SPUR REPORT

JULY 2014

FREEDOM TO MOVE

How the Santa Clara Valley Transportation Authority can create better transportation choices in the South Bay

Contents

Freedom to Move is generously supported by the Silicon Valley Community Foundation and the John S. and James L. Knight Foundation.

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We are grateful to the staff and leadership of the Santa Clara Valley Transportation Authority for informing and reviewing this project. We also thank the SPUR San Jose City Board, the SPUR San Jose Policy Board, the SPUR Transportation Policy Board and the many community leaders and transportation experts who reviewed this material and participated in numerous interviews and discussions about the future of transportation in the South Bay.

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Freedom to Move

How the Santa Clara Valley Transportation Authority can create better transportation choices in the South Bay

The SPUR San Jose City Board reviewed, debated and adopted this report as SPUR policy on March 28, 2014.

Executive Summary

Like many urban areas that experienced dramatic growth after World War II, Santa Clara County grew up around the car. Now roadway traffic is making significant contributions to climate change and creating problems for the county in terms of economic growth, social equity and quality of life. With the population expected to grow 36 percent by 2040, congestion and its negative impacts are only going to get worse.

History shows that we can't build our way out of traffic. Projects to add new highway lanes only encourage more people to drive, and studies show that within a few years congestion is just as bad.

Meanwhile, the county's past attempts to shift people away from car use haven't worked. Despite investments in a light-rail system and widespread bus service, the percentage of people who drive to work remains high at 87 percent.

How can we get Santa Clara County, its people and its economy moving in a more sustainable way? By working to expand the range of available transportation choices, so that driving alone does not continue to be the only practical, reliable way to get around most of the county.

The Valley Transportation Authority (VTA) is the agency best-positioned to lead this change. VTA does everything from planning and operating transit to constructing highways. The agency has the sophistication and expertise to create the South Bay's sustainable transportation system of the future. Together with the towns and cities of the South Bay, VTA can deliver great transportation options.

There are many reasons why driving has dominated in the South Bay:

The car has shaped the county's growth. Most growth in the South Bay took place during the highway-building era of the 1950s, '60s and '70s. Land use decisions were made without regional coordination, and housing and jobs were distributed in different places, often resulting in long, car-dependent commutes. In recent years VTA and other agencies have begun developing plans to focus growth in compact, transit-oriented communities. But the private market is driving where growth actually happens — and it isn't always near transit.

Transit doesn't thrive throughout Santa Clara County. Because the county didn't grow up around a transit system, buses and light rail have difficulty covering the vast area efficiently. Many transit destinations don't attract riders because they aren't integrated into a dense, walkable community. Some shopping centers and office parks may be near transit, but many lack sidewalks and can be difficult and dangerous to access from transit stops.

Political factors play a role. In the course of our research, two political challenges to shifting the transportation system became apparent: the lack of a shared vision about what the system should look like, and the lack of champions to make the hard decisions necessary for a move to a different future.

Despite these challenges, it is both possible and imperative for the South Bay to become a region with great transportation options. Because it's not easy to create a new transportation culture, SPUR recommends using many strategies simultaneously to transition the system.

VTA is already shifting to becoming a "multi-modal" agency that balances the needs of walking, biking, transit and cars, and it is innovating new solutions to complex transportation problems. The strategies we recommend build on this momentum and set goals for achieving success.

STRATEGY 1: Make transit great in the places it works best.

In the corridors where transit can work well, it should be great. Bus and light-rail services should be frequent, productive, appealing and easy to access and navigate. For high-demand trips, transit travel times should be competitive with the car. Useful, high-quality transit service spurs a virtuous cycle: Improved transit supports cycling and walking, which in turn helps to shape communities around transit access, which then improves the productivity and attractiveness of transit.

STRATEGY 2: Develop mobility solutions beyond transit.

For suburban areas where transit service is impractical to run and transit stations are hard to access, VTA should pilot new kinds of transportation services. Innovations such as ridesharing, bikesharing, smartphone apps and new vehicle technology are all examples of ways transportation is changing. The opportunities these developments present for the South Bay are substantial.

STRATEGY 3: Make streets work for all users and stop expanding roads.

Roads have consumed a large portion of the developable land in Santa Clara County and can be a significant barrier for transportation modes other than cars. There is not enough funding to maintain all the roads in the county, and current pavement conditions are poor. In this context, it is imperative that road expansion projects stop and that existing roads move more people using a wider variety of modes. Local streets and expressways should benefit all users and provide safe space for pedestrians, cyclists and transit riders. Highways should be increasingly used by carpools and transit vehicles and should be priced to manage demand.

STRATEGY 4: Shape communities around transit.

Transportation should help shape great places and support a high quality of life — not contribute to degrading these things. Because VTA is a transportation agency, and local cities manage land use and the built environment, we must be proactive and intentional when it comes to integrating transportation and communities if we want to shape growth in a different way. VTA, the county and local cities and towns should have a shared vision for a region that supports a multitude of transportation options, and communities should be designed in ways that support this vision.

STRATEGY 5: Set clear sustainable transportation goals and align resources to meet them.

To become a leader of a different transportation future, VTA must have clear goals for increased sustainability and mobility. VTA is a large agency with a broad range of functions, many of which lead to conflicting plans and investments. Setting high-level goals for the county's transportation system will help align VTA's functions, enable partnerships and resolve difficult decisions.

STRATEGY 6: Increase public engagement and innovation.

VTA's services affect every single person who lives in, works in or visits Santa Clara County. The agency can use its reach to help connect people with its vision for the future. VTA should develop a trusting and productive relationship with all of its constituencies and a culture of co-creation and open innovation, where the public is treated as an integral player in moving the region forward.

STRATEGY 7: Grow funding.

There is not enough funding today to implement all the recommendations presented in this report. To make up for decreasing public subsidies from the state and federal government, we recommend cultivating new local funding sources. Some, like user fees or impact fees, could even drive changes in traveler behavior or land use patterns and help VTA achieve its goals. SPUR encourages VTA to test and pilot new funding sources.

A new direction

for transportation in the South Bay

Santa Clara County grew up around the car. Rapid conversion of agricultural land into suburban developments, a boom in tech office campuses, and big investments in highways and expressways over the last half-century have all contributed to a region where driving is usually the most practical way to get around.

Now the county is poised to grow dramatically. Estimates project 641,830 new residents by 2040 — a 36 percent increase.[1] As it grows, is the South Bay destined to be dominated by cars, pollution and congestion? Not necessarily. The future is full of opportunities to create great transportation choices and more livable communities in Santa Clara County.

There are costs to not changing course: Autos make an enormous contribution to greenhouse gases and climate change. Land allocated for cars — i.e., roads and parking spots — is unavailable for other uses, such as housing or jobs, which makes it difficult to grow in a compact and sustainable way. Long or expensive peak-hour commutes, traffic and dispersed development all slow economic growth.[2] And there are social costs as well, such as traffic injuries and deaths, poorer health outcomes, social isolation, and limited access to basic services and educational opportunities.[3]

The county has tried to reduce the impact of cars, but despite countless adopted plans, the construction of the light rail system, widespread bus service, and strategies like telecommuting and carpool lanes, little has changed in the way South Bay residents get around. Within the county, public transportation still accounts for just over 3 percent of all trips to work while cars are used for 87 percent of those trips.[4] See Figure 1.

Change has been difficult for numerous reasons. The suburban, spread-out land use pattern is not well-suited for transportation modes other than the car. Low-density, single-use buildings, most of which were not designed around the transit system, make it difficult for buses and light rail to meet people's needs. As a result, transit usage is low despite a high-quality system that consistently meets high benchmarks for reliability, cleanliness and capacity, among other measures.[5] Low ridership and a spread-out system also mean that transit is expensive to provide to those who do use it.

Highway building, road expansions and an ample supply of parking throughout the region have reinforced the dominance of the car while other modes of travel, like walking or cycling, are often uncomfortable and impractical.

While the land use pattern will be slow to change, we can take steps toward a more sustainable and effective transportation system. We can find ways to help public transportation thrive; make streets work for bicyclists, pedestrians and transit riders; and innovate new solutions for getting around in the places where transit will never work well. We can also agree that transportation and cities grow together — and then support this idea with our transportation planning and land use decisions. Effective transportation is what allows a city to grow and prosper.

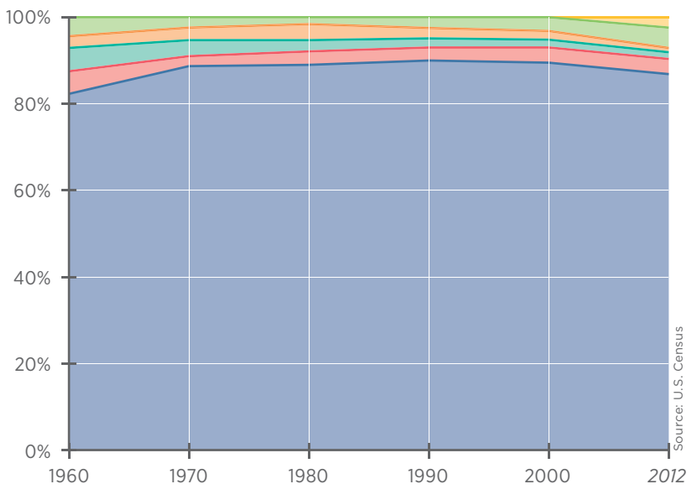


FIGURE 1

How Santa Clara County Gets to Work

In Santa Clara County, 87 percent of all trips to work are made by car, while transit accounts for just over 3 percent of these trips. These rates have hardly changed since 1960 despite many efforts to shift them, including the development of a light rail transit system. (Note: Bike commuting was not measured before 2000.)

Zack Dinh

Today busy highways like Interstate 880 are the main connection between South Bay houses and jobs, which are spread all over the region.

The Valley Transportation Authority is poised to lead change

The Santa Clara Valley Transportation Authority (VTA) is the agency best positioned to lead this change in Santa Clara County. Most local transportation agencies have a narrower focus, but VTA does everything from planning and operating transit to constructing highways. VTA owns real estate around transit stops, reviews local development projects and is building the BART extension to Silicon Valley. The agency also helps to run Caltrain, the Altamont Commuter Express (ACE) and Amtrak's Capitol Corridor route. Additionally, VTA serves as a sales tax authority for the county, collecting funding and building transportation projects that voters have approved.

In Appendix A, we look in more detail at how VTA evolved, how it is governed and the many kinds of services it provides. The agency's key services include:

Bus service. VTA buses provide approximately 106,161 weekday transit trips on 71 lines that serve more than 3,805 bus stops. The agency

[1] Metropolitan Transportation Commission and Association of Bay Area Governments, Plan Bay Area, 2013, p. 40, available at: http://onebayarea.org/plan-bay-area/final-plan-bay-area.html

[2] According to the 2013 Silicon Valley CEO Business Climate Survey, 47 percent of respondents agree that traffic congestion is the top cost-of-living challenge in Silicon Valley for workers and families (p. 6). Available at: http://svlg.org/wp-content/uploads/2013/03/CEO_Survey_2013.pdf

[3] Many residents are frustrated by traffic, and wish to walk, bike or use public transportation more. From Santa Clara County General Plan Health Element, October 2012, available at: www.sccgov.org/sites/planning/PlansPrograms/GeneralPlan/Health/Documents/HealthElement_QualityOfLife_Surveyreport.pdf

[4] Figures include Valley Transportation Authority transit and partner operators (Caltrain, Capitol Corridor and the Altamont Commuter Express). Use of public transit peaked at 5.2 percent in 1960 and has not reached that level since.

[5] The Valley Transportation Authority's 2013 Bus Rider Survey found that 79 percent of riders rated its service a 4 or 5 on a 5-point scale (with 5 being the best). Available at http://www.vta.org/sfc/servlet.shepherd/document/download/069A0000001OahEIAS

also operates peak-hour express buses, which have been gaining in popularity, and a paratransit service. It is currently developing bus rapid transit (high-amenity bus service) for three corridors.

Light rail service. The network is centered in downtown San Jose and serves approximately 35,000 weekday trips. Two lines and one spur operate across 42.2 miles to the cities of Campbell, Milpitas, Mountain View, San Jose, Santa Clara and Sunnyvale.

Roads and highways. As a state-designated congestion management agency, VTA manages auto congestion and builds capital projects to address congestion. It funds county expressway projects, as well as local street projects; it designs and builds highway projects; and it builds and operates the Silicon Valley Express Lanes network.

VTA has the sophistication and expertise to create the sustainable transportation system of the future for the South Bay. Together with its 16 member agencies (the cities, towns and county governments of Santa Clara County) and stakeholders across the region, it can establish and grow great transportation options.

