

# CUPERTINO TRANSIT VISION





# TODAY, SOME MIGHT ALSO CALL SILICON VALLEY AND THE GREATER SAN JOSE AREA THE EPICENTER OF ANOTHER DISRUPTIVE FEATURE: TRAFFIC

SR 85 Transit Vision Study explores the possibility of implementing rapid transit services on SR-85 for the 18.6-miles long corridor spanning from US 101 in the north to SR-87 in the south. The study area corridor is inclusive of the communities of 8 cities, all located in Santa Clara County. These cities are Mountain View, Sunnyvale, Los Altos, Cupertino, Saratoga, Campbell, Los Gatos and a part of San Jose. The highest concentration of population is located in the north part of SR-85 in the cities of Mountain View and Sunnyvale. Small downtowns are located along SR-85 in Mountain View, Sunnyvale and Los Gatos.

Since 1971, Silicon Valley has been called the epicenter for ground-breaking innovations and disruptive technology. Today, some might also call Silicon Valley and the greater San Jose area the epicenter of another disruptive feature: traffic. The county of Santa Clara is home to major universities and the world's largest technology campuses; yet, its quality of life and economic vitality is severely hindered by its congested roadways.

In April 2016, the Santa Clara Valley Transit Authority (VTA) presented the first of many iterations of a study to identify a solution to this transit crisis. The study seeks to evaluate a multitude of rapid transit options for an 18.6 mile corridor of SR-85, in pursuit of an opportunity which improves mobility options and job access, provide better connectivity to points of interest, and increases economic development. The study includes major options for Express Bus, Dedicated BRT, and Light Rail Transit, in addition to viable first and last mile solutions. The ideal solution will not only improve commute times, but improve the quality of life for every citizen of Santa Clara County.

The main thoroughfare of Santa Clara County, and the subject of this transit study, is SR-85. SR-85 is a state freeway generally formed of 6-lanes (3 in each direction) and includes 1-lane in each direction for high occupancy vehicles (HOV - Carpool). The freeway was built in two phases: the oldest segment runs from US 101 in Mountain View to Stevens Creek Boulevard in Cupertino and is 5.6 miles long. The newest segment runs from Stevens Creek Boulevard to SR-87 (in the corridor study). The Santa Clara Valley Transit Authority (VTA) is the main transit agency located in this corridor, along with Caltrain and private, employer-provided transit. Caltrain serves a small portion of northern Santa Clara County and connects some riders to VTA bus stations.

Likely due to this phased construction, there is major differences between the oldest (in the north) and the newest (in the south) parts of the freeway, particularly regarding the width. The oldest part is narrower with a width varying between 116-feet and 142-feet (approximately). Medians vary between 11 to 29 feet and the shoulders are, most of time, less than 12-feet. These conditions can make the implementation of a rapid transit system difficult in the median or even in the shoulder without major modifications.

In the newest segment of SR-85, the freeway is wider with a width varying between 140 and 185-feet and with a much larger median: median width varies between 44-feet and 70-feet. This large median allows its utilization for a rapid transit system. List of interchanges and their destinations as well as the physical characteristics of SR-85 are identified in the appendix by segment.



# INTRODUCTION





## “INSTEAD, IT CREATED A CHOKE POINT, A **TRAFFIC NIGHTMARE** FOR THE COMMUTERS AND RESIDENTS ALONG THE HIGHWAY 85 CORRIDOR.”

BARRY CHANG AND VIVIAN EUZENT | THE MERCURY NEWS

VTA currently provides express, rapid, and limited-stop services in this area which operate on a combination of highways, expressways, and mixed-traffic arterial lanes. There is also limited service of light rail transit (LRT) which has signal priority on mixed-flow streets. Private employer-provided transit serve many technology campuses and their services are not generally coordinated with VTA. Only one VTA express route travels on SR-85 in the study area - Line 102 which operates between I-280 and SR-87. There is no express or limited-stop bus service between US 101 and I-280. Others route are all intersect SR-85.

