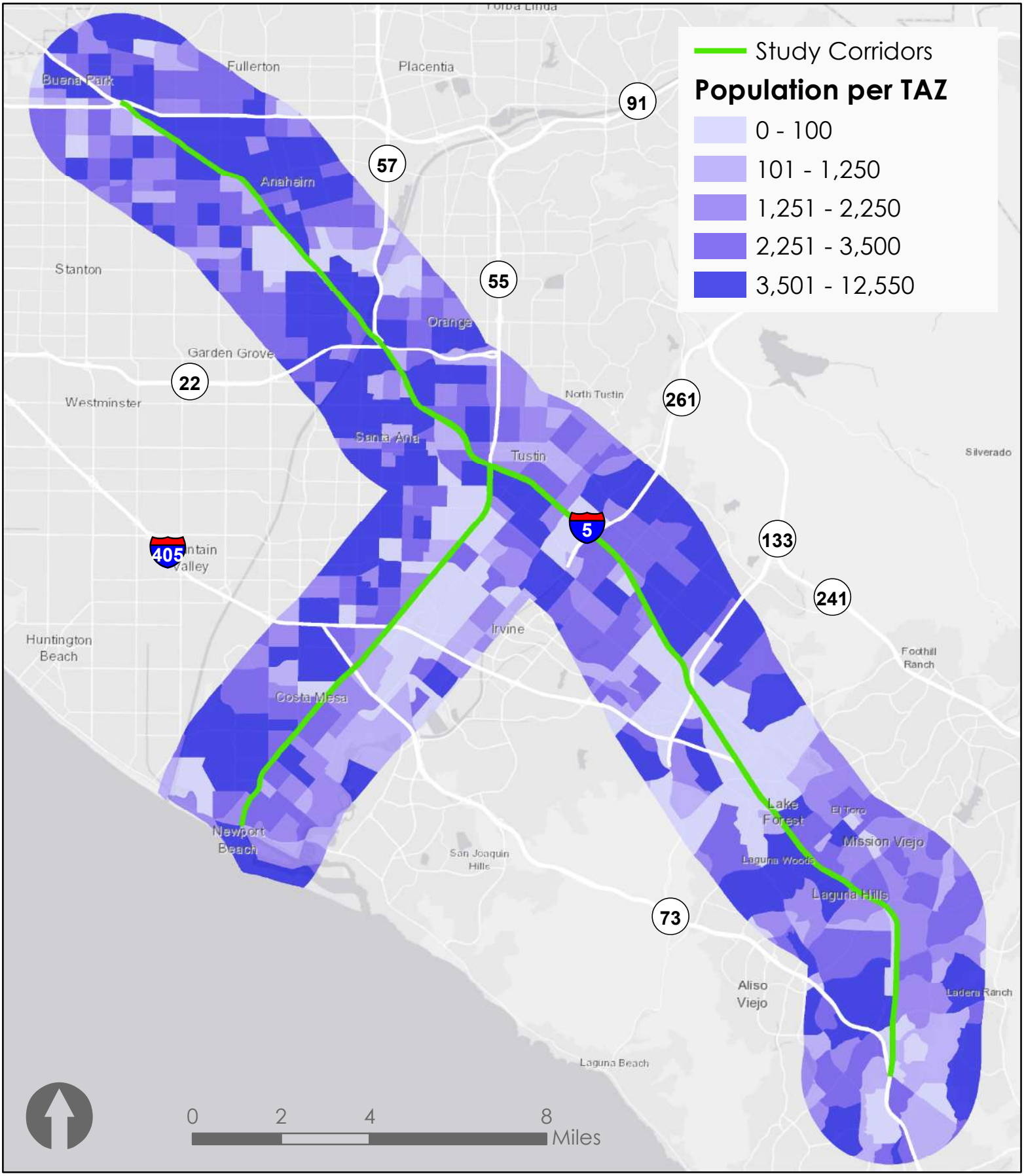


Figure 3.17

Source: Orange County Council of Governments: Orange County Projections - 2018

OC BRT Freeway Corridors

Total Population Growth (2016 - 2045)

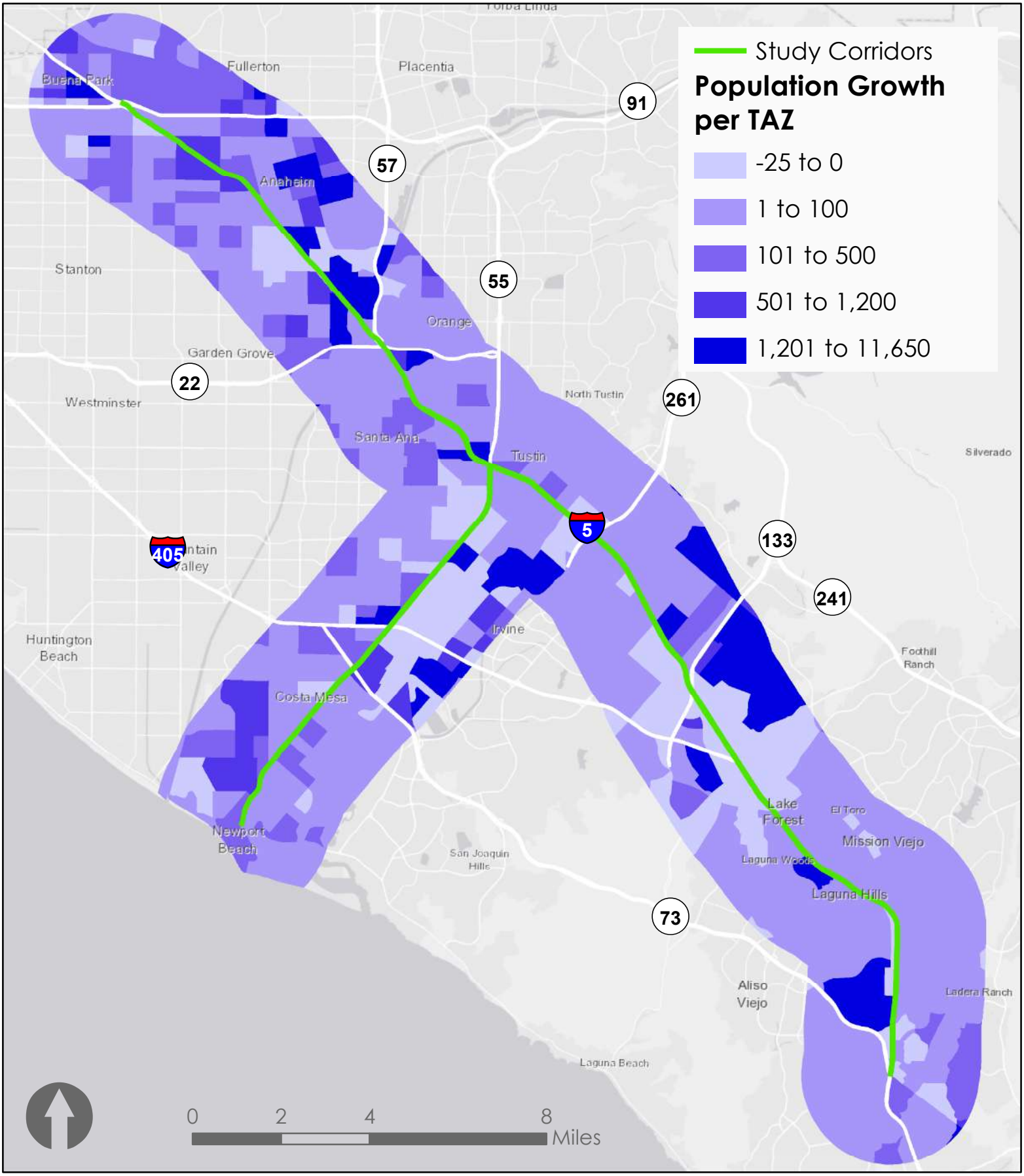


Figure 3.18

Source: Orange County Council of Governments: Orange County Projections - 2018

OC BRT Freeway Corridors

Total Employment (2045)

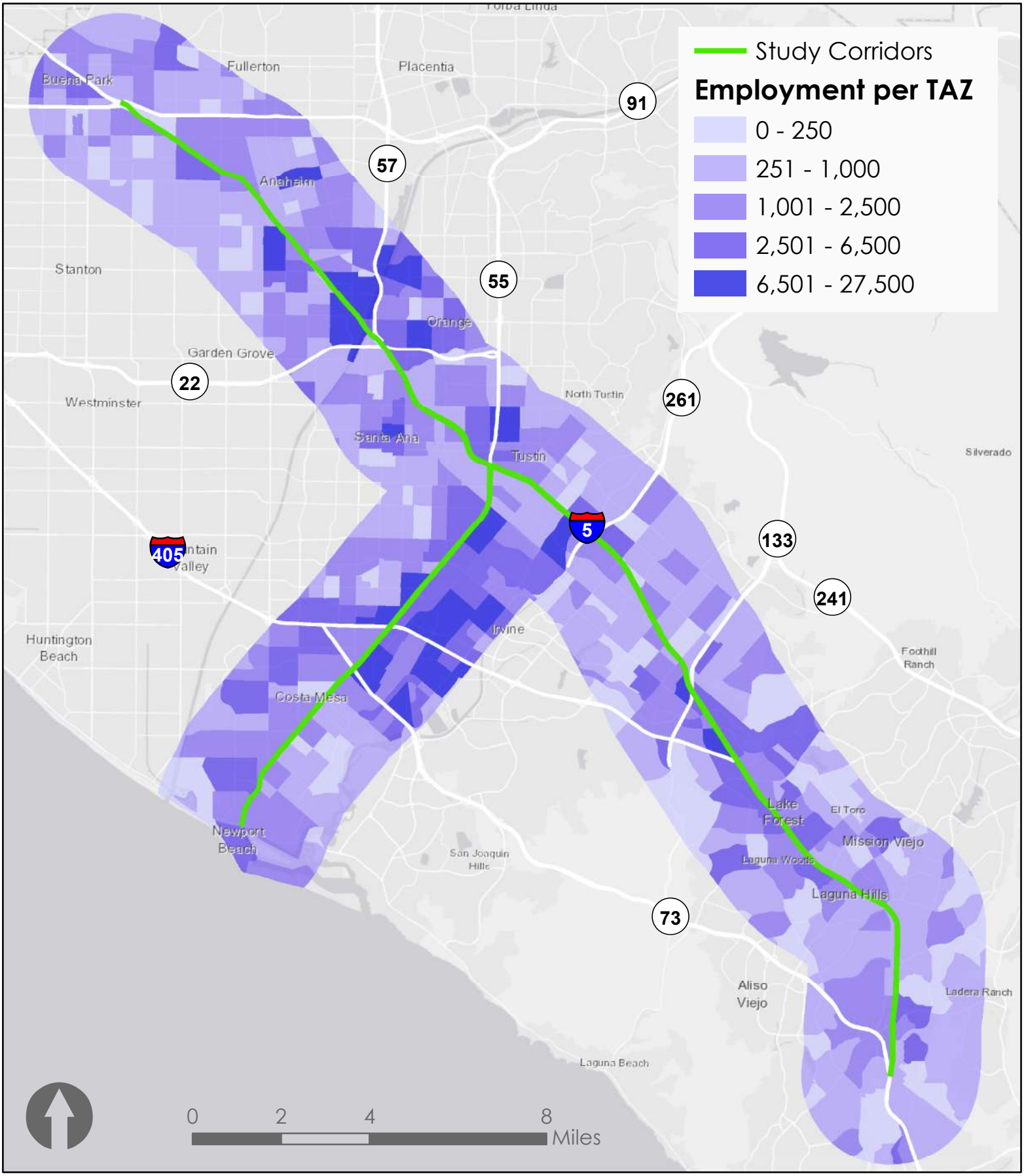


Figure 3.19

Source: Orange County Council of Governments: Orange County Projections - 2018

OC BRT Freeway Corridors

Total Employment Growth (2016 - 2045)

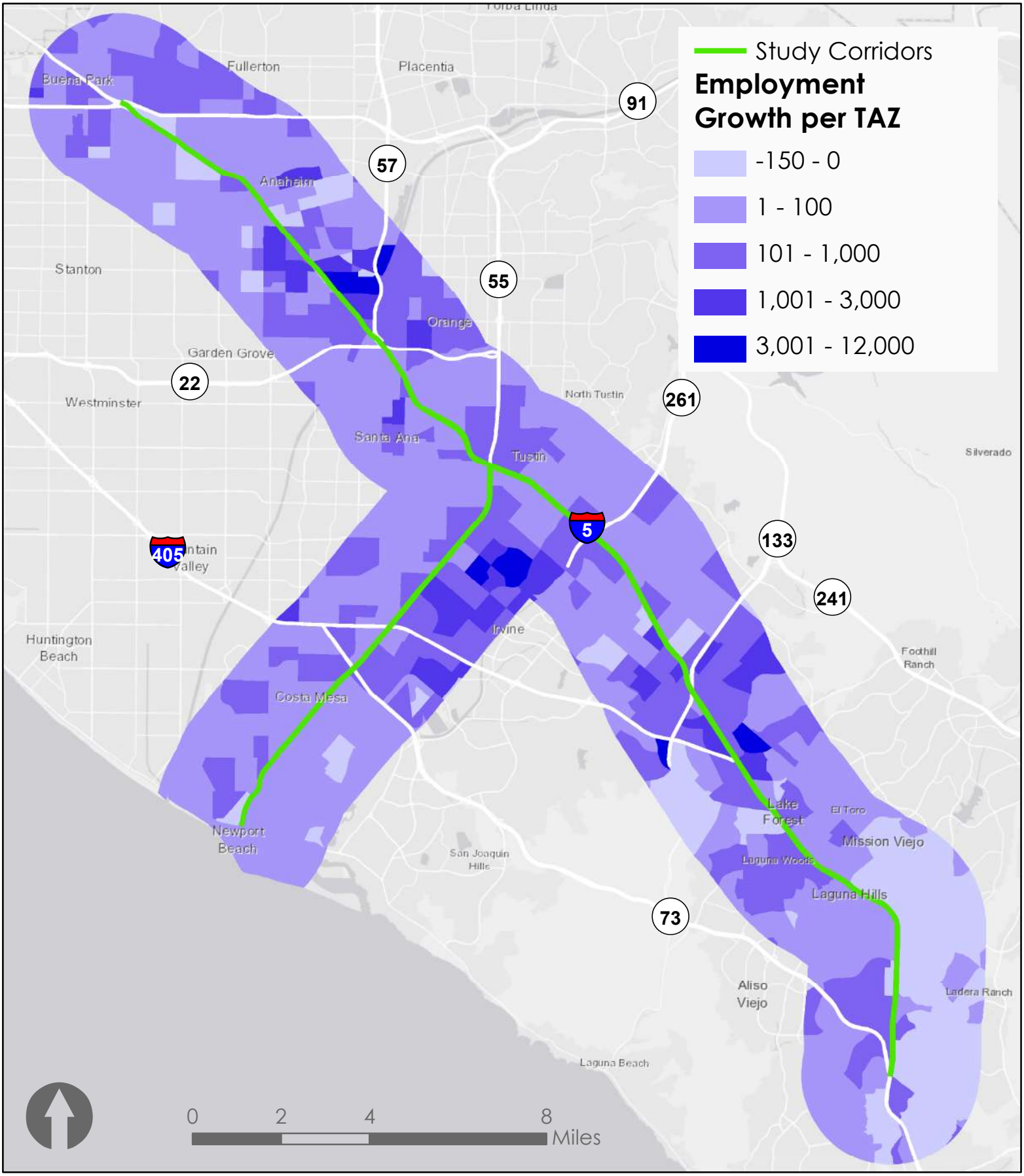


Figure 3.20

Source: Orange County Council of Governments: Orange County Projections - 2018

OC BRT Freeway Corridors

Occupied Dwelling Units (2045)

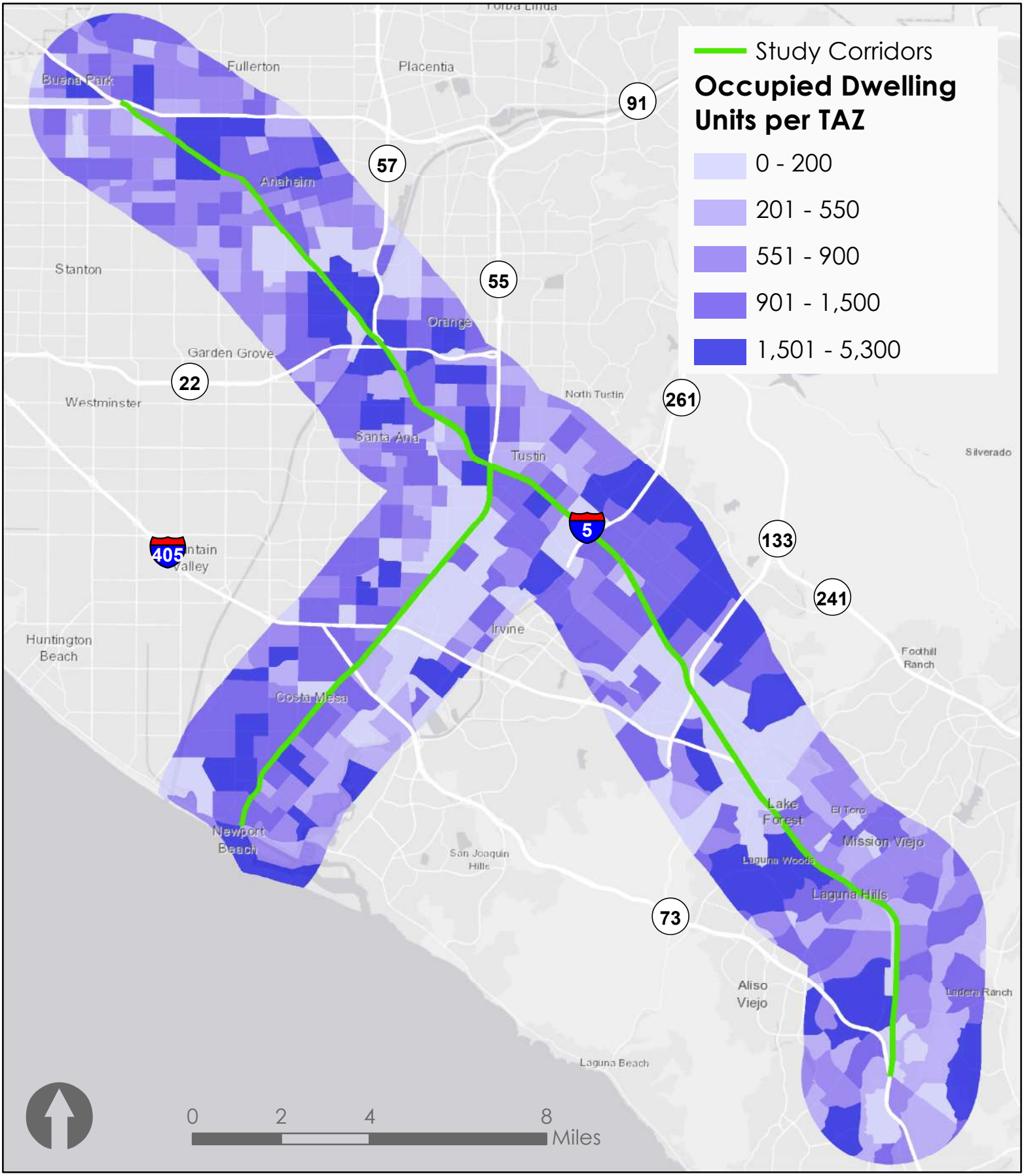


Figure 3.21

Source: Orange County Council of Governments: Orange County Projections - 2018

OC BRT Freeway Corridors

Occupied Dwelling Unit Growth (2016 - 2045)

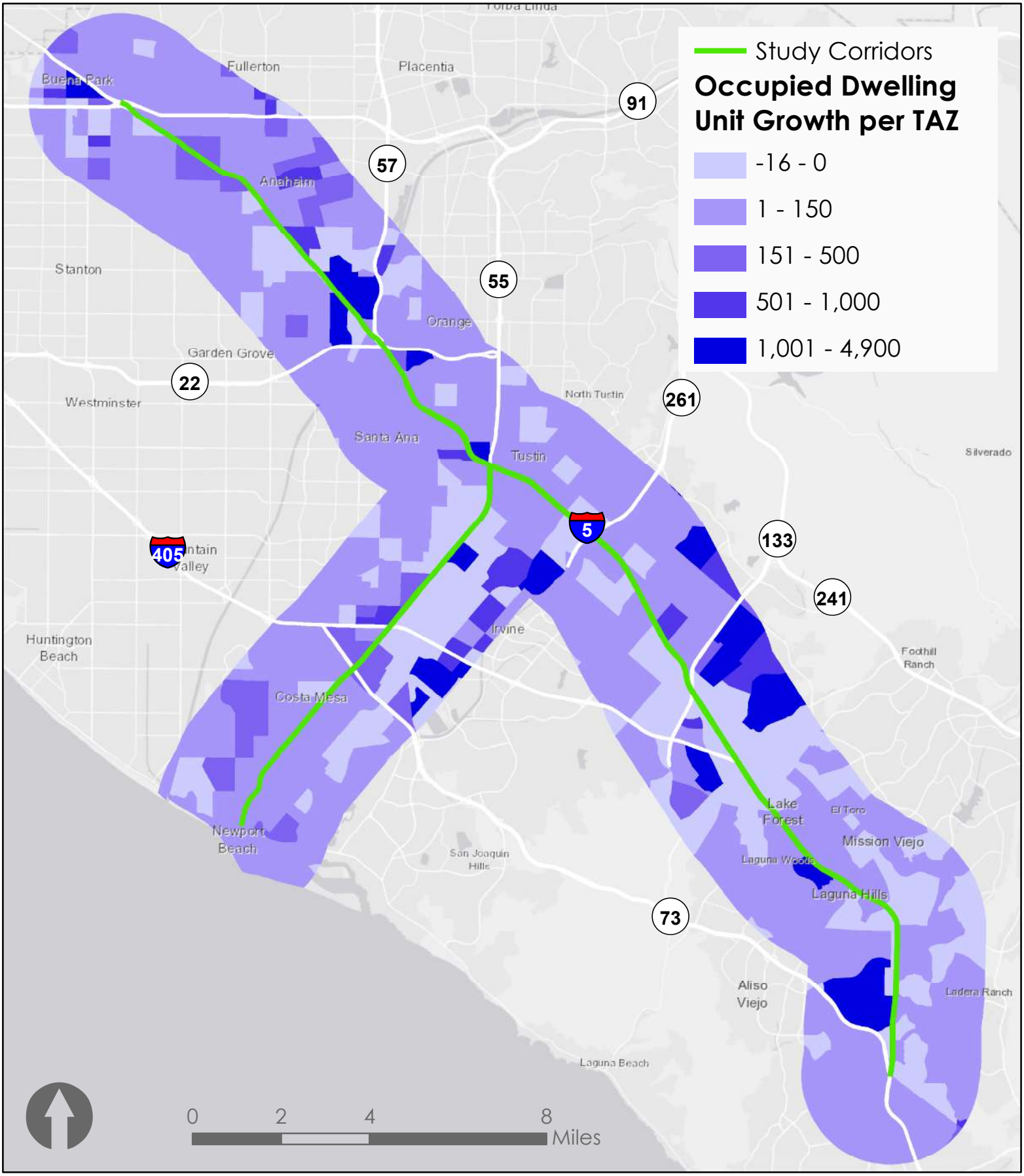


Figure 3.22

Source: Orange County Council of Governments: Orange County Projections - 2018

OC BRT Freeway Corridors

Median Household Income (2045)

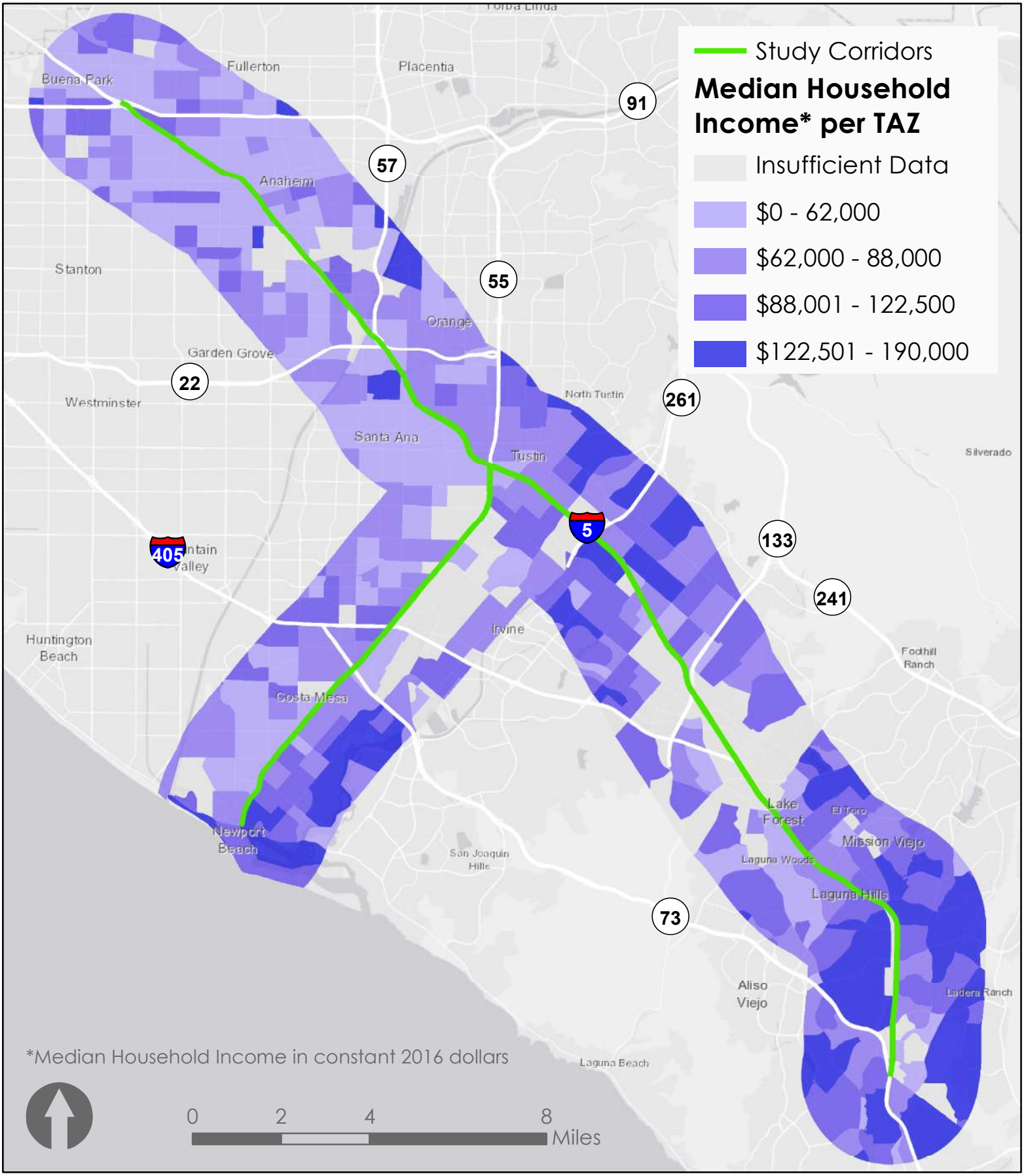


Figure 3.23

Source: Orange County Council of Governments: Orange County Projections - 2018

OC BRT Freeway Corridors

Median Household Income Growth (2016 - 2045)

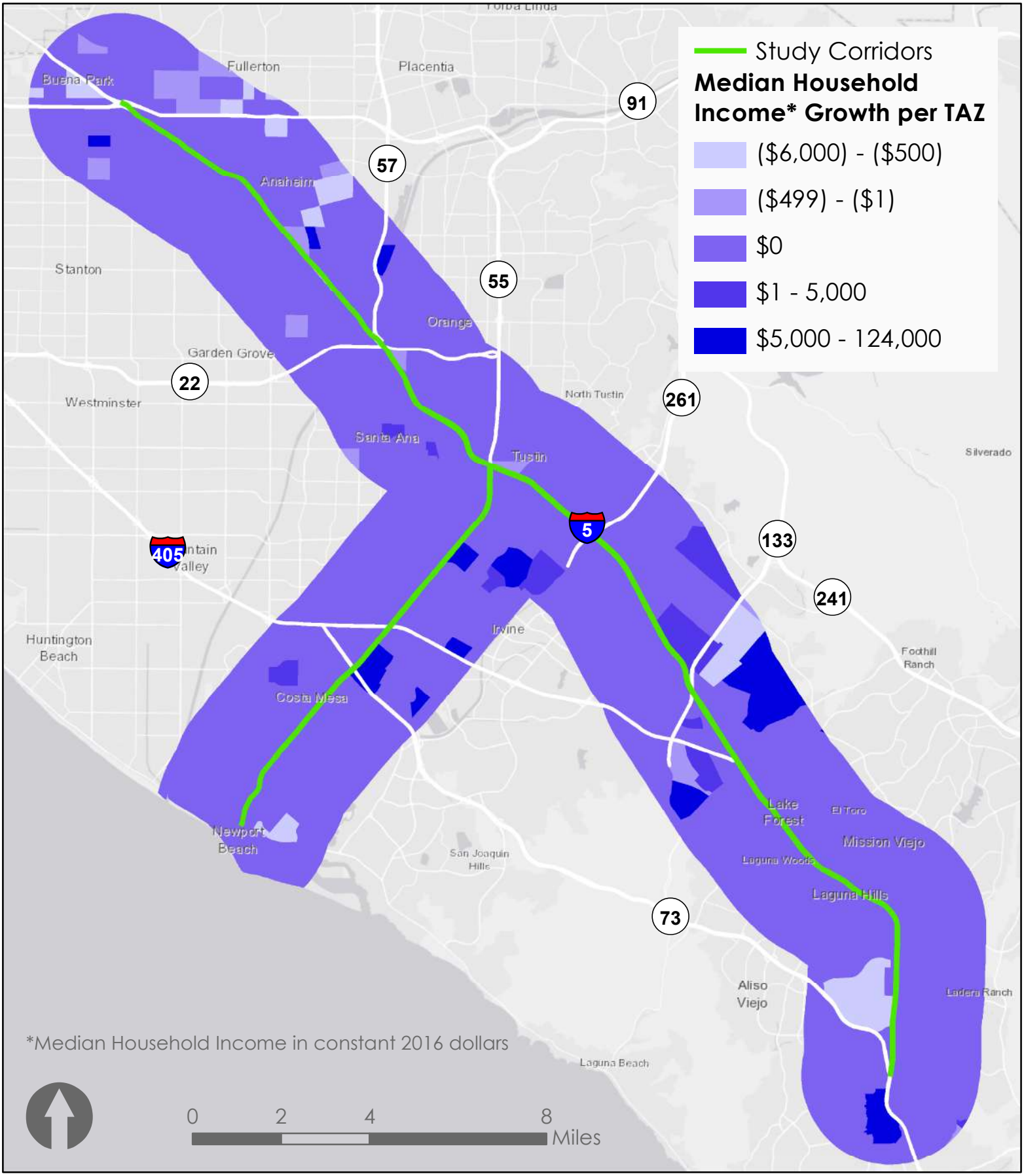


Figure 3.24

Source: Orange County Council of Governments: Orange County Projections - 2018

3.6.2 Projected Travel Conditions

Baseline 2045 travel conditions are crucial for determining what the future of traffic will be within the study area. The 2045 baseline travel conditions were modeled though OCTAM similarly to the existing travel conditions found in Section 3.3. Although California stay-at-home orders due to COVID-19 will alter travel demand within the County in ways that the model cannot predict, the modeling data will still be useful in informing these projections. Data analyzed in this section can be compared directly to 2016 travel conditions data in Section 3.3 as data reflected in Table 3.9 and 3.10 shows the percent of change from the modeled travel conditions for 2016 to 2045. Figure 3.12 in Section 3.3 shows the two study areas for both OCTAM models.

In general, daily freeway VMT will increase from 2016 to 2045 by approximately 10%. Within the entire study area, including arterial, collector, and local streets, daily VMT is modeled to increase by 11% for the SR 55 study area and 14% for the I-5 study area. AM VMT and PM VMT also are projected to rise approximately 13% in both study areas.

Congested vehicle hours traveled (CVHT) also will steadily rise within both study areas. In the SR 55 study area, daily, AM, and PM CVHT will rise by over approximately 9% on the freeway and 10% in total. For the I-5 study area, daily, AM, and PM CVHT will increase by about 11% on the freeway and up to 17% in total.

The projected increase in daily vehicle hours of congestion delay (VHCD) is similar to daily CVHT in both study areas. However, AM VHCD appears to have a more significant increase compared to PM VHCD for both study areas. SR 55 AM VHCD is modeled to show a 7% rise though 2045, compared to 4% PM VHCD growth. Similarly, I-5 AM VHCD will rise 23% compared to a slower growth rate of 18% PM VHCD.

For freeway corridors only, VMT, CVHT, and VHCD are projected to rise by approximately 9% to 11% from 2016 to 2045 in both study areas. Comparatively, the next few decades will see an increase of traffic on six+ divided lanes in the study area, as VMT, CVHT, and VHCD will rise by over 30% in the SR 55 study area and about 20% in the I-5 study area. The model projects a significant rise in VMT, CVHT, and VHCD on Smart Streets and Expressways. Daily VMT on Smart Streets alone will grow by 86% in the SR 55 area, and 265% in the I-5 area.

Despite the projection of significant travel conditions in the area, the model predicts a significant decrease of traffic on four lane divided roads, two lane divided roads, and two lane undivided roads. For instance, daily VMT on two-lane divided roads are projected to drop 39% in the SR 55 study area and 41% in the I-5 study area.

The OCTAM model predicts the inclusion of new toll facilities and high-occupancy toll lanes in the SR 55 area. By 2045, there will be over 10,000 daily vehicle miles traveled on new toll facilities in the SR 55, and almost 800 daily congested vehicle hours traveled. In addition, the new projected HOT facilities on the SR 55 are projected to have over 92,000 daily VMT and 4,500 daily CVHT. The OCTAM model projects a 21% increase in toll facility daily VMT, but does not project an HOT facility by 2045.

See Table 3.9 and Table 3.10 below for the projected percentage growth in the SR 55 and I-5 study areas from 2016 to 2045.

Table 3.9: State Route 55 Study Area Travel Conditions (2016-2045)

	Daily VMT	AM VMT	PM VMT	Daily CVHT	AM CVHT	PM CVHT	DAILY VHCD	AM VHCD	PM VHCD
Freeway	9%	8%	8%	9%	9%	8%	9%	11%	9%
Six+ Lane Divided	37%	39%	37%	35%	36%	34%	31%	26%	20%
Four Lane Divided	-22%	-22%	-22%	-25%	-25%	-25%	-35%	-44%	-47%
Four Lane Undivided	94%	95%	96%	98%	103%	105%	103%	124%	159%
Two Lane Divided	-39%	-39%	-39%	-43%	-43%	-43%	-43%	-45%	-46%
Two Lane Undivided	-42%	-41%	-39%	-44%	-45%	-44%	-51%	-58%	-65%
Smart Street/Expressway	86%	94%	86%	84%	104%	100%	53%	82%	88%
HOV Facility	10%	14%	8%	-2%	2%	-6%	-7%	-27%	-41%
Ramp	9%	10%	11%	15%	19%	18%	18%	27%	26%
Toll Facility[2]	10,210	5,146	5,048	797	152	164	570	38	52
Centroid	8%	9%	8%	8%	9%	8%	9%	0%	0%
Connector	0	0	0	0	0	0	0	0	0
HOT[3]	92,651	35,425	52,947	4,572	648	1,048	3,147	103	234
Total	**11%**	**13%**	**12%**	**10%**	**11%**	**10%**	**10%**	**7%**	**4%**

Table 3.10: Interstate 5 Study Area Travel Conditions Growth (2016-2045)

	DAILY VMT	AM VMT	PM VMT	DAILY CVHT	AM CVHT	PM CVHT	DAILY VHCD	AM VHCD	PM VHCD
Freeway	10%	9%	10%	11%	11%	10%	11%	13%	10%
Six+ Lane Divided	16%	15%	14%	18%	19%	17%	27%	52%	46%
Four Lane Divided	-2%	1%	0%	0%	2%	0%	3%	7%	1%
Four Lane Undivided	48%	47%	50%	44%	45%	46%	41%	53%	38%
Two Lane Divided	-41%	-43%	-40%	-39%	-43%	-40%	-36%	-54%	-52%
Two Lane Undivided	-31%	-27%	-30%	-31%	-28%	-31%	-33%	-36%	-42%
Smart Street/Expressway	265%	292%	293%	275%	318%	313%	265%	344%	317%
HOV Facility	26%	20%	19%	27%	27%	22%	27%	44%	27%
Ramp	12%	10%	10%	17%	18%	16%	19%	26%	23%
Toll Facility	21%	15%	17%	28%	27%	24%	32%	219%	441%
Centroid	14%	15%	15%	14%	15%	14%	15%	0	0
Connector	0	0	0	0	0	0	0	0	0
HOT	0	0	0	0	0	0	0	0	0
Total	**14%**	**14%**	**14%**	**15%**	**17%**	**15%**	**15%**	**23%**	**18%**

[2] Toll facilities in Table 2.14 are shown with raw numbers, as opposed to percentage change, because 2016 modeled data did not include a toll facility and therefore could not accurately depict growth.
[3] HOT in Table 2.14, are shown with raw numbers, as opposed to percentage change, because 2016 modeled data did not include an HOV facility, and therefore could not accurately depict growth.

4 Freeway BRT Peer Review

4.1 MTS Rapid on SR 15/I-15 in San Diego

The Metropolitan Transit System (MTS) has operated BRT service called Rapid on the I-15 Express Lanes since 2014. A key component of this Rapid service is the use of integrated freeway median stations and direct access ramps (DARs), as well as transit signal priority and dedicated transit-only lanes, to provide high-frequency, limited-stop service with increased travel time reliability. Rapid operates at frequencies of up to every 10 minutes during weekday rush hours, every 15 minutes during most non-rush hours, and every 30 minutes on weekends.

The State of California built the portion of the SR 15 between I-8 and I-805 in the late 1990's. The San Diego Regional Plan called for HOV in the SR 15 median. Caltrans looked at having both BRT or trolley service and HOV together. Caltrans established a working group with SANDAG and community officials at the city and state levels, transit operators, MTS and CHP, in an effort to identify alternatives. Caltrans concluded there was not enough physical room for both BRT and HOV, and BRT was decided as preferred interim alternative until the conversion to a light-rail service. At the time, there was no funding for the median BRT. When SANDAG extended the TransNet measure, funding became available. Centerline BRT was listed as an early action project.

The Rapid service was inspired by BRT in Los Angeles and Houston. The MTS Rapid network consists of eight rapid lines, three of which utilize the I-15 Express Lanes. Current routes that utilize the I-15 Express Lanes include Rapid Express 280, Rapid Express 290, and Rapid 235. Rapid Express differs from Rapid as all Rapid Express Routes are weekday, peak-hour service traveling south in the morning and north in the evening via the I-15 and SR 163. Rapid Express 280 and 290 share a similar route and each have 6 stops, however Rapid Express 280 originates in Escondido, while Rapid Express 290 originates in Rancho Bernardo/ Sabre Springs. Both Rapid Express Routes have the same four morning-destination/ evening-origin stop locations in Downtown San Diego.

The Rapid 235 Route is a 35-mile long Freeway BRT service which operates all-day on the I-15 Express Lanes and SR 15 corridor. The 235 route utilizes all four direct access ramp stations (DARS) on the I-15 from Miramar to Del Lago, and both centerline stations on SR 15 at El Cajon Boulevard and University Avenue.

The cost to construct the 20 miles of I-15 Express Lanes, in addition to enacting BRT service, was estimated at $1.4 billion. BRT service alone was $276 million, via TransNet.

Figure 4.1 shows the entire MTS Rapid network. Table 4.1 shows all the stops and stations for the three I-15 Rapid or Rapid Express Routes.

Figure 4.1: MTS Rapid Network

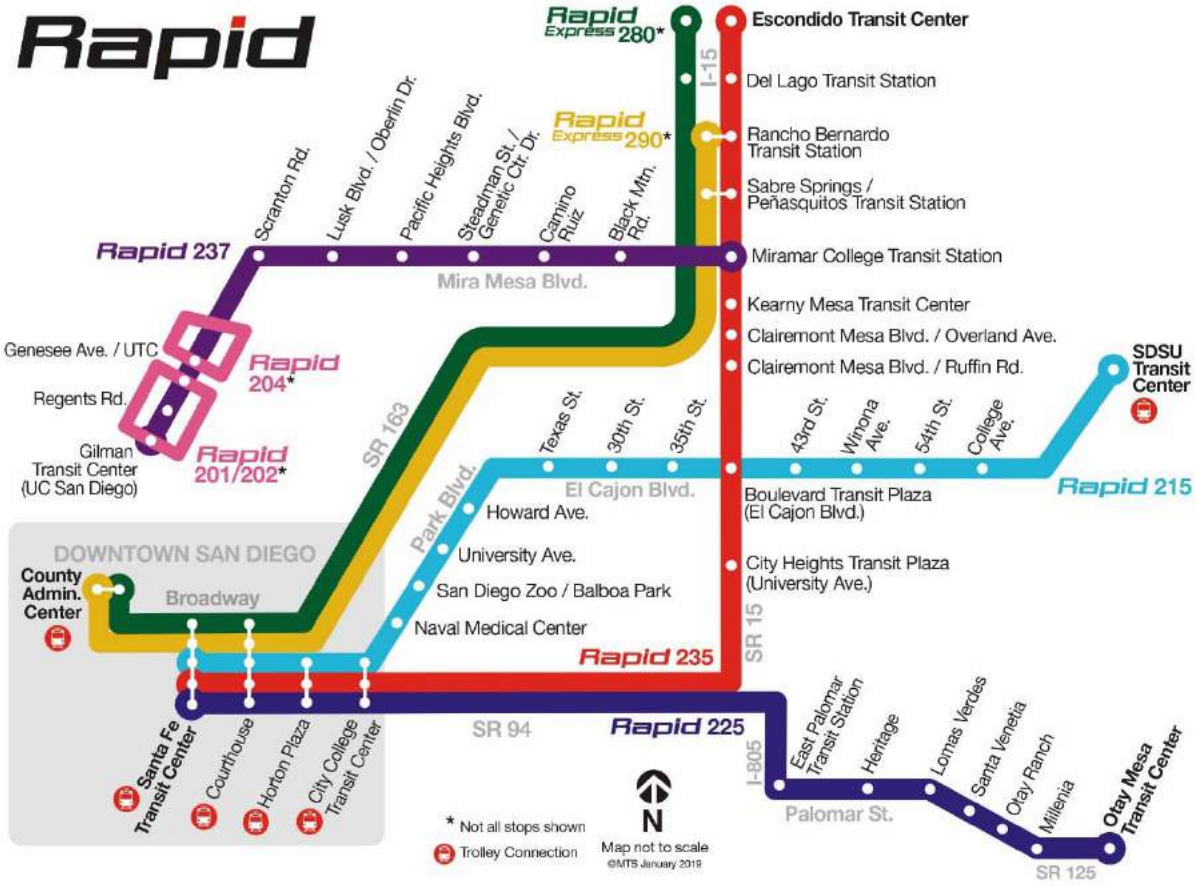


Table 4.1: MTS I-15 Rapid Stations and Stops

Location	Name	Type	Rapid Express 280	Rapid Express 290	Rapid 235	Parking Spaces
Escondido	Escondido Transit Center	Station	Yes	No	Yes	583
	Del Lago Transit Station	Direct Access Ramp Station	Yes	No	Yes	146
Rancho Bernardo	Rancho Bernardo Transit Station	Direct Access Ramp Station	No	Yes	Yes	190
Sabre Springs	Sabre Springs/ Peñasquitos Transit Station	Direct Access Ramp Station	No	Yes	Yes	630
Mira Mesa	Miramar College Transit Station	Direct Access Ramp Station	No	No	Yes	Available via Permit
Kearny Mesa	Kearney Mesa Transit Center	Stop	No	No	Yes	None
City Heights	Boulevard Transit Plaza (El Cajon)	In-Line Station	No	No	Yes	None
	City Heights Transit Plaza (University)	In-Line Station	No	No	Yes	None
Downtown San Diego	10th/ B	Stop	Morning	Morning	No	None
	11th / B	Stop	Evening	Evening	No	None
	Broadway/ 2nd	Stop	Morning	Morning	No	None
	Broadway/ 1st	Stop	Evening	Evening	No	None
	Broadway/ Kettner	Stop	Yes	Yes	No	None
	Grape/ Pacific Highway	Stop	Yes	Yes	No	None

The fare for Rapid service is $2.50 and the fare for Rapid Express is $5.00. An MTS Day or Monthly Pass are all honored as a full fare. Fares are categorized by Adult, Youth (6-18), or Senior (65+)/ Disabled/ Medicare. Children under the age of 5 may travel free with a fare-paying passenger. A breakdown of Rapid and Rapid Express fares is presented in Table 4.2.

Table 4.2: MTS Rapid Fares

FARE TYPE	ROUTE TYPE	ONE WAY	DAY PASS	MONTHLY PASS
Adult	Rapid	$2.50	$6	$72
	Rapid Express	$5.00	$12	$100
Youth	Rapid	$2.50	$3	$23
	Rapid Express	$5.00	$6	$32
Senior/ Disabled/ Medicare	Rapid	$1.25	$3	$23
	Rapid Express	$2.50	$6	$32

The Rapid 235 service is a 4:30am to midnight 7-day service, including holidays. Headways vary depending on peak or non-peak times of day. A breakdown of the headways for the I-15 Rapid Lines are in Table 4.3. All headways are approximate.

Table 4.3: Rapid Headways

	WEEKDAY-AM PEAK	WEEKDAY-MIDDAY	WEEKDAY-PM PEAK	SATURDAY	SUNDAY
Rapid 235	15 minutes	15 minutes	15 minutes	30 minutes	30 minutes
Rapid Express 280	15 minutes (southbound only)	No Service	15 minutes (northbound only)	No Service	No Service
Rapid Express 290	10-15 minutes (southbound only)	No Service	10-15 minutes (northbound only)	No Service	No Service

In 2017, Rapid Route 235 carried an average of 50 passengers per trip and 4,773 weekday riders, which is the best performance among all Rapid routes. Rapid Express Routes 280 and 290 serve 26 to 28 passengers per trip, respectively. These routes also had a high farebox recovery ratio. Rapid Express Routes 280 and 290 have 43.6% and 62.6% in farebox recovery.

Today, Rapid 235 has 5,000 to 6,000 weekday riders, while the Rapid Express routes have jumped to 2,000 to 3,000 riders a day, each. In comparison, the Rapid 237 route has 2,500 to 3,000 riders per day, which is expected to increase when the Mid-Coast service opens.

More 2017 route statistics for the three Rapid routes on I-15 are below in Table 4.4.

Table 4.4: Rapid Route Statistics

ROUTE	ANNUAL PASSENGERS	AVG. WEEKDAY PASSENGERS	PASSENGERS/ REVENUE HOUR	SUBSIDY PER PASSENGER	FAREBOX RECOVERY	COST PER PASSENGER
235	1,451,717	4,773	24.7	$3.76	21.6%	$4.80
280	122,917	483	22.3	$5.42	43.6%	$9.60
290	164,645	648	28.2	$2.47	62.6%	$6.62

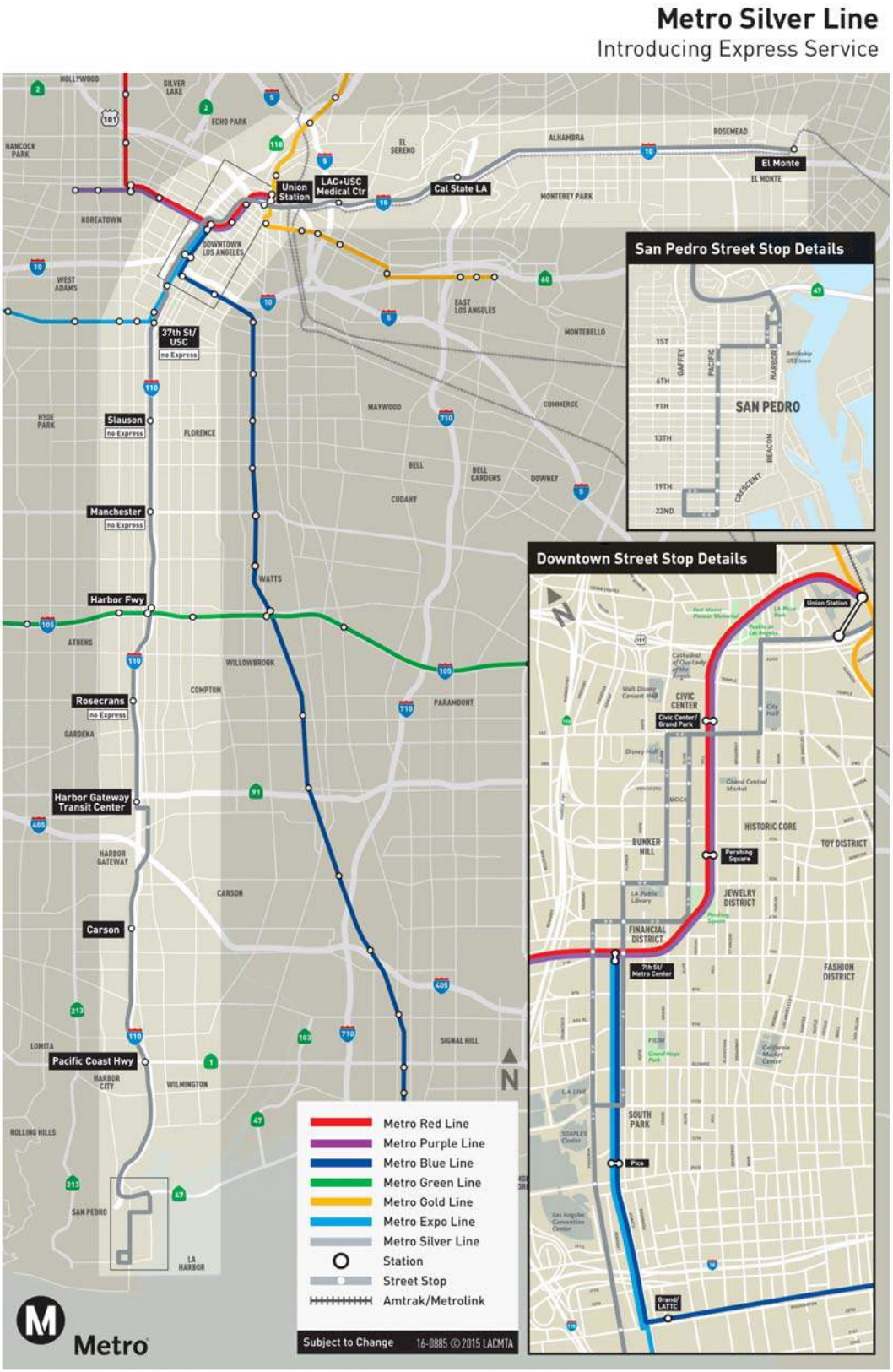
4.2 Metro J Line (Silver) in Los Angeles

Implemented in 2009, the Los Angeles County Metropolitan Transportation Authority (Metro) Busway J Line (Silver) is a BRT service that operates on the I-10 and I-110 ExpressLanes. The ExpressLanes were created in 2012 as a part of the Congestion Reduction Demonstration Project which converted the El Monte Busway and Harbor Transitway from HOV and bus-only lanes to HOT lanes. The J Line, formerly the Silver Line, includes the all-stop Line 910 and limited-stop Line 950X, which consolidated previous express bus routes, increased service frequency, and introduced unique branding. This consolidation effort reduced 120 duplicated bus trips in Downtown. It was meant to provide an alternative to the Blue Line rail service, which was at the time near full-capacity. Integral features of the BRT service include freeway median stations and traffic signal priority.

Metro started the HOT Congestion Pricing Program on the I-10 and the I-110, as both freeways were fully-saturated in HOV. Metro needed riders to convert from solo or HOV trips into higher capacity trips with vanpools/BRT transit enhancements. The HOT Program dedicated 70% of funding for transit enhancements. The enhancements to transit included increased frequency, speeds, safety, and marketing to entice people to switch modes. Metro J Line branding was designed to allow riders to recognize the high-caliber of service.

There are two bus lines that operate for the J Line. Metro Line 910 operates on the I-10 to El Monte and the I-110 Freeway to Harbor Gateway Transportation Center. Metro's J Line also provides express service to allow for faster travel between San Pedro, Downtown LA, and El Monte. The Metro Express Line 950 only operates during the weekday morning and afternoon rush hours and makes stops in the San Pedro Harbor area, but only select locations on the I-110 Freeway. The express service shares the same stops and stations in Downtown LA and on the I-10 Freeway as Line 910. A map of the Metro J Line is shown in Figure 4.2.

Figure 4.2: Metro J Line (Silver) including Express Service



The J Line bus rapid transit route opened on December 13, 2009. The J Line, including its express line, is approximately 38 miles long with termini at the El Monte Station on the north end, and Harbor Gateway Transit Center (Line 910) or San Pedro (Line 950) to the south along the I-110 Freeway. The construction cost was estimated at $587 million. There are 11 freeway stations and 29 additional street stops along the J Line. Neither line connects to every station however, as Express Line 950 would only stop 28 times in any given direction, while Line 910 has a maximum of 20 stops in any single direction. A breakdown of all stations and stops on the J Line is in Table 4.5 below.

Table 4.5: Metro J Line Stations and Stops

LOCATION	NAME	TYPE	LINE 910	EXPRESS LINE 950	PARKING SPACES	CONNECTS TO
El Monte	El Monte	Direct Access Station	Yes	Yes	1,153	
East LA	Cal State LA	In-line Station	Yes	Yes	None	Metrolink
	LAC + USC Medical Center	In-line Station	Yes	Yes	None	
Downtown LA	Union Station	Stop	Yes	Yes	Nearby parking is independent	Red, Purple, Gold Lines; Metrolink; Amtrak; LAX Flyaway
	Spring/ 1st	Stop	Yes	Yes	None	LA City Hall
	1st/ Hill	Stop	Yes	Yes	None	Red, Purple Lines
	Grand/ 3rd	Stop	Southbound	Southbound	None	
	Flower/ 5th	Stop	Southbound	Southbound	None	
	Flower/ 7th	Stop	Southbound	Southbound	None	Red, Purple, Blue, Expo Lines
	Flower/ Olympic	Stop	Southbound	Southbound	None	
	Figueroa/ Olympic	Stop	Northbound	Northbound	None	
	Figueroa/ 7th	Stop	Northbound	Northbound	None	Red, Purple, Blue, Expo Lines
	6th/ Flower	Stop	Northbound	Northbound	None	
	Olive/ 5th	Stop	Northbound	Northbound	None	Red, Purple Lines

	Olive/ Kosciuszko	Stop	Northbound	Northbound	None	
	Figueroa/ Pico	Stop	Yes	Yes	None	Blue, Expo Lines
Los Angeles	Figueroa/ Washington	Stop	Yes	Yes	None	Blue Line
	23rd/ Flower	Stop	Southbound	Southbound	None	Expo Line
	Figueroa/ Adams	Stop	Northbound	Northbound	None	Expo Line
	37th/ USC	In-line Station	Yes	No	None	
	Slauson	In-line Station	Yes	No	151	
	Manchester	In-line Station	Yes	No	247	
	Harbor Freeway	In-line Station	Yes	Yes	253	Green Line
Gardena	Rosecrans	In-line Station	Yes	No	338	
	Harbor Gateway Transit Center	Direct Access Station	Yes	Yes	980	
	Figueroa/ 190th	Stop	No	Southbound	None	
	Figueroa/ Victoria	Stop	No	Northbound	None	
	Carson	In-line Station	No	Yes	140	
	Pacific Coast Highway	In-line Station	No	Yes	244	
San Pedro	Harbor Beacon P/R	Stop	No	Yes	280	
	Beacon/ 1st	Stop	No	Southbound	None	
	Harbor/ 1st	Stop	No	Yes	None	
	Pacific/ 1st	Stop	No	Yes	None	
	Pacific/ 3rd	Stop	No	Yes	None	
	Pacific/ 7th	Stop	No	Yes	None	
	Pacific/ 11th	Stop	No	Yes	None	

	Pacific/ 15th	Stop	No	Yes	None	
	Pacific/ 17th	Stop	No	Yes	None	
	Pacific/ 19th	Stop	No	Southbound	None	
	Pacific/ 21st	Stop	No	Yes	None	

The fare for both the J Line 910 and J Line Express 950X is $2.50. Transfers from either line are free for up to two hours when using a TAP card. When transferring from a local line to either the 910 or 950 Lines, there is a $0.75 upcharge. For J Line fare rates only, off-peak hours include weekends and weekdays from 9am to 3pm and 7pm to 5am. A Metro Day, 30-Day, or Discounted 30-Day Pass are all honored as a full fare. Metro J Line fares are categorized by regular, Senior/ Disabled, College/ Vocational, and Student K-12. Children under the age of 5 may travel free with a fare-paying adult. A breakdown of Silver Line fares for both the 910 and 950 is presented in Figure 4.3.

Figure 4.3: Metro J Line Fares

Metro Fares As of 9/15/14	**Regular**	**Senior 62+/ Disabled/ Medicare**	**College/ Vocational**	**Student K-12**
Silver Line Cash Fares				
1-Ride Base Fare No transfers included. Additional charges apply to ride: • Metro Express Buses	**$2.50**	**$1.35** **Peak** **95¢** **Off-Peak**	**$2.50**	**$2.50**
On TAP				
1-Way Trip Includes transfers to other Metro Lines for up to two hours to complete a one-way trip. Additional charges apply to ride: • Metro Express Buses	**$2.50**	**$1.35** **Peak** **95¢** **Off-Peak**	**$2.50**	**$2.50**
Premium Charge for 7-Day, 30-Day and EZ transit pass All other Metro passes accepted without premium charge.	**75¢**	—	—	—
Express Freeway Premium Charge				
Express + Zone 1 Premium Charge Additional fare required only on freeway segments.	**75¢**	**60¢**	**75¢**	**75¢**

The J Line is an all-day 7-day service, including holidays. Headways vary depending on peak or non-peak times of day. For headways only, peak times are classified as from 5am to 10am and from 3pm to 6pm. A breakdown of the headways for the J Line are in Table 4.6. All headways are approximate.

Table 4.6: Metro J Line Headways

TIME	WEEKDAYS	WEEKENDS/ HOLIDAYS
1AM to 5AM (910 only)	60 minutes	60 minutes
5AM to 10AM	4 to 10 minutes	20 minutes
10AM to 3PM	15 minutes	20 minutes
3PM to 6PM	4 to 10 minutes	20 minutes
6PM to 8PM	10 to 20 minutes	20 minutes
8PM to 9PM	20 minutes	40 to 60 minutes
9PM to 1AM	40 to 60 minutes	40 to 60 minutes

The J Line is a commuter/ choice rider market. It currently has 17,000 riders on an average weekday, coming second after the Orange Line. Among all Metro services, the J Line had the lowest drop in ridership since the COVID-19 pandemic and resulting stay-at-home orders came in effect.

For comparison, the Silver Streak (owned by RTC) on the El Monte side, runs parallel on a portion of the J Line route. It has approximately 5,000 daily riders.

The J Line was designed as a safety valve for the Metro Blue Line, which was at capacity at approximately 90,000 boardings per day. The J Line reduced strain on the A Line (Blue), especially when A Line (Blue) service was closed for the “New Blue” Program in 2019. After the “New Blue” Program ended, many riders stayed with the J Line because they felt the BRT was more comfortable and safe.

Metro J Line ridership for the Metro 910 Line has steadily increased every year through 2019, with the exception of 2017 due to a single-year spike in ridership from the previous year. In 2019, there was an estimate 5.2 million riders, the highest estimate in a single year. In that year, a typical weekday would average over 17,500 riders. From 2013 to 2019, the Metro J 910 Line saw 27% growth in ridership, or an estimated 4.5% growth in ridership per year.

The current year 2020 is not projected to exceed the estimated ridership from 2019 due to the stay-at-home orders enacted by the State of California and Los Angeles County. However, ridership for 2020 show that the J Line is the service that has fared the best during the pandemic among all LA Metro bus lines. Table 4.7 details ridership for the Metro 910 Line. Data is unavailable for the 950 Express Line.

Table 4.7: Metro J Line Ridership

YEAR	ESTIMATED WEEKDAY RIDERSHIP	ESTIMATED SATURDAY RIDERSHIP	ESTIMATED SUNDAY RIDERSHIP	TOTAL ESTIMATED RIDERSHIP
2020 (Q1)	*15,930*	*6,605*	*5,033*	*1.2 Million*
2019	17,558	7,453	5,937	5.2 Million

2018	15,059	6,346	5,127	4.5 Million
2017	14,905	5,959	4,543	4.4 Million
2016	15,479	5,825	4,386	4.5 Million
2015	14,743	6,009	4,378	4.3 Million
2014	14,173	5,967	4,390	4.2 Million
2013	12,842	5,468	3,611	3.8 Million

4.3 BRT Service in Ontario, Canada

4.3.1 Mississauga Transitway

The Mississauga Transitway is a series of bus-only roadways and reserved lanes that form a continuous 11-mile BRT route. The exclusive two-lane, grade separated busway generally follows adjacent to or on Highway 403 for much of the route, as well as Eastgate Parkway and Englinton Avenue to the northeast. The Transitway features bus bypass shoulders on Highway 403 between the Erin Mills and City Center Stations. The Transitway connects with Toronto public transit, supporting local, express, Go Transit, and other intercity services for thousands of riders per day.

The Transitway project was estimated to cost $259 million stemming from Ontario's MoveOntario 2020 plan. The Canadian federal and provincial governments contributed $173 million to the project.

MiWay, which operates BRT service on the corridor, currently runs five routes along the Mississauga Transitway. The five routes are shown and listed below in Figure 4.4 and Table 4.8.

Figure 4.4: Mississauga Transitway

Table 4.8: Mississauga Transitway BRT Routes

ROUTE	SERVICE TYPE	FROM	TO	SERVICE SPAN
87: Meadowvale-Skymark	Local	Meadowvale Town Centre Bus Terminal	Renforth	Rush Hour
100: Airport Express	Express	Winston Churchill	Toronto Pearson Intl. Airport	Monday – Friday
107: Malton Express	Express	City Center Transit Terminal	Humber College	September – April: Monday – Friday
			Westwood Mall Terminal	September – April: Sat., Sun., Holidays; May – August: Daily
109: Meadowvale Express	Express	Meadowvale Town Center Bus Terminal	Islington Subway Station	Daily
110: University Express	Express	City Center Transit Terminal	Clarkson GO Station	Daily
			University of Toronto Mississauga	Monday - Friday

The Mississauga Transitway features 12 stations. Many of the stations feature Park and Ride and Kiss and Ride services, shown in Table 4.9.

Table 4.9: Mississauga Transitway Stations

STATION	PARK AND RIDE	KISS AND RIDE	CONNECTIONS
Winston Churchill	300 spaces	Yes	100, 109, 36, 45, 45A, GO Transit
Erin Mills	300 spaces	Yes	100, 109, 110, 29, 46, 48, GO Transit
City Centre	200 spaces	Yes	100, 107 109, 110 [18 local routes], GO Transit, Brampton Transit
Central Parkway	None	Yes	100, 107, 109, 10, 53

Cawthra	60 spaces	Yes	100, 107, 109
Tomken	None	Yes	100, 107, 109, 51
Dixie	170 spaces	Yes	100, 107, 109, 185, 5, 73, 74, GO Transit
Tahoe	None	No	100, 107, 109, 87
Etobicoke Creek	None	No	100, 107, 109, 35, 35A, 87
Spectrum	None	No	100, 107, 109, 35, 35A, 87
Orbitor	None	No	100, 107, 109, 35, 35A, 87
Renforth	None	No	100, 107, 109, 7, 24, 35, 35A, 39, 43, 74, 87, GO Transit, TTC

MiWay fare prices are determined by age, not express service. The base cash fare for an adult is $4. However, when using a PRESTO card, the fare for an adult is $3.10, youth (ages 13-19) is $2.35, and child (ages 6-12) is $1.75. When transferring from MiWay to GO Transit, there is an additional $0.80 co-fare for any age.

In 2018, MiWay projected 4.7 million riders specifically on the Mississauga Transitway, a 14% boost from the previous year. This significant increase can most be attributed to the launch of Route 100, which saw 1,200 riders per day in 2018. In total, MiWay set a record in 2018 for ridership with 40 million riders, a 2.6% increase from 2017.

The Transitway stations are attractive, largely pedestrian accessible, and are designed to accommodate ridership growth. The Transitway succeeded in making transit quicker and more direct. The Transitway serves as a convenient option when traveling from the City Center to the Airport.

However, due to the path of the corridor, some stations have surrounding land uses that make walk-up traffic difficult to generate. Cawthra station, for instance, is not surrounded by trip generators or cross-traffic bus connections. To the western portion of the corridor, the transitway utilizes Highway 403 instead of dedicated busway, losing the opportunity to connect with bus routes on Creditview Road and Mississauga Road. In general, the transitway falls short in facilitating transit-oriented development. Nevertheless, the Transitway succeeds in supporting a grid-based transit system, improving commute times between major hubs, and improving access to employment centers.

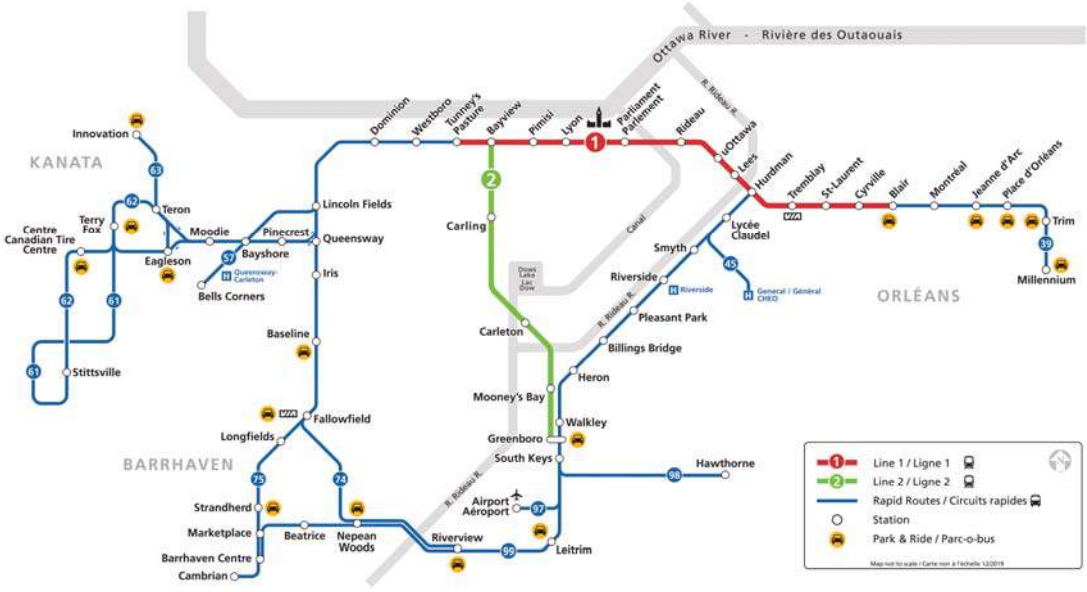
4.3.2 Ottawa Transitway

Similar to the Mississauga Transitway, the Ottawa Transitway is a series of dedicated grade-separated bus-only roadways, which rarely intersect with regular traffic. OC Transpo operates a network of rapid routes which use the Transitway to connect communities.

The Ottawa Transitway opened in 1983 with five stations. Today, the rapid bus network has expanded to 11 routes and 44 stations, with over 50 stations at its peak. Among the 44 stations, 16 stations have a park and ride facility with over 5,100 spaces, mainly in the suburban areas of Ottawa. Daily Ridership is projected to be over 250,000, or two-thirds of the system's overall ridership.

The Transitway works in conjunction with the O-Train, a light rail service, which began in 2014. The O-Train has two existing lines and 17 stations. The two light rail lines connect directly to the rapid bus network at Tunney's Pasture, Hurdman, Blair, and Greenboro Stations. Figure 4.5 depicts the extent of the Ottawa bus rapid network.

Figure 4.5: Ottawa Bus Rapid Transit Network



The Transitway has approximately 37.2 miles of right-of-way. Of the over 37 miles of Transitway, 19 miles are dedicated for exclusive busway use. Buses mix with general traffic for 11.3 miles and utilize 7.1 miles for reserved freeway lanes (shoulders) in the suburban areas. The remaining right-of-way are arterial bus lanes. Costs to build the BRT system have been estimated at $435 million.

Similar to MiWay, OC Transpo fare prices vary by age, but not service. The base cash fare is $3.60 for adult and youth (ages 13-19), $2.70 for seniors, and $1.85 for children (6-12). When using PRESTO or ParaPay, prices reduce slightly to $3.55, $2.65, and $1.80 for adults/youth, seniors, and children, respectively. Users of the system may purchase a 1-day, 3-day, 5-day, or 7-day pass for $10.75, $26.50, $42.25, or $50.25, respectively.

There has been a long-lasting debate on the implementation of bus rapid transit versus light rail transit in Ottawa for their express service. When the transitway was built, the BRT system was implemented as the region was considered too small for light rail. The BRT system gave Ottawa the advantage of flexibility in terms of the number of routes and vehicles that can be employed at different times of day. In as early as the 1990's however, OC Transpo buses began to significantly congest downtown Ottawa at rush hour.

Ottawa has since constructed and provided a light-rail service to and from downtown named the O-Train, which is an alternative to the BRT service. The City is continuing their expansion of LRT with Stage 3, which would extend the Confederation Line (Line 1 in Figure 4.5) west into Kanata and Barrhaven, as well as extend the Trillium Line (Line 2 in Figure 4.5) north into Gatineau, Quebec. The O-Train expansion plans serves in contrast to the support of the BRT service.

4.4 Metro Transit Red Line in Greater Minneapolis

Metro Transit began operating the Red Line in 2013, a highway bus rapid transit service in the Twin Cities suburbs of Bloomington and Apple Valley, Minnesota. The Red Line, operated by Minnesota Valley Transit Authority (MVTA), was built with bus rapid transit elements including dedicated bus lanes along Minnesota State Highway 77/ County Road 23.

The Red Line runs from 4:00 AM to midnight from the Mall of America in Bloomington to the Apple Valley Transit Station. There are currently five stations on the line. However, seven more stations are planned through 2040. The Red Line operates seven days a week with headways of 15 minutes on weekdays and 30 minutes on weekends. The approximate 9.5-mile route can operate a 20-minute journey time. The Red Line connects to the Blue Line light rail service at the Mall of America terminus. Figure 4.6 shows the existing Metro Red Line route.

Figure 4.6: Metro Transit Red Line

Many stations along Cedar Avenue (Country Road 23) are on-line bus shoulder lanes on either side of Cedar Avenue, which allows buses to bypass traffic. The newest addition is the Cedar Grove Transit Station, which features a 300-foot climate-controlled walkway over Cedar Avenue, connecting the park and ride to the station platform. Table 4.10 below details the Red Line existing and planned stations.

Table 4.10: Metro Transit Red Line Stations

STATION	STATUS	SITING	PARK AND RIDE	CONNECTIONS
Mall of America	Existing	East Parking Structure	1,443 spaces (1/3 miles off-site)	Blue Line, 5, 54, 415, 515, 538, 539, 540, 542, MVTA 444, 495,
Cedar Grove	Existing	On-line island platform	Approx. 130 spaces	438, 440, 444, 472, 475U, 491A, 492
Cliff Road	Planned (2020-2025)	On-ramps	N/A	N/A
Palomino Hills	Planned (2020-2025)	TBD	304 spaces	440 476, 477, 480A
140th Street	Existing	On-line shoulder	No	440, 476
147th Street	Existing	On-line shoulder	No	440
Apple Valley Transit Center	Existing	On-line shoulder	337 spaces	420, 440, 442, 475, 477, 480A
161st Street	Planned (2040)	TBD	N/A	N/A
Glacier Way	Planned (2040)	TBD	N/A	N/A
Lakeville Cedar	Planned (2040)	TBD	191 spaces	477
195th Street	Planned (2040)	TBD	N/A	N/A
215th Street	Planned (2040)	TBD	N/A	N/A

Fares for the Red Line are $2.50 during rush hours and $2.00 for non-rush hours. There is a reduced fare during non-rush hours for youth (ages 6-12) and seniors (ages 65+) at only $1.00. Rush hours are Monday though Friday, 6 AM to 9 AM and 3 PM to 6:30 PM.

In 2016, Metro Transit introduced “arterial” bus rapid transit (ABRT) in the Minneapolis – St. Paul region in 2016. The ABRT is an enhanced bus service featuring improved station facilities and vehicles, off-board fare payment for reduced dwell time, higher frequency, and greater spacing between stops for reduced travel time. Currently, there are two lines in operation, the Metro A Line and C Line. The Metro B, D, and E rapid lines are currently in the construction or planning phases. No current or future ABRT line features exclusive bus lanes.

Among the two active ABRT lines, there are 39 stations, 20 of which are on the A line, 19 on the C Line. To make the ABRT appealing to riders, stations were equipped with heated shelters with improved lighting, real-time information, card readers, seating and bike racks, and security cameras and phones. The stations follow unique branding and have three different sizes dependent on daily boardings and site context.

The 10-mile Metro A Line generally runs along Snelling Avenue, Ford Parkway, and 46th Street, connecting to the Metro Blue and Green light rail lines among several other destinations. For this daily line, peak headways are generally 10 minutes. Weekday ridership was 5,500 in 2017, up 32% from its initial year in 2016. The route is up to 25% faster than its local bus route predecessor and, it takes about 34 minutes to complete a trip. In total, the A-Line carried 1.5 million riders in 2017.

The Metro C Line opened in 2019, and generally runs along Penn Avenue, Olson Memorial Highway, and downtown 7th and 8th Streets. This is a daily line with 10-minute peak headways, similar to the A Line. Weekday ridership average at 8,300. The C Line is shown to run 25% faster than the previous Route 19, and the journey time is 31 minutes. Because of this, the C Line has had 30% higher ridership than Route 19. The C Line surpassed 1 million rides after only five months of operation.

The Red Line does not see the same ridership as the newer ABRT services. The main role of the suburb-to-suburb Red Line is to take commuters from Apple Valley and Eagan to the Mall of America, or allow commuters to continue to Downtown Minneapolis via a transfer on the Blue Line LRT. Because of this, many of the stations are sited in suburban residential areas with little emphasis on transit-oriented development. As a result, the Red Line is struggling with ridership, with approximately 800 average weekday riders, well short of its 2017 goal of 1,600.

In three locations, the bus stops at two in-line stations (outside shoulder) are located 600 feet or more away from an intersection to allow for adequate bus pull-offs, which limits pedestrian accessibility.

4.5 Takeaways and Lessons Learned

Freeway BRT in Orange County will benefit from a comprehensive review of the Metro J Line (Silver) in Los Angeles County and the Rapid BRT in San Diego County. Project staff met with project managers and operators from Caltrans, LA Metro, SANDAG, and the Metropolitan Transit System (MTS) to review the lessons learned from the two services and determine the best approach for BRT in Orange County. Takeaways from the two existing BRT operations have been consolidated by category and are presented below.

4.5.1 SR 15/ I-15 Takeaways and Lessons Learned

Station Access

Direct Access Ramp Stations are open to BRT, Carpools, and FasTrak users. The direct access ramps save time for auto drivers compared to metered on-ramps. The DARS are not located at interchanges to avoid ramp meters which could delay access to the freeway.

Spacing between DAR Stations is approximately 4 miles. The area with in-line stations is inherently different to the area with DARS to the north. The DARS were needed for efficiency. In-line stations were not an option due to parking demand. Real estate availability was a concern more so than exact best-fit capture areas.

Station Design

There are no in-line stations underneath an overpass. In-line stations are deliberately located to the north or south side of an overpass. The team had learned from the J Line that stations underneath an overpass are noisy and not comfortable.

Stations were initially envisioned with a central platform, but CHP was concerned about the safety risks of at-grade crossovers. Caltrans needed to balance safety and operation issues, as there were no standards for station design for Freeway BRTs. Caltrans decided on an offset side-platform design, which in effect is two separate stations.

The walkways that lead from the arterial station deck to the median stations have plexiglass walls to reduce noise but retain sight-lines for passenger security. Caltrans learned from the J Line BRT stations which were loud. Noise barriers were needed to make a pleasant environment.

Every sign is marked clearly. Bike ramps are located adjacent to each stairway. There are artistic designs in the concrete walls. The walkways that lead from the arterial station deck to the median stations are well lit. Lights and lighting maintenance have been identified as a challenging but necessary component of a station design.

There are two elevators for redundancy, designed large enough to accommodate stretchers as needed. The street curb is 8 inches tall which allows low-floor buses to be closer in level with platform heights. There are prominent security cameras, loudspeakers, and signage. MTS installed real-time signage, static signage, shelters, seating, landscaping, and public art to make the stations as comfortable and convenient as possible.

The stations feature interchangeable parts in design, such as the canopies which match those provided along other MTS routes, so that materials and equipment can be used interchangeably from one service to another.

The two in-line stations are a half mile apart. The reason why they were both chosen despite being so close is that El Cajon Boulevard and University Avenue were the 1st and 2nd best performing arterial corridors, and they were providing crucial access to disadvantaged and transit-dependent communities.

For off-line stations, proximity of the station to the BRT facility is critical to reduce delay and maintain a fast, effective service.

Operations

The Rapid 235 is an all-day route that operates every 15 minutes, stops at every station, and runs from 5:00 AM to midnight. The speed of the route is similar to the trolley line. The fare is $2.50.

The Rapid express 280 and 290 operate 15 minutes headways during peak periods. The fare is $5. Rapid BRT service capitalized on the success of previous express routes for peak hour use and expanded it to an all-day route with more frequency. It was a progression to get people to buy into Rapid.

Using Rapid saves at least 15 minutes. The commute time saving on the Rapid Express compared to Rapid is 20 to 30 minutes. The Rapid Express route speeds are equivalent of a light rail line.

Fleet Branding/ Marketing

Rapid branding played a pivotal role in building community support. Riders viewed BTR as a premium service and staff and drivers were also trained to see these services as such.

Parking and First/Last Mile

MTS put in capital for a parking structure at the Sabre Springs Station, which serves over 500 users including carpoolers and Fastrack users. With the new parking structure, parking is no longer an issue at Sabre Springs. For all other DAR stations, the demand consistently exceeds the available space. The typical parking split for parking structure along the line is two-thirds transit users, while one-third use parking for other purposes.

There was no need for parking at the two centerline stations because the community is transit oriented. The other stations to the north needed to have parking because the region is sparsely populated. 90% of ridership of Rapid in the area depend on park and ride facilities.

Partnerships

Local and regional partnerships played a pivotal role in making the service a success. California Highway Patrol, for example, was involved from the beginning of the project to provide support during the early stages and ongoing support moving forward.

Other local partnerships were also secured with institutions such as community colleges to secure parking spaces for transit users.

Safety and Enforcement

A critical safety issue from in-line station is the ability of private vehicles to enter the BRT-only lane and use the station to bypass congestion. This can create significant risks for users. The transitway is designed for slow speeds, then branches like an off-ramp. Education and enforcement blitzes had to be done to address the problem. Physical interventions such as painting the lane red to inhibit drivers driving in the transit only lanes were also implemented. Since then, very few instances of private vehicles in the bus lanes have been reported.

Training

BRT requires extra training of the workforce. During the initial phase of the Rapid services, every operator needed to drive the BRT routes first to get familiar with unique features of it. Drivers needed specialized training modules to establish the culture that BRT is special. MTS engaged bus drivers early in the process to give them the opportunity to comment on the natural design where buses are making turns or movements across lanes. This avoided geometric and other service shortcomings. It is important to train all drivers and not just the most skilled or senior drivers.

The facilities division needed to be prepared to manage facilities and maintenance of parking, transit centers, signage, real-time arrival info, shelters, and amenities. The BRT service needed consistency throughout the system for management and maintenance. A simple design is fiscally sustainable over the long term.

Maintenance

Clear guidelines were established for MTS and/or Caltrans maintenance responsibilities. Maintaining BRT stations and lanes was an evolution for MTS as they did not have to maintain lanes beforehand with trolley and buses. MTS takes over maintenance from Caltrans when the lane becomes barrier separated.

4.5.2 Metro J Line Takeaways and Lessons Learned

Station Access

The stations along I-10 were built by Caltrans over 50 years ago for the now defunct El Monte bus service. Many of these stations, such as the Cal State LA station along I-10, utilize a bridge, staircases, and elevators for pedestrian access to the station platform. Since their construction, ADA compliance improvements have been the only changes made to the I-10 stations.

There are many takeaways for the stations located along the I-110 corridor, such as the USC, Rosecrans, Slauson, and Manchester Stations. For stations along the I-110 the best station design features street access from above the station, rather than below the freeway. Stations that allow access under the freeway have accessibility concerns and tend to have inadequate lighting and noise protection as well as being prone to vagrancy. When creating station access, reducing the number of flights of stairs greatly improves the pedestrian experience.

Station Design and Location

The existing stations for the J Line were designed by Caltrans and were originally not built for the J Line. The stations were expensive to construct. The station canopies are well-designed, but perhaps over-designed due to ongoing maintenance.

Yellow painted bollards are a good design element, which provide a sense of safety to waiting passengers. Noise is a recurring issue for passengers as they don't like feeling as if they are standing in the middle of the freeway.

The J Line buses always board and alight with curb side doors. Bus boarding occurs via a side-running design with a serpentine entrance/exit. For some stations, there is an 'S'-curve in the approach to board and alight passengers.

The El Monte Busway / Alameda Station specifically is in a location that faces congestion and is difficult to access. The Patsaouras Plaza station, which is currently under construction, would replace this station and help passengers access the J Line at Union Station and allow buses to bypass congestion in the area.

Fleet Branding/ Marketing

The J Line is branded as a high-caliber service. The J Line operates 45-foot buses, which are also used on other lines, such as the Metro Rapid service. The buses will soon be taken out of service, as the agency is transitioning to zero emission buses. The zero emission buses will be 40 feet long. The J Line and Orange Line will be the first services to transition to electric vehicles.

The Silver Streak, operated by Foothill Transit, finds that load factors don't justify their articulated buses. Their articulated buses do not meet ridership quality and provide a poor ride quality. Metro is exploring double-deckers to keep a maximum of 40-feet of length for their buses.

Operations

There are two routes and multiple operators for the J Line. The J Line operates at peak 10 minutes headways or less, and 15 to 20-minute headways off-peak. The J Line operates 18 hours a day. Long Beach Express services operates a part of the J Line. Gardena has express service that uses the station facilities.

Despite the service branching along two separate freeway corridors in a big 'L'-shape, both J Line routes operate along both corridors. The J Line Express route runs beyond the J Line proper route into Harbor City/ San Pedro.

Harbor Gateway is Caltrans owned and operated. Metro owns the El Monte station. Metro took over Manchester and Slauson Stations for the J Line since Metro was getting maintenance requests.

The main J Line issue today is a consistent lane break down with congestion northbound near Adams Street. Metro is looking into a congestion pricing change or enhancing vehicle capacity requirements for the lanes. End of line stations can face a bottleneck if not planned adequately. In addition, entrance ramps are short in Downtown south on Flower to get on I-10. Metro put in a bus lane on Flower to transfer buses over quicker. There is also tough maneuverability on Spring Street, and Aliso Street to Alameda Street.

Metro J Line has all-door boarding. Because of this feature, dwell time is significantly reduced when there are over 15 boardings. All-door boarding also better loads and utilizes the buses and removes fares confrontation away from bus drivers and onto fare compliance officers. All-door boarding in part has delayed the need for new buses as riders feel they are stopped less and for less time. Fare compliance officers tend to check people before they get on board and at major hotspot locations. Operators sometimes need to give out TAP cards at non-rail stations.

Parking and First/Last Mile

Harbor Gateway Transit Center, Slauson, USC, Cal State LA, El Monte have park and ride facilities. There is a new paid parking policy, which is $2 a day. This new parking policy has shifted a lot of riders to Uber and Lyft for station access.

Metro tried to improve the interface and connectivity between local buses going east/west and the J Line along I-110 to improve First/Last Mile. Metro built cut-outs at stations to allow for local bus stops.

Several stations are difficult to access for pedestrians and cyclists. Some improvements have been made at some stations, but lighting and security concerns remain, especially at park and rides locations.

Cost

The J Line started as a service with no dedicated infrastructure. Capital became available from the Express Lanes project on I-10 to build infrastructure, stations, bus lanes, and improve marketing. The J Line in an example of incremental BRT.

Partnerships

The Silver to Silver program was created to work with the Silver Streak to transfer riders interchangeably between the two Silver services. The J Line (Silver) was at capacity, so instead of adding more J Line service, the Silver to Silver program was implemented to balance the load. Torrance, Gardena and Metro cooperated to enhance regional transit service coordination which ultimately benefited transit riders.

4.5.3 Main Conclusions for application to the Freeway BRT in Orange County

This section summarizes the main conclusions from the case studies that can be applied to freeway BRT specifically along the I-5 and SR 55 study corridors.

- Branding and marketing the OCTA freeway BRT service as a unique public transit alternative is crucial to the success for the BRT. The service should be distinct from all OCTA service that is currently provided. In addition, the branding should be uniform throughout for all visual elements, including buses and stations to handouts and advertisements. The BRT service should be identifiable by name, color scheme, icons, and font alone.
- The OCTA freeway BRT service should adapt to the character of the areas it will serve. In more suburban regions, stations should have park and ride/ kiss and ride facilities that directly serve the BRT stations, whether off-line or in-line via a pedestrian overpass. In areas that are denser and more transit-oriented, in-line stations may be more efficient. Off-line stations should be served by direct access ramps that are not at existing interchanges.
- The siting/placement of BRT stations is critical. It is important to site stations within the greatest catchment areas, but siting is also heavily dependent on available freeway right-of-way and land acquisition. Freeway adjacent off-line stations can add approximately 2 to 3 minutes to travel time compared to in-line stations, which can factor into the success of a bus rapid service. The spacing of stations is dependent on size of the catchment areas but should not be further than a half mile from the BRT route.
- In order to save time, all BRT riders should pay via card readers before entering the bus. The buses should have front and rear boarding which, in turn, balances the bus more efficiently.
- Stations should all be made with similar design and should only vary in size due to number of daily boardings and specific site characteristics. The stations should have a simple design to keep capital and maintenance costs to a minimum. The use of standardized infrastructures is

also encouraged, as it allows maintenance staff to install these elements interchangeably across transit services.

- Partnerships are key to the success of a BRT service. OCTA should enter into partnerships during the planning phase to maintain relations with all parties that will help provide input to make the design of freeway BRT a success. Some examples of partnerships include the California Highway Patrol, any adjacent agencies that may be able to assist in station parking, and OCTA's own bus drivers.
- Pedestrian and bicyclist access to the station is just as important as placement of the station itself. Access to and at the station needs to be safe and inviting in order the maximize the number of potential riders. The most important rider needs are sufficient lighting and minimal freeway noise. Proper wayfinding, real-time signage, security, cameras, art installations, and other amenities are also important for a positive user experience. Access to a station from underneath the freeway should be avoided.
- The operations of the BRT will heavily depend on the type of rider. Both the Metro J Line and Rapid 235 line operate nearly all day, 7 days a week, with approximately 15-minute peak headways. OCTA should run zero-emission non-articulated buses.
- The BRT stations will need to overcome the first/last mile dilemma to widen the net of potential riders. Stations need to be equipped with bike racks/lockers to allow for secure, long-term parking to minimize risk of theft, as well as accommodate local bus route docks for transfers, rideshare loading zones, micro mobility options, and park and ride facilities when necessary.
- In-line stations have the shortest dwell time among all station designs. OCTA should explore in-line outside and inside shoulder stations for freeway BRT.
- When or if the BRT lane becomes bus-only, the road should be painted red or otherwise to inform other drivers to not enter. Road dots and stop signs should also be present in bus-only areas to slow drivers who may have entered the lane on accident. Enforcement blitzes and education campaigns may be necessary upon the launch of the service to prevent drivers from entering the lane.
- Operating BRT requires extra training for all staff, especially drivers. Because BRT is unique, all members, from the drivers to the facilities division, should be accustom to the service before operation should begin.

5 Mobility Problem and Travel Market Assessment

As shown in Sections 2 and 3 of this report, the SR 55 and I-5 corridors are facing degradation and congestion issues that are expected to increase in the future under a no-build scenario, that is if no improvements are made to existing services and infrastructures to alleviate the high travel demand along the corridors.

5.1 Existing and Future Issues along I-5 and SR 55

OCTA and its local partners have identified a series of challenges that are currently affecting transportation patterns and that will have long-term impact on travel conditions in the region in the future. The challenges described in Table 5.1 below were retrieved from the OCTA Long-Range Transportation Plan, LOSSAN Corridorwide Strategic Implementation Plan and Metrolink 10-year plan. The Freeway BRT concepts designed as part of this project will be designed as a component of the integrated strategy set in place by OCTA, Caltrans and their regional partners, to address these challenges.

Table 5.1: Transportation Challenges that may impact Travel Patterns in Southern California

CHALLENGE	IMPACT ON TRANSPORTATION
High Cost of Housing	Projected increases in housing costs will likely require Orange County residents to travel longer distances for work, leading to increases in congestion and greenhouse gas emissions. Transit services need to be efficient to offer a real alternative and support efforts to alleviate congestion.
Limited Right-of-Way Available and Infrastructure Capacity for Service Expansion	There is limited land available to support service expansion. OCTA will need to optimize existing facilities and focus on services that can travel on existing infrastructures as opposed to large-scale transit projects that would require significant right-of-way acquisition.
Transportation Funding Uncertainties / Lack of stable long-term funding source	Revenue forecasts predicts that sales tax revenues are bound to decrease over time, just as construction and operating costs and inflation follow an opposite trend. This means that OCTA must plan for cost-effective service and capital improvements in the long-term, optimizing existing stations and fleets.
Evolving Transit Market	The whole country has experienced transit ridership declines. The recent COVID-19 pandemic may also have an impact in perceptions regarding public transit. Transit agencies must leverage new technologies, adjust its services based on key travel-demand information, and focus on enhanced amenities to reverse this trend.

Disruptive Services and Technologies	Transportation Network Companies and other shared-economy services can become direct competitors to more traditional services unless OCTA designs plans and strategies to integrate these services into its long-term transit vision.
Challenging Emission Standards	The State of California has established very ambitious emission reduction targets and standards to address the region's air quality issues. Transit services is an essential component of regional and local strategies to achieve these targets and standards and improve overall quality of life for residents.