Who does VTA serve?

VTA serves Santa Clara County, which is home to 1.8 million people or one-fourth of the Bay Area's population. It is the state's fastest-growing county, driven by the growth in Silicon Valley employment as well as the availability of housing. The county includes 15 incorporated cities and towns. These jurisdictions are the entities that VTA serves. (The county is the 16th). Santa Clara County's largest city is San Jose, which houses more than half of the county's population.[6]

The county's population is exceptionally diverse; it has the highest percentage of foreign-born residents of any county in the United States — 37 percent — and more than half of households speak a language other than English at home. It is also one of the wealthiest counties in the country; the median household income is over $90,747, compared to $61,400 statewide, and the poverty rate is 9.7 percent, compared to 15.3 percent for the rest of the state. [7]

Approximately 5 percent of households across the county do not own a vehicle, and there are some census blocks, particularly near universities, where 15 percent of households do not own a vehicle. (See page 53 in Appendix A for a map of no-car households.) Many of these people make up VTA's transit ridership: VTA riders are generally less affluent and have less access to cars than residents of the county as a whole.[8] Especially in a suburban environment, access to a car is often necessary to meet basic needs or access economic opportunity.[9] The county also has an aging population that is spread throughout the county: By 2030 more than one in four Santa Clara County residents will be over age 60.[10]

Sergio Ruiz

Students make up a large portion of VTA's transit riders. This 181 Express bus connects downtown San Jose with the BART system in Fremont.

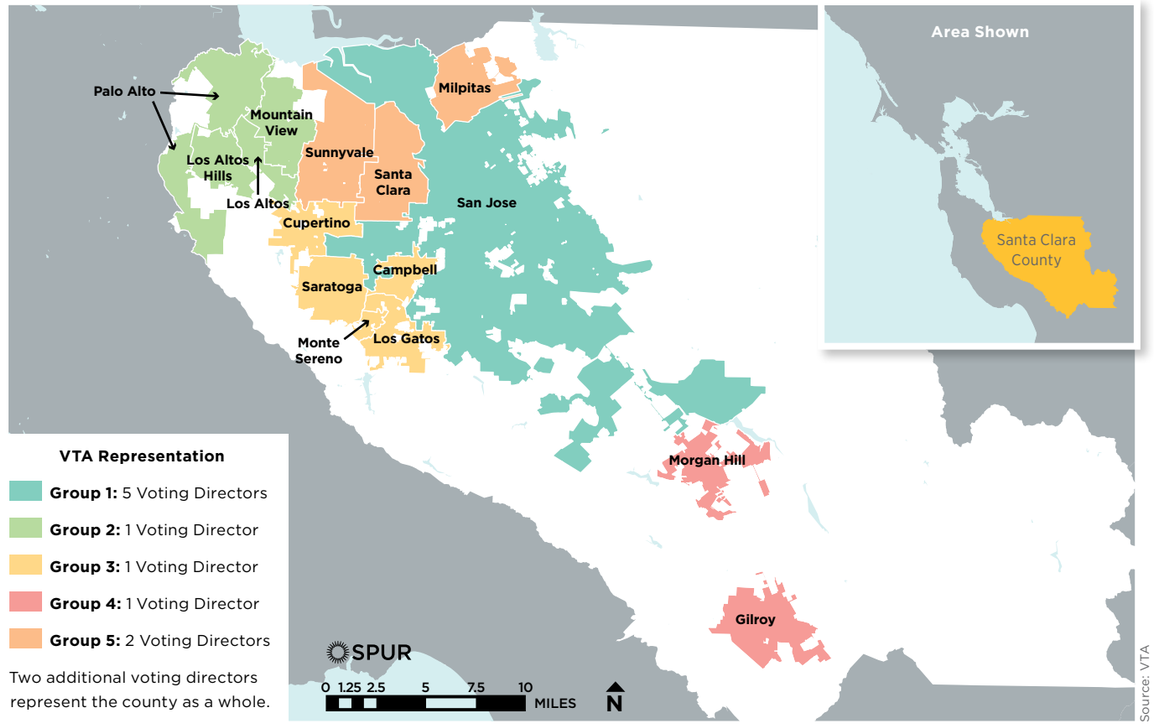
[6] U.S. Census Bureau, 2012 population estimate. Available at: http://quickfacts.census.gov/qfd/states/06/06085.html

[7] "State & County QuickFacts: Santa Clara County," U.S. Census Bureau, accessed April 2014, available at: http://quickfacts.census.gov/qfd/states/06/06085.html

[8] According to the 2013 VTA Bus Rider Survey, 42 percent of riders do not have access to a vehicle, and the average household income of VTA riders is $42,802. See *VTA On-Board Survey Report*, April 2014, accessed May 2014, available at: http://www.vta.org/sfc/servlet.shepherd/document/download/069A0000001OahEIAS

[9] Rolf Pendall, Christopher Hayes, Taz George, Zach McDade, *Driving to Opportunity: Understanding the Links among Transportation Access, Residential Outcomes, and Economic Opportunity for Housing Voucher Recipients* March 2014. Available at: http://www.urban.org/publications/413078.html

[10] This percentage, 27.6 percent, is higher than what is expected for either the State of California (23.3 percent) or the United States (24.7 percent). From Community Health Existing Condition Report for the County of Santa Clara General Plan Health Element (May 2013), accessed May 2014, available at: www.sccgov.org/sites/planning/PlansPrograms/GeneralPlan/Health/Documents/SCC_Existing_Health_Conditions_FINAL_May_2013.pdf



Source: VTA

FIGURE 2

VTA Serves the Bay Area's Most Populous County

One-fourth of the Bay Area's population lives in Santa Clara County, in 15 cities, as well as in unincorporated areas like Stanford University. The VTA board is composed of elected officials from the 15 cities and the county.

In addition to residents, VTA's systems also serve those who arrive from outside the county to one of the nearly 1 million jobs located here.

SPUR's vision for VTA

There are three key reasons why now is the time for VTA to act:

Political support. Member agencies and the region have committed to growing in a more compact and sustainable way, exemplified through local plans and policies. The area's civic leaders recognize that our streets and neighborhoods should serve many people and functions. They have also recognized that we can and should protect natural resources by using energy-efficient transportation and by maintaining our open spaces. State laws like AB 32 and SB 375 demonstrate a state-level commitment to growing more sustainably.[11]

Funding. Santa Clara County has consistently been willing to invest in a better future for itself, and the region is investing in the county's future as well. Approximately $8 billion dollars in transit investments are funding bus rapid transit, the extension of BART to Silicon Valley, light rail system improvements and the modernization of Caltrain.

A paradigm shift in transportation. Demographic shifts are setting the stage for dramatic changes in transportation. We are seeing a new generation less interested in owning cars and an aging population that will need new transportation solutions. Research and development labs are creating entirely new ways to get around, such as autonomous vehicles, while new social technologies, like ridesharing applications for smart phones, are

[11] AB 32, the Global Warming Solutions Act of 2006, requires the California Air Resources Board to regulate statewide greenhouse gas emissions. SB 375, the Sustainable Communities and Climate Protection Act of 2008, instructs the California Air Resources Board to set regional greenhouse gas emissions reduction targets from passenger vehicles and light trucks. The metropolitan planning organization for each region (the Metropolitan Transportation Commission, in the Bay Area) must now develop a Sustainable Communities Strategy (SCS) that integrates transportation, land-use and housing policies to plan for achieving the emissions reduction target. Plan Bay Area, adopted in 2013, includes the first SCS for the Bay Area.

Flickr user Richard Masoner/Cyclelicious

changing travel behavior. Many of these advances are being born right here in the Bay Area.

SPUR would like to see VTA become an agency that aggressively uses every tool at its disposal to provide sustainable transportation options to people traveling in Santa Clara County. We believe that growing both the number and quality of transportation choices is the best way to improve quality of life, protect natural resources and support compact and sustainable growth.

SPUR recommends seven strategies VTA can use to achieve this vision:

1. **Make the transit network great in the places it works best.**
2. **Develop mobility solutions beyond transit.**
3. **Make streets work for all users and stop expanding roads.**
4. **Shape communities around transit.**
5. **Set clear sustainable transportation goals and align resources to meet them.**
6. **Increase public engagement and innovation.**
7. **Grow funding.**

VTA is a large and complex agency, but this report focuses specifically on its opportunity to improve transit, create new transportation services and tools, and better integrate transportation into communities.[12] While our recommendations are addressed to VTA, we know that changing how people move around the county will require cooperation and persistence from VTA's member agencies, other public agencies, employers, business organizations and nonprofits, among others.

[12] This study does not attempt to analyze or provide recommendations on some important aspects of VTA, such as operations, design and construction, goods movement, governance, labor, budgeting and financial health, technology or project delivery. However, we acknowledge that these are all important areas and each one may be the focus of future SPUR work.

VTA supports many transportation modes across the county: walking, cycling, bus and light rail, in addition to automobiles. Growing both the number and quality of transportation choices will improve quality of life, protect natural resources and support compact and sustainable growth.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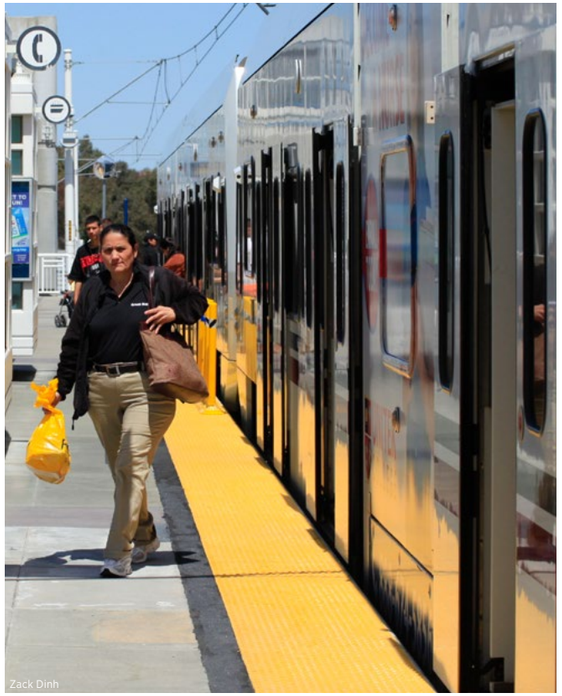
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Challenges

to creating great transportation options

Transportation choices other than driving have had difficulty supplanting the car in the South Bay for many reasons, some resulting from transportation investment decisions and others related to the way cities were designed and developed over time.

The car has shaped the county's growth

Early development in Santa Clara County was oriented around a private streetcar and interurban rail system, which was removed in the early 20th century after the introduction of the car. Like other places in the western United States, the county experienced its most dramatic population and job growth during the highway era of the 1950s through the 1970s.[13] During this period, new tract housing took over orchards and open space, parking lots replaced older homes and other buildings, and wide roads and highways appeared at a rapid pace. The people who moved to the quickly growing South Bay suburbs favored driving; private automobiles allowed for a high level of mobility and provided an affordable way to get around.

At close to 1,300 square miles, Santa Clara County is a flat expanse that is both wide and long. The lack of any natural obstacles or urban growth boundaries made it easy for development to spread outward. As a result, communities had no reason to grow taller or more compactly. Local land use decisions, made without regional coordination or planning, led to significant distances between housing and jobs. Today, most of the county's large employment centers are in North San Jose or in nearby cities like Sunnyvale, Santa Clara, Mountain View and Palo Alto. Meanwhile, the majority of housing is concentrated far from these jobs, in places like East and South San Jose. See Figure 3.

Federal policies also played a role in accelerating suburban growth in the South Bay during the highway era. These included the home mortgage deduction, which subsidized home-ownership; the highway trust fund, which subsidized highway construction; and investment in the aerospace and electronics industries, which drove the development of large tech campuses like Intel and Fairchild semiconductor. At all levels of government, public spending on roadways was ramping up at the same time public spending on transit was declining.