Despite this variety of transportation options, annual VTA ridership has been decreasing since 2001, despite the growing population and increasingly longer commute times. Residents commute an average of 64 hours a year – second in the nation only to New York and Los Angeles. To compound this, Santa Clara County is actually California's fastest growing county, with an 8% increase in population in the last 5 years alone. This growth is projected to continue at this rate through 2040. This wildly exploding population center includes Mountain View, Sunnyvale, Los Altos, Cupertino, Saratoga, Campbell, Los Gatos and San Jose, which house dozens of major technology companies. Google, Apple, LinkedIn, Microsoft, Netflix, Yahoo! and Symantec, among others, are a second home to hundreds of thousands of employees, and growing.

With dozens of innovative companies and universities in the area, the job market is expected to explode in the coming years, with a 33% increase by

2040. This exploding job market will lead to more employees, and in turn, more residents driving to work. There are currently 3 major VTA BRT projects underway. VTA has determined that for now, a Bus Rapid Transit system is the best way to maintain the corridor's functionality and level of service while absorbing the increased population and workforce. These projects will include components such as Rapid Boarding, 10 minute headways between busses, Transit Signal Priority, and in some areas, a Bus- Only Lane. These new systems, although a welcome relief to some areas, are merely a gateway to the future of rapid transit options in Santa Clara County.

There is an understanding within communities along SR-85 that the addition of more pavement, even in the form of express or managed lanes, is not a sustainable solution.

# STUDY CONTEXT





# PURPOSE + NEED



## HOW CAN WE MAKE TRANSIT BE TRULY RAPID AND WORK FOR US?

Traffic, congestion, and bottlenecked roads are not new concepts to Bay Area residents. Neither is the vision for an efficient public transportation system. In fact, the search for better ways to navigate to work, home, school, or play has been ongoing since 1977, when plans for a light rail throughout the region were halted due to lack of funding and consensus. Long commuting times, at both peak and non-peak times, have always threatened the quality of life for the families, students, and employees of Santa Clara County. With conditions forecasted to continue on this path, there is no more critical time than today to engage in a better transit vision for Santa Clara.

The lack of a dedicated bus lane causes frequent delays for VTAs service. In addition, there is no express or limited-stop bus service that runs on this corridor of SR-85. Employer-provided transit does not work directly to coordinate with VTA or other agencies, however, drivers can make autonomous decisions about their routes based on current traffic conditions. This particular element of the county's transportation poses an interesting solution regarding flexible, real time reactionary transit options.

Sitting on a train, bus, or light rail car won't be the first choice if that option has many stops, is too far from a residence, or takes longer than a private vehicle might take. Unfortunately this is the current state of affairs, as evidenced by the steady decline in VTA ridership since 2001. But, if bus-specific lanes are built, and express versus local routes are managed more efficiently, suddenly, taking public transportation is no longer a hassle. Most importantly, there is more at stake than a decrease in cars on the road. When drivers sit in traffic, that is dead time, but when they sit on public transportation, they can get work done. The opportunity

cost for Santa Clara County to not invest in more efficient public transportation is harmful to their economic progress as much as it is to their time spent on the roads. The chance for a better system exists today with proposed funding from the Measure B Transportation Improvement Project.

The study, as envisioned involved the identification and high-level analysis of public transit improvement options for Route 85 between its intersection with Route 87 to the south and Highway 101 to the north. The study took on the form of Vision Planning and included plan views of the alignment as well as cross-sections that illustrate the Right of Way allocation for existing and future uses and modes. A preliminary identification of the number and location of stations were included. All stations were assumed to be located in the median with bike and pedestrian connections to adjacent surface streets. It also included order of magnitude cost estimates for each identified option. The estimates will capture costs for all work required to construct the improvements including general industry-typical percentages for soft costs (i.e., community outreach, environmental clearance, right of way (if needed), design, construction management, and system commissioning), and hard construction costs. Given the level of effort, it was decided during the initiation that the study include data driven justification of modal options.