5.1.1 Corridor-Specific Challenges and Opportunities

In addition to the general challenges identified above, each of the two corridors in this study are facing specific challenges and opportunities that directly relate to transit services, and that will be integrated into the Freeway BRT services. These challenges and opportunities were identified during a discussion with the Project Development Team (PDT) and are presented in Figures 5.1 and 5.2 below. For both corridors, participants identified SB743 as an opportunity to secure funds and garner support for projects such as Freeway BRTs, which has goals and objectives that align with the Senate Bill.

Challenges and opportunities were also identified at the Santa Ana Regional Transportation Center (SARTC), a priority location for both corridors. The SARTC is currently facing bus bay management issues, which could hinder the center's ability to accommodate additional services such as a Freeway BRT stop. However, the OC streetcar project around the site could be an opportunity which, if aligned and integrated into the Freeway BRT concepts, could support increased access through seamless first and last mile connections for commuters traveling to and from the Santa Ana Regional Transportation Center.

5.1.1.1 State Route 55

State Route 55 connects the town of Newport Beach to Santa Ana, Anaheim up to SR 91, which can either take commuters west to Los Angeles County or east to Riverside county. It is the only freeway corridor connecting coastal communities to inland Orange County, which results in high levels of congestion and degradation that are expected to increase as population grows in the future. The corridor has high concentrations of population near the Santa Ana region, including disadvantaged communities. It connects these residents to employment zones in the Anaheim and Tustin region. Other major mobility hubs along the corridor include the SARTC, South Coast Plaza, John Wayne Airport and the Irvine Business Complex, University Drive Park and Ride, 17th Street, Hoag Hospital, and Newport Beach. One major challenge will be to provide a service that connects residents along the corridor to these top destinations in a time-effective fashion, in order to become a competitive alternative to privately-owned vehicles.

There are also various discussions, initiatives and projects currently taking place along the corridor that could be opportunities and integrated into the route design, station location or first and last mile connection strategy. For example, PDT members identified the John Wayne Airport/Main Street parking lot, at the junction of SR 55 and the 405, which is currently being studied for alternative uses. Participants also mentioned discussions underway with representatives of the South Coast Plaza, where there is interest to increase connectivity to the corridor.

Figure 5.1: Opportunities and Challenges along SR 55

5.1.1.2 Interstate 5

Interstate 5 is the westernmost corridor in the United States, connecting the Mexican Border and the San Ysidro and San Diego communities to Orange County, Los Angeles, and all the way north to Washington and the Canadian border. The segment of the corridor includes in this study connects Laguna Niguel to Fullerton. Major mobility hubs along the corridor include the Fullerton Park and Ride, Disneyland, SARTC, the Irvine Spectrum, the Laguna Hills Transit Center, and the Laguna Niguel/Mission Viejo Metrolink Station. Several segments of the corridor experience high volumes of vehicles and congestion, particularly between Tustin and Anaheim.

Among the challenges identified for the I-5 corridor, connection to Disneyland and the various employment centers in Anaheim has been identified as both an opportunity and a challenge. There is a definite opportunity to improve ridership through a BRT service to and from the area, but the built-out environment could restrict options for the development of a station that could accommodate the new line.

Participants to the PDT meeting also highlighted the fact that community members have expressed concerns over increases in housing development along the corridor, which could limit the development of transit-supportive land uses.

There are also various sites along the corridor that are currently under study or discussions for revitalization projects, which could be interesting opportunities to integrate into the proposed freeway BRT concepts for the corridor. For example, there has been discussions with city staff in Laguna Hills and local developers about long-term plans for the Laguna Hills Transit Center. OCTA also just recently completed a Joint-Development Study around the Fullerton Park and Ride. These two opportunities will be reviewed and discussed as part of the design alternatives of freeway BRTs along I-5.

Figure 5.2: Opportunities and Challenges along I-5

5.2 New Trends in Transportation

BRT is unique among high capacity transit services in that it can be more easily adapted to local contexts, as well as changes in travel over time. The recent COVID-19 pandemic has also demonstrated how quickly transportation demand, and transportation patterns can change with lasting effect on a region. The items that follow include several transportation trends, as well as their recent or potential future impacts on BRT service. They include competing and complementary modes, infrastructure, and policy considerations.

Table 5.2: New Trends in Transportation

TREND	IMPACT
Transportation Network Companies (TNCs) and Mobility-on-Demand / Flexible Route Service	The flexibility of TNCs make them an attractive substitute for fixed-schedule transit trips—in particular for shorter distance trips. TNCs can also help address gaps in existing service, where limited local transit routes may not connect potential riders to longer-distance BRT service. Agencies around the country are experimenting with subsidizing TNC trips for riders to/from major transit stations, and are also operating their own pilot programs that offer flexible routes and app-based ride hailing within a defined service area. Initial results from these programs indicate that they are much more expensive to operate on a per-passenger basis than fixed route transit, but are often popular with riders and can offer potential to meet equity objectives. The long-term feasibility of these concepts are uncertain, as existing TNC business models are not profitable and they shift operations, maintenance, and other costs to the individual drivers providing the service.
Micromobility	New micromobility options (primarily in the form of e-scooters) can extend the reach of transit by providing a convenient and quick way to address the first/last mile gap. Like TNCs, micromobility companies are operating their service at a loss, and volatility in the space and regulatory uncertainty has led to them deploying service or exiting markets rapidly. Like other transit and active transportation options, the scooters work best in more densely-developed areas that prioritize multimodal travel. The devices themselves have shown poor durability, do not work well on uneven streets or sidewalks, and can come in conflict with cyclists and pedestrians, but agencies around the country are successfully incorporating designated parking areas and other policies into their station designs to better plan for them. Some travelers have opted to purchase personal micromobility devices for daily use, which requires that transit agencies evaluate policies and vehicle design for how/when the devices can be brought onboard.
Technology	Technology may have impacts on BRT projects both for riders and for agencies. For riders, technology can enable smart fare payment, more accurate vehicle arrival predictions, and on-board amenities such as Wi-Fi. For agencies, intelligent transportation systems (ITS) can support fleet operations and more reliable bus service through signal preemption or prioritization, passenger counting, and security monitoring.

	Zero-emission/battery-electric vehicles are also being deployed in greater numbers, which complicates the provisioning of maintenance and charging infrastructure at bus depots and layover areas.
Transportation Needs and Network Overhauls	New data sources and research are providing greater insight on travel demand at non-peak/non-commute times, such as that of students, or individuals with childcare responsibilities that run errands in the late afternoon. Cities such as Baltimore, Houston, and Los Angeles have performed or are in the process of completing complete overhauls of their networks, often by simplifying popular routes and consolidating stops. This has led to pushes for more consistent and frequent all-day service, typically balanced by the elimination of some low-performing or indirect routes and reductions in some evening or weekend service.
Demographics	Changing demographics will continue to influence current and future/potential ridership. As greater numbers from the Boomer generation age and become unable or unwilling to continue driving, potential ridership in the age group may increase. However, the popularity of TNCs or other shared ride services may limit this increase. Younger generations in the aggregate are obtaining driver licenses at a later age or not at all, but this trend may have been impacted by larger economic trends as much as by personal preference. The housing crisis is also impacting transit ridership, as transit-dependent populations are displaced from core transit areas due to the high cost of housing.
Autonomous Vehicles	Proponents of autonomous vehicles envision a world in which traffic flows much more smoothly and safely thanks to fully autonomous technology and connected vehicles. While freeway BRT in managed lanes may offer greater potential for deployment of AVs, the highly complex decision-making required of transit operators is unlikely to be automated in the near future. If AV technology progresses to the point that it is safe, reliable and available to personal consumers, a mid-range scenario might include personal AVs sharing space in managed lanes with human-operated transit vehicles.

Although changes in land use have the biggest influence in altering travel patterns, these technology trends may also contribute to changes in travel in Orange County. Areas in the County with low-density development are difficult to provide transit service to, but TNCs and mobility-on-demand may make transit more accessible and appealing, particularly as individuals age in place and drive less. Similarly, micromobility options may provide an appealing option to connect to transit for younger people who either choose not to drive or cannot afford to own a car.

Autonomous Vehicles could undermine transit service in Orange County, where auto-oriented development patterns would likely result in people choosing to let their cars drive themselves. However, shared autonomous vehicles larger than a car but smaller than a standard bus may provide a valuable benefit in places where fixed-route transit is difficult to provide, and land uses are unlikely to change, such as residential retirement communities, industrial areas, or large office parks.

Finally, the impacts of the public health crisis as a result of COVID-19 have emphasized the vital role that public transit plays in moving health care workers to care centers and essential workers to their jobs. Rear-door boarding, cashless or contactless fare payment systems, and increased cleaning schedules are near-term ways to reduce the public health risk, but new air filtration systems, surface treatments, interior vehicle designs, and policy changes are likely to be explored by transit agencies.

5.3 Purpose and Need Statement

In the light of the existing conditions presented in this report, the purpose and need statement for this project goes as follow:

Orange County's freeway infrastructures are facing significant overuse and damage, which is expected to become more serious as population, employment and the resulting congestion grow in the future.

Additionally, limited infrastructure expansion capabilities and funding uncertainties are requiring innovative strategies to bring people from their home to key destinations within the county. California's sustainability goals and standards also entail that significant changes be made to guide behavioral changes and reduce the environmental impacts of single-occupancy vehicles. Finally, the recent COVID-19 pandemic has demonstrated how quickly transportation trends and needs can change, which calls for an adaptable service that can adjust to changes in land use, work organization, and overall transportation demand. In Orange County, regional efforts to design and increase capacity of Managed and Express Lanes is an opportunity to offer efficient transit services that can further increase the capacity of existing infrastructures.

A BRT service on the I-5 and SR 55 freeways would be a cost-effective, flexible alternative that could answer today and tomorrow's transportation needs in Orange County. These services would be an opportunity to attract new riders by increasing multimodal connections to key destinations in the region, and by increasing transit competitiveness and simplifying long-distance travel through strategic routing and station siting. It is also an opportunity to increase collaboration among stakeholders, and to design a service that address the transportation needs of disadvantaged communities.

This project aims to optimize existing infrastructure along the I-5 and SR 55 to provide Orange County residents and visitors a safe, efficient and convenient alternative to the automobile.

6 Goals, Objectives, and Performance Measures

In order to better define the ways in which the project purpose and need will be addressed over the life of the project, the team established a set of goals, objectives, and performance measures. The project goals connect high-level planning documents (such as the OC Transit Vision) with those characteristics of BRT that can address the project purpose and need. Each goal was then matched with objectives that can be addressed through quantitative or qualitative analysis, as well as performance measures that follow industry standards and can be communicated to the public and key stakeholders.

Table 6.1: Goals, Objectives, and Performance Measures

GOAL	OBJECTIVES	PERFORMANCE MEASURES
1. Attract new riders to the OCTA system	Reduce travel times of transit	• Travel time estimates/comparisons with existing service
	Improve service reliability	• On-time performance
2. Provide access to key destinations through a strong multimodal network	Connect to transit-supportive land uses	• Employment density data • Connections to key activity centers and transit priority areas
	Optimize infrastructure for shared modes	• Managed lanes assessment • First/last mile needs assessment and safety analysis
3. Simplify long-distance travel	Increase network connectivity	• Potential for inter-agency coordination (e.g. scheduling and fare payment) • Qualitative assessment of existing/future bus and rail transit connectivity
	Plan for attractive, comfortable stations	• Station and vehicle design features that match community priorities
4. Support state, regional, and local environmental goals	Maximize potential VMT/GHG reduction	• VMT/GHG modeling / electric bus feasibility • HOV lane person throughput and vehicle occupancy rates
5. Collaborate with communities to build a freeway BRT	Address equity goals through increased service and benefits to riders and disadvantaged communities	• CalEnviroScreen • OCTA Transit Propensity Index

service that works for them	Partner with key stakeholders, destinations, employers	• Stated preference survey from community outreach activities • New partnerships (e.g. employer-provided passes/benefits)
6. Ensure that projects can be funded and built	Balance project goals with long-term constraints	• Farebox recovery • O&M costs
	Define funding gaps	• Capital costs
	Ensure physical feasibility	• Available right-of-way • Constructability

7 Conclusion and Next Steps

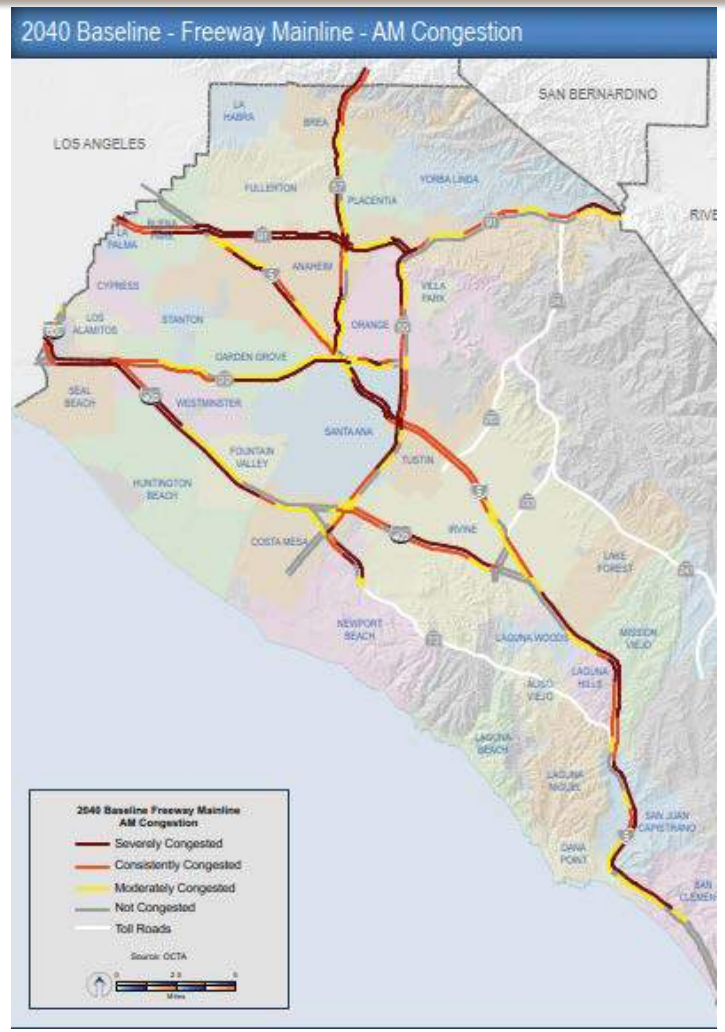
The Purpose and Needs Report has presented the key components of several studies and plans led by OCTA, Caltrans and their local and regional partners. These plans and studies all include objectives and strategies that align with the goals and objectives of Freeway BRT services along I-5 and State Route 55 in Orange County. They also highlighted several initiatives, such as Caltrans Managed Lanes study, that could support the implementation of highly competitive BRT routes in the region.

The sociodemographic profiles as well as existing and projected travel patterns in the region have also shown that the region could be supportive of an efficient alternative to private vehicles. There are several employment and catchment areas along the two study corridors that could provide high ridership rates if connected appropriately to a frequent rapid service. The two corridors are also facing high levels of congestion and degradation, which are both expected to amplify in the next 30 years, making driving less and less appealing. The region is also fairly built out, with limited right-of-way or land available for acquisition, which would make a light-rail option difficult to realize. Furthermore, uncertainties regarding funding availabilities, and changes in travel demand following new lifestyle trends as well as the after-effects of the COVID-19 pandemic make the development of a flexible solution such as a BRT line more feasible than a rail alternative.

In addition to the exiting and projected trends, opportunities and challenges, a peer review was conducted as part of this study, looking at two local projects as well as three projects from Canada and the Midwest. These case studies have highlighted several key takeaways that will support the development of design alternatives that rely on best practices as well as context-specific considerations. The next task of the OCTA Freeway BRT Concept Study will integrate the knowledge and lessons acquired as part of this study and lead to the design of three potential alternatives for each of the two corridors under study.

Appendix A

2015 - 2040 Freeway Congestion:
AM Peak



Source: OCTA Long Range Transportation Plan (2018)

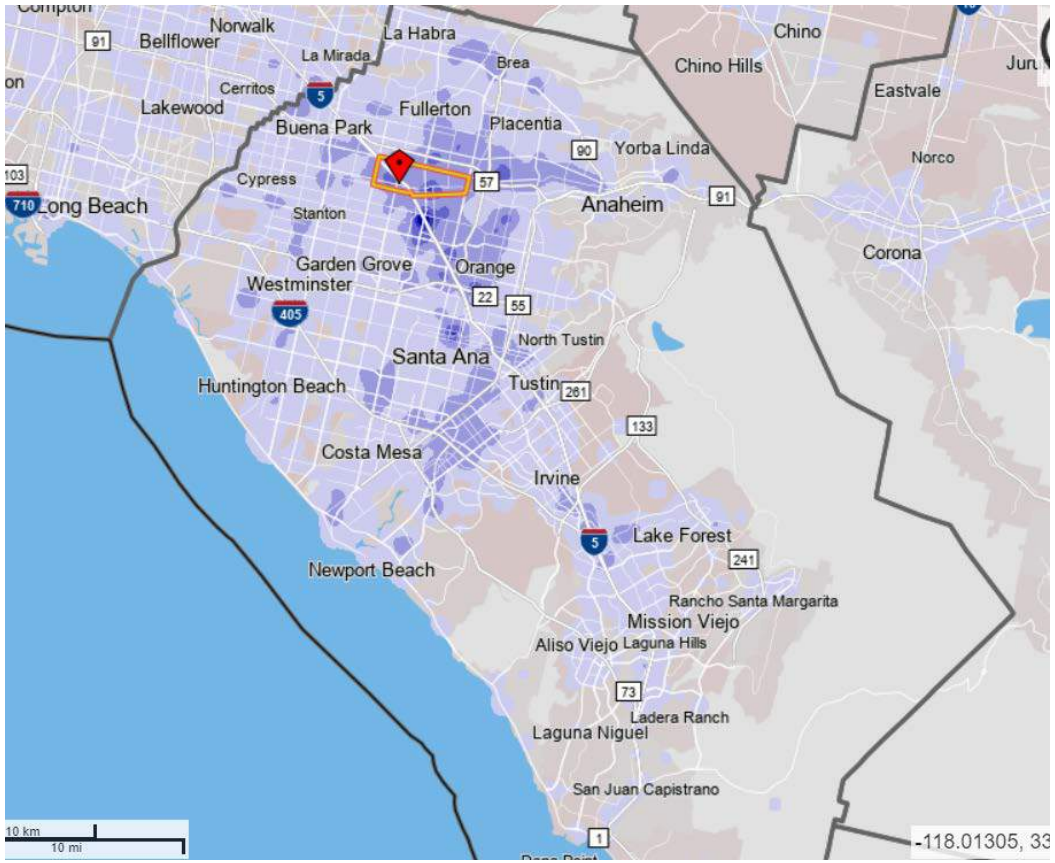
Appendix A

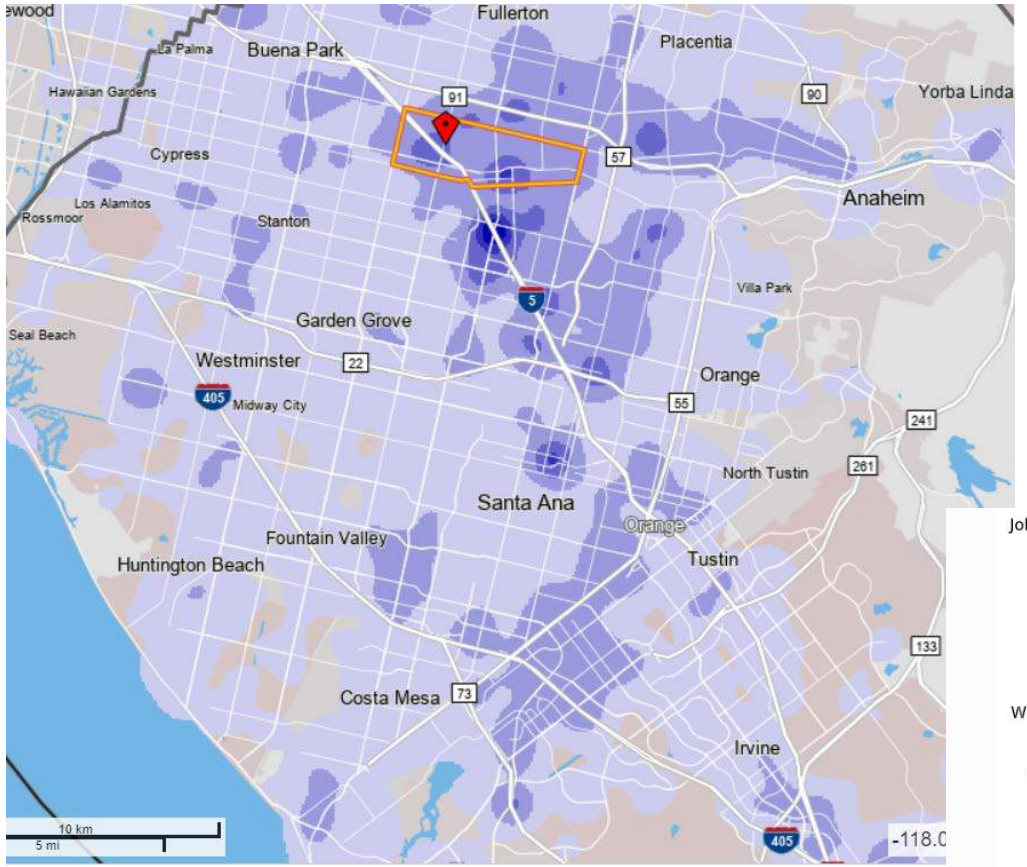
2015 - 2040 Freeway Congestion:
PM Peak

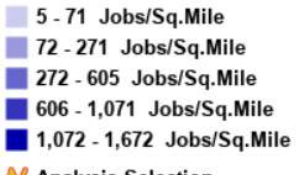
Source: OCTA Long Range Transportation Plan (2018)

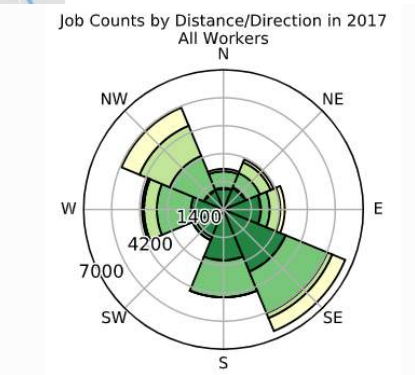
Appendix A

La Palma / Euclid Catchment Analysis Zone – **30,082 Study Area Workers** (Purple Areas show where workers live)





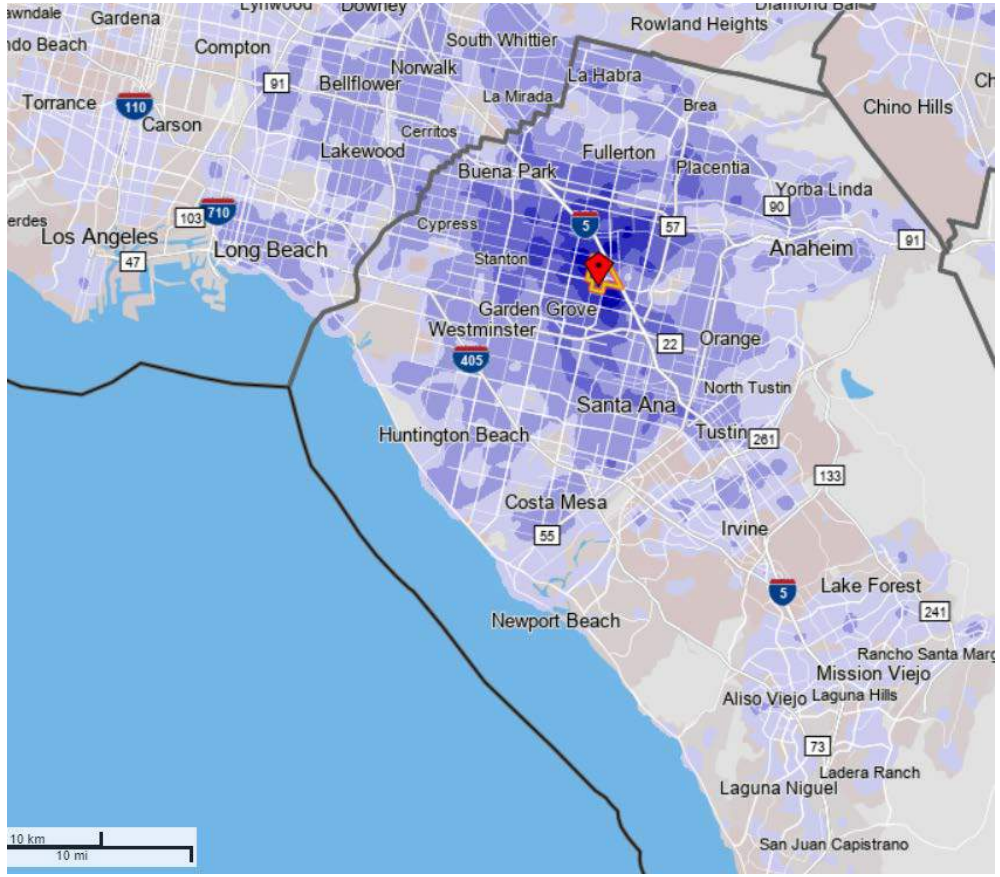


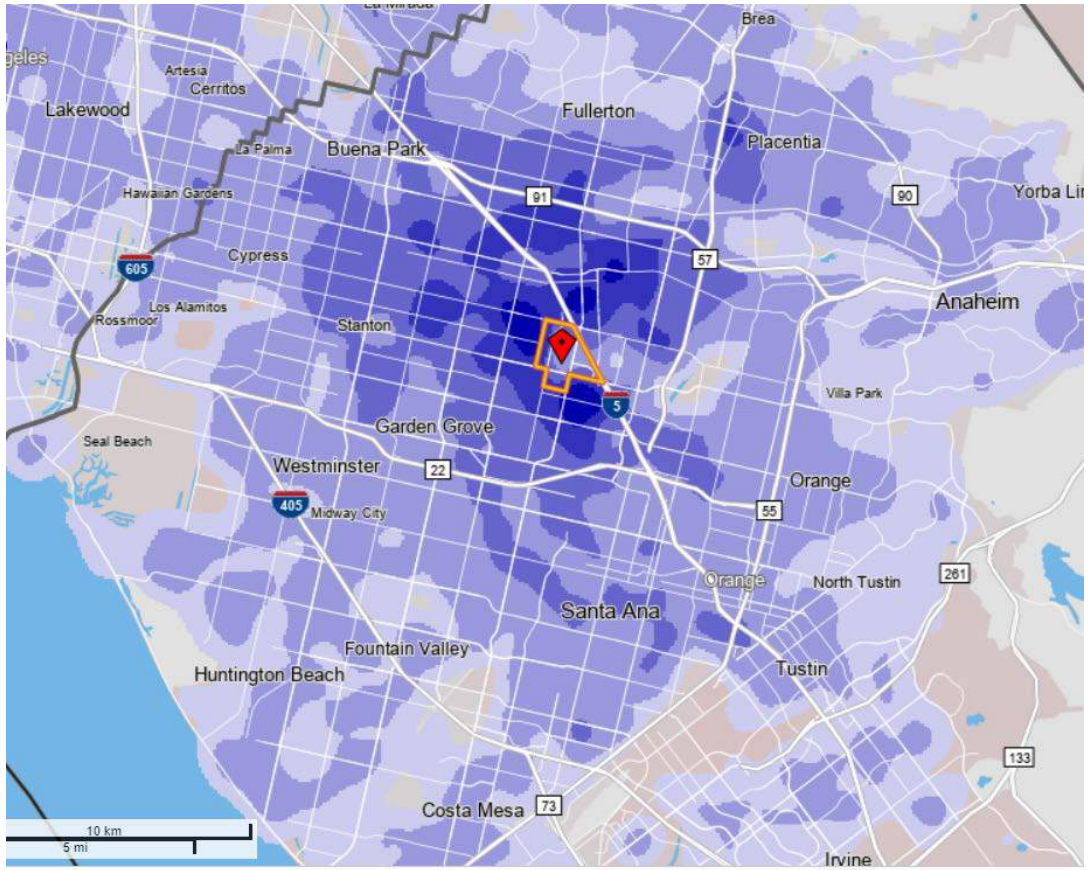


Source: OnTheMap, U.S. Census Bureau, Center for Economic Studies

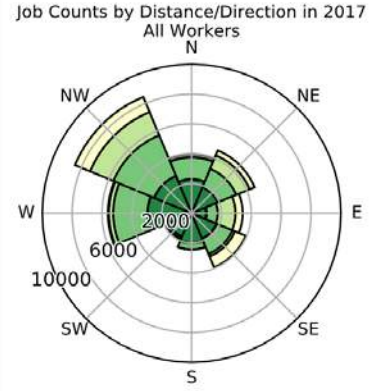
Appendix A

Disneyland/ Harbor Catchment Analysis Zone – **34,242 Study Area Workers** (Purple Area show where workers live)





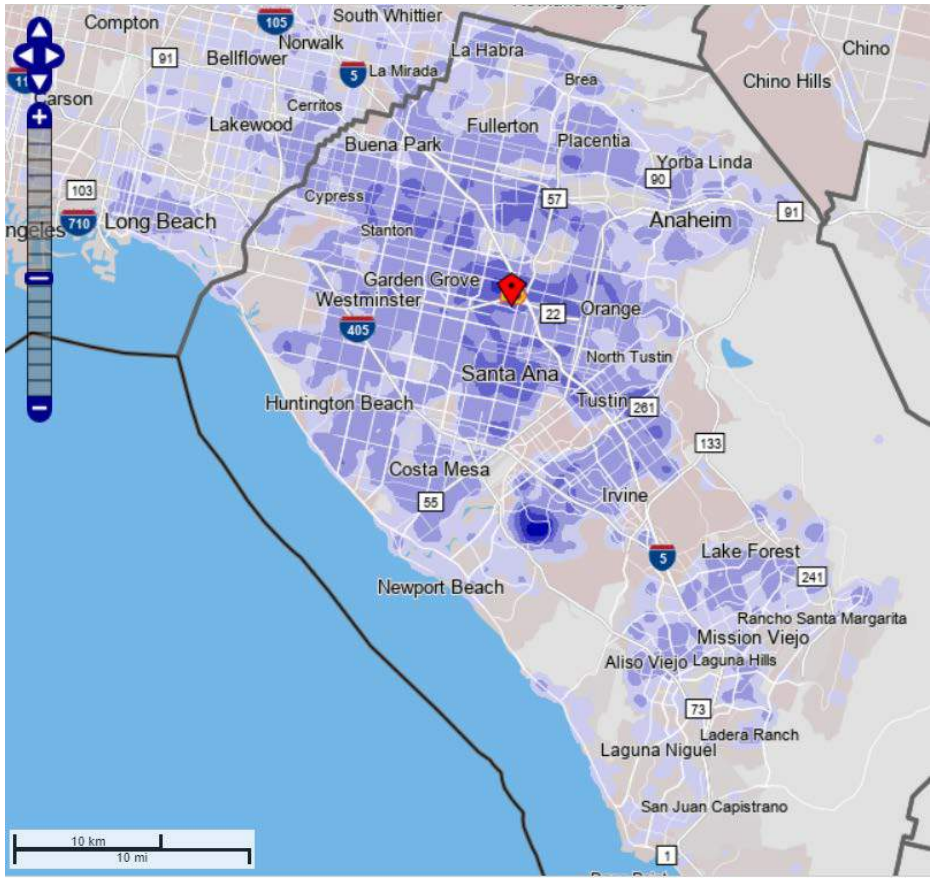
5 - 23 Jobs/Sq.Mile
24 - 80 Jobs/Sq.Mile
81 - 174 Jobs/Sq.Mile
175 - 307 Jobs/Sq.Mile
308 - 477 Jobs/Sq.Mile

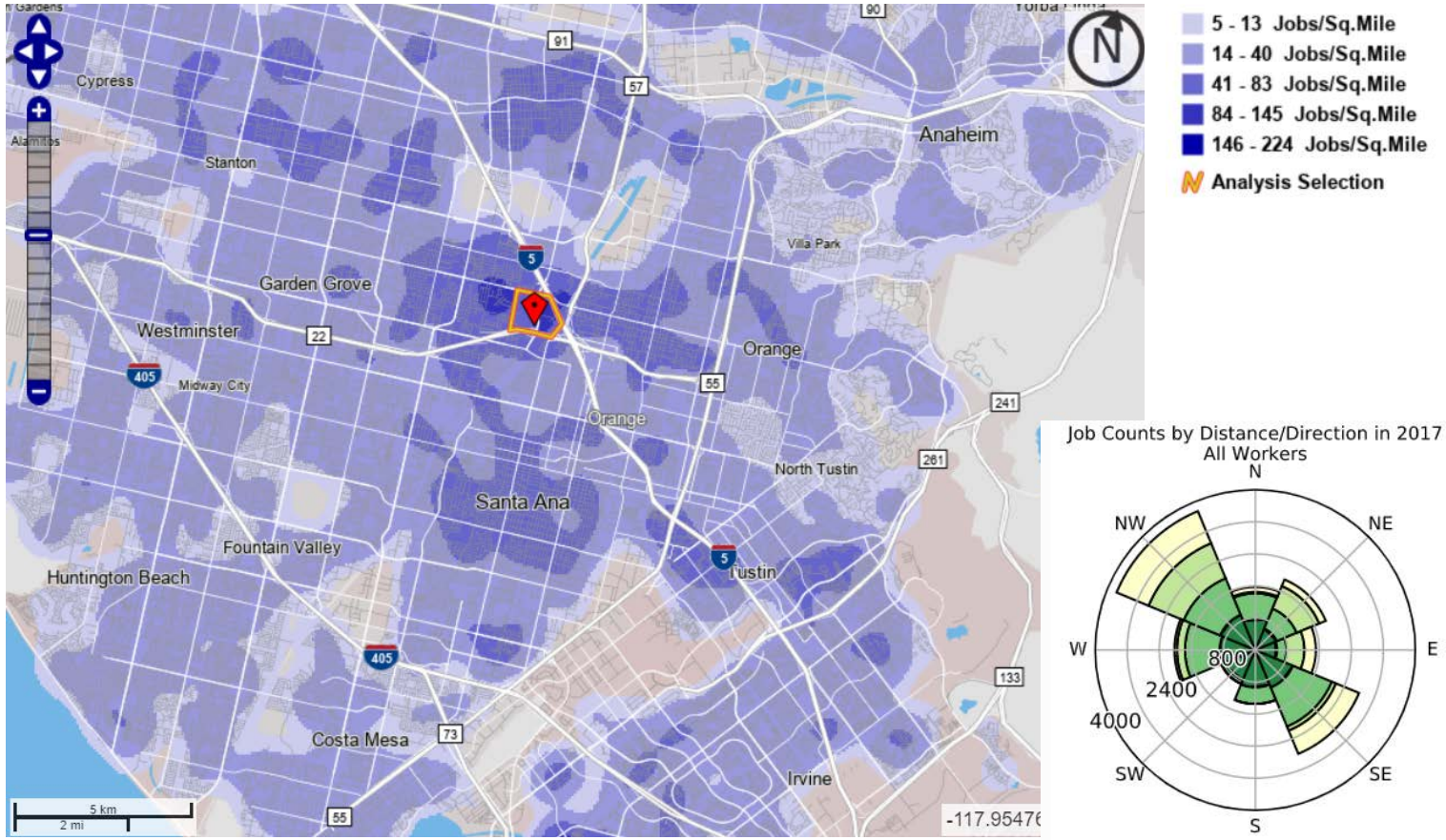


Source: OnTheMap, U.S. Census Bureau, Center for Economic Studies

Appendix A

State College / UCI Medical Catchment Analysis Zone – **15,828 Study Area Workers** (Purple areas show where workers live)

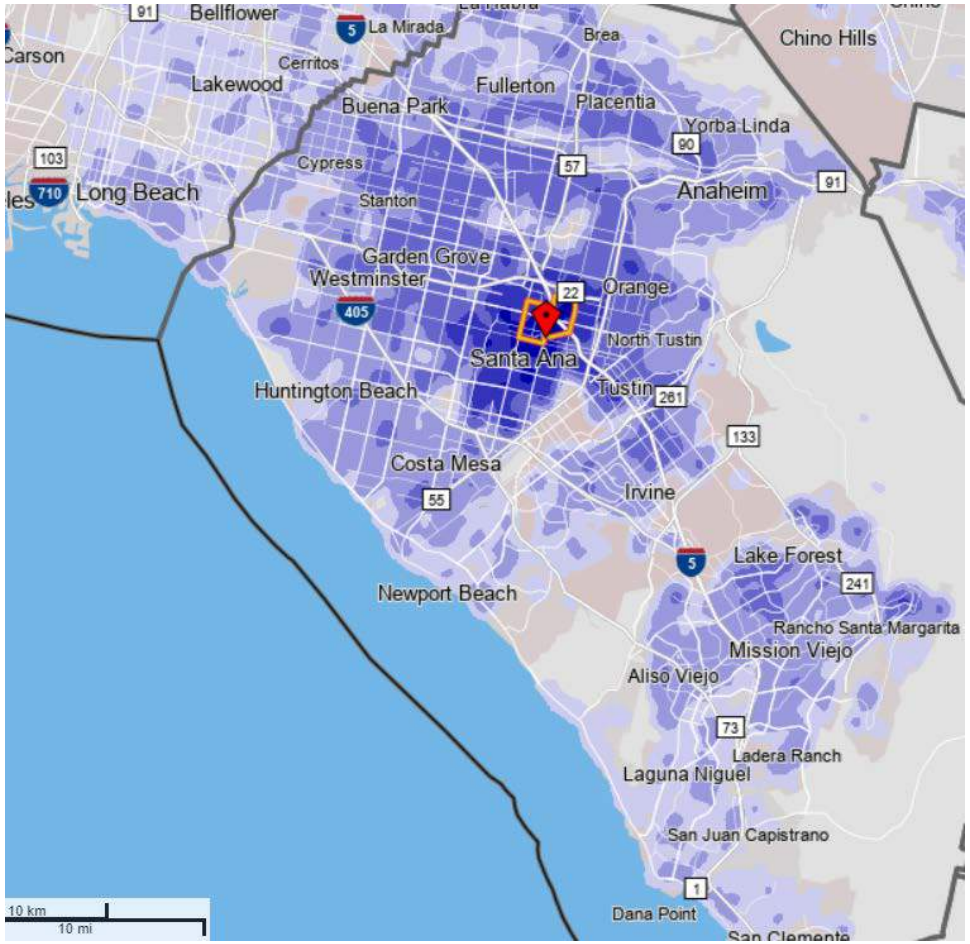


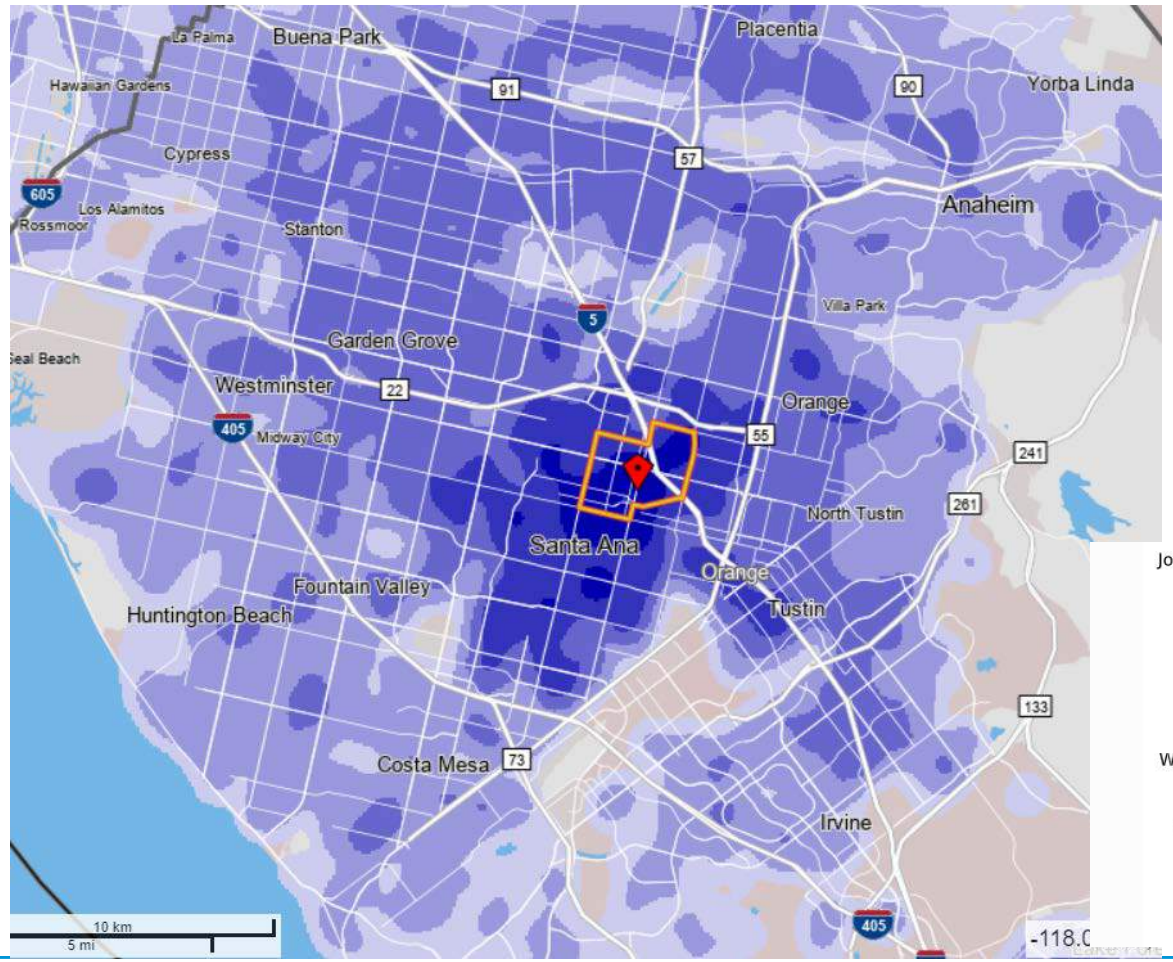


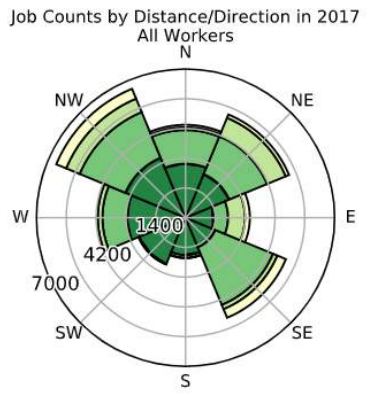
Source: OnTheMap, U.S. Census Bureau, Center for Economic Studies

Appendix A

Downtown Santa Ana Catchment Analysis Zone – **32,738 Study Area Workers** (Purple areas show where workers live)



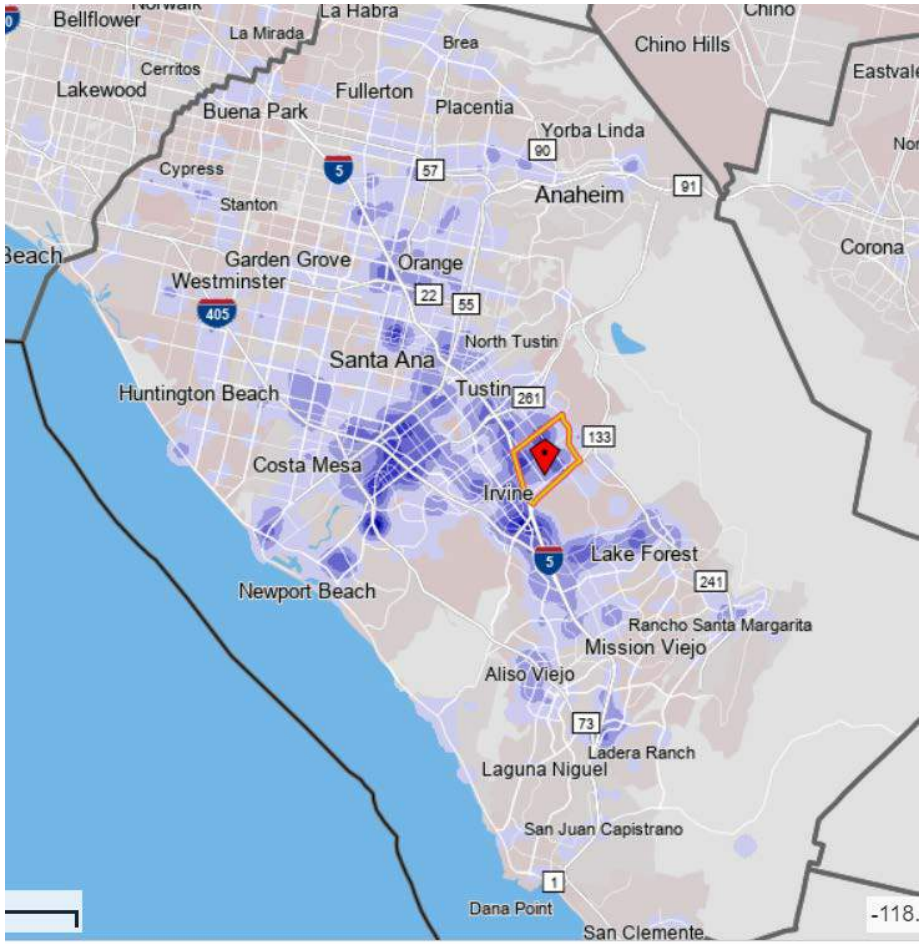


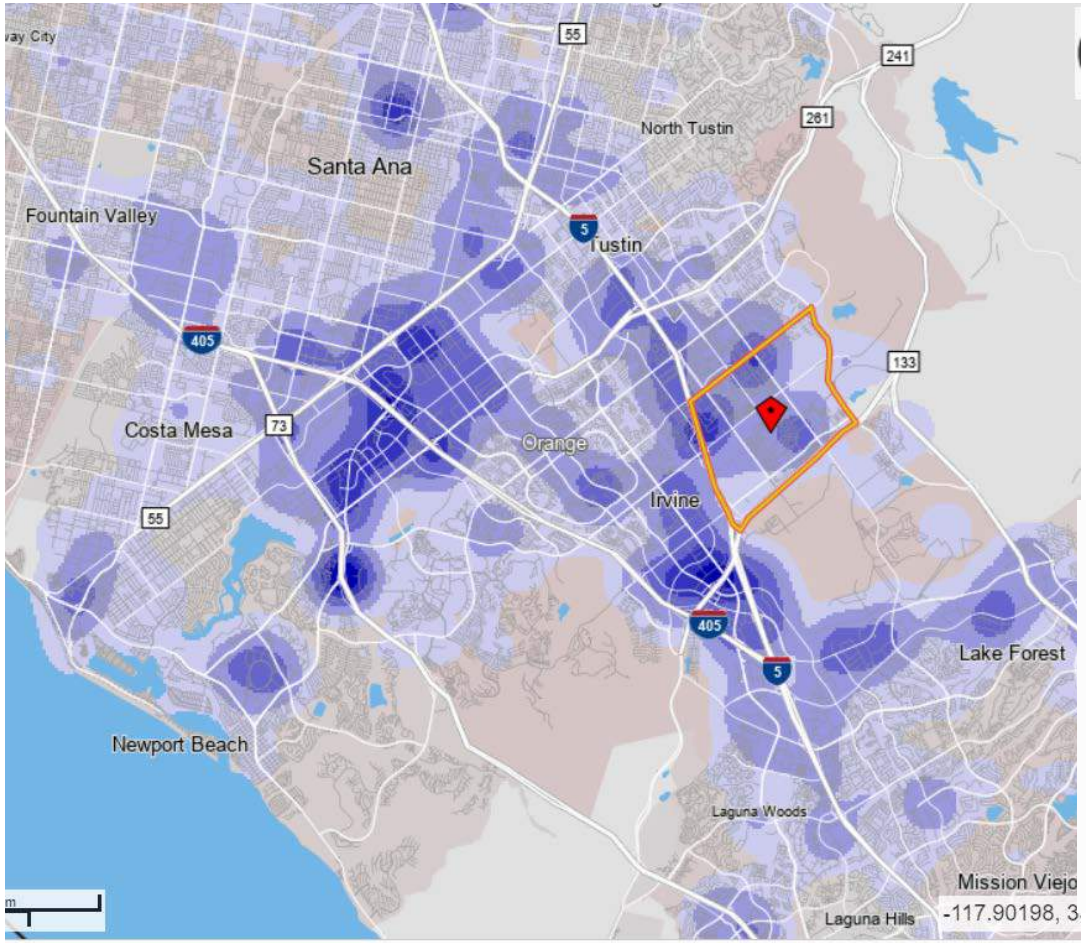


Source: OnTheMap, U.S. Census Bureau, Center for Economic Studies

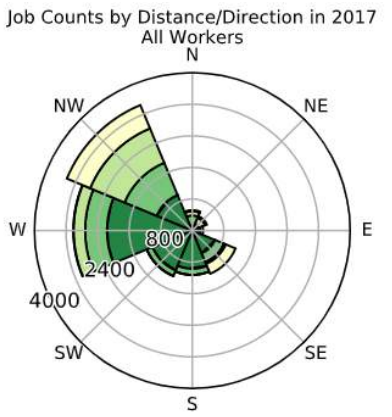
Appendix A

Northwood Irvine Catchment Analysis Zone – **11,197 Study Area Residents** (Purple areas show where residents work)





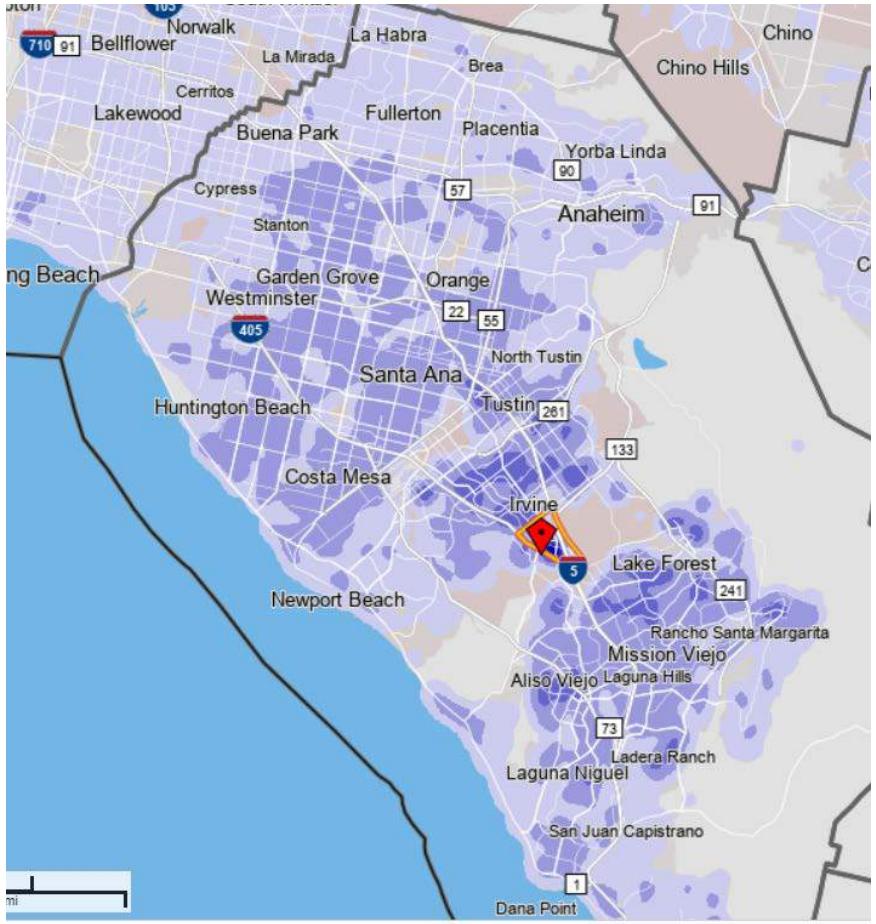
5 - 26 Jobs/Sq.Mile
27 - 89 Jobs/Sq.Mile
90 - 195 Jobs/Sq.Mile
196 - 343 Jobs/Sq.Mile
344 - 534 Jobs/Sq.Mile
Analysis Selection

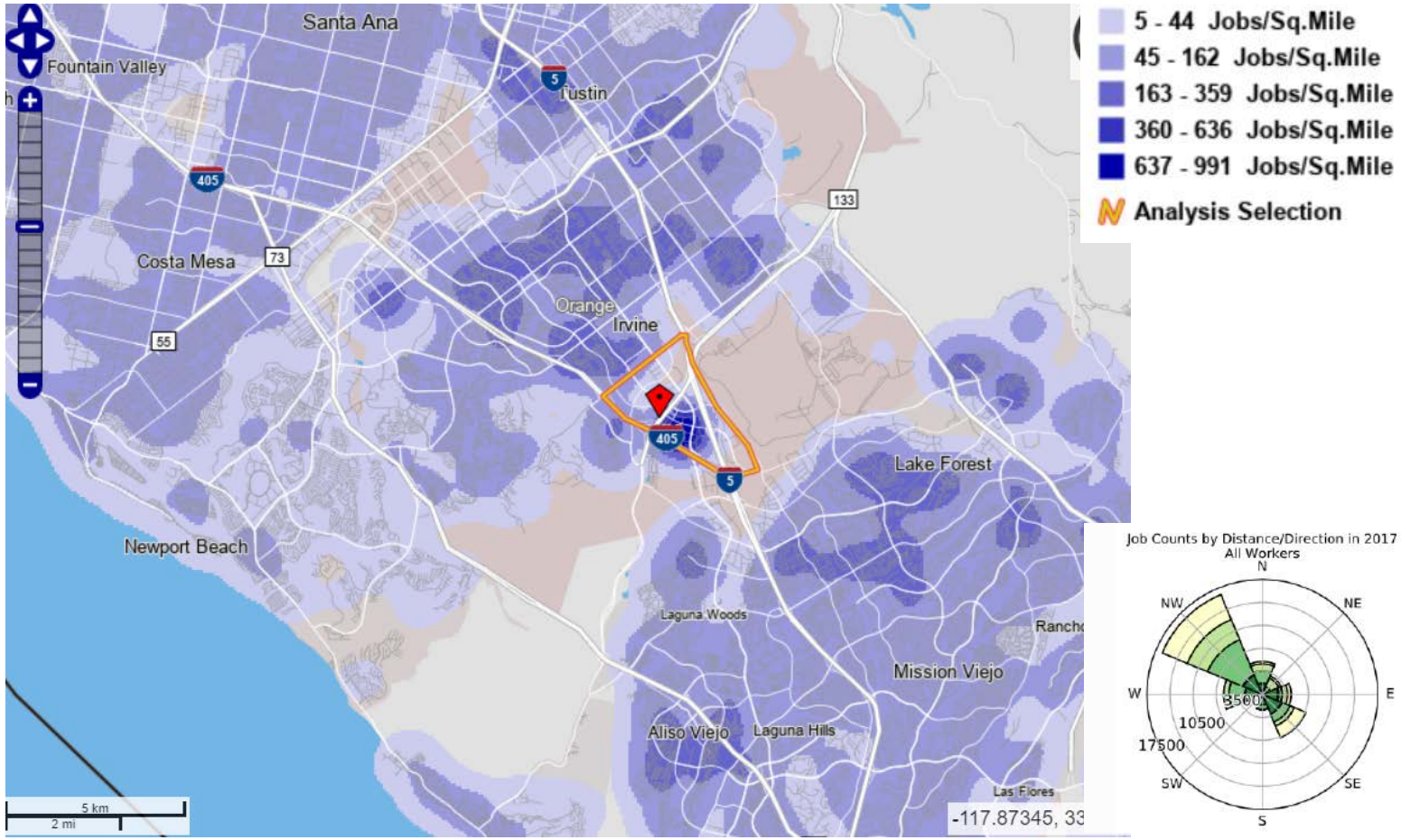


Source: OnTheMap, U.S. Census Bureau, Center for Economic Studies

Appendix A

Irvine Spectrum Catchment Analysis Zone – **44,715 Study Area Workers** (Purple areas show where workers live)

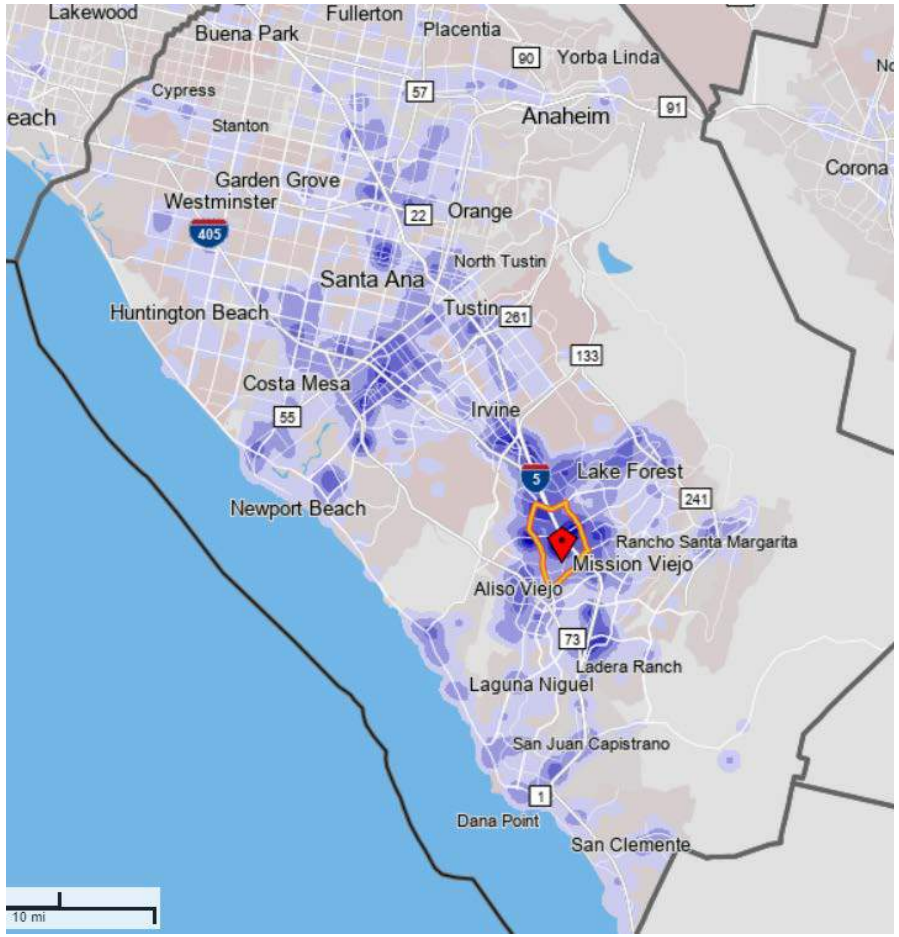


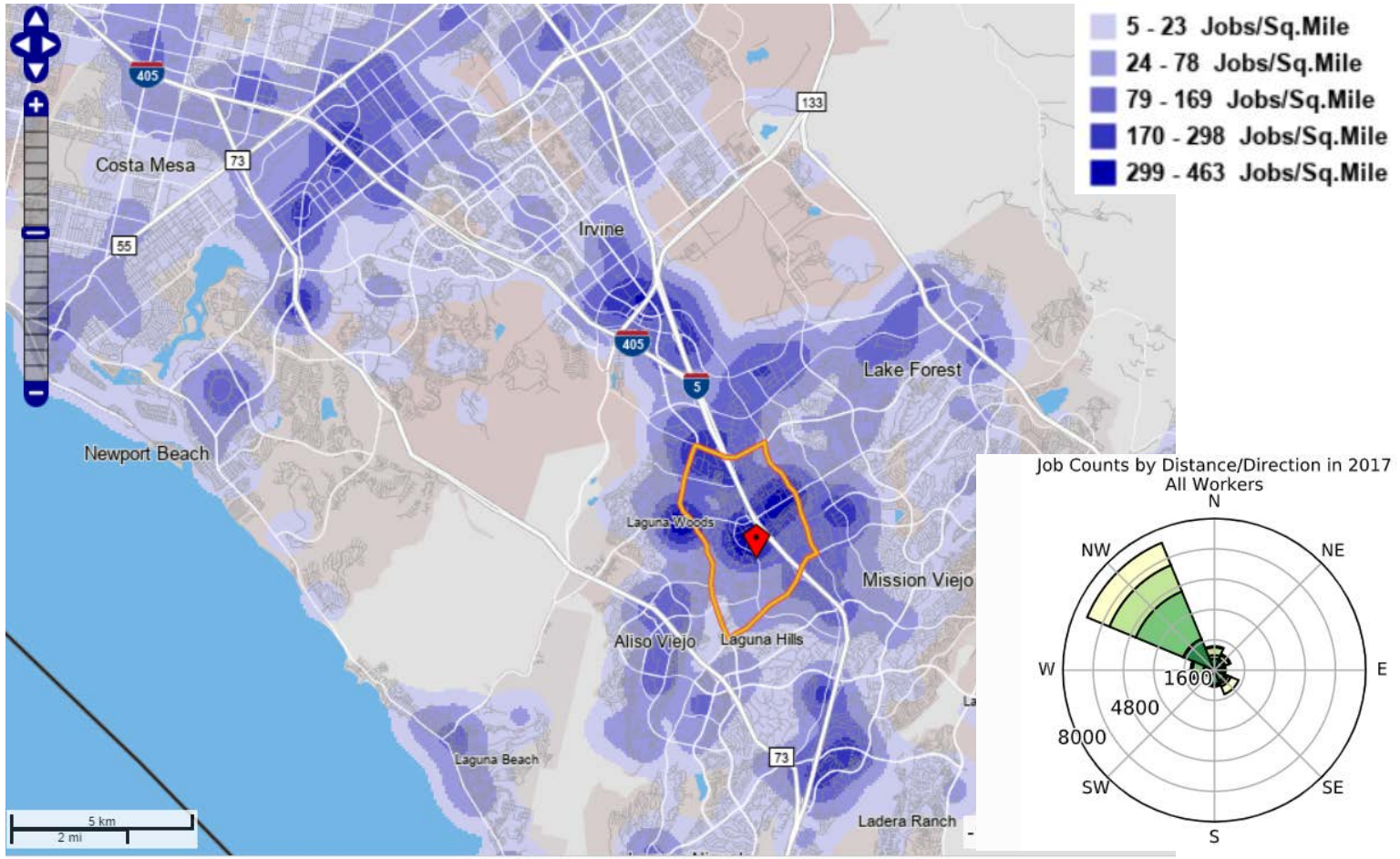


Source: OnTheMap, U.S. Census Bureau, Center for Economic Studies

Appendix A

El Toro Catchment Analysis Zone – **14,040 Study Area Residents** (Purple areas show where residents work)

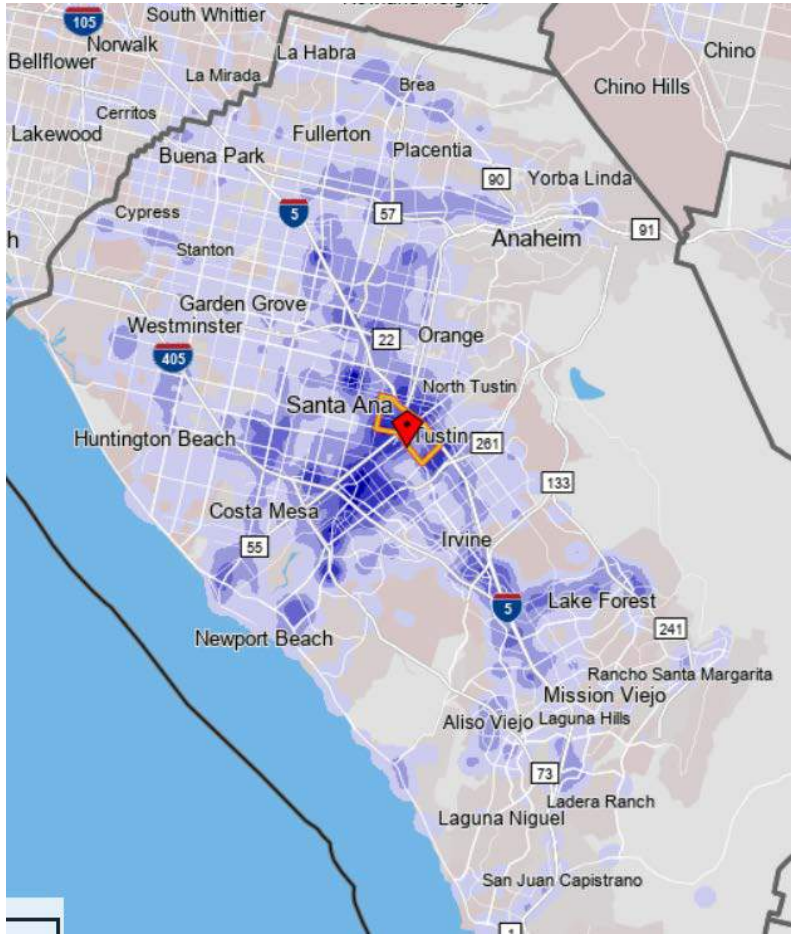


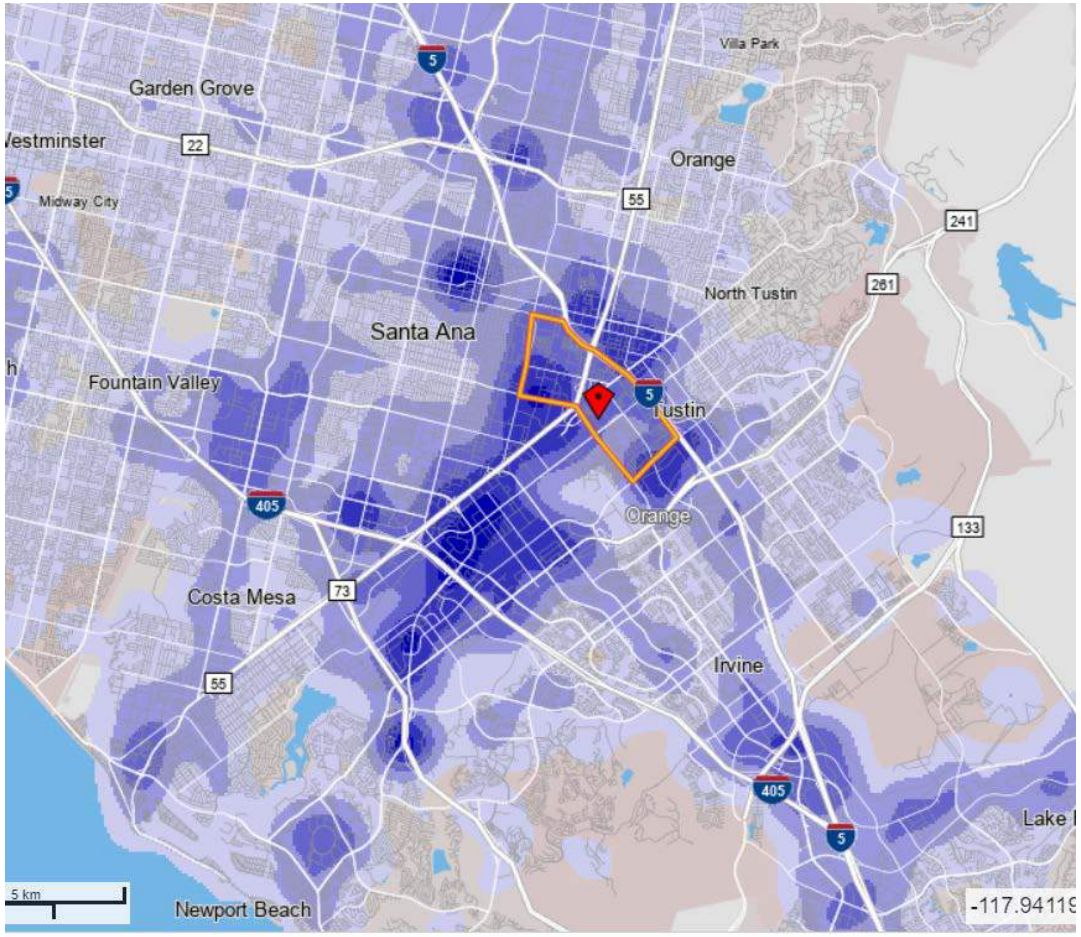


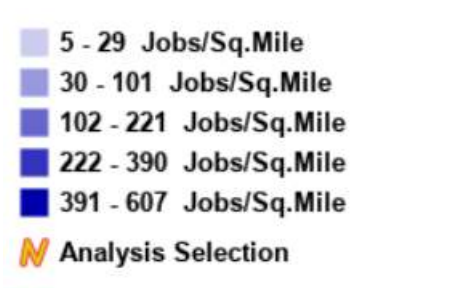
Source: OnTheMap, U.S. Census Bureau, Center for Economic Studies

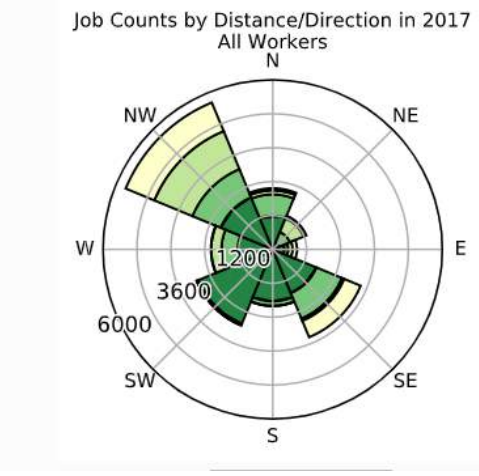
Appendix A

McFadden Catchment Analysis Zone – **20,398 Study Area Residents** (Purple areas show where residents work)





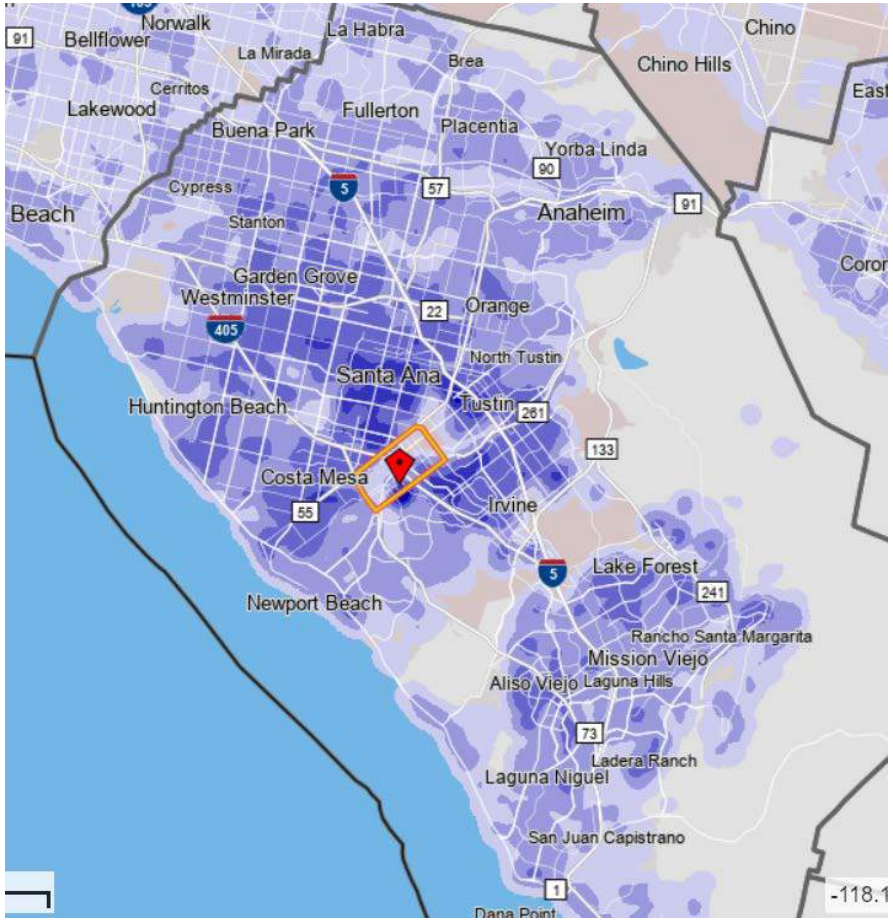


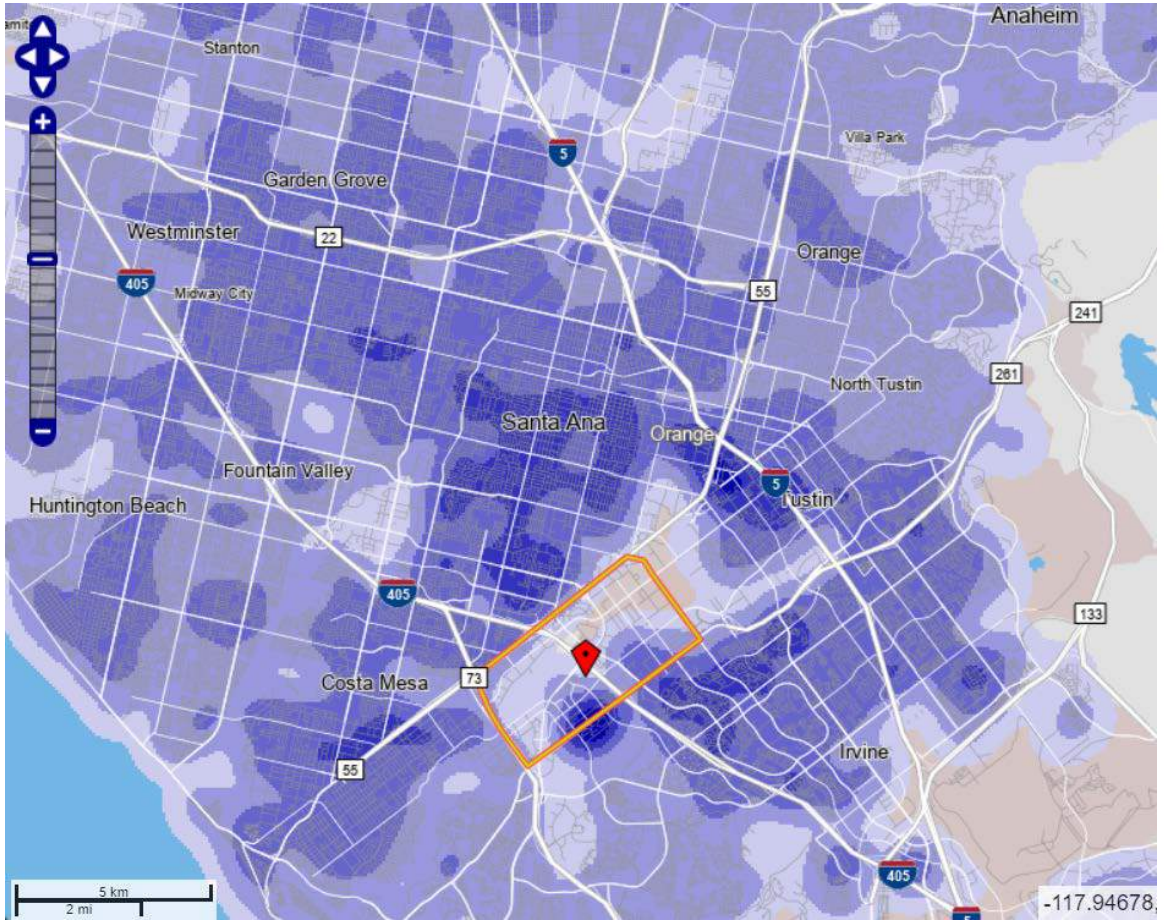


Source: OnTheMap, U.S. Census Bureau, Center for Economic Studies

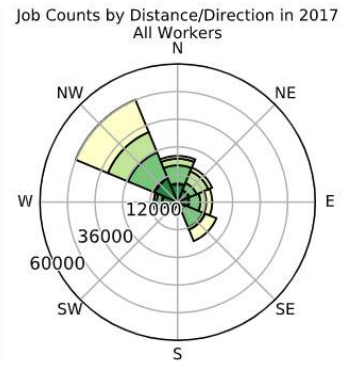
Appendix A

Irvine Business Complex Catchment Analysis Zone – **133,835 Study Area Workers** (Purple areas show where workers live)





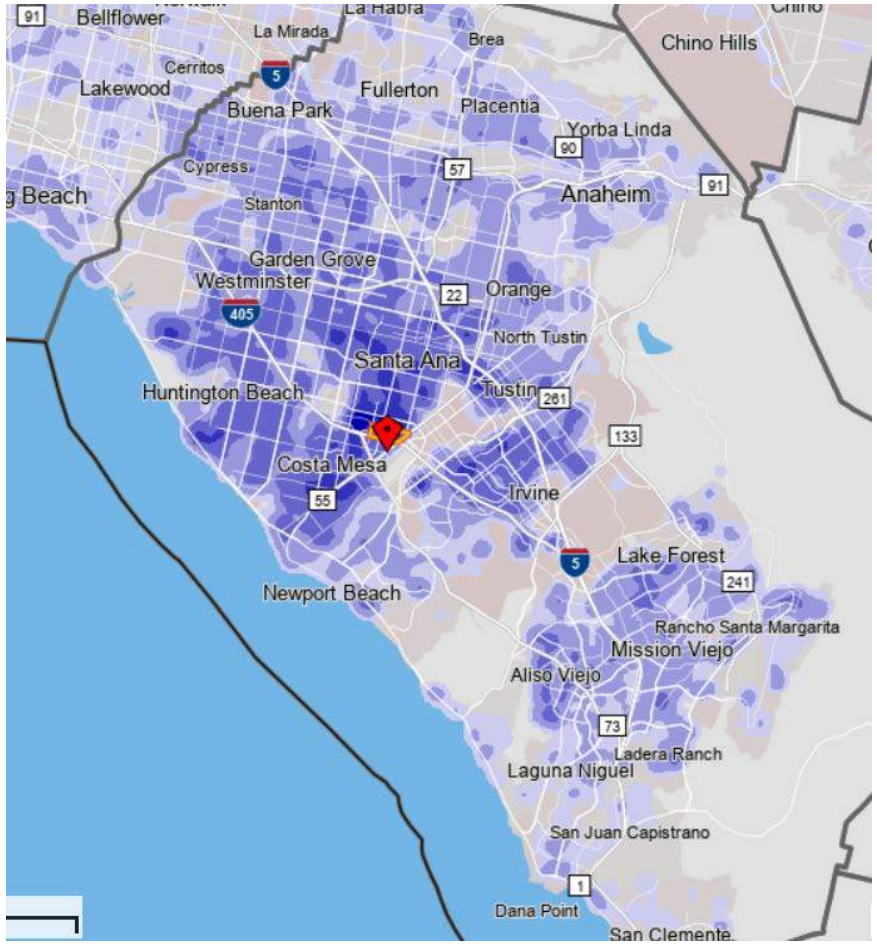
5 - 56 Jobs/Sq.Mile
57 - 209 Jobs/Sq.Mile
210 - 465 Jobs/Sq.Mile
466 - 823 Jobs/Sq.Mile
824 - 1,284 Jobs/Sq.Mile
Analysis Selection

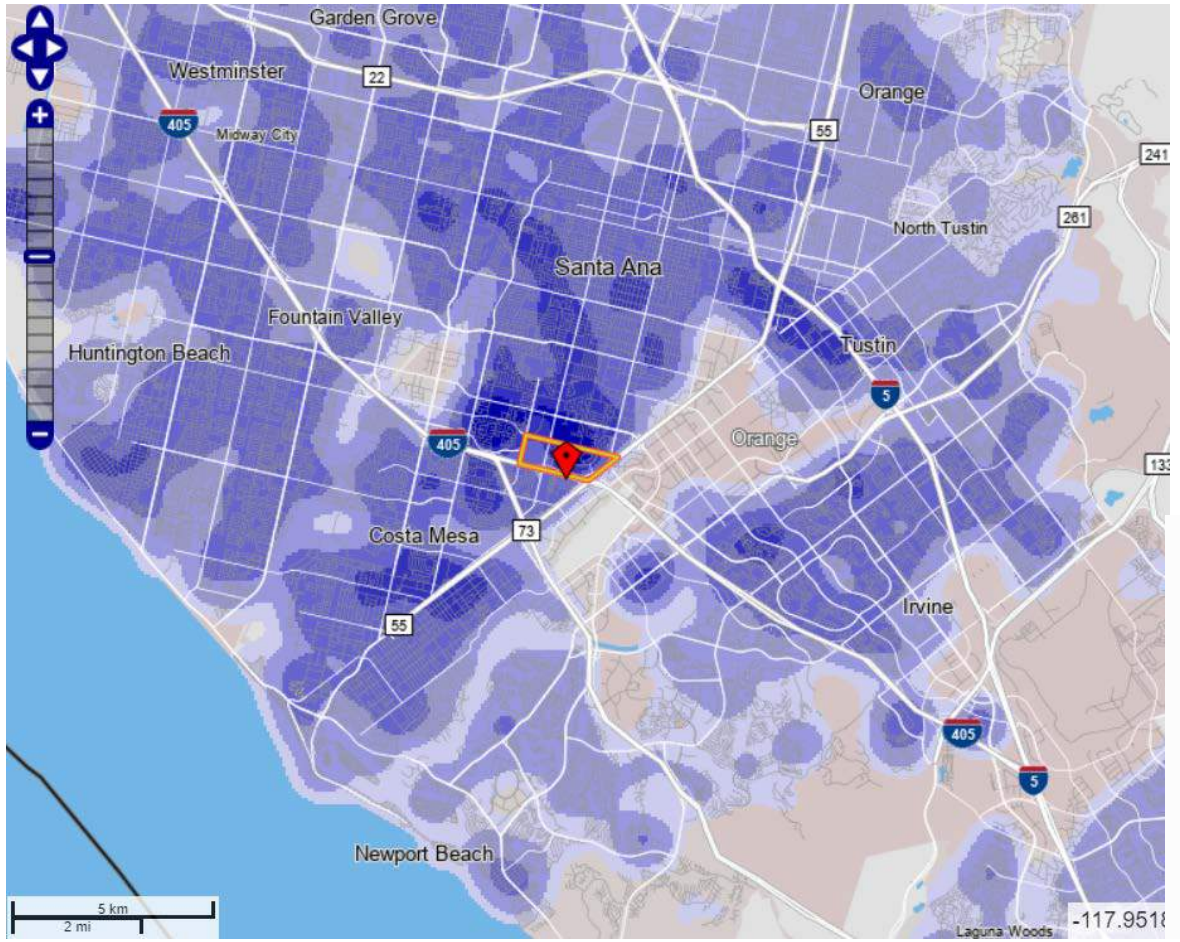


Source: OnTheMap, U.S. Census Bureau, Center for Economic Studies

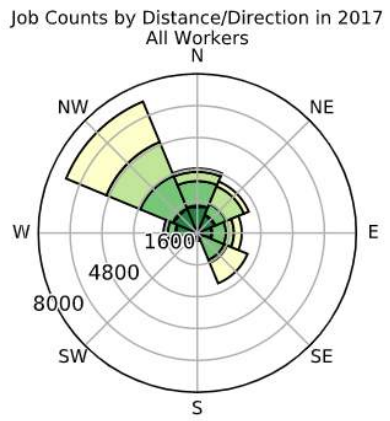
Appendix A

South Coast Metro Catchment Analysis Zone – **20,870 Study Area Workers** (Purple area show where workers live)





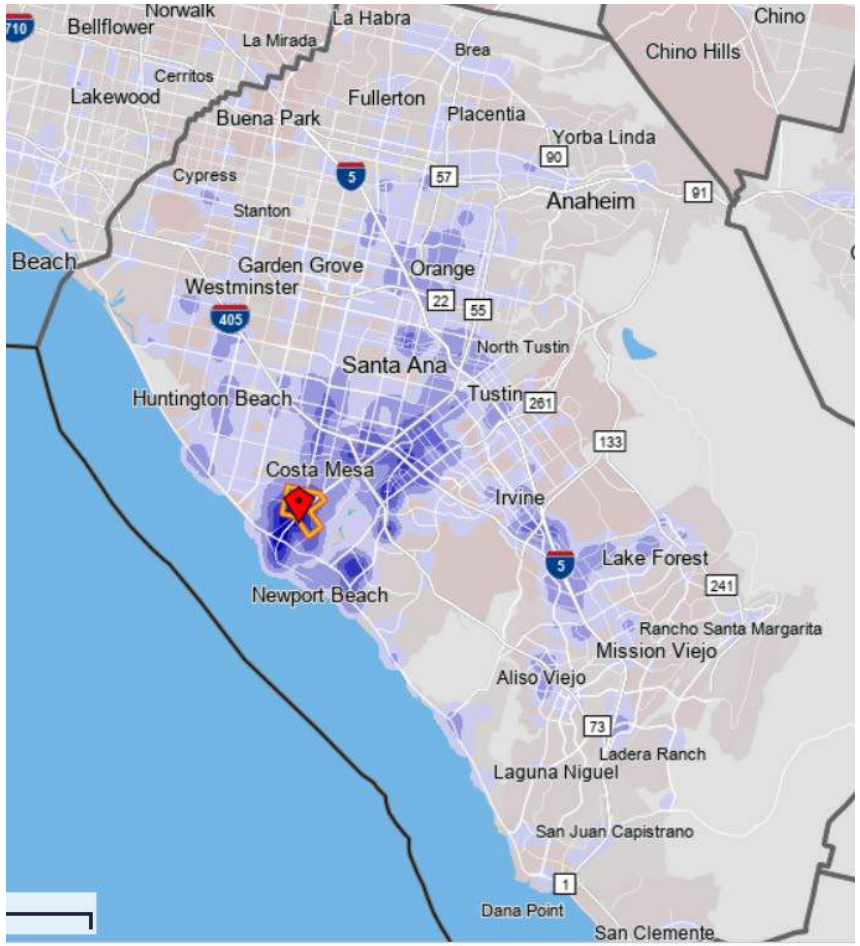
5 - 12 Jobs/Sq.Mile
13 - 33 Jobs/Sq.Mile
34 - 69 Jobs/Sq.Mile
70 - 119 Jobs/Sq.Mile
120 - 184 Jobs/Sq.Mile
Analysis Selection

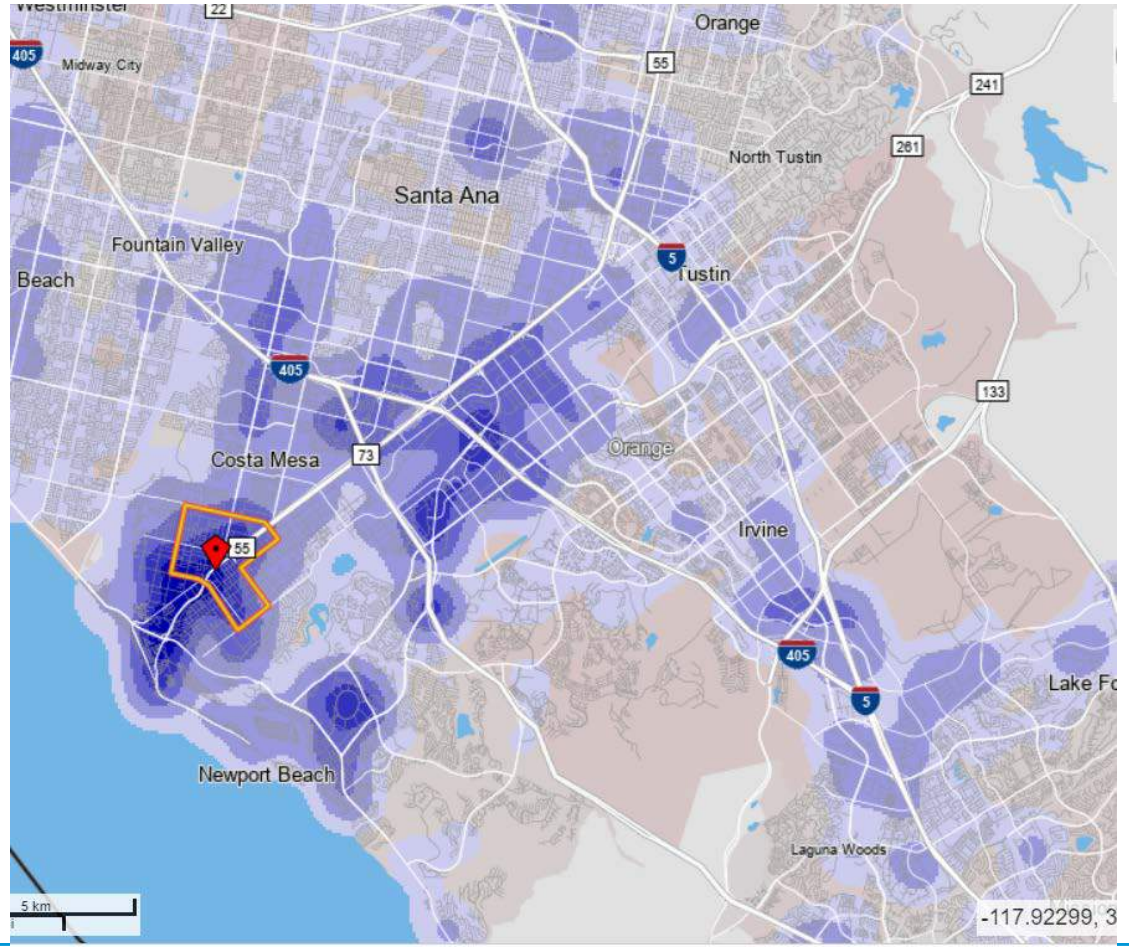


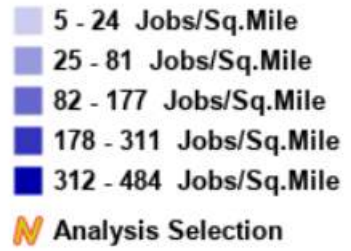
Source: OnTheMap, U.S. Census Bureau, Center for Economic Studies

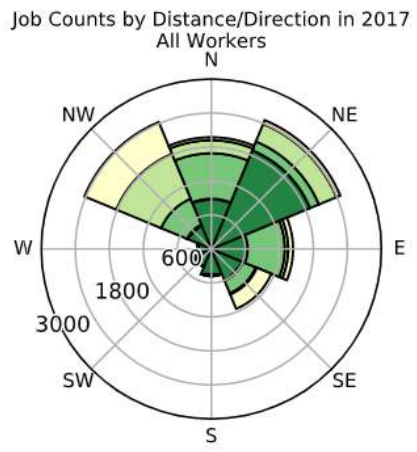
Appendix A

Downtown Costa Mesa Catchment Analysis Zone – **10,515 Study Area Residents** (Purple areas show where residents work)









Source: OnTheMap, U.S. Census Bureau, Center for Economic Studies

Appendix B: Freeway BRT Public Outreach Summary Report

Bus Rapid Transit on Freeways Study

Public Outreach Summary Report

July 2021

Prepared for:

OCTA Caltrans

Orange County Transportation Authority
550 South Main Street
Orange, CA 92868

Prepared by:

arellano associates

Arellano Associates
5851 Pine Avenue, Suite A
Chino Hills, CA 91709

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Appendix

EXECUTIVE SUMMARY

The Orange County Transportation Authority (OCTA), in partnership with the California Department of Transportation (Caltrans) District 12, is studying the development of two freeway Bus Rapid Transit (BRT) routes on Interstate 5 (I-5) and State Route 55 (SR-55). The Freeway Bus Rapid Transit Concept Study (study) will identify improvements to infrastructure and transportation solutions for potential Bus Rapid Transit (BRT) routes and identify stops along each corridor. The I-5 study route is approximately 30 miles from the Laguna Niguel/Mission Viejo Metrolink Station to the Fullerton Park and Ride, while the north-south route is 12 miles long, traveling the SR-55 from the Santa Ana Regional Transit Center to Hoag Memorial Hospital Presbyterian in Newport Beach.