Because so many people and jobs fit within Santa Clara Valley, most transportation trips do not leave the county: 86.5 percent of residents here work and live within the same county, compared to the Bay Area average of 69.9 percent.[14]

Over the past two decades, VTA and its member agencies have adopted policies and plans to better focus growth into compact, transit-oriented communities. This has resulted in several different programs that each identify their own set of areas for investment and growth. (See Figure 8 on page 42 for a map of these areas.) VTA's Community Design for Transportation Program has targeted locations it calls "cores" (i.e., downtowns and other community centers); "corridors," which parallel transit routes; and "station areas," which surround transit stations.[15] As part of Plan Bay

[13] For example, San Jose's population grew fourfold from 1950 to 1970, while its total area grew from 17 to 149 square miles. See: www.remappingdebate.org/article/delusions-american-technopolis

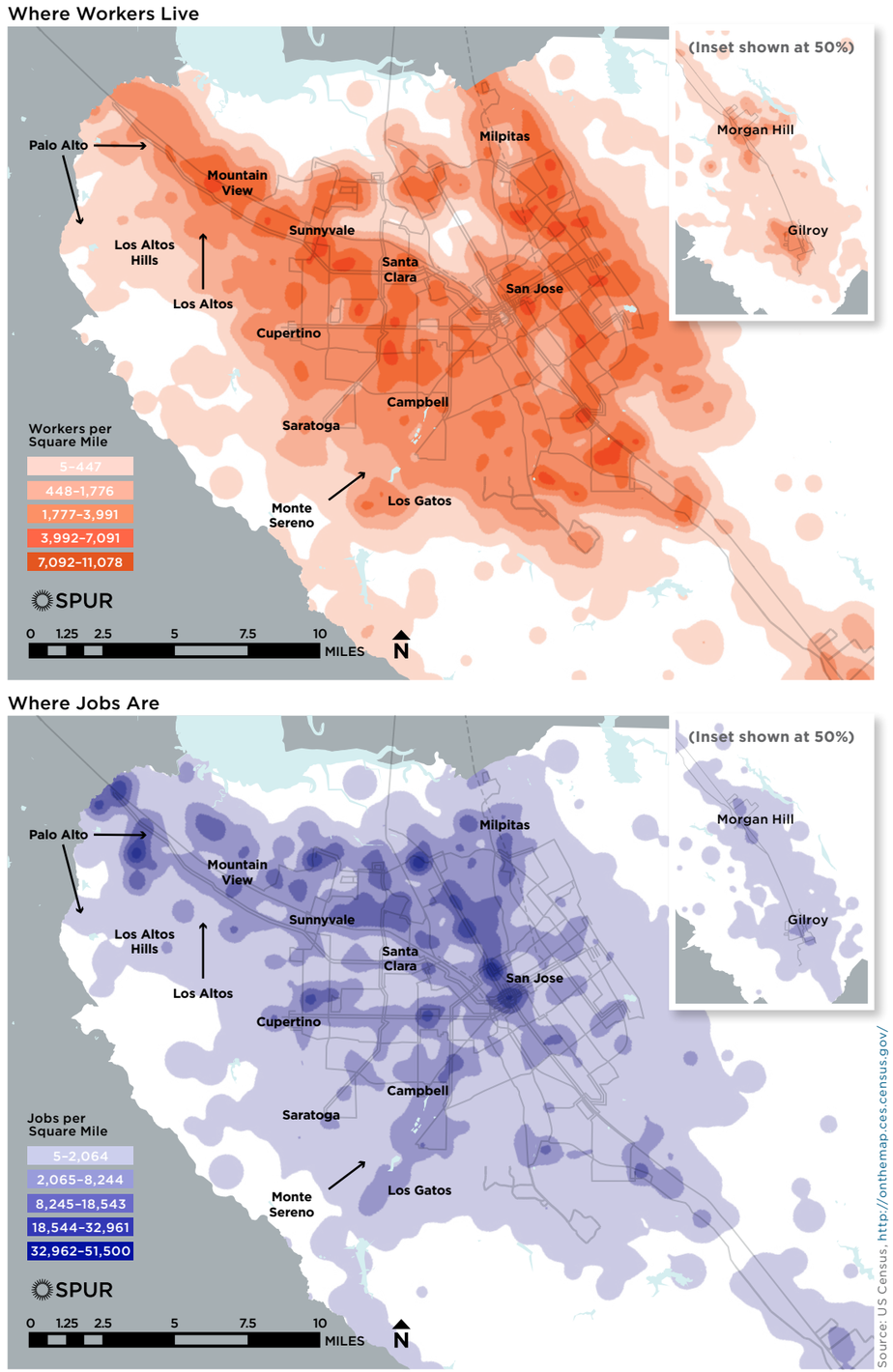
[14] U.S. Census 2012, "American Community Survey 1-Year Estimates," available at: www.census.gov/acs/

[15] The Community Design for Transportation Program considers all transportation modes and stresses the importance of a healthy pedestrian environment, concentrated mixed-use development patterns integrated with transit service, innovative street design and the interrelationships of buildings and sites with transportation facilities and services. The VTA is working to update this program in 2014–15. See Appendix A for details.

FIGURE 3

Housing and Jobs Are Spread Out

Many of Silicon Valley's traditional tech campuses are located in low-density developments on the northern side of Santa Clara County, while housing is dispersed all over the county. This means that there are often long distances between workers and jobs, and the routes between the two are difficult to serve with transit.



Spread out, low-density residential areas such as this subdivision in San Jose are difficult to serve with transit.

Area, the region's land use and transportation plan, cities and VTA have identified "priority development areas," places designated for regional and local investment. The City of San Jose has identified 70 "urban villages" where growth should be focused over the next 30 years, mostly along transit lines. Many other member agencies have also prioritized specific areas for investment and growth, such as the North Bayshore Precise Plan Area in Mountain View and the Milpitas Transit Area Specific Plan. Within these plans, cities have taken very different approaches to zoning for growth near transit.

To complicate matters, the market has largely determined where growth goes, and local government's eagerness to be responsive to development proposals means that planning commissions and city councils have often disregarded growth plans and guidelines.

Transit doesn't thrive throughout Santa Clara County

Because the county didn't grow up around a transit system, transit has difficulty covering the vast area efficiently. Select VTA bus lines through more urban areas — such as the 22, 522 and 23 — perform very well and have some of the highest ridership rates in the region.[16] But outside of these few corridors, the largely suburban environment is a bad fit for transit, both buses and rail.

Transit works best in regions that feature a large, dominant center, dense residential development and long corridors of development radiating from the center.[17] In contrast, jobs and housing in Santa Clara County are highly decentralized, and people's transportation trips go from almost everywhere to almost everywhere. There is no dominant center in the South Bay: Only 3.5 percent of the county's office and research and development (R&D) space are in downtown San Jose, the South Bay's largest downtown.[18] The majority of the county's housing, employment and other activities are located in suburban places marked by:

- Low-density, single-use development
- Hierarchical street patterns with long blocks, dead ends and cul-de-sacs
- Generous road and parking capacity
- Auto-oriented site design
- Stand-alone, private and disconnected sites

While there are some transit-friendly places to start a journey, such as downtown and East San Jose, as well as along the El Camino and Stevens Creek corridors, there are relatively few transit-friendly *destinations*: places where transit would be a preferable way to arrive because the transit stop has been integrated with a dense, walkable community. The largest concentrations of transit-friendly destinations are in downtown San Jose, with small pockets in shopping and employment sites and on some college campuses. Many large employment sites (mostly the traditional tech campuses) are not transit-friendly destinations due to lack of density.[19] And although many shopping areas and office parks are located near transit, they are actually very difficult and dangerous to access from transit. Many of these projects were built without sidewalks, and the walk to or from the transit stop passes through isolated areas under freeways, requires crossing major arterials or forces people to take long, circuitous routes.

The predominant street patterns in the South Bay make operating buses and light rail difficult. The street network is comprised of discontinuous routes, circuitous patterns and streets whose widths keep changing, particularly when traversing multiple cities. Additionally, the traffic conditions on local streets can slow both light rail and buses. Cities can give transit vehicles priority through two tools: signal priority (see "What Makes Transit Work?" on page 19) and dedicated transit-only traffic lanes. But these tools have not been implemented consistently. For example, in downtown San Jose VTA's light rail vehicles travel in mixed flow with pedestrians.

[16] VTA Transit Service Plan — Fiscal Year 2014–2015, p. 21, available at: www.vta.org/sfc/servlet.shepherd/version/download/068A0000001FZVM

[17] For more information on the relationship between transit and land use patterns, see Cervero, Robert. *The Transit Metropolis*, Island Press 1998 pp 62-106.

[18] Source: SPUR Analysis.

[19] VTA Comprehensive Operations Analysis Final Report 2008. After completing this analysis, VTA chose to focus high-frequency service on "core" routes that have more transit-friendly origins and destinations.

FIGURE 4

How VTA Compares to Other Transit Systems

Among its peer operators with bus and light rail, VTA ranks among the lowest ridership rates and farebox recovery ratios (the percent of operating costs covered by fares).

Transit Operator	Service Area *(square miles)*	Population in Service Area	Average Weekday Trips *(bus and light rail combined)*	Farebox Recovery Ratio *(bus and light rail combined)*	Cost Per Passenger Mile *(bus)*	Cost Per Passenger Mile *(light rail)*
Dallas (DART)	695	2,423,480	237,516	10%	$1.50	$0.63
Denver (RTD)	2,326	2,619,000	325,050	21%	$0.75	$0.39
Houston (Metro)	1,285	3,527,625	274,736	18%	$1.01	$0.66
Los Angeles (Metro)	1,513	8,626,817	1,465,927	25%	$0.61	$0.55
Portland (TriMet)	570	1,489,796	328,358	26%	$0.99	$0.45
San Diego (MTS)	716	1,960,088	271,069	41%	$0.75	$0.32
San Francisco (Muni)	49	805,235	696,203	29%	$1.13	$1.33
Santa Clara Valley (VTA)	**346**	**1,880,876**	**141,162**	**11%***	**$1.28**	**$1.10**

Source: 2012 National Transit Database

* VTA's 2013 farebox recovery ratio is 13.5% (FY 2013 Comprehensive Annual Financial Report, page 3-23).

The Cycle of Auto-Orientation

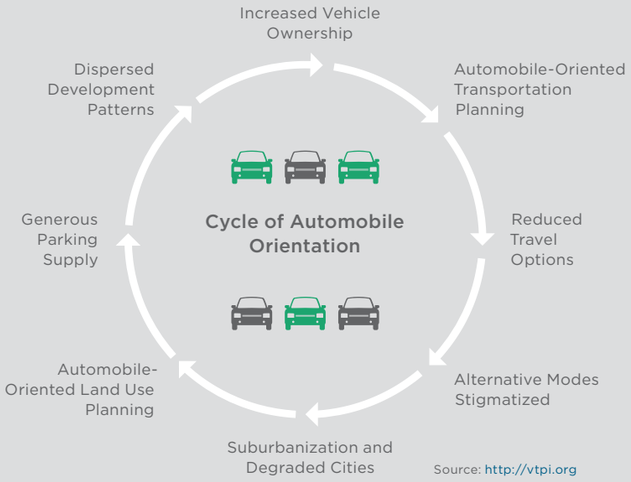
Like many places across the country, the South Bay has found itself in a cycle of auto-orientation that is difficult to break. Traffic congestion has produced a demand for more roads and for the removal of impediments to traffic flow, such as pedestrians, traffic lights, cyclists and transit. These "improvements," which have typically been publicly funded and driven by engineering standards, have made driving ever more preferable at the expense of other modes of travel, which then induces more car use. Simultaneously, building design has responded to the movements and space needs of cars, creating more suburban shopping centers and office parks — places that often require cars to reach them and don't provide much access for pedestrians, bicyclists or transit riders. These modes have been stigmatized, while roads have continued to get bigger, consuming increasing amounts of land that might otherwise have been used for development and place-making.[20]

When road capacity expands to accommodate more vehicles, it increases the need for parking. We are only now beginning to understand and address the broad range of impacts that automobile parking has had on our communities and the cycle of auto-orientation. Free or underpriced parking provides a large hidden subsidy to the cost of operating a car and works against efforts to shift people to other modes of travel. Off-street and on-street parking take up space that could be used for dense, transit-friendly development or for wider sidewalks, bicycle parking or transit lanes.

In an auto-oriented environment, decision-makers are more familiar with the concerns of drivers and may overlook effective and low-cost ways of improving other modes of travel. As early as half a century ago, visionary public leaders in the South Bay recognized the high costs of auto orientation and set ambitious goals to reform the transportation system. Despite a desire to reduce driving, however, Santa Clara County voters and leaders spent decades building highways and expanding roads in order to ease auto congestion. (See Appendix A for this history.)

Historically, some VTA policies have privileged cars. For example, the agency has assessed roadway performance using a measurement called "auto level of service," a metric for how quickly cars can pass through an area. Like other transportation agencies, VTA did not formally measure the performance of other modes (i.e., transit, cycling or walking). Increasing roadway capacity and traffic speeds may measurably improve auto level of service to a location but will reduce access for pedestrians, bicyclists and transit riders.

Many transportation agencies are now exploring how this cycle can be interrupted. Implementing VTA's Complete Streets Program,[21] its Community Design for Transportation Program and its revisions to transportation guidelines and performance measures are all examples of ways we can break the cycle of auto-orientation.