- » Employment
- » Population and land use
- » Current transit options
- » Comparison to Portland





# THE VISION FOR TRANSIT ALONG SR-85 IN CUPERTINO

A brief research of proven public transit systems that are appropriate for serving the Route 85 Corridor in the West and North Valley regions was conducted as part of the study within a very constrained timeframe focusing primarily on the identification of the most suitable potential public transit system option(s). The options analyzed shall include, but are not limited to:

- » One Transit Lane and One HOV Lane
- » One Transit Lane and One Express Lane
- » LRT in median and Retain existing HOV
- » LRT in median and convert HOV lane to Express Lane

As part of the study, also brief review of the demographics was performed along with a review other cities that have successful rapid transit. The goal was to develop a visionary concept with visual tools to inspire and capture people's imagination so that it could pave the way for a higher level rapid transit system along SR 85.

Current transit ridership in Cupertino along the corridor is highest in the VTA system. However, VTA prior studies found population densities to be inadequate for higher level transit; therefore transit solutions revolved primarily around providing better feeder and commuter connections to BART stations (primarily Santa Clara, Lawrence and San Jose Diridon Station). Vision planning focused on review of population employment, current VTA transit ridership along with congestion levels on the freeways. The growth in employment especially the new Apple Spaceship campus in Cupertino (at I-280 and Wolfe Road) was seen an opportunity focus on connecting employment centers and educational institutions like De Anza Community College. The communities along

SR 85 are generally of the opinion that involves express lanes or adding more pavement is not the solution but dedicated lanes in the median should be used for rapid transit. The vision of future transit was based on a phased approach with Short Term, Intermediate and Long Term Options. The modes included enhanced bus, dedicated BRT and possibly a hybrid BRT/LRT option; with generalized station/stop locations.

Order of magnitude cost for the options were back of the envelope costs only and were used for general comparison between modal alternatives. The study was careful to not call these recommendations but possible future transit options.

A rendering of mobility options at an intermodal transit center along SR 85 was prepared as part of the study. Using the backdrop of SR 85 aerial visual, the rendering will transition from the elevated station structure shown in cross section graphic. The rendering will depict an intermodal transit center connecting with elevated station structure (external view); the center would have VTA buses, transportation network companies providing demand responsive studies including Uber, Lyft, limited parking and other employer or shared mobility services.