The study builds upon prior studies conducted by Caltrans and the Southern California Association of Governments (SCAG) and develops solutions that aim to benefit transit riders, high-occupancy vehicles, toll users and traffic conditions along two of the County's busiest freeways.

Outreach Approach

The purpose of the public engagement campaign was to engage the public, build study awareness, and gather community feedback on the proposed BRT alternatives. The goal was to actively engage the community through an online survey, public webinar, stakeholder roundtable meetings, telephone helpline, and print and online resources and media. All outreach took place during the COVID-19 pandemic in 2020 and was mostly limited to electronic and virtual engagement in order to address Centers for Disease Control (CDC) guidance and physical distancing restrictions.

The focus was to engage the general public, with special consideration given to major employers, community destinations, and environmental and social justice populations. Branding was also developed and used in all outreach efforts, including the study website, collateral materials and notifications.

Diversity Outreach

To align with OCTA's Diversity, Equity, and Inclusion goals, several outreach tactics were implemented in an effort to engage diverse and hard to reach communities to encourage meaningful engagement with all people regardless of ethnicity or socioeconomic backgrounds. An online survey, fact sheet, and infographic were translated into Vietnamese and Spanish and closed captioning was added to the presentation videos. In addition, a helpline was available for people who prefer to call or do not have internet access so they could leave comments, ask questions and take a survey by phone. Spanish and Vietnamese speakers were available to help callers take the survey in language.

Communication tool kits were also sent to all 34 Orange County cities, key stakeholders and OCTA's Citizens Advisory Committee, Special Needs Advisory Committee and Diverse Community Leaders Group. The Stakeholder Roundtable consisted of a diverse range of stakeholders representing various organizations and communities around Orange County. Advertising was also placed in Spanish and Vietnamese, including targeted geofencing ads, print newspaper ads, and Facebook ads.

Online Survey

A central component of this outreach program was the development of an online survey designed to gather input to aid in refining technical assumptions and the study's conceptual alternatives. The survey research utilized a nonprobability sample; results of this survey cannot be considered representative of the total population of interest. Informal research methods, such as this, are useful to explore a group's opinions and views, allowing for the collection of a variety of data. Data collected can reveal information that may warrant further study and often foster the generation of new ideas.

Due to COVID-19 restrictions and to increase participation, the survey was developed using two survey platforms. The primary survey method was Typeform, an online, web-based platform that was issued in English, Spanish and Vietnamese to engage transit corridor riders and gather valuable feedback on the community's perspective on the proposed BRT routes. The second platform was a telephone helpline that was available to English, Spanish and Vietnamese speakers, and enabled participants to take the survey by phone.

Survey questions focused on assessing the potential use of freeway BRT and sought to:

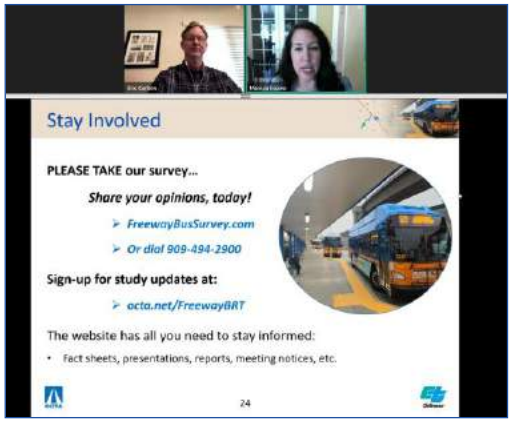
- Determine respondent geography,
- Establish travel patterns and corridor use,
- Identify opportunities for travel improvement,
- Gather respondent demographics, and
- Receive new contact information.

The survey was available from September 25 to November 16, 2020. A total of 292 surveys were submitted (250 English, 41 Spanish, and 1 Vietnamese). Of these, 11 have been deemed duplicative and removed from the analysis pool.

I. VIRTUAL PUBLIC MEETING & VIDEO PRESENTATION

It was determined, due to the COVID-19 pandemic, that the most suitable meeting format was to conduct public meetings in a virtual, online format. A dual format, comprised of an online webinar and a pre-recorded presentation, was used to optimize outreach and increase participation. Both the webinar and pre-recorded video shared the same messaging and PowerPoint, which was led by the OCTA Project Manager. The goal of these meetings was to build awareness, share study goals and gather input to refine the study's conceptual alternatives.

The pre-recorded presentation video was recorded prior to the live webinar and featured slides to encourage viewer participation in the study survey and live webinar. The video was uploaded to the project website and a link was included in meeting notifications to encourage public viewing. To increase accessibility to underrepresented and diverse communities, the PowerPoint presentation was also translated in Spanish and Vietnamese with closed captioning prepared for each of the three language videos. Videos were uploaded to OCTA's YouTube page and prominently featured on the study main page. As of June 2021, the English, Spanish and Vietnamese presentation videos have had 224, 17, and 9 views, respectively.



The live, public webinar held on Wednesday, October 14, 2020, was offered for those that wished to have an interactive experience with the study's team. The meeting offered study collateral available for online download, included polling questions for participant input, and featured a live question and answer (Q&A) session at the end of the meeting. All participants were provided the opportunity to ask questions and offer comment in one of two methods: a hand-gesture to request to speak or a chat box function, which host organizers read aloud for the team to respond. The webinar was recorded allowing for capture of polling response and Q&A.

A meeting recap and images from the webinar, as well as each version of the PowerPoint can be found in Appendix A. A quick overview of the webinar can be found in the table

below. All comments were captured and documented in a Comment Log & Issues Matrix (Appendix B) for further assessment.

Table 1: Live Public Webinar

Date	Time	Forum	Registered	Attended	Question / Comment	
					Written / Chat Box	Oral
10/14/20	5:30 - 6:30 p.m.	GoToWebinar	70	31	17	6

II. STAKEHOLDER ROUNDTABLE

A key stakeholder roundtable was conducted to assist the team in refining messaging and alternatives, specifically providing local insight for proposed stops and conceptual routes. An invitation list was created in June 2020, comprised of key stakeholders with varied interests along the route. Invitees included: stakeholders representing local agencies, major employers and businesses, local chambers of commerce, recreation destinations, large academic institutions, pro-transit organizations, social interest groups, key neighborhoods and other parties that may have an active interest in this new bus service.

The stakeholder roundtable took place on October 8th, the week prior to the live public webinar, and assisted the team to improve messaging prior to the public meeting. Like the public webinar, the roundtable was held as a live webinar. Stakeholders provided valuable feedback regarding the proposed concepts and collaborated with the team to assess traveler needs along the I-5 and SR-55. The stakeholders were also called upon to support the outreach process by promoting the study survey and announcing the public webinar to their own group and agency networks. Following the meeting, an electronic notice was shared to thank participants and share the study infographic with the full stakeholder invitee list.

Below is an overview of the roundtable meeting. For the full list of attendees, meeting summaries and images of the webinar, see Appendix C.

Table 2: Stakeholder Roundtable Meetings

No	Date	Time	Forum	Invited	Registered	Attended	Question / Comment	
							Written / Chat Box	Oral
1	10/08/20	10:30 a.m. – 12:00 p.m.	GoToWebinar	92	9	7	4	2

The table below is a complete list of stakeholder roundtable electronic mail (or e-blast) notices. Find record of SR participation and notice copies in Appendix C.

Table 3: SR E-blast Distributions

No	Date Sent	Purpose	Sent
1	09/21/20	SR #1 Invitation	105
2	09/29/20	SR #1 Reminder	104
3	10/08/20	SR #1 Reminder #2	104
4	10/08/20	Thank you and tool kit distribution	18
5	TBD*	Share final report	104
		Total	**435**

*The final report will be distributed after it's presented to OCTA Board of Directors.

III. TOOLS & RESOURCES

The team utilized a variety of tools to support the public engagement process, including a contact database and various communication resources. The following sections describe what tools were used and how they were implemented.

A. Stakeholder Database

A master contact database was created at the launch of the study and served as an official stakeholder list. This list included local businesses, business associations, social interest groups, local agencies, academic institutions, interested parties and others. The database was maintained throughout the study to include new contacts received from the study's website, webinar registration, and through survey participation and served as the foundation for contact engagement. The list was also used to develop, track, and maintain the 96 Stakeholder Roundtable member contact list. Of the 595 active contacts in the database, a total of 242 interested parties have been added since engagement began. A copy of this list is available in Appendix D.

B. Comment Log & Issues Matrix

A Comment Log and Issues Matrix was created and maintained during the study process. The log organized comments and inquiries received by surveys, meetings, social media, phone, or email and archived them by source, type of stakeholder, date and category of statement. The log was also used to facilitate and log team response when needed. By

the end of the yearlong study, the log contained 279 comments submissions including 337 comment issues from 15 different comment categories. The figures below summarize comments received.

Figure 1: Comments by Source

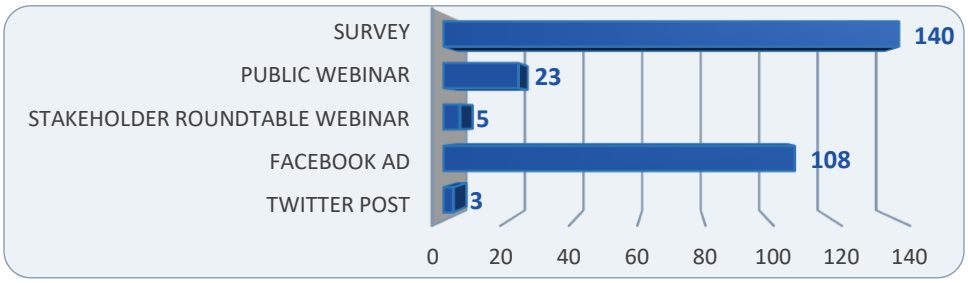
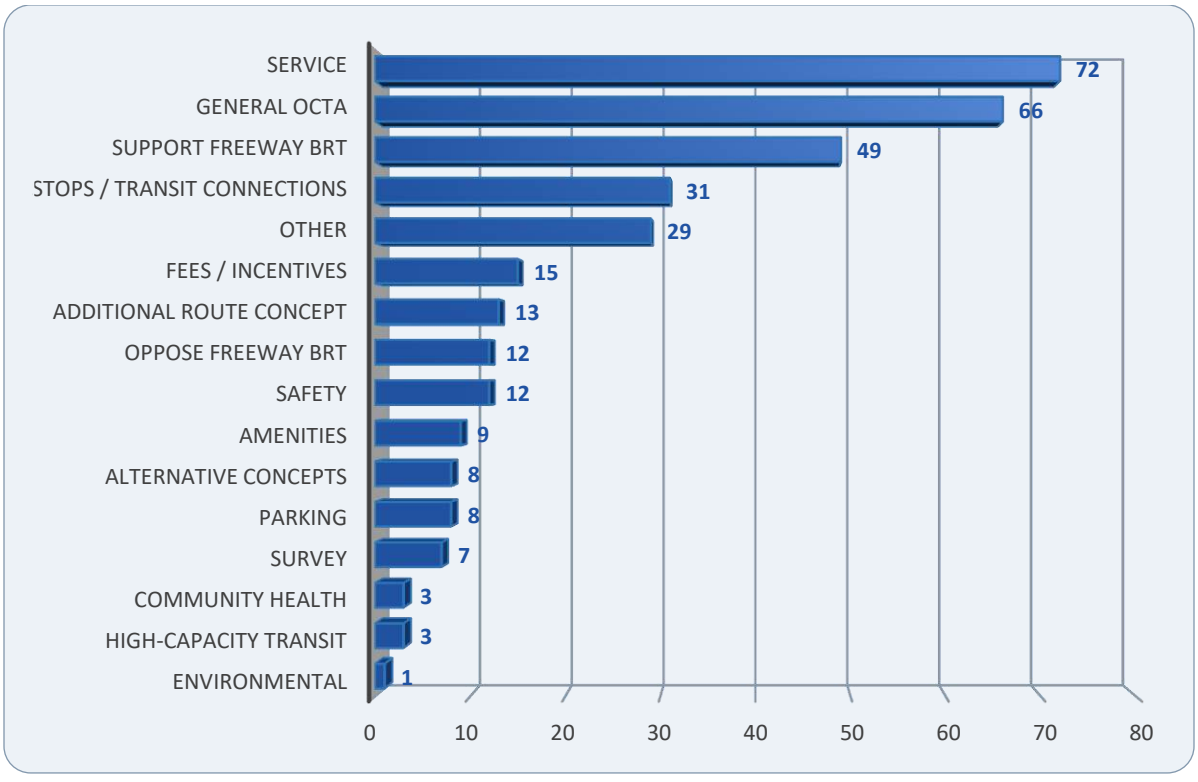


Figure 2: Comments by Category



A full detail of comments can be seen in Appendix B. Commenters were added to the stakeholder database when contact information was provided.

C. Fact Sheet

The two-sided fact sheet included an overview and outlined the study area and objectives. The resource also included the timeline and listed ways to stay informed. The back of the fact sheet has a full-size study area map, indicating the study area along the I-5 from the Laguna Niguel/Mission Viejo Metrolink Station to the Fullerton Park and Ride and along the SR-55 from the Santa Ana Regional Transit Center to Hoag Memorial Hospital Presbyterian in Newport Beach, with a number of potential stops under consideration. To accommodate the diverse communities of Orange County, the fact sheet was offered in three languages: English, Spanish and Vietnamese. Fact sheets were made available to the public through the study website and offered as downloadable handouts during study webinars. Each fact sheet can be seen in Appendix E.

D. Webpage

A study webpage (*www.octa.net/freewaybrt*) was created by OCTA and used to provide general updates and information to the public. The webpage contained background information, schedule, and details about the online survey. The webpage featured a sign-up form for interested parties to stay connected throughout the duration of the study. The webpage also included all project-related content, most notably study collateral, presentation videos and meeting invitations. The study webpage has had 1,442 views. See Appendix F for more.

IV. NOTIFICATION EFFORTS

A combination of traditional and virtual outreach tactics was used throughout the duration of the study. Outreach tactics included:

- Providing an electronic toolkit to cities, agency partners and key stakeholders for them to share with their constituents;
- Promoting the survey to corridor travelers using e-blasts, online paid advertisements and print ads;
- Posting on social media platforms, such as Facebook and Twitter; and
- Offering information in English, Spanish and Vietnamese.

The following is a detailed look at each notification tool and the outreach performed.

A. Electronic Communications Tool Kit

To reach a wider audience, an electronic tool kit was created to build study awareness and promote the survey. The tool kit was designed for easy information sharing and included copy and graphics for distribution via e-blast, website post, newsletter announcement, event calendar additions, social media post and phone script. OCTA distributed the kit to OCTA public committees, partner agencies, the environmental community, and all 34 Orange County cities. Recipients were asked to assist in the BRT study's notification efforts by sharing the online survey and webpage with their respective organization communities. Copy of the tool kit may be found in Appendix G.

Table 4: E-Communications Tool Kit Distribution List

No	Organization
1	Stakeholder Roundtable Members
2	Mobility 21
3	OCTA Diversity Leaders Committee
4	Environmental Community Leaders
5	Caltrans
6	OCTA Special Needs Advisory Committee
7	OCTA Taxpayer Oversight Committee
8	The Orange County Business Council
9	Women in Transportation

No	Organization
10	City of Aliso Viejo
11	City of Anaheim
12	City of Brea
13	City of Buena Park
14	City of Costa Mesa
15	City of Cypress
16	City of Dana Point
17	City of Fountain Valley
18	City of Fullerton

No	Organization
19	City of Garden Grove
20	City of Huntington Beach
21	City of Irvine
22	City of La Habra
23	City of La Palma
24	City of Laguna Beach
25	City of Laguna Hills
26	City of Laguna Niguel
27	City of Laguna Woods
28	City of Lake Forest
29	City of Los Alamitos
30	City of Mission Viejo
31	City of Newport Beach

No	Organization
32	City of Orange
33	City of Placentia
34	City of Rancho Santa Margarita
35	City of San Clemente
36	City of San Juan Capistrano
37	City of Santa Ana
38	City of Seal Beach
39	City of Stanton
40	City of Tustin
41	City of Villa Park
42	City of Westminster
43	City of Yorba Linda

B. Notification Plan

A Notification Plan was developed for the study, which included a schedule of social media and online advertisement efforts from September to November 2020. This comprehensive document contained a schedule of notification platforms, run dates, intended English, Spanish and Vietnamese language, copy, and approved graphics, as well as budget allocation for paid advertisements. See Appendix H for a copy of the notification plan.

C. Print Newspaper Advertisements

Newspaper advertisements were placed to inform the community, particularly the non-English language community, of the study's key milestones, including the virtual public meeting and helpline. Spanish and Vietnamese ads were placed in Excelsior and Viet Bao Daily News. Both ads were included in the notification plan. Tear sheets of each ad are available in Appendix I.

Table 5: Published Newspaper Advertisements

No	Date of Publication	Newspaper	Format	Language	Circulation
1	09/20/20	Excelsior	Print ¼ Page Black & White	Spanish	71,230
2	10/09/20	Viet Bao Daily News	Print ½ Page Black & White	Vietnamese	25,000
				Total	**96,230**

D. Online Paid Advertisements

Considering traditional in-person outreach limitations due to the COVID-19 pandemic, a robust online advertisement campaign was implemented and included paid social media and geofencing advertisements (ads) placed along the corridor study area. Ads were communicated to desktop, tablet, and mobile devices.

i. Geofencing Advertisement

A geofence is a virtual perimeter for a targeted geographic area. Through the geofencing campaign, the outreach team placed digital advertisements promoting the virtual public meeting and study survey on websites and online content, reaching the public through internet access devices within predetermined boundaries. The target area for this campaign included 53 zip codes fronting or in close proximity to the study corridors along the I-5 and SR-55 freeways. Ten different ad sizes and designs were developed and directly linked to the survey for easy-to-click participation.

In total, three (3) geofencing ads were implemented during one week. The first was shared in English to members of the public with a history of transit use. The second and third ads ran in Spanish and Vietnamese, with accompanying artwork. Language preference, demographics and transit habits were used to help identify and place ads to those most likely to participate in the Spanish and Vietnamese language surveys. Collectively, the geofencing campaigns resulted in nearly 125,000 impressions with a click through rate of 0.21 percent.

Results of this effort can be seen below in Table 6; a more thorough breakdown and design copy may be accessed in Appendix J.

Table 6: Distributed Geofencing Advertisement

No	Ad Dates	Language	Impressions	Clicks
1	10/19/20 – 10/25/20	English	79,994	125
2	10/19/20 – 10/25/20	Spanish	30,000	101
3	10/19/20 – 10/25/20	Vietnamese	14,999	39
		Total	**124,993**	**265**

ii. Facebook Advertisements

Social media ads also played a major role in capturing the public's attention and initiating survey and meeting involvement. Ten (10) Facebook paid advertisements, four (4) English three (3) Spanish and three (3) Vietnamese ads were posted throughout the survey notification campaign. All linked directly to the study survey and project website. When developing these ads, zip codes, language preference, demographics and public transit use were used to target the optimal Facebook population along the study corridor with favorable characteristics for each advertisement. This effort, along with previously referenced online advertisements to the Spanish- and Vietnamese-speaking communities, helped to further engage the public. Facebook ads resulted in more than 360,000 impressions and nearly 3,000 link clicks. A notification area map of zip code locations for the Spanish and Vietnamese ads can be found in Appendix K, along with images of each ad.

Table 7: Distributed Facebook Advertisements

No	Ad Dates	Language	Impressions	Clicks	Likes	Shares	Comments
1	09/25/20 – 10/02/20	English	43,323	544	110	12	15
2	09/25/20 – 10/02/20	Spanish	23,620	421	146	8	46
3	09/25/20 – 10/02/20	Vietnamese	14,881	80	18	0	0
4	10/06/20 – 10/12/20	English	54,209	397	0	7	8

No	Ad Dates	Language	Impressions	Clicks	Likes	Shares	Comments
5	10/06/20 – 10/12/20	Spanish	28,541	232	0	2	8
6	10/06/20 – 10/12/20	Vietnamese	14,800	113	9	1	0
7	11/02/20 – 11/08/20	English	57,370	378	0	6	9
8	11/02/20 – 11/08/20	Spanish	27,679	179	0	4	21
9	11/02/20 – 11/08/20	Vietnamese	16,198	129	6	2	0
10	11/09/20 – 11/15/20	English	79,938	469	0	10	5
		Total	**360,559**	**2,942**	**289**	**52**	**112**

E. Social Media Posts

To build study awareness and encourage survey participation, an OCTA social media campaign was created. The campaign included 11 OCTA social media posts, comprised of: three (3) @goOCTA Facebook posts, two (2) @goOCTA Twitter posts, three (3) @OCBus Facebook posts, and three (3) @OCTABusUpdates Twitter posts, distributed over the span of two months. A full list of social media posts is shown in the table below. Copies of each are located in Appendix L.

Table 8: OCTA Social Media Posts

No	Platform & Post	Post Date	Reach	Clicks	Likes	Shares	Comments
1	@GoOCTA Facebook Post #1	09/29/20	1,286	23	6	3	0
2	@OCTABusUpdates Twitter Post #1	10/06/20	1,965	0	4	2	0
3	@OCBus Facebook Post #1	10/08/20	721	32	12	2	4
4	@GoOCTA Twitter Post #1	10/09/20	911	0	0	2	0
5	@OCTABusUpdates Twitter Post #2	10/12/20	1,941	6	1	0	0
6	@GoOCTA Facebook Post #2	10/13/20	307	1	7	1	0
7	@OCBus Facebook Post #2	10/23/20	630	47	8	0	6
8	@GoOCTA Twitter Post #2	10/23/20	1,582	13	5	4	1
9	@GoOCTA Facebook Post #3	11/04/20	342	2	9	0	0

No	Platform & Post	Post Date	Reach	Clicks	Likes	Shares	Comments
10	@OCBus Facebook Post #3	11/10/20	1,068	79	17	2	4
11	@OCTABusUpdates Twitter Post #3	11/14/20	2,267	14	6	6	1
		Total	**13,020**	**217**	**75**	**22**	**16**

F. Electronic Mail Notifications

E-blasts were utilized throughout the outreach process. On September 30th, the project team distributed an e-blast to its stakeholders to announce the online survey and virtual public meeting. Additional e-blast reminders were distributed to promote the virtual meeting presentation recording and the project survey. A thank you e-blast was sent following the public webinar and at the end of the study, to share the survey findings with contacts from the survey database. In all, six (6) e-blast notifications were distributed to the public. Copies of these communications may be found in Appendix M. A schedule of e-blast distributions are listed below.

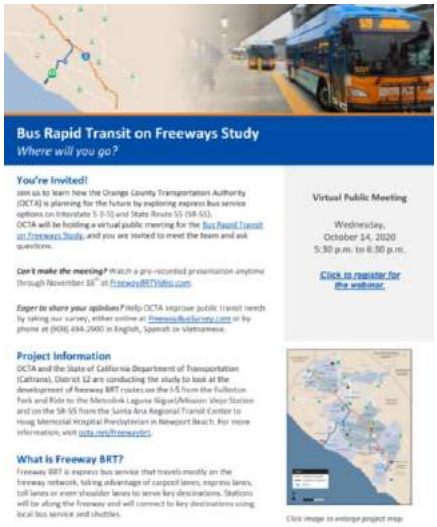


Table 9: Electronic Mail Distributions

No	Date Sent	Audience	Purpose	Sent
1	09/30/20	Stakeholder Database	Public Meeting and Survey Invitation	313
2	10/12/20	Stakeholder Database	Public Meeting and Survey Reminder	442
3	10/14/20	OCTA Bus Rider	Meeting and Survey Invitation	13,995
4	10/19/20	Meeting Participant	Thank You	31
5	11/11/20	Stakeholder Database	Survey Final Reminder	442
6	02/16//21	Stakeholder Database	Thank You and Survey Results	527
7	TBD*	Stakeholder Database	Release of Final Report	530
			Total	**16,280**

*The final report will be distributed after it's presented to OCTA Board of Directors.

G. OCTA Blog & Media

In addition, OCTA also shared the study and survey information on the agency's featured "On the Move" blog and through a formal press release. Copies of the press release and blog newsletter and post are detailed below with copies found in Appendix N.

Table 10: OCTA Blog & Media Notifications

No	Date	Format
1	10/07/20	Press Release
2	10/08/20	On the Move Blog Newsletter
3	10/08/20	On the Move Blog Post

H. Earned Media

As result of the tool kit, press release and other outreach, additional interest was generated for the survey. Eleven (11) earned media notices were identified during this study, each helping to increase study awareness and survey participation. Table 11 provides a list of this additional media. See Appendix O to review the gathered content.

Table 11: Earned Media

No	Date	Source
1	10/01/20	Mobility 21 Forward Motion Newsletter
2	10/02/20	Tustin Chamber of Commerce
3	10/06/20	OC Business Council
4	10/07/20	New Santa Ana Blog
5	10/08/20	Santa Ana Councilmember Facebook
6	10/08/20	Santa Ana Councilmember Twitter
7	10/08/20	Santa Ana Councilmember Instagram
8	10/08/20	New Santa Ana Newsbreak.com
9	10/09/20	OC Breeze
10	10/12/20	City of Costa Mesa Facebook
11	10/14/20	City of Costa Mesa Website

V. STUDY SURVEY

An online survey was created to gain valuable feedback on the proposed freeway BRT routes. Findings were used by the technical team to guide and enhance decisions related to stops, transit connections, and reinforce assumptions and findings on public travel habits. The survey was available from September 25 to November 16, 2020. Survey formats, records and report are available in Appendix P.

A. Survey Features

- The survey was offered in online and audio formats, using the Typeform survey tool for web users and applying Voice Nation operator service and Twilio message recording service for those interested in taking the survey by phone;
- The survey was offered in three languages (English, Spanish and Vietnamese);
- A vanity URL (*www.FreewayBusSurvey.com*) was created for easy access for those with internet access;
- Both the survey URL and phone number were offered to the public in each notification and during all meeting webinars;
- The survey was available to the public for 53 days;
- 281 surveys were collected for analysis during the campaign; and
- 184 survey respondents shared their contact email and will remain connected.

Respondents completed the survey using the following methods.

Table 12: Survey Input Medium

Survey Language	Survey Respondent Input Medium					
	Desktop	Mobile	Tablet	Other	Phone	All Devices
English	96	138	5	0	0	239
Spanish	0	40	1	0	0	41
Vietnamese	0	1	0	0	0	1
Total	**96**	**179**	**6**	**0**	**0**	**281**

The completion rate for each survey language is shown in the table below.

Table 13: Survey Rate of Completion

Survey Language	Views	Starts	Responses	Completion Rate
English	3,890	1,097	239	21.8 %
Spanish	374	158	41	25.9 %
Vietnamese	59	20	1	5.0 %
Total	**4,172**	**1,286**	**292**	

B. Survey Findings

The following findings were prepared to inform the technical team. Based on the information collected, respondents represented a diverse mix of opinions, age, income, ethnicity and geography.

The following is a summary of key findings.

Table 14: Key Findings

Survey Question	Findings
Would you consider using freeway bus rapid transit?	The majority of respondents (92%) expressed interest in BRT service along the I-5 and/or SR-55 freeways.
Do you have a car?	50% of the respondent population do not own cars.
What is your home zip code? and What zip code do you work in?	At least, 20% of respondents travel beyond the range of the proposed BRT service based on zip code data provided.
How long is your regular commute?	Based on survey findings, 65% of respondents travel less than 45 minutes for their commute, and nearly 50% (121 of 275) commute less than 30 minutes.
What is your age group?	The majority (84%) of respondents are of prime working age (18 to 59).
What is your estimated household income?	Those making less than $30,000 per year had the highest percentage of survey participation (33%) with those making more than $110,000 with the second highest participation level (16%). Nearly half (47%) make less than $50,000 per year.
What ethnic group do you consider yourself a part of or feel closest to?	Latinos/Hispanics represented the greatest number of respondents (44%) by ethnicity.

Table 15: Key Findings for Multiple Choice Questions

Survey Question	#1 Choice	#2 Choice	#3 Choice	#4 Choice	#5 Choice
Why do you travel on the I-5 in Orange County? To access: (Check all that apply)	Entertainment 57%	Employment 54%	Shopping 53%		
Why do you travel on the SR-55? To access: (Check all that apply)	Entertainment 51%	Shopping 49%	Employment 36%		
Rate your interest in adding BRT route. (6 being the highest)	Concept 2: Fullerton Park and Ride to Laguna Niguel / Mission Viejo Metrolink Station was the most popular of the three route concepts surveyed.				
	Concept #2 4.75 rank	Concept #3 4.71 rank	Concept 1 4.51 rank		
Are there any improvements that would make you ride transit more often? (Select up to 5)	Respondents recommended a focus on optimizing service improvements to entice greater transit use.				
	More frequent service 64%	Faster travel time 57%	Expanded service times 49%	Passenger info & planning 35%	Tied: More service & More direct service 29%

C. Infographic

An infographic was prepared to visually highlight the online survey results and to highlight the outreach efforts used to engage the public. The infographic was distributed to all contacts in the stakeholder database, including survey participants in a thank you eblast near the end of the study. These graphic results were also posted to the webpage for interested parties to view, share or download. The infographic was prepared in two languages (English and Spanish). Refer to Appendix Q for infographic copy.

VI. CONCLUSION

The Bus Rapid Transit on Freeways Study outreach effort was developed and executed to deliver survey results that provided further guidance to OCTA's technical studies. The outreach captured diverse viewpoints and assessed the level of public interest in the new freeway service. It also built awareness for OCTA's on-going efforts to provide and expand public transit service in order to meet the diverse needs of the County. The technical findings and public input will be considered in future transit planning efforts.

APPENDICES

APPENDIX A

Public Meeting & Presentation

- Meeting Recap
- PowerPoint Live ENG
- PowerPoint Pre-recorded ENG
- PowerPoint Pre-recorded SPN
- PowerPoint Pre-recorded VIET

OCTA Bus Rapid Transit on Freeways Study

Public Webinar Recap

Meeting	Details	Participation	#	Notes
Scheduled	Virtual Public Webinar Wednesday, October 14, 2020 5:30 to 6:30 p.m.	**Registrants**	70	
		Attendees	31	• 44% participation. • Three (3) from OCTA. • Our hope is that registrants that did not attend found the presentation video on the study webpage.
Platform	GoToWebinar • Enabled organizer control of attendee audio • Requires registration allowing for email capture of all registrants	**Attendees at Peak Participation**	30	
Vanity URL	FreewayBusMeeting.com	**Written Questions/Comments**	17	• Six (6) participants
Run Time Scheduled /Actual	1 hour / 1 hour 15 minutes • Additional time allowed to address all questions asked.	**Oral Questions/Comments**	6	• Three (3) participants • Two participants raised hand to initiate a question, but lowered hand or dropped from meeting before addressed.

#	Last Name	First Name	Registration Email	# of Oral Question/Comments	# of Written Question/Comments	Notes
1	Bourgeois	Jaimee	[redacted]			City of Irvine
2	Carter	Suzanne				
3	Cortez	Ivan		0		Raised hand at beginning but lowered hand before called upon; did not ask a question thereafter.
4	Diner	Alan			1	
5	Dorrel	Austin				
6	Garcia	Peter		1		
7	Harris	Jayna				
8	Kelly	Patrick				Past OCTA Coach Operators Union Leader
9	Lau	Sue			4	Chair of OCTA SNAC
10	Lessard-Clouston	Joel				

A3

OCTA Bus Rapid Transit on Freeways Study

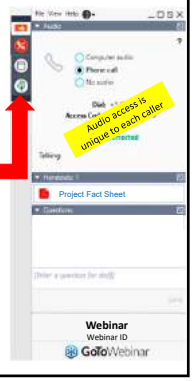
Public Webinar Recap

ID	Last Name	First Name First	Registration Email	# of Oral Question/Comments	# of Written Question/Comments	Notes
11	Lim	Danny	[redacted]		1	
12	Martin	Paul				
13	Merry	Pauline				Taxpayers Oversight Committee Member
14	Pa	Dee			3	
15	Petrosino	Tom				
16	Poynter	Marika				
17	Robertson	Dana				
18	Romero	Dorian				
19	Rosales	Jennifer				
20	Shahbazian	Roy		4		Citizens Advisory Committee Member
21	Sillings	Mark				
22	Solis	Christian		1		
23	Spruill	Karin			2	
24	Talmage	Red		0		Raised hand at end of meeting but quit meeting before he was called upon.
25	Tools	CTL Eng			6	
26	Tso	Kristin				
27	Tyma	Nicholas				
28	Wang	Crystal				
OCTA Staff						
29	Larwood	Charles				
30	Perez	Sofia				
31	Rogan	Alice				

Bus Rapid Transit on Freeways Study

Thank you for joining us!
The presentation will begin shortly.

- **Please note that the audience will be automatically muted during the presentation, but question & answer sessions will be conducted at various points.** When prompted to ask questions or provide comments, please use the hand gesture or questions tab on the right-hand panel of your screen.
- In the meantime, please view the **study fact sheet** located in the handouts tab.
- **If you are having audio issues, please try the following:** Under the audio tab, select to use either your computer audio or join via phone call.



1

Bus Rapid Transit on Freeways Study

WELCOME

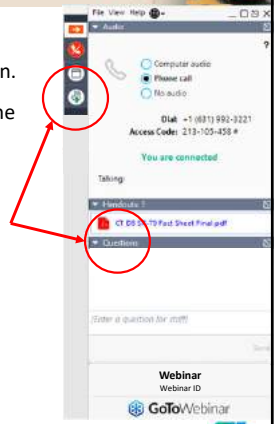
Wednesday, October 14, 2020

Thank you for joining us!
The presentation will begin shortly.

2

Webinar Controls

- Please note that the audience will be automatically muted during the presentation.
- Questions & answers will be addressed at the end of the presentation.
- When prompted, ask questions or provide comments with your webinar control panel:
  - Hand raise gesture or
  - Questions tab.
- See handouts tab for quick reference to the Study Fact Sheet.



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3

Speaker

Eric Carlson

Transportation Planner

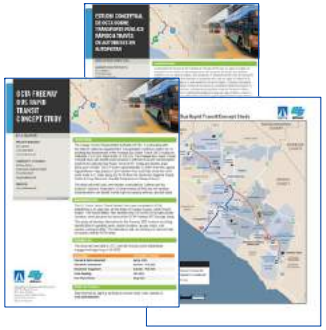
OCTA

4

4

Agenda

- Overview
- Study Process and Schedule
- Components of Freeway BRT
- Conceptual Routes and Stop Locations
- Existing and Proposed Infrastructure
- Next Steps / Stay Involved
- Questions and Answers



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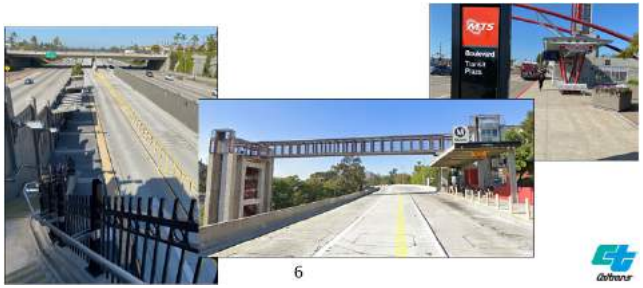
5

What is Freeway BRT?

- Express bus service that travels mostly on the freeways, taking advantage of carpool lanes, express lanes/toll lanes or even shoulder lanes to serve key destinations.
- Stations can be on or near the freeway and connect to key destinations using local bus service and shuttles.



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6

Study Overview

- Prior Studies by OCTA, Caltrans and SCAG
- Study Area Focus
  - I-5 from Fullerton Park and Ride to Laguna Niguel/Mission Viejo Metrolink Station
  - SR-55 from Santa Ana Regional Transit Center to Hoag Hospital Newport Beach
- Benefits of Freeway BRT
- Timing of study / ongoing improvements to freeway network
- Caltrans grant funded study (2019-2022)
- Objectives
  - Develop conceptual alternatives for each corridor
  - Identify needed infrastructure for inclusion in future freeway projects

7

7

Study Process and Schedule

Step 1: Purpose and Need (Mar–Jun 2020)

- Prior studies and existing conditions
- Needs, goals and objectives

Step 2: Alternatives Development (Jul-Oct 2020)

- Coordination with corridor cities
- Public and stakeholder outreach

Step 3: Alternatives Evaluation (Nov-Feb)

- Ridership and cost estimates

Step 4: Draft Final Report (Mar-Apr 2021)

- Near-term and long-term recommendations
- Public review and comment

8

8

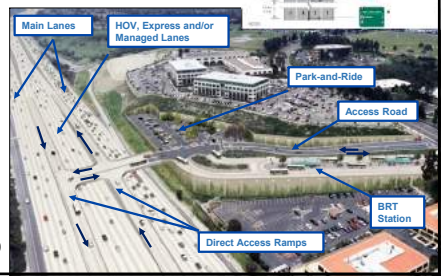
Components of Freeway BRT

Direct Access Ramps (DARs)
- Existing DARs
- New DARs

Station location and design
- Inline
- Offline

Parking
- At certain locations

Key destinations/ connections
- Existing stops



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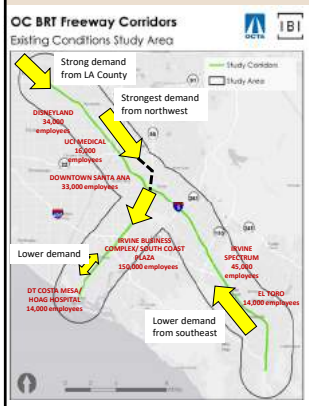
9

Travel Demand

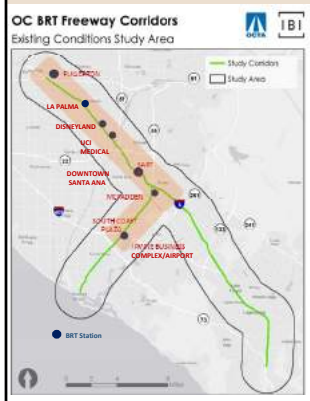


Study Area
- Strong demand along I-5/SR-55 from Fullerton to Irvine
- Strongest demand matches dual HOV/express lane priorities
- Locate stations to maximize access to:
  - Key residential areas
  - Key employment areas
  - OCTA bus/streetcar connections

10

10

Concept 1



1. Fullerton to Irvine – All Day BRT Stations & Transit Connections:
- Fullerton: (Routes 25, 26, 30, 529, 721)
- La Palma (Route 38)
- Disneyland: (Routes 47, 50, DisneyShuttles)
- UCI Medical (Routes 47, 54, 57/57X, 83)
- SARTC: (Streetcar, Metrolink/Amtrak, Routes 59, 83, 206, 463, 560, 862)
- McFadden Avenue: (Route 66)
- Irvine Business Complex/Airport/ South Coast Plaza— (BRT Circulation and/or Shuttles; Routes 55, 57/57X, 76, 86, 463)

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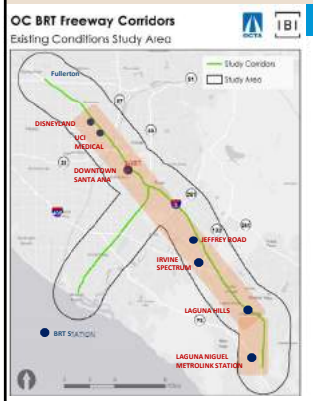
Concept 2



2. Anaheim to Laguna Niguel – All Day BRT Stations and Transit Connections:
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- Irvine Spectrum (Routes 86,90)
- Laguna Hills (Route 91)
- Laguna Niguel Metrolink (Metrolink/Amtrak, Routes 85, 87, 91)

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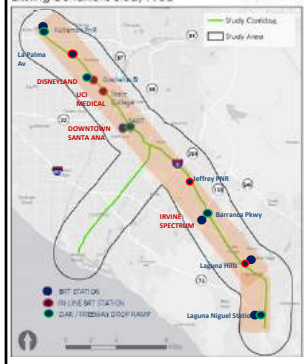
Concept 2A

OC BRT Freeway Corridors
Existing Conditions Study Area



2A. Fullerton to Laguna Niguel – All Day BRT Stations and Transit Connections:

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  (Metrolink/Amtrak, Routes 85, 87, 91)

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Concept 3

OC BRT Freeway Corridors
Existing Conditions Study Area

3. Santa Ana to Newport Beach – All Day BRT Stations and Transit Connections:

- SARTC:
  (Streetcar, Metrolink/Amtrak, Routes 59, 83, 206,463 ,560 ,862)
- McFadden Avenue:
  (Route 66)
- Bristol Street:
  (Routes 57, 71, new shuttles)
- 17th Street
  (Route 71)
- Hoag Hospital:
  (Routes 47, 55, 71)

14

14

Concept 4

OC BRT Freeway Corridors
Existing Conditions Study Area

4. Fullerton to Irvine – All Day BRT (Early Option) Stations and Connections:

- Fullerton: (Routes 25, 26, 30, 529, 721)
- Disneyland: (Routes 47, 50, DisneyShuttles)
- SARTC: (Streetcar, Metrolink/Amtrak, Routes 59, 83, 206, 463, 560, 862)
- Irvine Business Complex/Airport/ South Coast Plaza—
  (BRT Circulation and/or Shuttles; Routes 55, 57/57X, 76, 86, 463)

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15

Existing and Proposed Infrastructure

STOP LOCATION	FREEWAY	EXISTING RAMPS	POTENTIAL ADDITIONS*
Fullerton Park and Ride	I-5	Magnolia Avenue ramps	HOV ramps
La Palma	I-5	La Palma Avenue ramps	NB inline station
Disneyland	I-5	SB Disneyland Drive DAR; NB Disney Way DAR	Use existing DARs at Gene Autry Way for Inline stations
Santa Ana Regional Transportation Center (SARTC)	I-5/SR-55	SB Grand Ave. DAR	NB DARs
Irvine Spectrum	I-5	Northfacing Barranca Parkway DARs	Southfacing Barranca Parkway DARs
Jeffrey Road PNR	I-5	SB to SB ramps	NB inline station
Laguna Hills	I-5	LHTC PNR	Inline stations
Laguna Niguel/Mission Viejo Metrolink Station	I-5	Crown Valley Pkwy ramps	Northfacing DARs
SR-55/E. Alton Avenue	SR-55	MacArthur Blvd ramps	NB & SB DARs
Costa Mesa/Fair Dr.	SR-55	Fair Drive ramps	Inline stations
17th Street	SR-55	17th Street intersection	Shoulder transit lane
Hoag Hospital	SR-55	On-street stop	

* Potential additions are preliminary concepts for new direct access ramps or inline stations that still need to be thoroughly vetted, and that will be screened down to a short list of strategic improvements.

DAR = Direct access ramp
HOV = High occupancy vehicle
NB = Northbound
SB = Southbound

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Next Steps

- Online survey/public input
- Finalize conceptual routes
  - Operations
  - Stops
  - Existing and needed infrastructure (ramps, stations, parking)
- Evaluate conceptual routes (develop cost and ridership estimates)
- Draft Final Report (Mar-April 2021)

17

Stay Involved

PLEASE TAKE our survey… ***Share your opinions, today!***

- ***FreewayBusSurvey.com***
- ***Or dial 909-494-2900***

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Project Manager
Eric Carlson
(714) 560-5381
ecarlson@octa.net

Community Outreach
Marissa Espino
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mespino@octa.net

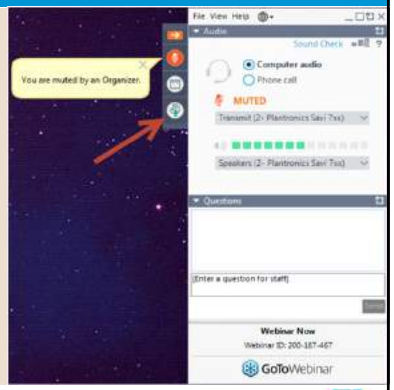
18

Question & Answer Session

Open Discussion

Any final questions?

- Please signal using the hand gesture in the webinar tools to be called upon to speak.



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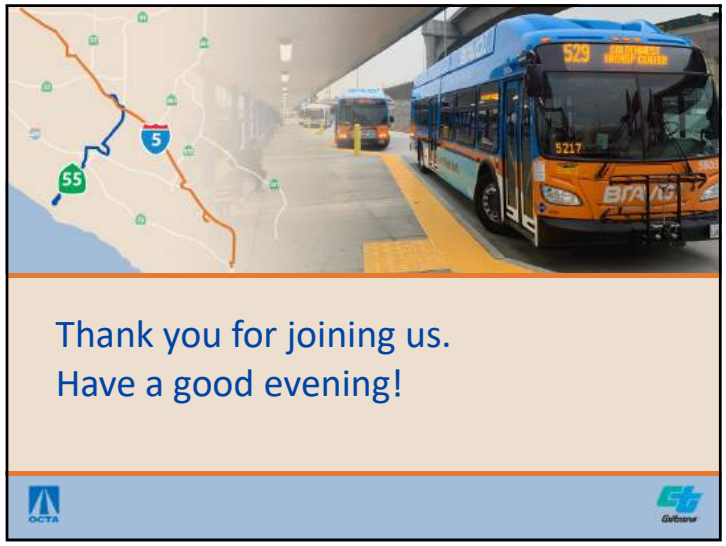

Thank you for joining us.
Have a good evening!

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BUS RAPID TRANSIT ON FREEWAYS STUDY

OVERVIEW PRESENTATION

September 2020

1

Speaker

Eric Carlson

Transportation Planner

OCTA

2

Agenda

- Overview
- Study Process and Schedule
- Components of Freeway BRT
- Conceptual Routes and Stop Locations
- Existing and Proposed Infrastructure
- Next Steps / Stay Involved

3

What is Freeway BRT?

Express bus service that travels mostly on the freeways, taking advantage of carpool lanes, express lanes/toll lanes or even shoulder lanes to serve key destinations.

Stations can be on or near the freeway and connect to key destinations using local bus service and shuttles.

4

Study Overview

- Prior Studies by OCTA, Caltrans and SCAG
- Study Area Focus
  - I-5 from Fullerton Park and Ride to Laguna Niguel/Mission Viejo Metrolink Station
  - SR-55 from Santa Ana Regional Transit Center to Hoag Hospital Newport Beach
- Benefits of Freeway BRT
- Timing of study / ongoing improvements to freeway network
- Caltrans grant funded study (2019-2022)
- Objectives
  - Develop conceptual alternatives for each corridor
  - Identify needed infrastructure for inclusion in future freeway projects

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Study Process and Schedule

Step 1: Purpose and Need (Mar–Jun 2020)
- Prior Studies
- Existing Conditions (demographic data)
- Needs, Goals, and Objectives

Step 2: Alternatives Development (Jul-Oct 2020)
- Coordination with corridor cities
- Public and Stakeholder Outreach

Step 3: Alternatives Evaluation (Nov-Feb)
- Ridership and Cost estimates

Step 4: Draft Final Report (Mar-Apr 2021)
- Near-term and Long-term Recommendations
- Public review and comment

6

6

Components of Freeway BRT

Direct Access Ramps (DARs)
- Existing DARs
- New DARs

Station location and design
- Inline
- Offline

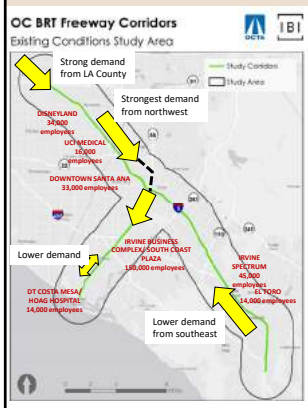
Parking
- At certain locations

Key destinations/ connections
- Existing stops

7

7

Travel Demand



Study Area
- Strong demand along I-5/SR-55 from Fullerton to Irvine
- Strongest demand matches dual HOV/express lane priorities
- Locate stations to maximize access to:
  - Key residential areas
  - Key employment areas
  - OCTA bus/streetcar connections

8

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Concept 1

OC BRT Freeway Corridors
Existing Conditions Study Area

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9

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Concept 2

OC BRT Freeway Corridors
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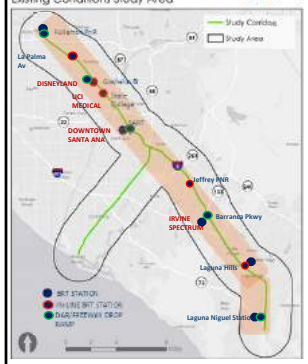
Concept 2A

OC BRT Freeway Corridors
Existing Conditions Study Area



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Concept 3

OC BRT Freeway Corridors
Existing Conditions Study Area

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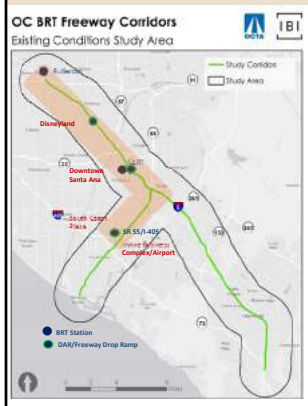
Concept 4



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The website has all you need to stay informed:

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16

16

Live Webinar

Join me and the team for a live webinar on:

Virtual Public Meeting

Wednesday, October 14, 2020
5:30 – 6:30 p.m.

Visit the website octa.net/FreewayBRT to register to attend.

Project Manager
Eric Carlson
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ecarlson@octa.net

Community Outreach
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17

Thank you for joining us.

18

El Estudio sobre autobuses de transito rápido en las autopistas

Presentación general

septiembre de 2020

1

Orador

Eric Carlson

Planificador de transporte

OCTA

2

2

Agenda

- Resumen
- Proceso y horario de estudio
- Componentes de autobuses de transito rápido en las autopistas (BRT, en inglés)
- Rutas conceptuales y ubicaciones de paradas
- Infraestructura existente y propuesta
- Próximos pasos / Manténgase involucrado

3

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¿Qué es el servicio BRT en la autopista?

- Servicio de autobús expreso que viaja principalmente en las autopistas, aprovechando los carriles para viajes compartidos, carriles expresos / carriles de peaje o incluso carriles laterales para servir destinos clave.
- Las estaciones pueden estar en la autopista o cerca de ella y conectarse a destinos clave mediante el servicio de autobuses y lanzaderas locales.

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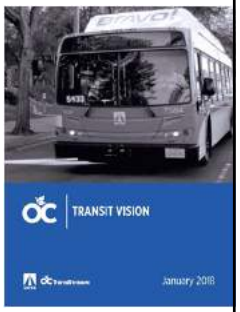
Resumen del estudio

- Estudios previos de OCTA, Caltrans y SCAG
- Enfoque del área de estudio
  - I-5 desde Fullerton estacionamiento y viaje hasta la estación de Laguna Niguel / Mission Viejo Metrolink
  - SR-55 desde Santa Ana Centro de Tránsito Regional hasta hospital Hoag Newport Beach
- Beneficios de BRT en la autopista
- Calendario del estudio / mejoras continuas a la red de autopistas
- Estudio financiado por la subvención de Caltrans (2019-2022)
- Objetivos
  - Desarrollar alternativas conceptuales para cada corredor
  - Identificar la infraestructura necesaria para su inclusión en futuros proyectos de autopistas



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Proceso y horario de estudio

Paso 1: Propósito y necesidad (marzo-junio de 2020)
- Estudios previos
- Condiciones existentes (datos demográficos)
- Necesidades, metas y objetivos

Paso 2: Desarrollo de alternativas (julio-octubre de 2020)
- Coordinación con ciudades del corredor
- Alcance público y de las partes interesadas

Paso 3: Evaluación de alternativas (noviembre-febrero)
- Estimaciones de pasajeros y costos

Paso 4: Borrador del informe final (marzo-abril de 2021)
- Recomendaciones a corto y largo plazo
- Revisión y comentario público

6

6

Componentes de la autopista BRT

Rampas de acceso directo (DARs, en inglés)
- DARs existentes
- Nuevos DARs

Ubicación y diseño de la estación
- En línea
- Desconectado

Estacionamiento
- En ciertos lugares

Destinos / conexiones clave
- Paradas existentes

7

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Demanda de viajes

Corredores de la autopista OC BRT
Área de estudio de condiciones existentes

Área de estudio
- Fuerte demanda junto I-5 / SR-55 desde Fullerton a Irvine
- La demanda más fuerte coincide con las prioridades de carril rápido / HOV
- Ubique estaciones para maximizar el acceso a los:
  - Áreas residenciales clave
  - Áreas clave de empleo
  - Autobús / streetcar OCTA conexiones

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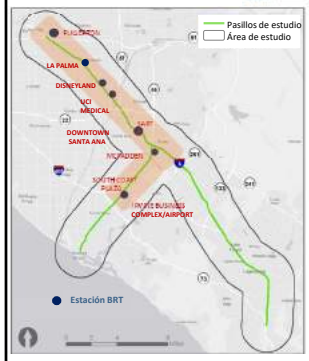
Concepto 1

Corredores de la autopista OC BRT
Área de estudio de condiciones existentes



1. Fullerton a Irvine: BRT todo el día
Estaciones y conexiones de tránsito:

- Fullerton: (Rutas 25, 26, 30, 529, 721)
- La Palma (Ruta 38)
- Disneyland: (Rutas 47, 50, DisneyShuttles)
- Centro Médico UCI: (Rutas 47, 54, 57/57X, 83)
- El Centro de Transporte Público Regional de Santa Ana (SARTC, en inglés): (Streetcar, Metrolink/Amtrak, Rutas 59, 83, 206, 463, 560, 862)
- McFadden
- Complejo Avenida empresarial de Irvine
- Circulación BRT y / o transbordadores; Rutas 55, 57/57X, 76, 86, 463)

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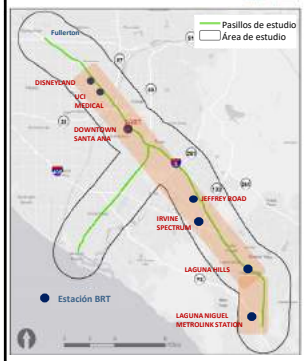
Concepto 2

Corredores de la autopista OC BRT
Área de estudio de condiciones existentes



2. Anaheim a Laguna Niguel - BRT todo el día
Estaciones y conexiones de tránsito:

- Transbordadores Disney
- Centro Médico UCI
- Jeffrey Road Estacionamiento y Viaje
- El Centro de Transporte Público Regional de Santa Ana (SARTC, en inglés): (Streetcar, Metrolink/Amtrak, Rutas 59, 83, 206, 463, 560, 862)
- Irvine Spectrum: (Rutas 86,90)
- Laguna Hills: (Ruta 91)
- Laguna Niguel Metrolink: (Metrolink/Amtrak, Rutas 85, 87, 91)

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Concepto 2A

Corredores de la autopista OC BRT
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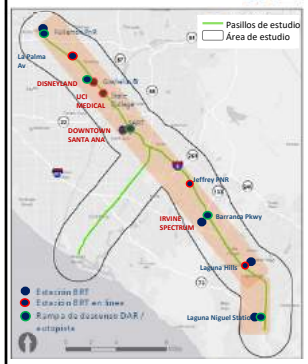

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- Jeffrey Road Estacionamiento y Viaje: (Ruta 167)
- Irvine Spectrum: (Rutas 86,90)
- Laguna Hills: (Ruta 91)
- Laguna Niguel Metrolink: (Metrolink/Amtrak, Rutas 85, 87, 91)

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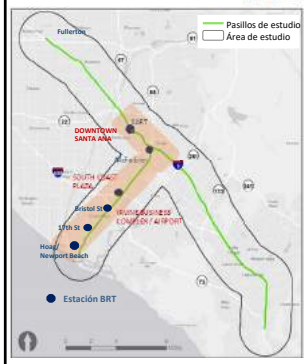
Concepto 3

Corredores de la autopista OC BRT
Área de estudio de condiciones existentes



3. De Santa Ana a Newport Beach - BRT todo el día. Estaciones y conexiones de tránsito:

- El Centro de Transporte Público Regional de Santa Ana (SARTC, en inglés): (Streetcar, Metrolink/Amtrak, Rutas 59, 83, 206,463, 560, 862)
- Avenida McFadden: (Ruta 66)
- Bristol Street: (Rutas 57, 71, new shuttles)
- Calle 17: (Ruta 71)
- Hospital Hoag: (Rutas 47, 55, 71)

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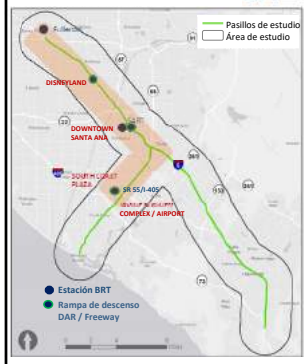
Concepto 4

Corredores de la autopista OC BRT
Área de estudio de condiciones existentes



4. Fullerton a Irvine: estaciones y conexiones de BRT durante todo el día (opción temprana):

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- Disneyland: (Rutas 47, 50, DisneyShuttles)
- El Centro de Transporte Público Regional de Santa Ana (SARTC, en inglés): (Streetcar, Metrolink/Amtrak, Rutas 59, 83, 206, 463, 560, 862)
- Complejo empresarial de Irvine/Aeropuerto/ South Coast Plaza: (Circulación BRT y / o transbordadores; Rutas 55, 57/57X, 76, 86, 463)

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Infraestructura existente y propuesta

Lugar de parada	Autopista	Rampas existentes	Posibles adiciones *
Fullerton Estacionamiento y Viaje	I-5	Rampas de Magnolia Avenue	Rampas HOV
La Palma	I-5	Rampas de La Palma Avenue	Estación en línea NB
Disneyland	I-5	SB Disneyland Drive DAR; NB Disney Way DAR	Utilice los DARs existentes en Gene Autry Way para las estaciones en línea
Centro de transporte regional de Santa Ana	I-5/SR-55	SB Grand Avenue DAR	NB DARs
Irvine Spectrum	I-5	Baranca orientado al norte DARs de Parkway	DAR con orientación sur de Barranca Parkway
Jeffrey Road PNR	I-5	SB to SB ramps	NB inline station
Laguna Hills	I-5	LHTC PNR	Estaciones en línea
Laguna Niguel/Mission Viejo Metrolink Station	I-5	Rampas de Crown Valley Pkwy	Northfacing DARs
SR-55/E. Avenida Alton	SR-55	Rampas de Macarthur Blvd	NB & SB DARs
Costa Mesa/Fair Dr.	SR-55	Rampas de Fair Drive	Estaciones en línea
Calle 17	SR-55	Intersección de 17th Street	Línea de tránsito del hombro
Hospital Hoag	SR-55	Parada en la calle	

*Las posibles adiciones son conceptos preliminares para nuevas rampas de acceso directo en estaciones en línea que aún deben ser examinados a fondo y que se analizarán en una lista breve de mejoras estratégicas.

DAR = Rampa de acceso directo | NB = Dirección norte
HOV = Vehículo de alta ocupación | SB = Hacia el sur

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Proximos pasos

- Encuesta en línea/participación publica
- Finalizar rutas conceptuales
  - Operaciones
  - Paradas
  - Infraestructura existente y necesaria (rampas, estaciones, estacionamiento)
- Borrador del informe final (marzo-abril de 2021)

15

15

Manténgase involucrado

POR FAVOR TOME nuestra encuesta…

¡Comparte sus opiniones hoy!

- ***FreewayBusSurvey.com***
- ***O marque 909-494-2900***

Registrase para recibir actualizaciones del estudio en:

- ***octa.net/FreewayBRT***

La página web tiene todo lo que necesita para mantenerse informado:

- Hojas de datos, presentaciones, informes, avisos de reuniones, etc.

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Seminario web en vivo

Únase a mí y al equipo para un seminario web en vivo sobre:

Reunión publica virtual

Miércoles, 14 de octubre de 2020
5:30 – 6:30 p.m.

Visite la página web octa.net/FreewayBRT para registrarse para asistir.

Gerente del proyecto
Eric Carlson
(714) 560-5381
ecarlson@octa.net

Alcance a la comunidad:
Marissa Espino
(714) 560-5607
mespino@octa.net

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¡Gracias por acompañarnos!

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Nghiên Cứu về Xe Buýt Vận Chuyển Nhanh trên Đường Cao Tốc

Phần Trình Bày Tổng Quan

Tháng 9 năm 2020

1

Diễn Giả

Eric Carlson

Kế Hoạch Vận Chuyển

OCTA

2

2

Chương Trình Nghị Sự

- Tổng Quan
- Quy Trình Nghiên Cứu và Lịch Trình
- Các Thành Phần của Đường Cao Tốc BRT
- Tuyến Đường Khái Niệm và Vị Trí Điểm Dừng
- Cơ Sở Hạ Tầng Hiện Có và Được Đề Xuất
- Các Bước Tiếp Theo / Luôn Tham Gia

3

3

Đường Cao Tốc BRT là gì?

- Dịch vụ xe buýt tốc hành di chuyển chủ yếu trên đường cao tốc, tận dụng các làn đường dành cho xe chở hai người trở lên, làn đường tốc hành/làn đường thu phí hoặc thậm chí là làn đường bên lề để đến các điểm đến chính.
- Các trạm có thể nằm trên hoặc gần đường cao tốc và kết nối với các điểm đến chính bằng cách sử dụng dịch vụ xe buýt và xe đưa đón của địa phương.

4

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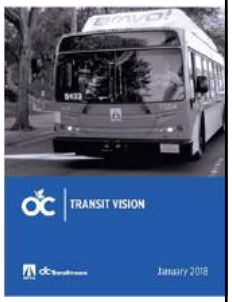
Tổng Quan của Cuộc Nghiên Cứu

- Các Nghiên Cứu Trước Đây của OCTA, Caltrans và SCAG
- Tập Trung Vào Lĩnh Vực Nghiên Cứu
  - I-5 từ Nơi đậu xe để đi xe công cộng Fullerton đến Trạm Laguna Niguel/Mission Viejo Metrolink
  - SR-55 từ Trung Tâm Vận Chuyển Khu Vực Santa Ana đến Hoag Hospital Newport Beach
- Lợi ích của Đường Cao Tốc BRT
- Thời gian nghiên cứu / cải tiến liên tục cho mạng lưới đường cao tốc
- Cuộc nghiên cứu được tài trợ của Caltrans (2019-2022)
- Mục tiêu
  - Phát triển các lựa chọn thay thế khái niệm cho mỗi hành lang
  - Xác định cơ sở hạ tầng cần thiết để đưa vào các dự án đường cao tốc trong tương lai



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Quy Trình Nghiên Cứu và Lịch Trình

Bước 1: Mục Đích và Nhu Cầu (Tháng 3–Tháng 6 năm 2020)
- Các Nghiên Cứu Trước Đây
- Điều Kiện Hiện Có (dữ liệu nhân khẩu học)
- Nhu Cầu, Mục Tiêu và Dự Kiến

Bước 2: Phát Triển Các Lựa Chọn Thay Thế (Tháng 7-Tháng 10 năm 2020)
- Phối hợp với các thành phố hành lang
- Tiếp Cận Cộng Đồng và Các Bên Liên Quan

Bước 3: Đánh Giá Lựa Chọn Thay Thế (Tháng 11-Tháng 2)
- Ước tính số hành khách đi xe và chi phí

Bước 4: Bản Thảo Báo Cáo Cuối Cùng (Tháng 3-Tháng 4 năm 2021)
- Đề Nghị Ngắn Hạn và Dài Hạn
- Đánh giá và nhận xét công khai

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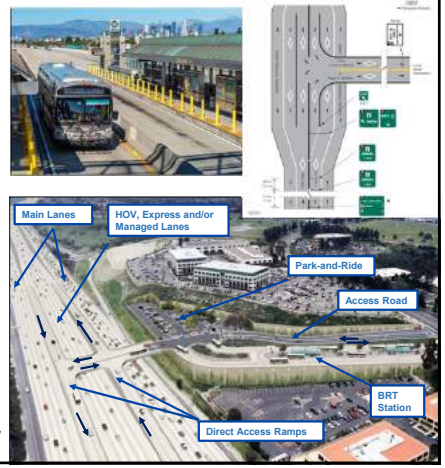
Các Thành Phần của Đường Cao Tốc BRT

Đường Dốc Ra Vào Trực Tiếp (DAR)
- DAR hiện có
- DAR mới

Vị trí và thiết kế trạm
- Nội tuyến
- Ngoại tuyến

Bãi đậu xe
- Tại một số địa điểm nhất định

Các điểm đến/ kết nối chính
- Điểm dừng hiện có



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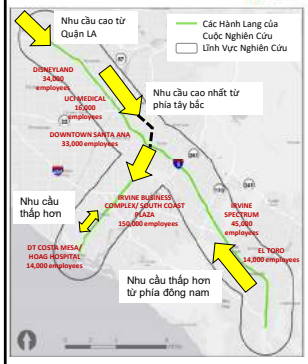
Nhu Cầu Đi Lại

Hành Lang Đường Cao Tốc OC BRT
Lĩnh Vực Nghiên Cứu Tình Trạng Hiện Nay



Lĩnh Vực Nghiên Cứu
- Nhu cầu cao dọc theo I-5/SR-55 từ Fullerton đến Irvine
- Nhu cầu cao nhất phù hợp với ưu tiên kép cho HOV/làn đường tốc hành
- Xác định vị trí các trạm để tối đa hóa việc ra vào:
  - Các khu dân cư chính
  - Các khu làm việc chính
  - Kết nối xe buýt/xe điện OCTA

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Khái Niệm 1

Hành Lang Đường Cao Tốc OC BRT
Lĩnh Vực Nghiên Cứu Tình Trạng Hiện Nay

1. Fullerton đến Irvine – Trạm BRT Cả Ngày và Kết Nối Xe Công Cộng:

- Fullerton: (Tuyến đường 25, 26, 30, 529, 721)
- La Palma (Tuyến đường 38)
- Disneyland: (Tuyến đường 47, 50, DisneyShuttles)
- Khu Phức Hợp Kinh Doanh Irvine (Tuyến đường 47, 54, 57/57X, 83)
- Trung Tâm Giao Thông Khu Vực Santa Ana (SARTC): (Streetcar, Metrolink/Amtrak, Tuyến đường 59, 83, 206, 463, 560, 862)
- Đại lộ McFadden (Tuyến đường 66)
- Khu Phức Hợp Kinh Doanh Irvine/Airport/ South Coast Plaza: (Lưu thông BRT và/hoặc xe đưa đón; Tuyến đường 55, 57/57X, 76, 86, 463)

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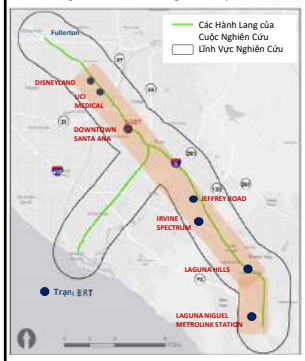
Khái Niệm 2

Hành Lang Đường Cao Tốc OC BRT
Lĩnh Vực Nghiên Cứu Tình Trạng Hiện Nay



2. Anaheim đến Laguna Niguel – BRT Cả Ngày Các Trạm và Kết Nối Xe Công Cộng:

- Disneyland:
  (Tuyến đường 47, 50, Xe đưa rước tới Disney)
- Trung Tâm Y Tế UCI
  (Tuyến đường 47, 54, 57/57X, 83)
- Trung Tâm Giao Thông Khu Vực Santa Ana (SARTC): (Streetcar, Metrolink/Amtrak, Tuyến đường 59, 83, 206, 463, 560, 862)
- Nơi đậu xe để đi xe công cộng đường Jeffrey (Tuyến đường 167)
- Irvine Spectrum: (Tuyến đường 86,90)
- Laguna Hills: (Tuyến đường 91)
- Laguna Niguel Metrolink: (Metrolink/Amtrak, Tuyến đường 85, 87, 91)

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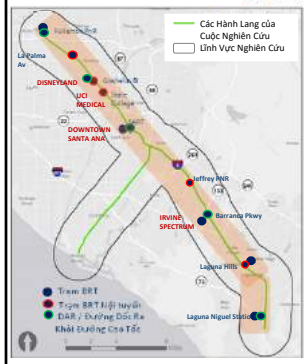
Khái Niệm 2A

Hành Lang Đường Cao Tốc OC BRT
Lĩnh Vực Nghiên Cứu Tình Trạng Hiện Nay



2A. Fullerton đến Laguna Niguel – BRT Cả Ngày Các Trạm và Kết Nối Xe Công Cộng:

- Nơi đậu xe để đi xe công cộng Fullerton: (Tuyến đường 25, 26, 30, 529, 721)
- Disneyland: (Tuyến đường 47, 50, Disney Shuttles)
- UCI Medical: (Tuyến đường 47, 54, 57/57X, 83)
- Trung Tâm Giao Thông Khu Vực Santa Ana (SARTC): (Streetcar, Metrolink/Amtrak, Tuyến đường 59, 83, 206, 463, 560, 862)
- Nơi đậu xe để đi xe công cộng đường Jeffrey: (Tuyến đường 167)
- Irvine Spectrum: (Tuyến đường 86,90)
- Laguna Hills: (Tuyến đường 91)
- Laguna Niguel Metrolink: (Metrolink/Amtrak, Routes 85, 87, 91)

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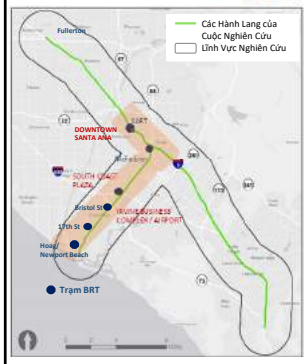
Khái Niệm 3

Hành Lang Đường Cao Tốc OC BRT
Lĩnh Vực Nghiên Cứu Tình Trạng Hiện Nay



3. Santa Ana đến Newport Beach - BRT Cả Ngày Các Trạm và Kết Nối Xe Công Cộng:

- Trung Tâm Giao Thông Khu Vực Santa Ana (SARTC): (Streetcar, Metrolink/Amtrak, Tuyến đường 59, 83, 206,463 ,560, 862)
- Đại lộ McFadden: (Tuyến đường 66)
- Đường Bristol: (Tuyến đường 57, 71, new shuttles)
- Đường 17: (Tuyến đường 71)
- Bệnh viện Hoag: (Tuyến đường 47, 55, 71)

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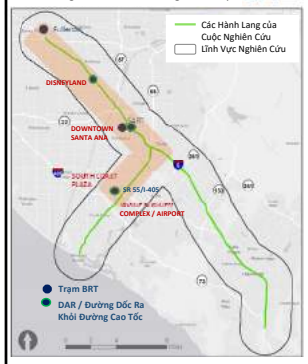
Khái Niệm 4

Hành Lang Đường Cao Tốc OC BRT
Lĩnh Vực Nghiên Cứu Tình Trạng Hiện Nay



4. Fullerton đến Irvine – Các Trạm và Điểm Kết Nối BRT Cả Ngày (Lựa Chọn Sớm):

- Fullerton: (Tuyến đường 25, 26, 30, 529, 721)
- Disneyland: (Tuyến đường 47, 50, DisneyShuttles)
- Trung Tâm Giao Thông Khu Vực Santa Ana (SARTC): (Streetcar, Metrolink/Amtrak, Tuyến đường 59, 83, 206, 463, 560, 862)
- Khu Phức Hợp Kinh Doanh Irvine/Airport/ South Coast Plaza: (Lưu thông BRT và/hoặc xe đưa đón; Tuyến đường 55, 57/57X, 76, 86, 463)

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Cơ sở hạ tầng hiện có và được đề xuất

Vị trí điểm dừng	Đường cao tốc	Đường dốc hiện có	Bổ sung tiềm năng*
Nơi đậu xe để đi xe công cộng Fullerto	I-5	Đường dốc đại lộ Magnolia	Đường dốc HOV
La Palma	I-5	La Palma Avenue ramps	Trạm nội tuyến NB
Disneyland	I-5	SB Disneyland Drive DAR; NB Disney Way DAR	Sử dụng DAR hiện có tại Gene Autry Way cho các trạm nội tuyến
Trung Tâm Vận Chuyển Khu Vực Santa Ana	I-5/SR-55	SB Grand Ave. DAR	NB DARs
Irvine Spectrum	I-5	Hướng Bắc Baranca	Hướng Nam Barranca Đường DAR
Jeffrey Road PNR	I-5	SB to SB ramps	NB inline station
Laguna Hills	I-5	LHTC PNR	Trạm nội tuyến
Laguna Niguel/Mission Viejo Metrolink Station	I-5	Crown Valley Pkwy ramps	Northfacing DARs
SR-55/E. Đại lộ Alton	SR-55	Đường dốc Đại lộ Macarthur	NB & SB DARs
Costa Mesa/Fair Dr.	SR-55	Fair Drive ramps	Trạm nội tuyến
17th Street	SR-55	Ngã tư đường 17	Đường vận chuyển bên lề
Hoag Hospital	SR-55	Điểm dừng trên đường	

Bổ sung tiềm năng là khái niệm sơ bộ cho các đường dốc ra vào trực tiếp mới trên các trạm nội tuyến mà vẫn cần phải được kiểm tra kỹ lưỡng và sẽ được sàng lọc xuống thành một danh sách ngắn các cải tiến theo chiến lược.

DAR = Đường dốc ra vào trực tiếp — Đi về phía bắc

HOV = Xe chở nhiều khách — Đi về phía nam

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Các Bước Tiếp Theo

- Khảo sát trực tuyến/công chúng đóng góp ý kiến
  - Hoàn thiện các tuyến đường khái niệm
  - Hoạt động
  - Các điểm dừng
- Cơ sở hạ tầng hiện có và cần thiết (đường dốc, trạm, bãi đậu xe)
- Đánh giá các tuyến đường khái niệm (phát triển ước tính chi phí và số hành khách đi xe)
- Bản Thảo Báo Cáo Cuối Cùng (Tháng 3-Tháng 4 năm 2021)

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Luôn Tham Gia

VUI LÒNG LÀM khảo sát của chúng tôi...

Chia sẻ ý kiến của quý vị ngay hôm nay!

- ***FreewayBusSurvey.com***
- ***Or dial 909-494-2900***

Đăng ký để nhận được cập nhật của cuộc nghiên cứu tại:

- ***octa.net/FreewayBRT***

Trang web này có tất cả những gì quý vị cần để được cập nhật thông tin:

- Tờ sự kiện, phần trình bày, báo cáo, thông báo cuộc họp, v.v.

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Hội Thảo Qua Mạng Được Truyền Trực Tiếp

Tham gia với tôi và nhóm để xem hội thảo qua mạng được truyền trực tiếp về:

Cuộc Họp Công Cộng Qua Mạng

Thứ Tư, ngày 14 tháng 10 năm 2020
5:30 – 6:30 p.m.

Truy cập trang web octa.net/FreewayBRT để đăng ký tham dự.

Người Quản Lý Dự Ánr
Eric Carlson
(714) 560-5381
ecarlson@octa.net

Tiếp Cận Cộng Đồng
Marissa Espino
(714) 560-5607
mespino@octa.net

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Cảm ơn quý vị đã tham gia với chúng tôi.

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APPENDIX B

Comment Log & Issues Matrix

- **Comments by Category & Date**

Freeway BRT Comment Log & Issues Matrix

Comment by Category and Date

	Stakeholder	Stakeholder Type	Date Received	Source	Category	Issue / Comment	Database	Lead	Follow up Action	Notes
1	[redacted]	Interested Party	09/26/20	Typeform Survey	General OCTA	Thank you for better service and for helping man people during the time of a pandemic that's so difficult	☐		No response required	
2		Interested Party	09/27/20	Typeform Survey	General OCTA	I love the Bus	☑		No response required	
3		Interested Party	09/28/20	Typeform Survey	General OCTA	Thank you for all of the service in these times that are so difficult	☐		No response required	
4		Interested Party	09/30/20	Typeform Survey	General OCTA	Thanks for your service.	☑		No response required	
5		Interested Party	10/01/20	Typeform Survey	General OCTA	Bus drivers need to make passengers comply to amount of baggage rules.	☑		No response required	
6		Interested Party	10/02/20	Typeform Survey	General OCTA	Thank you for your service it permits us to get to our destination very well	☑		No response required	
7		Interested Party	10/05/20	Typeform Survey	General OCTA	Thanks	☑		No response required	
8		Interested Party	10/23/20	Typeform Survey	General OCTA	Thanks	☑		No response required	
9		Interested Party	11/02/20	Typeform Survey	General OCTA	Thank you very much for your service.	☐		No response required	
10		Interested Party	11/09/20	Typeform Survey	General OCTA	Thanks for service.	☐		No response required	
11		Interested Party	09/26/20	Typeform Survey	Support	Love	☑		No response required	
12		Interested Party	09/26/20	Typeform Survey	Support	Love riding OCTA and would be good to see more transit. :)	☐		No response required	
13		Interested Party	09/26/20	Typeform Survey	Support	OCTA is best bus service.	☑		No response required	
14		Interested Party	09/26/20	Typeform Survey	Support	Super	☐		No response required	
15		Interested Party	09/26/20	Typeform Survey	Support	These proposals please me since it would make transfers quicker and more efficient	☑		No response required	
16		Interested Party	09/27/20	Typeform Survey	Support	It would be a good alternative for travel	☑		No response required	
17		Interested Party	09/27/20	Typeform Survey	Support	Thank you For thinking of The new service olat of people needs this type of service	☐		No response required	
18		Interested Party	09/28/20	Typeform Survey	Support	Its a very necessary service	☑		No response required	
19		Interested Party	09/29/20	Typeform Survey	Support	It will faster	☐		No response required	
20		Interested Party	09/29/20	Typeform Survey	Support	This is a great idea!	☑		No response required	
21		Interested Party	09/30/20	Typeform Survey	Support	BRT is a good, cost effective approach to improving transit in OC	☑		No response required	
22		Interested Party	09/30/20	Typeform Survey	Support	I love the notion of bus availability on freeways.	☑		No response required	
23		Interested Party	10/01/20	Typeform Survey	Support	A Fullerton to Newport Beach bus would be a good idea.	☐		No response required	
24		Interested Party	10/01/20	Typeform Survey	Support	I hope some of these improvements improvements OCTA in the future.	☑		No response required	
25		Interested Party	10/02/20	Typeform Survey	Support	I live in Anahiem next to disneyland I work in laguna Hills.I could see this working out for the future not just traffic But For mass transit needed south oc to Disney,Angeles, run AM south 5 every 10 min And PM north 5 every 10 min now we're talking thanks	☑		No response required	
26		Interested Party	10/02/20	Typeform Survey	Support	It's good	☐		No response required	
27		Interested Party	10/02/20	Typeform Survey	Support	Love OCTA	☑		No response required	
28		Interested Party	10/07/20	Typeform Survey	Support	Great	☐		No response required	
29		Interested Party	10/07/20	Typeform Survey	Support	Thank you for your excellent service and thank you in advance for the modifications you will make to the service in the future	☑		No response required	
30		Interested Party	10/08/20	Typeform Survey	Support	this would be a great service and reduce traffic congestion	☐		No response required	
31		Interested Party	10/08/20	Typeform Survey	Support	With bus service I can get to Newport faster	☑		No response required	
32		Interested Party	10/10/20	Typeform Survey	Support	More transportation	☑		No response required	
33		Interested Party	10/10/20	Typeform Survey	Support	The idea is formidable	☑		No response required	
34		Interested Party	10/12/20	Typeform Survey	Support	The service on freeways seems to me like a good idea.	☑		No response required	
35		Interested Party	11/07/20	Typeform Survey	Support	This will be a great service	☑		No response required	
36		Interested Party	10/06/20	Typeform Survey	Additional Route Concepts	The I-5 route should extend north to include a connection to the Metro Green Line in Norwalk or at least to the Buena Park Metrolink station when train connections are available. It also should include a stop at Disneyland, which is just off I-5 on Harbor Boulevard in Anaheim. Planners should keep in mind that waiting for transit near or along freeways can be very unpleasant because of the noise and vehicle exhaust. Stops/stations should be designed to minimize this effect as much as possible.	☐		No response required	
37		Interested Party	10/10/20	Typeform Survey	Additional Route Concepts	Do you think it's possible if there's a proposed freeway bus rapid transit route service between the Norwalk/I-105 Green Line Station and the Fullerton Transportation Center (via Buena Park Metrolink Station)?	☑		No response required	

	Stakeholder	Stakeholder Type	Date Received	Source	Category	Issue / Comment	Database	Lead	Follow up Action	Notes
38	[redacted]	Interested Party	11/12/20	Typeform Survey	Additional Route Concepts	A freeway BRT system from the Long Beach area to the South Coast Cities in OC via I-405/SR-73 would also be a big benefit for passengers traveling from residential to schools and employment center areas.	☑		No response required	
39		Interested Party	10/01/20	Typeform Survey	Amenities	Add some benches at the busstop	☑		No response required	
40		Interested Party	10/29/20	Typeform Survey	Amenities	Wanted to include real time trip planning	☑		No response required	
41		Interested Party	11/12/20	Typeform Survey	Amenities	I would love to see more next stop arrival times signage posted at Bravo Bus Stops	☑		No response required	
42		Interested Party	10/01/20	Typeform Survey	Fees/ Incentives	Send me some complimentary bus passes as you offered in the past, am a senior and use OCTA bus every day!!	☐		No response required	
43		Interested Party	09/27/20	Typeform Survey	High-capacity Transit	While BRT is a cheaper option for expanded transit service, and the proposed routes utilize existing infrastructure, a comprehensive light rail system for the county with connections to LA county might be a better use of capital and serve a greater good for the people.	☑		No response required	
44		Interested Party	10/02/20	Typeform Survey	Safety	Present restrictions indicate the service is not safe.	☑		No response required	
45		Interested Party	10/28/20	Typeform Survey	Safety	Make bus stops safer free from loiterers	☐		No response required	
46		Interested Party	11/03/20	Typeform Survey	Safety	don't let homeless people do drugs on them	☑		No response required	
47		Interested Party	09/26/20	Typeform Survey	Service	I would like to have the 150 pass all through flower (flaguer corrected?) there is none and we need it.	☑		No response required	
48		Interested Party	09/26/20	Typeform Survey	Service	The buses should arrive on time and not late because they are always behind schedule.	☐		No response required	
49		Interested Party	09/26/20	Typeform Survey	Service	We need more service earlier and more frequently on route 30 on Orangethorpe from Cerritos to Imperial because they start too late and I personally have to walk 45 minutes or pay for Uber.	☐		No response required	
50		Interested Party	09/27/20	Typeform Survey	Service	Frequent service	☑		No response required	
51		Interested Party	09/27/20	Typeform Survey	Service	I like the OCTA System but I think that they should make Alternative Conepts to rides that are short and have many stops	☑		No response required	
52		Interested Party	09/27/20	Typeform Survey	Service	More busses along the 30 route buses are always full over capacity	☑		No response required	
53		Interested Party	09/28/20	Typeform Survey	Service	Make it like metro express bus I lived in los Angeles because of convince frequency during rush hour	☑		No response required	
54		Interested Party	09/29/20	Typeform Survey	Service	Also buses need to be kept cleaner	☐		No response required	
55		Interested Party	09/29/20	Typeform Survey	Service	Extend the hour to be more frequent on weekends.	☐		No response required	
56		Interested Party	09/30/20	Typeform Survey	Service	Access to better times of travel, trying to get to Irvine from Fullerton feels like you can only get there at 9 am or 3 pm	☑		No response required	
57		Interested Party	09/30/20	Typeform Survey	Service	I would like more frequent service at least Monday through Friday.	☑		No response required	
58		Interested Party	10/01/20	Typeform Survey	Service	The community of Ladera Ranch is without any service. We need service on Antonio and Crown Valley and connections to Metrolink.	☐		No response required	
59		Interested Party	10/02/20	Typeform Survey	Service	Bus priority for improved travel times, especially for BRT.	☑		No response required	
60		Interested Party	10/02/20	Typeform Survey	Service	When I am going to transfer my bus is barely about to stop and the other bus doesn't wait for the people getting off and it leaves so we have to wait for the next bus	☑		No response required	
61		Interested Party	10/07/20	Typeform Survey	Service	Better service	☑		No response required	
62		Interested Party	10/07/20	Typeform Survey	Service	Better service for disabled. weekend service.	☐		No response required	
63		Interested Party	10/07/20	Typeform Survey	Service	Better service for with disabilites. more weekend service . later hours. safety.	☑		No response required	
64		Interested Party	10/07/20	Typeform Survey	Service	Better services for disabilities.	☐		No response required	
65		Interested Party	10/07/20	Typeform Survey	Service	Better services for people with disabilities. More weekend service. Later hours. Safety.	☑		No response required	
66		Interested Party	10/07/20	Typeform Survey	Service	Better services for people with disable	☑		No response required	
67		Interested Party	10/07/20	Typeform Survey	Service	Cleaner buses and more frequent service to make it more convienent.	☐		No response required	
68		Interested Party	10/07/20	Typeform Survey	Service	Great service from orange county transit authority.	☑		No response required	
69		Interested Party	10/07/20	Typeform Survey	Service	Put service to corona to people who don't drive.	☑		No response required	
70		Interested Party	10/07/20	Typeform Survey	Service	The routes don't travel where I go	☐		No response required	
71		Interested Party	10/07/20	Typeform Survey	Service	Weekend service with later times for evening travel.	☑		No response required	
72		Interested Party	10/10/20	Typeform Survey	Service	Good service	☑		No response required	
73		Interested Party	10/10/20	Typeform Survey	Service	Schedules	☐		No response required	
74		Interested Party	10/12/20	Typeform Survey	Service	It's necessary for work to pass with shorter wait times	☑		No response required	
75		Interested Party	10/13/20	Typeform Survey	Service	Really wish you had a bus that traveled Hwy 90, Imperial Hwy. 24 hour service would be awesome!	☑		No response required	
76		Interested Party	10/13/20	Typeform Survey	Service	Transfer routes	☑		No response required	
77		Interested Party	10/16/20	Typeform Survey	Service	Senior Services avalible	☑		No response required	
78		Interested Party	11/02/20	Typeform Survey	Service	More service	☑		No response required	A28

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79	[redacted]	Interested Party	11/05/20	Typeform Survey	Service	More routes added in Aliso Viejo and have the 91 go further up Avenida Pico, San Clemente.	☑		No response required	
80		Interested Party	11/10/20	Typeform Survey	Service	You guys make more rotes but you don't add service on regular routes for. Example when you guys srzitlined the 53 and 153 if you would put in. Ore bus. On the 153 and have that continue on down to main place you would have more people from Brea ride it	☑		No response required	
81		Interested Party	11/14/20	Typeform Survey	Service	Have the 54 run til at least 11pm everyday. It's expensive having to Uber home almost every night cause the bus stops running at 9pm.	☑		No response required	
82		Interested Party	09/27/20	Typeform Survey	Other	Help to reduce vehicle traffic on the freeway and streets	☑		No response required	
83		Interested Party	09/28/20	Typeform Survey	Other	Up until now all good	☑		No response required	
84		Interested Party	10/01/20	Typeform Survey	Other	Homeless population will benefit most from the transportation to Laguna	☑		No response required	
85		Interested Party	10/05/20	Typeform Survey	Other	Electrify based on traffic	☑		No response required	
86		Interested Party	10/07/20	Typeform Survey	Other	I live in Santa Ana and I sold my car because of need for parking I only use the bus and I am very grateful for the service	☑		No response required	
87		Interested Party	10/07/20	Typeform Survey	Other	Ride more	☑		No response required	
88		Interested Party	10/08/20	Typeform Survey	Other	I am a person that does not drive and I do everything on the bus. I clean houses and shop and have been doing so for 25 years traveling to different cities so for me it's very important to have public transportation.	☑		No response required	
89		Interested Party	10/14/20	Typeform Survey	Other	Please feel free to contact me for additional information.	☑		No response required	
90		Interested Party	10/16/20	Typeform Survey	Other	Yes. Sorry that I've missed the live webinar last Wednesday, due to internet problems.	☑		No response required	
91		Interested Party	10/23/20	Typeform Survey	Other	I honestly rather take the bus than drive.	☑		No response required	
92		Interested Party	11/05/20	Typeform Survey	Other	I always use public transportation and I like that I have fun, comfortable, and safe rides to get to where I need	☑		No response required	
93		Interested Party	11/12/20	Typeform Survey	Other	I just like riding buses to see where they go	☑		No response required	
94		Interested Party	11/13/20	Typeform Survey	Other	I would love to take the bus, but I have to drive to the bus stop and it would take me an hour and half to get to work and it only takes me 30 minutes to drive.	☑		No response required	
95		Interested Party	10/08/20	Typeform Survey	Additional Route Concepts; Service	would like to see BRT from transit hubs to UCI, one of the largest employers in the region so that fewer people would have to drive to work or school. Would address the lack of good transit options to that area from central OC.	☑		No response required	
96		Interested Party	09/26/20	Typeform Survey	Alternative Conepts	Village of orange- Santa Ana terminal - etc - Newport Beach Freeway busroute would be nice	☑		No response required	
97		Interested Party	09/29/20	Typeform Survey	Alternative Conepts; Stops/Transit Connections	Since the I-5 corridor would be largely redundant with existing Metrolink/Amtrak lines, BRT service along the SR-55 corridor should be heavily prioritized	☐		No response required	
98		Interested Party	10/14/20	Typeform Survey	Alternative Conepts; Stops/Transit Connections	For option 3, consider a stop at victoria to try and stop all those people turning at the stoplight onto/off the freeway	☐		No response required	
99		Interested Party	10/23/20	Typeform Survey	Alternative Conepts; Stops/Transit Connections	I live in San Diego but travel to Orange County once a month for recreation. I think freeway express service should really focus on State Route 55. I-5 express competes with Metrolink.	☐		No response required	
100		Interested Party	10/23/20	Typeform Survey	Alternative Conepts; Stops/Transit Connections	NTC to South Coast plaza to FPNR. This route accesses the whole county Via local routes	☑		No response required	
101		Interested Party	09/27/20	Typeform Survey	Alternative Conepts; Support; Stops/Transit Connections	I am deeply excited OCTA is looking into BRT service. I like both of these concepts however, concept 3 I feel isn't very efficient. If you extended the northern portion of the route to Disneyland, Knotts Berry Farm or the CSULB area via Santa Ana, this route would definitely bring higher ridership. Metrolink and Amtrak would also boost the ridership since the Santa Ana area is center point of this route.	☑		No response required	
102		Interested Party	10/22/20	Typeform Survey	Amenities; Fees/Incentives	Freeway BRT should be a nice experience - think like Metrolink - for a similar fare.	☐		No response required	
103		Interested Party	09/26/20	Typeform Survey	Amenities; Fees/Incentives; Service; Stops/Transit Connections	It's a good idea but I'm concerned that the stations will be in undesirable locations and you'd be forced to breathe bad air from the freeways. Frequent service is key to making it work. I'd imagine there should be a connection to Santa Ana Airport as well. We need bus only lanes and off board payment to speed up the buses for true BRT. It has good potential but the price should be the same as the local service.	☑		No response required	
104		Interested Party	10/11/20	Typeform Survey	Amenities; Other	I don't drive, haven't owned a car in 27 years. I walk, ride a bicycle and use public transit. That is fine with me. I like the idea of bike Lockers and better shelter at bus stops.	☑		No response required	
105		Interested Party	10/01/20	Typeform Survey	Amenities; Safety; Service	Shade structures at bus stops. More frequent buses. Scheduling improvements so that transfer wait times are reduced. Transport police at Transportation Centers to help with problem of the homeless hanging out and using benches all day.	☑		No response required	
106		Interested Party	09/26/20	Typeform Survey	Amenities; Service	Maybe dedicated bus lanes and freeway stations with real time signs	☑		No response required	
107		Interested Party	10/10/20	Typeform Survey	Amenities; Support	This would be really convenient. I would suggest posting signs at bus stops.	☑		No response required	
108		Interested Party	10/06/20	Typeform Survey	Fees/Incentives	Reduce bus fares	☐		No response required	
109		Interested Party	11/03/20	Typeform Survey	Fees/Incentives	lower fares/costs. :)	☑		No response required	
110		Interested Party	10/15/20	Typeform Survey	Fees/Incentives; Parkinig; Stops/Transit Connections	Direct express freeway flier trips to both orange and LA airports from pickup sites and drop off at airports is needed once travel resumes. Place to park your car and reasonable rates.	☑		No response required	
111		Interested Party	10/11/20	Typeform Survey	Fees/Incentives; Safety	I love using the Transit but lately it's scary with the Homeless people who get on the Bus. If you have to o crease fares to keep them out I am sure that people wouldn't mind.	☐		No response required	
112		Interested Party	09/29/20	Typeform Survey	Fees/Incentives; Service	More drivers and cheaper bus pass	☑		No response required	
113	[redacted]	Interested Party	09/30/20	Typeform Survey	Fees/Incentives; Service	Make it seamless and good price point	☑		No response required	A29