Auto-oriented environments are part of a cycle. The public and private sectors' efforts to accommodate the automobile inadvertently lead to a greater dependency on cars to get around.

These two South Bay transit station areas are shown at the same scale but look very different. The curvilinear street patterns, long blocks and cul-de-sacs near Snell Light Rail Station (top) can make travel distances long and indirect by foot or bike. The finer, more grid-based pattern around Palo Alto Transit Center (bottom) makes it more efficient to walk and access transit service.

[20] For more information on auto-orientation (also known as auto-dependency), see "Costs & Benefits," Victoria Transport Policy Institute, available at: www.vtpi.org/tdm/tdm66.htm

[21] VTA defines "complete streets" as streets that are planned and designed for safe mobility for all users including pedestrians, bicyclists, motorists and transit users of all ages and abilities. For more information, see: www.vta.org/complete-streets

Light rail exemplifies a disconnect between transit and land use planning

For years, media coverage of VTA has often focused on its light rail system's low ridership and low farebox recovery ratio (the percentage of the cost of service that is covered by fares). VTA invested heavily in light rail technology, but simply building the system never led to significant ridership. Nearly $3 billion has been invested in the system to date. However, farebox recovery, which has hovered around 11 to 15 percent, is lower than most otherwise comparable transit systems and much lower than the 25 percent goal that the VTA board has set.[22]

When the light rail system was designed, cities agreed that growth would be focused around transit stations. A total of $13 billion of private investment has occurred within one-half mile of the light rail system since it opened.[23] However, in the many instances where development has taken place near the light rail system, projects have been largely car-oriented in their design, such as the office projects along the Alum Rock-Santa Teresa Line on North 1st Street in San Jose and the Mountain View-Winchester line.

The way downtown San Jose has grown has had a particular impact on the effectiveness of light rail. When VTA light rail was being designed in the 1980s, there was a debate about whether the system should go through downtown San Jose or bypass it like the freeway did. City leaders pushed to make sure light rail served the core of downtown as part of revitalization efforts; however, the planned vision of a dense downtown with a diversity of uses never fully developed. Specifically, there has been a lack of large employers, a late commitment to significant housing projects and a loss of most retail.[24]

The county also built several new freeways before the light rail transit vision came to fruition, thereby undermining both transit ridership and the role of downtown. (See Appendix A for a fuller discussion.) Other local decisions undercut downtown San Jose's ability to anchor the light rail system:

[22] The overall numbers do not illustrate significant disparity in performance between individual lines, although some light rail stations continue to serve few passengers year after year. See the VTA Transit Service Plan — Fiscal Year 2014–2015, available at: www.vta.org/sfc/servlet.shepherd/version/download/068A0000001FZVM

[23] This $13 billion represents one-third of all private investment in urbanized areas in the county during that time, while the half-mile area around light rail station comprises only 10 percent of the urbanized area. Source: VTA *Where VTA Goes, Community Grows* pamphlet (2014).

[24] For more information, see SPUR's report *The Future of Downtown San Jose*, available at: www.spur.org/publications/spur-report/2014-03-17/future-downtown-san-jose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- Heavy-rail train tracks for passenger service were moved from 4th Street to a new station a mile west of downtown (now Diridon Station), making that connection difficult.
- Abundant and cheap parking was built downtown in a quest to compete with malls and office parks.
- The walkability and transit-friendliness of downtown was diminished through projects like the construction of Highway 87.
- Many downtown streets were converted to one-way couplets to deal with heavy traffic through downtown.

Criticism of VTA light rail often focuses on its slow speeds. Several factors have led to time-consuming trips:

- Circuitous segments, such as through downtown and the Tasman Line to Mountain View
- Segments where there is only a single track for both directions, such as on the Tasman Line
- The Transit Mall on 1st and 2nd streets in downtown San Jose, which requires operating speeds of 10 mph due to the proximity of pedestrians
- Unscheduled stops, fare inspections and layovers

VTA's projects to add double tracks where there are single tracks and introduce express services (which skip many stops) will help to overcome some of these challenges.

The transit system can be difficult to understand or access

Two other challenges to the transit system are related: Stations are not integrated into communities, and residents have trouble planning a trip or understanding how transit could fit into their lives. These manifest in several ways:

Trip-planning tools are inadequate. Transit maps and online tools work for those who are familiar with the system, but they do not provide enough information to many who are considering using the system for the first time. These tools provide only limited information when it comes to available shuttle services or private transit services.

Bus service requires a high level of transit literacy. Without advance knowledge of where a particular route goes, how often it runs and at what hours, it's difficult to make a bus journey due to the complexity of the system.

There are language and geographic barriers. The county's population is extremely diverse; many languages are spoken, and there are different cultural understandings of how transit systems should work. The large geography that VTA serves makes it difficult to convey information to everyone.

One of the challenges for VTA light rail ridership is the lack of dense development near its stations. Many are far from final destinations and are not located in walkable communities.

What Makes Transit Work?

Transit investments yield increased ridership when they happen in corridors that have certain characteristics. Some of these characteristics can be influenced by VTA, but many are shaped by cities.[25] Transit works well when it:

Serves areas of high demand with strong anchors at both ends. These anchors should be dense and diverse centers of population or activity, ideally with all-day activities, such as shopping centers, universities or hospitals. Anchors should also be highly walkable, because communities that are good for walking are also good for accessing transit. When demand is highest in the middle of a transit line, it means that transit vehicles are full in the middle of a line and empty at the ends. This unused capacity makes the transit less efficient to operate.

Is as direct, simple and consistent as possible. The strongest transit lines are as straight as possible and follow a reasonably direct path. Adding turns or deviations to a transit line makes trips slower for riders and also makes the route more expensive to operate.

Maintains speed and reliability along the entire route. Separating transit from other traffic in bus-only lanes, providing "signal priority" so that transit vehicles go first at stop lights and reducing the number of times a vehicle stops (limited stop or "skip-stop" service) can decrease delays. A faster service has lower operating costs; when transit speeds increase, more service can be provided for the same amount of money.

Avoids duplication and competition. Where different transit services take parallel routes, the competition can make both services less successful.

Has similar passenger volumes across directions, stops and times of day. When transit serves a balanced number of riders in both directions, the operator is not paying to run nearly empty buses or trains. A high turnover of customers along a route, with a consistently high number of passengers at any time, provides financial efficiency. A diversity of land uses near stops helps to achieve this kind of balanced service and activity.

Offers the right amount of service. Transit is successful when it has the appropriate frequency, hours of service, number of stops and amount of dedicated lanes and signal priority. VTA's different bus service types (core, community, express, etc.) represent different types of service appropriate for different places; light rail can also be provided at different levels of service depending on demand.

Transit is often provided in places where it is desired but doesn't work well — where ridership is expected to be low and investments do not increase the numbers of riders. Services in these areas are called "coverage" or "access" services. Leaders must make difficult decisions about how to meet desires to provide coverage throughout the region while also offering "ridership" services, i.e., services where demand is greatest.

Pursuing high ridership usually leads to frequent all-day service in dense and walkable areas, frequent all-day connections between major activity centers and frequent service on routes that serve employers during peak hours. VTA's bus rapid transit projects and Transit Sustainability Policy emphasize ridership goals. VTA achieves coverage goals, on the other hand, by making service available regardless of how many people use it. The agency may pursue coverage goals to serve certain populations who use the service or to provide geographic equity.[26] VTA's Community Bus Program and paratransit service reflect its interest in providing coverage. VTA's adopted Transit Sustainability Policy and Service Design Guidelines outline how to objectively determine which lines are unproductive or which light rail projects shouldn't move forward, but the guidelines have been difficult to adhere to for political reasons. In some instances, the agency may provide low-ridership service to spur land use development, but in those cases the service should aim for a ridership target.

[25] *Managing the Transit Network: A Primer on Key Concepts*, accessed April 2014, available at: www.translink.ca/-/media/documents/plans_and_projects/managing_the_transit_network/managing_the_network_primer.ashx

[26] For more discussion of ridership and coverage, or access, goals, see: Jarrett Walker, *Human Transit*, Island Press, 2011 pp.117-134.

Connections are hard to make. After passengers arrive at a station like Diridon or the Palo Alto Transit Center, navigating the next leg of a journey can be confusing. For example, there is little signage at Diridon showing which type of transit is on which track, and choosing a bus line requires users to find information without the help of clear signs.

Access to light rail stations by walking or biking is difficult to navigate. Stations placed in the middle of highways or on one side of an expressway can be unsafe or confusing to access. Large parking lots create divisions between communities and light rail stations in suburban areas.

Political factors play a role

Interviews with local officials and transportation experts have revealed several political challenges, including the lack of a shared vision and the lack of champions or coalitions to make the hard decisions necessary for a shift to a different future.

The structure of the VTA board, which is composed of 18 city and county representatives, leads to mixed goals and a lack of direct accountability for transit. At times, the goals of a board member's city or town may conflict with his or her fiduciary responsibility to VTA. For example, a board member may want to support a local development project even though its design, density or location could undermine the success of VTA transit. SPUR found that the VTA board is not aligned around a set of adopted mobility goals or countywide sustainability objectives, such as mode shift (i.e., moving a percentage of people to transportation options other than cars) or reduction of greenhouse gas emissions.[27] Goals set by the county before VTA was formed are not being used by VTA today, and newer goals are not in use.

Other than the five San Jose representatives and two county supervisors, VTA board members are part-time elected officials, and all VTA board members serve two-year terms. The limited time that board members are involved with VTA makes it more difficult to develop and implement complex, long-term solutions to problems such as coordinating growth among cities or implementing a transit project that crosses several jurisdictions.

Uneven support of transit

Although leaders and voters have supported transit, our research indicates that many of them view transit as a transportation mode for a narrow segment of the population. Transit lacks powerful political champions, and in the South Bay it has been typically presented as a social service rather than a mainstream transportation mode.

The wealth of Santa Clara County and the inconvenience of transit have allowed that mindset to endure: Most people who have the means to drive do. This means that VTA, particularly its bus service, serves a disproportionate number of patrons with special physical or social needs, which has fed opposition to transit by those who fear the impact of those riders on other riders and on areas near transit.

In the 1970s VTA vehicles and stations experienced significant crime (like their peers across the nation), and some of those images endure. Impacts from past transit construction have also made some residents or businesses reluctant to embrace transit, particularly in downtown San Jose.

Historically, efforts have been made to spread VTA's transit resources and services around the county, whether they are well-utilized or not. The expectation of geographic equity continues to shape policy and funding decisions today. VTA thus faces a dilemma: to invest in transit that can achieve high ridership or to provide broad coverage across the county. Ridership and coverage are worthy goals, and addressing both will require a strategic use of resources and innovation.

What does success look like?

Despite these challenges, it is both possible and imperative that the VTA Board of Directors, its member agencies and the community at large find a way to move toward a region where people have great transportation options.

VTA is already shifting into a "multi-modal" agency that balances the needs of different transportation modes — walking, biking, transit and cars — and innovates new solutions to complex

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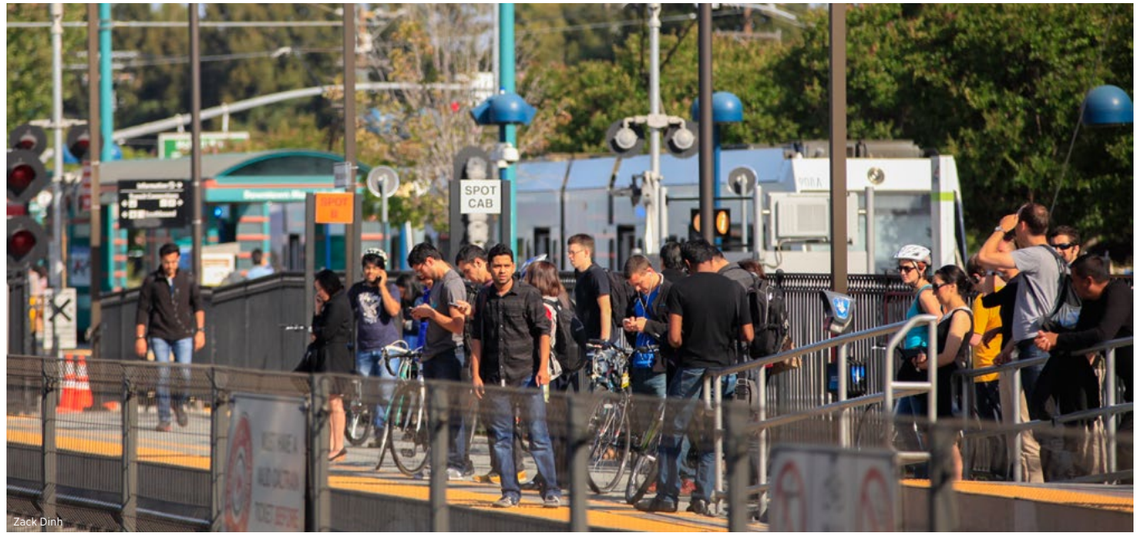
[27] VTA adopted a sustainability program in 2008 to focus on the environmental impacts of its facilties. The program has reduced greenhouse gas emissions, fuel usage and water usage, among other benefits. VTA also promotes the environmental benefits of public transportation and is a voluntary signatory to the American Public Transit Association's Sustainability Commitment. See VTA's *2013 Sustainability Report*, accessed May 2015, available at http://www.vta.org/sfc/servlet.shepherd/document/download/069A0000001ODIVIA4



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The growth of the Bay Area's population and economy creates new challenges for transportation. To ensure a sustainable future, we need to provide opportunities for most people to meet their daily needs without driving alone.

transportation problems. For example, VTA's Express Lanes network will be one of the largest road-pricing programs in the nation. (See Appendix A for details.) And its Transit Sustainability Policy provides sophisticated guidance to direct transit funding to the most productive lines. If VTA continues this shift and its partners — cities, the county, regional agencies and other institutions — are all aligned, we can create a place with abundant transportation choices.