# ALTERNATIVES

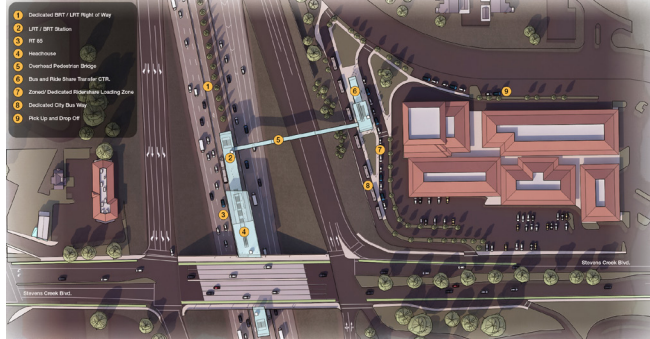


# APPENDIX: PHYSICAL CHARACTERISTICS OF SR-85

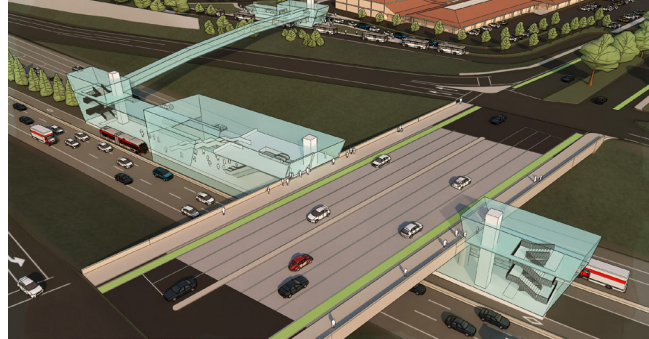
	Segment From	Segment To	Segment Length (mi)	Street Width (ft)	Median Width (ft)	Shoulder Width (ft)	Number of Lanes	Carpool Lanes	Interchange		
									Exit Number	Road	Destination
1	101	Moffet	0.2	134	23	11	6	2	24A 24B 24C	US 101 North Shoreline Boulevard Moffett Boulevard	GooglePlex, LinkedIn, Microsoft, San Francisco, San Jose
2	Moffet	Dana Street	1.0	118	21	8	6	2	23	Central Express Way	Caltrain Mountain View Station, Mountain View, Sunnyvale, VTA LRT Station
3	Dana Street	El Camino Real	0.7	126	22	10	6	2	22A 22C	SR-237 Southbay Freeway	San Jose, US101
4	El Camino Real	Dalles Street	2.4	116	20	11	6	2	20 22B	SR-82 San Camino Real Fremont Avenue	Mountain View, Sunnyvale
5	Dalles Street	Homestead Road	0.5	119	11	12	6	2	19A 19B	Homestead Road I-280	Apple Campus, San Francisco, San Jose
6	Homestead Road	Stevens Creek	1.1	124	22	10	6	2	19	Stevens Creek Boulevard	Cupertino, De Anza College
7	Stevens Creek	McClellan Road	0.5	142	29	13	7	2	16	Saratoga Avenue	Saratoga, West Valley College, Westgate Center
8	McClellan Road	Saratoga Avenue	3.5	141	44	12	6	2	14		
9	Saratoga Ave	Quito Rd	0.8	140	44	12	8	2			
10	Quito Rd	Pollard	0.8	144	44	11	6	2			
11	Pollard	Winchester Blvd	1.0	143	44	10	6	2			
12	Winchester Blvd	Los Gatos Blvd	0.8	148	50	10	6	2	11A 11B	Winchester Boulevard SR-17	Los Gatos, Netflix, San Jose, Santa Cruz, Saratoga
13	Los Gatos Blvd	Camden Ave	2.5	161	55	10	8	2	9	Union Avenue	Los Gatos, Xilinx
14	Camden Ave	Meridian Ave	0.8	154	48	10	6	2	8	Camden Avenue	
15	Meridian Ave	Almaden Expy	1.1	153	45	12	6	2			
16	Almaden Expy	Winfield Blvd	0.6	178	70	10	8	2	6	Alamaden Expressway	
17	Winfield Blvd	SR-87	0.4	184	70	10	8	2	5A 5B	SR-87 Santa Theresa	San Jose, VTA LRT Station, Westfield Oakbridge Shopping Center