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114	[redacted]	Interested Party	10/01/20	Typeform Survey	Opposition; Additional Route Concepts	I'm an experienced Planner (AICP) with a lot of past work on BRT and I just don't see the value in an I-5 BRT when there is already a parallel and faster Metrolink service largely with identical stops. First/last mile connections from Metrolink + expanded Metrolink service would be more cost effective at taking additional drivers off the 5. Alternative idea: as a single driver, I generally avoid the 73/241 toll roads, yet I recognize how much time it could save my commute from south OC to central OC/Santa Ana area. Why not consider a BRT that uses these toll roads (without passengers bearing the cost of the tolls), thus it further incentivizes BRT use over solo driving and relieves traffic pressure on I-5 at the same time. Plus, a successful 73 or 241 BRT could, over time, win support for rail transit on these corridors (it appears the toll roads were designed with this future consideration as a possibility).	☑		No response required	
115		Interested Party	11/12/20	Typeform Survey	Opposition; Environmental; High-capacity Transit, Other; Safety; Service	Freeway BRT systems, along with inline rail systems, are becoming unpopular and out of fashion. They present hostile environments for passengers: They are loud, polluted, and present accessibility problems for people with disabilities and those who travel with young children. As the Los Angeles County Metropolitan Transportation Authority put it in their retrospective of the C/ Green Line (a light-rail line that travels mostly along the 105 median): "In its own weird way, the C Line has offered another unusual legacy: what not to do when building a transit line. In the case of Metro, freeway median stations have long been out of fashion (although a few would get built) and future projects give stations a much firmer footing in the communities they are intended to serve. " (https://thesource.metro.net/2020/08/12/the-green-line-is-25-years-old-some-thoughts-on-that/) Aside from being passe and hostile environments, the OC context presents another problem: a lack of connectivity to destinations. The planned stations simply lack connectivity to destinations other than the stations themselves. It is assumed that passengers will not have a car since they are riding the bus. Given OCBus's infrequent and sparse service, OC fwy BRT riders will face a harsh transfer penalties. This, in turn, will dissuade passengers (who may already be dissuaded by the hostile stations) from riding the BRT. Furthermore, the fact that bus riders in Orange County are poor (bus riders' median household income is $20,000, according to 2015 data from the OCTA), presents the agency with a social equity problem. Poor passengers, then, will be relegated with the most outdated transit planning and hostile type of bus rapid transit service. Resources for bus-rapid transit service in the county will be better spent in high-usage corridors, like Harbor and Bristol. The OCTA should dedicate resources to resuscitating its Bristol BRT study instead (if the agency hasn't done so already).	☑		No response required	
116		Interested Party	11/09/20	Typeform Survey	Opposition; High-capacity Transit	I am afraid that BRT will not accommodate future population growth in the Southland. It is a band-aid masquerading as cure. Bring light rail to Orange County, you cowards. And please find a way to link the San Gabriel Valley to Orange County; there are no transit options along the 57 corridor.	☑		No response required	
117		Interested Party	10/07/20	Typeform Survey	Opposition; Other	The county should rethink rapid transit, doing away with bus service altogether. Subsidies are too great and the dwindling service lines are becoming sparser due to falling ridership. Rapid transit should shift from a mas transit mode like bus, to a more individual and convenient mode such as rideshare utilizing self-drivng vehicles.	☑		No response required	
118		Interested Party	10/23/20	Typeform Survey	Opposition; Stops/Transit Connections	I would rather take a bus on a street corridor like Harbor/Fairview/Main/Brookhurst than wait at a station by a polluted and loud freeway	☑		No response required	
119		Interested Party	10/02/20	Typeform Survey	Parking; Service	I would use public transport if I could get to it easily (close to my home so I could walk-best, easy drive and parking, second best, and then, fast service, 7 days a week, frequency is not as important as expanded hours. Once an hour is okay). I grew up in New Yorker, I used public transportation always, I didn't have a car until I move to CA. Right now, where I live, it would take me as long to walk as it would to use public transportation. AND, there is NO parking at the Buena Park Train station. Parking is a BIG issue!	☑		No response required	
120		Interested Party	09/27/20	Typeform Survey	Safety; Service	Due to pandemic I think should be a better idea to have more buses mornings that everyone goes to wrk early hours and evenings when everyone is coming out of work I been riding in the mornings and buses are pack where u can even do social distance there's been only few drivers that count and ask people to wait for the next bus that's coming behind I love that because there's less crowding	☑		No response required	
121		Interested Party	10/01/20	Typeform Survey	Safety; Service	Keeping the busses clean and safe	☑		No response required	
122		Interested Party	10/07/20	Typeform Survey	Safety; Service	Better services for people with disabilities. More weekend service. Later hours. Safety.	☑		No response required	
123		Interested Party	10/07/20	Typeform Survey	Safety; Service	We need better service for differently-abled especially those who are unable to insert bus ticket/pass independently. Also safety for those with disabilities who travel independently to jobs, stores, home, etc.	☐		No response required	
124		Interested Party	10/05/20	Typeform Survey	Safety; Service; Other	In addition to improved service, you are going to have to address concerns about COVID 19 in order for transit usage to increase. People are concerned and do not want to be stuck on transit with large numbers of other people. While the pandemic may be addressed, this issue is going to continue to impact transit ridership. Perhaps more high tech solutions are in order.	☑		No response required	
125		Interested Party	10/19/20	Typeform Survey	Service; Stops/Transit Connections	Hopefully they will be located at convenient location and will run often at a good price.	☑		No response required	
126		Interested Party	10/26/20	Typeform Survey	Service; Stops/Transit Connections	Please institute an option from the Fullerton Park and Ride and please make service operate seven days a week if not 24/7.	☐		No response required	
127		Interested Party	09/26/20	Typeform Survey	Stops/Transit Connections	529	☑		No response required	
128		Interested Party	09/26/20	Typeform Survey	Stops/Transit Connections	Concentrate more buses in inner Santa Ana	☑		No response required	
129		Interested Party	09/26/20	Typeform Survey	Stops/Transit Connections	The I-5 route shown to Laguna Niguel should probably have another stop between SARTC and Jeffery. Maybe connect to iShuttle the Tustin station. There are lots of jobs in west Irvine.	☑		No response required	

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130	[redacted]	Interested Party	09/26/20	Typeform Survey	Stops/Transit Connections	The proposed BRT for SR-55 would benefit from having the length connect up at Anaheim Canyon Metrolink Station. It would provide an access point from metro trains entering that area and connecting commuters or leisure travelers to the coast. This would also connect people with the multiple OCTA routes and Riverside Transit route 200 if a stop was placed along Tustin Ave. at the Village at Orange. -To connect to Village at Orange and Anaheim Canyon Metrolink Station: NB SR-55 exit Katella, right Tustin (place stop at Tustin and East Village Way -stop ID 5628-), left Link into Anaheim Canyon Station with a layover in station parking lot or on La Palma. I would avoid entering the freeway at Lincoln after servicing Village at Orange because after the exit at WB SR-91 and Tustin the bus would have to make 3 lane changes in a very short distance. -To get to Village at Orange from Anaheim Canyon Station Layover head south on Tustin, right onto EB SR-91, merge to SB SR-55, exit Nohl Ranch/Lincoln, left Tustin Ave. (place stop at Village at Orange Zone 5), left Katella, and right to SB SR-55. -To continue routing from SARTC: My suggestion for getting back to the NB SR-55 would be to take SB I-5 (non-HOV lane entrance on Santa Ana) and stay to the right lane and change to NB SR-55. When coming South on SR-55 exit 4th Street, right on Grand, left on Santa Ana to SARTC. There should absolutely be a stop at Disneyland for BRT I-5. It's a pivotal and central point of connection for Metro/RTA busses, multiple OCTA lines, and is an excellent way to increase ridership by bringing passengers to the Disneyland parks from north and south county.	☑		No response required	
131		Interested Party	09/26/20	Typeform Survey	Stops/Transit Connections	Think about connecting Newport Transit Center with express service to Fullerton via the Freeway.	☑		No response required	
132		Interested Party	09/27/20	Typeform Survey	Stops/Transit Connections	The largest employer in the county is Disneyland Resort. There should be a stop for Disney employees and park visitors.	☐		No response required	
133		Interested Party	09/28/20	Typeform Survey	Stops/Transit Connections	Route 206 should start service since so many of us need it for work please	☑		No response required	
134		Interested Party	09/30/20	Typeform Survey	Stops/Transit Connections	Provide brt to more train stations	☐		No response required	
135		Interested Party	10/14/20	Typeform Survey	Stops/Transit Connections	It's worth looking into providing mass transit regional connectivity to allow travel to LA County	☐		No response required	
136		Interested Party	10/15/20	Typeform Survey	Stops/Transit Connections	It is essential to stop at John Wayne Airport. An easy way to do it is pull into Main Street Parking lot where people can then connect with the Shuttle Bus to the terminals.	☑		No response required	
137		Interested Party	11/02/20	Typeform Survey	Stops/Transit Connections	29	☑		No response required	
138		Interested Party	11/03/20	Typeform Survey	Stops/Transit Connections	Could there be a stop at the Outlets of Orange?	☑		No response required	
139		Interested Party	11/04/20	Typeform Survey	Stops/Transit Connections	Please add a Katella i-5 or ARTIC pit stop. Please connect to transportation leading to UCI main campus.	☑		No response required	
140		Interested Party	11/11/20	Typeform Survey	Stops/Transit Connections	Access to Metrolink and LA Metro Light Rail is a priority for me	☑		No response required	
141		Interested Party	10/14/20	Public Webinar	Additional Route Concepts	Written: Although not part of the study, was the I-405 corridor / I-405 & SR-73 considered? If so, what what the projected demand?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
142		Interested Party	10/14/20	Public Webinar	Alternative Concepts	Written: Would the stops in Concept 4 exit and enter back onto the freeway just like Metro Line 460?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
143		Interested Party	10/14/20	Public Webinar	Alternative Concepts Stops/ Transit Connections	Written: On the SR55 route, the map shows a stop at John Wayne. However, the slide with the table doesn't mention it. Will there be a stop at Airport.	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
144		Interested Party	10/14/20	Public Webinar	Community Health Other Safety	Oral: Reservations about Freeway BRT and equity issues. Inline stations (such as LA Metro and BART Antioch) tend to be heavily polluted and disproportionately serve the economically disadvantaged populations. What are some equity considerations OCTA will undertake so inline stations will not disproportionately impact the poor?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
145		Interested Party	10/14/20	Public Webinar	Fees/ Incentives	Written: Is the cost to use the service the same as a bus day pass, monthly pass, senior fare, Access rider fixed route fare, etc.?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
146		Interested Party	10/14/20	Public Webinar	Fees/ Incentives	Written: What fare structure would be used for Freeway BRT?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
147		Interested Party	10/14/20	Public Webinar	Fees/ Incentives	Written: What would be the cost associated with one way or a round trip .	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
148		Interested Party	10/14/20	Public Webinar	Fees/ Incentives Parking	Written: Free parking for how many hours if at all?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
149		Interested Party	10/14/20	Public Webinar	Fees/ Incentives Parking	Written: Will parking be at no charge like is provided at the Fullerton station?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
150		Interested Party	10/14/20	Public Webinar	Fees/ Incentives Parking	Written: Would there be a cost associated with parking?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
151		Interested Party	10/14/20	Public Webinar	Parking	Written: What about adding parking at the stops, like the one in Fullerton, which can fill up very quickly	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
152		Interested Party	10/14/20	Public Webinar	Parking	Written: What parking facilities will be provided at or near Hoag, Disneyland, UCI Medical Center, airport, etc.?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
153		Interested Party	10/14/20	Public Webinar	Service	Written: At what times of day will the service operate and with what frequency?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
154		Interested Party	10/14/20	Public Webinar	Other Service	Written: What vehicles would be used for freeway BRT?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	

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155	[redacted]	Interested Party	10/14/20	Public Webinar	Stops/ Transit Connections	Oral: Will BRT Concept #3 extend all the way to Newport Beach?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
156	[redacted]	Interested Party	10/14/20	Public Webinar	Stops/ Transit Connections	Written: Where would the Fullerton stop be?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
157	[redacted]	Interested Party	10/14/20	Public Webinar	Other	Oral: Seems like this study could help Caltrans achieve its vision of more express lanes on other highways and ask that Caltrans continue to be involved for construction and ongoing operating costs.	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
158	[redacted]	Interested Party	10/14/20	Public Webinar	Other	Oral: What can Caltrans bring to the table to make this happen?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
159	[redacted]	Interested Party	10/14/20	Public Webinar	Other	Oral: What would be the funding source for operating these buses?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
160	[redacted]	Interested Party	10/14/20	Public Webinar	Other	Oral: Why do you think ridership would be significantly better than other OCTA express busses OCTA has offered in the past, say ten years ago?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
161	[redacted]	Interested Party	10/14/20	Public Webinar	Other	Written: Hi. What was the driver/motivation for conducting this study?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
162	[redacted]	Interested Party	10/14/20	Public Webinar	Other	Written: Is a phased approach possibility (e.g start with concept 4 to start with, then expand to 3A, etc)?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
163	[redacted]	Interested Party	10/14/20	Public Webinar	Other	Written: What is the ballpark estimated cost for realizing Freeway BRT?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
164	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - English	General OCTA	Always had good experiences	☐		No response required	
165	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - English	General OCTA	Just like the OCTA can't be counted on.	☐		No response required	
166	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - English	General OCTA	Looking at ridership on the busses, it appears the survey has already been completed.	☐		No response required	
167	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - English	General OCTA	Maybe it shouldn't take 2 hours to get around town, that would be a great start	☐		No response required	
168	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - English	General OCTA Survey	Now that Uber and Lyft decimated your buses you should hire people to ride the buses and take a survey by those that actually ride the bus. You'll get better real results. Do you need more ideas? 39 years of transportation experience and now unemployed. I hope you have the ability with your current staff to figure out how to raise your ridership. Good luck, I'm hoping for the best for OCTA / First Transit , Voila ,	☐		No response required	
169	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - English	Survey	Survey won't load.	☐	AA - J.Jackson	Survey link function tested; no issue; No response required	
170	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - English	Survey	Won't load suck!!	☐	AA - J.Jackson	Survey link function tested; no issue; No response required	
171	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - English	Support	Beautiful	☐		No response required	
172	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - English	Support	Done it's a good idea to add it	☐		No response required	
173	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - English	Support	Good idea.	☐		No response required	
174	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - English	Support	It would be a good idea.	☐		No response required	
175	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - English	Support	Super	☐		No response required	
176	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - English	Support	That will help who take bus to transport.	☐		No response required	
177	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - English	Additional Route Concepts	There should be a route from LAX to Laguna Hills, CA. Hopefully it'll exist.	☐		No response required	
178	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	A very important and necessary service to all of us who work. Thank you to al the service operators who continue to help us despite the pandemic. I'm very grateful.	☐		No response required	
179	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Blessings	☐		No response required	
180	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Congratulations. Thank you for your service.	☐		No response required	
181	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Drivers are so rude that they have told me that they do not want to continue being babysitters of us. That we already have to be paying. It does not hurt me to pay but they do not have to say that because I know that without paying I cannot travel. Please.	☐		No response required	
182	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Good service. Good driver. May Jehova God continue to bless you all. A strong …. For all the drivers.	☐		No response required	
183	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Hi. I have a question will there no longer be service on 150N Flower St?	☐		No response required	
184	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	How disgusting to use this transportation. The buses are all dirty.	☐		No response required	
185	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	I understand that you raise the service and thanks for the support that you provided during this pandemic but I only ask that you are more punctual with the schedules. I arrive on time but some times it gets there 1 or 2 minutes before or up to 15 minutes late. That is not okay because we lose time. It is useless because I've had to take an Uber after already wasting time to arrive at the bus stop. I know you spend on fuel and employees but I only ask that they be exactly what the schedule indicates.	☐		No response required	
186	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Many thanks for your good service.	☐		No response required	

	Stakeholder	Stakeholder Type	Date Received	Source	Category	Issue / Comment	Database	Lead	Follow up Action	Notes
187	[redacted]	Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	OCTA Blessings	☐		No response required	
188		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	OCTA… I've used it for years. Thank you for your services. Excuse me but sometimes there are drivers that do not even respond to greetings. Thank you OCTA. Blessings and keep moving forward.	☐		No response required	
189		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Simply thanks!	☐		No response required	
190		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Sorry for the people who don't even give thanks. What I don't like is they only ask that people use it when the board but they won't wear it inside. It is scary. The driver should say you don't have it on sorry you have to get off. Thank you for your service. May god bless you and protect you from danger. Thanks.	☐		No response required	
191		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank all very much for your services and for taking us to our destinations. Take care and blessings to all.	☐		No response required	
192		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you	☐		No response required	
193		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you for all the service that you offer. It is very valuable when one needs it to get to work or other places and thanks to all the drivers.	☐		No response required	
194		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you for all your service and help that you've given us during these difficult times. One suggestion to please not let some, I say some because it is not all drivers.	☐		No response required	
195		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you for all your service.	☐		No response required	
196		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you for being there free. Very grateful.	☐		No response required	
197		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you for helping us during this horrible pandemic that we've had to experience. The only thing I ask for is punctuality. I ask as a favor that the bus that runs on Kraemer y Palma passes a little more often, the 59, because it takes 1 hour and some minutes every run. Please and thank you.	☐		No response required	
198		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you for the service that you provide all the users that need to go to work daily despite of this pandemic. It is a great necessity to have this service since we don't have the privilege of owning a vehicle. Thank you for your service so that we can commute to our jobs. Thanks to drivers. There are good drive and others that are not so good.	☐		No response required	
199		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you for the service. God bless you.	☐		No response required	
200		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you for your service and for helping during these difficult times.	☐		No response required	
201		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you for your service blessings	☐		No response required	
202		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you for your services and all your kind and respectful drivers.	☐		No response required	
203		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you so much for the service that you provide despite the pandemic especially to the people that have to work early and get off of work late. You have no idea how much we appreciate it. God bless you.	☐		No response required	
204		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you so much for the service that you provide.	☐		No response required	
205		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you so much for your service.	☐		No response required	
206		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you to all. We're grateful for your service. God bless the drivers that are always so kind. Excellent services.	☐		No response required	
207		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you very much for all the service that you provide. Congratulations to all the operators.	☐		No response required	
208		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you very much for the provided services and kindness of your drivers. Thanks and blessings to all.	☐		No response required	
209		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you very much for this grand service that you provide all of the riders. Many people have to go to work regularly despite the pandemic. It is a great necessity to have this service since there are people that do not have the privilege of owning an automobile. Thanks to your service this is how people can get around daily.	☐		No response required	
210		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you very much for your service and for the trust that you give. We have been good. You should demand the use of masks to all bus riders. It is for the good of all thank you very much.	☐		No response required	
211		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you very much for your service.	☐		No response required	
212		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA	Thank you, thank you, thank you to all the people in the front lines and behind the scenes because you all make it possible to provide good service to all of the community. Thank you for the fantastic job. May god enlighten you always.	☐		No response required	
213		Interested Party	10/03/20	Facebook Ad #1 - Spanish	General OCTA Service	Thank you very much for your service. One suggestion is to improve arrival time.	☐		No response required	
214		Interested Party	10/03/20	Facebook Ad #1 - Spanish	Survey	I'm grateful that you consider all of the people that use the bus daily.	☐		No response required	
215		Interested Party	10/03/20	Facebook Ad #1 - Spanish	Survey	The link doesn't take me anywhere.	☐	AA - J.Jackson	Survey link function tested; no issue; No response required	
216		Interested Party	10/03/20	Facebook Ad #1 - Spanish	Support	I think it is good.	☐		No response required	
217		Interested Party	10/03/20	Facebook Ad #1 - Spanish	Support	It will be excellent service.	☐		No response required	
218		Interested Party	10/03/20	Facebook Ad #1 - Spanish	Other	But what freeway?	☐		No response required	
219		Interested Party	10/03/20	Facebook Ad #1 - Spanish	Other	Once things go back to normal.	☐		No response required	
220		Interested Party	10/13/20	Facebook Ad #2 - English	Support	We need bus services.	☐		No response required	
221		Interested Party	10/13/20	Facebook Ad #2 - English	Support	Why not.	☐		No response required	
222		Interested Party	10/13/20	Facebook Ad #2 - English	Support	Yes	☐		No response required	
223		Interested Party	10/13/20	Facebook Ad #2 - English	Support	Yes! Yes! Yes!	☐		No response required	
224	[redacted]	Interested Party	10/13/20	Facebook Ad #2 - English	Support	Yesss	☐		No response required	A33

	Stakeholder	Stakeholder Type	Date Received	Source	Category	Issue / Comment	Database	Lead	Follow up Action	Notes
225	[redacted]	Interested Party	10/13/20	Facebook Ad #2 - English	Additional Route Concepts	Comment on Abad Agustiniano: Oh please. We are need bus service freeway 405 south coast plaza to Laguna Hills.	☐		No response required	
226		Interested Party	10/13/20	Facebook Ad #2 - English	Additional Route Concepts	Not many of these freeway routes interest me much (as of yet). I'm sure one day I'll find them useful. Really wish you guys had a bus route down one of the most major Hwy's in Orange County, Hwy 90, Imperial Hwy...	☐		No response required	
227		Interested Party	10/13/20	Facebook Ad #2 - English	Additional Route Concepts	Oh please. We are need bus service freeway 405 south coast plaza to Laguna Hills.	☐		No response required	
228		Interested Party	10/13/20	Facebook Ad #2 - Spanish	Service	And there is no bus from Santa Ana that goes directly to Los Angeles grabbing freeways?	☐		No response required	
229		Interested Party	10/13/20	Facebook Ad #2 - Spanish	Service	Comment on Maria Delia Luis: No there is a service but it takes many street and takes about 2 hours. You grab it on Harbor Blvd. in front of Disneyland.	☐		No response required	
230		Interested Party	10/13/20	Facebook Ad #2 - Spanish	Service	Comment to Ligia Barahona: Where do you grab the 460 and where exactly in Los Angeles does it arrive?	☐	OCTA	Hello, to obtain more information regarding your trip, call 714-636-7433 ext. 1	
231		Interested Party	10/13/20	Facebook Ad #2 - Spanish	Service	If there is a 460	☐		No response required	
232		Interested Party	10/13/20	Facebook Ad #2 - Spanish	Service	You grab it at Disneyland	☐		No response required	
233		Interested Party	10/13/20	Facebook Ad #2 - Spanish	Stops/ Transit Connections	Comment to Ligia Barahona: True	☐		No response required	
234		Interested Party	10/13/20	Facebook Ad #2 - Spanish	Stops/ Transit Connections	Grab the 83 that goes to Disneyland and right there grab the 460 that goes to Los Angeles	☐		No response required	
235		Interested Party	11/09/20	Facebook Ad #3 - English	General OCTA	OCTA need to go to normal hours is affecting alot of people.	☐		No response required	
236		Interested Party	11/09/20	Facebook Ad #3 - English	General OCTA Service	When buses are going to be in there normal times....	☐	OCTA	Hi Francisco, we normally update service in February, June, and October. We continue to monitor ridership to see what changes are needed. If you have any suggestions, please let us know at octa.net/comments. Thank you.	Addressed same week as comment.
237		Interested Party	11/09/20	Facebook Ad #3 - English	Support	Applause	☐		No response required	
238		Interested Party	11/09/20	Facebook Ad #3 - English	Opposition	What. No.	☐		No response required	
239		Interested Party	11/09/20	Facebook Ad #3 - English	Additional Route Concepts	A route from the Los Angeles airport from Irvine (?) San Clemente and back to the Laguna Hill station would be very good for your passengers.	☐		No response required	
240		Interested Party	11/09/20	Facebook Ad #3 - English	Service	I wish you had extra bus 29 lines. I know you have the 29 and 29A but I need to get to La Habra every night for work and even though the 29 does go that far, the 29A does not. Not only that, there are absolutely NO busses that run down Imperial Hwy... Which seems kinda ridiculous since it is a major street "and" Hwy.....Hopefully some day in the future y'all can fix that.... Thanks!!!!!!!	☐		No response required	
241		Interested Party	11/09/20	Facebook Ad #3 - English	Service	Please the route 72 via Warner earlier please return to the previous schedule, we're waiting.	☐		No response required	
242		Interested Party	11/09/20	Facebook Ad #3 - Spanish	General OCTA	Bless always, Amen	☐		No response required	
243		Interested Party	11/09/20	Facebook Ad #3 - Spanish	General OCTA	Blessings	☐		No response required	
244		Interested Party	11/09/20	Facebook Ad #3 - Spanish	General OCTA	It is a service for those of us that don't drive and so many thanks and respect to all of the drivers for their services.	☐		No response required	
245		Interested Party	11/09/20	Facebook Ad #3 - Spanish	General OCTA	My only transportation is the bus, very good service and my respects and blessings for all of the OCTA drivers and the rest of the staff as well	☐		No response required	
246		Interested Party	11/09/20	Facebook Ad #3 - Spanish	General OCTA	Thank you for the period in which you weren't charging, god bless you and thank you.	☐		No response required	
247		Interested Party	11/09/20	Facebook Ad #3 - Spanish	General OCTA	This is a service for the people that don't drive and the truth is it's needed thank you for your help through the coronavirus.	☐		No response required	
248		Interested Party	11/09/20	Facebook Ad #3 - Spanish	General OCTA Service	I use the bus regularly and god bless all of the drivers that have a super great attitude.	☐		No response required	
249		Interested Party	11/09/20	Facebook Ad #3 - Spanish	General OCTA Service	Thank you for the good service blessing to all of the drivers of this service.	☐		No response required	
250		Interested Party	11/09/20	Facebook Ad #3 - Spanish	Support	Bravo	☐		No response required	
251		Interested Party	11/09/20	Facebook Ad #3 - Spanish	Support	Of course it's a great service.	☐		No response required	
252		Interested Party	11/09/20	Facebook Ad #3 - Spanish	Support	Very good service, blessings.	☐		No response required	
253		Interested Party	11/09/20	Facebook Ad #3 - Spanish	Support	Yes freeway	☐		No response required	
254		Interested Party	11/09/20	Facebook Ad #3 - Spanish	Support	Yes freeway	☐		No response required	
255		Interested Party	11/09/20	Facebook Ad #3 - Spanish	Support	Yes it is indispensable for many people that don't drive, blessings for all of the drivers.	☐		No response required	
256		Interested Party	11/09/20	Facebook Ad #3 - Spanish	Opposition	No because they take too long.	☐		No response required	
257		Interested Party	11/09/20	Facebook Ad #3 - Spanish	Opposition	No. Freeway	☐		No response required	
258		Interested Party	11/09/20	Facebook Ad #3 - Spanish	Opposition	No. Freeway.	☐		No response required	
259		Interested Party	11/09/20	Facebook Ad #3 - Spanish	Service	Comment to Cristal Diamante De Oro: There are many drivers that are inconsiderate of course. Don't do their jobs with joy.	☐		No response required	
260		Interested Party	11/09/20	Facebook Ad #3 - Spanish	Service	Comment to Margot Cazares: That's right	☐		No response required	

	Stakeholder	Stakeholder Type	Date Received	Source	Category	Issue / Comment	Database	Lead	Follow up Action	Notes
261	[redacted]	Interested Party	11/09/20	Facebook Ad #3 - Spanish	Service	My concern is that drivers should make sure that during stops the passengers are safe and completely off the bus before pulling away. In 2008 I had an incident going to medical, I got of the bus first carrying my stroller with my son in arms and when I was preparing to get my daughter, at the time she was 2, immediately the driver took off and I ran after the bus grabbing my daughter with my son still in my arms the good thing is that someone on the bus saw me who knows what would have happened to my kids the driver didn't even take the time to see if we were okay my daughters feet were swollen. I called to report but was not told anything.	☐		No response required	
262		Interested Party	11/09/20	Facebook Ad #3 - Spanish	Service	The routes should keep running. It's very useful to have public transportation at our disposal as well as a blessing. Unfortunately in my residential area service was cut years back on route 30, the original route is needed especially for senior citizens and people with physical disabilities. It would be a blessing to have that service again.	☐		No response required	
263		Interested Party	11/16/20	Facebook Ad #4 - English	General OCTA	Good service keep functioning	☐		No response required	
264		Interested Party	11/16/20	Facebook Ad #4 - English	General OCTA Support	Public transportation is some way for many people to move from one place to other, we need this service, don't take away from people that don't afford to have a car.	☐		No response required	
265		Interested Party	11/16/20	Facebook Ad #4 - English	Community Health Opposition	I think the problem of being stuck behind a bus with the exhaust would be much more unhealthy Then it is now? secondly I believe considering the area required in front of the bus and behind the bus plus the bus itself it would take the place of approximately 15 automobiles which would be carrying probably more passengers then the bus, and taking up a whole lot less freeway area that's just one side of the story I believe though.	☐		No response required	
266		Interested Party	11/16/20	Facebook Ad #4 - English	Community Health Environmental Opposition	I don't want to be stuck behind a bus back to back rush hour traffic...breathing in their exhaust...unless they'e electric or use N.G.	☐		No response required	
267		Interested Party	11/16/20	Facebook Ad #4 - English	Service	How about adjustment on some driver's bad attitude...cuz some of them sucks or either don't like to drive or hate the job Hahahaha	☐		No response required	
268		Interested Party	10/23/20	Facebook Post - OCTABus #2	General OCTA	How about going back to regular schedule first octa before u add routes dam really	☐		No response required	
269		Interested Party	11/10/20	Facebook Post - OCTABus #2	General OCTA Service	Put the busses back on regular schedule first	☐		No response required	
270		Interested Party	11/10/20	Facebook Post - OCTABus #2	General OCTA Service	Responded to Julio Torres: Yes, I agree.	☐		No response required	
271		Interested Party	10/23/20	Facebook Post - OCTABus #2	Opposition	The answers to the county's transportation woes are not in freeways, or freeway express routes bogged down in freeway gridlock. Get a clue OCTA.	☐		No response required	
272		Stakeholder Roundtable Member	10/08/20	Stakeholder Roundtable Webinar - #1	Parking	Written: Have you identified what BRT Stations are origin or destination stations - parking issues are important relevant to this. Oral addition: How are you visualizing the parking demand on each of these stations because that could make our break it. If no parking on the origin end, then the buses are going to be empty. Not sure how to respond to questions of station preference without understanding parking availability. Are you not creating parking issues where people are parking in areas that are planned for residential, retail, etc. parking areas? How are you looking at that, and how it will dictate which are the best ones?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
273		Stakeholder Roundtable Member	10/08/20	Stakeholder Roundtable Webinar - #1	Stops/ Transit Connections	Oral: How to connect to our students and staff, represent around 53,000. The only route that comes close to us would be the Irvine Business Complex, Route 57 but it doesn't come close to us at all. The only direct route would be Route 59 that connects to Santa Ana Transportation Center. Wondering if there was a way to potentially have some sort of service because we do have a lot of staff and students who live all along this corridor, I think it would be really beneficial to have us be connected to this. I understand that we wouldn't be on the actual route itself, but maybe having some sort of shuttle service or adjusting a potential route so it would be convenient for our group. People are interested in this idea and taking a more streamlined commute to our campus and back from these areas.	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
274		Stakeholder Roundtable Member	10/08/20	Stakeholder Roundtable Webinar - #1	Stops/ Transit Connections	Written: Have you thought about connection to the iShuttle routes?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
275		Stakeholder Roundtable Member	10/08/20	Stakeholder Roundtable Webinar - #1	Other	Written: Irvine Spectrum employment shown in Travel Demand is lower than existing- probably closer to 60,000	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
276		Stakeholder Roundtable Member	10/08/20	Stakeholder Roundtable Webinar - #1	Other	Written: Will the final design for the I-5 or SR 55 Measure 2 projects be impacted by the study findings?	☑	OCTA - E.Carlson	Response provided at time of webinar. See webinar for for detail.	
277		Interested Party	10/26/20	Twitter Post - GoOCTA #2	Survey	When is the deadline?	☐	AA - J.Jackson	Question not identified until later. Survey ran for 60-days, assume ample time for response.	
278		Interested Party	10/07/20	Twitter Post - OCTABus #1	Service	Does this mean Route 206 won't be coming back?	☐		No response required	
279		Interested Party	11/17/20	Twitter Post - OCTABus #3	Service Support Survey	Perfect, there is a need for more busses so that people don't all bunch up I travel everyday from Costa Mesa to Orange and it is always full from 17th to Orange and with this pandemic it's very dangerous thank your for asking my opinion. Have a beautiful Tuesday.	☐		No response required	

APPENDIX C

Stakeholder Roundtable

- SR Member List
- Meeting Recap
- PowerPoint Presentation
- Eblasts

Freeway BRT

Stakeholder Member List

Primary Category	Sub-Category	Organization	Department	Title	Sal	First Name	Last Name
Academic Institutions	Higher Education	California State University, Fullerton		Associate Vice President, Government and Community Relations	Ms.	Tami	Bui
Academic Institutions	Higher Education	Coastline Community College		Public Information Officer	Ms.	Dawn	Willson
Academic Institutions	Higher Education	Hope International University		Vice President for Student Affairs	Mr.	Mark	Comeaux
Academic Institutions	Higher Education	Orange Coast College	Marketing and Public Relations	Director of Marketing and Public Relations	Mr.	Juan	Gutierrez
Academic Institutions	Higher Education	Saddleback College		Director, Marketing and Communications	Ms.	Jennie	McCue
Academic Institutions	Higher Education	Santa Ana College (SAC)		Vice President of Administrative Services	Dr.	Michael	Collins
Academic Institutions	Higher Education	University of California, Irvine		Acting Sustainable Programs Manager	Ms.	Erika	Hennon
Academic Institutions	Higher Education	University of California, Irvine		Executive Director	Mr.	Ron	Fleming
Academic Institutions	Higher Education	University of Phoenix		Campus Operations Specialist	Mr.	Jason	Maddox
Academic Institutions	School District	Santa Ana Unified School District (SAUSD)		District Superintendent	Dr.	Stefanie	Phillips
Agencies	Regional	Orange County		CEO/Government and Community Relations	Ms.	Jessica	Witt
Agencies	Regional	Orange County Department of Education		Superintendent	Dr.	Al	Mijares
Agencies	Regional	Orange County Department of Education		Chief Communications Officer	Mr.	Ian	Hanigan
Agencies	Transit Provider	Anaheim Transportation Network		Executive Director	Ms.	Diana	Kotler
Business	Entertainment	Angel Stadium of Anaheim	Ballpark Operations	Senior Director	Mr.	Brian	Sanders
Business	Entertainment	City National Grove of Anaheim					
Business	Entertainment	Disneyland Resort	Government Affairs	Director Government Affairs and Business Development	Ms.	Carrie	Nocella
Business	Entertainment	Honda Center		Director of Marketing	Mr.	Joel	Hobson
Business	Entertainment	Knott's Berry Farm		Director, Communications	Ms.	Cherie	Whyte
Business	Entertainment	Medival TImes		General Manager	Mr.	Pedro	Goite
Business	Entertainment	OC Fair		Communications Director		Terry	Moore
Business	Property Management	ARTIC Management		General Manager	Mr.	Jason	Davis
Business	Retail Complex	Main Place Mall		Community Management			
Business	Retail Complex	Outlets at San Clemente		Senior Leasing Executive	Mr.	Nick	Dialynas
Business	Retail Complex	The District at Tustin Legacy		Executive Director of Government Affairs	Mr.	Arian	Maher
Business	Retail Complex	The District at Tustin Legacy		Assistant Property Manager	Ms.	Lori	Gertsch
Business	Retail Complex	The Outlets at Orange			Mr.	Clinton	Kiambao
Business	Retail Complex	The Shops at Mission Viejo		Mall Management	Mr.	Damien	Osip
Business	Retail Complex	The Village at Laguna Hills		Senior Planner	Mr.	Jay	Wuu
Business Associations		National Latina Business Women's Association - OC		President	Ms.	Christina	Hernandez
Business Associations		Santa Ana Business Council, Inc.		President	Mr.	Raul	Yanez
Business Associations	Chamber of Commerce	Aliso Viejo Chamber of Commerce					
Business Associations	Chamber of Commerce	Anaheim Chamber of Commerce		Director of Business Development	Ms.	Kathleen	Enge
Business Associations	Chamber of Commerce	Costa Mesa Chamber of Commerce		CEO	Ms.	Eileen	Benjamin
Business Associations	Chamber of Commerce	Dana Point Chamber of Commerce		Executive Director	Ms.	Vickie	McMurchie
Business Associations	Chamber of Commerce	Garden Grove Chamber of Commerce		CEO/President	Ms.	Cindy	Spindle
Business Associations	Chamber of Commerce	Greater Irvine Chamber of Commerce		President and CEO	Mr.	Bryan	Starr
Business Associations	Chamber of Commerce	Laguna Hills Chamber of Commerce		President	Mr.	Carl	Heft
Business Associations	Chamber of Commerce	Laguna Niguel Chamber of Commerce		President /CEO	Mr.	Scott	Alevy
Business Associations	Chamber of Commerce	Lake Forest Chamber of Commerce		President	Mr.	Brian	Lau
Business Associations	Chamber of Commerce	Mission Viejo Chamber of Commerce		Chamber CEO	Mr.	Doug	Zielasko
Business Associations	Chamber of Commerce	Newport Beach Chamber of Commerce		President & CEO	Mr.	Steve	Rosansky
Business Associations	Chamber of Commerce	North Orange County Chamber		President/CEO	Ms.	Theresa	Harvey
Business Associations	Chamber of Commerce	Orange Chamber of Commerce		Executive Director	Ms.	Irma	Hernandez
Business Associations	Chamber of Commerce	Orange County Black Chamber of Commerce		Executive Director	Mr.	Bobby	MacDonald
Business Associations	Chamber of Commerce	Orange County Hispanic Chamber of Commerce			Mr.	Carlos	Muniz
Business Associations	Chamber of Commerce	Orange County Hispanic Chamber of Commerce		President/CEO	Mr.	Reuben	Franco
Business Associations	Chamber of Commerce	Orange County Youth Chamber of Commerce		President	Mr.	Andres	Oceguera
Business Associations	Chamber of Commerce	Rancho Santa Margarita Chamber of Commerce		President/CEO	Mr.	Robert	Dickson
Business Associations	Chamber of Commerce	San Clemente Chamber of Commerce		Chairman	Mr.	Burton	Brown
Business Associations	Chamber of Commerce	San Juan Capistrano Chamber of Commerce		Executive Director	Mr.	Mark	Bodenhamer
Business Associations	Chamber of Commerce	Santa Ana Chamber of Commerce		President/CEO	Mr.	Dave	Elliott
Business Associations	Chamber of Commerce	Tustin Chamber of Commerce		Chairman	Mr.	David	Laughray
Business Associations	Labor Unions	Teamsters Local 952		Executive Officer	Mr.	Patrick	Kelly
Business Associations	Lodging Association	Anaheim/Orange County Hotel & Lodging Association	Executive Committee	Chair	Mr.	Fred	Brown
Business Associations	Professional	American Planning Association- Orange County Chapter		AICP, Section Director	Ms.	Dana	Privitt
Business Associations		National Hispanic Business Women Association		President	Ms.	Jasmine	Quillares
Business Associations		Orange County Business Council (OCBC)		President and CEO	Ms.	Lucy	Dunn
Business Associations		South Coast Metro Alliance		Executive Director	Ms.	Diane	Pritchett

Freeway BRT

Stakeholder Member List

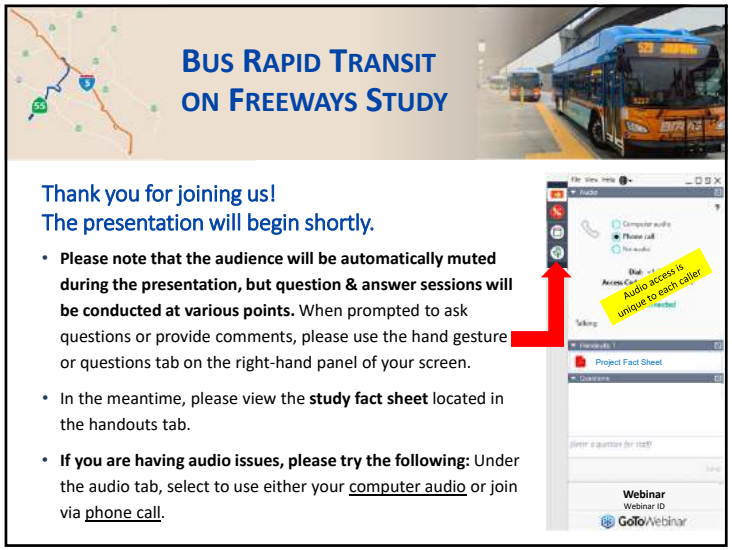
Primary Category	Sub-Category	Organization	Department	Title	Sal	First Name	Last Name
Business Associations		South Orange County Economic Coalition		Chair	Mr.	Steve	LaMotte
Business Associations		Visit Anaheim		President and CEO	Mr.	Jay	Burress
Businesses		Orange County Visitors Association		President/CEO	Mr.	Ed	Fuller
Businesses	Entertainment	C. J. Segerstrom & Sons		Director of Community and Government Relations	Mr.	Justin	McCusker
Businesses	Major employer or destination	Plaza Tower	Property Management - Cushman & Wakefield		Mr.	Brian	Booth
Businesses	Major Employers	Edwards Lifesciences Corporation			Ms.	Luba	Karson
Businesses	Property Management	Irvine Company		Vice President - Transportation	Mr.	John	Boslet
Businesses	Retail Complex	South Coast Plaza		Public Relations Manager	Ms.	Lisa	Liddane
Businesses	Retail Complex	South Coast Plaza		Director of Tourism Development	Ms.	Sarah	Kruer
Businesses	Retail Complex	The LAB Holding Company		Chief Executive Officer	Mr.	Saheen	Sadeghi
Businesses	Retail Complex	Triangle Square					
Community Organizations	Active Transportation	Santa Ana Active Streets			Mr.	Dorian	Romero
Community Organizations	Active Transportation	Santa Ana Active Streets			Mr.	Kris	Fortin
Community Organizations	Faith Based Organization	Calvary Chapel Costa Mesa		Senior Pastor		Brian	Bodersen
Community Organizations	Faith Based Organization	Mission Basilica San Juan Capistrano		Business Manager	Ms.	Kassandra	Huntley
Community Organizations	Faith Based Organization	Rock Harbor Church			Ms.	Sharon	Genton
Community Organizations	Non-Profit	Latino Health Access			Ms.	Hilda	Ortiz
Community Organizations	Non-Profit	The Kennedy Commission		Executive Director	Mr.	Cesar	Covarrubias
Community Organizations		Mission Viejo Community Foundation			Ms.	Jodi	Schwartzer
Health Organizations	Hospital	Orange County Health Care Agency		Agency Director	Mr.	Richard	Sanchez
Health Organizations	Hospital	South Coast Global Medical Center	Administration	Business Development Coordinator	Ms.	Maria V.	Herrera
Health Organizations	Medical Center	AltaMed Health Services Corporation		Director of Transportation	Mr.	Marco	Martinez
Health Organizations	Medical Center	Children's Hospital Orange County (CHOC)		Executive Director, Marketing and Communications	Ms.	Denise	Almazan
Health Organizations	Medical Center	Hoag Memorial Hospital Presbyterian		Media Contact	Ms.	Heidi	Pallares
Health Organizations	Medical Center	Kaiser Permanente		Media	Ms.	Terry	Kanakri
Health Organizations	Medical Center	Mission Hospital		Chief Executive	Mr.	Seth	Teigen
Health Organizations	Medical Center	St. Joseph Hospital, Orange		Sr. Manager, Marketing Strategy and Planning	Ms.	Ellen	Driscoll
Health Organizations	Medical Center	St. Jude Medical Center		Vice President, Marketing & Public Affairs	Ms.	Dru Ann	Copping
Health Organizations	Medical Center	UCI Medical Center		Executive Director of Government Affairs	Mr.	Christopher	Leo
Major Developer		FivePoint		Senior Vice President Planning and Engineering	Ms.	Jennifer	Bohen
Major Developer		FivePoint			Mr.	Kory	Lynch
Project Team	OCTA	Orange County Transportaion Authority (OCTA)		Transit Planner	Mr.	Eric	Carlson
Project Team	OCTA	Orange County Transportaion Authority (OCTA)		Community Relations Officer	Ms.	Marissa	Espino
Project Team	OCTA	Orange County Transportaion Authority (OCTA)		Government Relations Representative	Ms.	Sofia	Perez
Project Team	Outreach	Arellano Associates		Senior Project Coordinator	Mr.	Jason	Jackson
Project Team	Outreach	Arellano Associates		Project Manager	Mr.	JC	Lacey
Project Team	Technical	IBI Group		Senior Planning Manager	Ms.	Catherine	Thibault
Project Team	Technical	IBI Group		Senior Planning Manager	Mr.	Jason	Rosenblum
Project Team	Technical	IBI Group		Senior Planning Manager	Mr.	Steve	Schibuola
Transportation Agencies	Air	John Wayne Airport		Executive Officer	Ms.	Kari	Rigoni
Transportation Agencies	Air	John Wayne Airport		Land Use Manager	Ms.	Lea	Choum
Transportation Agencies	OCTA	Orange County Transportaion Authority (OCTA)		Director of Marketing and Public Outreach	Ms.	Alice	Rogan
Transportation Agencies	OCTA	Orange County Transportaion Authority (OCTA)		Public Outreach Manager	Ms.	Christina	Byrne
Transportation Organization	Regional	The Transit Coalition		Executive Director	Mr.	Bart	Reed
Transportation Organization	Regional	Women in Transportation (WTS) of Orange County		President	Ms.	Margaret	Novak

OCTA Bus Rapid Transit on Freeways Study

Stakeholder Roundtable Webinar Recap

Meeting	Details	Participation	#	Notes
Scheduled	Stakeholder Roundtable Webinar Thursday, October 8, 2020 10:30 a.m. to 12:00 p.m.	**SR Member Invitations**	92	
		Registrants	9	
Platform	GoToWebinar • Enabled organizer control of attendee audio • Requires registration allowing for email capture of all registrants	**Attendees**	7	• 78% participation • One (1) from OCTA.
		Attendees at Peak Participation	7	
Run Time Scheduled /Actual	1 hour / ~50 minutes	**Written Questions/ Comments**	4	• Two (2) participants
Q&A Sessions	• Four (4) sessions spread throughout presentation	**Oral Questions/ Comments**	2	• Two (2) participants
Poll Questions	• Two (2): 1. Did your commute, pre-COVID, require travel on the freeway? 2. Why do you travel along the I-5 and SR-55 freeways?	**Poll Response**		• **#1:** 50% Yes, 50% No with one noting after that he used the freeway just not on a regular basis. • **#2:** 43% Employment, 43% Entertainment; 14% Shopping, 0% School and 0% Business or service

#	Last Name	First Name	Registration Email	# of Oral Question/Comments	# of Written Question/Comments	Notes
1	Boslet	John	[redacted]	1*	4*	* One of his written questions was the same as his oral question.
2	Hennon	Erika		1	0	
3	Lynch	Kory				
4	Perez	Sofia				
5	Romero	Dorian		0	1	
6	WUU	JAY				
OCTA Staff						
7	Rogan	Alice				


Bus Rapid Transit
on Freeways Study
Thank you for joining us!
The presentation will begin shortly.
Please note that the audience will be automatically muted during the presentation, but question & answer sessions will be conducted at various points. When prompted to ask questions or provide comments, please use the hand gesture or questions tab on the right-hand panel of your screen.
In the meantime, please view the study fact sheet located in the handouts tab.
If you are having audio issues, please try the following: Under the audio tab, select to use either your computer audio or join via phone call.
Audio access is unique to each caller
Project Fact Sheet
Webinar
Webinar ID
GoToWebinar

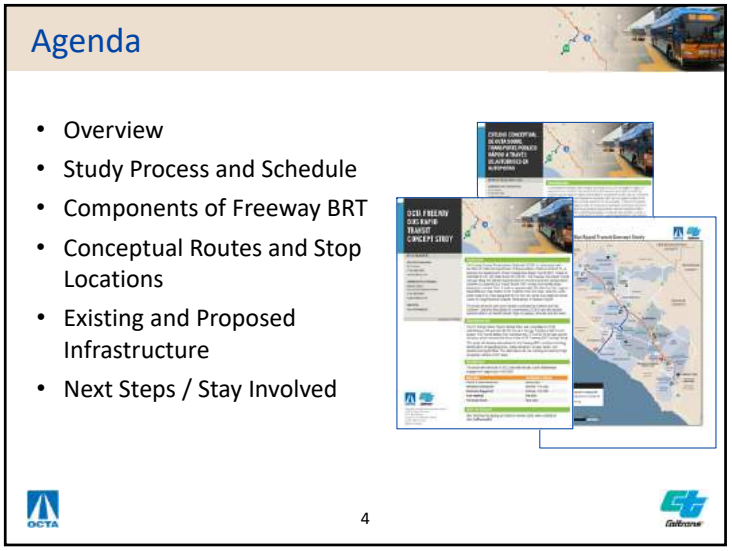
1


Bus Rapid Transit on Freeways Study
Stakeholder Roundtable Webinar
Thursday, October 8, 2020
Thank you for joining us!
Please wait for the presentation to begin.

2


Study Team
OCTA
Eric Carlson, Marissa Espino
Caltrans
Luisa Easter, Cole Iwamasa
IBI Group / WSP
Steve Schibuola, Dave Schumacher
Arellano Associates
Jason Jackson
3

3


Agenda
Overview
Study Process and Schedule
Components of Freeway BRT
Conceptual Routes and Stop Locations
Existing and Proposed Infrastructure
Next Steps / Stay Involved
4

4

What is Freeway BRT?

Express bus service that travels mostly on the freeways, taking advantage of carpool lanes, express lanes/toll lanes or even shoulder lanes to serve key destinations.

Stations can be on or near the freeway and connect to key destinations using local bus service and shuttles.

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Study Overview

- Prior Studies by OCTA, Caltrans and SCAG
- Study Area Focus
  - I-5 from Fullerton Park and Ride to Laguna Niguel/Mission Viejo Metrolink Station
  - SR-55 from Santa Ana Regional Transit Center to Hoag Hospital Newport Beach
- Benefits of Freeway BRT
- Timing of study / ongoing improvements to freeway network
- Caltrans grant funded study (2019-2022)
- Objectives
  - Develop conceptual alternatives for each corridor
  - Identify needed infrastructure for inclusion in future freeway projects

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Study Process and Schedule

Step 1: Purpose and Need (Mar–Jun 2020)

- Prior Studies
- Existing Conditions (demographic data)
- Needs, Goals, and Objectives

Step 2: Alternatives Development (Jul-Oct 2020)

- Coordination with corridor cities
- Public and Stakeholder Outreach

Step 3: Alternatives Evaluation (Nov-Feb)

- Ridership and Cost estimates

Step 4: Draft Final Report (Mar-Apr 2021)

- Near-term and Long-term Recommendations
- Public review and comment

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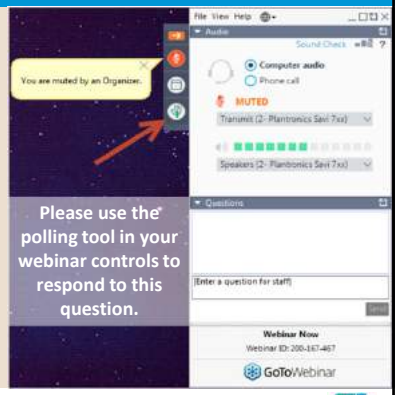
Question & Answer Session

Poll Question #1

Did your commute, pre-COVID, require travel on the freeway?

- Yes
- No



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Components of Freeway BRT

Operations: Service Efficiency and Reliability

- Use of existing or planned HOV, Express and/or Managed Lanes to bypass congestion
- Option to use dedicated lanes or shoulder lanes
- Integration of features that can reduce dwell times (eg. all-door boarding)

Ideal Length, Number of Stops, Headway

- Station spacing generally on par with Commuter Rail
- Option to offer limited stops at peak times

Parking

- Especially in Suburban Context

Station Location and Design

- Impacts on Travel Time
- Impacts on Accessibility and Conviviality

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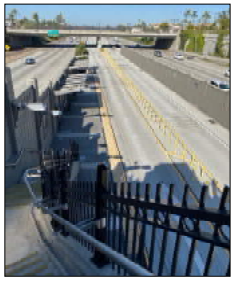
Typical Station Configurations – Inline Station



SR-15, San Diego

J Line (Silver), Los Angeles

Located in dedicated transit lanes in the median

- SR-15 case study has demonstrated the importance of not locating the station under overpasses, and ability to stagger station platforms where ROW is limited

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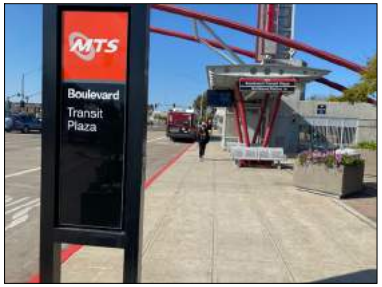
Arterial Bridge Station



SR-15, San Diego

In-Line Stations also include arterial bridge deck stations

- SR-15 case study has demonstrated the importance branding and landscaping to enhance the traveling experience

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Side Running Station

J Line (Silver), Los Angeles

Side-Running Design

- Can be used on outside edge of freeway or on dedicated transitway
- Requires design elements to provide separation from GP lanes for safety and passenger comfort

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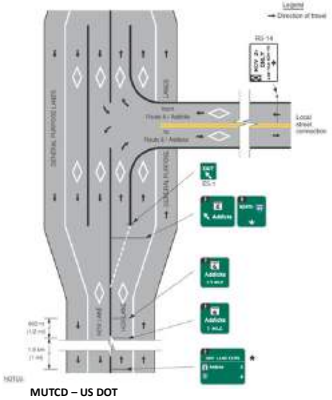
Direct Access Ramps (DAR)



DAR Design

- Designed for multimodal use
  - Provides priority access to freeway median Express Lanes for BRT, car/vanpools, FasTrak users
  - Provides time savings over access via regular freeway on-ramps
  - Eliminate need for merging over GP lanes to access Express Lanes
- Best located away from existing freeway interchanges

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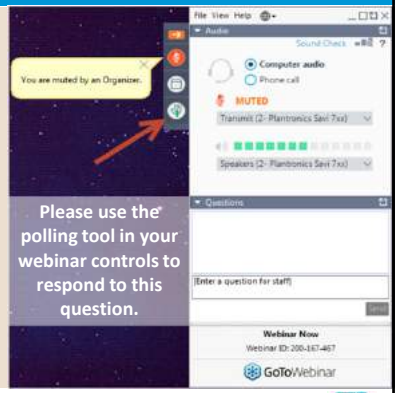
Question & Answer Session

Poll Question #2

Why do you travel along the I-5 and SR-55 freeways?

- Employment
- Entertainment (parks, amusement, recreation, etc.)
- Shopping
- School
- Business or service (OCTA, Metro, ARC, etc.)



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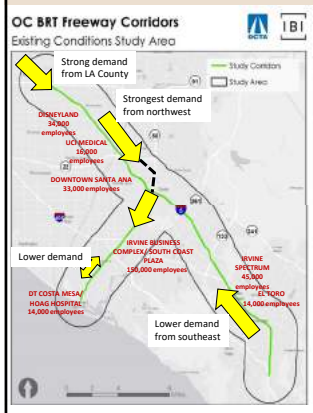
Travel Demand



Study Area

- Strong demand along I-5/SR-55 from Fullerton to Irvine
- Strongest demand matches dual HOV/express lane priorities
- Locate stations to maximize access to:
  - Key residential areas
  - Key employment areas
  - OCTA bus/streetcar connections

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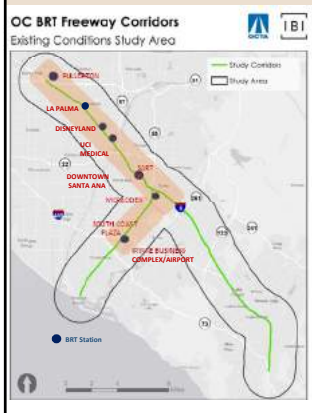
Concept 1



1. Fullerton to Irvine – All Day BRT Stations & Transit Connections:

- Fullerton: (Routes 25, 26, 30, 529, 721)
- La Palma (Route 38)
- Disneyland: (Routes 47, 50, DisneyShuttles)
- UCI Medical (Routes 47, 54, 57/57X, 83)
- SARTC: (Streetcar, Metrolink/Amtrak, Routes 59, 83, 206, 463, 560, 862)
- McFadden Avenue: (Route 66)
- Irvine Business Complex/Airport/ South Coast Plaza— (BRT Circulation and/or Shuttles; Routes 55, 57/57X, 76, 86, 463)

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Concept 2

OC BRT Freeway Corridors
Existing Conditions Study Area

2. Anaheim to Laguna Niguel – All Day BRT Stations and Transit Connections:

- Disneyland:
  (Routes 47, 50, Disney Shuttles)
- UCI Medical
  (Routes 47, 54, 57/57X, 83)
- SARTC:
  (Streetcar, Metrolink/Amtrak, Routes 59, 83, 206, 463, 560, 862)
- Jeffrey Road Park and Ride
  (Route 167)
- Irvine Spectrum
  (Routes 86,90)
- Laguna Hills
  (Route 91)
- Laguna Niguel Metrolink
  (Metrolink/Amtrak, Routes 85, 87, 91)

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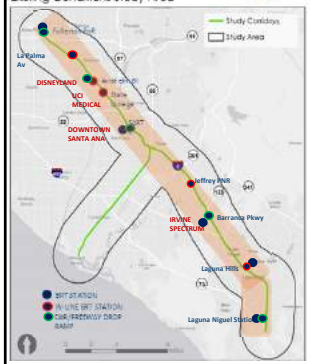
Concept 2A

OC BRT Freeway Corridors
Existing Conditions Study Area



2A. Fullerton to Laguna Niguel – All Day BRT Stations and Transit Connections:

- Fullerton Park and Ride
  (Routes 25, 26, 30, 529, 721)
- Disneyland:
  (Routes 47, 50, Disney Shuttles)
- UCI Medical
  (Routes 47, 54, 57/57X, 83)
- SARTC:
  (Streetcar, Metrolink/Amtrak, Routes 59, 83, 206, 463, 560, 862)
- Jeffrey Road Park and Ride
  (Route 167)
- Irvine Spectrum
  (Routes 86,90)
- Laguna Hills
  (Route 91)
- Laguna Niguel Metrolink
  (Metrolink/Amtrak, Routes 85, 87, 91)

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Concept 3

OC BRT Freeway Corridors
Existing Conditions Study Area

3. Santa Ana to Newport Beach – All Day BRT Stations and Transit Connections:

- SARTC:
  (Streetcar, Metrolink/Amtrak, Routes 59, 83, 206,463 ,560 ,862)
- McFadden Avenue:
  (Route 66)
- Bristol Street:
  (Routes 57, 71, new shuttles)
- 17th Street
  (Route 71)
- Hoag Hospital:
  (Routes 47, 55, 71)

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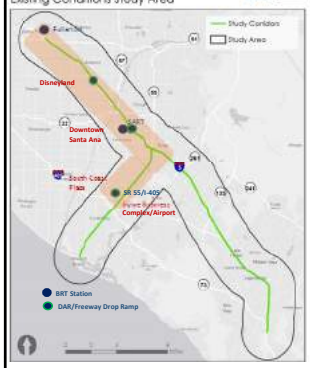
Concept 4

OC BRT Freeway Corridors
Existing Conditions Study Area



4. Fullerton to Irvine – All Day BRT (Early Option) Stations and Connections:

- Fullerton: (Routes 25, 26, 30, 529, 721)
- Disneyland: (Routes 47, 50, DisneyShuttles)
- SARTC: (Streetcar, Metrolink/Amtrak, Routes 59, 83, 206, 463, 560, 862)
- Irvine Business Complex/Airport/ South Coast Plaza—
  (BRT Circulation and/or Shuttles; Routes 55, 57/57X, 76, 86, 463)

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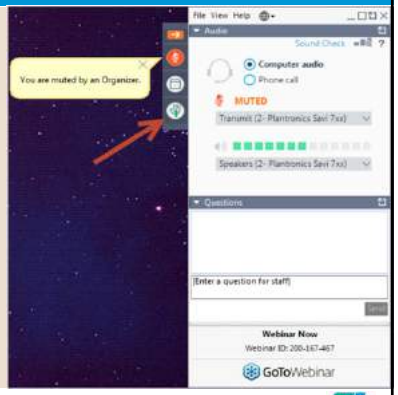
Question & Answer Session

Concept Discussion

Would you like to know more about the proposed concepts?



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Existing and Proposed Infrastructure

STOP LOCATION	FREEWAY	EXISTING RAMPS	POTENTIAL ADDITIONS*
Fullerton Park and Ride	I-5	Magnolia Avenue ramps	HOV ramps
La Palma	I-5	La Palma Avenue ramps	NB inline station
Disneyland	I-5	SB Disneyland Drive DAR; NB Disney Way DAR	Use existing DARs at Gene Autry Way for Inline stations
Santa Ana Regional Transportation Center (SARTC)	I-5/SR-55	SB Grand Ave. DAR	NB DARs
Irvine Spectrum	I-5	Northfacing Barranca Parkway DARs	Southfacing Barranca Parkway DARs
Jeffrey Road PNR	I-5	SB to SB ramps	NB inline station
Laguna Hills	I-5	LHTC PNR	Inline stations
Laguna Niguel/Mission Viejo Metrolink Station	I-5	Crown Valley Pkwy ramps	Northfacing DARs
SR-55/E. Alton Avenue	SR-55	MacArthur Blvd ramps	NB & SB DARs
Costa Mesa/Fair Dr.	SR-55	Fair Drive ramps	Inline stations
17th Street	SR-55	17th Street intersection	Shoulder transit lane
Hoag Hospital	SR-55	On-street stop	

* Potential additions are preliminary concepts for new direct access ramps or inline stations that still need to be thoroughly vetted, and that will be screened down to a short list of strategic improvements.

DAR = Direct access ramp | NB = Northbound
HOV = High occupancy vehicle | SB = Southbound

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Next Steps

- Online survey/public input
- Finalize conceptual routes
  - Operations
  - Stops
  - Existing and needed infrastructure (ramps, stations, parking)
- Evaluate conceptual routes (develop cost and ridership estimates)
- Draft Final Report (Mar-April 2021)

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Stay Involved

PLEASE TAKE our survey…

Share your opinions, today!

- ***FreewayBusSurvey.com***
- ***Or dial 909-494-2900***

Sign-up for study updates at:

- ***octa.net/FreewayBRT***

The website has all you need to stay informed:

- Fact sheets, presentations, reports, meeting notices, etc.

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Live Webinar

Join me and the team for a live webinar on:

Virtual Public Meeting

Wednesday, October 14, 2020
5:30 – 6:30 p.m.

Visit octa.net/FreewayBRT to register

Project Manager
Eric Carlson
(714) 560-5381
ecarlson@octa.net

Community Outreach
Marissa Espino
(714) 560-5607
mespino@octa.net

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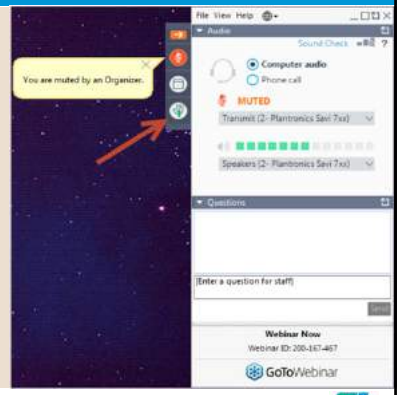
25

Question & Answer Session

Open Discussion

Any final questions?



26

26

Thank you for joining us.

27

Jason Jackson

From: OCTA Bus Rapid Transit on Freeways Study <jjackson@arellanoassociates.com>
Sent: Monday, September 21, 2020 4:08 PM
To: Jason Jackson
Subject: Stakeholder Roundtable Invitation - October 8, 2020

Bus Rapid Transit on Freeways Study

The Orange County Transportation Authority (OCTA) is planning for the future by exploring express bus service options, and we want to hear from you. OCTA and the State of California Department of Transportation (Caltrans), District 12 are conducting the Bus Rapid Transit on Freeways Study to look at the development of Freeway Bus Rapid Transit (BRT) routes on Interstate 5 (I-5) and State Route 55 (SR-55). The study will identify improvements to infrastructure and transportation solutions on the I-5 from the Fullerton Park and Ride to the Laguna Niguel/Mission Viejo Metrolink Station and on the SR-55 from the Santa Ana Regional Transit Center to Hoag Memorial Hospital Presbyterian in Newport Beach.

Freeway BRT is express bus service that travels mostly on the freeway network, taking advantage of carpool lanes, express lanes, toll lanes or even shoulder lanes to serve key destinations. Stations will be along the freeway and will connect to key destinations using local bus service and shuttles.

As a key stakeholder, you are invited to represent your organization/community as a Stakeholder Roundtable participant to provide your guidance and feedback.

As a participant, you will be able to:

- Guide the development of improvements to infrastructure and transportation solutions for potential BRT routes
- Increase public awareness of the study
- Help identify effective methods to engage those you represent

Virtual Stakeholder Roundtable Meeting

Thursday, October 8, 2020
10:30 a.m. to noon

Click to register for the webinar by Monday, October 5th

Eager to share your opinions? Help OCTA improve public transit needs by taking our survey at *FreewayBusSurvey.com*.

Please contact Marissa Espino, Community Relations Officer, at MEspino@octa.net with any questions. We are looking forward to collaborating with you.

PROJECT MANAGER:
Eric Carlson
(714) 560-5381
ecarlson@octa.net

WEBSITE:
octa.net/freewaybrt

COMMUNITY OUTREACH:
Marissa Espino
Community Relations Officer
(714) 560-5607
mespino@octa.net

Jason Jackson

From: OCTA Bus Rapid Transit on Freeways Study <jjackson@arellanoassociates.com>
Sent: Tuesday, September 29, 2020 6:03 PM
To: Jason Jackson
Subject: REMINDER: Stakeholder Roundtable Invitation - October 8, 2020

Bus Rapid Transit on Freeways Study

The Orange County Transportation Authority (OCTA) is planning for the future by exploring express bus service options, and we want to hear from you. OCTA and the State of California Department of Transportation (Caltrans), District 12 are conducting the Bus Rapid Transit on Freeways Study to look at the development of Freeway Bus Rapid Transit (BRT) routes on Interstate 5 (I-5) and State Route 55 (SR-55). The study will identify improvements to infrastructure and transportation solutions on the I-5 from the Fullerton Park and Ride to the Laguna Niguel/Mission Viejo Metrolink Station and on the SR-55 from the Santa Ana Regional Transit Center to Hoag Memorial Hospital Presbyterian in Newport Beach.

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COMMUNITY OUTREACH:
Marissa Espino
Community Relations Officer
(714) 560-5607
mespino@octa.net

Jason Jackson

From: Marissa Espino <mespino@octa.net>
Sent: Thursday, October 08, 2020 7:47 AM
Cc: Eric Carlson; Jason Jackson
Subject: OCTA Stakeholder Roundtable
Attachments: Freeway BRT Study Fact Sheet_FINAL.pdf

Good Morning,
Thank you for registering to attend today's Freeway Bus Rapid Transit Concept Study Stakeholder Roundtable at 10:30 a.m. As background, we have attached a fact sheet and you can also visit www.octa.net/freewaybrt for further information.

We look forward to speaking with you soon,

Marissa Espino
Community Relations Specialist, Principal
Orange County Transportation Authority
714-560-5607
mespino@octa.net

From: Marissa Espino
Cc: Eric Carlson; Jason Jackson
Subject: OCTA Stakeholder Roundtable Materials
Date: Thursday, October 08, 2020 3:53:44 PM
Attachments: Freeway BRT SR 10-08-20.pdf
Freeway BRT Sep-Nov 2020 - Tool Kit FINAL.docx

Stakeholder Attendees:
Thank you for attending today's Freeway BRT Concept Study Stakeholder Roundtable. Attached is the PPT presentation and the communications toolkit that I referenced. Please feel free to contact Eric Carlson or myself if you have any additional feedback.

Thank you,

Marissa Espino
Community Relations Specialist, Principal
Orange County Transportation Authority
714-560-5607
mespino@octa.net

APPENDIX D

Collateral

- Fact Sheet ENG
- Fact Sheet SPN
- Fact Sheet VIET

BUS RAPID TRANSIT ON FREEWAYS STUDY

AT A GLANCE

PROJECT MANAGER:
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COMMUNITY OUTREACH:
Marissa Espino
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WEBSITE:
octa.net/freewaybrt

Fact Sheet as of 8/21/2020

OVERVIEW

The Orange County Transportation Authority (OCTA), in partnership with the State of California Department of Transportation (Caltrans) District 12, is studying the development of two Freeway Bus Rapid Transit (BRT) routes on Interstate 5 (I-5) and State Route 55 (SR-55). The Freeway Bus Rapid Transit Concept Study will identify improvements to infrastructure and transportation solutions for potential Bus Rapid Transit (BRT) routes and identify stops along each corridor. The I-5 route is approximately 30 miles from the Laguna Niguel/Mission Viejo Station to the Fullerton Park and Ride, while the north-south route is 12 miles along the SR-55 from the Santa Ana Regional Transit Center to Hoag Memorial Hospital Presbyterian in Newport Beach.

The study will build upon prior studies conducted by Caltrans and the Southern California Association of Governments (SCAG) and will develop solutions which can benefit transit, high-occupancy vehicles, and toll users.

BACKGROUND

The OC Transit Vision (Transit Master Plan) was completed in 2018, establishing a 20-year plan for the future of Orange County's public transit system. The Transit Master Plan identified the I-5 and SR-55 as high-priority corridors, which became the focus of the OCTA Freeway BRT Concept Study.

This study will develop alternatives for the Freeway BRT corridors including identification of operating lanes, station locations, access ramps, and needed parking facilities. The alternatives will use existing and planned high occupancy vehicle (HOV) lanes.

SCHEDULE

The study will conclude in 2021 and will include public stakeholder engagement beginning in fall 2020.

MILESTONES	APPROXIMATE TIMELINE
Purpose & Need Assessment	Spring 2020
Alternatives Development	Summer – Fall 2020
Stakeholder Engagement	Summer – Fall 2020
Public Meetings	Fall 2020
Final Study Results	Early 2021

STAY IN TOUCH

Stay informed by signing up today to receive study news updates at **octa.net/freewaybrt.**

Orange County Transportation Authority
550 S. Main Street
P.O. Box 14184
Orange, CA 92863-1584
(714) 560-OCTA
www.octa.net

Freeway Bus Rapid Transit Concept Study

ESTUDIO DE TRÁNSITO RÁPIDO DE AUTOBUSES EN AUTOPISTAS

BREVE RESUMEN DEL

GERENTE DEL PROYECTO:
Eric Carlson
(714) 560-5381
ecarlson@octa.net

ALCANCE A LA COMUNIDAD:
Marissa Espino
Funcionaria encargada de las relaciones con la comunidad
(714) 560-5607
mespino@octa.net

SITIO WEB:
octa.net/freewaybrt

Hoja informativa de 8/21/2020

DESCRIPCIÓN

La Autoridad de Transporte del Condado de Orange (OCTA, por sus siglas en inglés), en asociación con el Distrito 12 del Departamento de Transporte del Estado de California (Caltrans, por sus siglas en inglés), está estudiando el desarrollo de dos rutas de Transporte Público Rápido a través de Autobuses en autopistas (BRT, por sus siglas en inglés) en la Interestatal 5 (I -5 en inglés) y la Ruta estatal 55 (SR-55 en inglés). El Estudio Conceptual de Transporte Público Rápido a través de Autobuses en autopistas identificará mejoras en las soluciones de infraestructura y transporte para posibles rutas de Transporte Público Rápido de Autobuses (BRT) e identificará paradas a lo largo de cada corredor. La ruta I-5 es de aproximadamente 30 millas desde la estación Laguna Niguel/Mission Viejo hasta el estacionamiento para pasajeros de Fullerton, por otro lado, la ruta que va de norte a sur es de 12 millas a lo largo de la SR-55, desde el Centro de Transporte Público Regional de Santa Ana hasta el Hoag Memorial Hospital Presbyterian en Newport Beach.

El estudio se basará en estudios previos realizados por Caltrans y la Asociación de Gobiernos del Sur de California (SCAG, por sus siglas en inglés) y desarrollará soluciones que puedan beneficiar al transporte público, a los vehículos con dos o más pasajeros y a los conductores que pagan peaje.

ANTECEDENTES

La Visión del Transporte Público de OC (Plan Maestro del Transporte Público) se completó en 2018, estableciendo un plan de 20 años para el futuro del sistema de transporte público del Condado de Orange. El Plan Maestro del Transporte Público identificó la I-5 y la SR-55 como corredores de alta prioridad, que se convirtieron en el foco del Estudio Conceptual de OCTA sobre BRT en las autopistas.

Este estudio desarrollará alternativas para los corredores BRT en autopistas, incluyendo la identificación de carriles operativos, ubicaciones de las estaciones, rampas de acceso y la infraestructura necesaria para estacionamiento. Las alternativas utilizarán carriles de vehículos con dos o más pasajeros (HOV, por sus siglas en inglés) existentes y planificados.

CALENDARIO

El estudio se concluirá en 2021 e incluirá la participación de las partes interesadas del público a partir del otoño de 2020.

ETAPAS DEL ESTUDIO	CRONOGRAMA APROXIMADO
Propósito y evaluación de necesidades	Primavera de 2020
Desarrollo de alternativas	Verano a otoño de 2020
Participación de las partes interesadas	Verano a otoño de 2020
Reuniones públicas	Otoño de 2020
Resultados finales del estudio	Inicios de 2021

MANTÉNGASE EN CONTACTO

Manténgase informado registrándose ahora mismo en **octa.net/freewaybrt**, para recibir actualizaciones de las noticias sobre el estudio

Orange County Transportation Authority
550 S. Main Street
P.O. Box 14184
Orange, CA 92863-1584
(714) 560-OCTA
www.octa.net

Estudio Conceptual sobre el Transporte Público Rápido a través de Autobuses en autopistas

NGHIÊN CỨU VỀ CÁC TUYẾN ĐƯỜNG XE BUÝT CAO TỐC TRÊN XA LỘ

NHÌN THOÁNG QUA

GIÁM ĐỐC DỰ ÁN:
Eric Carlson
(714) 560-5381
ecarlson@octa.net

TIẾP CẬN CỘNG ĐỒNG:
Marissa Espino
Nhân Viên Quan Hệ Cộng Đồng
(714) 560-5607
mespino@octa.net

TRANG WEB:
octa.net/freewaybrt

Từ Thông Tin cho đến hiện giờ 8/21/2020

TỔNG QUAN

Cơ Quan Giao Thông Quận Orange (OCTA), hợp tác với Bộ Giao Thông Vận Tải California (Caltrans) Quận 12, đang nghiên cứu phát triển hai tuyến Đường Cao tốc dành cho Xe Buýt Nhanh (BRT) trên Xa lộ Liên Tiểu Bang 5 (I-5) và Đường Xa Lộ Tiểu Bang 55 (SR-55). Việc Nghiên Cứu Khái Niệm về Xe Buýt Nhanh trên Xa Lộ sẽ xác định những cải tiến về cơ sở hạ tầng và giải pháp vận chuyển cho các tuyến xe buýt nhanh (BRT) tiềm năng và xác định các trạm dừng dọc theo mỗi hành lang. Tuyến đường I-5 dài khoảng 30 dặm từ Trạm Laguna Niguel/Mission Viejo đến Park and Ride (Đậu và Đi Xe) Fullerton, trong khi tuyến bắc-nam là 12 dặm dọc theo SR-55 từ Trung Tâm Giao Thông Khu Vực Santa Ana đến Hoag Memorial Hospital Presbyterian ở Newport Beach.

Nghiên cứu này sẽ được xây dựng dựa trên các nghiên cứu trước đây được thực hiện bởi Caltrans và Hiệp Hội Chính Phủ Nam California (SCAG) và sẽ phát triển các giải pháp có thể mang lại lợi ích cho các phương tiện giao thông chở nhiều người và người sử dụng trả phí.

NỀN TẢNG

Tầm Nhìn về Phương Tiện Giao Thông ở OC (Kế Hoạch Tổng Thể về Phương Tiện Giao Thông) đã được hoàn thành vào năm 2018, thiết lập kế hoạch 20 năm cho tương lai của hệ thống giao thông công cộng của Quận Orange. Kế Hoạch Tổng Thể về Phương Tiện Giao Thông xác định I-5 và SR-55 là những hành lang được ưu tiên cao và đã trở thành trọng tâm của Nghiên Cứu Khái Niệm về BRT trên Xa Lộ của OCTA.

Nghiên cứu này sẽ phát triển các giải pháp thay thế cho các hành lang BRT trên Xa Lộ bao gồm việc xác định làn đường vận hành, vị trí của các trạm xe, đường dốc tiếp cận và các cơ sở đậu xe cần thiết. Các giải pháp thay thế sẽ sử dụng làn đường dành cho xe chở nhiều khách (HOV) hiện có và đã được lên kế hoạch.

LỊCH TRÌNH

Cuộc nghiên cứu sẽ kết thúc vào năm 2021 và sẽ bao gồm sự tham gia của các cổ đông công cộng bắt đầu vào mùa thu năm 2020.

CỘT MỐC	THỜI GIAN ƯỚC TÍNH
Đánh Giá Mục Đích & Nhu Cầu	Mùa Xuân 2020
Phát Triển Các Giải Pháp Thay Thế	Hè – Thu 2020
Sự Tham Gia Của Các Bên Liên Quan	Hè – Thu 2020
Các Cuộc Họp Công Cộng	Thu 2020
Kết Quả Nghiên Cứu Cuối Cùng	Đầu năm 2021

HÃY GIỮ LIÊN LẠC

Theo dõi thông tin bằng cách đăng ký ngay hôm nay để nhận được các thông tin cập nhật về cuộc nghiên cứu tại **octa.net/freewaybrt**.

Orange County Transportation Authority
550 S. Main Street
P.O. Box 14184
Orange, CA 92863-1584
(714) 560-OCTA
www.octa.net

Nghiên Cứu Khái Niệm Xe Buýt NhanhTrên Xa Lộ

APPENDIX E

Website

PROJECTS AND PROGRAMS

PLANS AND STUDIES

Overview

Transit Master Plan

OCTA Strategic Plan

Congestion Management Program

Human Services Transp. Coordination Plan

Funding Programs

Completed Studies

Bristol Street Transit Corridor Study

Long Range Transportation Plan

Beach Boulevard Corridor Study

Rail Infrastructure Study

Connect OC LA Transit Study

South Orange County Multimodal Transportation Study

Bus Rapid Transit on Freeways Study

PROJECT CONTACT

MARISSA ESPINO
Community Relations Officer
(714) 560-5607
mespino@octa.net

Overview | Resources | Stay Connected

Overview

The Orange County Transportation Authority (OCTA), in partnership with the State of California Department of Transportation (Caltrans) District 12, is studying the development of two Freeway Bus Rapid Transit (BRT) routes on Interstate 5 (I-5) and State Route 55 (SR-55). The Freeway Bus Rapid Transit Concept Study will identify improvements to infrastructure and transportation solutions for potential Bus Rapid Transit (BRT) routes and identify stops along each corridor. The I-5 route is approximately 30 miles from the Laguna Niguel/Mission Viejo Station to the Fullerton Park and Ride, while the north-south route is 12 miles along the SR-55 from the Santa Ana Regional Transit Center to Hoag Memorial Hospital Presbyterian in Newport Beach.

The study will build upon prior studies conducted by Caltrans and the Southern California Association of Governments (SCAG) and will develop solutions which can benefit transit, high-occupancy vehicles, and toll users.

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Bus Rapid Transit on Freeways Study

PROJECT CONTACT

MARISSA ESPINO
Community Relations Officer
(714) 560-5607
mespino@octa.net

Overview | Resources | Stay Connected

Print versions

- English Fact Sheet
- Spanish Fact Sheet
- Vietnamese Fact Sheet

Study Map

Key study objectives include:

- Identify best practices for Freeway BRT
- Develop recommendations for route alignment and station locations
- Determine need for freeway transit stations, access ramps, and parking required to maximize transit and rideshoring in the corridors
- Improve freeway traffic flow
- Identify long-term solutions to connect underserved and emerging populations

TAKE OUR SURVEY>

Or call the survey hotline at 909-494-2900

Background

The OC Transit Vision (Transit Master Plan) was completed in 2018, establishing a 20-year plan for the future of Orange County's public transit system. The Transit Master Plan identified the I-5 and SR-55 as high-priority corridors, which became the focus of the OCTA Freeway BRT Concept Study.

This study will develop alternatives for the Freeway BRT corridors including identification of operating lanes, station locations, access ramps, and needed parking facilities. The alternatives will use existing and planned high occupancy vehicle (HOV) lanes.

Project Status

The study will conclude in 2021 and will include public stakeholder engagement beginning in fall 2020.

MILESTONES	APPROXIMATE TIMELINE
Purpose & Need Assessment	Spring 2020
Alternatives Development	Summer – Fall 2020
Stakeholder Engagement	Summer – Fall 2020
Public Meetings	Fall 2020
Final Study Results	Early 2021

PROJECTS AND PROGRAMS

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PROJECT CONTACT

MARISSA ESPINO
Community Relations Officer
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mespino@octa.net

Overview | Resources | Stay Connected

Freeway Bus Rapid Transit Concept Study - Stay Informed

*Name

*E-Mail

*Zip

I would like to:

☐ Receive updates and surveys about the Freeway Bus Rapid Transit Concept Study

☐ Have a representative from the study speak to my organization.

Comment:

Note: Notifications are sent by email. For questions, please call Marissa Espino at 714-560-5607.

SUBMIT

APPENDIX F

Tool Kit

OCTA Bus Rapid Transit on Freeways Study

E-communications Outreach Tool Kit

The Orange County Transportation Authority (OCTA), in partnership with the State of California Department of Transportation (Caltrans) District 12, is studying the development of two Freeway Bus Rapid Transit (BRT) routes on Interstate 5 (I-5) and State Route 55 (SR-55). The Bus Rapid Transit on Freeways Study will identify improvements to infrastructure and transportation solutions for potential Bus Rapid Transit (BRT) routes and identify stops along each corridor. The I-5 route is approximately 30 miles from the Laguna Niguel/Mission Viejo Station to the Fullerton Park and Ride, while the north-south route is 12 miles along the SR-55 from the Santa Ana Regional Transit Center to Hoag Memorial Hospital Presbyterian in Newport Beach.

OCTA is asking for your help to share our online survey and public meeting invitation with your community using this tool kit to help promote the survey. The tool kit is easy to use and provides copy-ready text and links with details regarding the study's survey and public meeting. Please visit octa.net/freewaybrt for more information.

We appreciate your consideration in sharing the study survey with your community by way of:

1. **Social media (Facebook & Twitter)**: Copy and paste the image content of choice to your to Facebook or Twitter pages.
2. **Nextdoor.com/Neighborhood Blog**: Post the content and graphic as an announcement on your community's page.
3. **Eblast/Newsletter Article**: Distribute the provided image and content to your e-mail contacts or via your organization's newsletter or bulletin.
4. **Website**: Connect the Project with your community by updating your webpage news to include the graphic and informative blurb.
5. **Phone Recording**: Record the provided script as part of your call-waiting or share it as an informational announcement.

The online/phone survey is offered in English, Spanish and Vietnamese and will go live on September 21, 2020 and run through November 16. Thank you for helping to promote the Bus Rapid Transit on Freeways Study.

FACEBOOK:

Image:

Text:

Would you like bus service on the I-5 or SR-55? Take the @goOCTA FreewayBusSurvey.com survey or dial 909-494-2900. You're also welcome to join an online meeting. Register for 10/14 at 5:30pm, or watch a video if you can't make it. Visit octa.net/FreewayBRT for more.

TWITTER:

Image:

Text:

Tell @goOCTA what you think about adding bus service on the I-5 and SR-55 by taking the FreewayBusSurvey.com (or dialing 909-494-2900), and register for an online meeting on 10/14 at 5:30pm. Learn more at octa.net/FreewayBRT or watch the video.

NEXT DOOR:

Image:

Post Title: Participate in OCTA's Bus Rapid Transit on Freeways Study

OCTA is studying the development of Freeway Bus Rapid Transit (BRT) routes on the I-5 and SR-55. The Bus Rapid Transit on Freeways Study will identify improvements to infrastructure for the potential routes and identify stops along each corridor.

Help shape the future of the county's public transit system by taking a short, online survey anytime through November 16th. Share your opinions at FreewayBusSurvey.com. If you prefer, take the survey by phone at 909-494-2900.

Interested parties are also welcome to attend a live virtual public meeting on October 14th at 5:30 p.m. Register here. If you cannot attend the live meeting, take a few moments to watch the video presentation.

Want to know more? Visit octa.net/FreewayBRT.

EMAIL BLAST OR NEWSLETTER:

Image:

Subject: Participate in OCTA's Bus Rapid Transit on Freeways Study

Do you travel the I-5 or SR-55 freeways? OCTA is studying the two freeways for the development of Freeway Bus Rapid Transit (BRT) routes. Freeway BRT is express bus service that travels mostly on the freeway network, taking advantage of carpool lanes, express lanes, toll lanes or even shoulder lanes to serve key destinations. The OCTA Bus Rapid Transit on Freeways Study will identify improvements to infrastructure, potential stops and transportation solutions for potential BRT routes along each of the major county highways.

Please share your opinions on the proposed public transit service by taking the FreewayBusSurvey.com or take the survey by phone at 909-494-2900, if the Internet isn't convenient. The survey will be available through November 16th. Let OCTA know where you will go!

You're also welcome to attend a live virtual public meeting on October 14th at 5:30 p.m. Click to register.

Go to octa.net/FreewayBRT to learn more, and be sure to watch the video.

Map:

Freeway Bus Rapid Transit Concept Study

WEBSITE POST:

Did you know that OCTA is studying the development of freeway bus routes on the I-5 and SR-55? The Bus Rapid Transit on Freeways Study will identify improvements to infrastructure, potential stops and transportation solutions for potential Bus Rapid Transit (BRT) routes along each of the two major county highways.

OCTA is asking for your opinions. Take the FreewayBusSurvey.com through November 16th to help assess public transit needs. The survey is also available by phone by dialing 909-494-2900. Learn more at octa.net/FreewayBRT.

Join OCTA's live online public meeting about the proposed Freeway BRT on October 14th at 5:30 p.m. Register today! You may also watch the video presentation.

Where will you go?

Image:

PHONE SCRIPT:

OCTA is considering providing bus service on the I-5 and SR-55 freeways. Help shape the future of the county's public transit system by taking a short, online survey at Freeway Bus Survey dot com or by calling 909-494-2900 anytime through November 16th. Interested parties are also encouraged to attend an online meeting on 10/14 at 5:30 p.m. by registering through the website at OCTA dot net forward slash Freeway B R T.