We will know we have arrived when:

- Most people can get to work and meet their daily needs easily and safely through walking, cycling, transit, carpool/vanpool or sharing a car.
- Roads benefit all users, including bicyclists, pedestrians and transit riders, and streets are designed to knit communities together rather than dividing them.
- New development projects in growth areas can confidently design projects based on multi-modal access and will no longer be expected to cater to the automobile.

How will we know if all of VTA's efforts are working together to achieve more sustainable transportation choices? SPUR recommends that VTA adopt the following goals and key targets for the county to achieve in five years:

- Decrease the countywide share of people who drive alone to work from 77 percent to 65 percent
- Grow the share of people using modes other than driving alone by 10 percent for *all* trips countywide (not just trips to work)

Because we recognize that it is not simple to create a new kind of transportation, one that shifts away from the private car, SPUR recommends using many strategies simultaneously to transition the system. Our recommendations focus on making transit great for people on the routes where transit can succeed and finding mobility solutions for trips that do not take place on those routes. At the same time, VTA and its member agencies should retrofit streets and design land use projects to work well with walking, cycling and transit. Leading this type of change will require the organization to adopt a more proactive mode-shift policy and investment strategy and will also necessitate finding new funding sources. None of this will be possible without engaging with the public and partners. When all of these strategies are implemented together, we believe VTA can reach the targets described above.

STRATEGY 1

Make the transit network great in the places it works best

Goal: Bus and light rail services are frequent, productive, appealing and easy to access and navigate. Transit speeds between high-demand origins and destinations are competitive with car trips.

In the corridors where transit can work well, it should be great. Useful, high-quality transit service spurs a virtuous cycle: Improved transit supports modes of travel such as cycling and walking, which in turn helps to shape communities around walking and transit, which then improves the productivity and attractiveness of transit.

The Santa Clara County transit network should be composed of regional services, local services and feeder services that connect seamlessly with one another. This network provides a stable backbone for local land use and urban design decisions as well as regional planning efforts.

SPUR's recommendations for transit

1. Offer great bus service in corridors where there is a large transit market.

Several bus corridors see enough demand to warrant a significant upgrade to very high-frequency and high-amenity bus service, also known as bus rapid transit (BRT). One of the features that makes BRT work is a dedicated traffic lane for buses only. A dedicated lane allows buses not to be slowed by other vehicles — and for other vehicles not to be slowed by buses. Adding technology to turn traffic signals green for buses, allowing riders to pay their fare on station platforms and offering bus arrival information at stations are other BRT features that could boost ridership in these corridors.

Recent analysis by VTA shows that the best corridors for BRT are Santa Clara Street–Alum Rock Avenue, The Alameda–El Camino Real and West San Carlos Street–Stevens Creek Boulevard (where the heavily used 22, 522, 23 and 323 bus routes operate).[28] While VTA has selected these three corridors to launch BRT service, not all of the cities where the planned routes go have made a commitment to true BRT service with dedicated lanes. SPUR believes that VTA BRT projects on these three corridors should adhere to high standards for BRT service. Dedicating lanes for bus service today can be more effective than trying to dedicate space in the future when these corridors will be more congested. VTA should not necessarily provide this high-quality bus service without partnership from cities, particularly in the areas of land use, policies and street design. When a particular jurisdiction is unwilling to accommodate fully featured BRT, the operational, environmental and other impacts of this decision on the entire BRT corridor should be evaluated, which may suggest not building a particular segment of BRT.

[28] See VTA 2009 *Bus Rapid Transit Strategic Plan*, available at: www.vta.org/projects-and-programs/transit/brt-bus-rapid-transit-resources

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VTA's Rapid Bus service offers frequent bus service on routes with high demand. The 522 Rapid bus runs from the Palo Alto Transit Center to the Eastridge Transit Center.

As neighborhoods become denser and local congestion increases, bus speeds (on routes without dedicated lanes) may degrade. Not only do riders dislike slower buses, but this trend increases the cost of operations. VTA and local governments should use traffic data to proactively understand where the slowing of bus lines is likely to occur and should take action to ensure that new development does not impact transit speeds. Such action could include impact fees, dedicated lanes, agreed-upon street improvements or new technology. While it is important to look at an individual development project's impact on transit speeds during the project's environmental review process, this is not as useful as a proactive, corridor-wide approach to studying the problem.

2. Identify low-cost improvements on high-potential bus lines.

On the five highest-ridership core bus lines (after the BRT corridors identified above), VTA should identify and implement low-cost service or capital improvements.[29] Improving bus lines will require cities to work closely with VTA. The transit agencies and its partners should consider:

Improving vehicle access. Add curb space or platforms to make it easer to board transit vehicles. Move transit stops to locations that are better for riders.

Improving operations. Replace stop signs with traffic signals or other measures, add transit-only lanes, add turn lanes, eliminate stops or add new stops.

Implementing a transit signal priority program. Signal priority for buses enables traffic signals to turn green as buses approach. VTA is implementing transit signal priority in several cities.

Redesigning highway routes. Bus routes on expressways could be redesigned. For examples, bus routes on the same primary expressway corridor could have different pickup and drop-off points in order to serve different market clusters.

3. Make the light rail system fast and direct.

As development increases along light rail corridors — including housing, offices and destinations like Levi's Stadium — light rail could compete with cars if it were faster or if the service were more direct.[30] VTA's Light Rail Efficiency Project aims to make strategic investments and service changes to better match VTA's services to demand.[31] SPUR supports these projects, and we recommend that VTA continue to pursue all of these approaches to improving light rail services:

Offer more direct services to match demand. For example, a critical mass of passengers want to travel from the Almaden area to downtown San Jose, but this trip currently requires a connection at the Ohlone–Chynoweth Station. Where ridership models or observations show market demand on the light rail system, express services (either all-day or during peak hours only) should be

[29] VTA's current top five ridership bus lines are the 22, 23, 25, 522 and 66. The top five lines that are not on planned BRT corridors are the 25, 66, 68, 70 and 26. Source: VTA Transit Service Plan FY 2014 – FY 2015, available at: www.vta.org/sfc/servlet.shepherd/version/download/068A0000001FZVM

[30] VTA Light Rail System Analysis, accessed April 2014, available at: www.vta.org/projects-and-programs/planning/projects-studies-and-programs-light-rail-system-analysis-introduction

[31] The plan includes double-tracking in Mountain View, adding a pocket track in Santa Clara and track additions in downtown San Jose will allow for a turnback on the Winchester line. For more information see http://www.vta.org/projects-and-programs/Planning/Projects-Studies-and-Programs-Light-Rail-System-Analysis-Introduction

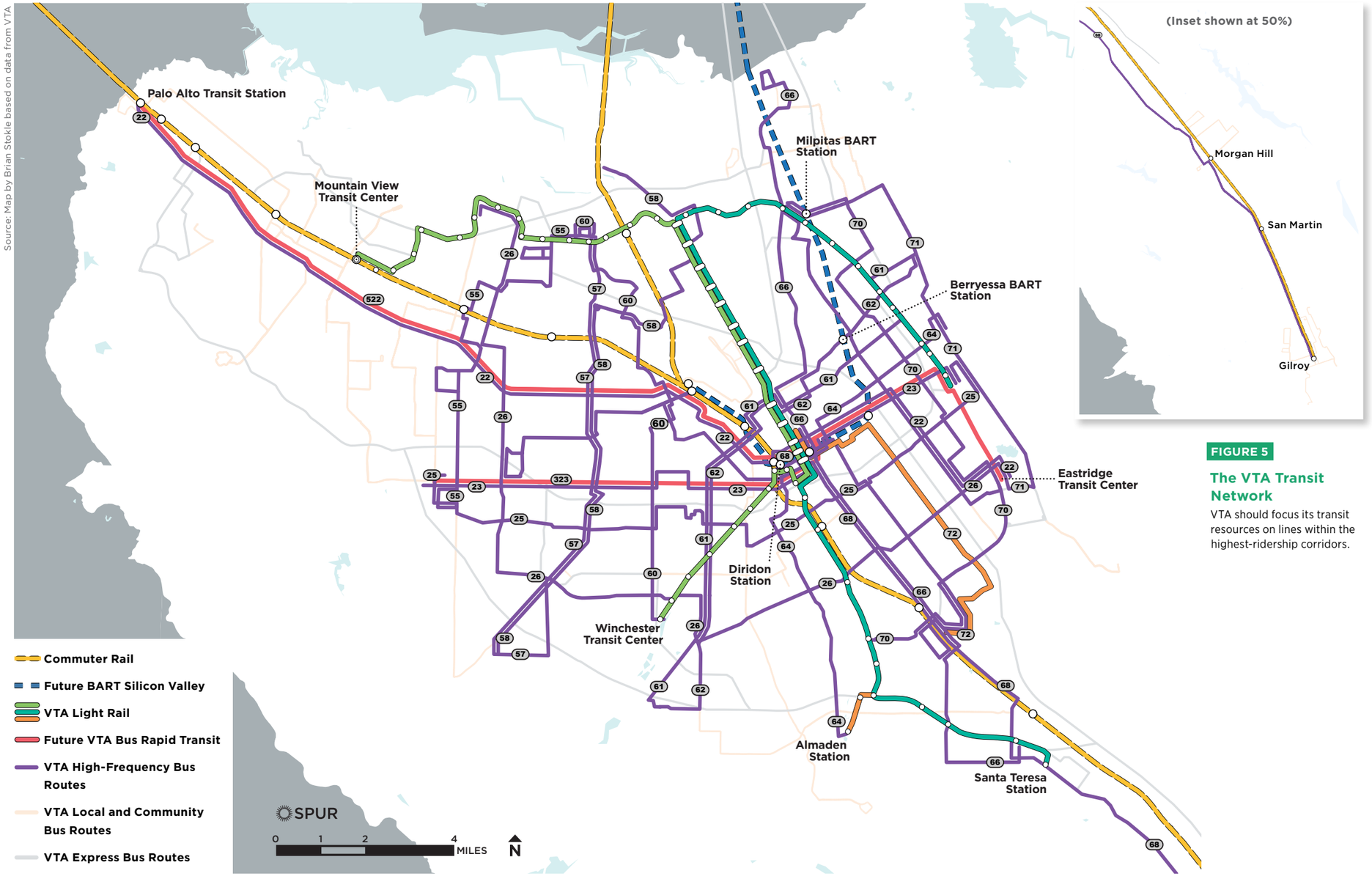


FIGURE 5

The VTA Transit Network

VTA should focus its transit resources on lines within the highest-ridership corridors.

offered or connections eliminated. In some cases, this may only require the introduction of a new service; in others, it may mean constructing passing tracks or storage tracks for light rail vehicles.

Offer more frequent service. Frequent service (every 15 minutes or less) should be provided on high-ridership corridors, particularly where light rail connects to a high-frequency service, such as BART or BRT. VTA should also provide more frequent service at peak event times at locations served by transit lines, such as Levi's Stadium and the San Jose Arena; if light rail is able to accommodate many riders, it can reduce the need for parking and cut down on auto congestion.

Use skip-stop and express train services. Stations that have low ridership today and low ridership potential in the future should be closed. Typically, these are stops surrounded by auto-oriented office parks and stops used as park-and-ride stations. Skipping stops lowers operating costs and makes trips shorter for passengers. Most park-and-ride customers can use a different park-and-ride facility and continue to ride light rail.[32] When determining which stops should be closed, VTA should consider whether riders can be accommodated at another stop and whether the travel time or cost savings from eliminating the stop can be reinvested in a different part of the system to increase ridership by a much larger amount.