# APPENDIX: TRANSIT CENTER VISUALS

Site Plan



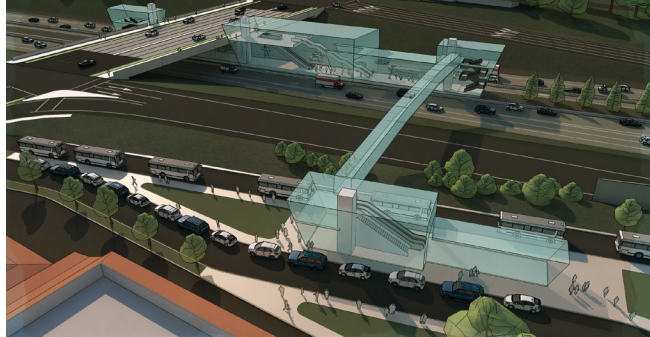
Northeast View



Northwest View



West View



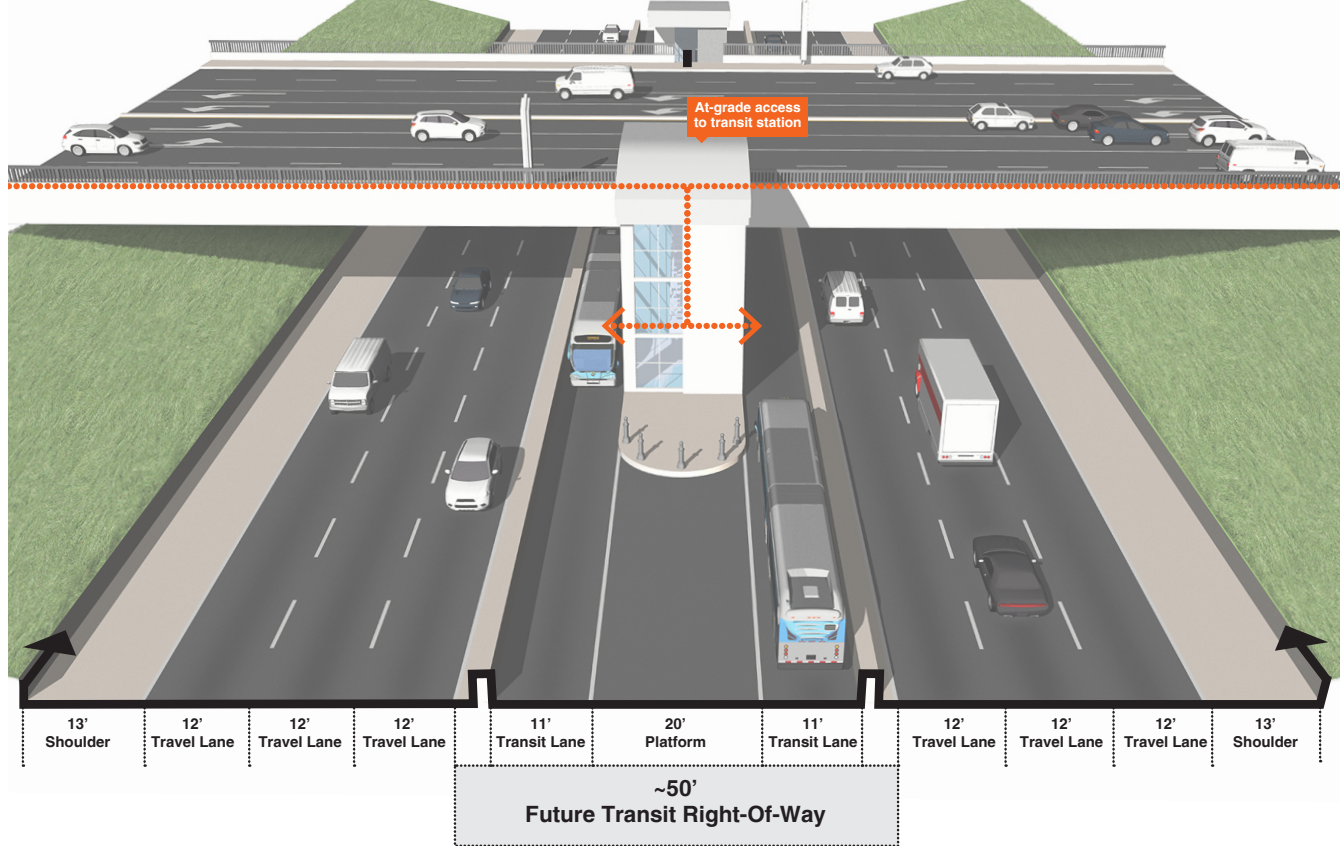
East View



Southeast View



Cross Section



THE TRANSIT CENTER CONCEPT DEPICTS AN INTERMODAL CENTER CONNECTING TO AN ELEVATED STATION STRUCTURE WITHIN SR-85, WHICH WOULD SERVICE VTA BUSES, DEMAND RESPONSIVE TRANSPORTATION COMPANIES (UBER, LYFT, ETC.), LIMITED PARKING, AND OTHER EMPLOYER OR SHARED MOBILITY SERVICES.