APPENDIX G

Notification Plan

- Notification Plan
- Media Widgets ENG
- Media Widgets SPN
- Media Widgets VIET
- Website Widget ENG

Bus Rapid Transit on Freeways Study

Notification Plan

September 25 – November 16, 2020

ID	Media Type / Count	Post Date	Run Time	Purpose / Language / Allocation	Content	Widget
1	Mobile Geofencing Ad #1	Mon 10/19 – Sun 10/25 5th week of survey	7 days	Awareness & survey invitation; EN $800 / SP $300 / VT $150	Graphics only	Graphics Approved
2	Facebook Ad #1	Fri 9/25 – Fri 10/2 1st/2nd week of survey	8 days	Awareness & survey invitation; EN $300 / SP $150 / VT $100 NO PHONE SURVEY	**Primary Text:** Tell OCTA what you think about adding bus service on the I-5 and SR-55 by taking a brief survey. Learn more at *octa.net/FreewayBRT.* **Display Link:** *www.FreewayBusSurvey.com* **Headline:** Take our survey! **Description:** Share your thoughts	 *FreewayBusSurvey.com*
3 m	Facebook Ad #2	Mon 10/6 – Sun 10/12 Week before meetings	7 days	Survey and meeting invitations; EN $300 / SP $150 / VT $100	**Primary Text:** Are you interested in freeway bus service along the I-5 or SR-55? Help improve public transit by taking our survey at *FreewayBusSurvey.com* or by dialing 909-494-2900. Learn more at *octa.net/FreewayBRT*. **Display Link:** *FreewayBusMeeting.com* **Headline:** Register for 10/14 at 5:30pm webinar **Description:** Visit our website to learn more.	 *FreewayBusMeeting.com* EN / SP / VT versions

A73

Bus Rapid Transit on Freeways Study

Notification Plan

September 25 – November 16, 2020

ID	Media Type / Count	Post Date	Run Time	Purpose / Language / Allocation	Content	Widget
4	Facebook Ad #3	Mon 11/2 – Sun 11/8	7 days	Survey invitation; EN $300 / SP $150 / VT $100	**Primary Text:** There is still time to tell us what you think about adding bus service on the I-5 and SR-55. Share your opinions by taking the survey at *FreewayBusSurvey.com* or by dialing 909-494-2900. Go to *octa.net/FreewayBRT* for more. **Display Link:** *www.FreewayBusSurvey.com* **Headline:** Dial 909-494-2900 for phone survey **Description:** Go to the website for more.	 *FreewayBusSurvey.com* EN / SP / VT versions
5	Facebook Ad #4	Mon 11/9 – Sun 11/15	7 days	Survey invitation; EN $500	**Primary Text:** There is still time to tell us what you think about adding bus service on the I-5 and SR-55. Share your opinions by taking the survey at *FreewayBusSurvey.com* or by dialing 909-494-2900. Go to *octa.net/FreewayBRT* for more. **Display Link:** *www.FreewayBusSurvey.com* **Headline:** Dial 909-494-2900 for phone survey **Description:** Go to the website for more.	 *FreewayBusSurvey.com* EN only version

Bus Rapid Transit on Freeways Study

Notification Plan

September 25 – November 16, 2020

ID	Media Type / Count	Post Date	Run Time	Purpose / Language / Allocation	Content	Widget
6 m	Facebook Bus Post #1	Thu 10/8 3rd week of survey	1 time	Survey and meeting invitation; English	You're invited! Register to attend the Bus Rapid Transit on Freeways Study virtual webinar on 10/14 at 5:30pm at *FreewayBusMeeting.com*. We hope you'll also take the short survey at *FreewayBusSurvey.com* or call 909-494-2900. Go to *octa.net/FreewayBRT* for more.	 *FreewayBusMeeting.com*
7	Facebook Bus Post #2	Fri 10/23 5st week of survey	1 time	Survey invitation; English	Tell us what you think about adding bus service on the I-5 and SR-55 by taking a brief survey at *FreewayBusSurvey.com* or by calling 909-494-2900. Learn more at *octa.net/FreewayBRT.*	 *www.FreewayBusSurvey.com*
8	Facebook Bus Post #3	Tue 11/10 1 week prior to end of survey	1 time	Survey invitation; English	There is still time to share your opinions about our proposed freeway bus routes on the I-5 and SR-55. Take the *FreewayBusSurvey.com* or take the survey by phone at 909-494-2900, today. Visit *octa.net/FreewayBRT* to stay connected.	 *www.FreewayBusSurvey.com*

Bus Rapid Transit on Freeways Study

Notification Plan

September 25 – November 16, 2020

ID	Media Type / Count	Post Date	Run Time	Purpose / Language / Allocation	Content	Widget
9 m	Facebook Post #1	Tue 9/29 2 weeks prior to meetings	1 time	Survey and meeting invitation; English	Tell us what you think about adding bus service on the I-5 and SR-55 by taking our survey at FreewayBusSurvey.com or dialing 909-494-2900. Visit octa.net/FreewayBRT to learn more and to register for an online webinar on 10/14 at 5:30pm.	 *FreewayBusMeeting.com*
10 m	Facebook Post #2	Tue 10/13 4th week of survey	1 time	Survey and meeting invitation; English	Join us! Register to attend the Bus Rapid Transit on Freeways Study virtual webinar on 10/14 at 5:30pm at *FreewayBusMeeting.com*. We hope you'll also take the short survey online *FreewayBusSurvey.com* or dial 909-494-2900. Go to *octa.net/FreewayBRT* for more.	 *FreewayBusMeeting.com*
11	Facebook Post #3	Wed 11/4 6th week of survey	1 time	Survey invitation; English	Tell us what you think about adding bus service on the I-5 and SR-55 by taking a brief survey at *FreewayBusSurvey.com* or by calling 909-494-2900. Learn more at *octa.net/FreewayBRT.*	 *www.FreewayBusSurvey.com*

Bus Rapid Transit on Freeways Study

Notification Plan

September 25 – November 16, 2020

ID	Media Type / Count	Post Date	Run Time	Purpose / Language / Allocation	Content	Widget
12	@OCTABusUpdates Twitter Post #1	Tue 10/6 3rd week of survey	1 time	Awareness & survey invitation; English	Are you interested in bus service on the I-5 or SR-55? Take our survey at *FreewayBusSurvey.com* or dial 909-494-2900 and help shape how to travel in Orange County. Visit *octa.net/FreewayBRT* for information.	 *www.FreewayBusSurvey.com*
13 m	@OCTABusUpdates Twitter Post #2	Mon 10/12 2 days prior to meeting	1 time	Survey and meeting invitation; English	Register to attend the Bus Rapid Transit on Freeways Study webinar on 10/14 at 5:30pm at *FreewayBusMeeting.com*. Start by taking the survey at *FreewayBusSurvey.com* or by phone at 909-494-2900. Visit *octa.net/FreewayBRT* for information.	 *FreewayBusMeeting.com*
14	@OCTABusUpdates Twitter Post #3	Sat 11/14 Last week of survey	1 time	Survey invitation; English	Last chance! Tell us what you think about adding bus service on the I-5 and SR-55 by taking a survey at *FreewayBusSurvey.com* or dialing 909-494-2900. See *octa.net/FreewayBRT* to learn more.	 *www.FreewayBusSurvey.com*

Bus Rapid Transit on Freeways Study

Notification Plan

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ID	Media Type / Count	Post Date	Run Time	Purpose / Language / Allocation	Content	Widget
15 m	@GoOCTA Twitter Post #1	Fri 10/9 2 weeks prior to meeting	1 time	Survey and meeting invitation; English	You're invited! Register at *FreewayBusMeeting.com* to attend the Bus Rapid Transit on Freeways Study virtual webinar at 5:30pm on 10/14. We hope you'll also take our survey *FreewayBusSurvey.com* or dial 909-494-2900. Go to *octa.net/FreewayBRT* for more.	 *FreewayBusMeeting.com*
16	@GoOCTA Twitter Post #2	Fri 10/23 Week after meetings	1 time	Survey invitation; English	There's still time. Tell us what you think about adding bus service on the I-5 and SR-55 by taking our survey at *FreewayBusSurvey.com* or dialing 909-494-2900. See *octa.net/FreewayBRT* to learn more.	 *www.FreewayBusSurvey.com*
17 m	Stakeholder Database Eblast #1	Wed 9/30 2 weeks prior to meetings	1 time	Meeting reminder 1; EN, SP, VT	Content approved	
18 m	Stakeholder Database Eblast #2	Mon 10/12 2 days prior to meetings	1 time	Meeting reminder 2; EN, SP, VT	Content approved	

Bus Rapid Transit on Freeways Study

Notification Plan

September 25 – November 16, 2020

ID	Media Type / Count	Post Date	Run Time	Purpose / Language / Allocation	Content	Widget
19	Stakeholder Database Eblast #3	Wed 11/11 Last week of survey	1 time	Last chance survey reminder; EN, SP, VT	TBD	
20	Stakeholder Database Eblast #4	TBD PENDING FINAL INFOGRAPHIC	1 time	Thank you; EN, SP, VT	TBD	
21 m	Excelsior Newspaper Ad	Fri 10/9 Week prior to meeting	1 time	Awareness & survey and meeting invitations; Spanish	Content approved	
22 m	Viet Bao Daily News Newspaper Ad	Fri 10/9 Week prior to meeting	1 time	Awareness & survey and meeting invitations; Vietnamese	Content approved	
Additional Media/Noticing						
23	OCTA Eblast to Bus Riders	Week of Thu 10/1 2 weeks prior to meetings	1 time	Awareness & survey and meeting invitation; English	AA to draft copy & design header; Marissa to forward eblast screenshot and metrics.	
24 m	OCTA Eblast to Meeting Attendees	Mon 10/19 Week after	1 time	Thank you to meeting attendees; English	Marissa to draft copy and direct distribute to attendees only & forward eblast screenshot and metrics.	
25 m	On the Move (OCTA blog)	Thu 10/8	1 time	Awareness & survey and meeting invitation; English	Marissa to forward post metrics, if available.	

Bus Rapid Transit on Freeways Study

Notification Plan

September 25 – November 16, 2020

ID	Media Type / Count	Post Date	Run Time	Purpose / Language / Allocation	Content	Widget
26	On the Move (OCTA blog)	Week of 10/19 CANCELLED	1 time	Survey invitation; English	Marissa to forward post metrics, if available.	
27 m	Project Website	Ongoing		Survey and meeting invitations; English	Marissa to forward website metrics, specifically main page and survey link.	

A80


Take our survey.
Bus Rapid Transit on Freeways Study
OCTA


Attend our webinar.
Bus Rapid Transit on Freeways Study
OCTA


Tome nuestra encuesta.
El Estudio sobre autobuses de tránsito rápido en las autopistas
OCTA


Asista a nuestro seminario web.
El Estudio sobre autobuses de tránsito rápido en las autopistas
OCTA


Tham gia Cuộc Khảo Sát của chúng tôi.
Cuộc Nghiên cứu về Lối đi Nhanh chóng cho Xe Buýt trên Đường Cao Tốc
OCTA


Tham dự hội thảo trực tuyến của chúng tôi.
Cuộc Nghiên cứu về Lối đi Nhanh chóng cho Xe Buýt trên Đường Cao Tốc
OCTA


Attend our webinar.
Bus Rapid Transit on Freeways Study
VIRTUAL PUBLIC MEETING
Wednesday, October 14, 2020
5:30 – 6:30 p.m.
CLICK HERE
to register for the webinar.
OCTA

APPENDIX H

Newspaper Advertisements

- Tear Sheet – Excelsior
- Tear Sheet – Viet Bao Dailey News

Asista a nuestro seminario web.

Estudio de Tránsito Rápido de Autobuses en Autopistas

Conozca cómo la Autoridad de Transporte del Condado de Orange (OCTA por sus siglas en inglés) está planificando para el futuro explorando las opciones de servicio de autobús expreso en la Interestatal 5 (I-5) y la Ruta estatal 55 (SR-55). Está invitado a participar en la reunión virtual del Estudio de Tránsito Rápido de Autobuses en Autopistas para conocer al equipo y hacer preguntas.

Reunión Pública Virtual

Miércoles, 14 de octubre de 2020

5:30 p.m. a 6:30 p.m.

Regístrese en:

FreewayBusMeeting.com

Tome una encuesta corta en:

FreewayBusSurvey.com

o por teléfono en:

(909) 494-2900

Marissa Espino
Relaciones Comunitarias
mespino@octa.net
octa.net/freewaybrt

OCTA Caltrans

¿MEDICARE LO CONFUNDE?

¿Usted se pregunta qué plan es el correcto para usted?

¿Me puedo quedar con mi doctor?

¿Cuál es el costo?

¿Qué significan las Partes A, B, C y D de Medicare?

LLAME AHORA MISMO AL 844-708-8800 PARA QUE YO LE ACLARE SUS DUDAS.

¡Su llamada y mis servicios son completamente **GRATIS**!

PATTY AHOIA
844-708-8800
www.pattysinsuranceservices.com
TTY 711 M-F 9am - 5pm

Cuando llame al numero de arriba, se comunicara con un agente de seguros con licencia.

Employment Empleo

Oportunidades de empleo Employment Opportunities

Accountant: Bachelor in Accounting or related, plus 12 months of related experience. Prepare and examine financial records. Job Location: Irvine, CA. Resume to: Jialin Group Inc. 2691 Richter Ave., Unit #115, Irvine, CA 92606. Attn: HR

Director of Finance, Irvine, CA. Manage financial planning and strategy; analyze and report on financial performance; lead valuation and due diligence; prepare forecasts; review budgets. Req'd: Master of Business Admin.; 3 yrs. exp. job duties; Knowledge of Entrepreneurial Finance; Financial Reporting & Control; Strategy; Leadership & Corp. Accountability; Managing Service Operations; Cross-Cultural Work Experiences. M-F, 9-5. Send resume to Xponential Fitness LLC, 17877 Von Karman Ave, Suite 100, Irvine, CA 92614

Se busca un Agente de Real Estate Oficina ubicada en Santa Ana. Para más información llame al: 714-560-9770

Software QA Analyst Senior (Job Code: CG0529) sought by Experian Information Solutions, Inc. in Costa Mesa, CA and Santa Ana, CA. QA member to translate business requirements and specs into test solutions to insure highest quality product. Req: BS + 3 yrs. Apply by email at recruitment@experian.com (Reference Job Code CG0529)

Writer: Travel Agency in Costa Mesa, CA. Bachelor's Degree in English or rltd req'd. Mail resume: Amnet New York, Inc. 665 Paularino Ave. #111, Costa Mesa, CA 92626. Attn: Nakagawa

Part-Time

Se busca un HANDYMAN con experiencia para trabajar a tiempo parcial. Para más información llame al: 714-560-9770

Announcements Anuncios

VIAJES COMPARTIDOS CARPOOL RIDESHARE

ATT: Nuevos Negocios La ley estatal requiere que dentro de los 30 dias despues de una Declaracion de Nombre Comercial Ficticio se ha presentado el registrante debera public ar una copia de la declaracion en un periodico de circulacion general en el condado en que se encuentra la sede principal del negocio.
Riverside County
SEC. 6000, ET WEQ.,
GOV CODE
The Press-Enterprise
es un periodico de circulacion general en el Condado de Riverside.
Llame al: 951-368-9222
Email: legals@pe.com

THE ORANGE COUNTY REGISTER
Nobody Beats Our Coverage.

Pets Mascotas

Perros Dogs

MALTIPOO LOST REWARD White w/buff ears female 3 years old. Lost in the Cherry Valley area 9/18/2020. Please call 951-403-1109 or email lindapt01@gmail.com.. Very Sad.

BEST DELIVERY IN THE GAME!
Complete Angels + Dodgers team coverage in Sports

Services Servicios

Caregiver Cuidador

WANTED - CAREGIVERS

Change a life! Open your Heart!
Become a Mentor! We are seeking loving families with a spare bedroom to mentor adults with intellectual and developmental disabilities. Receive up to $2,300/mo. (tax exempt) while receiving support.
California Mentor 714-971-0213

Garage Sale Venta de garaje

Ventas de garaje Garage Sales

College Park 20th Annual
Sat. 10/10. 8a-2p
Neigbhorhood of 450 homes! NORTH OF Fair Dr between Harbor & Fairview. 269 Bowling Green. Map of homes & List of items at **facebook.com/LindaHartmanReal Estate.**
Linda 949-644-2144
Costa Mesa Requires Masks

Multi-Family
Oct 10th 8A
Men, Wmn, Children's Clothing, TOOLS, furn., elec. & Much, Much More!
5412 Deveron Ct
xst Lochmoor Dr
RIV 92507

Merchandise Mercancías

Miscelaneos Ventas Misc for Sale

***POMEGRANATES ***
4 for $1
9188 Baseline Rd
Alta Loma - 91701

Handyman Services

HANDYMAN PLUS YARD WORK, HOME REPAIRS fencing, painting, assemblies, small jobs. **REASONABLE.** (951)235-3388

Plomería Plumbing

ALL SMALL JOBS
RETIRED PLUMBER
License #335784
951.692.2802

Transportation Transporte

Venta de Autos Autos For Sale

#1 $1,500 - $6,500 Cars, Trucks, Vans, SUVs. Text or Call 714-808- 3084 Very Fair Pricing **OC Since 1987**

2013 Chevy Impala Clean inside & outside, 86k mi **$9,500** obo; #8pla1465 **626.755.1625**

Motocicletas Motorcycles

2010 Spider RT & trlr., 2 helmets. 4400 mi., no motorcycle lic req'd. **$15,000** **951.496.4881**

THE ORANGE COUNTY REGISTER
Nobody Beats Our Coverage.

Public Notice

Call 714-796-2209 • Fax 714-796-7913 • www.ocregister.com

CIUDAD DE HEMET
AVISO DE AUDENCIA PÚBLICA
Y DISPONIBILIDAD DE FONDOS DE CDBG 2021/2022

El Consejo Municipal de la Ciudad de Hemet celebrara una audiencia publica el martes, 10 de noviembre de 2020 a las 7:00 p.m. en las salas del consejo ubicado en 450 E. Latham, Hemet, California. La audiencia es una oportunidad para considerar cualquier comentario o puntos de vista de los ciudadanos y organizaciones públicas que estén interesados en la elaboración para recibir aproximadamente $922,249 en fondos de asistencia de desarrollo comunitario (CDBG) y desarrollo del Plan de Acción anual que existe para el período del 1ero de Julio de 2021 hasta el 30 de Junio de 2022, el cual es requerido por el Departamento de Vivienda y Desarrollo Urbano (HUD) y también por el Plan de Participación Ciudadana de la ciudad de Hemet. Los objetivos de financiación son para desarrollar comunidades asequibles a través de asociaciones públicas/privadas para proveer viviendas viables, un ambiente de vida adecuado y oportunidades de desarrollo económico dedicado principalmente para personas de bajos ingresos. Aplicaciones de CDBG estarán disponibles desde 9 de Octubre al 9 de Noviembre de 2020 con una fecha límite de presentación a las 5:00 p.m. el Lunes, 9 de Noviembre de 2020.

Los comentarios escritos deben de ser recibidos a la dirección que está escrita abajo, antes de las 5:00 p.m. del lunes, 9 de noviembre de 2020. Los documentos pueden ser examinados en la página de internet de la Ciudad de Hemet, www.hemetca.gov seleccionando lo siguiente: Departments y Community Development Block Grant. Para información adicional o para acomodar personas que no hablen inglés o personas discapacitadas, por favor comuníquense con Departamento de Finanzas al número de teléfono 951-765-3722 o mediante el servicio de emisión de California al 711.

CIUDAD DE HEMET
445 East Florida Avenue
Hemet, California 92543

Tiếp ***THỜI SỰ*** *trang 9*

khuyên ông ở lại, cảnh báo ông rằng sẽ xấu nếu bệnh tình của ông trở nặng và đòi hỏi phải vào bệnh viện lần thứ hai.

Trump lo ngại hình ảnh của ông lúc ở trong bệnh viện "làm cho ông trông suy yếu," theo nguồn tin khác cho biết.

Không phải tất cả đồng minh của ông đều đồng ý; Tổng Thống được cảnh báo nếu ông vội vã rời bệnh viện và rồi trở lại thì sẽ thiệt hại không chỉ cho sức khỏe của ông mà còn về mặt chính trị nữa.

Ít Nhất 10 Viên Chức Cộng Hòa Đồng Minh Của Trump Đã Thử Nghiệm Dương Tính Với Coronavirus

Chris Christie, cựu thống đốc tiểu bang New Jersey, vào sáng Thứ Bảy, 3 tháng 10 năm 2020, đã tuyên bố ông thử nghiệm dương tính với Covid-19, một ngày sau khi cho thấy không có người nào đeo khẩu trang trong khi chuẩn bị cuộc tranh luận ứng cử viên tổng thống lần đầu với Tổng Thống Donald Trump, theo bản tin của Newsweek tường thuật.

Christie tuyên bố sự chẩn đoán của ông trên tweet, viết rằng, "Tôi vừa nhận tin rằng tôi dương tính với Covid-19. Tôi muốn cảm ơn tất cả bạn bè và đồng nghiệp là những người đã hỏi thăm tôi cảm thấy thế nào trong một hay ngày vừa qua."

Đồng minh của ông Trump đã viết Twitter hôm Thứ Sáu nói rằng ông cảm thấy khỏe và không trải qua bất cứ triệu chứng gì cả, nhưng cho biết trong thông điệp của ông hôm Thứ Bảy rằng ông đã nhận được sự chăm sóc y tế.

Christie nói rằng ông đã được thử nghiệm hôm Thứ Ba trước cuộc tranh luận tổng thống lần đầu và sáng Thứ Sáu lần nữa theo sau tuyên bố của ông Trump rằng ông đã thử nghiệm dương tính.

Christie đã xuất hiện trên chương trình Good Morning America của Đài ABC ngày đó để thảo luận về các tương tác của Trump trước khi ông được chẩn đoán và những đề phòng gì mà chính phủ Trump phải làm để ngăn ngừa sự lây lan của vi khuẩn trước cuộc tranh luận hôm Thứ Ba.

"Không ai đeo khẩu trang trong phòng khi chúng tôi đang chuẩn bị cho tổng thống trong thời gian đó," theo Christie cho biết trong chương trình. "Nhóm gồm 5 hay 6 người tất cả."

Cùng với Christie, nhóm chuẩn bị tranh luận cho tổng thống gồm cựu Thị Trưởng New York và cũng là luật sư riêng của Trump là Rudy Giuliani, người sau đó đã thử nghiệm và báo cáo kết quả âm tính.

Nhiều người khác trong nhóm chính trị của Trump sau đó đã thử nghiệm dương tính, gồm các Thượng Nghị Sĩ Cộng Hòa Ron Johnson, Mike Lee và Thom Tillis. Cựu cố vấn Bạch Ốc Kellyanne Conway đã tuyên bố dương tính hôm Thứ Sáu, cũng như quản đốc ban vận động tái tranh cử của Trump là Bill Stepien.

Trong khi đó bản tin của Yahoo News hôm Thứ Bảy nói rằng ít nhất 10 viên chức Cộng Hòa đã thử nghiệm dương tính với vi khuẩn corona trước và sau Tổng Thống Trump bị nhiễm Covid-19.

- Ronna McDaniel, Chủ Tịch Đảng Cộng Hòa Toàn Quốc, thử nghiệm dương tính hôm Thứ Tư. Bà là người đi theo TT Trump vào Thứ Sáu tuần trước.
- Kellyanne Conway, Cựu Cố Vấn Bạch Ốc, thử nghiệm dương tính hôm Thứ Sáu.
- Hope Hicks, cố vấn tổng thống, đã thử nghiệm dương tính hôm Thứ Tư.
- Bill Stepien, quản đốc ban vận động tranh cử của Trump đã tuyên bố thử nghiệm dương tính sau khi Trump vào bệnh viện.
- Thượng Nghị Sĩ Cộng Hòa từ North Carolina Thom Tillis, đã thử nghiệm dương tính hôm Thứ Sáu.
- Thượng Nghị Sĩ Cộng Hòa từ Utah Mike Lee, đã thử nghiệm dương tính hôm Thứ Sáu.
- Thượng Nghị Sĩ Cộng Hòa từ Wisconsin Ron Johnson, đã thử nghiệm dương tính hôm Thứ Bảy.

Trump Chấm Dứt Thương Lượng Gói Kích Cầu Thứ Hai, Nói Sẽ Thông Qua Ngay Sau Khi Ông Tái Đắc Cử Tổng Thống

Tổng Thống Donald Trump đã nói rằng ông chấm dứt các thương lượng về dự luật tài trợ Covid-19, và sẽ chỉ tái đàm phán sau cuộc bầu cử, theo bản tin của BBC tiếng Anh cho biết hôm Thứ Ba, 6 tháng 10 năm 2020.

"Ngay tức thì sau khi tôi thắng cử, chúng tôi sẽ thông qua Dự Luật Kích Cầu lớn nhắm đến những người Mỹ làm việc vất vả," theo ông viết Twitter cho biết một ngày sau khi rời bệnh viện.

Các đàm phán về ngân sách giữa Chủ Tịch Hạ Viện Đảng Dân Chủ Nancy Pelosi và Bộ Trưởng Tài Chánh Steven Mnuchin đang tiến hành.

Thị trường chứng khoán đã giảm sau tuyên bố của ông Trump.

Sự kiện này đến khi nhiều trường hợp bị truyền nhiễm Covid-19 gia tăng tại nhiều khu vực trên toàn quốc, và sự truyền bệnh đã đến cả giới lãnh đạo quân sự của Ngũ Giác Đài, nhân viên Bạch Ốc và các thượng nghị sĩ Cộng Hòa.

Các nhà lập pháp từ lưỡng đảng đã hy vọng một đợt tài trợ Covid-19 khác được thông qua trước cuộc bầu cử ngày 3 tháng 11, nhưng tuyên bố của ông Trump xuất hiện đã làm trì hoãn hy vọng đó.

Trong Twitter, tổng thống đổ lỗi bà Pelosi cho sự sụp đổ đàm phán, nói rằng bà đã tìm kiếm 2.4 ngàn tỉ đô la "để tài trợ cho những người hoạt động kém cỏi, tội phạm cao và các tiểu bang Dân Chủ."

Ông nói ông đã đề nghị ngược lại 1.6 ngàn tỉ đô la nhưng bà Pelosi "không thương lượng trong niềm tin tốt."

Ông viết rằng, "Tôi bác bỏ yêu cầu của họ, và nhìn về tương lai của Quốc Gia."

Ông nói thêm rằng ông đã hướng dẫn cho Lãnh Đạo Đa Số Thượng Viện Mitch McConnell để tập trung vào các nỗ lực xác nhận bà Amy Coney Barrett vào Tối Cao Pháp Viện.

Các Cấp Chính Quyền, An Ninh Mỹ Chuẩn Bị Đối Phó Nhiều Bất Ổn Chính Trị, Bất An Dân Sự, Bạo Động, Biểu Tình Trong Cuộc Bầu Cử Năm Nay

Các chính quyền thành phố và các sơ quan chấp hành luật pháp liên bang và địa phương trên toàn nước Mỹ đang có kế hoạch đối phó với sự bất ổn chính trị, bất an và bạo lực dân sự chung quanh cuộc bầu cử tổng thống sắp tới, theo bản tin của CNN cho biết hôm Thứ Năm, 1 tháng 10 năm 2020.

Các quan ngại từ các sự kiện bạo động đơn lẻ tới các cuộc biểu tình đông đảo kéo dài, những đối đầu bạo động giữa những người cực đoan và thiệt hại tài sản rộng lớn, nếu kết quả bầu cử vẫn không rõ hay tranh cãi nảy lửa trong nhiều tuần hay nhiều tháng, theo các nhà cố vấn an ninh, các nhà phân tích về chủ nghĩa cực đoan, các cảnh sát và những nhà lãnh đạo bầu cử địa phương đã cho CNN biết.

"Nó sẽ làm tôi thức cả đêm," theo Thị Trưởng Thành Phố Cincinnati John Cranley, là chủ tịch của Liên Minh Các Thị Trưởng Của Những Thị Trưởng Hoa Kỳ và Cảnh Sát Trưởng Lực Lượng Đặc Biệt, cho biết về mối đe dọa của bạo động. "Tôi cũng lo ngại rằng sẽ có nỗ lực ngăn chận việc đếm tất cả phiếu, và cũng có thể dẫn tới nhiều bất ổn trong nhiều cách khác nhau."

Trong nhiều tháng gần đây, các cơ quan thi hành luật pháp liên bang, được lãnh đạo bởi FBI, đã tổ chức nhiều cuộc hội thảo với các trưởng cảnh sát quận và các cảnh sát địa phương là những người có trách nhiệm giữ gìn trật tự trong bất cứ cuộc biểu tình nào mà có thể dẫn tới các kết quả tranh chấp, theo các viên chức chấp pháp đã báo cáo về vấn đề này cho biết. Trong số những quan ngại là những người cực đoan có võ khí có thể cố can thiệp hay làm ngưng việc hoàn tất đếm phiếu bởi các ban kiểm phiếu địa phương. Các nhóm từ các nhà hoạt động khuynh hữu và thượng đẳng da trắng tới antifa và vô chính phủ đã hoạt động trong nhiều tháng gần đây giữa các cuộc biểu tình do cái chết của George Floyd.

Các ngân hàng, các công ty trong Fortune 500 và những cơ sở kinh doanh khác đang làm việc với các nhà tư vấn an ninh để xác nhận các bước mà họ sẽ thực hiện để giảm thiểu tối đa sự gián đoạn có thể xảy ra cho kinh doanh của họ và bảo vệ nhân viên và tài sản của họ.

Chiến Tranh Armenia và Azerbaijan Tiếp Tục, Nhiều Thành Phố Lớn Bị Tấn Công

Thành phố lớn thứ hai của Azerbaijan, Ganja, đã bị pháo kích bởi các lực lượng Armenia, khi cuộc đụng độ dữ dội tiếp tục qua vùng đất tranh chấp Nagorno-Karabakh, theo bản tin của BBC tiếng Anh hôm Chủ Nhật, 4 tháng 10 năm 2020 cho biết.

Vùng đất tranh chấp phần chính thức của Azerbaijan nhưng chủng tộc Armenia cư ngụ.

Các chính quyền tự tuyên bố chủ quyền ở đó nói rằng họ tấn công phi trường quân sự của Ganja sau khi các lực lượng của Azerbaijan đã pháo kích vào thủ phủ của khu vực là Stepanakert.

Azerbaijan nói rằng không có căn cứ quân sự nào tại Ganja bị tấn công. Hơn 220 người chết kể từ khi các cuộc đụng độ bắt đầu cách nay một tuần.

Armenia và Azerbaijan đã lâm vào chiến tranh vì vùng đất Nagorno-Karabakh từ năm 1988 tới 1994, cuối cùng đã tuyên bố đình chiến. Tuy nhiên, họ chưa bao giờ đạt được một dàn xếp nào cho cuộc tranh chấp này.

Cuộc chiến hiện nay là tồi tệ nhất được chứng kiến kể từ cuộc ngưng bắn và 2 cựu cộng hòa Sô Viết này đã đổ lỗi cho nhau.

Nhiều lo sợ rằng số người chết thực sự trong quân đội từ tất cả các bênh cũng như thường dân có thể cao hơn nhiều, khi các tuyên bố tử vong không được kiểm chứng độc lập.

Quân đội Azerbaijan nói rằng các lực lượng của họ đã tái kiểm soát 7 làng kể từ hôm Chủ Nhật tuần trước,

Xem tiếp ***THỜI SỰ*** *trang 14*

APPENDIX I

Geofencing Advertisements

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- Geofencing Ads SPN
- Geofencing Ads VIET

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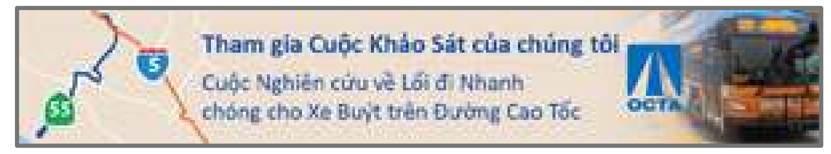

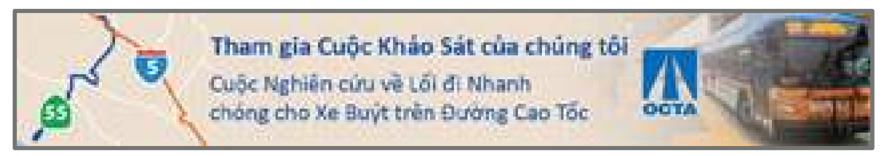

APPENDIX J

Facebook Advertisements

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- Facebook Ad 2 – ENG, SPN & VIET
- Facebook Ad 3 – ENG, SPN & VIET
- Facebook Ad 4 – ENG

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Tell OCTA what you think about adding bus service on the I-5 and SR-55 by taking a brief survey. Learn more at octa.net/FreewayBRT.

WWW.FREEWAYBUSSURVEY.COM
Take our survey!
Share your thoughts.
Learn More

110 15 Comments 12 Shares

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Tome esta encuesta y dígale a OCTA lo que piensa acerca de agregar el servicio de autobús en la I-5 y SR-55. Obtenga más información en octa.net/FreewayBRT.

WWW.FREEWAYBUSSURVEY.COM
¡Tome nuestra encuesta!
Denos su opinión.
Learn More

146 46 Comments 8 Shares

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Hãy cho OCTA biết suy nghĩ của bạn về việc bổ sung thêm dịch vụ xe buýt trên I-5 và SR-55 bằng cách tham gia một survey ngắn. Tìm hiểu thêm tại octa.net/FreewayBRT.

See Translation

WWW.FREEWAYBUSSURVEY.COM
Tham gia Cuộc Khảo Sát của chúng tôi.
Tìm hiểu thêm tại octa.net/FreewayBRT.
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Are you interested in freeway bus service along the I-5 or SR-55? Help improve public transit by taking our survey at ...See More

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Nancy Gomez ... 8 Comments 7 Shares

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¿Está interesado en el servicio de autobús a través de las autopistas a lo largo de la I-5 o la SR-55? Ayude a @GoOCTA a ...See More

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Regístrese para el seminario web del 10/14, a las 5:30 pm
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Leticia Valade... 8 Comments 2 Shares

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Bạn có quan tâm đến dịch vụ xe buýt đường cao tốc dọc theo I-5 hoặc SR-55 không? Hãy giúp @GoOCTA cải thiện phương ...See More

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Mộng Hảo Cao and 8 others 1 Share

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Christen Hil... 9 Comments 6 Shares

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Wolf Molina a... 21 Comments 4 Shares

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Vẫn còn thời gian để cho @GoOCTA biết suy nghĩ của bạn về việc bổ sung thêm dịch vụ xe buýt trên I-5 và SR-55. Hãy chia sẻ ý ...See More

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Nguyễn Trung and 5 others 2 Shares

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Pascual Villa ... 5 Comments 10 Shares
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APPENDIX K

Social Media Posts

- Facebook Go OCTA Posts
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OCTA
September 29 at 1:47 PM ·

Tell us what you think about adding bus service on the I-5 and SR-55 by taking our survey at FreewayBusSurvey.com or dialing 909-494-2900. Visit octa.net/FreewayBRT to learn more and to register for an online webinar on 10/14 at 5:30pm.

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OCTA
October 13 at 10:30 AM ·

Join us! Register to attend the Bus Rapid Transit on Freeways Study virtual webinar on 10/14 at 5:30pm at FreewayBusMeeting.com. We hope you'll also take the short survey online FreewayBusSurvey.com or dial 909-494-2900. Go to octa.net/FreewayBRT for more.

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OCTA
November 4 ·

Tell us what you think about adding bus service on the I-5 and SR-55 by taking a brief survey at FreewayBusSurvey.com or by calling 909-494-2900. Learn more at octa.net/FreewayBRT.

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OC Bus
October 8 at 9:39 AM ·

You're invited! Register to attend the Bus Rapid Transit on Freeways Study virtual webinar on 10/14 at 5:30pm at FreewayBusMeeting.com. We hope you'll also take the short survey at FreewayBusSurvey.com or call 909-494-2900. Go to octa.net/FreewayBRT for more.

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OC Bus
October 23 at 8:47 AM ·

Tell us what you think about adding bus service on the I-5 and SR-55 by taking a brief survey at FreewayBusSurvey.com or by calling 909-494-2900. Learn more at octa.net/FreewayBRT.

8 4 Comments

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Most Relevant

Top Fan
Mike O'Connell The answers to the county's transportation woes are not in freeways, or freeway express routes bogged down in freeway gridlock. Get a clue OCTA.
5d · Edited 1

Julio TOrres How about going back to regular schedule first octa before u add routes dam really
5d 2

1 Reply

Most Relevant is selected, so some comments may have been filtered out.

OC Bus
@ocbus

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OC Bus
November 10 ·

There is still time to share your opinions about our proposed freeway bus routes on the I-5 and SR-55. Take the FreewayBusSurvey.com or take the survey by phone at 909-494-2900, today. Visit octa.net/FreewayBRT to stay connected.

7 4 Comments 2 Shares

Like Comment Share

Most Relevant

Julio TOrres Put the busses back on regular schedule first
5w 1

Most Relevant is selected, so some replies may have been filtered out.

Stephanie Grice Julio TOrres yes I agree!!!!
5w

Most Relevant is selected, so some replies may have been filtered out.

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@goOCTA

There's still time. Tell us what you think about adding bus service on the I-5 and SR-55 by taking our survey at FreewayBusSurvey.com or dialing 909-494-2900. See octa.net/FreewayBRT to learn more.

8:49 AM · Oct 23, 2020 · Sprinklr Publisher

3 Retweets **1** Quote Tweet **6** Likes

joshua leclair @joshualeclair1 · Oct 26
Replying to @goOCTA
When is the deadline?

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You're invited! Register at FreewayBusMeeting.com to attend the Bus Rapid Transit on Freeways Study virtual webinar at 5:30pm on 10/14. We hope you'll also take our survey FreewayBusSurvey.com or dial 909-494-2900. Go to octa.net/FreewayBRT for more.

8:20 AM · Oct 9, 2020 · Sprinklr Publisher

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OC Bus
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Are you interested in bus service on the I-5 or SR-55? Take our survey at FreewayBusSurvey.com or dial 909-494-2900 and help shape how to travel in Orange County. Visit octa.net/FreewayBRT for information.

12:07 PM · Oct 6, 2020 · Sprinklr Publisher

2 Retweets 2 Likes

Lydian Hernandez @lydianhernandez · Oct 7
Replying to @OCTABusUpdates
Does this mean Route 206 won't be coming back?

OC Bus
@OCTABusUpdates

Last chance! Tell us what you think about adding bus service on the I-5 and SR-55 by taking a survey at FreewayBusSurvey.com or dialing 909-494-2900. See octa.net/FreewayBRT to learn more.

9:20 AM · Nov 14, 2020 · Sprinklr Publisher

6 Retweets 6 Likes

@sonadora37 · Nov 17
Replying to @OCTABusUpdates
Perfecto asen falta más autobuses así nose amontonaria la gente yo viajo todos los días desde costa mesa hasta orange y siempre se llena desde la 17 hasta orange y con esta pandemia es muy peligroso gracias mi opinión? Bonito día martes??

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OC Bus
@OCTABusUpdates

Register to attend the Bus Rapid Transit on Freeways Study webinar on 10/14 at 5:30pm at FreewayBusMeeting.com. Start by taking the survey at FreewayBusSurvey.com or by phone at 909-494-2900. Visit octa.net/FreewayBRT for information.

9:32 AM · Oct 12, 2020 · Sprinklr Publisher

APPENDIX L

Eblast Notifications

Jason Jackson

From: OCTA Bus Rapid Transit on Freeways Study <jjackson@arellanoassociates.com>
Sent: Wednesday, September 30, 2020 5:09 PM
To: Jason Jackson
Subject: You're Invited to a Virtual Public Meeting!

Bus Rapid Transit on Freeways Study

Where will you go?

You're Invited!

Join us to learn how the Orange County Transportation Authority (OCTA) is planning for the future by exploring express bus service options on Interstate 5 (I-5) and State Route 55 (SR-55).
OCTA will be holding a virtual public meeting for the Bus Rapid Transit on Freeways Study, and you are invited to meet the team and ask questions.

Can't make the meeting? Watch a pre-recorded presentation anytime through November 16th at *FreewayBRTVideo.com*.

Eager to share your opinions? Help OCTA improve public transit needs by taking our survey, either online at *FreewayBusSurvey.com* or by phone at (909) 494-2900 in English, Spanish or Vietnamese.

Virtual Public Meeting

Wednesday,
October 14, 2020
5:30 p.m. to 6:30 p.m.

Click to register for the webinar.

Project Information

OCTA and the State of California Department of Transportation (Caltrans), District 12 are conducting the study to look at the development of freeway BRT routes on the I-5 from the Fullerton Park and Ride to the Metrolink Laguna Niguel/Mission Viejo Station and on the SR-55 from the Santa Ana Regional Transit Center to Hoag Memorial Hospital Presbyterian in Newport Beach. For more information, visit octa.net/freewaybrt.

Click image to enlarge project map.

What is Freeway BRT?

Freeway BRT is express bus service that travels mostly on the freeway network, taking advantage of carpool lanes, express lanes, toll lanes or even shoulder lanes to serve key destinations. Stations will be along the freeway and will connect to key destinations using local bus service and shuttles.

PROJECT MANAGER:
Eric Carlson
(714) 560-5381
ecarlson@octa.net

SURVEY:
FreewayBusSurvey.com
(909) 494-2900

COMMUNITY OUTREACH:
Marissa Espino
Community Relations Officer
(714) 560-5607
mespino@octa.net

WEBSITE:
octa.net/freewaybrt

OCTA

Caltrans

OCTA | 550 S. Main Street, Orange, CA 92868

Jason Jackson

From: OC Bus <octaconnections@email-octa.net>
Sent: Thursday, October 01, 2020 4:55 PM
To: Jason Jackson
Subject: OCTA Bus Rapid Transit on Freeways Study

You're Invited!

Join us to learn how the Orange County Transportation Authority (OCTA) is planning for the future by exploring express bus service options on Interstate 5 (I-5) and State Route 55 (SR-55).

OCTA will be holding a virtual public meeting for the Bus Rapid Transit on Freeways Study, and you are invited to meet the team and ask questions.

Virtual Public Meeting
Wednesday, October 14
5:30 p.m. to 6:30 p.m.
Click here to register for the webinar.

Can't make the meeting? Watch a pre-recorded presentation anytime through November 16th at FreewayBusVideo.com.

Eager to share your opinions? Help OCTA improve public transit

needs by taking our survey, either online at FreewayBusSurvey.com or by phone at (909) 494-2900 in English, Spanish or Vietnamese.

Project Information

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Jason Jackson

From: OCTA Bus Rapid Transit on Freeways Study <jjackson@arellanoassociates.com>
Sent: Monday, October 12, 2020 3:14 PM
To: Jason Jackson
Subject: REMINDER: You're Invited to a Virtual Public Meeting!

Bus Rapid Transit on Freeways Study

Where will you go?

You're Invited!

Join us to learn how the Orange County Transportation Authority (OCTA) is planning for the future by exploring express bus service options on Interstate 5 (I-5) and State Route 55 (SR-55).
OCTA will be holding a virtual public meeting for the Bus Rapid Transit on Freeways Study, and you are invited to meet the team and ask questions.

Can't make the meeting? Watch a pre-recorded presentation anytime through November 16th at *FreewayBRTVideo.com*.

Eager to share your opinions? Help OCTA improve public transit needs by taking our survey, either online at *FreewayBusSurvey.com* or by phone at (909) 494-2900 in English, Spanish or Vietnamese.

Virtual Public Meeting

Wednesday,
October 14, 2020
5:30 p.m. to 6:30 p.m.

Click to register for the webinar.

Project Information

OCTA and the State of California Department of Transportation (Caltrans), District 12 are conducting the study to look at the development of freeway BRT routes on the I-5 from the Fullerton Park and Ride to the Metrolink Laguna Niguel/Mission Viejo Station and on the SR-55 from the Santa Ana Regional Transit Center to Hoag Memorial Hospital Presbyterian in Newport Beach. For more information, visit octa.net/freewaybrt.

Click image to enlarge project map.

What is Freeway BRT?

Freeway BRT is express bus service that travels mostly on the freeway network, taking advantage of carpool lanes, express lanes, toll lanes or even shoulder lanes to serve key destinations. Stations will be along the freeway and will connect to key destinations using local bus service and shuttles.

PROJECT MANAGER:
Eric Carlson
(714) 560-5381
ecarlson@octa.net

SURVEY:
FreewayBusSurvey.com
(909) 494-2900

COMMUNITY OUTREACH:
Marissa Espino
Community Relations Officer
(714) 560-5607
mespino@octa.net

WEBSITE:
octa.net/freewaybrt

OCTA

Caltrans

Jason Jackson

From: Marissa Espino <mespino@octa.net>
Sent: Monday, October 19, 2020 2:25 PM
Cc: Eric Carlson; Jason Jackson
Subject: Freeway BRT Public Webinar

Thank you for attending last week's OCTA Bus Rapid Transit on Freeways Study Public Webinar. We appreciated you taking the time to learn about the study and ask several insightful questions.

As a reminder, you can take the online survey at www.FreewayBusSurvey.com, which is also in Spanish and Vietnamese. Please feel free to share with anyone you may think would be interested. You can also leave questions/comments and take the survey on our hotline at 909-494-2900. For more information or to view a pre-recording of the webinar, visit www.octa.net/FreewayBRT.

Thank you,

Marissa Espino
Community Relations Specialist, Principal
Orange County Transportation Authority
714-560-5607
mespino@octa.net

Bus Rapid Transit on Freeways Study

Where will you go?

Last chance to take the survey!

OCTA and the State of California Department of Transportation (Caltrans), District 12 are conducting a study to look at providing express bus service on the I-5 from the Fullerton Park and Ride to the Metrolink Laguna Niguel/Mission Viejo Station and on the SR-55 from the Santa Ana Regional Transit Center to Hoag Memorial Hospital Presbyterian in Newport Beach.

Learn more by watching a pre-recorded presentation anytime at *octa.net/freewaybrt* in *English*, *Spanish* or *Vietnamese*.

Then... Let us know where you will go! Help OCTA improve public transit needs by taking our survey, either online at *FreewayBusSurvey.com* or take the survey by phone at (909) 494-2900 in English, Spanish or Vietnamese. We hope to hear from you.

What is Freeway BRT?

Freeway BRT is express bus service that travels mostly on the freeway network, taking advantage of carpool lanes, express lanes, toll lanes or even shoulder lanes to serve key destinations. Stations will be located along the freeway and will connect to key destinations using local bus service and shuttles.

The OC Transit Vision (Transit Master Plan) was completed in 2018, establishing a 20-year plan for the future of Orange County's public transit system. The Transit Master Plan identified the I-5 and SR-55 as high-priority corridors, which became the focus of the OCTA Freeway BRT Concept Study. This study will develop alternatives for the Freeway BRT corridors including identification of operating lanes, station locations, access ramps, and needed parking facilities.

Click image to enlarge project map.

PROJECT MANAGER:
Eric Carlson
(714) 560-5381
ecarlson@octa.net

SURVEY:
FreewayBusSurvey.com
(909) 494-2900

COMMUNITY OUTREACH:
Marissa Espino
Community Relations Officer
(714) 560-5607
mespino@octa.net

WEBSITE:
octa.net/freewaybrt

Jason Jackson

From: OCTA Bus Rapid Transit on Freeways Study <jjackson@arellanoassociates.com>
Sent: Monday, February 15, 2021 8:01 AM
To: Jason Jackson
Subject: Thank you for your support and participation!

Bus Rapid Transit on Freeways Study

Where will you go?

Thank You!

Last fall, we invited you to participate in our community survey and provide input on the alternative concepts for the Orange County Transportation Authority (OCTA) Bus Rapid Transit on Freeways Study. OCTA and the State of California Department of Transportation (Caltrans), District 12, thank you for participating and providing feedback, which will be considered when developing the near-term and long-term recommendations and strategies of the study. Through the outreach process, the team was able to collect 281 survey responses and 279 comments. View the results of the survey and community engagement efforts here.

Next Steps

The study, final analysis, and recommendations for the potential Freeway BRT alternatives will be complete in Spring 2021.

Click image to enlarge project map.

PROJECT MANAGER:
Eric Carlson
(714) 560-5381
ecarlson@octa.net

COMMUNITY OUTREACH:
Marissa Espino
Community Relations Officer
(714) 560-5607
mespino@octa.net

WEBSITE:
octa.net/freewaybrt

OCTA

Caltrans

APPENDIX M

Additional OCTA Noticing

- Press Release
- On the Move Newsletter
- On the Move Blog Post

FOR MORE INFORMATION:
Eric Carpenter (714) 560-5697
Megan Abba (714) 560-5671

FOR IMMEDIATE RELEASE:
Oct. 7, 2020

OCTA Welcomes Public Input on Freeway Express Bus Service Study

Study with Caltrans to consider adding bus rapid transit service to Interstate 5 and State Route 55

ORANGE – The Orange County Transportation Authority, in partnership with Caltrans, is studying the possibility of adding bus service to a section of Interstate 5 and State Route 55 through Orange County, and is welcoming public input.

The study is considering two potential freeway bus rapid transit (BRT) routes, one on approximately 30 miles of I-5, between the Laguna Niguel/Mission Viejo transit station and the Fullerton Park and Ride, and the other on SR-55 between the Santa Ana Regional Transportation Center and Hoag Memorial Hospital Presbyterian in Newport Beach.

Freeway bus rapid transit is express bus service that travels on the freeway, using carpool lanes, express lanes or even shoulder lanes to more efficiently serve key destinations. Stations would be located along the freeway and would connect to those key destinations with local bus service and shuttles.

In the process, encouraging public transit would help take more people out of single-driver vehicles and help ease freeway traffic congestion.

Orange County residents, and those who use freeways to get to work and visit destinations along the I-5 and SR-55 freeways, are encouraged to take a brief online survey to help give valuable feedback on the BRT plans.

A public webinar for more information on the project is scheduled for **5:30 to 6:30 p.m. on Wednesday, Oct. 14.** Participants can take the survey, register for the webinar and find more information on the project, including a video overview of the study, at www.octa.net/FreewayBRT.

The survey can also be taken by calling (909) 494-2900 through Nov. 16.

The study builds on the 2018 OC Transit Vision, which established a plan for the next 20 years of transit in Orange County and identified the I-5 and SR-55 corridors as high priorities for transit. The study will identify potential operating lanes, station locations and needed parking, among other necessary infrastructure improvements.

The study is expected to be completed in early 2021.

Jason Jackson

From: OCTA On the Move <onthemove@email-octa.net>
Sent: Thursday, October 08, 2020 3:01 PM
To: Jason Jackson
Subject: OCTA on the Move - October 8, 2020

OCTA Newsletter | October 8, 2020

For the past 29 years, OCTA has been recognized each year by the leading association of government finance professionals for excellence and transparency in financial reporting. The Government Finance Officers Association of the United States and Canada last month awarded OCTA the Certificate of Achievement for Excellence in Financial Reporting. OCTA prides itself on being transparent with the taxpayers of Orange County and this award is another clear indication that we are achieving that goal.

Darrell E. Johnson
Chief Executive Officer

Find recent Board Actions here

About OCTA

Help OCTA Plan for the future of Multimodal Transportation in South Orange County

This study will consider transportation needs in the area generally south of SR-55 to the San Diego County line, and from the coast to the foothills. Provide your input by taking an online survey.

Financial Reporting Award Indicative of OCTA's Transparency to Taxpayers

For the past 29 years, OCTA has been recognized each year by the leading association of government finance professionals for excellence and transparency in financial reporting.

Freeways & Streets

The I-405 Improvement Project Is Nearly 40% Complete

With construction nearly 40 percent complete, the $1.9 billion I-405 Improvement Project has reached a significant milestone.

Bus

Learn about Express Bus Service Options on Freeways

Join a virtual public meeting on October 14 regarding OCTA's exploration of future bus service options on I-5 and SR-55.

Real-time Info Helps Riders with OC Bus Capacity

OC Bus riders can use an app to make sure their bus has enough available seats.

Rail

Get Away for the Day on Metrolink

For those who are ready to be out and about, a Metrolink day trip is a safe, fun, and inexpensive option.

Rideshare & Active

OC Businesses, Reimagine Your Rideshare Programs

Find out how to adapt your rideshare program to the new landscape with a free webinar on October 27.

Learn about Express Bus Service Options on Freeways

Wednesday, October 7, 2020

OCTA is planning for the future by exploring express bus service options on I-5 and SR-55. The Freeway Bus Rapid Transit Concept Study will identify improvements to infrastructure and transportation solutions for potential Bus Rapid Transit (BRT) routes and identify stops along each corridor. The I-5 route is approximately 30 miles from the Laguna Niguel/Mission Viejo Station to the Fullerton Park and Ride, while the north-south route is 12 miles along the SR-55 from the Santa Ana Regional Transit Center to Hoag Memorial Hospital Presbyterian in Newport Beach.

The study is expected to identify ways to improve freeway traffic flow, maximize transit and ridesharing, and identify long-term solutions to connect underserved and emerging populations within the study corridors.

To learn more, join OCTA for a virtual public meeting on October 14 from 5:30 p.m. to 6:30 p.m. You'll have the opportunity to meet the team and ask questions. Click here to register.

A pre-recorded presentation is also available and can be viewed here any time through November 16th.

A115

Share your opinion about bus service on freeways and help OCTA improve public transit needs by taking this online survey or by calling (909) 494-2900. Information is available in English, Spanish or Vietnamese.

To learn more about the study, click here.

Related Posts

Real-time Info Helps Riders with OC Bus Capacity

OC Bus riders can use an app to make sure their bus has enough available seats.

Bus Stop Upgrades Coming to Santa Ana

Thanks to $1 million in local state sales tax funds, passengers waiting to ride OC Bus will be able to shelter with greater comfort at 35 of busiest bus stops in the city of Santa Ana.

A116

Bus Rapid Transit on Freeways Study

The Orange County Transportation Authority (OCTA) is holding a virtual public meeting on Wednesday, October 14, 2020 from 5:30 p.m. to 6:30 p.m. OCTA is planning for the future by exploring express bus service options on Interstate 5 (I-5) and State Route 55 (SR-55). OCTA will be holding a virtual public meeting for the Bus Rapid Transit on Freeways Study, and you are invited to meet the team and ask questions.

OCTA and the State of California Department of Transportation (Caltrans), District 12 are conducting the study to look at the development of freeway BRT routes on the I-5 from t Fullerton Park and Ride to the Metrolink Laguna Niguel/Mission Viejo Station and on the

advantage of carpool lanes, express lanes, toll lanes or even shoulder lanes to serve key destinations. Stations will be along the freeway and will connect to key destinations using local bus service and shuttles.

Register for the webinar here.

Can't make the meeting? Watch a pre-recorded presentation anytime through November 16th at FreewayBRTVideo.com.

Categories: News, Uncategorized • By Brianne Hosford • October 2, 2020

Author: Brianne Hosford

PREVIOUS
Candidate Forum 2020

NEXT
Calculating Federal COVID-19 Paid Leave for Illness, Distance Learning

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November 9, 2020

Veterans Day Virtual Celebration

November 9, 2020

APPENDIX N

Earned Media

NEW SANTA ANA

The OCTA welcomes public input on Freeway Express Bus Service Study

Posted on October 7, 2020 by Editor Posted in OCTA, Orange County, Santa Ana, Transportation 1 Comment

ORANGE – The Orange County Transportation Authority, in partnership with Caltrans, is studying the possibility of adding bus service to a section of Interstate 5 and State Route 55 through Orange County, and is welcoming public input.

The study is considering two potential freeway **bus rapid transit** (BRT) routes, one on approximately 30 miles of I-5, between the Laguna Niguel/Mission Viejo transit station and the Fullerton Park and Ride, and the other on SR-55 between the Santa Ana Regional Transportation Center and Hoag Memorial Hospital Presbyterian in Newport Beach.

Freeway bus rapid transit is express bus service that travels on the freeway, using carpool lanes, express lanes or even shoulder lanes to more efficiently serve key destinations. Stations would be located along the freeway and would connect to those key destinations with local bus service and shuttles.

In the process, encouraging public transit would help take more people out of single-driver vehicles and help ease freeway traffic congestion.
Orange County residents, and those who use freeways to get to work and visit destinations along the I-5 and SR-55 freeways, are encouraged to take a brief online survey to help give valuable feedback on the BRT plans.

A public webinar for more information on the project is scheduled for 5:30 to 6:30 p.m. on Wednesday, Oct. 14. Participants can take the survey, register for the webinar and find more information on the project, including a video overview of the study, at **www.octa.net/FreewayBRT**.

The survey can also be taken by calling (909) 494-2900 through Nov. 16.

The study builds on the 2018 OC Transit Vision, which established a plan for the next 20 years of transit in Orange County and identified the I-5 and SR-55 corridors as high priorities for transit. The study will identify potential operating lanes, station locations and needed parking, among other necessary infrastructure improvements.

The study is expected to be completed in early 2021.

About OCTA: The Orange County Transportation Authority is the county transportation planning commission, responsible for funding and implementing transit and capital projects for a balanced and sustainable transportation system that reflects the diverse travel needs of the county's 34 cities and 3.2 million residents. With the mission of keeping Orange County moving, this includes freeways and express lanes, bus and rail transit, rideshare, commuter rail and active transportation.

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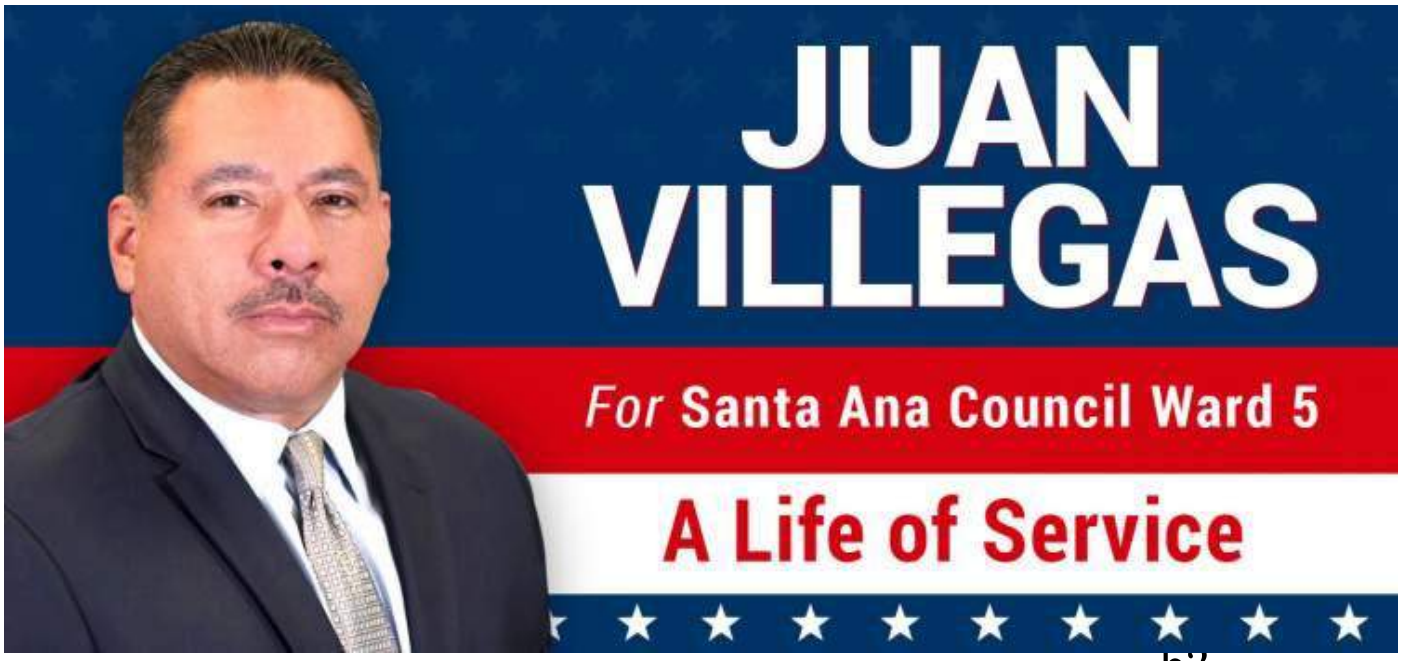

(https://www.facebook.com/Councilman-Juan-Villegas-1783580245292461/?ref=page_internal)

The study is considering two potential freeway **bus rapid transit (http://www.octa.net/Projects-and-Programs/Plans-and-Studies/Freeway-Bus-Rapid-Transit-Concept-Study/?frm=52824)** (BRT) routes, one on approximately 30 miles of I-5, between the Laguna Niguel/Mission Viejo transit station and the Fullerton Park and Ride, and the other on SR-55 between the Santa Ana Regional Transportation Center and Hoag Memorial Hospital Presbyterian in Newport Beach.

(https://www.josesolorio.com/)

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(https://voteiglesias.com/)

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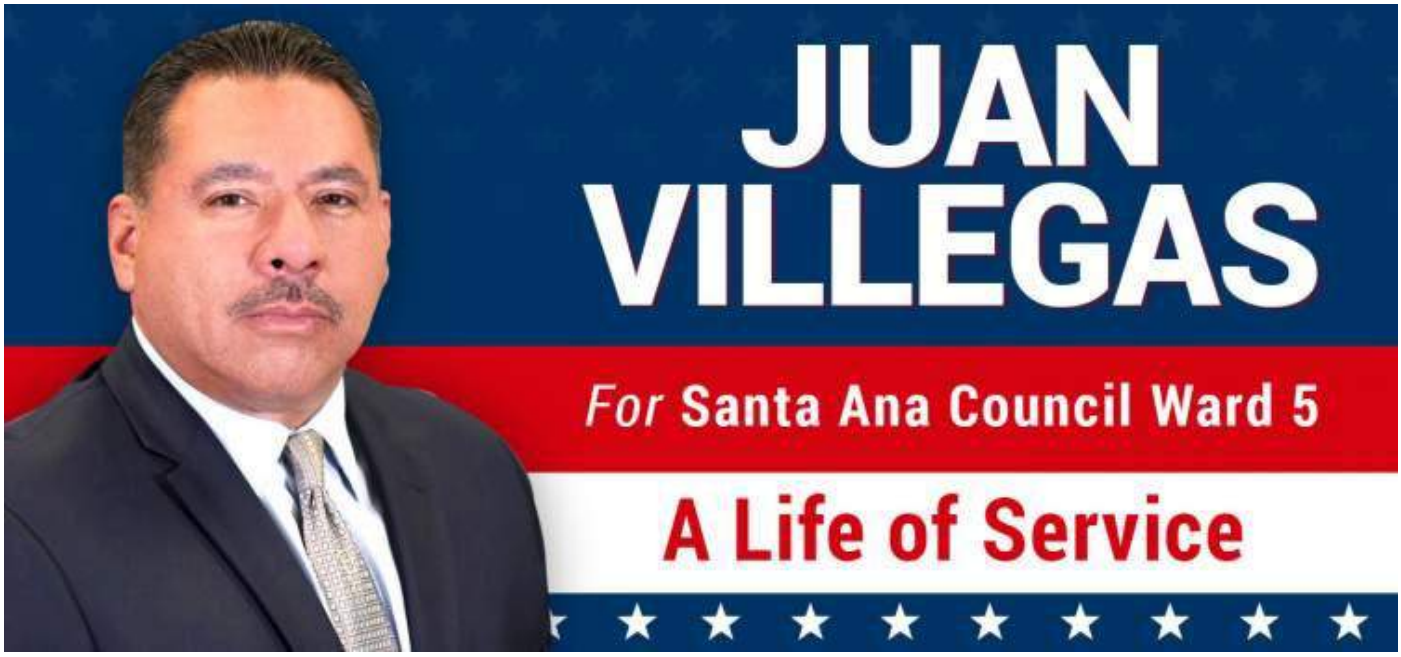

(https://www.facebook.com/Councilman-Juan-Villegas-1783580245292461/?ref=page_internal)

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Related

The OCTA is seeking feedback about their Transit Master Plan (http://newsantaana.com/the-octa-is-seeking-feedback-about-their-transit-master-plan/)
November 30, 2017
In "OCTA"

The OCTA is actively responding to the Coronavirus pandemic (http://newsantaana.com/the-octa-is-actively-responding-to-the-coronavirus-pandemic/)
April 9, 2020
In "Santa Ana"

OCTA seeks help planning for Orange County's transportation future (http://newsantaana.com/octa-seeks-help-planning-for-orange-countys-transportation-future/)
April 23, 2014
In "Entertainment"

(https://www.etsy.com/shop/shopRMP?coupon=FRESHSTART2020&fbclid=IwAR2TL0f6iAe4ugZqkkx-22poB2C_ULIdkI2rYbSgKjF-ZVxkz772LvCswcQ&sort_order=price_asc)

buses (http://newsantaana.com/tag/buses/)

Freeway Express bus service (http://newsantaana.com/tag/freeway-express-bus-service/)

« Virtual “Walk Like MADD” committed to ending drunk driving, on 10/10 (http://newsantaana.com/virtual-walk-like-madd-committed-to-ending-drunk-driving-on-10-10/)

The Santa Ana Water Tower goes purple for Domestic Violence Awareness Month (http://newsantaana.com/the-santa-ana-water-tower-goes-purple-for-domestic-violence-awareness-month/) »

One thought on “The OCTA welcomes public input on Freeway Express Bus Service Study”

Gerard O’Donnell says:

October 7, 2020 at 3:27 pm (http://newsantaana.com/the-octa-welcomes-public-input-on-freeway-express-bus-service-study/#comment-84328)

I recommend a rail link from Fullerton to Green Line in Norwalk which allows OC residents to transfer to LAX or Blue Line to Long Beach or LA, etc.

Reply (http://newsantaana.com/the-octa-welcomes-public-input-on-freeway-express-bus-service-study/?replytocom=84328#respond)

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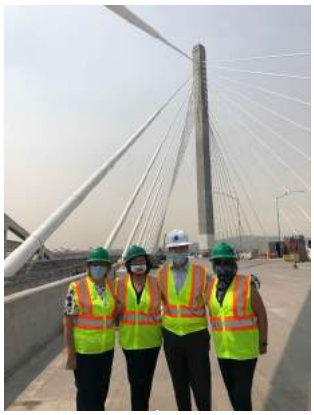
GERALD DESMOND BRIDGE, OCBC VOTING GUIDE—NO ON 15, STRONGHER, OCTA SURVEY, AND MORE!

HOT OFF THE PRESS



NEW PORT OF LONG BEACH BRIDGE SEES OPENING DAY:*

- The Gerald Desmond Bridge Replacement Project held its debut October 5, and OCBC's Lucy Dunn saw it firsthand. The bridge will last 100 years, is critical for goods movement, features emergency lanes, accommodates large vessels, and three look out points via the Mark Bixby Memorial Bicycle and Pedestrian Path. Watch the video!

UCI DEVISES SAFE REOPENING PLANS FOR BIZ:*

- The university is providing consulting services to private businesses to help them develop rules and procedures to keep employees and customers safe from COVID-19 as the economy opens up. "As the only program in public health in Orange County, we have an obligation to assist our community," professor Karen Edwards said.

REGAL CINEMAS TEMPORARILY CLOSING ALL OF ITS THEATERS:*

- The company said it couldn't lure viewers back without a pipeline of new movies. The chain is closing 663 theaters in the U.S. and Britain, affecting 40,000 U.S. employees.

GET THE FACTS BEFORE YOU VOTE WITH OCBC'S VOTING GUIDE:*

- Just received your ballot? View OCBC's Voting Guide to find out which propositions threaten economic recovery and which support businesses. **NO on Prop 15! – no tax increases now.**

OCTA SEEKING FEEDBACK ON BUS RAPID TRANSIT ON FREEWAYS STUDY:*

- Do you travel the I-5 or SR-55 freeways? OCTA is studying the two freeways for the development of Freeway Bus Rapid Transit (BRT) routes--express bus service mostly on freeways, taking advantage of carpool lanes, express lanes, toll lanes or shoulder lanes to serve key destinations. OCTA's Study will identify improvements to infrastructure, potential stops and transportation solutions for potential BRT routes. Take the Freeway Bus Survey or phone 909-494-2900 until November 16, 2020. Let OCTA know where you will go! Attend a

live virtual public meeting on October 14 at 5:30 p.m. Register here and be sure to watch the video.

CALIFORNIA WOMEN LEAD'S ANNUAL CONFERENCE "STRONGHER" -- A TRIBUTE TO WOMEN'S INCREDIBLE RESILIENCY:*

- Join CWLA's Annual Conference on October 13-14 for a virtual wine tasting and hear from special guests Katie Echevarria Rosen Kitchens, Co-Founder and Editor-In-Chief of FabFitFun; former FOX anchor, author, and activist Gretchen Carlson; California's indomitable First Partner Jennifer Siebel Newsom; political trailblazers Lt. Governor Eleni Kounalakis and State Treasurer Fiona Ma, and many more! OCBC's Lucy Dunn serves on the board. View the program lineup and register today!

DISNEYLAND LAYOFF'S – WHAT THEY'RE SAYING:

- **Hear from Lucy Dunn on CBS News**
- **OC Register Highlights the Impact in SoCal**
- **Anaheim Chamber President Talks Safety at Disney**
- **Anaheim Independent Underscores Governor's Lack of Transparency**
- Plus, OCBC doesn't like rumors—we work on facts—but to cut off one we're hearing from Sacramento--it is a non-starter for the hospitality industry in So Cal, including theme parks, for anything other than opening with 25% capacity and within the ORANGE TIER (third level). Tell the Governor to ReOpen Theme Parks now.

SafeDineOC GRANTS HAVE BEEN RAISED TO $5,000, SHARE THE NEWS!:

- The program no longer requires receipts uploaded and the application takes less than 5 minutes! **Help your favorite restaurant get a $5,000 grant!**

OCBC EVENTS YOU CAN'T MISS:

OCBC'S 2020 WORKFORCE DEVELOPMENT CONFERENCE:*

- Join OCBC on October 13 at 8:00 a.m. for the Workforce Development Conference to hear what Orange County leaders are doing to embrace diversity and create an equitable future! Learn about educational advancements to improve outcomes across OC's many diverse communities, and how diversity and inclusion initiatives will positively impact the workplace. Learn how to be an agent for positive change! A special thank you to title sponsor, Union Bank! Register here.

TURNING RED TAPE INTO RED CARPET SPOTLIGHT:

NEWPORT BEACH'S BACK TO BUSINESS PROGRAM:*

- In May 2020, the Newport Beach Council adopted an Emergency Ordinance to authorize the temporary use of property outside of tenant space, like parking lots and sidewalks, for existing businesses to safely open. The project required a collaborative, citywide approach to create the parameters, application guidelines and online presence on the City's website. The City has issued nearly 100 free permits so far to restaurants, salons, day spas, fitness centers, schools and churches. Most permits are applied for online and issued within 24 to 48 hours. The Newport Beach Chamber of Commerce assisted in spreading the word to local businesses. The City remains committed to ensuring Newport Beach businesses thrive throughout the pandemic.

ADVOCACY UPDATES:

WATCH CRA PRESIDENT TAKE ON CTA IN PROP 15 DEBATE:*

- California Retailers Association President and CEO Rachel Michelin and David Goldberg of the California Teachers Association joined the Public Policy Institute of California to discuss the pros and cons of Proposition 15, an initiative that would change the tax assessment of commercial and industrial properties and result in a "split roll" property tax, and is expected to raise taxes by $11.5 billion a year. Watch here – and then vote NO on Prop 15!

OCBC HOSTS SENATOR PORTANTINO:*

- The Government Affairs Committee welcomed Senator Anthony Portantino, who represents portions of the San Fernando and San Gabriel Valleys, on Friday. The Senator discussed this year's unprecedented legislative session, including his focus on keeping public education stable during the economic crisis. The Senator noted that many professions the middle class depends on are at risk of being cut and urged the federal

City Councilmember Phil Bacerra

@PhilBacerraSA

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City Councilmember Phil Bacerra

3 hrs ·

Please participate in the survey (freewaybussurvey.com or 909-494-2900) for OCTA's study to develop two Freeway Bus Rapid Transit (BRT) routes on the 5 Freeway and the 55 Freeway. The Freeway BRT Study will develop alternatives for the Freeway BRT corridors including identification of operating lanes, station locations, access ramps, and needed parking facilities. Visit octa.net/FreewayBRT to learn more and to register for an online webinar on Oct. 14 at 5:30pm.

2

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Phil Bacerra
@philbacerra

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10:23 AM · Oct 8, 2020 · Twitter for Android

Phil Bacerra @philbacerra · 3h
Replying to @philbacerra
identification of operating lanes, station locations, access ramps, and needed parking facilities. Visit octa.net/FreewayBRT to learn more and to register for an online webinar on Oct. 14 at 5:30pm. (2/2)

philbacerra • Follow

philbacerra Please participate in the survey (freewaybussurvey.com or 909-494-2900) for OCTA's study to develop two Freeway Bus Rapid Transit (BRT) routes on the 5 Freeway and the 55 Freeway. The Freeway BRT Study will develop alternatives for the Freeway BRT corridors including identification of operating lanes, station locations, access ramps, and needed parking facilities. Visit

5 likes

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Log in to like or comment.

The OCTA welcomes public input on Freeway Express Bus Service Study

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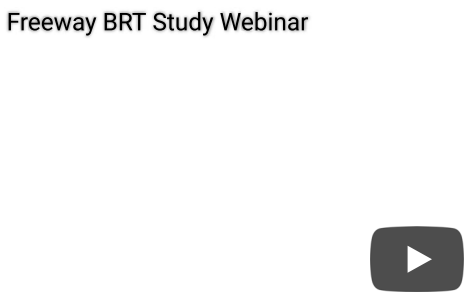

ORANGE – The Orange County Transportation Authority, in partnership with Caltrans, is studying the possibility of adding bus service to a section of Interstate 5 and State Route 55 through Orange County, and is welcoming public input. The study is considering two potential freeway bus rapid transit (BRT) routes, one...

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Orange County Breeze

NEWS OF NORTHWEST ORANGE COUNTY, CA

OCTA welcomes public input on Freeway Express Bus Service Study

By: courtesy / On: October 9, 2020 / In: Transportation / Tagged: bus service, I-5 Freeway, Orange County CA, Orange County Transportation Authority

The Orange County Transportation Authority, in partnership with Caltrans, is studying the possibility of adding bus service to a section of Interstate 5 and State Route 55 through Orange County, and is welcoming public input.

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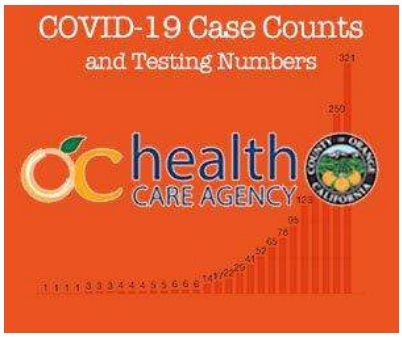
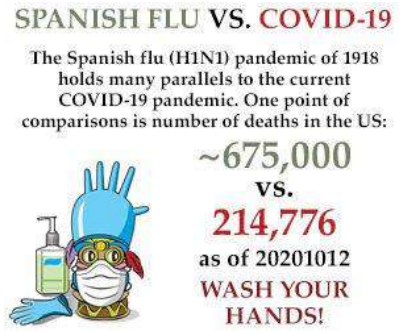


(Click above to view the number on OC HCA's website.)



(Click above to view Johns Hopkins COVID-19 tracker.)

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In the process, encouraging public transit would help take more people out of single-driver vehicles and help ease freeway traffic congestion.

Orange County residents, and those who use freeways to get to work and visit destinations along the I-5 and SR-55 freeways, are encouraged to take a brief online survey to help give valuable feedback on the BRT plans.

A public webinar for more information on the project is scheduled for 5:30 to 6:30 p.m. on Wednesday, Oct. 14. Participants can take the survey, register for the webinar and find more information on the project, including a video overview of the study, at www.octa.net/FreewayBRT.

The survey can also be taken by calling (909) 494-2900 through Nov. 16.

The study builds on the 2018 OC Transit Vision, which established a plan for the next 20 years of transit in Orange County and identified the I-5 and SR-55 corridors as high

priorities for transit. The study will identify potential operating lanes, station locations and needed parking, among other necessary infrastructure improvements.

The study is expected to be completed in early 2021.

This article was released by the Orange County Transportation Authority.

Please follow and like us:

Previous Post: H. Louis Lake Senior Center celebrates Halloween with drive-thru Senior Halloween Trunk or Treat event

Next Post: Orange County Board of Supervisors unanimously passes Disabled Veterans Business Enterprise

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Name *

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A133

City of Costa Mesa
October 12 at 2:22 PM

Join the Orange County Transportation Authority (OCTA) to learn how it is planning for the future by exploring express bus service options on Interstate 5 (I-5) and State Route 55 (SR-55).

OCTA will be holding a virtual public meeting for the Bus Rapid Transit on Freeways Study, and the public is invited to meet the team and ask questions.

Virtual Public Meeting
Wednesday, October 14, 5:30 to 6:30 p.m.

Can't make the meeting? Watch a pre-recorded presentation anytime through November 16th at http://www.octa.net/.../Freeway-Bus-Rapid-Transit-Concept-S.../....

Eager to share your opinions? Help OCTA improve public transit needs by taking their survey, either online at FreewayBusSurvey.com or by phone at (909) 494-2900 in English, Spanish or Vietnamese.

What is Freeway BRT?
Freeway BRT is express bus service that travels mostly on the freeway network, taking advantage of carpool lanes, express lanes, toll lanes or even shoulder lanes to serve key destinations. Stations will be along the freeway and will connect to key destinations using local bus service and shuttles.

Project Information
OCTA and the State of California Department of Transportation (Caltrans), District 12 are conducting the study to look at the development of freeway BRT routes on the I-5 from the Fullerton Park and Ride to the Metrolink Laguna Niguel/Mission Viejo Station and on the SR-55 from the Santa Ana Regional Transit Center to Hoag Memorial Hospital Presbyterian in Newport Beach. For more information, visit octa.net/freewaybrt.

4 3 Comments

The plan for now — pandemic and funding permitting — is to add service as demand grows so that we can return to pre-COVID-19 service levels. At Thursday's meeting, Metro Board Chair and L.A. Mayor Eric Garcetti said funding will be available to add enough service to meet NextGen's goals.

These are real issues and we're not trying to gloss over them. At the same time, Metro believes the NextGen Plan creates the foundation for a significantly improved bus system.

And we're not done.

Several bus rapid transit projects with funding from the Measure M sales tax are in the planning stages and Metro staff continue to work with cities across L.A. County on improvements including bus lanes, traffic signal priority and more comfortable bus stops with better protection from the elements and more rider data.

What are your thoughts, readers?

SOUTH ORANGE COUNTY
MULTIMODAL TRANSPORTATION STUDY

OCTA Launches Two Major Transportation Studies: On Improvements to South Orange County and Adding Freeway Bus Rapid Transit

The Orange County Transportation Authority has launched two major transportation studies, one that addresses south Orange County's transportation needs and the other that considers adding Bus Rapid Transit on two major stretches of freeway.

The first study, called the South Orange County Multimodal Transportation Study (SOCMTS), will examine a wide range of transportation needs over the next 25 years, including improvements to streets, bus and other transit options, highways and bikeways.

It aims to address transportation needs as the area continues to grow with new residents and jobs and as travel patterns and needs evolve.

The area covered by the study encompasses about 40 percent of Orange County, generally south of State Route 55 to the San Diego County line, and from the coast to the foothills.

A virtual public meeting explaining the study was held the first week in October and a recording of the meeting is available with more information about the project at www.octa.net/SouthOCStudy.

OCTA also welcomes comments through an online survey to hear from those who live, work and visit south Orange County. The brief 12-question survey, with a few additional optional questions, is available online in English, Spanish, Mandarin, Korean and Vietnamese.

OCTA, which is Orange County's transportation planning agency, is responsible for providing a balanced and sustainable transportation system for the entire county. The focus on south Orange County is necessary because over the next 25 years, projections show population growing by 170,000 residents and an additional 130,000 jobs are expected.

At the same time, travel patterns and transportation needs have continued to evolve since OCTA's last major transportation study of the area in 2008. The projects from that study have resulted in a more than $1.5 billion investment in the area, including the I-5 carpool lane project between San Juan Creek Road and Avenida Pico, and the I-5 widening between SR-73 and El Toro Road now under construction.

Since the 2008 study, other significant changes have occurred, including the elimination of the SR-241 Toll Road extension in favor of a non-tolled extension of Los Patrones Parkway, a decline in traditional transit ridership, the introduction of mobile transportation apps and on-demand services such as Uber and Lyft, as well as the introduction of community transit options like shuttles and trolleys.

The South County study will continue in phases through the end of 2021 and residents, business owners and other key stakeholders will be asked to participate throughout.

Freeway Bus Rapid Transit

The second study is considering two potential freeway bus rapid transit (BRT) routes, one on approximately 30 miles of I-5, between the Laguna Niguel/Mission Viejo transit station and the Fullerton Park and Ride, and the other on SR-55 between the Santa Ana Regional Transportation Center and Hoag Memorial Hospital Presbyterian in Newport Beach.

Freeway bus rapid transit is express bus service that travels on the freeway, using carpool lanes, express lanes or even shoulder lanes to more efficiently serve key destinations. Stations would be located along the freeway and would connect to those key destinations with local bus service and shuttles.

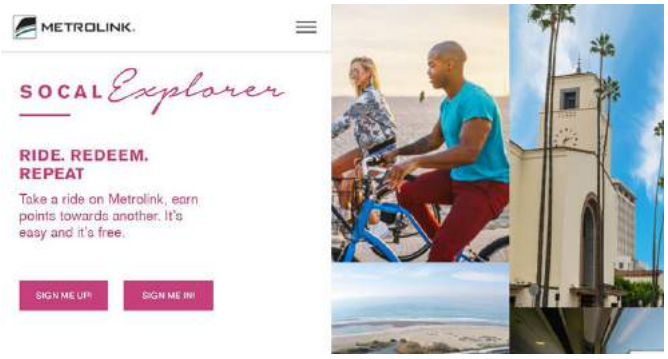
In the process, encouraging public transit would help take more people out of single-driver vehicles and help ease freeway traffic congestion.

Orange County residents, and those who use freeways to get to work and visit destinations along the I-5 and SR-55 freeways, are encouraged to take a brief online survey to help give valuable feedback on the BRT plans.

More information can be found at www.octa.net/FreewayBRT.

The study builds on the 2018 OC Transit Vision, which established a plan for the next 20 years of transit in Orange County and identified the I-5 and SR-55 corridors as high priorities for transit. The study will identify potential operating lanes, station locations and needed parking, among other necessary infrastructure improvements.

The study is expected to be completed in early 2021.



Metrolink Introduces New Loyalty and Rewards Program for Riders

SoCal Explorer Rewards Riders for Taking the Train, Supports Local Businesses

Metrolink, Southern California's regional train service, launched SoCal Explorer, a new loyalty program that rewards riders with points as well as exclusive offers and perks from local businesses and attractions throughout the Southern California region. The program makes it more affordable for people to make taking the train a part of their everyday lifestyle.

The SoCal Explorer program was designed to reward all Metrolink riders, whether they take the train to commute to work or ride on the weekend for some fun with friends and family. Members earn one point for every mile they travel, which they can redeem for free tickets – making taking the train even more affordable. Just for signing up, members will receive enough points for a round-trip ticket, so new riders can redeem their points and try out the service for free.

"We are pleased to reward Southern Californians for making the choice to leave their car behind and take the train," said Metrolink Board Chair Brian Humphrey. "We hope to encourage more people to ride with us, to keep our region's traffic congestion low and improve our region's air quality. Plus, taking the train is a healthy lifestyle choice allowing people to avoid the stress of sitting in traffic."

While the SoCal Explorer program was created to benefit its customers, Metrolink saw an opportunity to also support the recovery of local businesses that were hit hard by the effects of COVID-19. Currently more than 30 local businesses are SoCal Explorer Partners, offering discounts and other incentives to program members in exchange for being promoted as a part of the program. Businesses can sign up to be partners by visiting socalexplorer.metrolinktrains.com/partnerships.

"Orange County businesses need our support now more than ever. Metrolink's SoCal Explorer program is another great reason to mask up and get out of the house for a train ride to one of Orange County's many restaurants, stores, and attractions," said Lucy Dunn, President & CEO, Orange County Business Council (OCBC), a leading voice of business in the region that enhances economic development and quality of life.

Creating a Metrolink SoCal Explorer account is easy by simply visiting SoCalExplorer.Metrolinktrains.com. Metrolink mobile app users can register with SoCal Explorer using the same email address used for the mobile app account. Tickets purchased through the Metrolink Mobile app will earn points and be credited to their SoCal Explorer account automatically. Paper tickets users can take a photo of their tickets and easily upload it to their SoCal Explorer account to be rewarded with points.

"Our customers are at the center of everything we do, and our new SoCal Explorer program rewards them for the trust they continue to show us during these extraordinary times," said Metrolink CEO Stephanie N. Wiggins. "This month, as we approach the anniversary of our 28th year of service, I can't think of a better way to thank customers for riding with us than to reward them for each mile they travel."

Metrolink takes every precaution possible to protect the health and safety of its riders. Face masks are required on station platforms and aboard trains that are continuously cleaned and disinfected by a Clean Care Crew. As an additional layer of protection every day each train car is deep-

COMMUNITY CALENDAR

Virtual Public Meeting - Bus Rapid Transit on Freeways Study

Date: 10/14/2020 5:30 pm - 6:30 pm

Add to my Calendar

You're invited to learn how the Orange County Transportation Authority (OCTA) is planning for the future by exploring express bus service options on Interstate 5 (I-5) and State Route 55 (SR-55).

OCTA will be holding a virtual public meeting for the Bus Rapid Transit on Freeways Study, and you are invited to meet the team and ask questions.

More info is available here

APPENDIX O

Survey

- Print Survey
- Typeform Survey – ENG, SPN & VIET
- Survey Analysis Report
- Table of Destination Zip Codes

Bus Rapid Transit Freeways Study

Survey

As we plan for the future with express bus service on freeways (Freeway BRT), your feedback is important to OCTA. The Bus Rapid Transit on Freeways Study is looking at the development of Freeway BRT on two of the County's busiest freeways, Interstate 5 (I-5) from Fullerton to Laguna Niguel and on State Route 55 (SR-55) from Santa Ana to Newport Beach.

What is Freeway BRT? Freeway BRT is express bus service that travels mostly on the freeway network, taking advantage of carpool lanes, express lanes, toll lanes or even shoulder lanes to serve key destinations. Stations will be along the freeway and will connect to key destinations using local bus service and shuttles.

Please click **SUBMIT** at the end of the survey.