Improve connectivity. An efficient transit network has to have connections, and they should be fast and simple for the riders who use them. VTA should scrutinize and improve the connections from one light rail line to another, from light rail to bus, and from light rail to regional transit systems like Caltrain, ACE, BART and the Dumbarton Express.[33]

Reassess opportunities for light rail regularly. As land uses change and as transit options such as BRT, BART and electrified Caltrain begin service, the optimal service configurations for the light rail system should be reevaluated.

Implement signal priority at intersections. VTA should work with member agencies to install continuous greens lights at intersections for light rail trains.[34]

Make capital improvements. Adding train storage tracks or passing tracks can significantly improve transit service by reducing stopping times, enabling express service or

[32] Many of the lowest ridership light rail stops are on the Mountain View Line, which is surrounded by car-oriented office parks. See VTA Transit Service Plan — Fiscal Year 2014–2015, available at: www.vta.org/sfc/servlet.shepherd/version/download/068A0000001FZVM

[33] The light rail system will connect with BART at four stations: Milpitas (Montague Station), Diridon Station (light rail and Caltrain station), Downtown San Jose (First Street) and Alum Rock (proposed light rail station).

[34] VTA will be upgrading and installing transit signal priority at traffic lights throughout the light rail network. This project will speed operations for light rail trains, improving operating efficiency and customer travel times.

BART: VTA's Big Opportunity

When the extension of BART from Warm Springs to Santa Clara County is completed, it could be transformative. BART could make VTA's existing transit network much more useful to more people by extending its reach to the East Bay and San Francisco. BART can also help turn the neighborhoods surrounding transit into vibrant, multi-modal places where residents or workers don't need to rely on a car.

BART was chosen as the transit solution for the congested I-680/I-880 corridor because studies indicated that BART would attract more riders than bus service, commuter rail (like Caltrain) or light rail.[35] BART is appealing because it is:

Frequent. The two lines that will serve Silicon Valley currently run every 15 minutes most of the day.

Fast and reliable. Thanks to a dedicated right of way, BART can travel at high speeds without having to slow for grade crossings and does not suffer delays caused by congestion or other trains.[36]

High-capacity. BART Silicon Valley will have 10-car trains, each with a peak capacity of about 2,000 passengers (200 per car).

Regional. The BART system provides access to the inner and outer East Bay, San Francisco and two airports. When it opens, Berryessa Station will be served by the Green Line (Berryessa–Daly City) and the Orange Line (Berryessa–Richmond).

The extension of BART to Silicon Valley is based on the premise that the South Bay will deliver a large ridership. For example, BART to Berryessa Station is forecasted to expect 22,500 average weekday trips on opening day and 46,700 by 2035.[37] VTA predicts that ridership will be fairly balanced, with just as many riders going north from the South Bay as vice versa. It will be the responsibility of VTA, together with its member agencies, to ensure that BART achieves its ridership goals.Unlike other transit services, it is unlikely that BART service can be stopped or moved if it underperforms. If ridership goals are not achieved, VTA will have to find funding to subsidize BART service, and this could come at a cost to other transit services.

VTA is succeeding at building the BART extension safely and is expected to finish ahead of schedule. The agency and city leaders should also focus on integrating BART into the community in a way that maximizes the social, economic and environmental benefits that this enormous investment provides. Specific areas of focus that SPUR recommends are:

Careful station site selection

BART presents the first-ever opportunity in the South Bay to create dense job centers (which will also include retail stores and housing) focused around high-frequency regional rail transit. BART stations should be located where both zoning and the market will support intensive development.

Well-designed neighborhoods around stations

The half-dozen planned BART station areas present an opportunity for the South Bay to develop neighborhoods for transit, walking and biking instead of cars. These communities around BART stations can build far less parking than is typical, because transit becomes a viable option for local or regional trips. In the interest of shaping a vibrant and complete community, these neighborhoods should minimize the size of parking structures and ensure the structures don't make it harder for pedestrians, cyclists and transit users to access BART. (See recommendations 23 and 25.)

Seamless transportation connections

BART to Silicon Valley will close a longstanding gap in the region's transit network, connecting the East Bay to the South Bay with all-day transit service. In addition to completing this circle around the bay, BART will give regional riders access to sites all over Santa Clara County by delivering them to VTA's light rail, BRT and bus lines.[38]

BART station locations and designs should maximize connectivity to these transit lines with highly integrated stations, particularly at Diridon Station. Until each BART extension segment begins service, VTA should work to develop the future ridership along that route. For example, VTA should continue to grow ridership between downtown San Jose and Fremont (the end of the BART line) today by marketing and enhancing the 181 Express service. When BART service begins in Warm Springs, the 181 Express should move to the new station. The goals is to develop habits of new riders to connect by transit. VTA should also develop goals and strategies to make the ways people access BART stations increasingly sustainable. Where BART riders may need a car to access BART today, other modes of access — such as foot, bike or shuttle — should be cultivated for the future. (See Recommendations 4 and 5.)

BART will also make many employment centers in the "Golden Triangle," the Silicon Valley industrial district of North San Jose, much easier to access using "last mile" solutions. These services — such as bike sharing, taxis and shuttles — should be accommodated thoughtfully and should be easy for first-time riders to navigate.

Supporting BART's sustainability

Making BART Silicon Valley a success also means ensuring that the entire BART system is sustainable. The system has major unfunded capital projects that need to happen in order to maintain reliable and safe operations (known as a "state of good repair"). BART also needs to find funding to purchase new cars for an estimated 1 million riders per day in 2047: BART estimates that the fleet will have to grow to 1,000 cars (up from 775 today) to accommodate the extension to Silicon Valley and ridership growth throughout the system. Today's fleet includes cars that have been in operation since service began in 1972 and that need to be retired. Other major unfunded BART system priorities include a new automatic train control system and expanded maintenance yards. VTA should involve its member cities and stakeholders proactively to inform regional decisions that pertain to the long-term sustainability of BART. (See Recommendation 6.)

VBN Architects

[35] VTA, *Silicon Valley Rapid Transit Corridor Major Investment Study Final Report*, 2001, accessed April 2014, available at: www.vta.org/sfc/servlet.shepherd/document/download/069A0000001EKv4IAG

[36] See www.bart.gov/about/history/facts

[37] Silicon Valley Rapid Transit Corridor, *Final Environmental Impact Report*, accessed April 2014, available at: www.vta.org/sfc/servlet.shepherd/document/download/069A0000001ELLCIA4

[38] VTA's BART Integration Plan is designing transit access to BART stations in the county. Accessed April 2014 and available at: www.vta.org/projects-and-programs/transit/bart-transit-integration-plan

shortening routes when there is less demand. Double-tracking light rail through downtown San Jose has been identified in SPUR's report *The Future of Downtown San Jose* as a project worth studying.[39]

In the very long term — decades from now — VTA might pursue very large light rail capital projects, but this should only happen if a city focuses enough growth in one place to justify the ridership or placemaking benefits. Potential projects include straightening out the curves on the Mountain View Line and through downtown San Jose, separating light rail tracks from other traffic (by elevating or depressing roads) in places such as the Montague Expressway and downtown San Jose and moving the downtown San Jose light rail route from San Carlos Street to San Fernando Street.

4. Improve access to transit stations.

In the spread-out communities of Santa Clara County, bus and light rail transit stations are often far from a rider's final destination. First- and last-mile solutions or feeder bus services are critical to the success of the entire transit network, particularly BART. In order to understand where such services are needed the most, and to develop creative ways of providing them, VTA should undertake a comprehensive station access policy and plan. The agency has begun to study pedestrian access to transit, and SPUR recommends doing this for other modes of travel as well.[40] Improving access to transit stations is best done in partnership with cities or others who manage the land and the right of way around transit stations.

To improve access to its transit services, SPUR recommends that VTA continue to pursue these strategies:

Launch new VTA transit services. Develop new VTA shuttle or local bus routes to transit stations. Develop new VTA feeder systems to new BART stations, and make it a flexible model that can adapt and move as new BART stations open and land uses and destinations change.

Partner with activity centers. Work with business districts, employers, transportation management associations, institutions or residential complexes to provide local shuttle buses to transit stations.

Partner with cities or adjoining property owners. Create strong pedestrian connections to transit. Add wayfinding signs and markers, create short and direct travel paths to stations, remove and reduce barriers, make safer road crossings, widen sidewalks and make urban design enhancements.

Promote bicycles as a transit link. Together with advocates like the Silicon Valley Bicycle Coalition, VTA can provide adequate bike parking and storage at stations, facilitate bike transport on trains and buses and provide clearly marked pathways to transit. Bikesharing can be a very effective last-mile solution.

5. Make transit simple and appealing.

Transit is a product; the same things that make consumer products appealing — pleasing physical design, ease of use — can apply to transit. VTA can make its transit system more simple and appealing in several ways. Some examples are:

Vehicles. VTA buses and light rail vehicles should demonstrate the advantages of riding transit over driving a car by celebrating the social experience and the freedom of transit. Just as a well-designed workplace attracts top talent, well-designed buses and trains can draw riders and give them a sense of dignity. Clean vehicles that feature large windows, clear glass, comfortable seating and Wi-Fi access support this approach.

Legibility. Part of making transit useful to riders is ensuring that information such as routes, schedules and connections is easy to find and understand. For example, as the number of transit options in the county grows, VTA should develop a clear naming style that works across service types, including BRT, light rail and BART, such as adding color coding to route names. For example, the Ohlone/Chynoweth–Almaden Line might also become the Green Line.[41]

Transit stations. Transit stations should be part of the neighborhoods in which they are located and should communicate a sense of place to those who arrive or depart by transit. Station areas should be pleasant, easy to navigate and, above all, safe. VTA has begun to focus on station areas, and SPUR suggests that as part of the process these recommendations be shared with member agencies as educational information on what makes transit work.[42] High-use stations should take priority for improvements: 5 percent of VTA's bus stops account for half of all bus boardings, with the top 1 percent of bus stops accounting for 21 percent of all daily weekday boardings and the top 10 busiest light rail stops (out of 62 stops) accounting for 45.2 percent of all boardings.[43] Efforts to enhance stations should focus on these features:

Safety, comfort and cleanliness. Waiting areas should be well-lit and feel safe and clean. This means frequent trash pickup, frequent cleaning and repainting, and zero tolerance for graffiti. Amenities that can improve stations include shelters, real-time transit arrival information, seating, Wi-Fi access and enclosed or secured waiting zones for paid customers.

Art and sense of place. Art can make transit stations attractive and create opportunities to connect with communities and partners. Many transit agencies have robust public art programs and can form useful partnerships with cultural affairs programs in cities.

Navigation. Maps and navigation tools should be user-friendly and easy to understand in a multilingual community. VTA should ensure clear wayfinding to nearby destinations and other local and regional transit connections, including rail, buses, shuttles, bike sharing and taxis.

Operator support. To improve the customer experience, VTA should continue to invest in the long-term professional development of its transit operators. Bus drivers and light rail operators are the primary staff members who interact with VTA customers. These are high-stress jobs, involving long, irregular hours with limited breaks and requiring skillful interaction with a broad cross-section of the public. VTA should build on its successful Joint Workforce Investment partnership with Amalgamated Transit Union 265 to train and equip drivers with the tools to provide the highest-quality customer service.[44] VTA can also develop rewards programs for exemplary operators.

6. Support regional rail services.

Together, VTA's transit system and the regional rail services offered by other agencies make up one larger network. It is in the interest of the county and VTA's transit system to ensure that regional rail services — including Caltrain, BART, ACE and Amtrak's Capitol Corridor — are integrated with VTA transit and are frequent, reliable and financially sustainable. For example, a combined light rail and Caltrain trip from South San Jose to Mountain View or Palo Alto overcomes some of the travel speed issues of light rail alone and is competitive with a car trip — but the services are not that well coordinated, priced or marketed.

Caltrain has long been the backbone of transit along the peninsula and previously had greater involvement from VTA.[45] The Caltrain modernization project, which will electrify Caltrain and install a modern train control system, provides many potential benefits to the South Bay, including shorter travel times

Zack Dinh

VTA offers wireless internet in all of its light rail vehicles. This amenity allows transit to fit better into people's lives.

[39] SPUR, *The Future of Downtown San Jose,* p. 34, available at: www.spur.org/sites/default/files/publications_pdfs/SPUR_TheFutureOfDowntownSanJose.pdf

[40] In 2014, VTA began developing a Countywide Pedestrian Access to Transit Plan. The plan will inventory and evaluate pedestrian-related access investments within walking distance of major transit corridor stations and stops in Santa Clara County.