1. **What is your home zip code?** _____

2. **Why do you travel on the I-5 in Orange County? To access:** (Check all that apply)
   a) Employment
   b) Entertainment (parks, amusement, recreation, etc.)
   c) Shopping
   d) School
   e) Business or service (OCTA, Metro, ARC, etc.)
   f) Transit connections
   g) I don't travel on the I-5
   h) Other _____

3. **Why do you travel on the SR-55? To access:** (Check all that apply)
   a) Employment
   b) Entertainment (parks, amusement, recreation, etc.)
   c) Shopping
   d) School
   e) Business or service (OCTA, Metro, ARC, etc.)
   f) Transit connections
   g) I don't travel on the SR-55
   h) Other _____

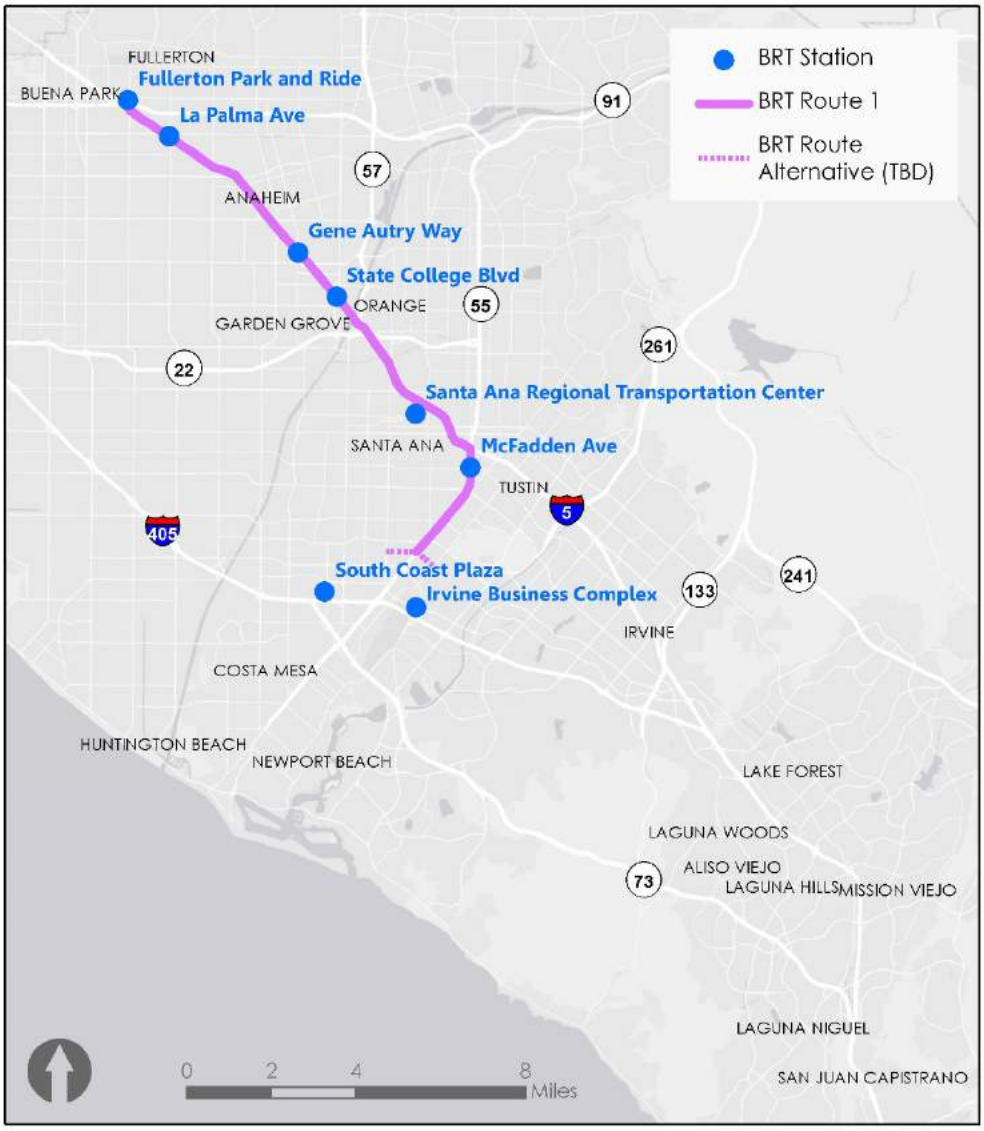
4. **Would you consider using freeway bus rapid transit?** Y / N

5. Rate your interest in adding each of the three, proposed BRT routes.

(1 being the least favorable and 6 being the most favorable for each route)

a)

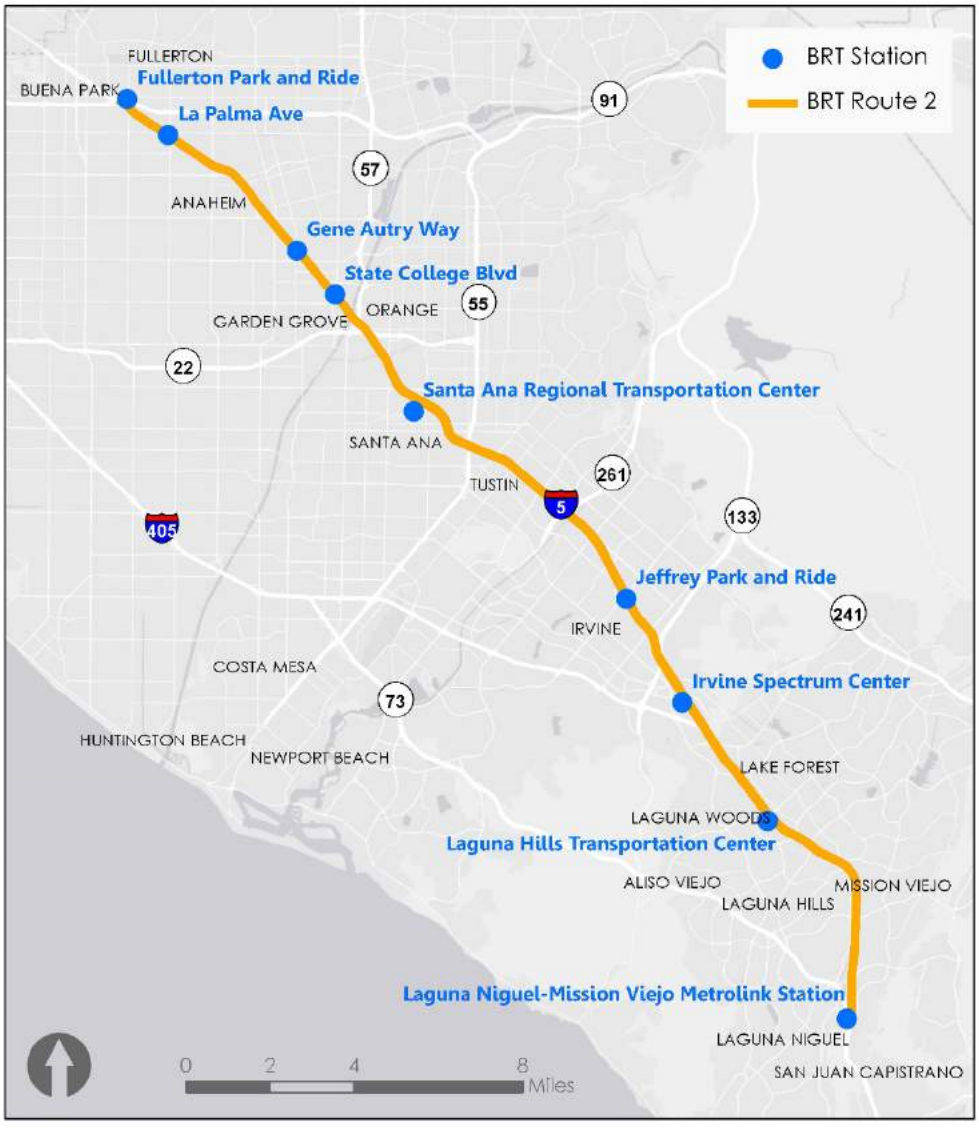
Freeway BRT Concept 1



1 2 3 4 5 6

b)

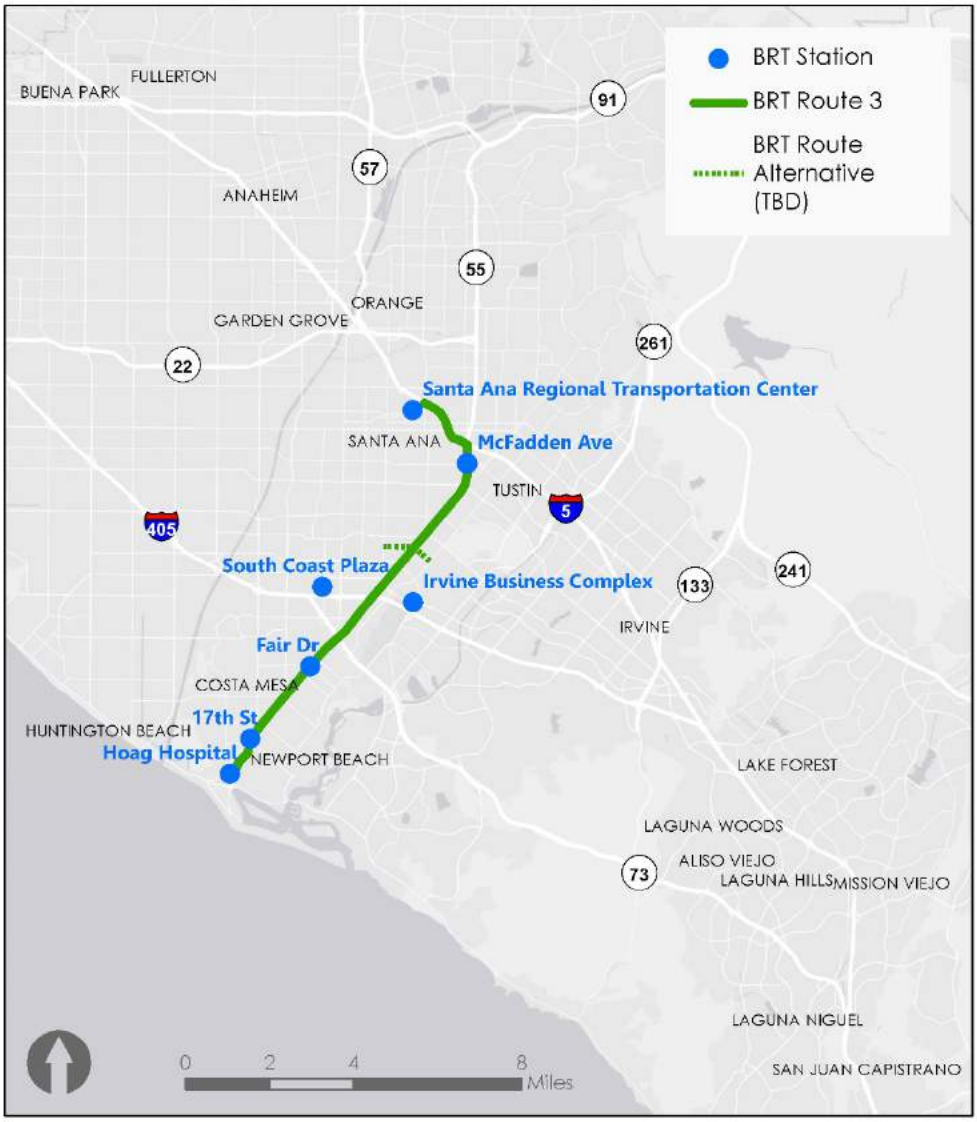
Freeway BRT Concept 2



1 2 3 4 5 6

c)

Freeway BRT Concept 3



1 2 3 4 5 6

6. ***Are there any improvements that would make you ride transit more often?***
   (Select up to 5)

   a. Faster travel times
   b. More frequent service
   c. Expanded hours of service
   d. Passenger information and trip planning (e.g. real-time bus arrival)
   e. Cost / fare transfers between systems
   f. More service to areas that I travel
   g. More direct service (less transfers)
   h. More efficient transfers
   i. Better amenities (i.e. shelter, seating, signage)
   j. Improved security and safety
   k. Improved parking at stops
   l. Bike parking / lockers
   m. Pedestrian / bike station access
   n. No
   o. Other: _____

7. **Provide additional comments here:** _____

   _____

   _____

Thanks for your input! Now, please tell us a little about yourself. (Optional)

8. **How long is your regular commute?**

   a. Less than 15 minutes
   b. 15 to 30 minutes
   c. 31 to 45 minutes
   d. 46 to 60 minutes
   e. More than an hour

9. **What zip code do you work in?** _____

10. What is your age group?

a. Under 13
b. 13 to 17
c. 18 to 24
d. 25 to 34
e. 35 to 44
f. 45 to 59
g. 60 to 64
h. 65 or over
i. Prefer not to say

11. Do you have a car? Y / N

12. What is your estimated household income?

a. Under $30,000
b. $30,000 to $49,999
c. $50,000 to $64,999
d. $65,000 to $84,999
e. $85,000 to $99,999
f. $100,000 or more
g. Prefer not to say

13. What ethnic group do you consider yourself a part of or feel closest to?

a. Caucasian/White
b. Latino/Hispanic
c. African American/Black
d. American Indian or Alaskan Native
e. Asian – Korean, Japanese, Chinese, Vietnamese, Filipino or other Asian
f. Pacific Islander
g. Middle Eastern
h. Mixed Heritage
i. Prefer not to answer
j. Other: _____

14. Sign-up to receive information about the Freeway BRT Study?

Email:_____

Thank you for participating in the OCTA Bus Rapid Transit on Freeways Study survey. Have a good day!

Haga clic aquí para español | Bấm vào đây để xem tiếng Việt

As we plan for the future with express bus service on freeways (Freeway BRT), your feedback is important to OCTA. The *Bus Rapid Transit on Freeways Study* is looking at the development of Freeway BRT on two of the County's busiest freeways, Interstate 5 (I-5) from Fullerton to Laguna Niguel and State Route 55 (SR-55) from Santa Ana to Newport Beach.

What is Freeway BRT? Freeway BRT is express bus service that travels mostly on the freeway network, taking advantage of carpool lanes, express lanes, toll lanes or even shoulder lanes to serve key destinations. Stations will be along the freeway and will connect to key destinations using local bus service and shuttles.

Please click SUBMIT at the end of the survey.

Time to complete: (see published version)

Start press Enter

1→ **What is your home zip code?**

Type your answer here...

2→ **Why do you travel on the I-5 in Orange County? To access:**
(Check all that apply)

Choose as many as you like

- A Employment
- B Entertainment (parks, amusement, recreation, etc.)
- C Shopping
- D School
- E Business or service
- F Transit connections (OCTA, Metro, ARC, etc.)
- G I don't travel on the I-5
- H Other

3→ **Why do you travel on the SR-55? To access:** (Check all th

Choose as many as you like

- [A] Employment
- [B] Entertainment (parks, amusement, recreation, etc.)
- [C] Shopping
- [D] School
- [E] Business or service
- [F] Transit connections (OCTA, Metro, ARC, etc.)
- [G] I don't travel on the SR-55
- [H] Other

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4→ **Would you consider using freeway bus rapid transit?**

- [A] Yes
- [B] No

" **Rate your interest in adding each of the three, proposed BRT routes.**

Continue press Enter ↵

5 **Concept 1: Fullerton to Costa Mesa/Irvine**

(1 being the least favorable and 6 being the most favorable for each route)

1 2 3 4 5 6

6 **Concept 2: Fullerton to Laguna Niguel/Mission Viejo**

(1 being the least favorable and 6 being the most favorable for each route)

1 2 3 4 5 6

7 **Concept 3: Santa Ana to Newport Beach**

(1 being the least favorable and 6 being the most favorable for each route)

1 2 3 4 5 6

8 → **Are there any improvements that would make you ride transit more often?** (Select up to 5)

You can choose up to 5

- A Faster travel times
- B More frequent service
- C Expanded hours of service
- D Passenger information and trip planning (e.g. real-time bus arrival)
- E Cost / fare transfers between systems
- F More service to areas that I travel
- G More direct service (less transfers)
- H More efficient transfers
- I Better amenities (i.e. shelter, seating, signage)
- J Improved security and safety
- K Improved parking at stops
- L Bike parking / lockers
- M Pedestrian / bike station access
- N No
- O Other

9 → **Provide additional comments here:**

Type your answer here...

Shift ⇧ + Enter ↵ to make a line break

" **Thanks for your input! Now, please tell us a little about yourself.** (Optional)

Continue press Enter ↵

10 → **How long is your regular commute?**

- A Less than 15 minutes
- B 15 to 30 minutes
- C 31 to 45 minutes
- D 46 to 60 minutes
- E More than an hour

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11 → **What zip code do you work in?**

Type your answer here...

12 → **What is your age group?**

- A Under 13
- B 13 to 17
- C 18 to 24
- D 25 to 34
- E 35 to 44
- F 45 to 59
- G 60 to 64
- H 65 or over
- I Prefer not to say

13→ **Do you have a car?**

- A Yes
- B No

14→ **What is your estimated household income?**

- A Under $30,000
- B $30,000 to $49,999
- C $50,000 to $64,999
- D $65,000 to $84,999
- E $85,000 to $99,999
- F $100,000 or more
- Key G Prefer not to say

15→ **What ethnic group do you consider yourself a part of or feel closest to?**

- A Caucasian / White
- B Latino / Hispanic
- C African American/Black
- D American Indian or Alaskan Native
- Key E Asian – Korean, Japanese, Chinese, Vietnamese, Filipino or other Asian
- F Pacific Islander
- G Middle Eastern
- H Mixed Heritage
- I Prefer not to answer
- J Other

16 → **Sign-up to receive information about the Freeway BRT Study?**

name@example.com

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Bus Rapid Transit on Freeways Study

Where will you go?

OCTA

Thank you for participating in the OCTA Bus Rapid Transit on Freeways Study survey. Have a good day!

Submit press Enter

Mientras planificamos el futuro del transporte con el servicio de autobús expreso en las autopistas (BRT en la Autopista), su opinión es muy importante para OCTA. El Estudio sobre autobuses de tránsito rápido (BRT, en inglés) en las autopistas está analizando el desarrollo del servicio de BRT en dos de las autopistas más transitadas del condado, la Interestatal 5 (I-5) de Fullerton a Laguna Niguel y la Ruta Estatal 55 (SR-55) de Santa Ana a Newport Beach.

¿Qué es el servicio de BRT en la autopista?
El servicio de BRT en la autopista es un servicio de autobuses expresos que viajan principalmente en la red de autopistas aprovechando los carriles para vehículos de alta ocupación, los Express Lanes y los carriles de peaje, o incluso los carriles laterales para ofrecer servicio a los destinos más importantes. Las estaciones se ubicarán a lo largo de la autopista y ofrecerán conexiones a destinos importantes mediante el servicio de autobuses y autobuses de enlace locales.

Haga clic en ENVIAR al finalizar la encuesta.

Comienzo

1 → **¿Cuál es su código postal?**

Escribe aquí tu respuesta...

2 → **¿Por qué viaja en la I-5 en Orange County? Para acceder a:**
(Seleccione todas las opciones que correspondan)

Elige tantas opciones como desee

- A Empleo
- B Entretenimiento (parques, diversión, recreación, etc.)
- C Ir de compras
- D Escuela
- E Negocio o servicio
- F Conexiones de transporte público (OCTA, Metro, ARC, etc.)
- G No viajo en la I-5
- H Otra opción

3→ **¿Por qué viaja en la SR-55? Para acceder a:** (Seleccione todas las opciones que correspondan)

Elige tantas opciones como desee

- A Empleo
- B Entretenimiento (parques, diversión, recreación, etc.)
- C Ir de compras
- D Escuela
- E Negocio o servicio
- F Conexiones de transporte público (OCTA, Metro, ARC, etc.)
- G No viajo en la SR-55
- H Otra opción

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4→ **¿Consideraría utilizar los autobuses de tránsito rápido en la autopista?**

- A Sí
- B No

" **Clasifique su nivel de interés en agregar cada una de las tres rutas propuestas de BRT.**

Seguir presione Enter ↵

5 → **Concepto 1: Fullerton a Costa Mesa/Irvine**

(El 1 representa la opción menos favorable y el 6 representa la opción más favorable para cada ruta)

1 2 3 4 5 6

6 → **Concepto 2: Fullerton a Laguna Niguel/Mission Viejo**

(El 1 representa la opción menos favorable y el 6 representa la opción más favorable para cada ruta)

1 2 3 4 5 6

7 → **Concepto 3: Santa Ana a Newport Beach**

(El 1 representa la opción menos favorable y el 6 representa la opción más favorable para cada ruta)

1 2 3 4 5 6

8→ **¿Hay alguna mejora que le haría viajar en transporte público con más frecuencia?**
(Seleccione hasta 5 opciones)

You can choose up to 5

- [A] Tiempos de viaje más rápidos
- [B] Servicio más frecuente
- [C] Ampliación del horario de servicio
- [D] Información para pasajeros y planificación de viajes (por ejemplo, horarios de llegada de autobuses en tiempo real)
- [E] Costos/tarifas de transbordos entre sistemas
- [F] Más servicio a las zonas a las que viajo
- [G] Más servicio directo (menos transbordos)
- [H] Transbordos más eficientes
- [I] Mejores comodidades (por ejemplo, sombras en las paradas, asientos, señalamientos)
- [J] Más seguridad
- [K] Mejor estacionamiento en las paradas
- [L] Estacionamiento para bicicletas/casilleros para bicicletas
- [M] Acceso peatonal/para bicicletas a las estaciones
- [N] No
- [O] Otra opción

0% completado

9→ **Proporcione sus comentarios adicionales aquí:**

Escribe aquí tu respuesta...

block.longText.hint

" **¡Gracias por darnos su opinión! Ahora, cuéntenos un poco sobre usted.** (Opcional)

Seguir presione Enter ↵

10 → **¿Cuánto tiempo dura su viaje diario al trabajo?**

- A Menos de 15 minutos
- B 15 a 30 minutos
- C 31 a 45 minutos
- D 46 a 60 minutos
- E Más de un hora

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11 → **¿En qué código postal trabaja?**

Escribe aquí tu respuesta...

12 → **¿Qué edad tiene?**

- A Menos de 13
- B 13 a 17
- C 18 a 24
- Key D 25 a 34
- E 35 a 44
- F 45 a 59
- G 60 a 64
- H 65 o más
- I Prefiero no responder

13 → **¿Tiene un automóvil?**

- A Sí
- B No

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14 → **¿Cuál es su ingreso familiar aproximado?**

- A Menos de $30,000
- B $30,000 a $49,999
- C $50,000 a $64,999
- D $65,000 a $84,999
- E $85,000 a $99,999
- F $100,000 o más
- G Prefiero no responder

15 → **¿De qué grupo étnico se considera parte o a qué grupo étnico se siente más cercano?**

- A Caucásico/De raza blanca
- B Latino/Hispano
- C Africano Americano/De raza negra
- D Indio americano o nativo de Alaska
- E Asiático – Korean, Japanese, Chinese, Vietnamese, Filipino u otra nacionalidad asiática
- F Nativo de las islas del Pacífico
- G Del Medio Oriente
- H Grupo étnico mixto
- I Prefiero no responder
- J Otra opción

16 → **Regístrese para recibir información sobre el Estudio de BRT en las autopistas.**

name@example.com

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Gracias por participar en la encuesta del Estudio sobre autobuses de tránsito rápido en las autopistas de OCTA. ¡Esperamos que tenga un buen día!

Enviar presione Enter

Conversations

Khi chúng tôi lập kế hoạch cho dịch vụ xe buýt tốc hành trên đường cao tốc (Đường Cao Tốc BRT) trong tương lai, phản hồi của quý vị rất quan trọng đối với OCTA. Cuộc Nghiên Cứu Đường Cao Tốc dành cho Xe Buýt Vận Chuyển Nhanh (tiếng Anh là BRT) xem xét sự phát triển của Đường Cao Tốc BRT đối với hai trong số các đường cao tốc bận rộn nhất của Quận là Đường Xuyên Bang 5 (I-5) từ Fullerton đến Laguna Niguel và Tuyến Đường Xuyên Bang 55 (SR-55) từ Santa Ana đến Newport Beach.

Đường Cao Tốc BRT là gì? Đường Cao Tốc BRT là dịch vụ xe buýt tốc hành đi chủ yếu trên mạng lưới đường cao tốc, tận dụng làn đường dành cho xe chở hai người trở lên, làn đường tốc hành, làn đường tính phí hoặc thậm chí làn đường bên lề để chạy đến các điểm đến chính. Dọc theo đường cao tốc sẽ có các trạm dừng và sẽ kết nối đến các điểm đến chính bằng cách sử dụng dịch vụ xe buýt và xe đưa đón của địa phương.

Vui lòng bấm vào GỬI ở cuối khảo sát này.

Bắt đầu

1 → **Mã bưu điện (zip) của nhà quý vị là số mấy?**

Câu trả lời ghi ở đây...

2 → **Tại sao quý vị đi trên I-5 ở Orange County? Để đi:** (Đánh dấu tất cả các lựa chọn áp dụng)

Chọn bao nhiêu tùy ý quý vị

- A Đi làm
- B Đi chơi (công viên, vui chơi, giải trí, v.v.)
- C Mua sắm
- D Đi học
- E Đến cơ sở kinh doanh hoặc dịch vụ
- F Đi các chuyến xe công cộng nối tiếp nhau (OCTA, Metro, ARC, v.v.)
- G Tôi không đi trên I-5
- H Khác

3→ **Tại sao quý vị đi trên SR-55? Để đi:** (Đánh dấu tất cả các lựa chọn áp dụng)

Chọn bao nhiêu tùy ý quý vị

- A Đi làm
- B Đi chơi (công viên, vui chơi, giải trí, v.v.)
- C Mua sắm
- D Đi học
- E Đến cơ sở kinh doanh hoặc dịch vụ
- F Đi các chuyến xe công cộng nối tiếp nhau (OCTA, Metro, ARC, v.v.)
- G Tôi không đi trên I-5
- H Khác

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4→ **Quý vị có tính đi xe buýt vận chuyển nhanh trên đường cao tốc không?**

- A Có
- B Không

" **Đánh giá mối quan tâm của quý vị trong việc thêm vào một trong ba tuyến đường BRT theo đề xuất.**

Tiếp tục Nhấn Enter

5→ **Khái niệm 1: Fullerton đến Costa Mesa/Irvine**

(1 là không thích nhất và 6 là thích nhất cho mỗi tuyến đường)

1 2 3 4 5 6

6→ **Khái niệm 2: Fullerton đến Laguna Niguel/Mission Viejo**

(1 là không thích nhất và 6 là thích nhất cho mỗi tuyến đường)

1 2 3 4 5 6

7→ **Khái niệm 3: Santa Ana đến Newport Beach**

(1 là không thích nhất và 6 là thích nhất cho mỗi tuyến đường)

1 2 3 4 5 6

8→ **Có bất kỳ cải thiện nào sẽ làm cho quý vị đi xe công cộng thường xuyên hơn không?**
(Chọn tối đa 5 lựa chọn)

You can choose up to 5

- A Thời gian đi lại nhanh hơn
- B Dịch vụ thường xuyên hơn
- C Giờ cung cấp dịch vụ lâu hơn
- D Thông tin hành khách và lên kế hoạch cho chuyến đi (ví dụ: thời gian xe buýt thực sự đến)
- Key E Chi phí / giá vé chuyển đổi giữa các hệ thống
- F Thêm dịch vụ cho các khu vực mà tôi đi lại
- G Dịch vụ trực tiếp nhiều hơn (ít chuyển tiếp hơn)
- H Chuyển tiếp hiệu quả hơn
- I Tiện nghi tốt hơn (như trạm có mái che, chỗ ngồi, bảng chỉ dẫn)
- J Cải thiện an ninh và an toàn
- K Cải thiện chỗ đậu xe tại các điểm dừng
- L Chỗ đậu xe đạp / tủ khóa
- M Đường dành cho người đi bộ / trạm xe đạp
- N Không
- O Khác

0% Đã hoàn thành

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9→ **Nêu thêm ý kiến tại đây:**

Câu trả lời ghi ở đây...

Shift ⇧ + Enter ↵ to make a line break

" **Cảm ơn quý vị đã đóng góp ý kiến! Bây giờ, vui lòng cho chúng tôi biết một chút về bản thân quý vị.** (Tùy ý)

Tiếp tục Nhấn Enter ↵

10 → **Quý vị thường đi lại mất bao lâu?**

- A Ít hơn 15 phút
- B 15 đến 30 phút
- C 31 đến 45 phút
- D 46 đến 60 phút
- E Hơn một tiếng

11 → **Quý vị làm việc tại mã bưu điện (zip code) nào?**

Câu trả lời ghi ở đây...

12 → **Độ tuổi của quý vị là bao nhiêu?**

- A Dưới 13 tuổi
- B 13 đến 17
- C 18 đến 24
- D 25 đến 34
- E 35 đến 44
- F 45 đến 59
- G 60 đến 64
- H 65 tuổi hoặc hơn
- I Không muốn nói

13 → **Quý vị có xe hơi không?**

- A Có
- B Không

0% Đã hoàn thành

Powered by Typeform

14 → **Ước tính thu nhập hộ gia đình của quý vị là bao nhiêu?**

- A Dưới $30,000
- B $30,000 đến $49,999
- C $50,000 đến $64,999
- D $65,000 đến $84,999
- E $85,000 đến $99,999
- F $100,000 hoặc hơn
- G Không muốn nói

15 → **Quý vị thuộc nhóm dân tộc nào?**

- A Người thuộc chủng tộc da trắng/Người da trắng
- B Người Latinh/Tây Ban Nha
- C African American/Người da đen
- D Người da đỏ hoặc người bản địa Alaska
- E Người Châu Á – Korean, Japanese, Chinese, Vietnamese, Filipino hoặc người Châu Á khác
- F Người đảo Thái Bình Dương
- G Người Trung Đông
- H Nhiều chủng tộc khác nhau
- I Không muốn trả lời
- J Khác

16 → **Đăng ký để nhận thông tin về cuộc Nghiên Cứu Đường Cao Tốc BRT.**

name@example.com

0% Đã hoàn thành

Powered by Typeform

Cảm ơn quý vị đã tham gia vào khảo sát Nghiên Cứu Đường Cao Tốc dành cho Xe Buýt Vận Chuyển Nhanh OCTA. Chúc một ngày tốt lành!

Gửi Nhấn Enter ↵

Bus Rapid Transit on Freeways Study

Survey Analysis Report

June 2021

Prepared for:

OCTA

Caltrans

Orange County Transportation Authority
550 South Main Street
Orange, CA 92868

Prepared by:

arellano associates

Arellano Associates
5851 Pine Avenue, Suite A
Chino Hills, CA 91709

A166

Survey Overview

A survey was developed to assess public interest, habits and preference for the Bus Rapid Transit on Freeway Study. Due to persistent COVID-19 conditions and to increase participation, the survey was developed using two survey platforms. The primary survey method was Typeform, an online, web-based platform that was issued in English, Spanish and Vietnamese to engage transit corridor riders and gather valuable feedback on the community's perspective on the proposed BRT routes. The second platform was a telephone helpline that was available to English, Spanish and Vietnamese speakers and enabled participants to take the survey over the phone.

Telephone respondents were given the option to speak to an operator using Voice Nation (VN) and provide their input verbally in English and in Spanish. Since VN did not have Vietnamese operators, a pre-recorded audio survey was developed and offered via Twilio messaging service for Vietnamese speakers. Surveys gathered by VN were input by the survey operators, while Vietnamese survey responses were recorded by Twilio and downloaded for processing.

A 16-question survey was developed in online format only. For questions #2 and #3, respondents had the ability to select as many responses as they like, and question #8 requested up to five selections; therefore, responses to these questions reflect more than 100%. Furthermore, due to recording limitations, the survey was modified for the phone audio survey to skip questions #8, #12, #14 and #15.

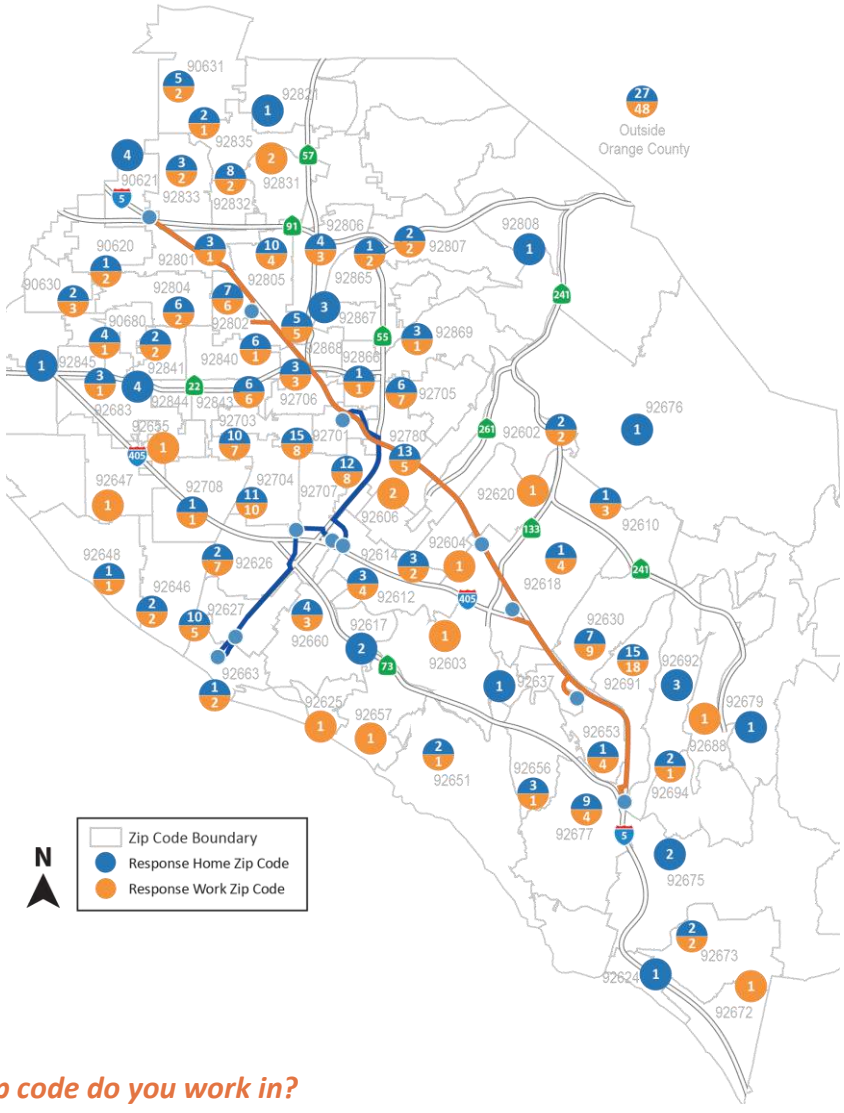
The following are the findings for each of the survey questions.

i. Geographic Distribution

Two (2) questions were used to assess the respondent's home and work destinations.

What is your home zip code?

The overwhelming majority of respondents shared their home zip code (95%, 278), with more than 90% of them residing in the County. The respondent distribution map (below) indicates the level of participation by county zip code totals. A table of respondent participation by city zip code can be found in the Appendix O.

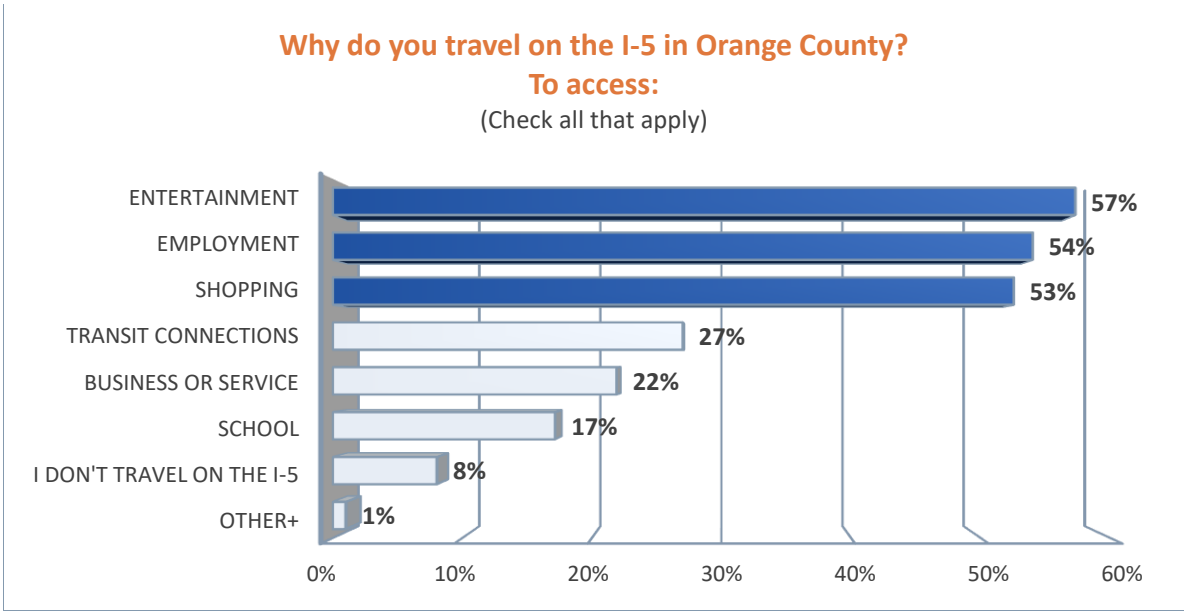


What zip code do you work in?

More than 80% (235) of survey participants responded. At least 20% of respondents traveled for work beyond the range of the proposed BRT service with the other 80% (187) working locally. See map above for distribution.

ii. Travel Habits

Four (4) questions addressed the respondent's current travel habits. Questions on use established a baseline perspective for the survey population and helped to determine if proposed freeway BRT would benefit the participating population.



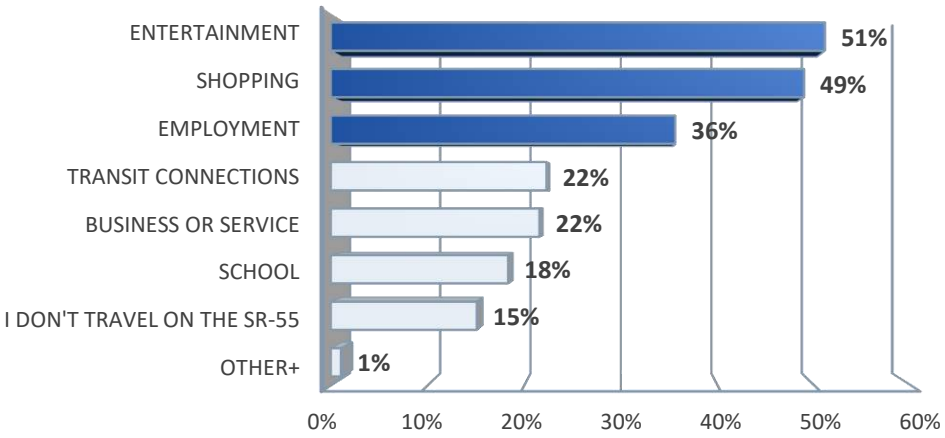
+Other provided: Regional transportation to get places.

Response	Count*
Entertainment (parks, amusement, recreation, etc.)	378
Employment	346
Shopping	340
Transit connections (OCTA, Metro, ARC, etc.)	333
Business or service	253
School	251
I don't travel on the I-5	153
Other	149

*Based upon 274 respondents.

Why do you travel on the SR-55?
To access:

(Check all that apply)

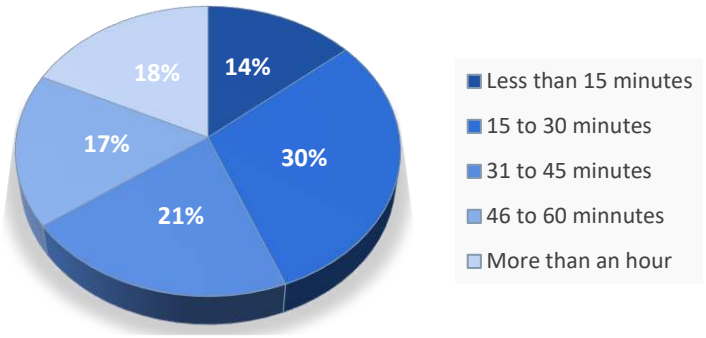


+Other provided: Visit friends and relatives
Music rehearsal
I live in Costa Mesa

Response	Count*
Entertainment (parks, amusement, recreation, etc.)	142
Shopping	136
Employment	99
Transit connections (OCTA, Metro, ARC, etc.)	62
Business or service	60
School	51
I don't travel on the SR-55	42
Other	3

*Based upon 278 respondents.

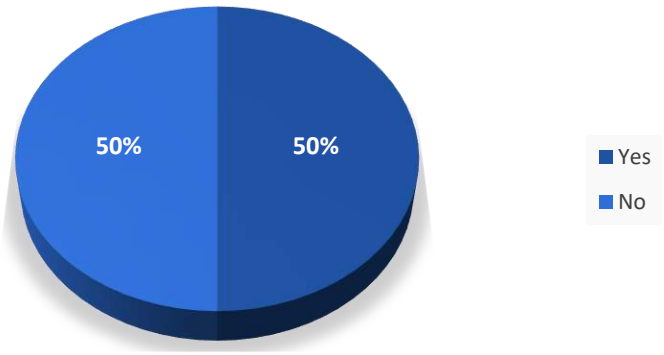
How long is your regular commute?



Response	Count*
Less than 15 minutes	38
15 to 30 minutes	83
31 to 45 minutes	58
46 to 60 minutes	47
More than an hour	49

* Based upon 275 respondents.

Do you have a car?

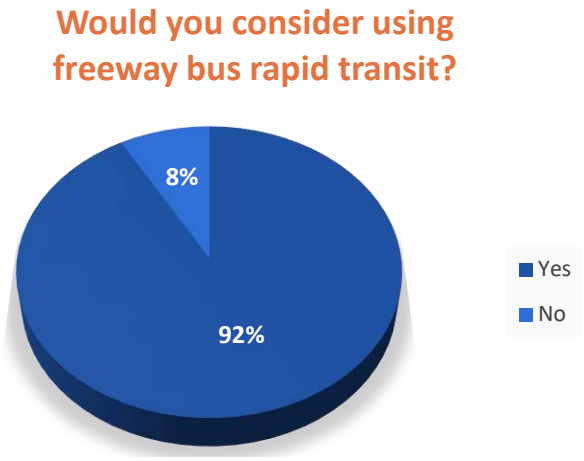


Response	Count*
Yes	138
No	138

* Based upon 276 respondents.

iii. Opportunities

Six (6) questions were asked to determine public sentiment toward and assess freeway BRT opportunities. The last of these questions was an open-ended inquiry, presented to allow for open comment.



Response	Count*
Yes	255
No	23

* Based upon 278 respondents.

Rate your interest in adding BRT route Concept 1: Fullerton to Costa Mesa/Irvine.

(6 being the highest)

Rating	Count*
6	123
5	31
4	37
3	29
2	15
1	28

* Based upon 263 respondents.

Rate your interest in adding BRT route Concept 2: Fullerton to Laguna Niguel/Mission Viejo.

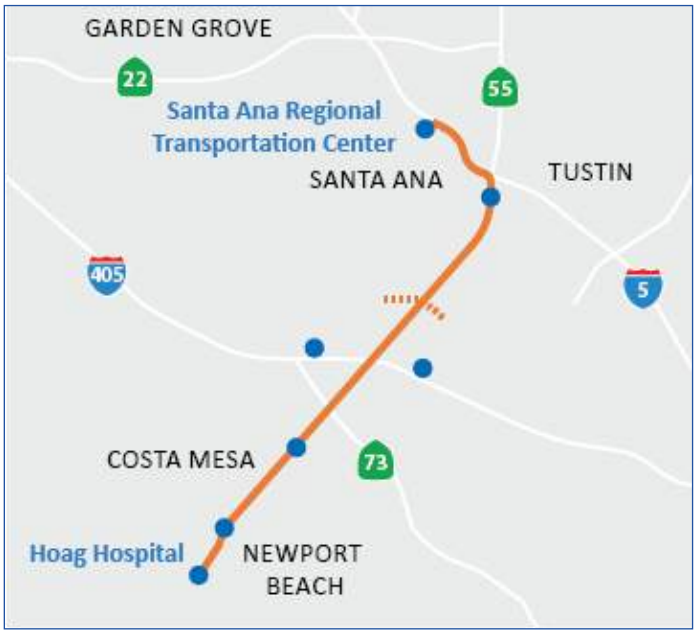
(6 being the highest)

Rating	Count*
6	141
5	32
4	31
3	26
2	11
1	22

* Based upon 263 respondents.

Rate your interest in adding BRT route Concept 3: Santa Ana to Newport Beach.

(6 being the highest)

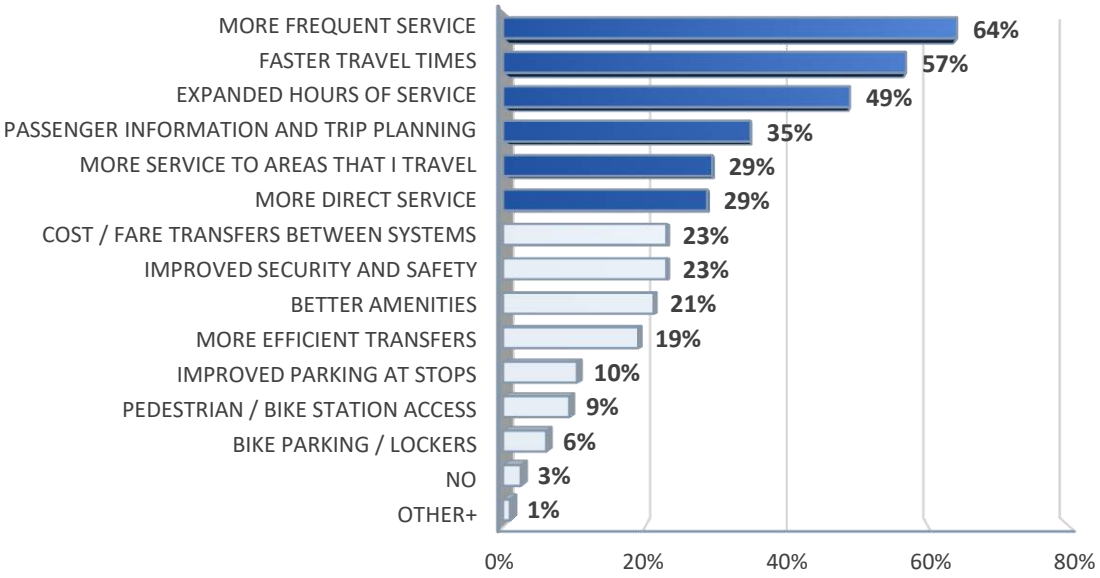


Rating	Count*
6	129
5	38
4	38
3	33
2	9
1	19

* Based upon 266 respondents.

Are there any improvements that would make you ride transit more often?

(Select up to 5)



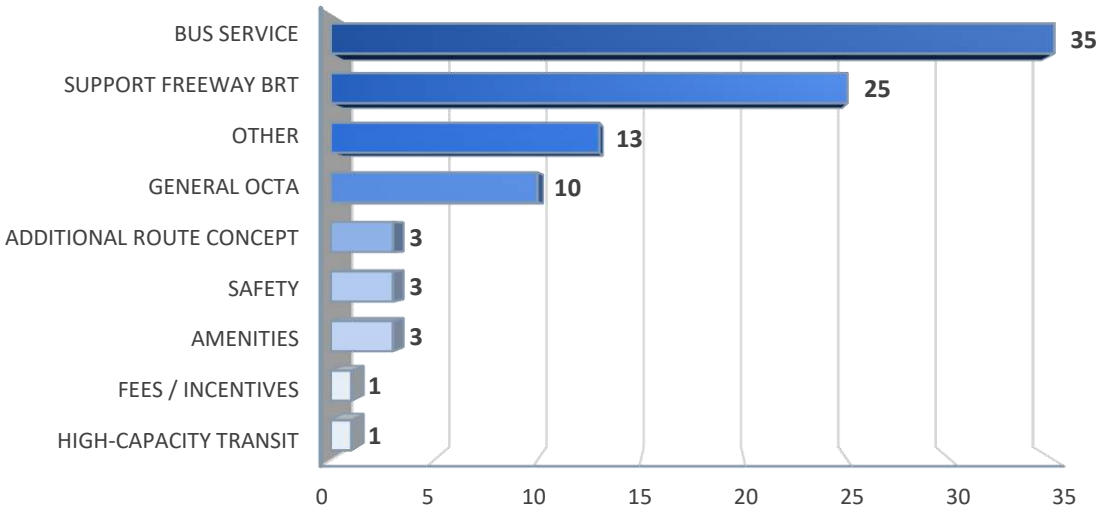
+Other provided: Electrify key corridors

Response	Count*
More frequent service	178
Faster travel times	158
Expanded hours of service	136
Passenger information and trip planning (e.g. real-time bus arrival)	97
More service to areas that I travel	82
More direct service (less transfers)	80
Cost / fare transfers between systems	64
Improved security and safety	64
Better amenities (i.e. shelter, seating, signage)	59
More efficient transfers	53
Improved parking at stops	29
Pedestrian / bike station access	26
Bike parking / lockers	17
No	7
Other	1

*Based upon 278 respondents.

Provide additional comments here

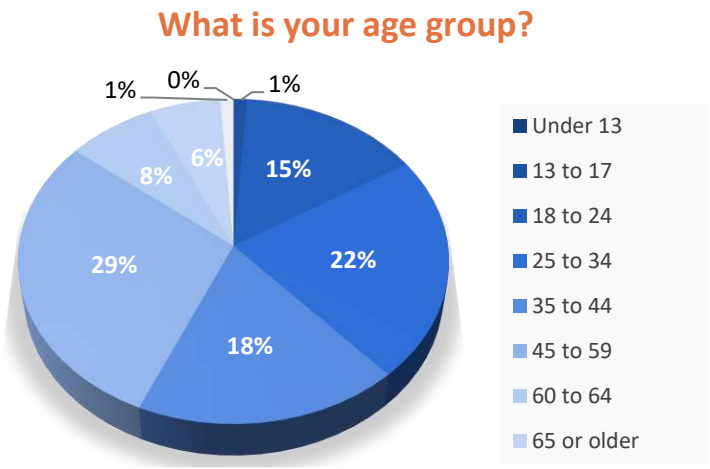
(Survey Comments By Category*):



* Based upon 141 respondents. See Comment Log & Issues Matrix (Appendix B) for full comment detail.

iv. Demographics

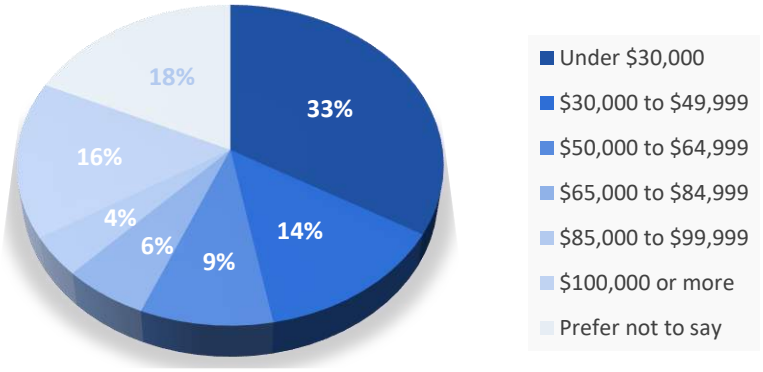
Three (3) questions were chosen for this survey to determine the age, income and ethnicity.



Response	Count*
Under 13	0
13 to 17	3
18 to 24	41
25-34	61
35-44	50
45-59	80
60-64	20
65 or older	16
Prefer not to say	3

* Based upon 274 respondents.

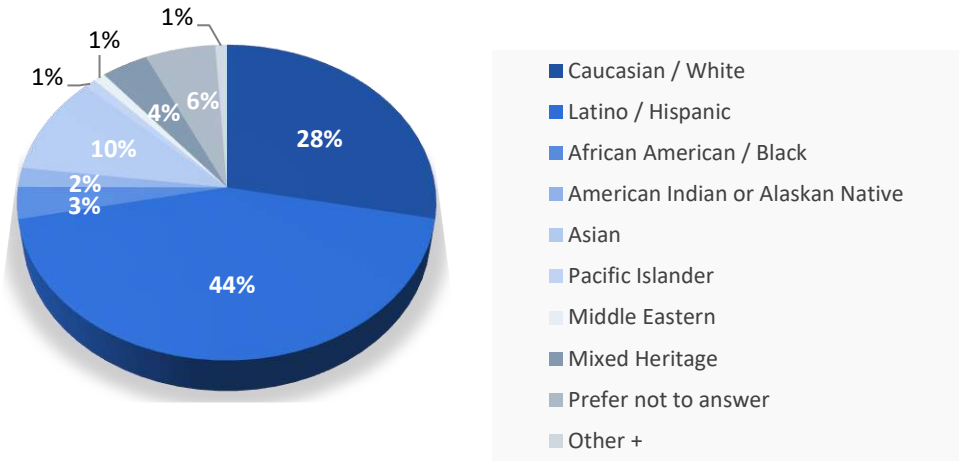
What is your estimated household income?



Response	Count*
Under $30,000	91
$30,000 to $49,999	37
$50,000 to $64,999	25
$65,000 to $84,999	16
$85,000 to $99,999	11
$100,000 or more	43
Prefer not to say	49

* Based upon 272 respondents.

What ethnic group do you consider yourself a part of or feel closest to?



+Other provided: Creole

Response	Count*
Caucasian / White	78
Latino / Hispanic	121
African American / Black	9
American Indian or Alaskan Native	7
Asian - Korean, Japanese, Chinese, Vietnamese, Filipino **or** other Asian	28
Pacific Islander	1
Middle Eastern	1
Mixed Heritage	11
Other	1
Prefer not to answer	18

* Based upon 275 respondents.

v. New Contacts

A total of 184 respondent emails were collected during the survey. These interested parties have been added to the study's stakeholder database and will receive future notifications as the study moves forward.

Bus Rapid Transit on Freeway Study

Surveys Collected by Respondent Destination Zip Code

OC City/Place	Zip Code	Destination			
		Home		Work	
Aliso Viejo	92656	3	3	1	1
Anaheim	92801	3		1	
	92802	7		6	
	92804	6		2	
	92805	10		4	
	92806	4		3	
	92807	2		2	
	92808	1	33	0	18
Brea	92821	1	1	0	0
Buena Park	90620	1		2	
	90621	4	5	0	2
Costa Mesa	92626	2		7	
	92627	10	12	5	12
Coto de Caza	92679	1	1	0	0
Cypress	90630	2	2	3	3
Dana Point	92624	1	1	0	0
Fountain Valley	92708	1	1	1	1
Fullerton	92831	0		2	
	92832	8		2	
	92833	3		2	
	92835	2	13	1	7
Garden Grove	92840	6		1	
	92841	2		2	
	92843	6		6	
	92844	4		0	
	92845	1	19	0	9
Huntington Beach	92646	2		2	
	92647	0		1	
	92648	1	3	1	4
Irvine	92602	2		2	
	92603	0		1	
	92604	0		1	
	92606	0		2	
	92612	3		4	
	92614	3		2	
	92617	2		0	
	92618	1		4	
	92620	0	11	1	17

OC City/Place	Zip Code	Destination			
		Home		Work	
La Habra	90631	5	5	2	2
Ladera Ranch	92694	2	2	1	1
Laguna Beach	92651	2	2	1	1
Laguna Hills	92653	1	1	4	4
Laguna Niguel	92677	9	9	4	4
Laguna Woods	92637	1	1	0	0
Lake Forest	92610	1		3	
	92630	7	8	9	12
Midway City	92655	0	0	1	1
Mission Viejo	92691	15		18	
	92692	3	18	0	18
Newport Beach	92625	0		1	
	92657	0		1	
	92660	4		3	
	92663	1	5	2	7
Orange	92865	1		2	
	92866	1		1	
	92867	3		0	
	92868	5		5	
	92869	3	13	1	9
Rancho Santa Margarita	92688	0	0	1	1
San Clemente	92672	0		1	
	92673	2	2	2	3
San Juan Capistrano	92675	2	2	0	0
Santa Ana	92701	15		8	
	92703	10		7	
	92704	11		10	
	92705	6		7	
	92706	3		3	
	92707	12	57	8	43
Silverado	92676	1	1	0	0
Stanton	90680	4	4	1	1
Tustin	92780	13	13	5	5
Westminster	92683	3	3	1	1
Inside Orange County			237		166

Outside Orange County			27		48

APPENDIX P

Infographics

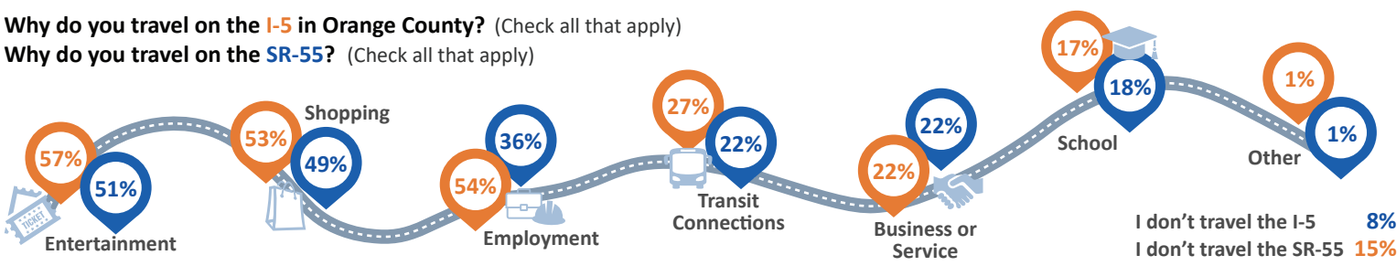
- Infographic ENG
- Infographic SPN

Bus Rapid Transit on Freeways Study

www.octa.net/freewaybrt

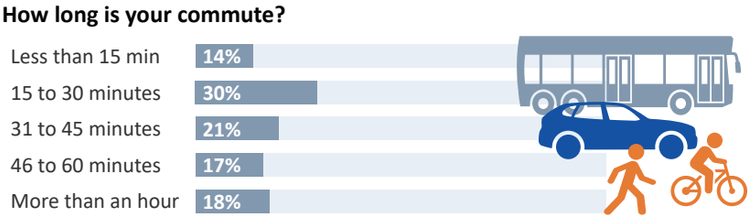
Outreach and Survey Results - Community Responses

Why do you travel on the I-5 in Orange County? (Check all that apply)
Why do you travel on the SR-55? (Check all that apply)

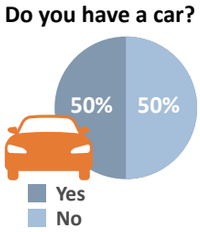


I don't travel the I-5 8%
I don't travel the SR-55 15%

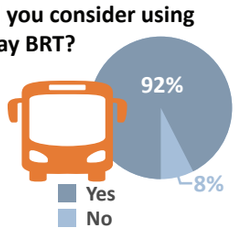
How long is your commute?



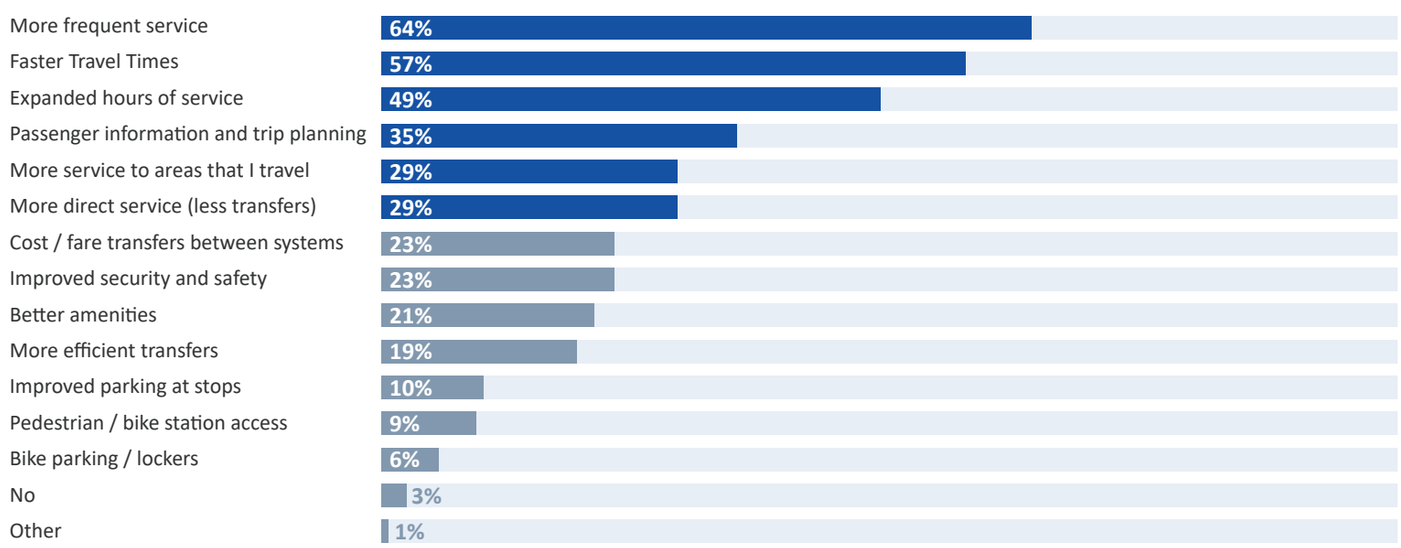
Do you have a car?



Would you consider using Freeway BRT?



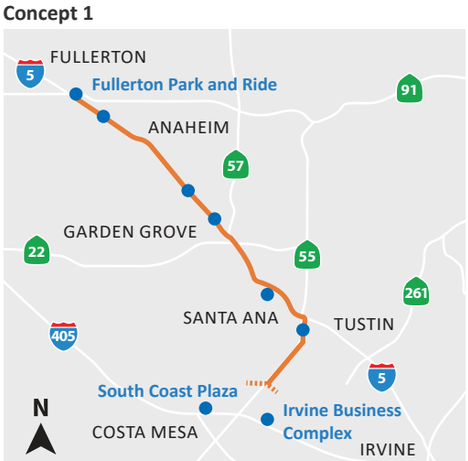
Are there any improvements that would make you ride transit more often? (Select up to 5)



Rate your interest in adding each of the three, proposed BRT routes.
(1 being the least important and 6 being the most important)

Concept 1: Fullerton to Costa Mesa / Irvine	47%
Concept 2: Fullerton to Laguna Niguel / Mission Viejo	54%
Concept 3: Santa Ana to Newport Beach	48%

Concept 1



Concept 2

Concept 3

Bus Rapid Transit on Freeways Study

What ethnic group do you consider yourself a part of or feel closest to?

Caucasian / White	28%
Latino / Hispanic	44%
African American / Black	3%
American Indian or Alaskan Native	3%
Asian	10%
Pacific Islander	0%
Middle Eastern	0%
Mixed Heritage	4%
Other	1%
Preferred not to say	7%

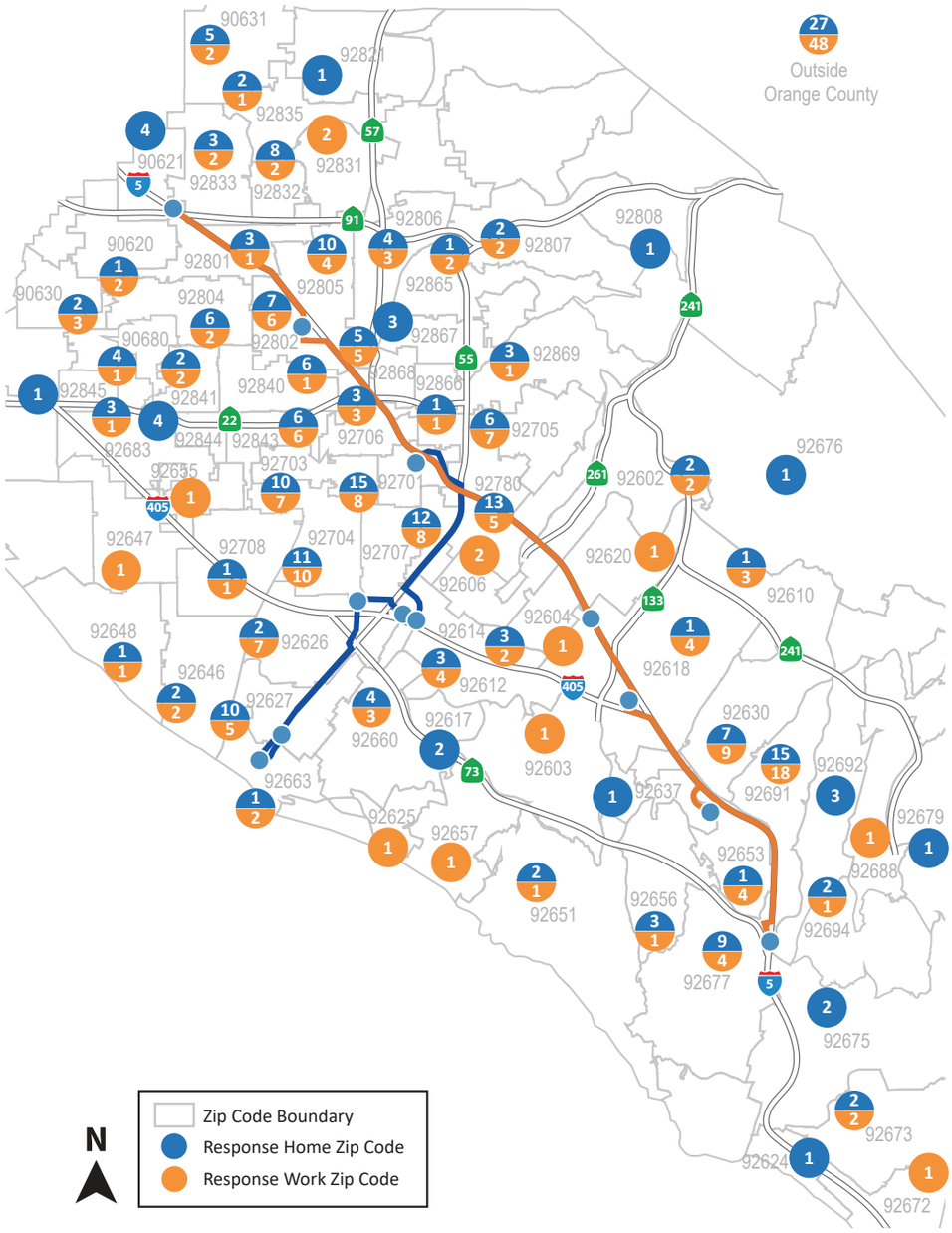
What is your estimated household income?

Under $30,000	33%
$30,000 - $49,000	14%
$50,000 - $64,999	9%
$65,000 - $84,999	6%
$85,000 - $99,999	4%
$100,000 or more	16%
Preferred not to say	18%

What is your age group?

13	0%
13-17	1%
18-24	15%
25-34	22%
35-44	18%
45-59	29%
60-64	7%
65+	6%
Preferred not to say	1%

Where are the responses coming from?



Community Engagement:

- E-mailed **15,775+** project notices to bus riders and project stakeholders
- Advertised in Spanish and Vietnamese newspapers
- Hosted **1** Stakeholder Roundtable webinar and **1** public webinar attracting **38** participants, and uploaded **3** pre-recorded presentation online videos for those that could not attend
- Gathered **279** public comments with survey respondents contributing **141** of the comments
- All materials were shared in **English**, **Spanish**, and **Vietnamese**
- Provided a multi-language hotline for interested parties to take the survey and comment on the study
- Shared an e-communication tool kit with **34** local cities and **9** OCTA committee/stakeholder organizations
- Promoted the project and survey with **5** Twitter posts, **6** OCTA Facebook posts, and **10** Facebook ads and **3** mobile geofencing ads with **485,550+** views
- Announced the project through **OCTA's On-the Move** blog and the press, resulting in **11** news articles and social media, blog and agency website posts
- Collected **281** completed surveys from September 25 to November 16, 2020

Stay Connected

Marissa Espino, Community Relations

(714) 560-5607

mespino@octa.net

octa.net/freewaybrt

OCTA A186 Caltrans

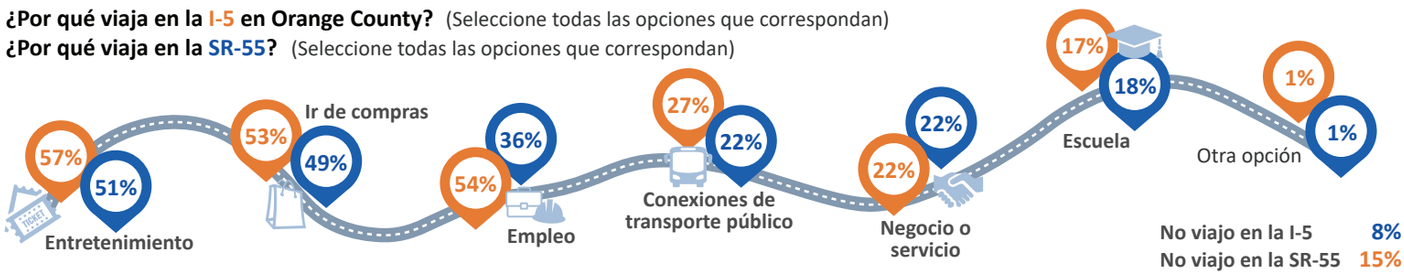
February 2021

El Estudio sobre autobuses de transito rápido en las autopistas (BRT en inglés)

Resultados de la Encuesta y el Alcance – Respuestas de la Comunidad

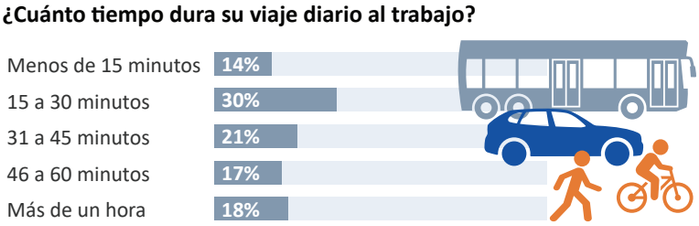
www.octa.net/freewaybrt

¿Por qué viaja en la I-5 en Orange County? (Seleccione todas las opciones que correspondan)
¿Por qué viaja en la SR-55? (Seleccione todas las opciones que correspondan)

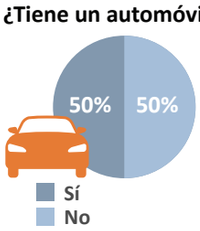


No viajo en la I-5 8%
No viajo en la SR-55 15%

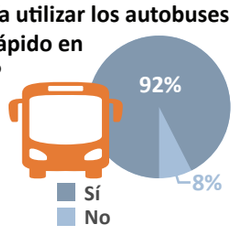
¿Cuánto tiempo dura su viaje diario al trabajo?



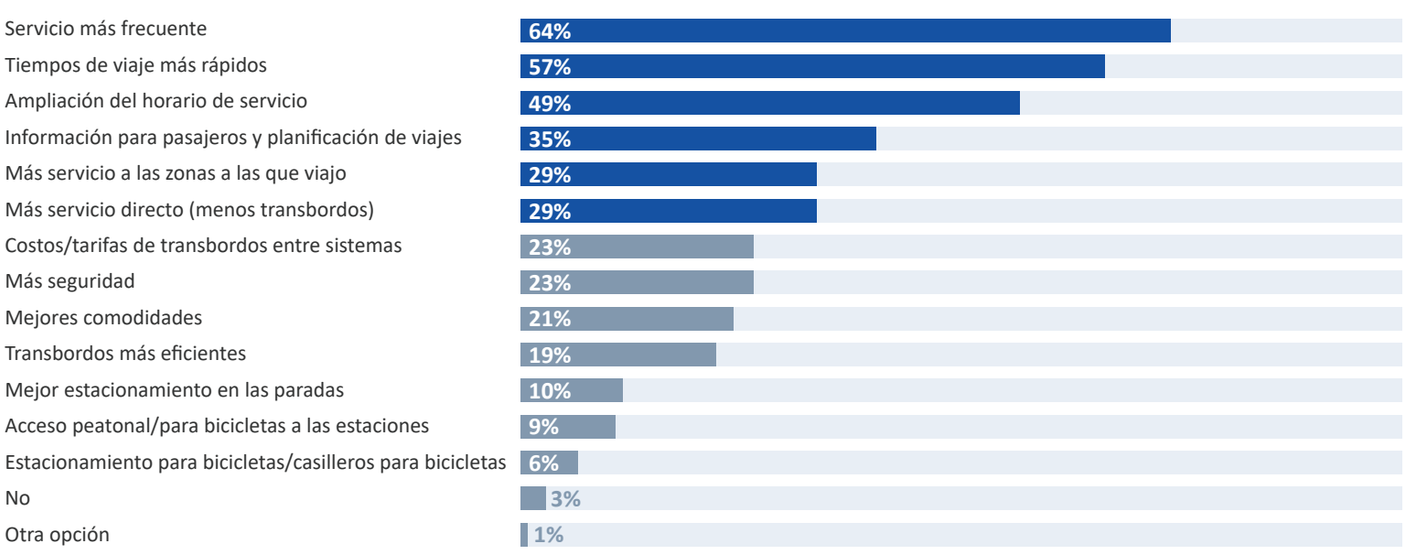
¿Tiene un automóvil?



¿Consideraría utilizar los autobuses de tránsito rápido en la autopista?



¿Hay alguna mejora que le haría viajar en transporte público con más frecuencia? (Seleccione hasta 5 opciones)



¿Hay alguna mejora que le haría viajar en transporte público con más frecuencia?
(El 1 representa la opción menos favorable y el 6 representa la opción más favorable para cada ruta)

Concepto 1: Fullerton a Costa Mesa / Irvine	47%
Concepto 2: Fullerton a Laguna Niguel / Mission Viejo	54%
Concepto 3: Santa Ana a Newport Beach	48%

Concepto 1

Concepto 2

Concepto 3

El Estudio sobre autobuses de transito rápido en las autopistas

¿De qué grupo étnico se considera parte o a qué grupo étnico se siente más cercano?

Caucásico/De raza blanca	28%
Latino/Hispano	44%
Africano Americano/De raza negra	3%
Indio americano o nativo de Alaska	3%
Asiático	10%
Nativo de las islas del Pacífico	0%
Del Medio Oriente	0%
Grupo étnico mixto	4%
Otra opción	1%
Prefiero no responder	7%

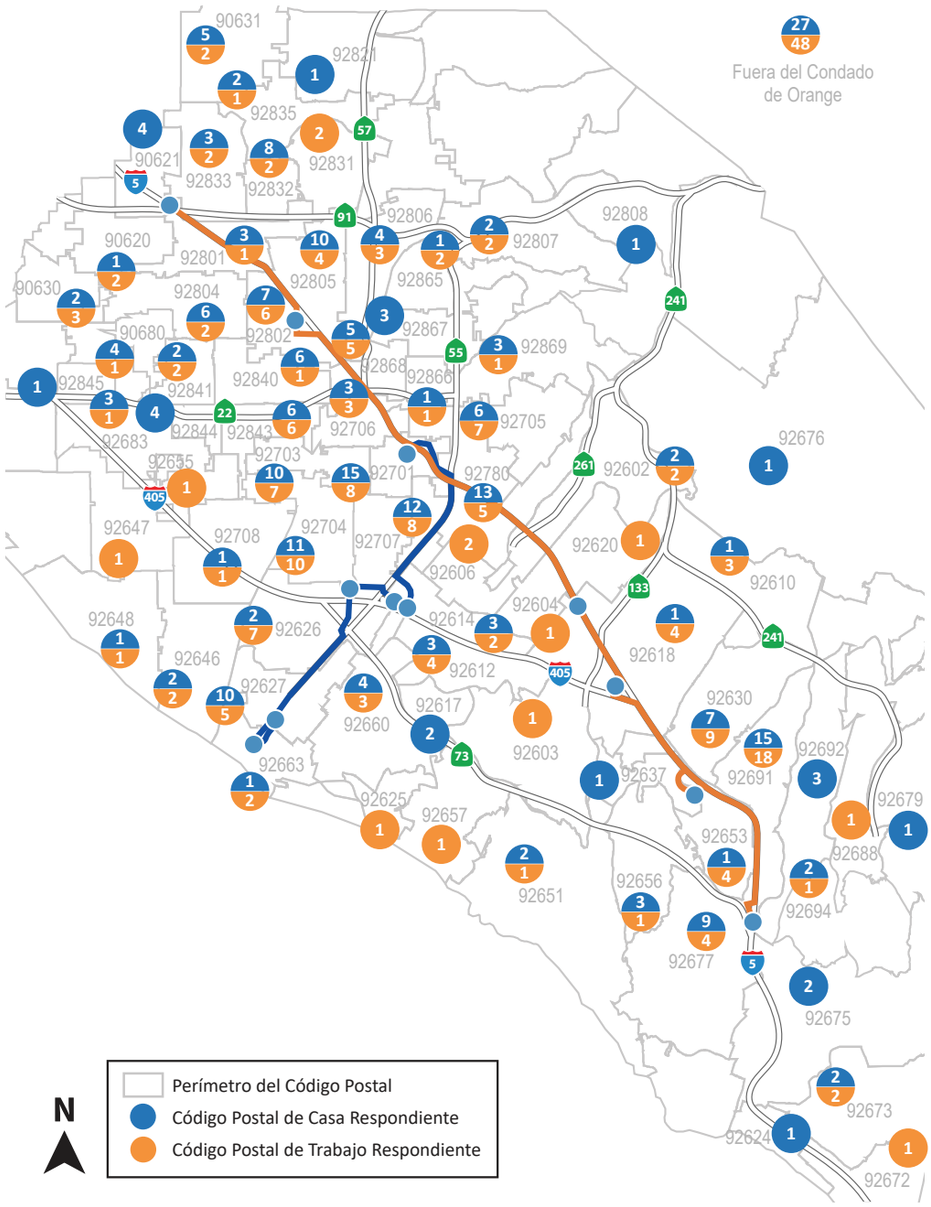
¿Cuál es su ingreso familiar aproximado?

Menos de $30,000	33%
$30,000 - $49,000	14%
$50,000 - $64,999	9%
$65,000 - $84,999	6%
$85,000 - $99,999	4%
$100,000 o más	16%
Prefiero no responder	18%

¿Qué edad tiene?

Menos de 13	0%
13-17	1%
18-24	15%
25-34	22%
35-44	18%
45-59	29%
60-64	7%
65 o más	6%
Prefiero no responder	1%

¿De dónde vienen las respuestas?



Participación de la Comunidad:

15,775 avisos de proyectos fueron enviados por correo electrónico a los usuarios de autobuses y a las partes interesadas del proyecto

Se organizó **1** seminario web de mesa redonda de partes interesadas y **1** seminario web público que atrajo a **38** participantes. Se subió **3** videos de presentación en línea pregrabados para aquellos que no pudieron asistir

Se recopilaron **279** comentarios públicos y los encuestados contribuyeron con **141** de los comentarios

Se compartió un kit de herramientas de comunicación electrónica con **34** ciudades locales y **9** comités de OCTA/ organizaciones de partes interesadas

Todos los materiales se compartieron **en inglés**, **español** y **vietnamita**

Se proporcionó una línea directa en varios idiomas para que las partes interesadas respondieran la encuesta y comentaran sobre el estudio

Anunciado en periódico español y vietnamita

Se promociono el proyecto y la encuesta con **5** publicaciones de Twitter, **6** publicaciones de OCTA en Facebook y **10** anuncios de Facebook y **3** anuncios de geofencing móvil con **485,550+** visitas

Se anunció el proyecto a través del blog **On-the Move de OCTA** y la prensa, lo que resultó en **11** artículos de noticias y publicaciones en redes sociales, blogs y sitios web de agencias

Se recopilaron **281** encuestas completadas del 25 de septiembre al 16 de noviembre del 2020

Mantengase Conectado

Marissa Espino, Relaciones Comunitarias

(714) 560-5607

mespino@octa.net

octa.net/freewaybrt

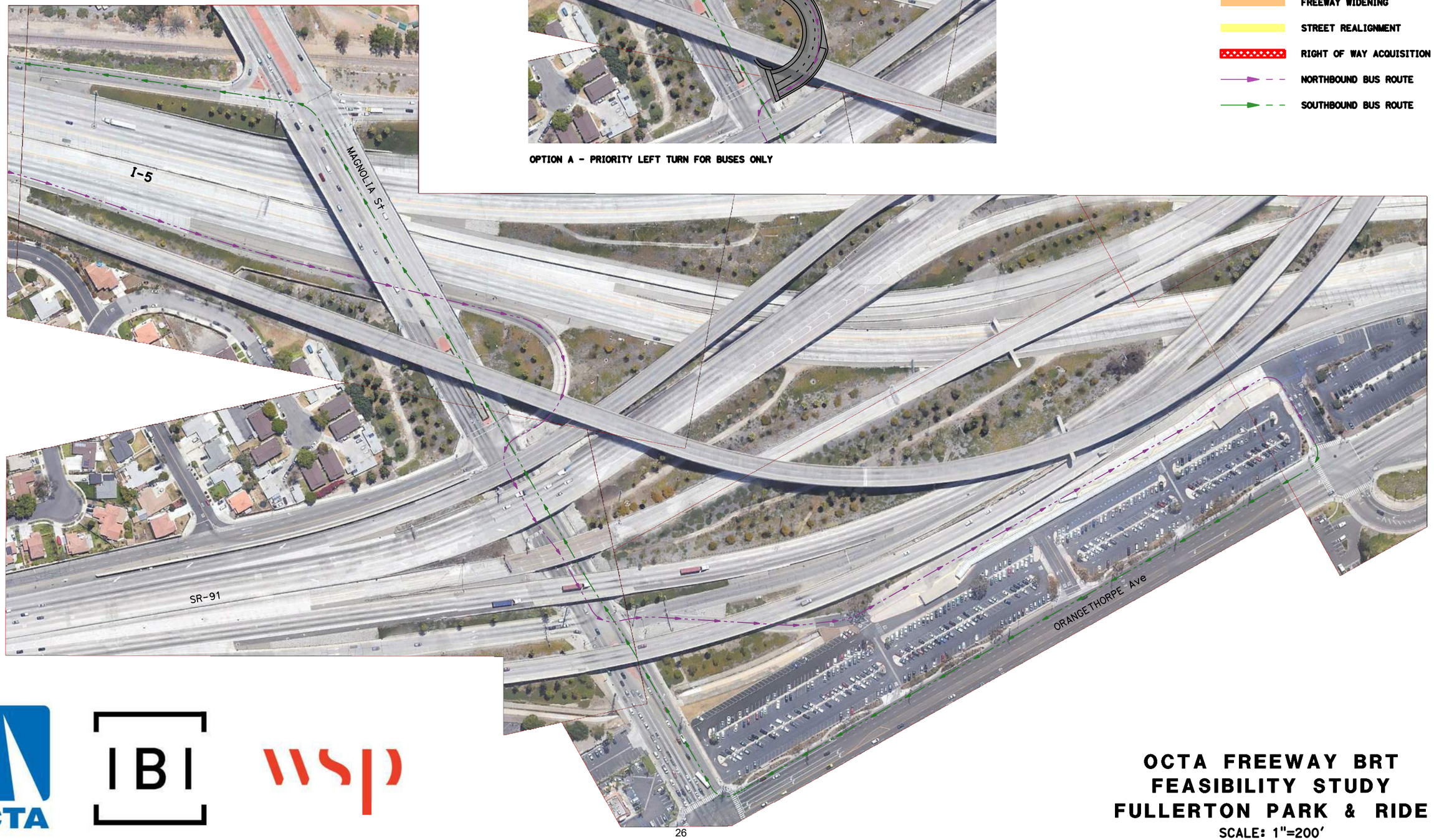
OCTA A188 Caltrans

Febrero 2021

Appendix C: Conceptual Alternatives

Figure 3.7

OPTION A - PRIORITY LEFT TURN FOR BUSES ONLY



LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE

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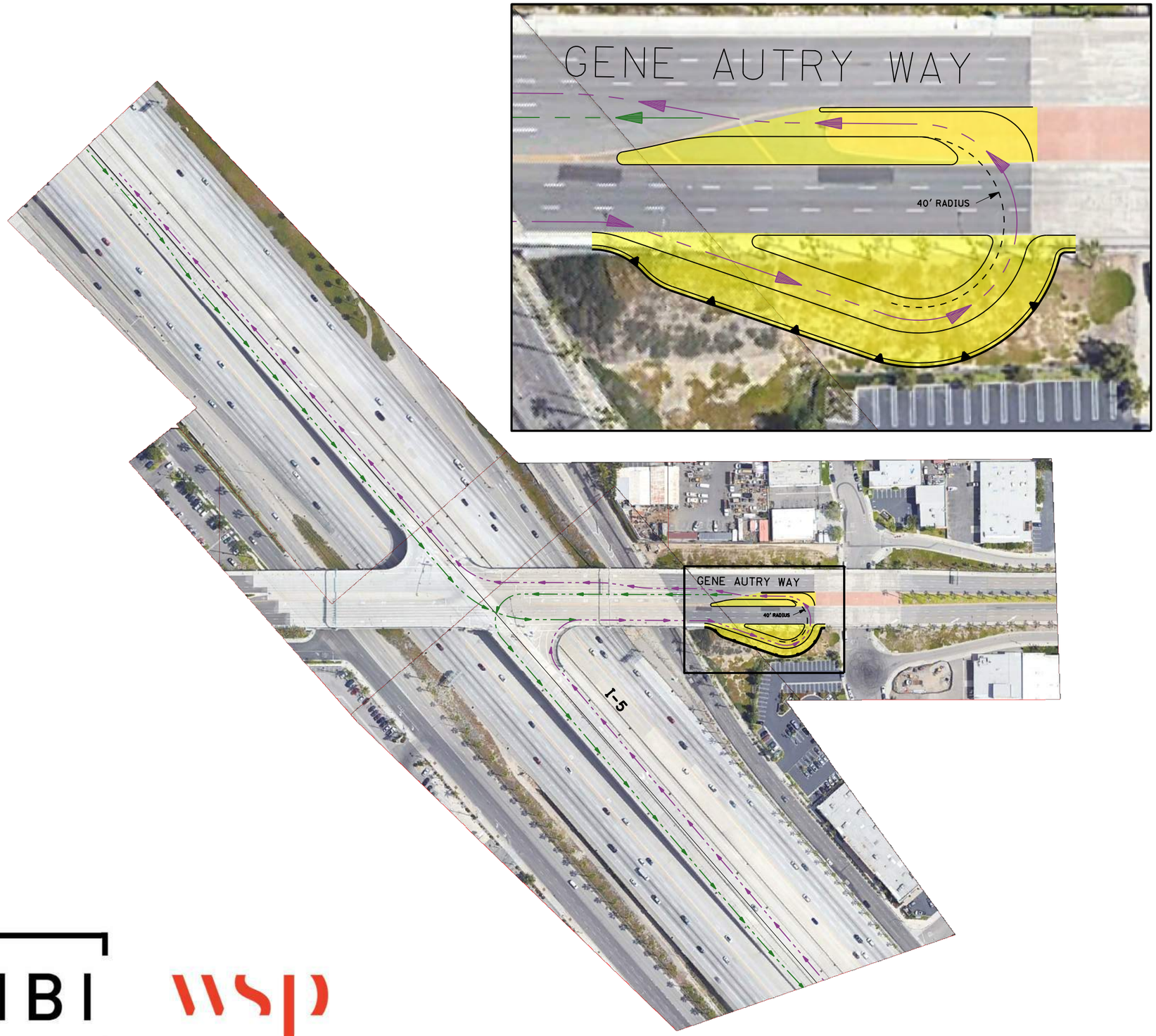
OCTA FREEWAY BRT FEASIBILITY STUDY
FULLERTON PARK & RIDE
SCALE: 1"=200'

Figure 3.8

OCTA FREEWAY BRT
FEASIBILITY STUDY
LA PALMA SIDE RUNNING
SCALE: 1"=200'

Figure 3.9



LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE

OCTA FREEWAY BRT
FEASIBILITY STUDY
GENE AUTRY DAR
SCALE: 1"=200'

Figure 3.10

LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE

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OCTA FREEWAY BRT FEASIBILITY STUDY
SARTC ACCESS
SCALE: 1"=200'

Figure 3.11

LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE

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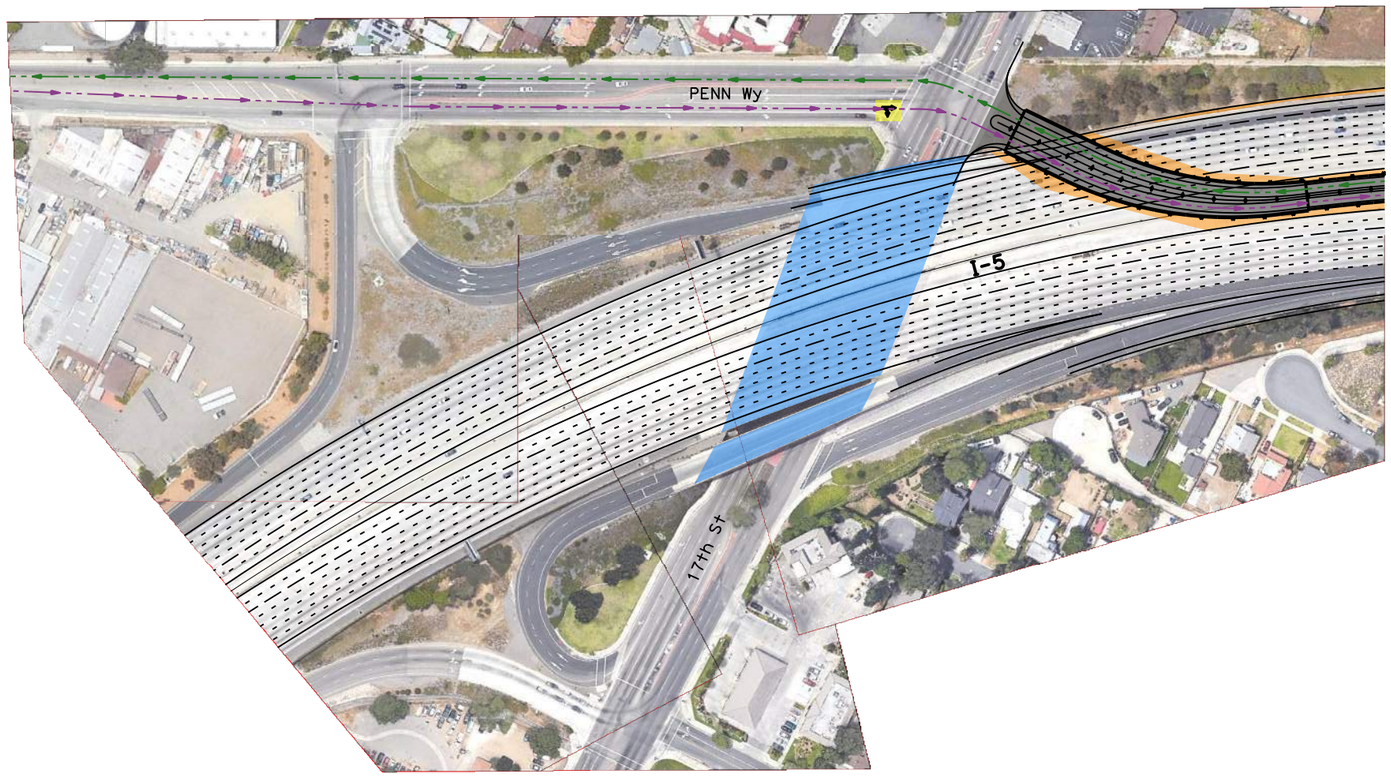
OCTA FREEWAY BRT FEASIBILITY STUDY
SARTC ACCESS
SCALE: 1"=200'

Figure 3.12

LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE



OCTA FREEWAY BRT
FEASIBILITY STUDY
DAR TO PENN WAY
SCALE: 1"=200'

Figure 3.13

LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE

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OCTA FREEWAY BRT FEASIBILITY STUDY DAR TO PENN WAY

SCALE: 1"=200'

Figure 3.14

LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE

OCTA FREEWAY BRT
FEASIBILITY STUDY
JEFFREY ROAD SIDE RUNNING
SCALE: 1"=200'

Figure 3.15

LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE

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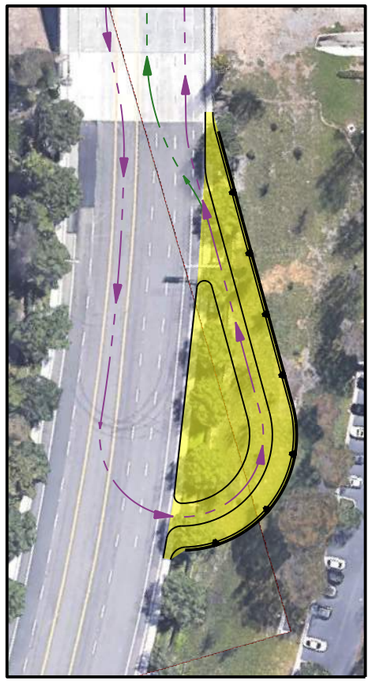
OCTA FREEWAY BRT FEASIBILITY STUDY
JEFFREY ROAD IN LINE
SCALE: 1"=200'

Figure 3.16



LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE

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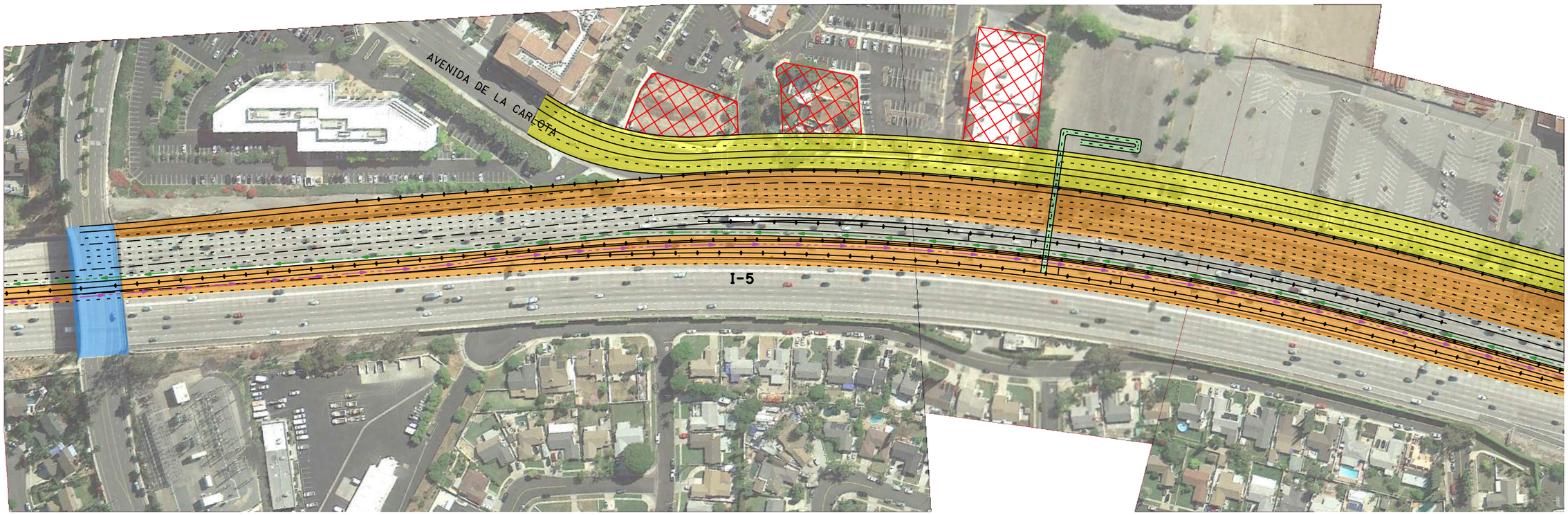
OCTA FREEWAY BRT FEASIBILITY STUDY
BARRANCA PARKWAY DAR
SCALE: 1"=200'

Figure 3.17



OCTA FREEWAY BRT
FEASIBILITY STUDY
LAGUNA HILLS IN LINE
SCALE: 1"=200'

Figure 3.18

LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE

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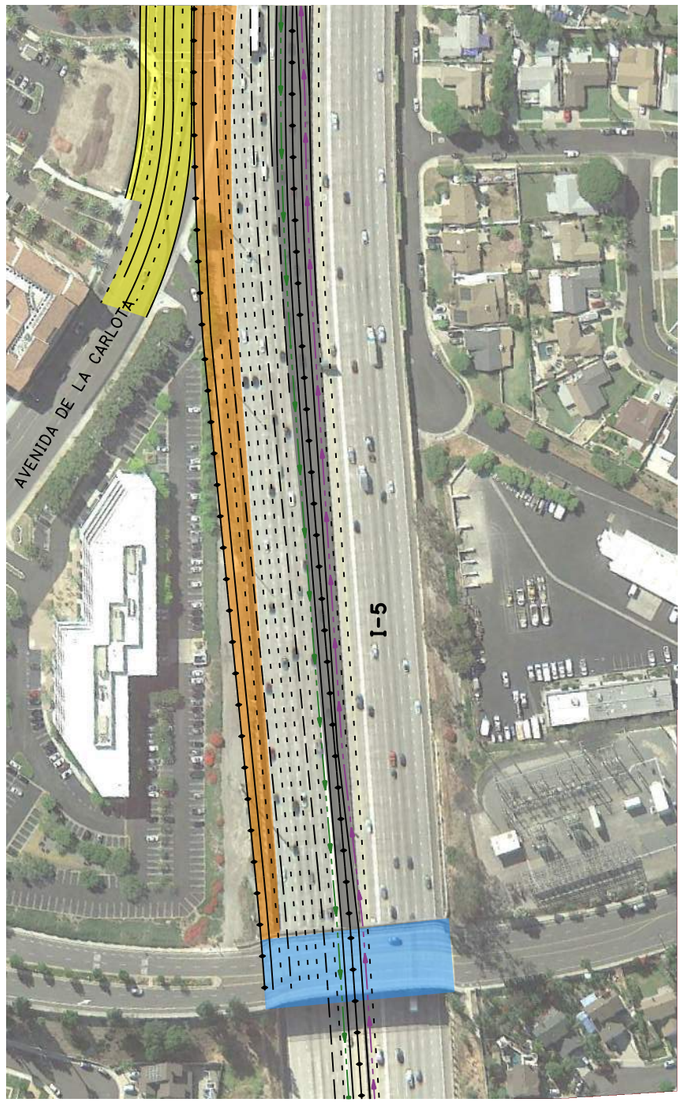
OCTA FREEWAY BRT FEASIBILITY STUDY
LAGUNA HILLS IN LINE
SCALE: 1"=200'

Figure 3.19



LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE

OCTA FREEWAY BRT
FEASIBILITY STUDY
LAGUNA HILLS DAR
SCALE: 1"=200'

Figure 3.20

LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE

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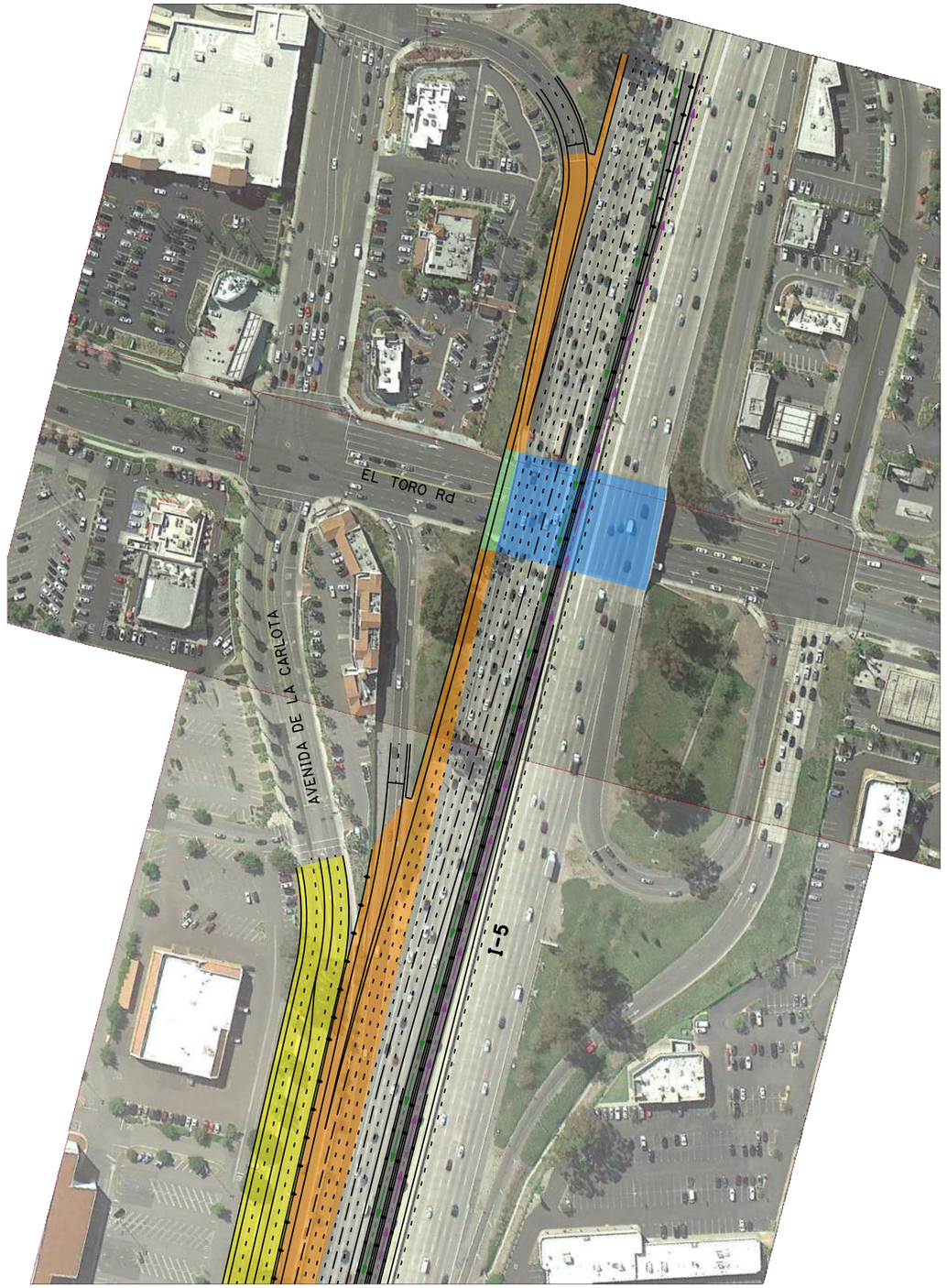
OCTA FREEWAY BRT FEASIBILITY STUDY LAGUNA HILLS DAR

SCALE: 1"=200'

Figure 3.21



LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE

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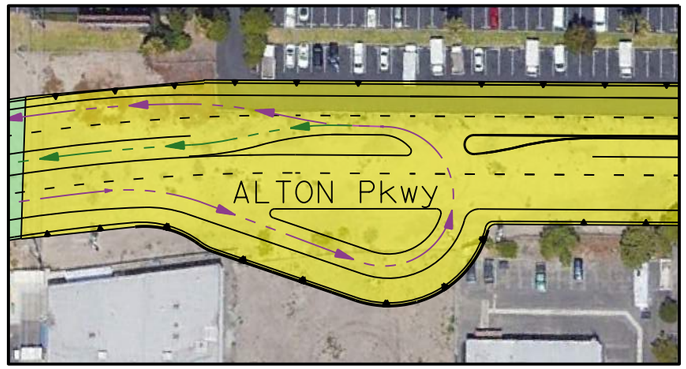
OCTA FREEWAY BRT FEASIBILITY STUDY LAGUNA HILLS DAR

SCALE: 1"=200'

Figure 3.22

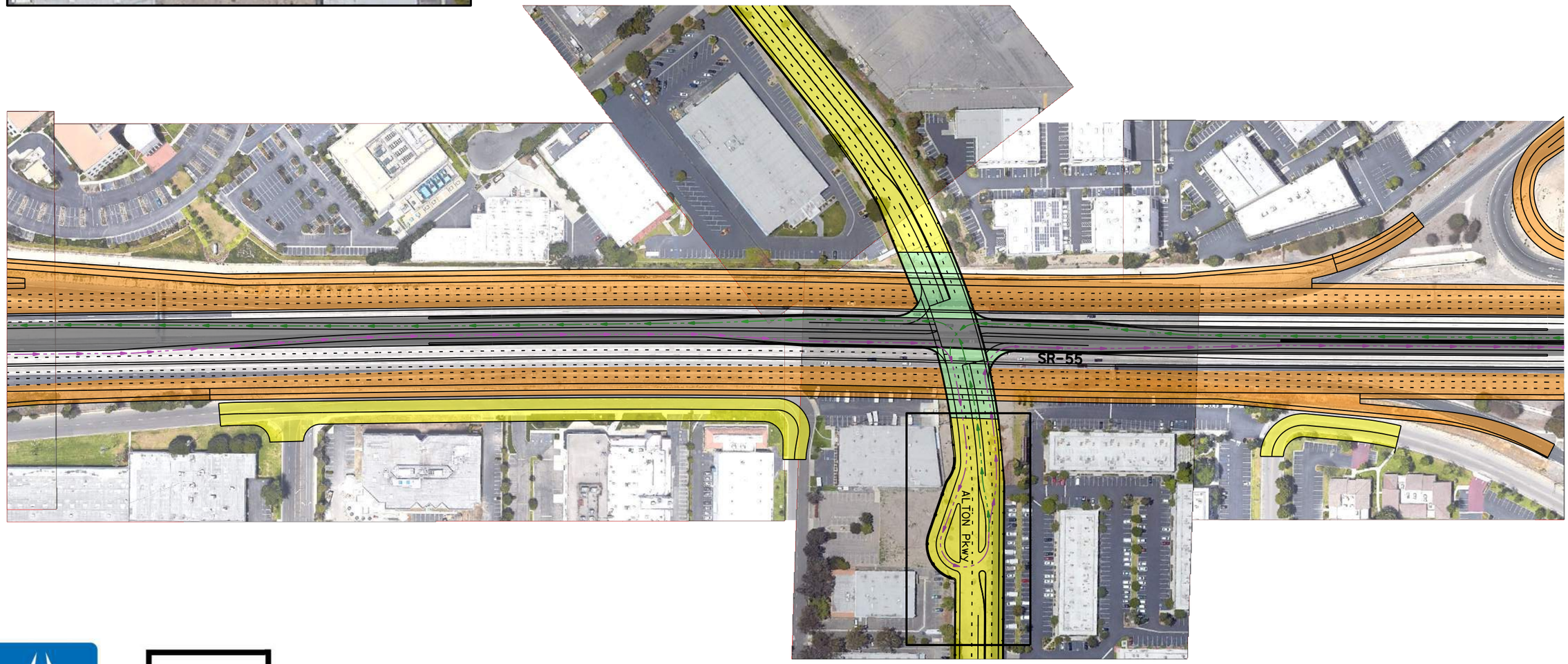
OCTA FREEWAY BRT
FEASIBILITY STUDY
LAGUNA NIGUEL ACCESS
SCALE: 1"=200'

Figure 3.23



LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE



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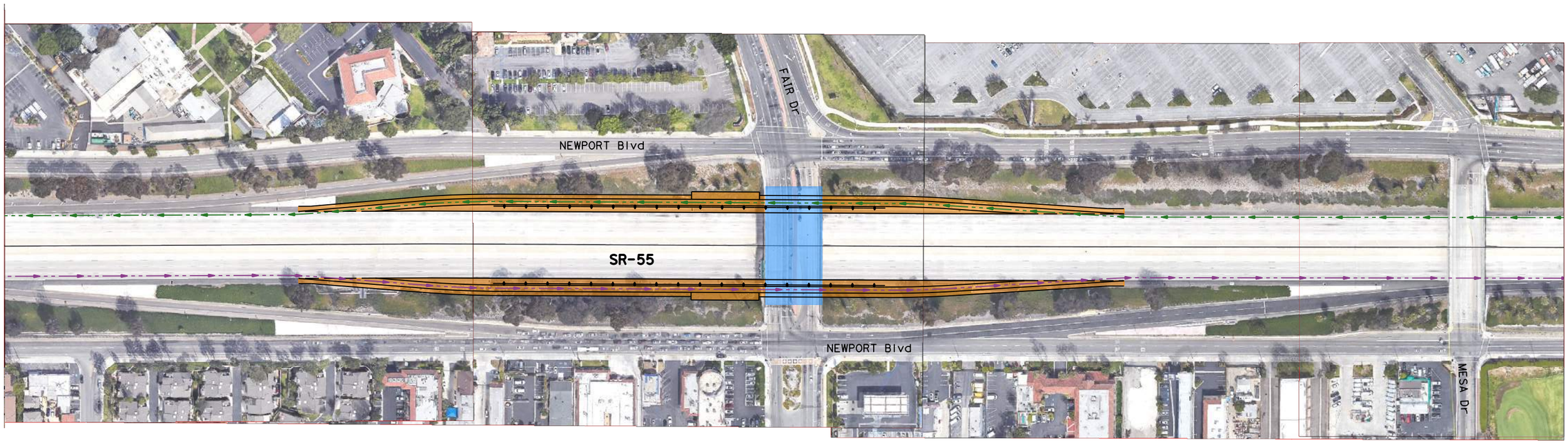
OCTA FREEWAY BRT FEASIBILITY STUDY
ALTON AVENUE DAR
SCALE: 1"=200'

Figure 3.24

LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE



OCTA FREEWAY BRT
FEASIBILITY STUDY
FAIR DRIVE SIDE RUNNING
SCALE: 1"=200'

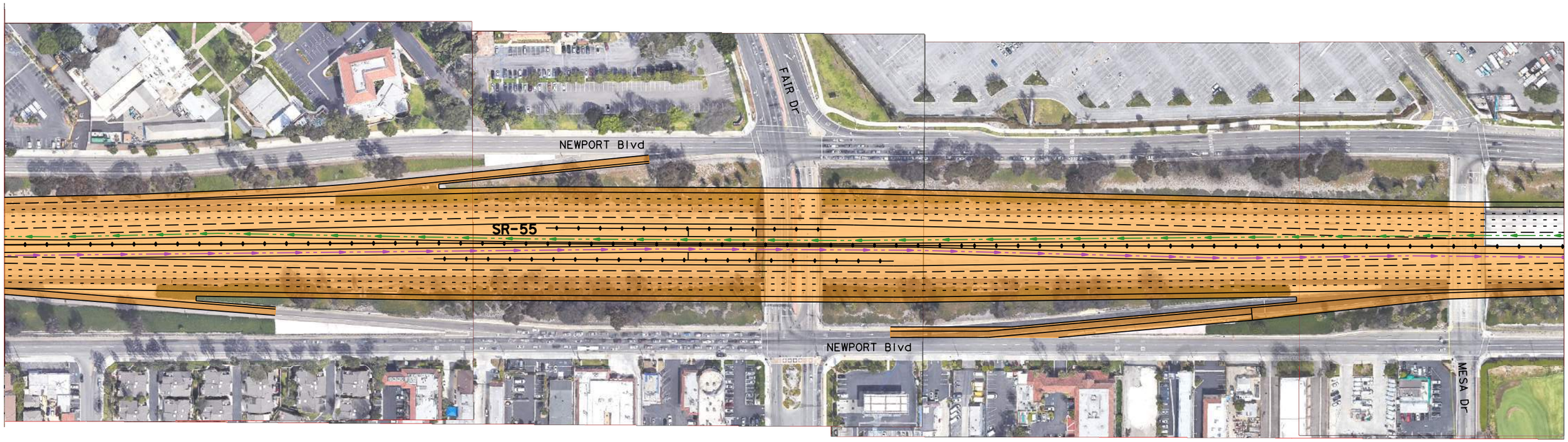
Figure 3.25

NOTE:

1. Assumes Extension of HOV/Managed Lanes south of current terminus at I-405 to at least Fair Drive.

LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE



OCTA FREEWAY BRT
FEASIBILITY STUDY
FAIR DRIVE IN LINE
SCALE: 1"=200'

Figure 3.26

PROS
-LOCATION VISIBLE FROM HOSPITAL
-BYPASSES 120 DEGREE RIGHT TURN

CONS
-10' WIDE PEDESTRIAN PLATFORM TO PREVENT DISRUPTION TO TRAFFIC FLOW WITHIN THE PARKING LOT
-14 PARKING STALLS TAKEN
-PEDESTRIAN/VEHICLE CONFLICTS
-POSSIBLE CONFUSION DUE TO MULTIPLE PLATFORMS

OPTION A - CORNER STATION

PROS
-NO PEDESTRIAN CONFLICTS
-14' WIDE PLATFORM FOR BETTER PEDESTRIAN FLOW

CONS
-MULTIPLE ROUTES ON SINGLE PLATFORM
-19 PARKING STALLS TAKEN

OPTION B - SUPERIOR Ave STATION

LEGEND

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- RAMP / RETAINED SECTION
- FREEWAY WIDENING
- STREET REALIGNMENT
- RIGHT OF WAY ACQUISITION
- NORTHBOUND BUS ROUTE
- SOUTHBOUND BUS ROUTE

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OCTA FREEWAY BRT FEASIBILITY STUDY HOAG HOSPITAL ACCESS

SCALE: 1"=200'

Appendix D: Constraints Analysis

Freeway BRT Concept Study

Task 3.3 Constraints Analysis
Draft

Prepared for Orange County Transportation Authority
by IBI Group
With support from WSP and KKCS
October 19, 2020

Table of Contents

Table of Contents (continued)

Figures

Tables

1 Introduction and Background

The Orange County Transportation Authority (OCTA) completed in January 2018 the OC Transit Vision, which highlighted the agency's goals and priorities for transit services and capital projects over the next 20 years. The vision statement for the OC Transit Vision is to **provide compelling and competitive transit service that expands transportation choices for current riders, attracts new riders, and equitably supports immediate and long-term mobility in Orange County.**

To fulfill this vision, OCTA has developed several strategies to provide high-speed, efficient services, while taking into account current and future transportation trends and demographic changes. One such strategies is the identification of **Transit Opportunity Corridors (TOC)**, or corridors through which future investment would most benefit and support the Orange County transit market.

Interstate 5 (I-5) and State Route 55 (SR 55) are two of the identified TOCs. These corridors are among the most dense and congested areas in the County and are both subjects of Comprehensive Multimodal Corridor Plans (CMCP), which will garner further investments to support alternative modes of transportation to single-occupancy vehicles throughout both corridor areas. The implementation of a Bus Rapid Transit (BRT) service is consistent with these efforts to alleviate congestion and reduce emissions through a multimodal approach.

This study aims to assess the suitability of a BRT along the I-5 and SR 55 corridors. It will focus on existing and projected conditions along the corridors, lessons learned from other freeway BRT projects in Southern California, opportunities and constraints, and conceptual plans for the development of two potentials BRT routes. The results from this study will guide OCTA's future investment along both corridors.

In the Task 2 Purpose and Need report, the project team reviewed existing conditions along the two corridors, transit and ridership data, demographic conditions and long-term prospects for the region. The team also documented key takeaways from other freeway BRT projects in Southern California, the Midwest and Canada. The Purpose and Need Report also looked at catchment areas along the two study corridors, and specifically at the origins and destinations of residents and workers that travel along these segments of I-5 and SR 55 for their daily commutes. This analysis led to the development of preliminary route alternatives that would address the travel demand and improve access to these key areas.

This document reviews the route and service alternatives proposed and looks at constraints and guidelines that could hinder the feasibility of each of these options. The constraints include policy requirements, existing projects, as well as physical limitations at specific focus areas. This constraints analysis will guide decision-making and the final selection of the preferred route for a Freeway BRT along I-5 and SR 55.

2 Route Alternatives

2.1 Main Alternatives

Stemming from the existing conditions evaluation, multiple catchment areas prime for a potential station location were identified. These catchment areas were determined based upon high residential and employment density and current ridership statistics. The catchment areas along each of the two corridors are shown below:

Table 2.1: Study Corridor Catchment Areas

#	**Interstate 5 Catchment Areas**	#	**State Route 55 Catchment Areas**
1	Fullerton Park and Ride	12	McFadden Ave
2	La Palma Ave/ Lincoln Ave	13	Irvine Business Complex/ Santa Ana Airport
3	Disneyland/ Anaheim Blvd/ Gene Autry	14	South Coast Plaza
4	State College Blvd/ UCI Medical	15	Bristol St
5	SARTC/ Downtown Santa Ana	16	17th Street/ Downtown Costa Mesa
6	1st Street	17	Hoag Hospital/ Newport Beach
7	Newport Blvd		
8	Jeffrey Blvd/ Northwood Irvine		
9	Spectrum		
10	LHTC/ El Toro		
11	Mission Viejo/ Laguna Niguel Metrolink		

Based within the confines of the existing corridor conditions and guiding principles of freeway Bus Rapid Transit (BRT), it is possible to implement successful and effective freeway BRT service along the I-5 and SR 55. In order to serve the greatest number of riders, three main complementary all-day service routes have been identified along the I-5 and SR 55 corridors. Route 2 has an additional service alternative. Service alternatives are shown in Figures 2.1 through 2.3. The routes are as follows:

Route 1: Fullerton to Irvine. Stations at:

- Fullerton Park and Ride (new HOV drop ramps or existing Magnolia Ave ramps)
- La Palma (new in-line station or side-running station)
- Disneyland (existing SB Disneyland Dr DAR & NB Disney Way DAR with arterial travel between DARS; or new in-line station at Anaheim Bl; or use of existing Gene Autry Way DARs)
- UCI Medical (new in-line station)

- SARTC (existing SB Grand Av DAR and new NB DAR)
- McFadden (new in-line station)
- Irvine Business Complex/ South Coast Plaza (new DAR at Alton Ave)

Route 2A: Fullerton to Laguna Niguel. Stations at:

- Fullerton Park and Ride
- La Palma
- Disneyland
- UCI Medical
- SARTC
- Jeffrey Park and Ride (new in-line or side running station)
- Irvine/ Spectrum (new NB and SB Barranca Pkwy DARs; or use of existing NB Barranca Pkwy DAR and new SB Barranca Pkwy DAR)
- Laguna Hills (new in-line station near Laguna Hills Mall; or off-line station with DAR)
- Laguna Niguel (new drop ramp or existing Crown Valley Ramp)

Route 2B: Anaheim to Laguna Niguel. Stations at:

- Same as above but terminates service to Disneyland to the north excluding the Fullerton Park and Ride and La Palma stations.

Route 3: SARTC to Newport. Stations at:

- SARTC
- McFadden
- Irvine Business Park/ South Coast Plaza
- Fair Dr (new in-line station or side-running station)
- 17th Street (arterial HOV 3+/transit lane, shoulder transit lane, or parallel Newport Blvd frontage)
- Hoag Hospital (on-street)

Figure 2.1: Route 1- Fullerton to Irvine

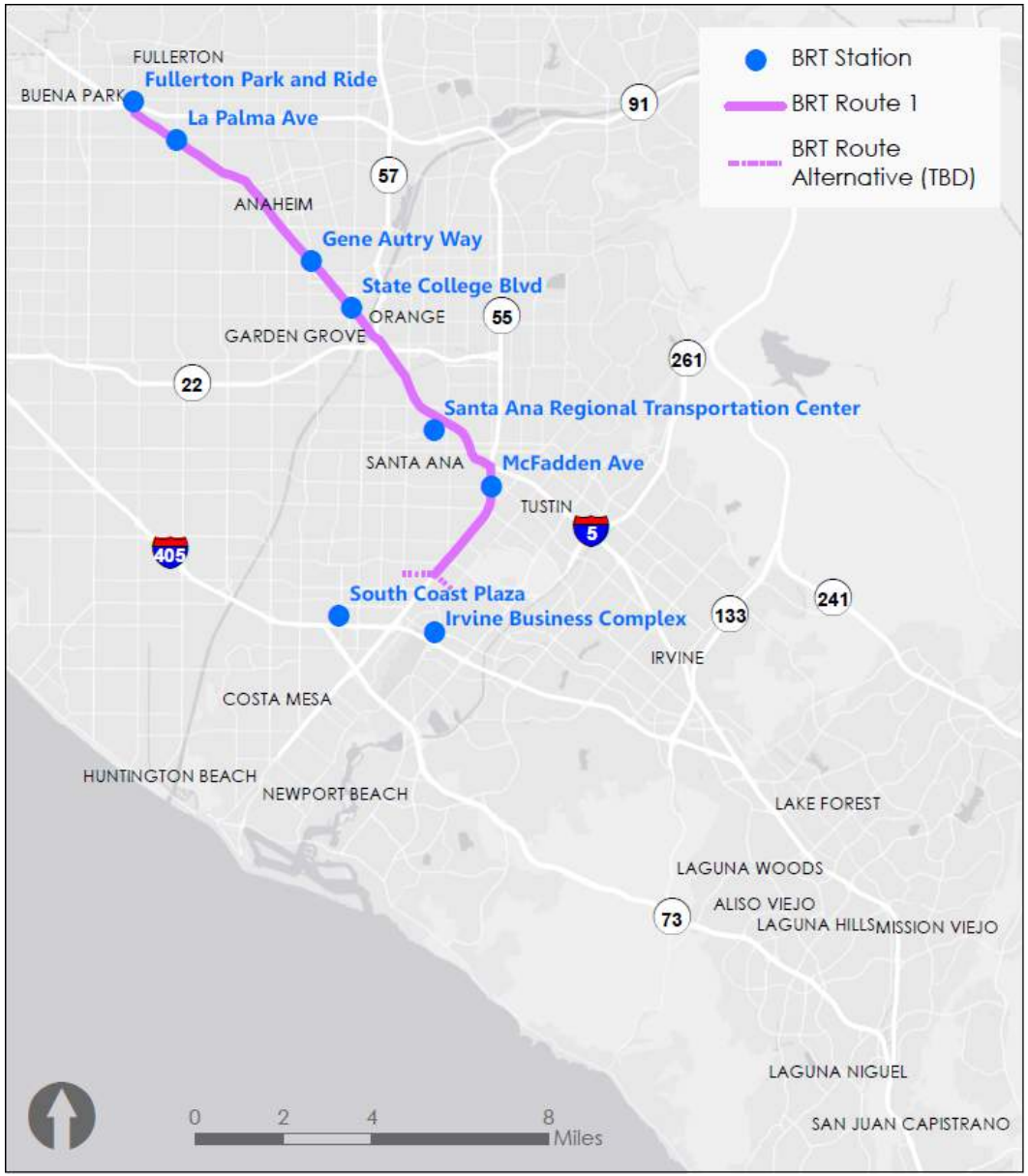
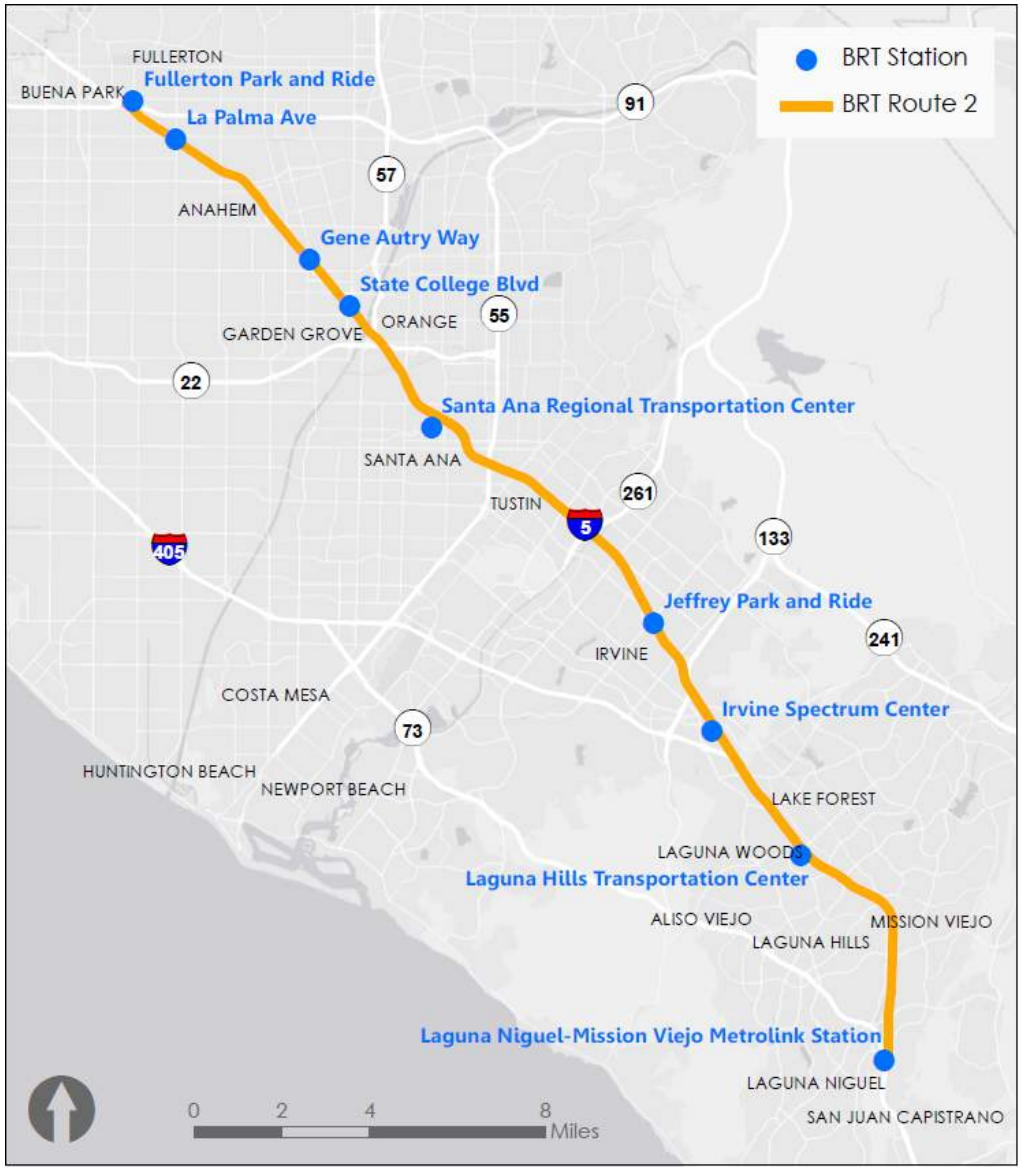
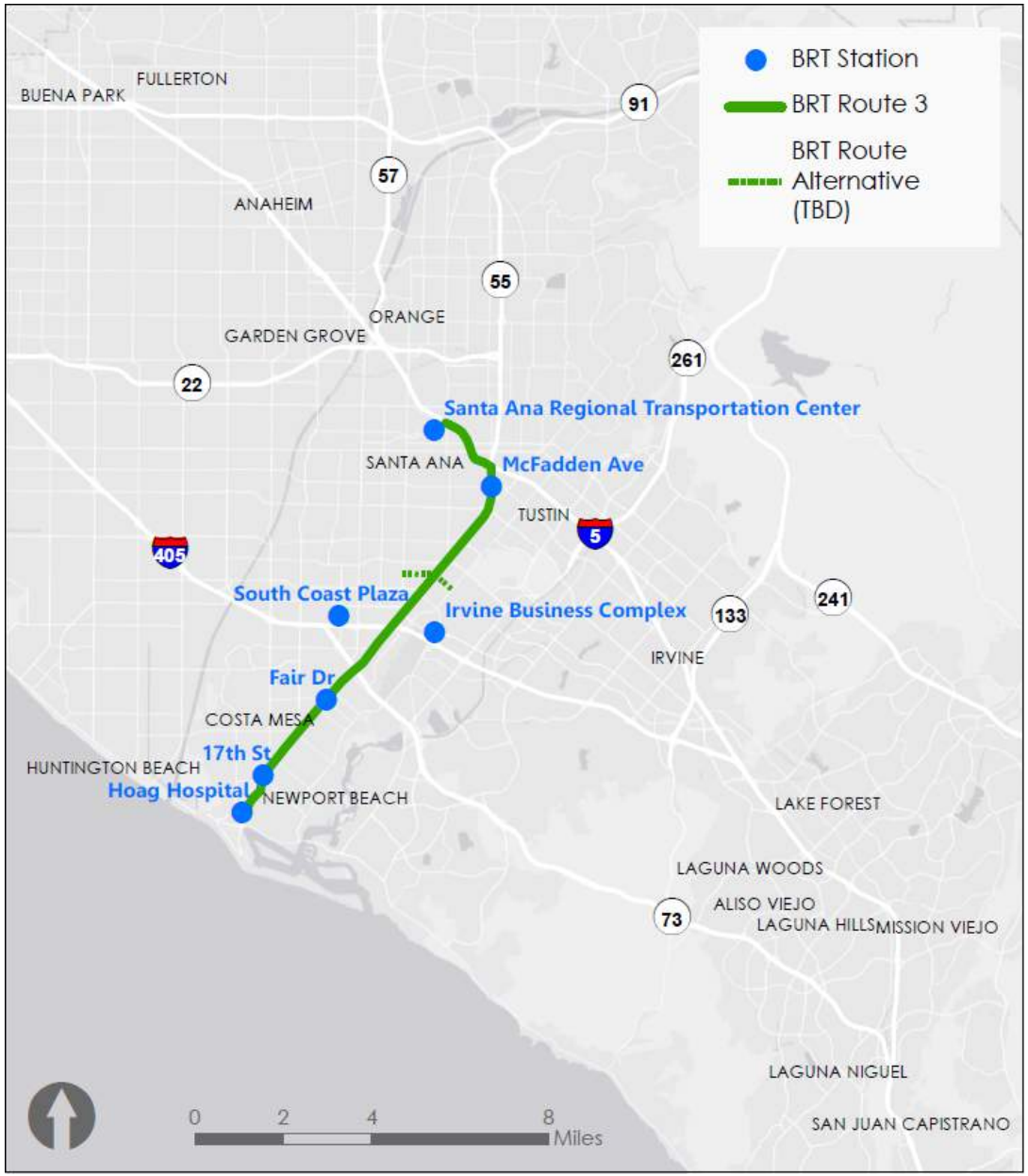


Figure 2.2: Route 2A- Fullerton Park and Ride to Laguna Niguel



Note: Route 2B is equivalent to Route 2A but originates/terminates at Gene Autry Way in Anaheim to the north, excluding the Fullerton Park and Ride and La Palma Stations.

Figure 2.3: Route 3- SARTC to Newport



2.2 Early Option BRT Alternatives

In addition to the main service alternatives, early option BRT and peak period commuter BRT alternatives are possibilities to determine the viability of alternatives along the two study corridors. Early option BRT allows OCTA to implement BRT within the near-term with very little infrastructure improvements. Peak period commuter BRT allows for a streamlined BRT service that takes riders directly from residential areas to major employment centers. Stations and characteristics of these alternatives are found below and depicted in Figures 2.4 and 2.5.

Early Option BRT

- Fullerton Park and Ride (existing Magnolia Ave ramps)
- Disneyland (existing SB Disneyland Dr DAR & NB Disney Way DAR with arterial travel between DARS)
- SARTC (existing SB Grand Av DAR and new NB DAR)
- Irvine Business Complex/ South Coast Plaza (existing ramps in SR 55/ I-405 interchange area)

Peak Period Commuter BRT

Concept:

- Starts at 2-3 residential pick-up locations, then continues non-stop to key job centers, with local circulation within the job centers

Stations:

- Residential: located near freeways with park and ride lots
- Job Centers: 4-5 stops at key locations

Operations:

- Maximize freeway operations by using freeway shoulder lanes as an interim low-speed bypass. Then use HOV lanes once they become HOV 3+

Figure 2.4: Early Option BRT

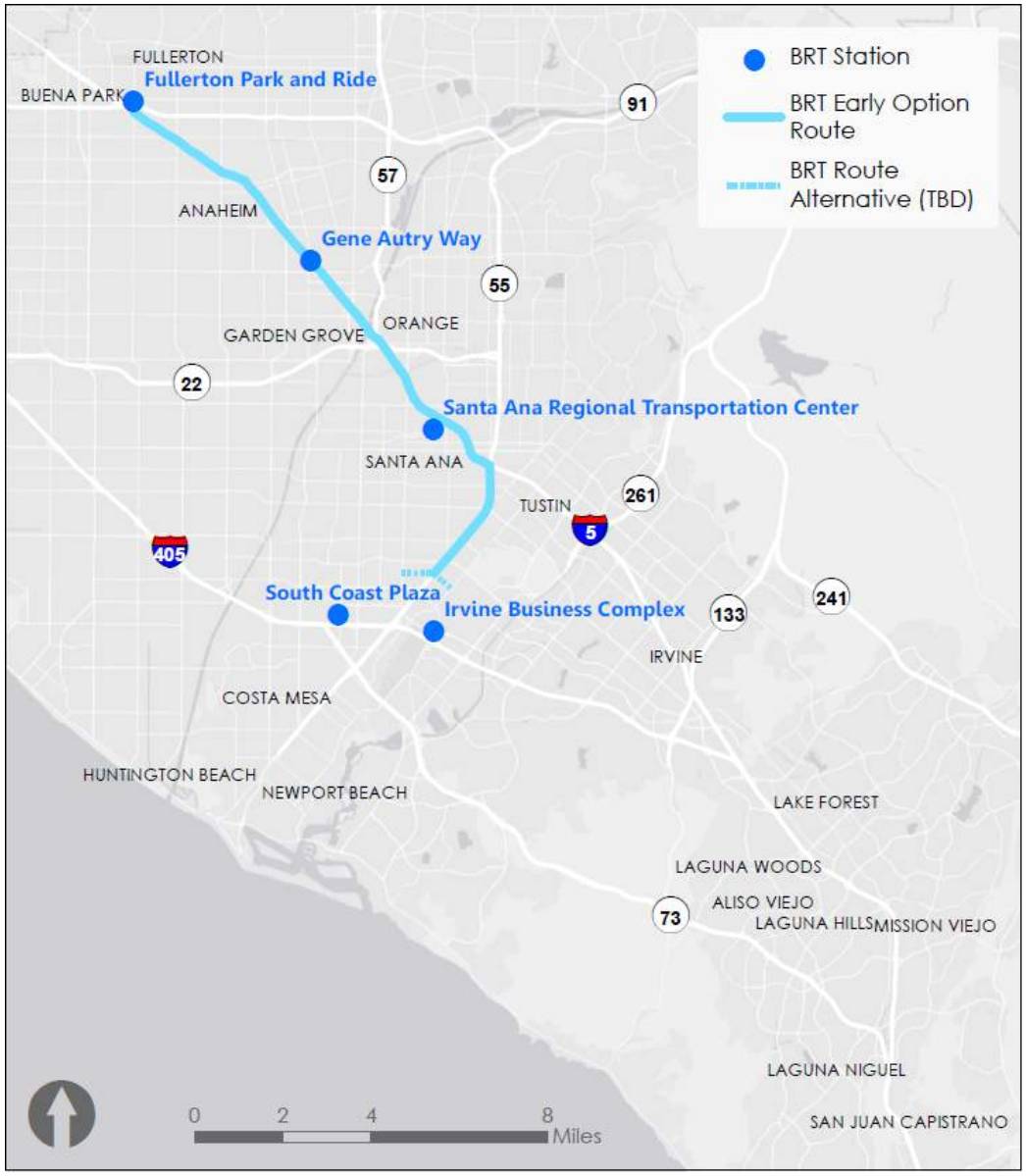
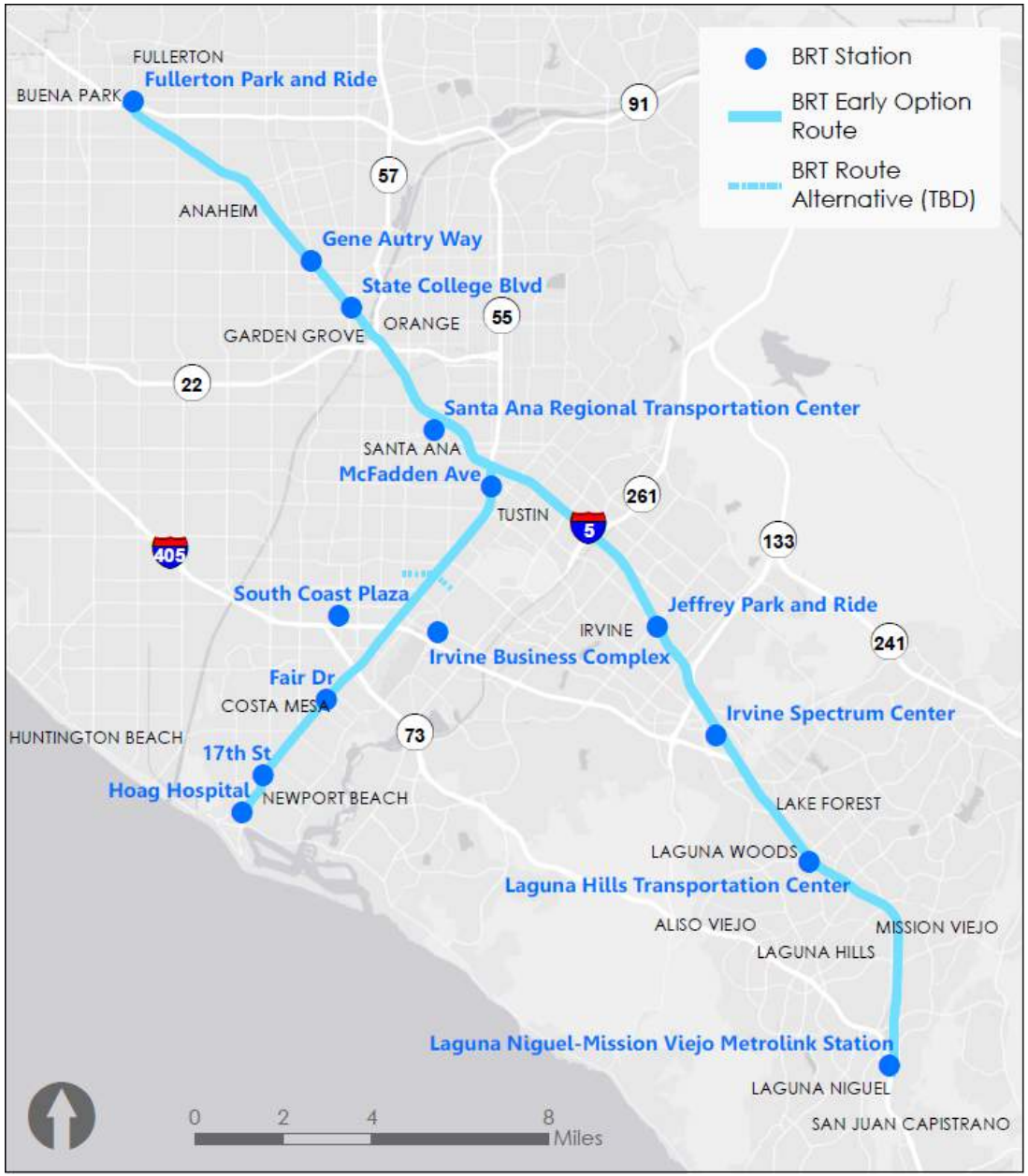


Figure 2.5: Peak Period Commuter BRT



The stations proposed for each catchment area are shown in Table 2.2 below:

Table 2.2: Station Type

Station Location	Study Fwy	Primary Design	Secondary Design	Facility Status	Parking Requirement
Fullerton Park and Ride	I-5	New HOV drop ramps	Existing Magnolia Ave ramps	Not built	Existing
La Palma/ Euclid	I-5	New in-line station	New side-running station	Not built	None
Disneyland/ Harbor	I-5	Existing SB Disneyland DAR & NB Disney Way DAR with arterial travel between DARS	New in-line station at Gene Autry	Existing	At Disney but partnerships needed
UCI Medical/ State College	I-5	New in-line station		Not built	None
SARTC/ Downtown Santa Ana	I-5	Existing SB Grand Av DAR & new NB DAR		Partially constructed	At SARTC
Jeffrey Park and Ride	I-5	New in-line station	New side-running station	Not built	Existing
Irvine Spectrum	I-5	New NB and SB Barranca Pkwy DARs	Existing NB Barranca Pkwy DAR and SB Barranca Pkwy DAR	Not built	Needed
LHTC/ El Toro	I-5	New in-line station near Laguna Hills Mall	Property swap and off-line station	Not built	At mall/LHTC but partnerships needed
Laguna Niguel/ Mission Viejo Metrolink	I-5	New drop ramp	Existing Crown Valley ramp	Not built	At Metrolink Station
McFadden	SR 55	New in-line station		Not built	None
Irvine Business Complex	SR 55	New DAR at Alton Ave with in-line stations	New DAR at Alton with arterial travel	Not built	At JWA but partnerships needed
South Coast Plaza	SR 55	New DAR at Alton Ave with in-line stations	New DAR at Alton without stat	Not built	At mall but partnerships needed
Fair Dr	SR 55	New in-line station	New side-running station	Not built	At fairgrounds but partnerships needed
17th Street	SR 55	Arterial HOV 3+/ transit lane or shoulder transit lane	Parallel Newport Blvd frontage on-street	Not built	None
Hoag Hospital/ Newport Beach	SR 55	On-street		Existing	At hospital but partnerships needed

3 Policy Requirements

This section states policy requirements related to Freeway BRT in Orange County. Relevant policies include carpool lane performance, Caltrans standards related to design of Freeway BRT, standards related to HOV drop ramps, accessibility, and transit policies in alignment with Metrolink and LOSSAN plans.

3.1 Caltrans BRT Design Principles

In 2007, Caltrans published the *Bus Rapid Transit: A Handbook for Partners* which provides guidance for the development of BRT in California. This handbook defines key design and operation features which can be attributed to BRT. These are:

- **Bus Priority:** BRT operations are given priority over general traffic, which results in reduced travel times. Planners should balance the competing needs between BRT and general traffic objectives in terms of increasing person-throughput capacity, while factoring transit priority measures and high-frequency service in the analysis.
- **Easily Accessible Stations:** Freeway stations should be located on, or immediately adjacent to, the facility and connected with high-speed direct access. Freeway BRT stations should provide safe and easy pedestrian access.
- **Capital Costs:** More effective BRT system exclusivity and customer benefit will yield a higher unit of cost of construction.
- **Cost-to-Effectiveness Conflicts:** Sacrificing BRT features for lower capital costs could diminish a BRT project's benefit to a level below acceptable operating cost effectiveness.
- **Service Attributes:** BRT service attributes such as station amenities, ride comfort, fare collection convenience, and real-time information dissemination, become more important when bus priority declines.
- **Adaptability:** BRT should be designed to take advantage of the inherent flexibility of buses to use a variety of running way opportunities available.
- **System Integration:** BRT must be operated as an integrated part of the overall regional transit network.
- **Service Simplicity:** The BRT route structure should be as direct as possible to enhance BRT customers' understanding and use of the service.

Freeway BRT should maintain these key design and operation features in order to provide the fastest service possible to the greatest number of riders. Specific to Orange County, a successful Freeway BRT service would provide bus priority and the greatest available running way exclusivity, high-end service attributes, and a high-level of network integration.

3.2 Carpool Lane Performance

According to the Federal Highway Administration 23 U.S. Code 166 (d)(2) Degraded Facility, the operation of an HOV facility shall be considered degraded if vehicles operating on the facility fail to maintain a minimum average operating speed of 45 miles per hour 90% of the time over a consecutive 180-day period during morning or evening weekday peak hour periods.

According to the Federal Highway Administration 23 U.S. Code 166 (d)(1) HOV Facility Management, the jurisdiction over the facility shall make significant progress toward bringing the facility in compliance wit the minimum average operating speed though either:

- Increasing the occupancy requirement for HOV lanes
- Varying the toll charged to vehicles allowed
- Discontinuing allowing non-HOV vehicle to use HOV lanes
- Increasing the available capacity of the HOV facility

Caltrans determined through the *2017 CA HOV Facilities Degradation Report and Action Plan* that Orange County had 168 degraded HOV lane-miles out of 217 total HOV lane-miles. In the report, the Interstate 5 HOV lanes were degraded northbound from Bake Parkway to Lincoln Avenue and southbound from SR 91 to Jeffrey Road. In addition, State Route 55 was degraded both northbound and southbound from Interstate 5 to Interstate 405.

In response to the Facilities Degradation Report, Caltrans gave the 'highest priority' to converting existing carpool infrastructure to dual HOT lanes on the I-5 from SR 91 to SR 55, as well as SR 55 from I-5 to I-405. Dual HOT lanes on the I-5 from SR 55 to SR 73 were a 'secondary priority'.

Freeway BRT is heavily influenced by carpool lane performance if the bus service is not in a dedicated transitway/ busway. Exclusive transitways along the entirety of the two corridors may not be available due to right-of-way conflicts. If a Freeway BRT service uses carpool lanes, the bus can only travel as fast as the operating speed in the facility. Degraded carpool lanes may slow the Freeway BRT service, which ultimately counters BRT principles and jeopardizes the success of the service. Caltrans and OCTA have begun managing carpool lane degradation by constructing dual HOV lanes and planning for dual HOT lanes. Greater passenger vehicle restrictions on managed lanes along the corridors would benefit Freeway BRT by allowing the service to operate at a high operating speed.

3.3 Drop Ramp Standards

The addition of drop ramps are critical to the success of Freeway BRT. A drop ramp connects a managed lane facility, usually at the center of a freeway, with an over or undercrossing street. Drop ramps promote Freeway BRT accessibility by allowing buses to access off-line stations without weaving though multiple general purpose lanes to exit. Speed of service also greatly improves as drop ramps are more direct, and avoid additional general purpose lane and on-ramp congestion.

The *Caltrans High-Occupancy Vehicle Guidelines for Planning, Design, and Operations (2003)* provides guidance on managed lanes, including drop ramps. Drop ramps provide ingress and egress between HOV lanes and streets, roads, or transit facilities. The guidelines state that planners should consider the following factors before the construction of drop ramps:

- Do the benefit/cost analysis for time saving and safety indicate a reasonable rate of return?
- Is there a high concentration of HOV demand, either for attractions or transit facilities?
- Does existing HOV weaving have a negative impact on through traffic?
- Will LOS be improved for the freeway, interchange and cross streets?

The typical geometric configurations, cross section and schematic plan to connect a drop ramp to overcrossing and an undercrossing are shown in Figures 3.1 and 3.2, respectively.

Figure 3.1: Typical Cross Section HOV Drop Ramp to Overcrossing and Undercrossing

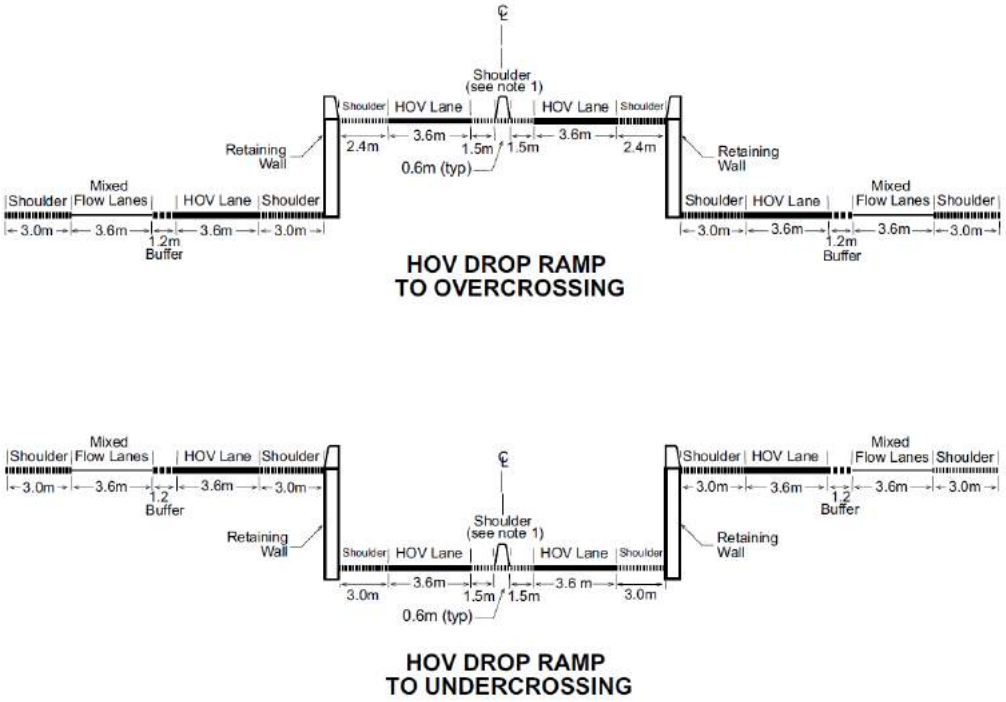
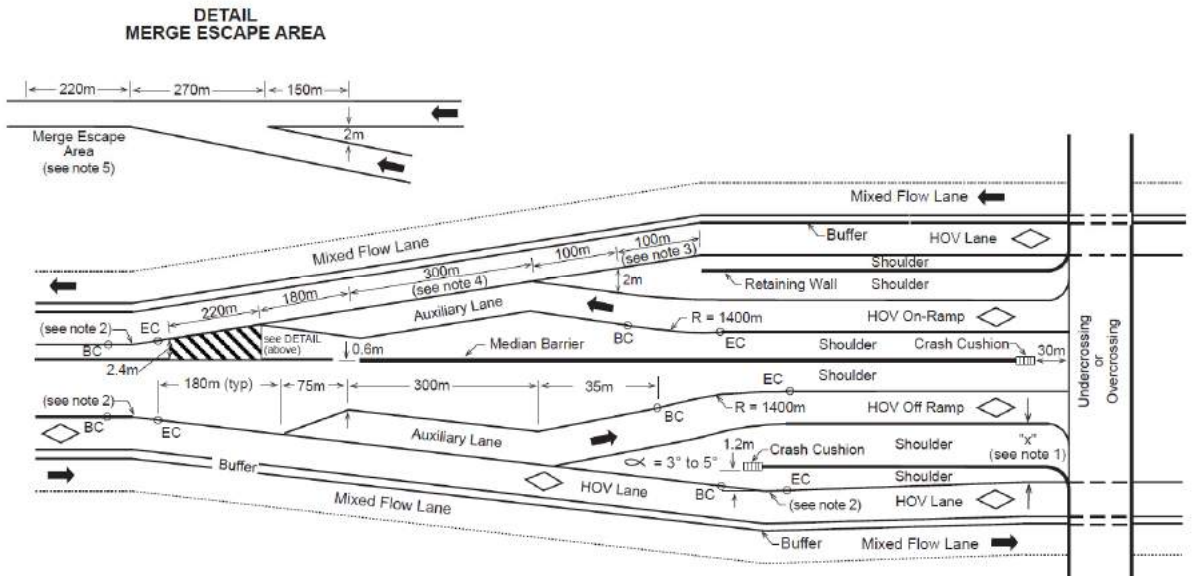


Figure 3.2: Typical HOV Drop Ramp Entrances and Exits



Notes:

1. Shoulder widths on HOV Drop Ramps shall conform to the Highway Design Manual.
2. R = 3000m.Δ is typically less than 01° 00' 00". For less than 00° 30' 00", a taper may be used in lieu of curve.
3. Entrance profiles should approximately parallel the profile of the freeway for at least 100m prior to the 2m point to provide inter-visibility in merging situations.
4. A 300m long auxiliary lane should be provided, particularly on ascending entrance ramps.
5. The Merge Escape Area (Detail) is not required where the left freeway shoulder is 2.4m or greater.
6. The maximum grade on a descending off-ramp should be 6%.

3.4 Accessibility Requirements

Title 28 Code of Federal Regulations (CFR) Part 35 requires that facilities constructed on behalf of, or for the use of, a public entity shall be designed and constructed so that the facility is accessible to and usable by persons with disabilities.

Title 49 CFR Part 27 requires nondiscrimination on the basis of disability in programs and activities receiving or benefiting from federal financial assistance. The State of California has also adopted regulations in Section 54 of the California Civil Code that specifies all buildings, structures, sidewalks, curbs, and related facilities constructed in California by the use of state, county or municipal funds, or the funds of any political subdivision of the state, shall be accessible to and usable by persons with disabilities.

Freeway BRT services must comply with the *2010 ADA Standards for Accessible Design*, which includes accessibility requirements related to:

- Parking spaces within a park and ride facility
- Passenger or bus loading zones within a park and ride facility
- Wheelchair accessible telephones at a transportation facility
- Bus shelters
- Bus boarding and alighting areas
- Bus signs

3.5 Transit Policies

The introduction of Freeway BRT service to Orange County makes transit more dynamic and accommodating to the residents and employees in the region. However, the two study corridors have some overlap with existing transit services, most notably the Metrolink and Amtrak. Metrolink and Amtrak run relatively parallel to Interstate 5 throughout the study area. When considering station placement, it is crucial to provide a complementary service to rail services as to build new ridership, and not divert and split ridership between BRT and rail services.

The best way to provide a complementary BRT service is to locate stations in areas that rail may underserve. It is also crucial to align Freeway BRT service with Metrolink and Amtrak services to give riders the convenient option to transfer between them. The following list highlights key factors to consider in an effort to align BRT service with Metrolink and Amtrak. The introduction of Freeway BRT would best address these key factors by mainly locating stations in areas that the rail services currently underserve, while also duplicating service in only the largest catchment areas, such as near transportation centers and major residential/ employment nodes where redundancy would expand the ridership market.

- Along the immediate I-5 corridor, Amtrak operates from the Santa Ana and Irvine Stations via the Pacific Surfliner service.
- Along the immediate I-5 corridor, Metrolink operates from the Santa Ana, Tustin, Irvine, and Laguna Niguel/ Mission Viejo Stations.
- The LOSSAN 2030 Long Term Preferred Service Plan includes the addition of 14 Orange County intracounty commuter trips between Laguna Niguel and Fullerton.
- The Pacific Surfliner and commuter services is expected to double ridership from 2014 to 2030. Ridership in 2030 is projected to be between 10.1 to 15.2 million.
- The Metrolink Orange County and Inland Empire-Orange County Lines are expected to add four and six new weekday trains, respectively to their fleet from 2015 to 2020.
- The Metrolink Orange County and Inland Empire-Orange County Lines are expected to add one and two new weekend trains, respectively to their fleet from 2015 to 2020.

4 Physical Constraints

A sample of ten proposed priority station locations were screened at a high-level for the following physical constraints: available right-of-way, existing infrastructure (transit and road), existing or lack of managed, HOT, or HOV lanes, and major utilities (if applicable).

The following sections documents the constraints, opportunities and considerations identified by the Project Team as well as with representatives from cities where these potential station would be located.

4.1 17th Street (SARTC)

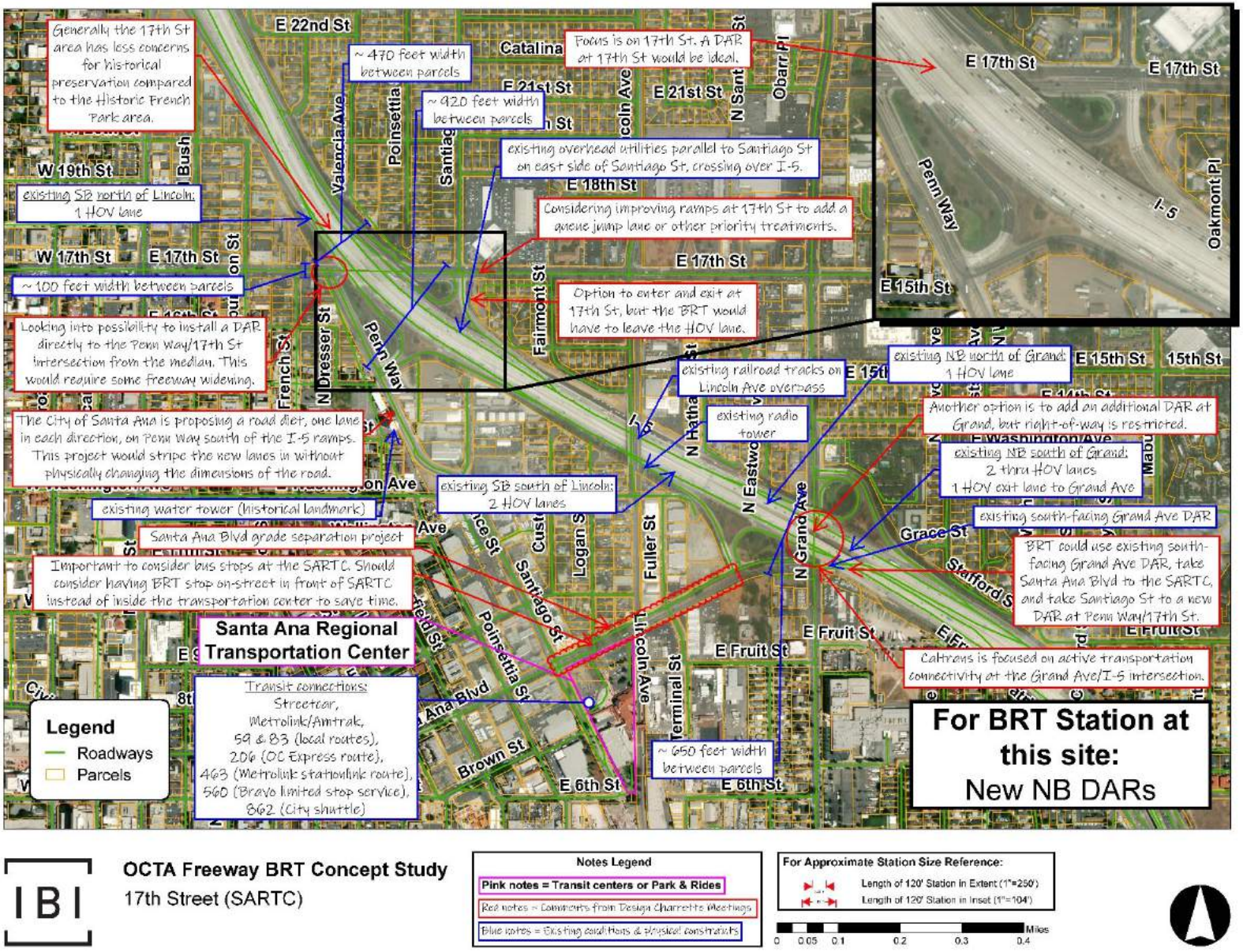
This proposed BRT Station is located at 17th St and I-5 in Santa Ana (Figure 4.1). On I-5 in this area, there is currently one existing southbound HOV lane north of Lincoln Avenue, then south of Lincoln Avenue there are two existing southbound HOV lanes. In the northbound direction, there are two existing northbound through HOV lanes and one HOV exit lane to Grand Avenue south of Grand Avenue, then north of Grand Avenue this reduces to one existing northbound HOV lane. At 17th Street the I-5 freeway passes over 17th Street. About 0.4 mile further down the I-5, there is an overpass at Lincoln Avenue which has an existing railroad line. Another 0.3 miles south along the I-5, the freeway passes over Grand Avenue. At Grand Avenue, there are existing south-facing direct access ramps. There are the following existing transit services to connect to in this area: Streetcar, Metrolink/Amtrak, route 59, 83, 206, 463, 560, and 862.

The options available for this station include new northbound direct access ramps at 17th Street. The right-of-way along I-5 just north of 17th Street is about 470’ wide and widens out to about 920’ just south of 17th Street. There are existing overhead utilities that cross over the freeway in this area, parallel to Santiago Street on the east side of Santiago Street. There is also a possibility to install a direct access ramp directly to the Penn Way and 17th Street intersection from the freeway median. There is about 100’ of width on 17th Street between parcels at Penn Way. The City of Santa Ana is proposing a road diet of Penn Way south of the I-5 ramps, so Penn Way would be one lane in each direction, although not physically narrowed. While the 17th Street area generally has less concerns for historical preservation than the Historic French Park area, there is a historic landmark to be aware of, the Downtown Orange County water tower, near the ramps at Penn Way. Another option would be for the BRT to enter and exit at 17th Street, but there would be the drawback of having to leave the HOV lane. In this case, the 17th Street ramps could be improved with a queue jump lane or other priority treatment.

Another option would be to add an additional direct access ramp at Grand Avenue, but the right-of-way is restricted, about 650’ width of right-of-way on I-5 just north of Grand. Caltrans has an interest in active transportation connectivity at the intersection of Grand Avenue and I-5, so that is something to keep in mind with this option. This option would be nearest to the SARTC. When considering the bus stops at the SARTC, it may be more beneficial to time savings to have a BRT stop on-street on Santa Ana Boulevard in front of SARTC rather than inside the transportation center itself. This stretch of Santa Ana Boulevard between the SARTC and Grand Avenue is also the project location for the Santa Ana Boulevard Grade Separation.

Another option is for northbound buses to use the existing south-facing DAR at Grand Avenue from I-5, travel west along Santa Ana Boulevard, south on Santiago Street, into the bus dock at SARTC, north on Santiago Street to Penn Way, and use a new proposed DAR at the 17th Street/Penn Way intersection onto the 1-5 to get back onto the I-5 HOV lanes. The southbound BRT could use the same route in the opposite direction. Some freeway widening would be required.

Figure 4.1: 17th Street (SARTC) Vignette



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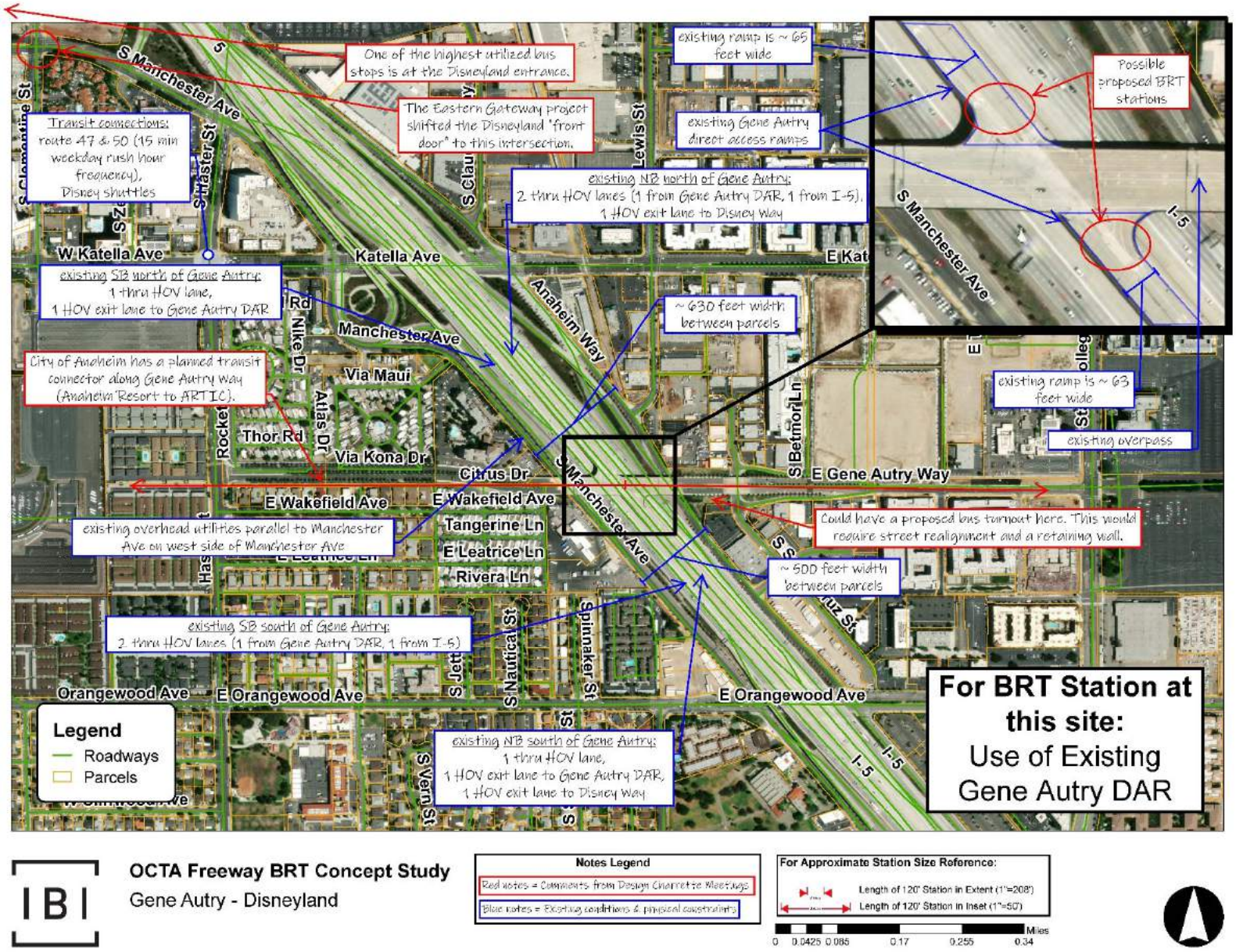
OCTA Freeway BRT Concept Study
17th Street (SARTC)

4.2 Gene Autry

This proposed BRT station is located at Gene Autry Way and I-5 in Anaheim, shown in Figure 4.2. On the I-5 in this area, in the southbound direction, north of Gene Autry Way, there is one existing southbound HOV through lane and one southbound HOV exit lane to the Gene Autry DAR. South of Gene Autry Way, there are two southbound HOV through lanes. In the northbound direction, south of Gene Autry Way, there is one existing northbound HOV through lane, one HOV exit lane to the Gene Autry DAR, and one HOV exit lane to Disney Way. North of Gene Autry Way, there are two northbound through HOV lanes and one HOV exit lane to Disney Way. In this area, the freeway passes over Katella Avenue, then about 0.3 miles south, there is the Gene Autry Way overpass, with existing DARs on both sides. There are frontage roads here along the I-5, Manchester Avenue to the west, and Anaheim Way to the east. The following are the existing transit services to connect to in this area: Disney shuttles and routes 47 and 50.

The concept for this station is to use the existing Gene Autry DARs. The existing north side ramp is about 65’ wide, and the existing south side ramp is about 63’ wide. The BRT stations could be accommodated on these DARs. There is about 630’ width of right-of-way along I-5 just north of the Gene Autry Way overpass and about 500’ width just south of the overpass. There are existing overhead utilities parallel to Manchester Avenue on the west side of Manchester Ave, adjacent to the freeway. The City of Anaheim has plans for a transit connector along Gene Autry Way that will go from the resort area to the ARTIC (Anaheim Regional Transportation Intermodal Center). As Disneyland is one of the major activity centers near this stop, it should be noted that Disney’s Eastern Gateway project shifted the front door of the park to the intersection of Disney Way and Clementine Street, and one of the highest utilized bus stops is at the Disneyland entrance. One option would be for the BRT to use the existing Gene Autry DARs, exit the I-5 freeway to the west, and turn around in a new proposed bus turnout on the south side of Gene Autry Way, about 500’ east of the freeway. Using a wide turnout, the BRT could essentially make a left turn back onto Gene Autry Way and then turn onto either of the DARs. This option would require street realignment on Gene Autry Way and a retaining wall.

Figure 4.2: Gene Autry Vignette

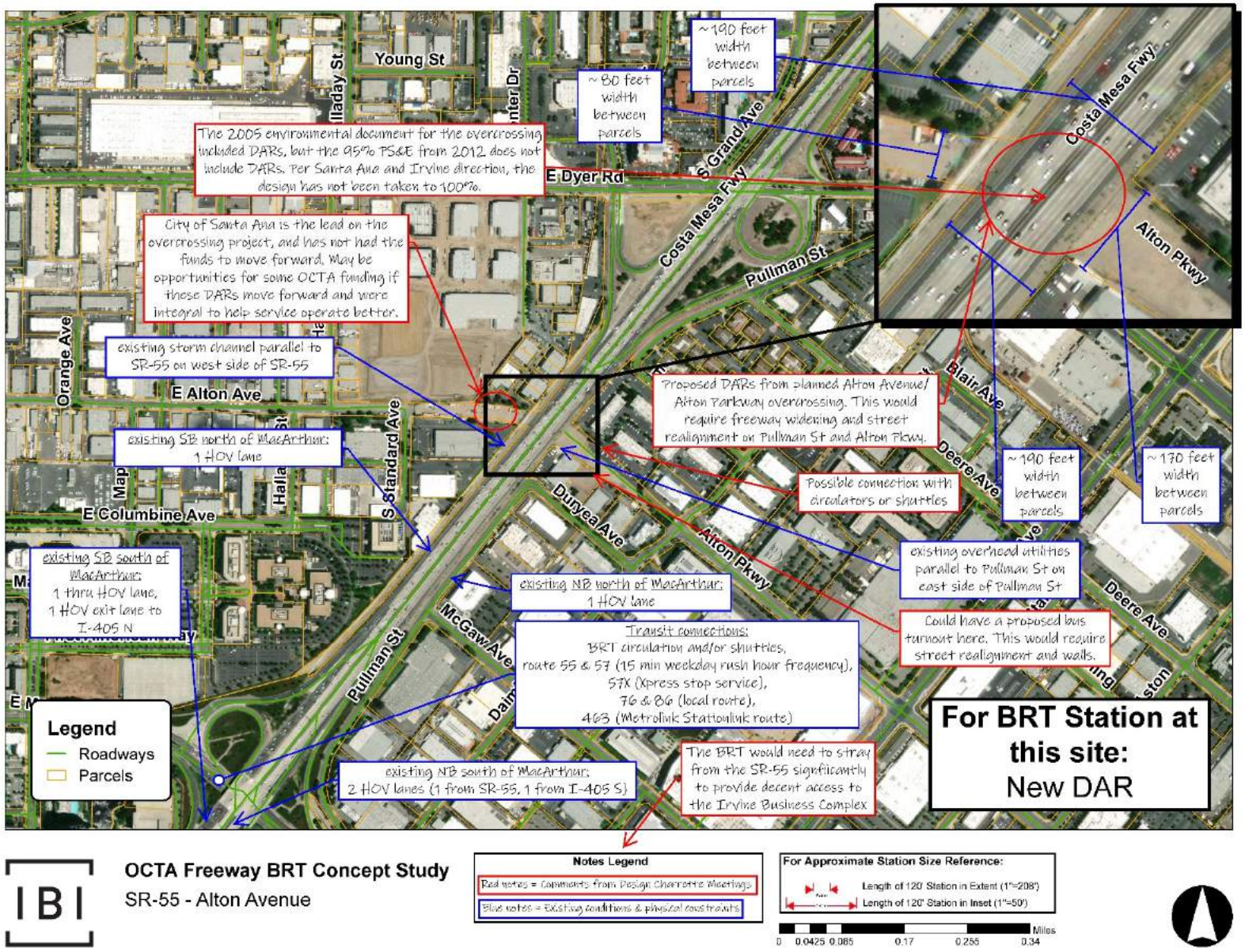


4.3 SR 55 Alton Avenue

This proposed BRT station is located at SR 55 and Alton Avenue in Santa Ana on the west and Irvine on the east (Figure 4.3). In this area on the SR 55, in the southbound direction, north of MacArthur Boulevard, there is one existing southbound HOV lane, and south of MacArthur Boulevard, there is one existing southbound through HOV lane and one HOV exit lane to the I-405 N. In the northbound direction, there are two existing northbound HOV lanes south of MacArthur Boulevard and one existing northbound HOV lane north of MacArthur Boulevard. The possible transit connections in this location include: BRT circulation or shuttles, routes 55, 57, 57X, 76, 86, and 463. At this location, there is Alton Avenue on the west side of the SR 55 in Santa Ana and Alton Parkway on the east side of the SR 55 in Irvine. These streets currently end before the freeway and do not connect. The City of Santa Ana is the lead on the Alton Avenue/Alton Parkway overcrossing project, which would connect these two streets with an overcrossing over SR 55. The 95% plans for the overcrossing did not include DARs, but the environmental document did. The cities have not had the funds to move forward with this project, which has prevented them from moving forward with the design.

The concept for this station is the development of a new DAR, which would go to and from the planned Alton Avenue overcrossing. The BRT could use new proposed north-facing and south-facing DARs to exit the freeway and head about 300’ southeast on Alton Parkway, and turn around in a new proposed bus turnout on the southwest side of Alton Parkway. From the wide turnout, the BRT could make a left turn back onto Alton Parkway and then turn onto either of the DARs. This would require freeway widening, street realignment on Alton Parkway and Pullman Street, and walls near the turnout. There are existing overhead utilities to consider, located parallel to Pullman Street on the east side of Pullman Street (near the freeway and overcrossing location), and there is an existing storm channel parallel to the SR 55 on the west side of the SR 55. The right-of-way is about 80’ wide along Alton Avenue on the west side, 170’ wide on Alton Parkway on the east side, and about 190’ wide on SR 55 on either side of Alton. Another challenge here is that the BRT would need to stray from the freeway significantly to provide service to the Irvine Business Complex, which could lead to travel time delays.

Figure 4.3: SR 55 Alton Avenue Vignette

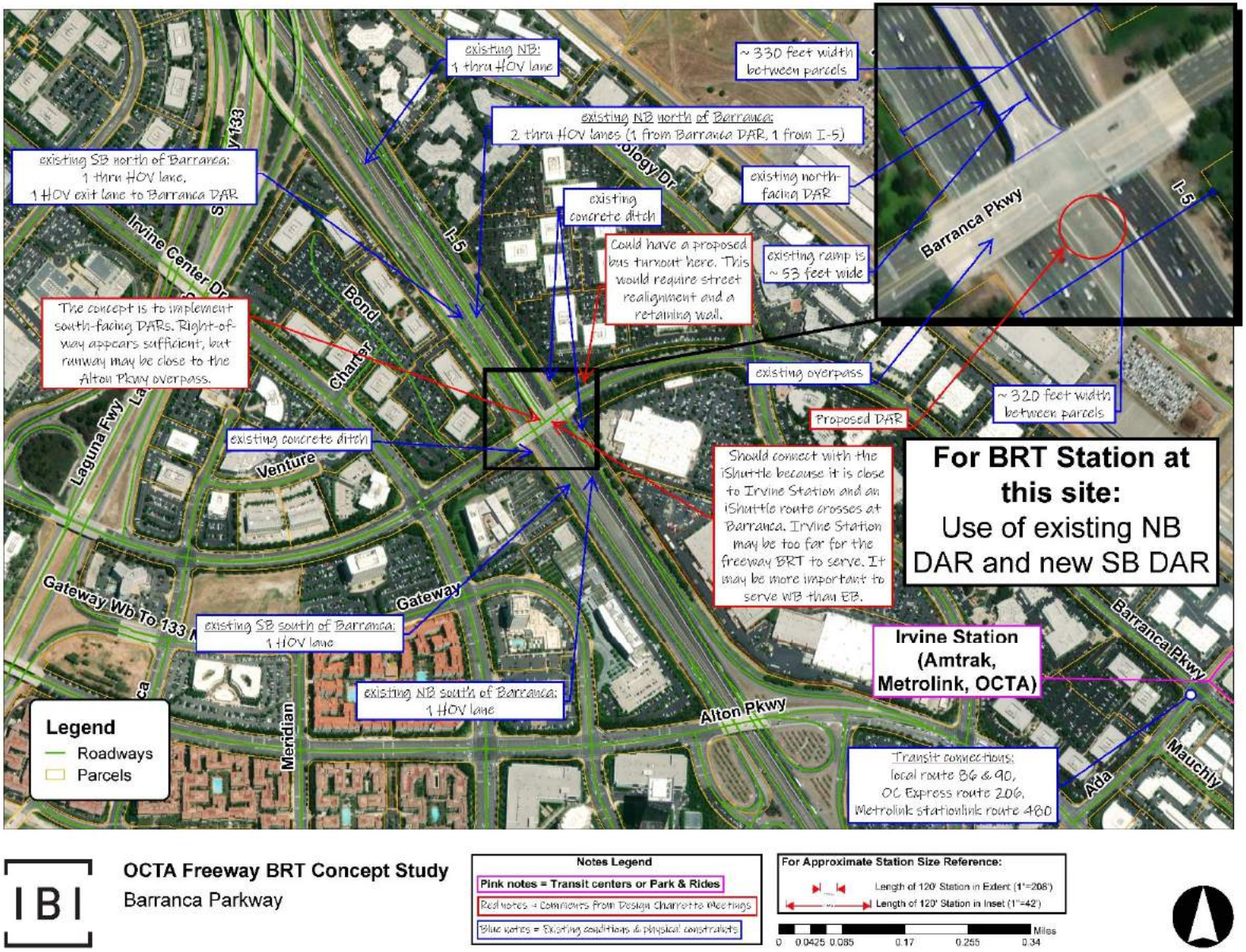


4.4 Barranca Parkway

This proposed BRT station is located at Barranca Parkway and I-5 in Irvine, shown in Figure 4.4. On the I-5 in this area, in the southbound direction north of Barranca Parkway, there is one existing through HOV lane and one existing HOV exit lane to the Barranca DAR. South of Barranca, there is one southbound HOV lane. In the northbound direction, south of Barranca Parkway, there is one northbound HOV lane. North of Barranca Parkway, there are two northbound HOV lanes which merge into one HOV lane before the SR 133 interchange. This location is in close proximity to Irvine Station and provides transit connections to the following services: routes 86, 90, 206, and 480. The BRT would also connect to iShuttle, as one of the iShuttle routes crosses Barranca Parkway.

The concept for this station is to use the existing north side DAR and create south-facing DARs at Barranca Parkway. From the DARs, the buses could travel east on Barranca Parkway and make a left turn into a new proposed bus turnout on the north side of Barranca Parkway. Then the BRT would turn right out of the turnout back onto Barranca Parkway and onto the freeway using either of the DARs. This concept would require street realignment and a retaining wall. The right-of-way appears sufficient, at about 320’ width along I-5 just south of Barranca Parkway and 330’ width just north of Barranca Parkway. There are existing concrete ditches on both the east and west side of the I-5. The existing north side direct access ramp is about 53’ wide. Alton Parkway is only 0.4 miles south of Barranca along the I-5, so the runway may be close to the Alton overpass.

Figure 4.4: Barranca Parkway Vignette



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OCTA Freeway BRT Concept Study
Barranca Parkway

Notes Legend
Pink notes = Transit centers or Park & Rides
Red notes = Comments from Design Charrette Meetings
Blue notes = Existing conditions & physical constraints

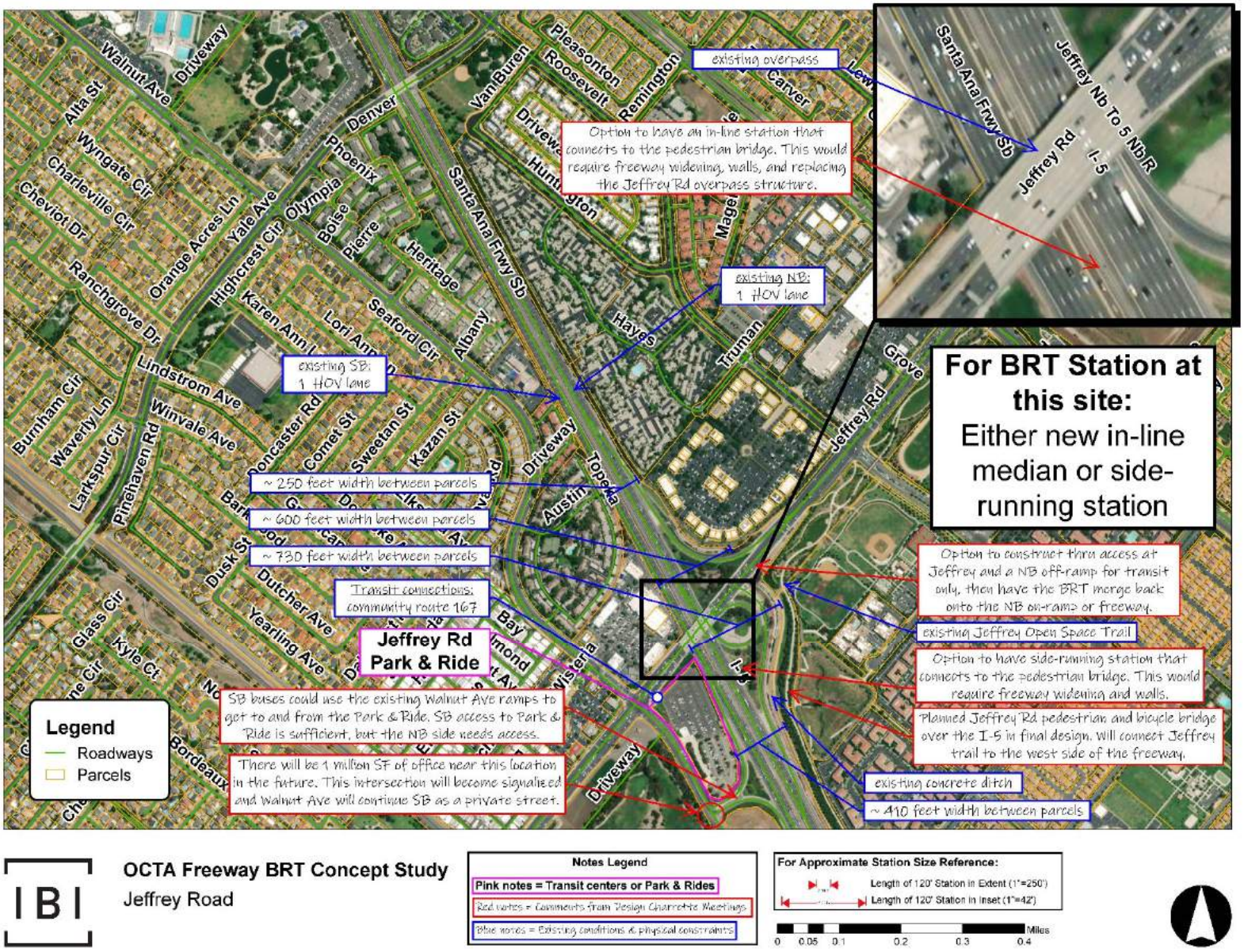
For Approximate Station Size Reference:
Length of 120' Station in Extent (1"=208')
Length of 120' Station in Inset (1"=42')
0 0.0425 0.085 0.17 0.255 0.34 Miles

4.5 Jeffrey Road

This proposed BRT station is located at Jeffrey Road and I-5 in Irvine, shown in Figure 4.5. There is an existing Jeffrey Road overpass over the I-5 here, and there is one existing southbound HOV lane and one existing northbound HOV lane on the I-5 in this area. This location is right next to Jeffrey Park N Ride on the west side of the I-5, so there is sufficient southbound access to the Park N Ride. There is a transit connection to route 167. There is an existing concrete ditch parallel to the I-5 on the east side of the freeway. The existing Jeffrey Open Space Trail is located on the east side, and there is a planned Jeffrey Road pedestrian and bicycle bridge over the I-5 in final design, which will connect Jeffrey trail to the west side of the freeway.

There are a few options for the proposed BRT station. One option is to have an in-line station at Jeffrey Road that would connect to the planned pedestrian bridge. An in-line option would have the northbound and southbound BRT travel in the center of the I-5 freeway. This configuration would require freeway widening in the center and on both the east and west sides, walls and barriers, and replacing the Jeffrey Road overpass structure. The width of the right-of-way along I-5 just north of Jeffrey Road is about 600’ and is about 730’ just south of Jeffrey Road. Another option is to construct through access at Jeffrey and a northbound off-ramp for transit only, then have the BRT merge back onto the northbound on-ramp or freeway. There is also an option to have a side-running station that connects to the planned pedestrian bridge, which would provide a pedestrian connection for riders to the Park-and-Ride. A side-running option would have the southbound BRT travel on the outermost lane of the freeway, off the off-ramp at Walnut Avenue, and north on Walnut Avenue into the Jeffrey Road Park and Ride. The southbound buses would turn left out of the Park and Ride and travel south on Walnut Avenue, then left onto the I-5 freeway via the SB on-ramp. The northbound buses would travel on the outermost lane of the northbound I-5 and serve riders at a side-running station that would connect to the planned Jeffrey Road pedestrian and bicycle bridge. This option would require freeway widening on the east side and a wall as a barrier near the northbound station. Although it does not change the strategy or the park and ride configuration, it is worth noting that this area will experience significant land use changes in the future, with the addition of one million square feet of office spaces and the addition of traffic signals at the intersection of Walnut Ave and the I-5 ramps.

Figure 4.5: Jeffrey Road Vignette



OCTA Freeway BRT Concept Study
Jeffrey Road

4.6 Laguna Hills

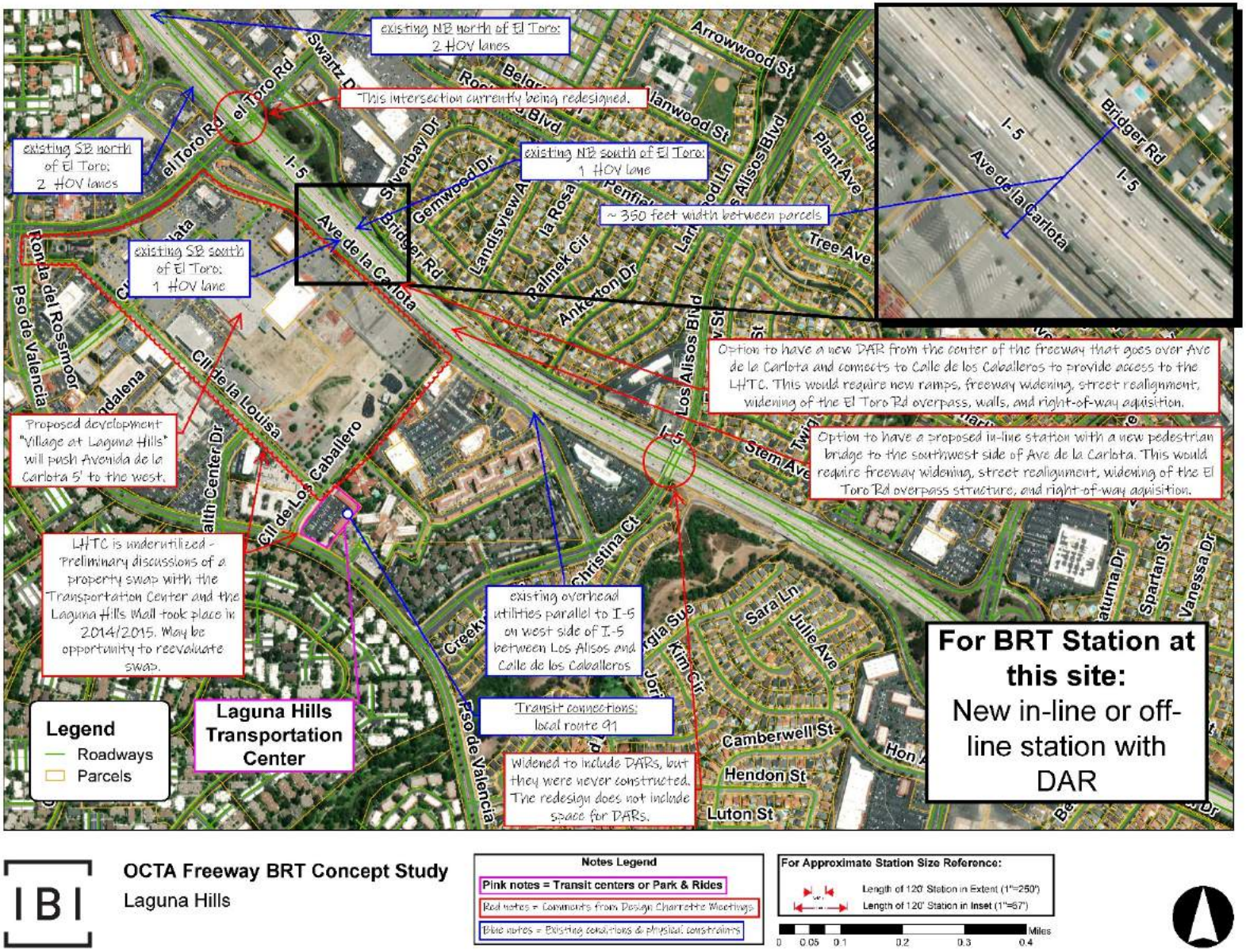
This proposed BRT station is located at I-5 near Laguna Hills Mall in Laguna Hills on the west and Lake Forest to the east, shown in Figure 4.6. On the I-5 in this area, in the southbound direction, there are two HOV lanes north of El Toro Road, and one southbound HOV lane south of El Toro Road. In the northbound direction, there is one existing northbound HOV lane south of El Toro Road and two existing northbound HOV lanes north of El Toro Road. The interchange at El Toro Road and I-5, where the freeway passes over El Toro Road, is currently under redesign. The Los Alisos Boulevard overpass, about 0.75 miles south of El Toro Road along the I-5, has been redesigned and would now offer limited room for DARs, though the area had been widened in the past to include them. This area will provide a transit connection to route 91 and the Laguna Hills Transportation Center.