[41] VTA Light Rail Transit System Analysis, accessed July 21, 2013, available at: www.vta.org/studies/lrt_system_analysis/lr_analysis.html

[42] In 2013, the VTA began its Transit Passenger Environments Plan (TPEP). As part of the TPEP, VTA staff is developing a series of policies covering every possible element of the bus stop waiting environment so that cities, developers and the public can understand VTA's position on bus stop elements.

[43] See VTA Transit Service Plan Fiscal Year 2014–2015, available at: www.vta.org/sfc/servlet.shepherd/version/download/068A0000001FZVM

[44] The Joint Workforce Initiative, developed by VTA in 2006, is a combination of career ladder and skill upgrade training for maintenance employees and transit operators.

[45] According to SPUR interviews with former VTA transportation planners.

Zack Dinh

Santa Clara County is one of three counties that funds and governs Caltrain. Seamless connections between VTA transit and regional transit would make both more welcoming to riders.

for Caltrain passengers; it also delivers greater numbers of passengers to VTA's transit system. Caltrain is currently fiscally unstable, as it relies on voluntary funding contributions from three counties (Santa Clara County through VTA, San Mateo County and San Francisco County) which govern the service through the Peninsula Corridor Joint Powers Board. A stable funding stream for Caltrain should be identified so that it can continue to be the backbone of transit in the South Bay and can anchor new transit-oriented growth. Similarly, once BART operations begin in the county, it will be important to ensure that BART service can be relied upon and that the agency is sustainable.

We recommend that VTA use its funding and political influence or lead planning efforts, as appropriate, to support these broader parts of the VTA transit network.

7. Extend transit only when there is demonstrated demand.

Transit service costs money to provide, so it's important that resources be invested where there are riders and where transit will be supported by the surrounding community. VTA's Transit Sustainability Policy and Service Design Guidelines offer guidance for basing new transit services on the greatest potential for ridership.

Specifically, new extensions of the light rail system, which have been funded by 2000 Measure A, should be carefully reevaluated to ensure that there is adequate demand. The Capitol Expressway light rail project would extend the Alum Rock Line south to Eastridge, paralleling current bus route 522 and future BRT service. The 1.6-mile Vasona extension would be a continuation of the Winchester Line into Los Gatos. Where communities desire light rail extensions, testing a transit service may be the right step to take before committing to a large capital investment. While models can project demand, they are imperfect and not sensitive to all factors that can motivate transit usage. BRT projects can demonstrate demand for rail and trigger private investment and land-use improvements in those corridors. The current development of the Santa Clara–Alum Rock BRT line fits with this approach. VTA's Service Design Guidelines provide a framework for testing new services. The standards in the Service Design Guidelines should be raised over time so that VTA's limited transit funding can be spent on the most productive services.

8. Make transit fares reasonable and rational.

Transit should be affordable to most travelers and fares should be rational (i.e., similar services should be priced similarly). Possible steps to achieve this include:

Moving toward a regional fare structure. VTA's fare structure is different from that of adjoining services like Caltrain or BART. (This is the case across the Bay Area's many transit operators.) VTA should help move toward a more uniform and integrated regional fare structure that might be based on distances or zones, or simply begin by developing an integrated VTA and Caltrain fare structure. Fare categories such as "youth" or "senior" should also be consistently priced and defined between operators.

Reducing or eliminating connection penalties between operators. VTA has some agreements with other operators for discounted fares for people with monthly transit passes. Over time, VTA should work with other operators to remove any costs for riders who need to transfer between transit operators. The BART Silicon Valley extension presents an opportunity for VTA to develop a more integrated fare structure that makes transit connections free. This will encourage BART riders to use VTA light rail or bus connections.

Offering bulk discounts. VTA can continue to provide bulk or discount passes to employers and should make them available in an equitable way to employers of different sizes or through transportation management associations.

Improving the Clipper fare payment system. VTA can work with the Metropolitan Transportation Commission to reduce the cost of the Clipper system and then pass the savings on to riders. If riders could also use Clipper to pay for other modes of transportation, such as bike sharing or taxis, it would be that much more convenient to travel without a car.

Recommendation 16 on page 34 further discusses integrating VTA's fare structure with other operators.

STRATEGY 2

Develop mobility solutions beyond transit

Goal: New kinds of transportation services, especially in places where transit does not work well, are tested and then scaled up to widespread service. New transportation technology increases mobility and cost-efficiency.

This is a time of great innovation and change in transportation. New vehicle technology; shared mobility programs like car sharing, ride sharing and bike sharing; and smartphone apps all present substantial opportunities for VTA and its member cities.

For the places where transit doesn't have a high chance of success, VTA can take a big role in testing and scaling a variety of other mobility solutions by building on its past work creating bike-sharing and shuttle programs. New mobility solutions are particularly important for suburban areas where running transit service is impractical for VTA and getting to a transit station may be difficult for travelers.

SPUR's recommendations for mobility solutions

9. Establish a Mobility Solutions and Innovation Team at VTA.

In this report, SPUR recommends that VTA create a range of transportation options beyond traditional bus and rail transit, help people understand all of their transportation options and enable travelers to make real-time decisions about which choice is best for a specific trip. To organize all of these activities, SPUR recommends creating a Mobility Solutions and Innovation Team to organize all aspects of transportation in Santa Clara County (even for services that VTA does not operate). The role of this team would be similar to that of a traditional transportation demand management (TDM) program. TDM uses strategies and policies to shape travel behavior. Many large employers have TDM programs to help their workers travel without a private car.

This Mobility Solutions and Innovation Team would focus on both urban and suburban mobility solutions and would partner with other agencies as it scaled existing mobility solutions and tested new ones. For example, this team could test a publicly supported ride-sharing program for suburban neighborhoods.

10. Support jurisdictions, employers and institutions pursuing mode shift.

Many cities, employers, institutions and organizations like transportation management associations are investing their resources in providing or promoting transportation options other than driving alone. VTA should consider them partners in achieving countywide mode shift goals. VTA can provide expertise on transit operations or service planning, partner on marketing and outreach, provide technical assistance on parking or land use policies or share research and best practices for changing travelers' behavior.

Zack Dinh

Carsharing, ridesharing and other technology-driven innovations create new opportunities for transportation in suburban areas.

Managing parking, in particular, represents a significant opportunity to improve conditions for travelers who walk, bike or take transit while freeing up land or street space for other uses. SPUR recommends supporting cities to implement more sophisticated parking management programs. These parking programs may include demand-responsive pricing (parking costs that vary in order to shape demand), shared parking (parking lots or structures shared by multiple users) or TDM strategies that reduce the demand for parking. Cities can reform parking policies through their general plans.

11. Support local public transit.

To help achieve countywide mode-shift goals, VTA should support local transit services run by other operators, as well as local TDM efforts and transportation management associations, member-controlled associations that provide transportation services. For example, the City of Palo Alto's free Embarcadero and Crosstown shuttles help the city reach its economic development and social goals; VTA can support services like this through a local grant program. Cities would match the VTA funding with local resources for transit service that can be tailored to the community. These local services may involve some private funding, such as contributions from transport managing associations. The benefit of this model is that member agencies become direct beneficiaries of VTA's transit investments. VTA can help develop unified signage, maps and the like to make the travel experience consistent for riders across multiple transit operators.

12. Manage or operate employee transit.

Larger employers in Silicon Valley are able to provide private transportation for their workers. However, smaller employers, institutions and business parks are unable to provide this service, and VTA has the expertise needed to fulfill this need. Private shuttles services managed by VTA could operate in an open system available to the public or in a closed system that only serves designated employers. This would particularly apply to small office parks where several smaller businesses may have, in aggregate, a large number of employees. VTA would determine routes that make sense and the amount of public subsidy; as services become popular and could sustain themselves, subsidies could decrease over time. This type of transit service would augment what VTA has already done with its Caltrain shuttle.

13. Create or scale new transportation options.

Large expanses of the county will never be served well by bus or rail transit, but people in these areas should still have great transportation options beyond driving alone. VTA should seek to provide new niche transit services by studying market trends and testing pilot programs. Possibilities include partnering with ride-sharing services or transportation network companies[46] to provide door-to-door service in suburban areas or with private jitneys that offer small bus service on regular routes during peak hours.

14. Designate "car-light corridors" for focused interventions.

Working with its member agencies, VTA should designate car-light corridors with higher goals for shifting the population away from car use. These would be narrowly defined places where there is high population density, low car ownership, good walkability and high transit availability. In these corridors, VTA should test and scale a wide range of mobility solutions and communications, offering travelers choices, incentives and information with the goals of maximizing the use of other kinds of transportation and then increasing the size of the car-light corridors over time.

SPUR recommends that these initial car-light corridors would include parts of:

- Santa Clara Street and Alum Rock through downtown San Jose
- North First Street to Tasman in North San Jose
- West San Carlos/Stevens Creek Boulevard in San Jose
- El Camino Real from San Jose to Palo Alto

VTA and its member agencies could test numerous interventions, including bike sharing, improved pedestrian and bicycle signage, transit passes for residents and workers, policies to manage parking, car sharing, and customized information on transportation options for new residents and employees. This very targeted approach, similar to efforts by employers, has been shown to be highly effective.[47]

15. Support transportation demand management into and out of Santa Clara County.

Twenty-four percent of trips in Santa Clara County originate outside the county. SPUR recommends working with partners outside the county to provide cohesive marketing and other solutions to shift those trips away from the single-occupant car. Specific corridors include highways I-680, I-880, I-280 and I-101; the El Camino Real; and BART and Caltrain routes.[48] One such strategy would be to actively market the Capitol Corridor train to travelers on I-880 or the ACE train to commuters on I-680. Transit services run by other operators should not be viewed as competition to VTA's transit service but rather as another way to deliver customers to VTA transit and reduce car demand on the county's roads.

Zack Dinh

The Bay Area's transit network combines many public and private services. Better maps and wayfinding could make them feel and function like one system.

[46] Transportation network companies (TNCs), as defined by the California Public Utilities Commission, provide prearranged transportation services for compensation using an online platform (such as a smartphone app) to connect passengers with drivers using their personal vehicles. Some TNCs in operation today are UberX, Lyft and Sidecar.

[47] The InMotion program in Seattle targeted two neighborhoods to increase BRT ridership. The program helped increase bus ridership by 12 percent and 11.5 percent in the two neighborhoods. See Eric Jaffe, "Cutting Car Reliance, One Trip at a Time," *The Atlantic Cities*, accessed April 10, 2014, available at: www.theatlanticcities.com/commute/2014/04/cutting-car-reliance-one-trip-time-seattle/8822

[48] In some cases, there is an existing TDM organization such as commute.org in San Mateo County.

Zack Dinh

Last-mile solutions such as this Stanford shuttle bus complement VTA's system and expand its range.

16. Create a seamless experience across transportation modes.

Creating an integrated and seamless travel experience across transportation services would improve the user experience, save money and make the most of investments in transportation. The following areas present opportunities to integrate transit services:

Infrastructure and operations. VTA's services should have easy physical connections to one another and to services like Caltrain or BART. An effort should also be made to integrate operation schedules or hours of service. Physical connections to feeder services like shuttles or bike sharing should also be straightforward for the rider.

Information. Maps and wayfinding, online and mobile trip planners, and real-time information services should incorporate as many transportation services as possible.

Payment methods. Over time, riders should only have to use one payment method (such as a Clipper card) to pay for a range of mobility solutions, including VTA buses, light rail, paratransit, regional rail services, bike sharing, ride sharing, taxis, on-street and off-street parking, and tolls. VTA could pilot different types of electronic payment technologies. This level of integration will be complicated, which means it's time to begin this process.[49] Similar integrated payment systems exist in many cities around the world, including Singapore and London.

17. Collect and share detailed transportation data and use it to conduct research.

Both VTA and South Bay travelers can use transportation data to make real-time decisions. This data can also inform long-term planning. Data sources have grown dramatically and now include phones, GPS systems, payment systems like Fastrak and Clipper, sensors embedded in roadways and online trip-planning tools. Combining data sources like these yields more sophisticated information, often referred to as "big data." VTA can foster private data-gathering and take advantage of data about potential ridership provided by major employers and transportation management associations. The use of big data can give a much more nuanced understanding of travel behavior and allow VTA to make more effective investment decisions. VTA has initiated the use of big data for its congestion monitoring program. The proper use of data by the public sector is an important issue. Privacy concerns should be balanced with the public benefit provided through proper use of the data.

[49] VTA is considering piloting a smartphone-based transit payment system for use at events at Levi's Stadium.