The concept for this location is either an in-line station near the Laguna Hills mall property, or an off-line station with a DAR. The right-of-way along I-5 is about 350’ wide near the mall. There are also existing overhead utilities to consider, located parallel to I-5 on the west side of I-5 between Los Alisos Boulevard and Calle de los Caballeros. The mall property, now “The Village at Laguna Hills,” is being redeveloped to include more office and residential. The proposed development will push Avenida de la Carlota 5’ to the west. There had been preliminary discussions in the past (2014/2015) of a property swap between the Laguna Hills Transportation Center and the mall property. It may be appropriate now to reevaluate a property swap to see if that is an option.

An in-line station option would have the station in the center of the I-5 freeway near Laguna Hills Mall, at approximately where Landisview Avenue nearly meets the I-5. A new proposed pedestrian bridge would connect the in-line stations to the area where the Village at Laguna Hills surface parking lot is planned on the southwest side of the Avenida de la Carlota. This option would require freeway widening in the center and the southwest side of the freeway, walls, street realignment of Avenida de la Carlota, widening of the overpass structure over El Toro Road, right of way acquisition of three parcels, and a new proposed pedestrian bridge structure.

An off-line station option would propose a new DAR in the center of the I-5 freeway near Laguna Hills Mall, about 300’ north of Landisview Avenue. The new proposed BRT lanes in the center of the freeway would extend from just north of El Toro Road to Los Alisos Boulevard, ramping up to the new proposed DAR. The DAR would go from the center of the freeway over the southbound I-5 and Avenida de la Carlota, then turn southeast to connect to Calle de los Caballeros. From Calle de los Caballeros, the BRT can access Laguna Hills Transportation Center, and turn around and go back onto the DAR. This option would require new ramps in the center of the freeway, freeway widening on the southwest side of the I-5, widening of the overpass structure over El Toro Road, street realignment of Avenida de la Carlota, walls, right of way acquisition of two parcels, and the new proposed DAR structure.

Figure 4.6: Laguna Hills Vignette



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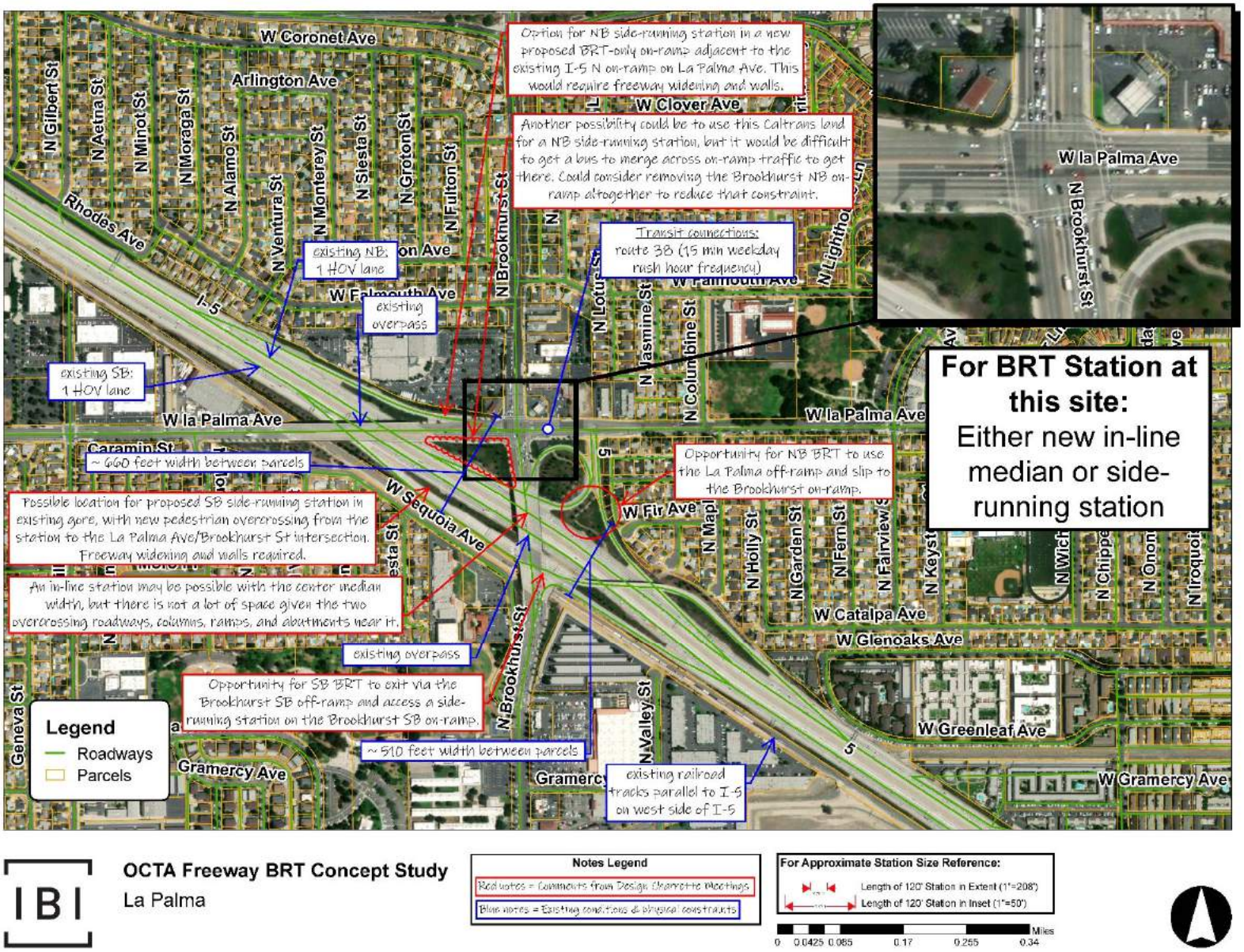
OCTA Freeway BRT Concept Study
Laguna Hills

4.7 La Palma

This proposed BRT station is located at La Palma Ave and I-5 in Anaheim, shown in Figure 4.7. There is an existing overpass at La Palma Avenue, and about 0.2 miles south of La Palma Avenue along the I-5, there is an overpass at Brookhurst Street. There is one existing southbound HOV lane and one existing northbound HOV lane in this area. Route 38 is the existing transit service here that a BRT could connect with. There are existing railroad tracks parallel to the I-5 on the west side of the I-5.

There are a few options for this location. One option is an in-line station. The right-of-way is about 660’ wide on the I-5 just north of Brookhurst Street and 510’ wide just south of Brookhurst Street. An in-line station may be possible within the center median width, but the space is limited, given the two overcrossings, columns, ramps, and abutments nearby. Another option would be to have the southbound BRT exit via the southbound Brookhurst Street/La Palma Avenue off-ramp and access a side-running station. The new southbound side-running station could be on the Brookhurst southbound I-5 on-ramp, or it could be in the existing landscaped gore area between the edge of the freeway and the southbound Brookhurst Street/La Palma Avenue off-ramp. In the latter case, where the southbound station is in the existing freeway gore, there would be a new proposed pedestrian overcrossing from the southbound station over the I-5 to the intersection of La Palma Avenue and Brookhurst Street. The northbound BRT could take the northbound Brookhurst Street/La Palma Avenue off-ramp, travel north on Brookhurst Street, turn left onto La Palma Ave, and enter a new proposed BRT on-ramp for the I-5 North, parallel and adjacent to the existing I-5 North on-ramp on La Palma Ave. The northbound buses would use a new proposed station at the beginning of the new BRT on-ramp, and then continue and merge with the existing on-ramp onto the freeway. This side-running configuration would include freeway widening on both sides of the freeway, walls, and a new pedestrian bridge. There is also an option for the northbound BRT to use the La Palma off-ramp and slip to the Brookhurst on-ramp. Alternatively, another option for the northbound BRT could be to use the Caltrans property in the southwest corner of the intersection of La Palma Avenue and Brookhurst Street for a northbound side-running station. However, it would be challenging for the BRT to merge across on-ramp traffic to access the station. This could potentially be remedied by removing the Brookhurst northbound on-ramp altogether, since there is already an on-ramp at La Palma Avenue.

Figure 4.7: La Palma Vignette



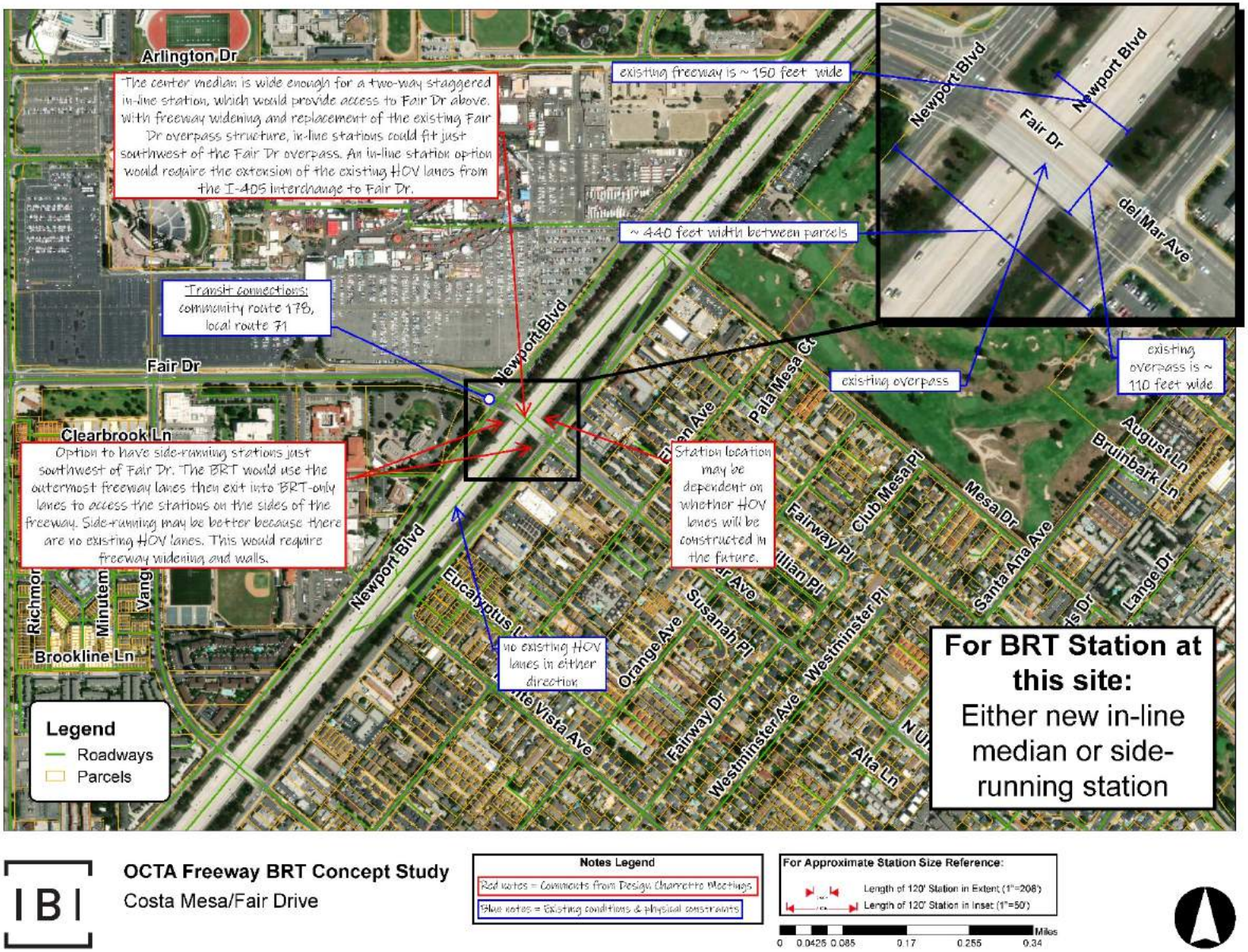
4.8 Costa Mesa Fair Drive

This proposed BRT station is located at Fair Drive and SR 55 in Costa Mesa, shown in Figure 4.8. There are no existing HOV lanes in either direction on SR 55 in this area. There is an existing overpass (about 110’ wide) at Fair Drive. The existing SR 55 roadway is about 150’ wide near Fair Drive, and the right-of-way along SR 55 is about 440’ wide (including the Newport Boulevard frontage roads). The existing transit services which the BRT will provide connections to are routes 178 and 71.

The concept at this location is either an in-line station or a side-running station. The configuration may be dependent on whether HOV lanes will be constructed in the future. The center median is wide enough for a two-way staggered in-line station, which would provide access to Fair Drive above. One possible in-line option would have the BRT travel in the leftmost lanes of SR 55 and access in-line stations in the center of the freeway, just southwest of the Fair Drive overpass. This option would require replacing the existing Fair Drive overpass with a new structure, freeway widening in the center and on both sides of the SR 55, and the extension of the HOV/managed lanes south of the current terminus at I-405 to at least Fair Drive (about 2.8 miles of new HOV lanes needed in the southbound direction and 1.8 miles of new HOV lanes needed in the northbound direction).

However, because there are no existing HOV lanes near Fair Drive, side-running (including retaining walls) could be a more feasible option. A side-running option in this area would have the BRT use the outermost lanes of the SR 55, and exit into BRT only lanes (for about 600’ before and after the station) to access new side-running stations on the freeway, just southwest of the Fair Drive overpass. This option would require freeway widening and walls.

Figure 4.8: Costa Mesa Fair Drive Vignette



OCTA Freeway BRT Concept Study
Costa Mesa/Fair Drive

Notes Legend
Red notes = Comments from Design Charrette Meetings
Blue notes = Existing conditions & physical constraints

For Approximate Station Size Reference:
Length of 120' Station in Extent (1"=208')
Length of 120' Station in Inset (1"=50')
0 0.0425 0.085 0.17 0.255 0.34 Miles

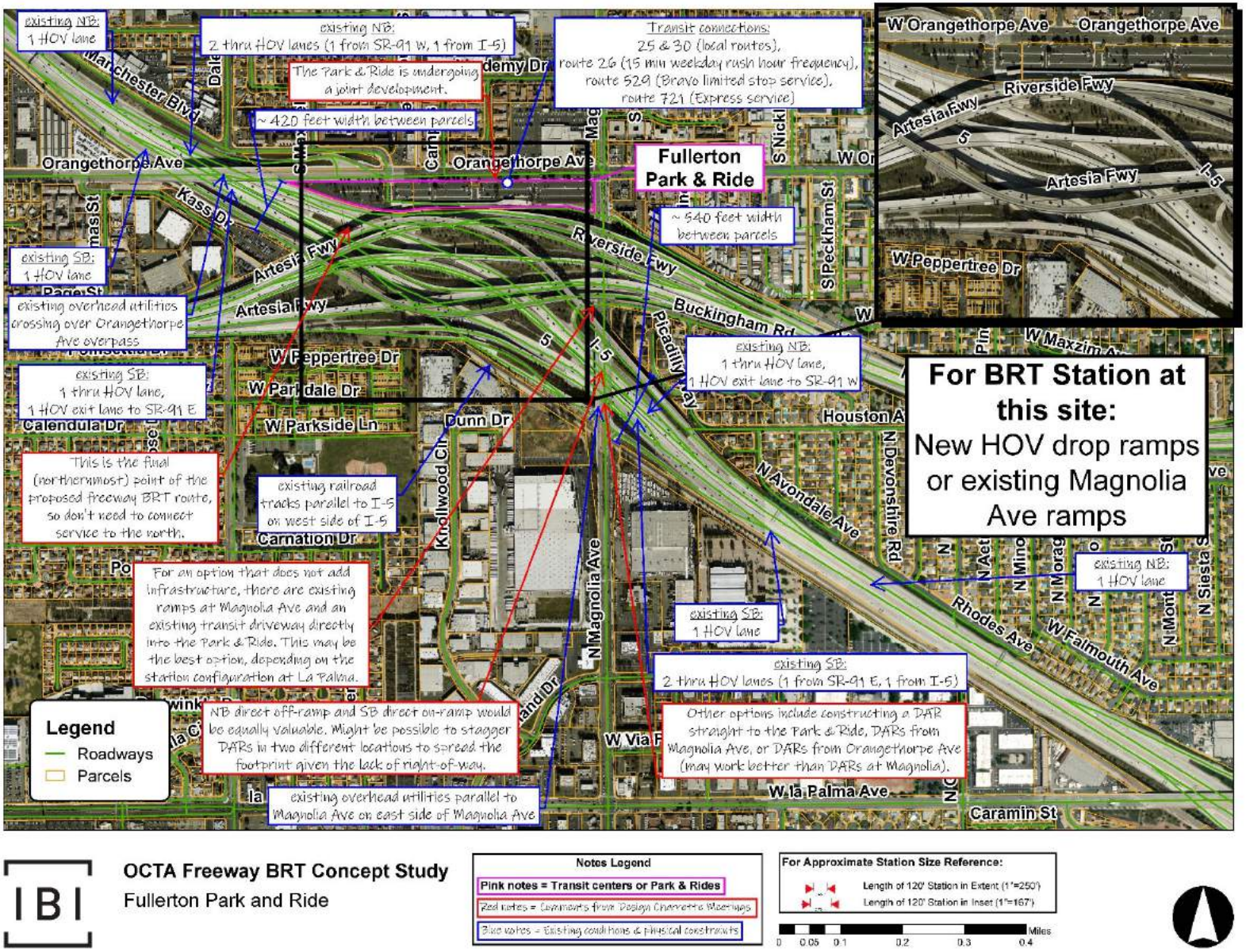
4.9 Fullerton Park N Ride

This proposed BRT station is located at the Fullerton Park-and-Ride along I-5 in Fullerton on the east and Buena Park on the west (Figure 4.9). The Park-and-Ride, which is currently undergoing a joint development, is directly north of the complicated SR 91/I-5 interchange. There is the Orangethorpe Avenue overpass north of the SR 91/I-5 interchange, and south of the interchange, there is Magnolia Avenue, which goes over I-5 and under SR 91. On the I-5 in this area, in the southbound direction, there is one existing southbound HOV lane north of Orangethorpe Avenue, one southbound through HOV lane and one southbound HOV exit lane to SR 91 E between Orangethorpe and SR 91, two southbound HOV through lanes just south of Magnolia Avenue, which reduces to one HOV lane about 0.25 miles south of Magnolia. In the northbound direction, south of Magnolia Ave, there is one northbound HOV lane. As the I-5 approaches Magnolia, there is one northbound through HOV lane and one HOV exit lane to SR 91 W, then north of Orangethorpe, there are two northbound through HOV lanes, which reduce to one lane about 800’ north of Orangethorpe. There are existing railroad tracks parallel to the I-5 on the west side of the I-5. The following are the existing transit services to connect to in this area: routes 25, 30, 26, 529, and 721.

This is the northernmost point of the freeway BRT route, so there is no need to connect service to the north, just the south. One option for this location is to use the existing Magnolia Ave ramps and the existing transit driveway directly into the Park-and-Ride. Southbound buses would start at the Fullerton Park and Ride, turn right onto Orangethorpe Avenue and travel east, turn right onto Magnolia Avenue and continue south, and make a left turn onto the existing I-5 South on-ramp on Magnolia Street. Buses that were headed northbound would exit the I-5 North via the Magnolia Avenue/91-East off-ramp, turn left off the exit and head north on Magnolia Avenue, and turn left into the Park and Ride driveway next to the 91-West on-ramp. From the terminus at the Park and Ride, northbound buses could “become southbound buses” and follow the southbound route out of the Park and Ride and back onto the freeway. This option would not add infrastructure and may be the best option, depending on what the station configuration is at La Palma, which is just shy of a mile south of Magnolia Avenue.

Another option would be to construct a DAR straight to the Park-and-Ride. Yet another option would be to construct DARs from Magnolia Avenue. There is about 540’ of right-of-way at the I-5 just south of Magnolia. There are also existing overhead utilities to consider along the east side of Magnolia Ave. Another option is to construct DARs from Orangethorpe Ave, which may work better than Magnolia, although it is closer to the various ramps and overcrossings at the SR-91 interchange. On I-5 just south of the Orangethorpe overpass, the right-of-way is about 420’ wide. There are also existing overhead utilities along the Orangethorpe overpass. If there is not enough room to fit both northbound and southbound DARs at either location, another possibility could be to stagger the DARs in two different locations to spread out the footprint.

Figure 4.9: Fullerton Park and Ride Vignette



OCTA Freeway BRT Concept Study
Fullerton Park and Ride

Notes Legend
Pink notes = Transit centers or Park & Rides
Red notes = Comments from Design Charrette Meetings
Blue notes = Existing conditions & physical constraints

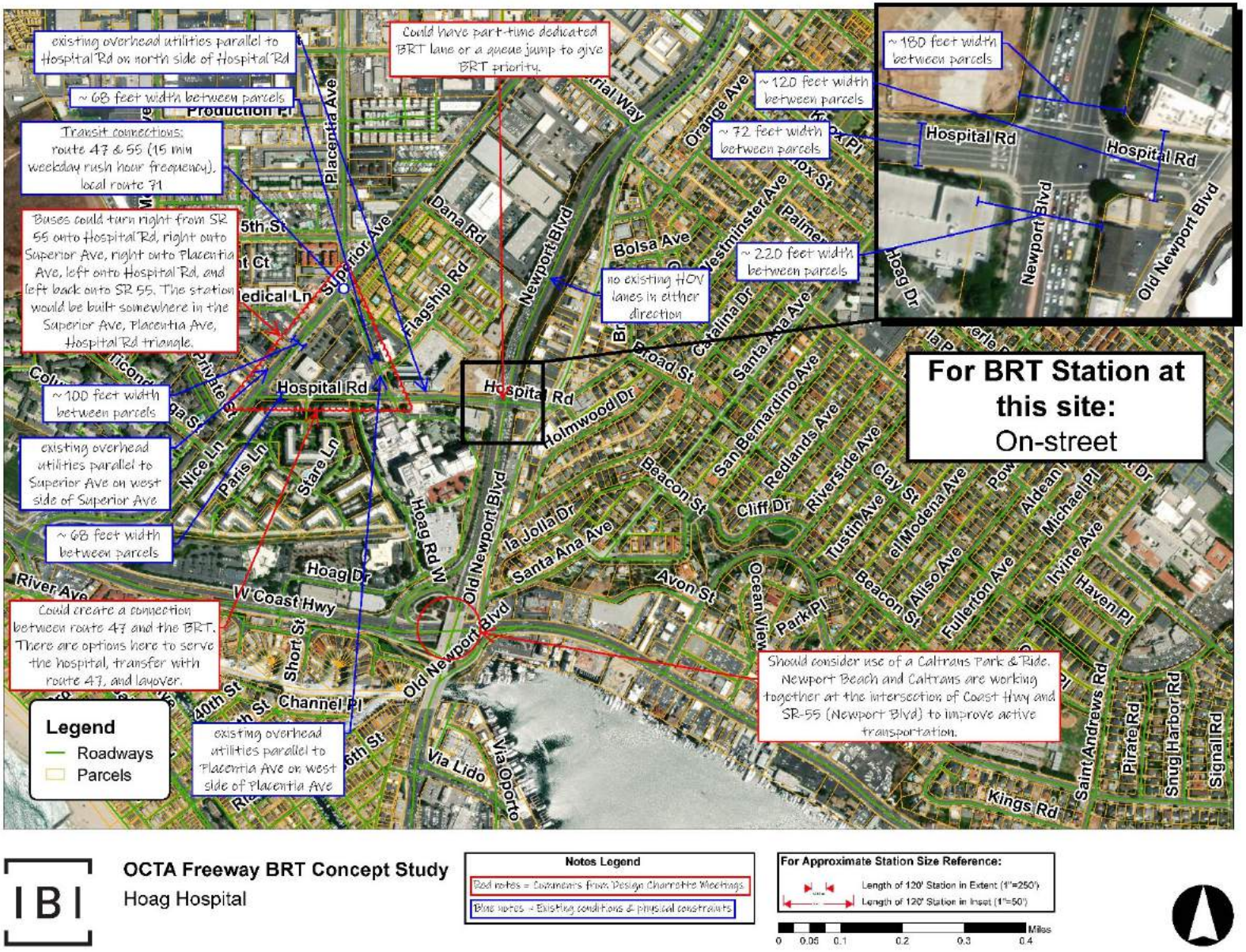
For Approximate Station Size Reference:
Length of 120' Station in Extent (1"=250')
Length of 120' Station in Inset (1"=167')
0 0.05 0.1 0.2 0.3 0.4 Miles

4.10 Hoag Hospital

This proposed BRT station is located at Hospital Road and Newport Boulevard in Newport Beach (Figure 4.10). There are no existing HOV lanes in either direction on SR 55 in this area. The existing transit services which the BRT will provide connections to are routes 47, 55, and 71.

The station concept for this location is an on-street station. Hoag Hospital is the proposed western terminus for the BRT so the buses would serve this station, turn around, and switch directions at this point. The use of a part-time dedicated BRT lane or a queue jump could also be employed here to give the BRT priority. One option at this location would be for the southbound buses to turn right from Newport Boulevard (SR 55 South) onto Hospital Road and make a loop back onto the freeway. From Hospital Road, they would turn right onto Superior Avenue, turn right onto Placentia Avenue, turn left back onto Hospital Road, and turn left back onto Newport Boulevard (SR 55 North). The location of the station should be somewhere in the Superior Avenue - Placentia Avenue - Hospital Road triangle (there are existing overhead utilities on all three streets). This option would not require new proposed infrastructure. There are options to serve the hospital, transfer with route 47, and layover. The right-of-way is about 68’ wide along Hospital Road, about 100’ wide on Superior Avenue, and about 68’ wide on Placentia Avenue. Additionally, Caltrans and Newport Beach are working together at the intersection of Coast Highway and SR 55 to improve active transportation infrastructure.

Figure 4.10: Hoag Hospital Vignette



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OCTA Freeway BRT Concept Study
Hoag Hospital

Notes Legend
Red notes = Comments from Design Charrette Meetings
Blue notes = Existing conditions & physical constraints

For Approximate Station Size Reference:
Length of 120' Station in Extent (1"=250')
Length of 120' Station in Inset (1"=50')
0 0.05 0.1 0.2 0.3 0.4 Miles

5 Future Planned Improvements

There are numerous improvements that have been programmed or planned for the Interstate 5 and State Route 55 study corridors. For both study corridors, programmed improvements have been identified in the OCTA Measure M2 Quarterly Progress Report Period from January 2020 to March 2020. Planned programs have also been identified in the Caltrans Orange County Managed Lanes Network and Feasibility Studies.

Many of the infrastructure programmed and planned projects will enhance managed lanes along the I-5 and SR 55 study corridors, which Freeway BRT will ultimately use for the majority of its running way. The future of managed lanes, direct connectors, and drop ramps on the I-5 and SR 55 may impact and influence the development of a Freeway BRT due to changes in traffic flow and accessibility on managed lanes.

5.1 Interstate 5 Programmed and Planned Improvements

The following are programmed projects along the I-5 study corridor:

Project A:

- Add a second HOV lane in each direction from SR 55 to SR 57 (Construction underway)

Project B:

- Add a general purpose lane in each direction from I-405 to SR 55 (Environmental phase underway)
- Add auxiliary lanes in some segments from I-405 to SR 55 (Environmental phase underway)

Project C:

- Add a general purpose lane in each direction from SR 73 to Oso Parkway (Design complete)
- Add a general purpose lane in each direction from Oso Parkway to Alicia Parkway (Construction underway)
- Add a general purpose lane in each direction from El Toro Road to Alicia Parkway (Design complete)
- Add a second HOV lane in each direction from El Toro Road to Alicia Parkway (Design complete)

Project D:

- Reconstruction of the Avery Parkway Interchange (Design complete)
- Reconstruction of the La Paz Road Interchange (Construction underway)
- Reconstruction of the El Toro Road Interchange (Environmental phase on hold)

The following planned projects along the I-5 study corridor include:

Phase 1 (Most Likely Plan):

- Convert Dual HOV Lanes to Dual HOT Lanes from SR 55 to SR 57
- Add an additional HOV lane and convert both HOV lanes to Dual HOT Lanes from SR 57 to SR 91

Phase 2 (Ideal Plan):

- Convert Dual HOV Lanes to Dual HOT Lanes from Alicia Parkway to I-405
- Add an additional HOV lane and convert both HOV lanes to Dual HOT Lanes from SR 73 to Alicia Parkway, and I-405 to SR 55
- Add a Full Direct Connector at SR 73, SR 133, SR 55, SR 57/ SR 22
- Add Full Drop Ramps at Los Alisos Boulevard, Barranca Parkway, Grand Avenue, Disney Way, and Disneyland Drive

5.2 State Route 55 Programmed and Plan Freeway Improvements

The following are programmed projects along the SR 55 study corridor:

Project F:

- Add a general purpose lane in each direction from I-405 and I-5 (Design phase underway)
- Add a second HOV lane in each direction from I-405 and I-5 (Design phase underway)
- Add auxiliary lanes in some segments from I-405 and I-5 (Design phase underway)

The following planned projects along the SR 55 study corridor include:

Phase 1 (Most Likely Plan):

- Convert Dual HOV Lanes to Dual HOT Lanes from I-405 to I-5

Phase 2 (Ideal Plan):

- Add Dual HOT Lanes from SR 73 to I-405
- Add a Full Direct Connector at SR 73 and I-5
- Add Full Drop Ramps at Alton Parkway

6 Conclusion and Next Steps

The catchment areas identified as part of the Purpose and Need report represent key areas along the two corridors that would most benefit from efficient transit services such as Freeway BRT. Different route alternatives were designed that would provide swift connections between these zones of high employment and population density. Each route includes a series of potential station locations which could be developed either using existing infrastructure or through the reconfiguration of the current roadway and freeway network. The analysis presented in this technical memorandum looks at the various requirements and guidelines that will need to be taken into consideration as part of the implementation process of the final BRT route. It also takes a closer look at ten key locations along those routes and reviews the constraints and opportunities pertaining to each site.

The following tasks will delve deeper into the potential impacts and benefits of each route alternative, looking at potential ridership, revenue recovery, as well as benefits to target communities.

Appendix E: Cost Estimates

Unit Price List
OCTA Freeway BRT Project
2021 Base Year Dollars

Item Number	Cost Item	Unit Price	Unit	CSI Number	Notes
1	Building demolition	$0.44	CF	024116130100	Normal building demolition, does not include hazardous material remediation
2	Signal prioritization upgrade	$200,000.00	EA		Upgrade existing signal for bus priority
3	Four way signal upgrade	$400,000.00	EA		Upgrade existing signal for four way control
4	Freeway ramp merge control signal	$200,000.00	EA		Signal to control merge from bus lane to on ramp
5	Traffic signal	$300,000.00	EA		New traffic signal
6	Full platform amenities	$450,000.00	EA		Includes real time arrival, electric and communications cabinets, lighting, emergency call, shelter, bike locker, pedestrian path
7	Minimal platform amenities	$100,000.00	EA		Security package only, cameras, arrival information
8	Bus pad	$50,000.00	EA		60 foot x 10 foot x 12 inch thick reinforced concrete pad
9	Bus platform	$500,000.00	EA		Full platform with all amenities
10	Pedestrian bridge	$400.00	SF		From Caltrans database, high end price for pedestrian bridge
11	Roadway bridge	$200.00	SF		From Caltrans database, average for steel girder bridge
12	Freeway ramp	$300	SF		Average price for reconstruction of existing pavement for ramp
13	Median running lane	$500	SF		Assumes higher cost than freeway paving or simple lane addition
14	Freeway widening	$639	SF		Add lane high cost $64 million per lane mile
15	Freeway reconstruction	$250	SF		Low cost reconstruction, milling, paving, striping
16	MSE Retaining wall	$160.00	SF		From TriMet light rail bid 2021
17	CIP Gravity Wall	$112.00	SF		From TriMet light rail bid 2021
18	Structural fill material	$168.00	CY		From CA I-5N final report
19	Roadway aggregate base	$94.00	CY		Confirmed by I-5N final report
20	PCC 12" Pavement	$163.00	SY		
21	PCC driveway includes base	$110.00	SY		
22	Full depth asphalt reconstruction	$160.00	Ton		From I-5N final report
23	Street reconstruction	$300.00	SF		Based on $15 million per lane mile 2014 dollars, 12 foot lane, from HERS
24	Tunnel	$1,364	SF		Assume same cost as freeway construction, needs verification
25	Staircase	$20,000.00	EA		Steel staircase, 20 feet high, one intermediate platform, average Caltrans price
26	Elevator	$500,000.00	EA		Include two stops
27	CONCRETE BARRIER (TYPE 60M)	$119.00	FT		From I-5N final report 2020 base year cost?
28	CONCRETE BARRIER (TYPE 60MA)	$231.00	FT		From I-5N final report, use this barrier cost for the Freeway BRT project
29	CONCRETE BARRIER (TYPE 60MC)	$202.00	FT		From I-5N final report
30	CONCRETE BARRIER (TYPE 60MD)	$112.00	FT		From I-5N final report
31	CONCRETE BARRIER (TYPE 60MF)	$888.00	FT		From I-5N final report
32	CONCRETE BARRIER (TYPE 60MG)	$535.00	FT		From I-5N final report
33	CONCRETE BARRIER (TYPE 60MGC)	$287.00	FT		From I-5N final report
34	CONCRETE BARRIER (TYPE 60MGF)	$614.00	FT		From I-5N final report
35	CONCRETE BARRIER (TYPE 60MS)	$124.50	FT		From I-5N final report
36	CONCRETE BARRIER (TYPE 60MSC)	$154.00	FT		From I-5N final report
37	CONCRETE BARRIER (TYPE 60MSF)	$499.00	FT		From I-5N final report
38	CONCRETE BARRIER (TYPE 60MP)	$704.00	FT		From I-5N final report

Improvement Category	Cost	Stations
All Improvements Low Estimate	**$ 505,714,132.68**	Fullerton, La Palma, Gene Autry, Penn Way, Jeffrey Side Running, Laguna Hills In-Line, Laguna Niguel, Alton, Fair Dr Side Running, Superior Ave Platform
All Improvements High Estimate	**$ 624,409,854.49**	Fullerton, La Palma, Gene Autry, Penn Way, Jeffrey In-Line, Laguna Hills DAR, Laguna Niguel, Alton, Fair Dr In-Line, Superior/Hospital Corner
Interstate 5 Only Low Estimate	**$ 291,125,822.68**	Fullerton, La Palma, Gene Autry, Penn Way, Jeffrey Side Running, Laguna Hills In-Line, Laguna Niguel
Interstate 5 Only High Estimate	**$ 361,740,094.49**	Fullerton, La Palma, Gene Autry, Penn Way, Jeffrey In-Line, Laguna Hills DAR, Laguna Niguel
State Route 55 Only Low Estimate	**$ 214,588,310.00**	Alton, Fair Dr Side Running, Superior Ave Platform
State Route 55 Only High Estimate	**$ 262,669,760.00**	Alton, Fair Dr In-Line, Superior/Hospital Corner
Route 1 Estimate	**$ 277,853,862.27**	Fullerton, La Palma, Gene Autry, Penn Way, Alton
Route 2 Low Estimate	**$ 203,268,390.40**	Laguna Niguel, Laguna Hills In-Line, Barranca, Jeffrey Road Side Running
Route 2 High Estimate	**$ 273,882,662.22**	Laguna Niguel, Laguna Hills DAR, Barranca, Jeffrey Road In-Line
Route 3 Low Estimate	**$ 214,588,310.00**	Alton, Fair Dr Side Running, Superior Ave Platform
Route 3 High Estimate	**$ 262,669,760.00**	Alton, Fair Dr In-Line, Superior/Hospital Corner
Routes 1 & 2 Low Estimate	**$ 481,122,252.68**	Fullerton, La Palma, Gene Autry, Penn Way, Jeffrey Side Running, Laguna Hills In-Line, Laguna Niguel, Alton
Routes 1 & 2 High Estimate	**$ 551,736,524.49**	Fullerton, La Palma, Gene Autry, Penn Way, Jeffrey In-Line, Laguna Hills DAR, Laguna Niguel, Alton
Routes 1 & 3 Low Estimate	**$ 302,445,742.27**	Fullerton, La Palma, Gene Autry, Penn Way, Alton, Fair Dr Side Running, Superior Ave Platform
Routes 1 & 3 High Estimate	**$ 350,527,192.27**	Fullerton, La Palma, Gene Autry, Penn Way, Alton, Fair Dr In-Line, Superior/Hospital Corner
Routes 2 & 3 Low Estimate	**$ 417,856,700.40**	Jeffrey Side Running, Laguna Hills In-Line, Laguna Niguel, Alton, Fair Dr Side Running, Superior Ave Platform
Routes 2 & 3 High Estimate	**$ 536,552,422.22**	Jeffrey In-Line, Laguna Hills DAR, Laguna Niguel, Alton, Fair Dr In-Line, Superior/Hospital Corner

Fullerton Park and Ride

Project includes signal prioritization with priority left turn lane for buses and platform upgrade using BRT amenities.

Cost Item	Item Number	Quantity	Unit	Unit Price	Total Cost	Notes
Signal prioritization upgrade	2	1	EA	200,000	$ 200,000	Left turn bus priority upgrade
Platform amenities	7	1	EA	100,000	$ 100,000	Upgrade existing platform with amenities, no concrete work
ADA Allowance		0				Existing platform, assume no ADA required
TOTAL COST					**$ 300,000**	

La Palma Side Running Platform

Project includes side-running platform northbound and is within freeway envelope southbound.
Includes a pedestrian crossing bridge to southbound platform over I-5, and a ramp meter prioritization upgrade on northbound side.
Northbound BRT requires freeway widening along the La Palma Avenue on-ramp.
Stations require retaining walls (assume 5 feet high).
Bike lockers, racks, and landscaping around stations are allowance items.

Cost Item	Item Number	Quantity	Unit	Unit Price	Total Cost	Notes
Pedestrian bridge	10	7000	SF	400	$ 2,800,000	Assume10 foot wide bridge, railing, missile protection, no cover, 700 feet long
Bus platform soutbound	9	1	EA	500,000	$ 500,000	Full platform 60 ft long, all amenities
Off ramp southbound	12	12600	SF	300	$ 3,780,000	Assign 12 foot lane width for bus only near platform, 1050 foot long ramp off and on
Type 60 barrier southbound	28	660	FT	231	$ 152,460	660 feet of concrete barrier, two sections
Signal prioritization upgrade	2	1	EA	200,000	$ 200,000	Ramp metering for bus merge to freeway from ramp
Type 60 barrier northbound	28	765	FT	231	$ 176,715	765 feet of concrete barrier on west side of ramp
New on ramp NB	12	30000	SF	300	$ 9,000,000	Based on direct takeoff of ramp area, includes platform pavement area
Bus platform northbound	9	1	EA	500,000	$ 500,000	Full platform 60 ft long, all amenities
TOTAL COST					**$ 17,109,175**	

Gene Autry Way DAR

The button hook design requires street realignment, and uses existing direct access ramp.
Project includes a maximum-height 20-foot retaining wall to create a flat station area.
Project includes traffic signal installation with prioritization for a bus turn.

Cost Item	Item Number	Quantity	Unit	Unit Price	Total Cost	Notes
Retaining wall	16	3900	SF	160	$ 624,000	260 foot long retaining wall assume 20 feet tall maximum, average 15 feet high
Structural fill material	18	5000	CY	168	$ 840,000	For button hook station, assume 300 ft long, 30 ft wide average, 15 ft average height
Street reconstruction for button hook and station	23	4800	SF	300	$ 1,440,000	Button hook station, 400 feet of paving at 12 ft wide
Bus platform	9	1	EA	500,000	$ 500,000	Standard 60 foot platform all amenities
Traffic signal prioritization	2	1	EA	200,000	$ 200,000	Crossing priority for bus operations
ADA Compliance					$ -	Assume platform is accessible
TOTAL COST					**$ 3,604,000**	

DAR to Penn Way Summary

Project includes a ramp tunnel underneath freeway (price per mile), and a four-way signal upgrade.
Widening is not required for the I-5 overpass on 17th Street widening.
Project includes a trench style entry/exit to lower grade before the tunnel.
Tree cutting cost excluded.
Project includes freeway widening on both sides of freeway between 17th Street and Main Street.

Cost Item	Item Number	Quantity	Unit	Unit Price	Total Cost	Notes
Four way signal upgrade	3	1	EA	400,000	$ 400,000	
Ramp tunnel underneath I-5	24	20000	SF	1,364	$ 27,272,727	Area by direct takeoff from plans, assume jacked box 18 feet high between retaining walls, includes paved running surf
Concrete barrier	28	530	FT	231	$ 122,430	530 feet of concrete barrier separating tunnel lanes
Retaining wall	16	14400	SF	160	$ 2,304,000	Assume 18 ft high, shown on plans, may not be required if a jacked box culvert is used
Retaining wall	16	15000	SF	160	$ 2,400,000	700 + 800 = 1500 feet of retaining wall, both sides of I-5, assume 10 feet high
Center line concrete barrier	28	2100	FT	231	$ 485,100	Separation wall along center of median running lanes
Median running lanes	13	49000	SF	500	$ 24,500,000	Two lanes in cut section for bus travel
S side freeway ramp	12	15600	SF	300	$ 4,680,000	One lane wide
N side freeway ramp	12	15600	SF	300	$ 4,680,000	One lane wide
TOTAL COST					**$ 66,844,257**	

Jeffrey Road Side Running

Project includes a slip-ramp station northbound with a new signal meter at the northbound Jeffrey on-ramp.
City of Irvine open space train bike/pedestrian bridge over I-5 and the station requires stairs and elevators down on both sides to the platforms.
The southbound platform is included in the park and ride lot.

Cost Item	Item Number	Quantity	Unit	Unit Price	Total Cost	Notes
Southbound platform	7	1	EA	100,000	$ 100,000	Off Walnut Avenue, amenities only
Bus platform northbound	9	1	EA	500,000	$ 500,000	All amenities, in side running lane
Signal meter	2	1	EA	200,000	$ 200,000	Controls merge at NB ramp near Jeffrey Road
Northbound concrete barrier	28	850	FT	231	$ 196,350	Between bus running lane and freeway NB
Freeway widening NB	14	15000	SF	639	$ 9,588,068	Quantity from direct takeoff from plans
TOTAL COST					**$ 10,584,418**	

Jeffrey Road In-Line Station

Project includes freeway widening from southbound on-ramp to northbound on-ramp and replacement of Jeffrey Road overcrossing.

Cost Item	Item Number	Quantity	Unit	Unit Price	Total Cost	Notes
Freeway reconstruction NB and SB in median	15	103000	SF	250	$ 25,750,000	Reconstruction in median for bus lane
SB freeway construction includes ramp	15	74000	SF	250	$ 18,500,000	Widening includes new off ramp to Walnut Avenue
NB freeway construction includes ramps	15	105000	SF	250	$ 26,250,000	
Concrete barrier SB	28	410	FT	231	$ 94,710	SB freeway barrier
Concrete barrier NB	28	350	FT	231	$ 80,850	NB freeway barrier
Concrete barrier median	28	3000	FT	231	$ 693,000	Separation barrier bus lane NB and bus lane SB
Jeffrey Road overcrossing	11	37000	SF	200	$ 7,400,000	170 feet long, 65 feet wide, over I-5
TOTAL COST					**$ 78,768,560**	

Barranca Parkway DAR

Project includes button-hook station design with maximum a 20-foot high retaining wall.
Project includes adding a southbound DAR in both directions.
Project includes center-depressed bus lanes between I-5 northbound and southbound with retaining walls on both sides.
Project includes a traffic signal at the button-hook station, and a modified traffic signal at Barranca Parkway.

Cost Item	Item Number	Quantity	Unit	Unit Price	Total Cost	Notes
Retaining wall	16	5250	SF	160	$ 840,000	Button hookl station retaining wall 350 feet long, 20 foot maximum height, average height assumed 15 feet
Bus lane	20	622.2222222	SY	163	$ 101,422	Button hook off Barranca Parkway, 16 foot wide lane
Structural fill material	18	8333.333333	CY	168	$ 1,400,000	For button hook, 15,000 sf, assume 15 foot average depth
Traffic signal	2	1	EA	200,000	$ 200,000	Bus priority left turn into button hook
Bus platform	9	1	EA	500,000	$ 500,000	Full platform with all amenities
Median separation concrete barrier	28	1950	FT	231	$ 450,450	Separation barrier
Retaining wall NB and SB	16	16000	SF	160	$ 2,560,000	For bus lanes, assume 10 feet high average, 1600 ft long
Freeway bus lane	12	72000	SF	300	$ 21,600,000	Two lanes, one NB, one SB, excludes bridge to Barranca Parkway
Bridge	11	17000	SF	200	$ 3,400,000	300 feet long, carries NB and SB bus lanes to Barranca Parkway, 60 feet wide by scale
TOTAL COST					**$ 31,051,872**	

Laguna Hills In-Line Station

Project includes freeway widening on both sides of I-5 and the construction of a pedestrian bridge over I-5 southbound.

Project features two staggered platforms, one north of and one south of the pedestrian bridge.

The street realignment of Avenida de la Carlota is not in the project cost.

Project includes multiple parcel acquisition. The OCTA standard cost per square foot of parcel acquisition and demolition should be applied.

Cost Item	Item Number	Quantity	Unit	Unit Price	Total Cost	Notes
Building demolition	1	1950000	CF	0	$ 858,000	Three buildings, 17,000 sf + 19,000 sf + 29,000 sf, assume 30 feet tall
Center concrete barrier	28	3000	FT	231	$ 693,000	Separation barrier
SB barrier west side	28	2300	FT	231	$ 531,300	Separation barrier
SB barrier east side	28	1400	FT	231	$ 323,400	Separation barrier
NB barrier west side	28	2000	FT	231	$ 462,000	Separation barrier
Pedestrian overpass	10	5650	SF	400	$ 2,260,000	565 feet long, assume 10 feet wide
Staircase	25	1	EA	20,000	$ 20,000	For access from pedestrian overpass to median station
Elevator	26	1	EA	500,000	$ 500,000	For access from pedestrian overpass to median station
Avenida De La Carlota reconstruction	23	39000	SF	300	$ 11,700,000	May be part of a different project
Freeway SB reconstruction	15	194000	SF	250	$ 48,500,000	Up to six lanes reconstruction
Freeway NB reconstruction	15	130000	SF	250	$ 32,500,000	Up to four lanes reconstruction
Bus platform	9	2	EA	500,000	$ 1,000,000	One platform north of pedestrian bridge, on platform south, in median
Center concrete barrier	28	1800	FT	231	$ 415,800	Separation barrier
SB concrete barrier	28	600	FT	231	$ 138,600	Separation barrier
Avenida De La Carlota reconstruction	23	39000	SF	300	$ 11,700,000	May be priced by Laguna Hills as part of reconstruction effort
Freeway SB reconstruction	15	123000	SF	250	$ 30,750,000	Up to six lanes reconstruction, includes two (2) ramps
Freeway NB reconstruction	15	72000	SF	250	$ 18,000,000	Up to four lanes reconstruction
Widen El Toro Road bridge crossing	11	3900	SF	200	$ 780,000	Extend bridge across new SB lanes
TOTAL COST					**$ 161,132,100**	

Laguna Hills DAR

Project includes a freeway widening and a DAR both directions connecting to Calle de los Caballeros.
Project includes an extension to the existing freeway overcrossing over El Toro Road.
The street realignment of Avenida de la Carlota is not in the project cost.
Project includes multiple parcel acquisition. The OCTA standard cost per square foot of parcel acquisition and demolition should be applied.

Cost Item	Item Number	Quantity	Unit	Unit Price	Total Cost	Notes
Center concrete barrier	28	1500	FT	231	$ 346,500	Separation barrier
SB concrete barrier	28	1300	FT	231	$ 300,300	Separation barrier
SB freeway reconstruction	15	51000	SF	250	$ 12,750,000	Reconstruction of existing pavement
Avenida De La Carlota reconstruction	23	27000	SF	300	$ 8,100,000	May be priced by Laguna Hills as part of reconstruction effort
NB freeway reconstruction	15	40000	SF	250	$ 10,000,000	Up to six lanes reconstruction
Building demolition	1	1950000	CF	0	$ 858,000	Three buildings, 17,000 sf + 19,000 sf + 29,000 sf, assume 30 feet tall
Center barrier	28	1500	FT	231	$ 346,500	Assume 10 feet high
SB barrier	28	1600	FT	231	$ 369,600	Assume 10 feet high
Bus ramp to Calle De Los Caballeros	12	13000	SF	300	$ 3,900,000	Assume 10 feet high
Bus bridge over freeway	11	5850	SF	200	$ 1,170,000	Assume 10 feet high
Avenida De La Carlota reconstruction	23	101000	SF	300	$ 30,300,000	Two lanes total, one NB one SB, in median
Freeway SB reconstruction	15	95000	SF	250	$ 23,750,000	Ramp portion of structure
Freeway NB reconstruction (includes bus lanes in median)	15	89000	SF	250	$ 22,250,000	Bridge portion of structure
Bus platform	9	1	EA	500,000	$ 500,000	May be priced by Laguna Hills as part of reconstruction effort
Signalized intersection	3	1	EA	400,000	$ 400,000	Up to six lanes reconstruction
Center concrete barrier	28	1800	FT	231	$ 415,800	Separation barrier
SB barrier	28	630	FT	231	$ 145,530	Separation barrier
Retaining wall	16	6000	SF	160	$ 960,000	Retaining wall 300 feet long two sides of median 10 ft tall
Freeway reconstruction median	15	75000	SF	250	$ 18,750,000	May save cost if existing pavement can be repurposed for bus lanes
El Toro Road bridge expansion	11	4000	SF	200	$ 800,000	Expansion of existing bridge
Avenida De La Carlota reconstruction	23	43000	SF	300	$ 12,900,000	May be priced by Laguna Hills as part of reconstruction effort
Freeway SB reconstruction	15	57000	SF	250	$ 14,250,000	Priced assuming reconstruction only on existing pavement
TOTAL COST					**$ 163,562,230**	

Laguna Niguel Station

Project includes upgraded station amenities only at the Metrolink Station drop-off area, not a new platform at the Metrolink station.

Cost Item	Item Number	Quantity	Unit	Unit Price	Total Cost	Notes
Bus platform	9	1	EA	500,000	$ 500,000	Full platform off Forbes Road at Metrolink drop off. May save costs if existing platform infrastructure is suitable.
TOTAL COST					**$ 500,000**	

Alton Avenue DAR

Project includes a button-hook station at Alton Parkway and a new DAR in both directions.
Project includes new streetsand overcrossing connecting Alton Street in Santa Ana to Alton Parkway in Irvine.
Project includes freeway widening on both sides of freeway including ramps for MacArthur Boulevard and Dyer Road.
Project includes street realignment on Pullman Street.
Project includes a signal and retaining wall for the station at Alton Parkway.

Cost Item	Item Number	Quantity	Unit	Unit Price	Total Cost	Notes
SB retaining wall east side	16	14100	SF	160	$ 2,256,000	Retaining wall assume 10 ft tall north and south of overpass
NB retaining wall west side	16	14100	SF	160	$ 2,256,000	Retaining wall assume 10 ft tall north and south of overpass
Median concrete barrier	28	630	FT	231	$ 145,530	Separation barrier
NB east side barrier	28	1100	FT	231	$ 254,100	Separation barrier
Median pavement reconstruction for bus lanes	15	89000	SF	250	$ 22,250,000	Excludes ramp to Alton Parkway
Alton Parkway including approaches	11	65000	SF	200	$ 13,000,000	Price approaches same as bridge overpass
Button hook retaining wall	16	3750	SF	160	$ 600,000	Assume 20 ft high wall maximum, 250 feet long, average height 15 feet
Platform fill	18	1100	CY	168	$ 184,800	Assume same as Gene Autry Way station
Street reconstruction east side freeway, south of Alton	23	57000	SF	300	$ 17,100,000	
Street reconstruction east side freeway, north of Alton	23	12000	SF	300	$ 3,600,000	
Street reconstruction Alton Parkway east of freeway	23	45000	SF	300	$ 13,500,000	
Street reconstruction Alton Parkway west of freeway	23	48000	SF	300	$ 14,400,000	
Freeway SB reconstruction	15	241000	SF	250	$ 60,250,000	Includes ramps
Freeway NB reconstruction	15	158000	SF	250	$ 39,500,000	Includes ramps
Left turn priority signal at Alton Parkway	2	1	EA	200,000	$ 200,000	Similar to Gene Autry Way
Bus platform	9	1	EA	500,000	$ 500,000	Full platform at Alton Parkway
TOTAL COST					**$ 189,996,430**	

Fair Drive Side Running Station

Project includes two new platforms on shoulders and a need soil stabilization for the slopes.
No new Fair Drive overcrossing or soundwalls needed.

Cost Item	Item Number	Quantity	Unit	Unit Price	Total Cost	Notes
SB concrete barrier	28	730	FT	231	$ 168,630	Separation barrier
NB concrete barrier	28	750	FT	231	$ 173,250	Separation barrier
Freeway SB reconstruction	15	51000	SF	250	$ 12,750,000	
Freeway NB reconstruction	15	40000	SF	250	$ 10,000,000	
Bus platform	9	2	EA	500,000	$ 1,000,000	Full platform NB and SB
TOTAL COST					**$ 24,091,880**	

Fair Drive In-Line Station

Project includes a new Fair Drive overcrossing and freeway ramp realignment.

Cost Item	Item Number	Quantity	Unit	Unit Price	Total Cost	Notes
SB concrete barrier	28	550	FT	231	$ 127,050	Separation barrier
NB concrete barrier	28	880	FT	231	$ 203,280	Separation barrier
Center separation barrier	28	3000	FT	231	$ 693,000	Separation barrier
Fair Drive overcrossing bridge	11	42000	SF	200	$ 8,400,000	
Freeway SB reconstruction	15	116000	SF	250	$ 29,000,000	
Freeway NB reconstruction	15	129000	SF	250	$ 32,250,000	
Bus platform	9	2	EA	500,000	$ 1,000,000	Full platforms in freeway median
TOTAL COST					**$ 71,673,330**	

HOAG Hospital Access

Option A Corner Station

Option B Superior Avenue Platform

Property acquisition required for either option, and is not priced in the estimate.

Cost Item	Item Number	Quantity	Unit	Unit Price	Total Cost	Notes
Option A Corner Station						
Bus platform	9	2	EA	500,000	$ 1,000,000	Multiple platforms
Property acquisition		2800	SF		$ -	Acquire 14 parking stalls
Option A Cost					**$ 1,000,000**	
Option B Superior Avenue Platform						
Bus platform	9	1	EA	500,000	$ 500,000	Single platform
Property acquisition		3800	SF		$ -	Acquire 19 parking stalls
Option B Cost					**$ 500,000**	

Appendix F: Ridership Modeling

Route 1:

Freeway Bus Rapid Transit — From Fullerton Park and Ride to Irvine Business Complex (I-5 and SR 55)

Inbound — * Travel Time is from Bus Departure to Bus Arrival (Absent Dwell Time)

From Station	To Station	Running Travel Time	Running Travel Time (minutes)	Travel Time (minus) Dwell Time (seconds)	# of Signals (Endpoint Inclusive)	Distance (miles)	Non-Freeway Distance (miles)	Cumulative Departure Time	Cumulative Arrival Time	Running Speed (MPH)
Fullerton Park and Ride	La Palma	4.00	3.25	45	5	1.76	0.71	0:00:00	0:04:00	26.4
La Palma	Gene Autry	8.25	7.5	45	1	5.02	0.1	0:04:00	0:12:15	36.5
Gene Autry	State College	2.00	1.25	45	1	0.87	0	0:12:15	0:14:15	26.1
State College	SARTC	8.25	7.5	45	6	3.61	0.92	0:14:15	0:22:30	26.3
SARTC	McFadden	5.75	5	45	3	2.45	0.53	0:22:30	0:28:15	25.6
McFadden	Alton	4.50	3.75	45	1	2.5	0.1	0:28:15	0:32:45	33.3
	Total Run Time	**32.8**	**32 minutes**	**45 seconds**	**Total Distance:**	*16.21*		**Total Time**	**0:32:45**	29.7
	Total Run Time + station dwell times + 10 mins layover	**45.8**								

Inbound

Station Dwell Times	**45**	**seconds**
Headways - Weekdays		
6:00 AM - 9:00 AM	15	minutes
9:00 AM - 3:00 PM	15	minutes
3:00 PM - 6:00 PM	15	minutes
6:00 PM - 12:00 AM (Midnight)	30	minutes
Revenue Hours - Weekdays		
6:00 AM - 9:00 AM	549	minutes
9:00 AM - 3:00 PM	1098	minutes
3:00 PM - 6:00 PM	549	minutes
6:00 PM - 12:00 AM (Midnight)	549	minutes
Total Weekday Revenue Hours	**2745**	**minutes**
Headways - Weekends + Holidays		
6:00 AM - 9:00 AM	30	minutes
9:00 AM - 3:00 PM	30	minutes
3:00 PM - 6:00 PM	30	minutes
6:00 PM - 10:00 PM	30	minutes
Revenue Hours - Weekends + Holidays		
6:00 AM - 9:00 AM	274.5	minutes
9:00 AM - 3:00 PM	549	minutes
3:00 PM - 6:00 PM	274.5	minutes
6:00 PM - 12:00 AM (Midnight)	366	minutes
Total Weekdend/Holiday Rev Hours	**1464**	**minutes**
Annualization Factors		
Weekends/Holidays	110	days
Weekdays	255	days
Annual Revenue Hours		
Weekdays	699,975	minutes
Weekends + Holidays	161,040	minutes
Total Annual Revenue Minutes	861,015	minutes
Total Inbound Direction Revenue Hours	**14,350**	**hours**

104 weekend days + 6 holidays

Route 1:
Freeway Bus Rapid Transit — From Fullerton Park and Ride to Irvine Business Complex (I-5 and SR 55)

Outbound — * Travel Time is from Bus Departure to Bus Arrival (Absent Dwell Time) — 9

From Station	To Station	Running Travel Time	Running Travel Time (minutes)	Travel Time (minus) Dwell Time (seconds)	# of Signals (Endpoint Inclusive)	Distance (miles)	Non-Freeway Distance (miles)	Cumulative Departure Time	Cumulative Arrival Time	Running Speed (MPH)
Alton	McFadden	4.50	3.75	45	1	2.54	0.1	0:00:00	0:04:30	33.9
McFadden	SARTC	6.25	5.5	45	4	2.6	0.64	0:04:30	0:10:45	25.0
SARTC	State College	7.75	7	45	5	3.5	0.78	0:10:45	0:18:30	27.1
State College	Gene Autry	2.00	1.25	45	1	0.81	0.1	0:18:30	0:20:30	24.3
Gene Autry	La Palma	9.00	8.25	45	3	5.13	0.35	0:20:30	0:29:30	34.2
La Palma	Fullerton Park and Ride	3.50	2.75	45	2	1.47	0.31	0:29:30	0:33:00	25.2
	Total Run Time	**33.0**	**33**	**0**	**Total Distance:**	*16.05*		**Total Time**	**0:33:00**	29.2
	Total Run Time + station dwell times + 10 mins layover	**46.0**								

Outbound

Station Dwell Times	**45**	**seconds**
Headways - Weekdays		
6:00 AM - 9:00 AM	15	minutes
9:00 AM - 3:00 PM	15	minutes
3:00 PM - 6:00 PM	15	minutes
6:00 PM - 12:00 AM (Midnight)	30	minutes
Revenue Hours - Weekdays		
6:00 AM - 9:00 AM	552	minutes
9:00 AM - 3:00 PM	1104	minutes
3:00 PM - 6:00 PM	552	minutes
6:00 PM - 12:00 AM (Midnight)	552	minutes
Total Weekday Revenue Hours	**2760**	**minutes**
Headways - Weekends + Holidays		
6:00 AM - 9:00 AM	30	minutes
9:00 AM - 3:00 PM	30	minutes
3:00 PM - 6:00 PM	30	minutes
6:00 PM - 10:00 PM	30	minutes
Revenue Hours - Weekends + Holidays		
6:00 AM - 9:00 AM	276	minutes
9:00 AM - 3:00 PM	552	minutes
3:00 PM - 6:00 PM	276	minutes
6:00 PM - 12:00 AM (Midnight)	368	minutes
Total Weekdend/Holiday Rev Hours	**1472**	**minutes**
Annualization Factors		
Weekends/Holidays	110	days
Weekdays	255	days
Annual Revenue Hours		
Weekdays	703,800	minutes
Weekends + Holidays	161,920	minutes
Total Annual Revenue Minutes	865,720	minutes
Total Outbound Direction Revenue Hours	**14,429**	**hours**

104 weekend days + 6 holidays

Route 2:

Freeway Bus Rapid Transit — From Laguna Niguel-Mission Viejo Metrolink to Gene Autry Way

Inbound — * Travel Time is from Bus Departure to Bus Arrival (Absent Dwell Time)

From Station	To Station	Running Travel Time	Running Travel Time (minutes)	Travel Time (minus) Dwell Time (seconds)	# of Signals (Endpoint Inclusive)	Distance (miles)	Non-Freeway Distance (miles)	Cumulative Departure Time	Cumulative Arrival Time	Running Speed (MPH)
Laguna Niguel-Mission Viejo Metrolink	Laguna Hills Transportation Center	11.50	10.75	45	4	5.75	0.97	0:00:00	0:11:30	30.0
Laguna Hills Transportation Center	Barranca	9.50	8.75	45	4	4.91	0.57	0:11:30	0:21:00	31.0
Barranca	Jeffrey	4.25	3.5	45	1	2.36	0.1	0:21:00	0:25:15	33.3
Jeffrey	SARTC	13.50	12.75	45	4	7.53	0.64	0:25:15	0:38:45	33.5
SARTC	State College	7.75	7	45	5	3.5	0.78	0:38:45	0:46:30	27.1
State College	Gene Autry	2.00	1.25	45	1	0.81	0.1	0:46:30	0:48:30	24.3
	Total Run Time	**48.5**	**48 minutes**	**30 seconds**	**Total Distance:**	*24.86*		**Total Time**	**0:48:30**	30.8
	Total Run Time + station dwell times + 10 mins layover	**62.3**								

Inbound

Station Dwell Times	**45**	**seconds**
Headways - Weekdays		
6:00 AM - 9:00 AM	15	minutes
9:00 AM - 3:00 PM	15	minutes
3:00 PM - 6:00 PM	15	minutes
6:00 PM - 12:00 AM (Midnight)	30	minutes
Revenue Hours - Weekdays		
6:00 AM - 9:00 AM	747	minutes
9:00 AM - 3:00 PM	1494	minutes
3:00 PM - 6:00 PM	747	minutes
6:00 PM - 12:00 AM (Midnight)	747	minutes
Total Weekday Revenue Hours	**3735**	**minutes**
Headways - Weekends + Holidays		
6:00 AM - 9:00 AM	30	minutes
9:00 AM - 3:00 PM	30	minutes
3:00 PM - 6:00 PM	30	minutes
6:00 PM - 10:00 PM	30	minutes
Revenue Hours - Weekends + Holidays		
6:00 AM - 9:00 AM	373.5	minutes
9:00 AM - 3:00 PM	747	minutes
3:00 PM - 6:00 PM	373.5	minutes
6:00 PM - 12:00 AM (Midnight)	498	minutes
Total Weekdend/Holiday Rev Hours	**1992**	**minutes**

Annualization Factors			
Weekends/Holidays	110	days	104 weekend days + 6 holidays
Weekdays	255	days	
Annual Revenue Hours			
Weekdays	952,425	minutes	
Weekends + Holidays	219,120	minutes	
Total Annual Revenue Minutes	1,171,545	minutes	
Total Inbound Direction Revenue Hours	**19,526**	**hours**	

Route 2:
Freeway Bus Rapid Transit — From Laguna Niguel-Mission Viejo Metrolink to Gene Autry Way

Outbound — * Travel Time is from Bus Departure to Bus Arrival (Absent Dwell Time) — 9

From Station	To Station	Running Travel Time	Running Travel Time (minutes)	Travel Time (minus) Dwell Time (seconds)	# of Signals (Endpoint Inclusive)	Distance (miles)	Non-Freeway Distance (miles)	Cumulative Departure Time	Cumulative Arrival Time	Running Speed (MPH)
Gene Autry	State College	2.00	1.25	45	1	0.87	0	0:00:00	0:02:00	26.1
State College	SARTC	8.25	7.5	45	6	3.61	0.92	0:02:00	0:10:15	26.3
SARTC	Jeffrey	13.50	12.75	45	4	7.61	0.57	0:10:15	0:23:45	33.8
Jeffrey	Barranca	4.75	4	45	2	2.5	0.25	0:23:45	0:28:30	31.6
Barranca	Laguna Hills Transportion Center	8.50	7.75	45	4	4.69	0.45	0:28:30	0:37:00	33.1
Laguna Hills Transportation Center	Laguna Niguel-Mission Viejo Metrolink	11.75	11	45	4	5.65	1.07	0:37:00	0:48:45	28.9
	Total Run Time	**48.8**	**48**	**45**	**Total Distance:**	*24.93*		**Total Time**	**0:48:45**	30.7
	Total Run Time + station dwell times + 10 mins layover	**62.5**								

Outbound

Station Dwell Times	**45**	**seconds**
Headways - Weekdays		
6:00 AM - 9:00 AM	15	minutes
9:00 AM - 3:00 PM	15	minutes
3:00 PM - 6:00 PM	15	minutes
6:00 PM - 12:00 AM (Midnight)	30	minutes
Revenue Hours - Weekdays		
6:00 AM - 9:00 AM	750	minutes
9:00 AM - 3:00 PM	1500	minutes
3:00 PM - 6:00 PM	750	minutes
6:00 PM - 12:00 AM (Midnight)	750	minutes
Total Weekday Revenue Hours	**3750**	**minutes**
Headways - Weekends + Holidays		
6:00 AM - 9:00 AM	30	minutes
9:00 AM - 3:00 PM	30	minutes
3:00 PM - 6:00 PM	30	minutes
6:00 PM - 10:00 PM	30	minutes
Revenue Hours - Weekends + Holidays		
6:00 AM - 9:00 AM	375	minutes
9:00 AM - 3:00 PM	750	minutes
3:00 PM - 6:00 PM	375	minutes
6:00 PM - 12:00 AM (Midnight)	500	minutes
Total Weekdend/Holiday Rev Hours	**2000**	**minutes**
Annualization Factors		
Weekends/Holidays	110	days
Weekdays	255	days
Annual Revenue Hours		
Weekdays	956,250	minutes
Weekends + Holidays	220,000	minutes
Total Annual Revenue Minutes	1,176,250	minutes
Total Outbound Direction Revenue Hours	**19,604**	**hours**

104 weekend days + 6 holidays

Route 2A:

Freeway Bus Rapid Transit — From Laguna Niguel-Mission Viejo Metrolink to Fullerton Park and Ride (I-5)

Inbound — * Travel Time is from Bus Departure to Bus Arrival (Absent Dwell Time)

From Station	To Station	Running Travel Time	Running Travel Time (minutes)	Travel Time (minus) Dwell Time (seconds)	# of Signals (Endpoint Inclusive)	Distance (miles)	Non-Freeway Distance (miles)	Cumulative Departure Time	Cumulative Arrival Time	Running Speed (MPH)
Laguna Niguel-Mission Viejo Metrolink	Laguna Hills Transportation Center	11.50	10.75	45	4	5.75	0.97	0:00:00	0:11:30	30.0
Laguna Hills Transportation Center	Barranca	9.50	8.75	45	4	4.91	0.57	0:11:30	0:21:00	31.0
Barranca	Jeffrey	4.25	3.5	45	1	2.36	0.1	0:21:00	0:25:15	33.3
Jeffrey	SARTC	13.50	12.75	45	4	7.53	0.64	0:25:15	0:38:45	33.5
SARTC	State College	7.75	7	45	5	3.5	0.78	0:38:45	0:46:30	27.1
State College	Gene Autry	2.00	1.25	45	1	0.81	0.1	0:46:30	0:48:30	24.3
Gene Autry	La Palma	9.00	8.25	45	3	5.13	0.35	0:48:30	0:57:30	34.2
La Palma	Fullerton Park and Ride	3.50	2.75	45	2	1.47	0.31	0:57:30	1:01:00	25.2
	Total Run Time	**61.0**	**61 minutes**	**0 seconds**	**Total Distance:**	*31.46*		**Total Time**	**1:01:00**	30.9
	Total Run Time + station dwell times + 10 mins layover	**76.3**								

Inbound

Station Dwell Times	**45**	**seconds**
Headways - Weekdays		
6:00 AM - 9:00 AM	15	minutes
9:00 AM - 3:00 PM	15	minutes
3:00 PM - 6:00 PM	15	minutes
6:00 PM - 12:00 AM (Midnight)	30	minutes
Revenue Hours - Weekdays		
6:00 AM - 9:00 AM	915	minutes
9:00 AM - 3:00 PM	1830	minutes
3:00 PM - 6:00 PM	915	minutes
6:00 PM - 12:00 AM (Midnight)	915	minutes
Total Weekday Revenue Hours	**4575**	**minutes**
Headways - Weekends + Holidays		
6:00 AM - 9:00 AM	30	minutes
9:00 AM - 3:00 PM	30	minutes
3:00 PM - 6:00 PM	30	minutes
6:00 PM - 10:00 PM	30	minutes
Revenue Hours - Weekends + Holidays		
6:00 AM - 9:00 AM	457.5	minutes
9:00 AM - 3:00 PM	915	minutes
3:00 PM - 6:00 PM	457.5	minutes
6:00 PM - 12:00 AM (Midnight)	610	minutes
Total Weekdend/Holiday Rev Hours	**2440**	**minutes**
Annualization Factors		
Weekends/Holidays	110	days
Weekdays	255	days
Annual Revenue Hours		
Weekdays	1,166,625	minutes
Weekends + Holidays	268,400	minutes
Total Annual Revenue Minutes	1,435,025	minutes
Total Inbound Direction Revenue Hours	**23,917**	**hours**

104 weekend days + 6 holidays

Route 2A:
Freeway Bus Rapid Transit From Laguna Niguel-Mission Viejo Metrolink to Fullerton Park and Ride (I-5)

Outbound * Travel Time is from Bus Departure to Bus Arrival (Absent Dwell Time) 9

From Station	To Station	Running Travel Time	Running Travel Time (minutes)	Travel Time (minus) Dwell Time (seconds)	# of Signals (Endpoint Inclusive)	Distance (miles)	Non-Freeway Distance (miles)	Cumulative Departure Time	Cumulative Arrival Time	Running Speed (MPH)
Fullerton Park and Ride	La Palma	4.00	3.25	45	5	1.76	0.71	0:00:00	0:04:00	26.4
La Palma	Gene Autry	8.25	7.5	45	1	5.02	0.1	0:04:00	0:12:15	36.5
Gene Autry	State College	2.00	1.25	45	1	0.87	0	0:12:15	0:14:15	26.1
State College	SARTC	8.25	7.5	45	6	3.61	0.92	0:14:15	0:22:30	26.3
SARTC	Jeffrey	13.50	12.75	45	4	7.61	0.57	0:22:30	0:36:00	33.8
Jeffrey	Barranca	4.75	4	45	2	2.5	0.25	0:36:00	0:40:45	31.6
Barranca	Laguna Hills Transportion Center	8.50	7.75	45	4	4.69	0.45	0:40:45	0:49:15	33.1
Laguna Hills Transportation Center	Laguna Niguel-Mission Viejo Metrolink	11.75	11	45	4	5.65	1.07	0:49:15	1:01:00	28.9
	Total Run Time	**61.0**	**61**	**0**	**Total Distance:**	*31.71*		**Total Time**	**1:01:00**	31.2
	Total Run Time + station dwell times + 10 mins layover	**76.3**								

Outbound

Station Dwell Times	**45**	**seconds**
Headways - Weekdays		
6:00 AM - 9:00 AM	15	minutes
9:00 AM - 3:00 PM	15	minutes
3:00 PM - 6:00 PM	15	minutes
6:00 PM - 12:00 AM (Midnight)	30	minutes
Revenue Hours - Weekdays		
6:00 AM - 9:00 AM	915	minutes
9:00 AM - 3:00 PM	1830	minutes
3:00 PM - 6:00 PM	915	minutes
6:00 PM - 12:00 AM (Midnight)	915	minutes
Total Weekday Revenue Hours	**4575**	**minutes**
Headways - Weekends + Holidays		
6:00 AM - 9:00 AM	30	minutes
9:00 AM - 3:00 PM	30	minutes
3:00 PM - 6:00 PM	30	minutes
6:00 PM - 10:00 PM	30	minutes
Revenue Hours - Weekends + Holidays		
6:00 AM - 9:00 AM	457.5	minutes
9:00 AM - 3:00 PM	915	minutes
3:00 PM - 6:00 PM	457.5	minutes
6:00 PM - 12:00 AM (Midnight)	610	minutes
Total Weekdend/Holiday Rev Hours	**2440**	**minutes**
Annualization Factors		
Weekends/Holidays	110	days
Weekdays	255	days
Annual Revenue Hours		
Weekdays	1,166,625	minutes
Weekends + Holidays	268,400	minutes
Total Annual Revenue Minutes	1,435,025	minutes
Total Outbound Direction Revenue Hours	**23,917**	**hours**

104 weekend days + 6 holidays

Route 3:

Freeway Bus Rapid Transit — SARTC to Hoag Hospital (I-5 and SR 55)

Inbound — * Travel Time is from Bus Departure to Bus Arrival (Absent Dwell Time)

From Station	To Station	Running Travel Time	Running Travel Time (minutes)	Travel Time (minus) Dwell Time (seconds)	# of Signals (Endpoint Inclusive)	Distance (miles)	Non-Freeway Distance (miles)	Cumulative Departure Time	Cumulative Arrival Time	Running Speed (MPH)
SARTC	McFadden	5.75	5	45	3	2.45	0.53	0:00:00	0:05:45	25.6
McFadden	Alton	4.50	3.75	45	1	2.5	0.1	0:06:30	0:11:00	33.3
Alton	Fair	6.50	5.75	45	1	3.86	0.1	0:11:45	0:18:15	35.6
Fair	17th	6.00	5.25	45	5	2.53	0.6	0:19:00	0:25:00	25.3
17th	Hoag Hospital	5.25	4.5	45	4	1.14	1.14	0:25:45	0:31:00	13.0
	Total Run Time	**28.0**	**28 minutes**	**0 seconds**	**Total Distance:**	*12.48*		**Total Time**	**0:31:00**	26.7
	Total Run Time + station dwell times + 10 mins layover	**40.3**								

Inbound

Station Dwell Times	**45 seconds**
Headways - Weekdays	
6:00 AM - 9:00 AM	15 minutes
9:00 AM - 3:00 PM	15 minutes
3:00 PM - 6:00 PM	15 minutes
6:00 PM - 12:00 AM (Midnight)	30 minutes
Revenue Hours - Weekdays	
6:00 AM - 9:00 AM	483 minutes
9:00 AM - 3:00 PM	966 minutes
3:00 PM - 6:00 PM	483 minutes
6:00 PM - 12:00 AM (Midnight)	483 minutes
Total Weekday Revenue Hours	**2415 minutes**
Headways - Weekends + Holidays	
6:00 AM - 9:00 AM	30 minutes
9:00 AM - 3:00 PM	30 minutes
3:00 PM - 6:00 PM	30 minutes
6:00 PM - 10:00 PM	30 minutes
Revenue Hours - Weekends + Holidays	
6:00 AM - 9:00 AM	241.5 minutes
9:00 AM - 3:00 PM	483 minutes
3:00 PM - 6:00 PM	241.5 minutes
6:00 PM - 12:00 AM (Midnight)	322 minutes
Total Weekdend/Holiday Rev Hours	**1288 minutes**

Annualization Factors		
Weekends/Holidays	110 days	104 weekend days + 6 holidays
Weekdays	255 days	
Annual Revenue Hours		
Weekdays	615,825 minutes	
Weekends + Holidays	141,680 minutes	
Total Annual Revenue Minutes	757,505 minutes	
Total Inbound Direction Revenue Hours	**12,625 hours**	

Route 3:
Freeway Bus Rapid Transit SARTC to Hoag Hospital (I-5 and SR 55)

Outbound * Travel Time is from Bus Departure to Bus Arrival (Absent Dwell Time) 9

From Station	To Station	Running Travel Time	Running Travel Time (minutes)	Travel Time (minus) Dwell Time (seconds)	# of Signals (Endpoint Inclusive)	Distance (miles)	Non-Freeway Distance (miles)	Cumulative Departure Time	Cumulative Arrival Time	Running Speed (MPH)
Hoag Hospital	17th	6.00	5.25	45	6	1.31	1.31	0:00:00	0:06:00	13.1
17th	Fair	5.75	5	45	4	2.33	0.6	0:06:45	0:12:30	24.3
Fair	Alton	6.50	5.75	45	1	3.82	0.1	0:13:15	0:19:45	35.3
Alton	McFadden	4.50	3.75	45	1	2.54	0.1	0:20:30	0:25:00	33.9
McFadden	SARTC	6.25	5.5	45	4	2.6	0.64	0:25:45	0:32:00	25.0
	Total Run Time	**29.0**	**29**	**0**	**Total Distance:**	*12.6*		**Total Time**	**0:32:00**	26.1
	Total Run Time + station dwell times + 10 mins layover	**41.3**								

Outbound

Station Dwell Times	**45**	**seconds**
Headways - Weekdays		
6:00 AM - 9:00 AM	15	minutes
9:00 AM - 3:00 PM	15	minutes
3:00 PM - 6:00 PM	15	minutes
6:00 PM - 12:00 AM (Midnight)	30	minutes
Revenue Hours - Weekdays		
6:00 AM - 9:00 AM	495	minutes
9:00 AM - 3:00 PM	990	minutes
3:00 PM - 6:00 PM	495	minutes
6:00 PM - 12:00 AM (Midnight)	495	minutes
Total Weekday Revenue Hours	**2475**	**minutes**
Headways - Weekends + Holidays		
6:00 AM - 9:00 AM	30	minutes
9:00 AM - 3:00 PM	30	minutes
3:00 PM - 6:00 PM	30	minutes
6:00 PM - 10:00 PM	30	minutes
Revenue Hours - Weekends + Holidays		
6:00 AM - 9:00 AM	247.5	minutes
9:00 AM - 3:00 PM	495	minutes
3:00 PM - 6:00 PM	247.5	minutes
6:00 PM - 12:00 AM (Midnight)	330	minutes
Total Weekdend/Holiday Rev Hours	**1320**	**minutes**
Annualization Factors		
Weekends/Holidays	110	days
Weekdays	255	days
Annual Revenue Hours		
Weekdays	631,125	minutes
Weekends + Holidays	145,200	minutes
Total Annual Revenue Minutes	776,325	minutes
Total Outbound Direction Revenue Hours	**12,939**	**hours**

104 weekend days + 6 holidays

Table 1
Daily Station Boardings for Route 1: Fullerton - Irvine
OCTA: Freeway BRT

Station Name	Daily Station Boardings		
	Walk-access	Drive-access	Total
Fullerton Park and Ride	133	70	203
La Palma Avenue	91	9	100
Gene Autry	57	12	69
State College Blvd	82	21	103
Santa Ana Regional Transportation Center (SARTC)	165	75	240
McFadden Ave	29	5	34
Irvine Business Complex	81	45	126
Line Totals	**638**	**237**	**875**

Table 1b
Daily Station Boardings for Route 2/2A: Fullerton - Laguna Niguel
OCTA: Freeway BRT

Station Name	Daily Station Boardings		
	Walk-access	Drive-access	Total
Fullerton Park and Ride	231	107	338
La Palma Ave	130	14	144
Gene Autry	64	14	78
State College Blvd	86	28	114
Santa Ana Regional Transportation Center	219	80	299
Jeffery Park and Ride	83	40	123
Barranca Pkway	139	89	228
Laguna Hills Transportation Center	94	23	117
Laguna Niguel-Mission Viejo Metrolink Station	139	58	197
Line Totals	**1,185**	**453**	**1,638**

Table 1c
Daily Station Boardings for Route 3:
Santa Ana Regional Transportation Center (SARTC) - Newport
OCTA: Freeway BRT

Station Name	Daily Station Boardings		
	Walk-access	Drive-access	Total
Santa Ana Regional Transportation Center (SARTC)	159	95	254
McFadden	27	3	30
Irvine Business Complex	63	37	100
Fair Dr.	49	19	68
17th Street	74	27	101
Hoag Hospital/Newport Beach	28	9	37
Line Totals	**400**	**190**	**590**

Table 2.1

Daily Transit Boardings by Mode and Access-mode Baseline

OCTA: Freeway BRT

	Mode ID	Drive Access Boardings	Walk Access Boardings	Total Boardings
Commuter rail	10	27,859	17,660	**45,519**
Other express routes	11	6,020	42,041	**48,060**
Local SB, Riv and Vent	12	6,874	74,249	**81,123**
LA Metro local routes	13	15,340	676,593	**691,933**
LA Metro express routes	14	5,246	110,166	**115,412**
OCTA local routes	15	7,815	137,923	**145,738**
OCTA express routes	16	2,376	18,930	**21,306**
Non-LA Metro local LA County	17	11,452	254,842	**266,293**
MTA rail transit	18	62,524	355,343	**417,867**
Long Beach Transit	19	1,744	75,938	**77,682**
Total		**147,249**	**1,763,684**	**1,910,933**

Table 2.2 OCTAM Transit Assignment Mode - Page 13.5

Daily Transit Boardings by Mode and Access-mode for Route 1: Fullerton - Irvine
OCTA: Freeway BRT

	Mode ID	Drive Access Boardings	Walk Access Boardings	Total Boardings
Commuter rail	10	28,281	17,602	**45,883**
Other express routes	11	6,081	42,294	**48,375**
Local SB, Riv and Vent	12	6,885	74,229	**81,113**
LA Metro local routes	13	15,337	676,532	**691,869**
LA Metro express routes	14	5,214	110,060	**115,274**
OCTA local routes	15	7,910	137,364	**145,274**
OCTA express routes	16	2,463	19,120	**21,583**
Non-LA Metro local LA Co	17	11,442	254,714	**266,156**
MTA rail transit	18	62,566	354,996	**417,562**
Long Beach Transit	19	1,727	75,421	**77,149**
Total		**147,907**	**1,762,332**	**1,910,238**

Difference: Route 1 minus Baseline				
	Mode ID	Drive Access Boardings	Walk Access Boardings	Total Boardings
Commuter rail	10	422	(58)	**364**
Other express routes	11	62	253	**315**
Local SB, Riv and Vent	12	11	(20)	**(10)**
LA Metro local routes	13	(2)	(61)	**(63)**
LA Metro express routes	14	(33)	(106)	**(138)**
OCTA local routes	15	95	(559)	**(464)**
OCTA express routes	16	87	190	**277**
Non-LA Metro local LA Co	17	(10)	(128)	**(137)**
MTA rail transit	18	42	(347)	**(305)**
Long Beach Transit	19	(16)	(517)	**(533)**
Total		**658**	**(1,353)**	**(695)**

Table 2.3

Daily Station Boardings for Route 2/2A: Fullerton - Laguna Niguel

OCTA: Freeway BRT

	Mode ID	Drive Access Boardings	Walk Access Boardings	Total Boardings
Commuter rail	10	28,191	17,552	**45,743**
Other express routes	11	6,079	42,302	**48,381**
Local SB, Riv and Vent	12	6,904	74,216	**81,121**
LA Metro local routes	13	15,334	676,609	**691,943**
LA Metro express routes	14	5,212	109,883	**115,095**
OCTA local routes	15	7,899	137,390	**145,289**
OCTA express routes	16	2,517	19,235	**21,751**
Non-LA Metro local LA Co	17	11,435	254,646	**266,081**
MTA rail transit	18	62,582	355,139	**417,721**
Long Beach Transit	19	1,732	75,625	**77,357**
Total		**147,886**	**1,762,596**	**1,910,482**

Difference: Route 2/2A minus Baseline				
	Mode ID	Drive Access Boardings	Walk Access Boardings	Total Boardings
Commuter rail	10	332	(108)	**224**
Other express routes	11	59	262	**321**
Local SB, Riv and Vent	12	30	(32)	**(2)**
LA Metro local routes	13	(6)	16	**10**
LA Metro express routes	14	(34)	(283)	**(317)**
OCTA local routes	15	84	(533)	**(449)**
OCTA express routes	16	141	304	**445**
Non-LA Metro local LA Co	17	(16)	(196)	**(213)**
MTA rail transit	18	58	(203)	**(146)**
Long Beach Transit	19	(11)	(313)	**(324)**
Total		**637**	**(1,088)**	**(451)**

Table 2.4

Daily Station Boardings for Route 3:
Santa Ana Regional Transportation Center (SARTC) - Newport
OCTA: Freeway BRT

	Mode ID	Drive Access Boardings	Walk Access Boardings	Total Boardings
Commuter rail	10	27,899	17,703	**45,602**
Other express routes	11	6,085	42,223	**48,307**
Local SB, Riv and Vent	12	6,893	74,224	**81,117**
LA Metro local routes	13	15,292	676,556	**691,848**
LA Metro express routes	14	5,234	110,021	**115,256**
OCTA local routes	15	7,917	137,448	**145,366**
OCTA express routes	16	2,491	19,143	**21,635**
Non-LA Metro local LA Co	17	11,450	254,896	**266,346**
MTA rail transit	18	62,568	355,116	**417,684**
Long Beach Transit	19	1,735	75,465	**77,200**
Total		**147,565**	**1,762,794**	**1,910,359**

Difference: Route 3 minus Baseline				
	Mode ID	Drive Access Boardings	Walk Access Boardings	Total Boardings
Commuter rail	10	40	43	**83**
Other express routes	11	65	182	**247**
Local SB, Riv and Vent	12	19	(24)	**(6)**
LA Metro local routes	13	(48)	(37)	**(85)**
LA Metro express routes	14	(12)	(145)	**(156)**
OCTA local routes	15	103	(475)	**(372)**
OCTA express routes	16	115	213	**328**
Non-LA Metro local LA Co	17	(2)	54	**52**
MTA rail transit	18	44	(227)	**(183)**
Long Beach Transit	19	(8)	(473)	**(481)**
Total		**316**	**(890)**	**(574)**

Table 3
Orange County Transit Trips1 by Time of Day, Mode and Routes
OCTA: Freeway BRT

	Baseline	Route 1		Route 2/2A		Route 3	
		Linked Trips	Difference: Alt1 minus Baseline	Linked Trips	Difference: Alt2 minus Baseline	Linked Trips	Difference: Alt3 minus Baseline
Peak Periods							
Local Bus	70,720	70,697	(23)	70,707	(13)	70,732	12
Express Bus	13,579	13,847	268	13,984	405	13,661	82
Commuter Rail	12,482	13,190	708	13,086	604	12,874	392
Urban Rail	6,564	6,506	(58)	6,569	5	6,553	(11)
Total Peak Periods	**103,345**	**104,240**	**895**	**104,346**	**1,001**	**103,820**	**475**
Off-peak Period							
Local Bus	49,099	49,052	(47)	49,039	(60)	49,077	(22)
Express Bus	5,408	5,516	108	5,609	201	5,443	35
Commuter Rail	1,071	973	(98)	991	(80)	1,023	(48)
Urban Rail	3,328	3,318	(10)	3,343	15	3,323	(5)
Total Off-peak Period	**58,906**	**58,859**	**(47)**	**58,982**	**76**	**58,866**	**(40)**
Total Daily (Peak + Off-peak)							
Local Bus	119,819	119,749	(70)	119,746	(73)	119,809	(10)
Express Bus	18,987	19,363	376	19,593	606	19,104	117
Commuter Rail	13,553	14,163	610	14,077	524	13,897	344
Urban Rail	9,892	9,824	(68)	9,912	20	9,876	(16)
Total Daily	**162,251**	**163,099**	**848**	**163,328**	**1,077**	**162,686**	**435**

[1] Transit trips sumarized in this table have at least one trip end in Orange County.

Table 4
Orange County VMT by Facility Type for Freeway BRT Routes
OCTA: Freeway BRT

Facility Type	Baseline	Route 1		Route 2/2A		Route 3	
		VMT	Difference: Alt1 minus Baseline	VMT	Difference: Alt2 minus Baseline	VMT	Difference: Alt3 minus Baseline
1 Freeway	32,721,312	32,675,453	(45,859)	32,672,739	(48,573)	32,676,256	(45,056)
2 Major arterial	14,637,821	14,622,267	(15,554)	14,620,380	(17,440)	14,623,645	(14,176)
3 Primary - arterial	10,809,324	10,783,388	(25,936)	10,782,204	(27,120)	10,784,777	(24,547)
4 Secondary - undivided arterial	2,495,171	2,494,158	(1,013)	2,494,398	(773)	2,494,525	(646)
5 Commuter - arterial	190,688	190,504	(184)	190,554	(133)	190,488	(200)
6 Commuter - undivided arterial	605,289	603,901	(1,388)	603,827	(1,462)	603,764	(1,525)
7 Smart Street or Expressway	3,279,443	3,265,213	(14,230)	3,265,792	(13,650)	3,266,157	(13,286)
8 HOV Facility	2,553,512	2,643,446	89,934	2,643,557	90,045	2,643,545	90,034
9 Freeway Ramp	2,939,475	2,927,685	(11,790)	2,928,018	(11,457)	2,928,115	(11,360)
10 Toll Facility	3,814,701	3,806,327	(8,373)	3,805,736	(8,965)	3,807,421	(7,280)
Orange County Totals	74,046,735	74,012,342	(34,393)	74,007,206	(39,530)	74,018,693	(28,042)

OCTA