STRATEGY 3

Make streets work for all users and stop expanding roads

Goal: Local streets and expressways benefit all users, with safe space for pedestrians, cyclists and transit riders. Highways are increasingly used by carpools and transit vehicles and are priced to manage demand.

Roads have consumed a large portion of the developable land in Santa Clara County and are a significant barrier for modes of transportation besides the car. There is not enough funding to maintain all the roads in the county, and current road pavement conditions are generally poor. Meanwhile, it is well known that cities can't build their way out of traffic: Road expansions offer increased speeds for a while, but the extra capacity fills up within a few years.[50]

In this context, it is imperative that road expansions stop and existing roads become more productive, meaning that they move more people using a larger variety of modes and help deliver people to transit systems. VTA already acknowledges this shift in its Valley Transportation Plan (VTP) 2040, which calls for the majority of future funding to go toward transit projects and not highway projects.

Car traffic on local roads is also becoming an increasing problem in some of the county's downtowns. Local congestion is a good sign of a vibrant community, but it also forces difficult decisions about the best transportation solutions for our limited available street area. VTA can help implement solutions that use existing roads more efficiently and more safely for all users.

SPUR's recommendations for streets and roads

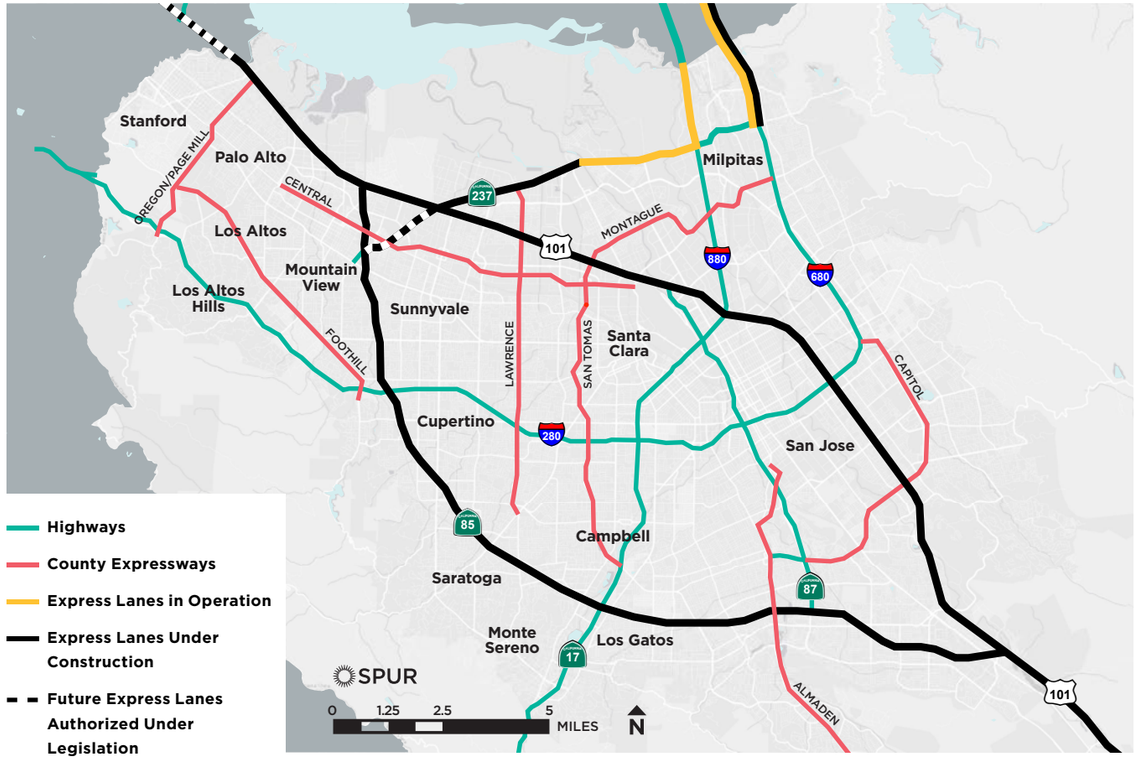
18. Manage and price existing auto facilities.

VTA should work with its member agencies to cease roadway expansion projects and control the demand for more auto capacity. When a jurisdiction is designing solutions to congested intersections or corridors, VTA can help determine ways to reduce the demand on those roads or promote alternative choices for travelers, rather than default to building more roads.[51]

Strategies to reduce demand include providing transportation alternatives, promoting high-occupancy vehicles (i.e., carpools) and charging a toll or user fee, also known as road pricing. Road pricing can move demand away from peak hours, reducing the need to build extra roads or lanes that will only be used a few hours each day. But

[50] This phenomenon in transportation systems is known as "latent demand." For more information, see Surface Transportation Policy Project (1998), *An Analysis of the Relationship Between Highway Expansion and Congestion in Metropolitan Areas*, available at: www.transact.org

[51] VTA has developed a Transportation Systems Operations and Management Program, which seeks to improve the operation and management of Santa Clara County's transportation system through the use of new technologies, including electronics, computers and communication infrastructure.



Source: Map by Zack Dinh. Data from VTA http://www.sccgov.org/rda/expressways2/default.htm and http://www.vta.org/projects-and-programs/highway/silicon-valley-express-lanes (Accessed April 2014)

FIGURE 6

Santa Clara County Roads and Highways

The road network dominates the South Bay transportation system. VTA builds highway and expressway projects and operates the Silicon Valley Express Lanes, a way to make better use of existing highway capacity while raising funds for other transportation needs, such as transit, in the same corridor. VTA's has plans to implement Express Lanes on the majority of the highways in the county.

note that we don't recommend expanding a road to add a toll lane, which would increase demand by creating new space and therefore negate the benefits of pricing. Road pricing should apply to existing lanes.

Road pricing can also generate funds for other transportation modes. Revenue from pricing a road should be used to support mode shift in the same travel corridor, such as moving trips to a parallel transit line.

Traffic management or intelligent transportation systems offer other strategies to address congestion. These technologies use data collection and communication to help make vehicle flow more efficient or to move traffic to less congested areas. Real-time traffic information could help people choose alternate modes of transportation, thereby reducing demand for more roads.

The Santa Clara County expressway system deserves particular focus due to its congestion and continued pressure from peak-hour commuters to complete road-widening projects. Demand on the expressways should be managed through pricing or other strategies. While VTA does not have jurisdiction over the expressways, the agency could play a strong role in the expressways master planning process, developing new solutions to ensure that the expressways evolve to support mobility and sustainability goals set by the VTA board.

19. Retrofit streets for all users.

Most streets are controlled by local jurisdictions. However, through its role as a funding agency for local transportation projects, VTA can promote or require the design and retrofit of streets for all users, including pedestrians, cyclists and transit riders. VTA can also provide roadway policy, design and construction management assistance to its member agencies. SPUR recommends that VTA require design review when funding a project. VTA should also assist cities with adopting multi-modal street guidelines, sometimes referred to as

"complete streets" guidelines.[52] This assistance may be particularly important to smaller cities that do not have staff capacity to implement these types of projects on their own.

Retrofitting streets or roads, or making them into complete streets, can be very expensive. VTA should ensure that funds are allocated to locations where they will affect the most people and make the best use of investments (for example, connections to transit stations and areas with specific plans) and not just to any roadway project.

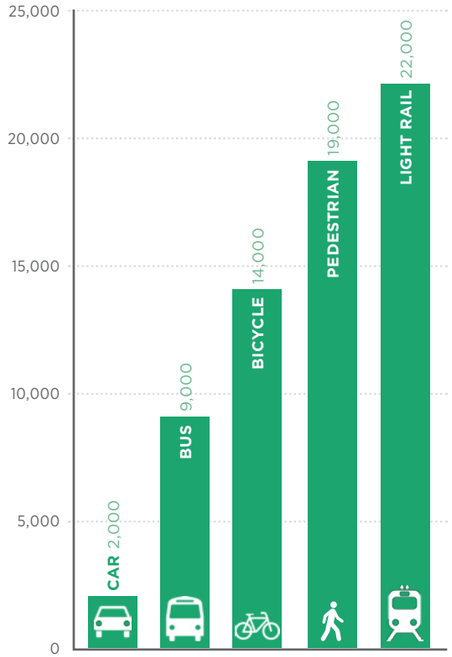
This recommendation also applies to facilities that are not managed by VTA. Conflicts between different types of users are worst when several kinds of infrastructure meet, such as large intersections between local roads and highways. When Caltrans completes a roadway project such as an interchange, VTA should aggressively pursue exceptions to Caltrans design standards, such as separated bike lanes or raised crosswalks, to allow for safe bicycle and pedestrian travel. In addition, VTA should continue to work with Caltrans and local jurisdictions and advocate for the state to turn state routes over to local jurisdictions so that state roads can more easily integrate with local planning or design programs. These so-called "relinquishments" will require local agencies or VTA to identify local funding for maintaining former state roadways.

The county's expressways (which are not managed by VTA) should be made consistently safe for everyone to cross. Today, speeds on expressways exceed 40 mph in many places, making them unsafe for biking or walking. Expressways also impede pedestrian and cyclist access to several light rail stations.[53] The Santa Clara County Expressway Master Plan has historically promoted additional auto capacity and grade separations (separating cars from local cross-traffic to increase their throughput), with limited accommodation for other types of travelers. Future expressway master plans should aim for a multi-modal expressways system that is integrated with local efforts to grow sustainable, multi-modal communities.[54]

20. Increase cycling and walking.

Santa Clara County's flat topography, temperate climate and spread-out land uses make cycling a great opportunity for the area. In addition to improving street design to accommodate cycling and walking, VTA should apply all possible funds and leverage to improve access to safe cycling throughout the county. This includes:

- Aggressively pursuing a 24/7 bicycle and pedestrian network
- Completing the Countywide Bicycle Plan
- Expanding the bike-sharing program, particularly in car-light corridors, and increasing subscriptions to Bay Area Bike Share



Source: Graphic by Zack Dinh, data from Botma & Papendrecht, Traffic Operation of Bicycle Traffic, 1991, from http://trid.trb.org/view/365588

FIGURE 7

Reallocating Street Space Can Move More People

Number of people an 11.5-foot-wide lane can convey per hour

Some transportation modes can move far more people than others using the same size lane. Allocating more space for biking or transit can move more people than designating lanes exclusively for cars.

[52] Examples of multi-modal street guidelines include the National Association of City Transportation Officials' *Urban Street Design Guide* (http://nacto.org/usdg) or the Congress for New Urbanism—Institute for Transportation Engineers' *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach* (www.cnu.org/node/127)

[53] The expansion of several county expressways is included in VTP 2040.

[54] In 2014, VTA is working with all cities in the county to update the Countywide Expressway Study, which is making an effort to accommodate bicyclists and pedestrians where appropriate. VTA is also supporting the county's efforts through funding pedestrian improvements.

Green bike lanes are one way that city streets can make space for many users.

- Improving pedestrian and bike access to transit, creating guidelines for pedestrian and bike access to transit, and funding priority projects
- Growing contributions to local programs that promote using walking and cycling for transportation, including Safe Routes to School programs such as the City of San Jose's Walk n' Roll program
- Analyzing pedestrian and bike safety data to determine the best ways to reduce collisions and the severity of injuries, then sharing best practices with cities
- Commenting on federal and state highway design manuals to ensure that travel by foot, bike or transit is prioritized

In addition, VTA should design its transit services, and train its transit operators, to safely operate on streets with pedestrians and cyclists.

21. Reevaluate existing road projects.

As a state-designated congestion management agency, VTA is required to monitor the performance of the transportation system, which is typically measured by auto level of service. If one part of the congestion monitoring program fails to meet VTA's standard for auto level of service, the agency must approve a "deficiency plan" to construct improvements that will increase auto throughput.[55]

Over the years, many road expansion projects have been created through these deficiency plans, through mitigations for development agreements or through the California Environmental Quality Act (CEQA). But local, regional and state policy goals have changed since these projects were proposed, and political leaders have come to embrace more compact, transit-oriented growth. VTA should work with its member agencies to update existing transportation mitigation programs and congestion management program deficiency plans to reflect these new policies. Avoiding some of the projects that aim only to improve car travel would free up funding for enhancing other modes and allow for better placemaking. VTA has already acknowledged the need to reform this process by redesignating deficiency plans as "multi-modal improvement plans" beginning with the 2013 Congestion Management Program.[56]

[55] Santa Clara County's level-of-service standard is LOS E (where "A" represents free traffic flow and "E" represents unstable flow). Member agencies that do not maintain the level-of-service standard risk having their Proposition 111 gas tax funds withheld.

[56] This approach could apply to projects like the Coleman–Autumn transportation corridor project in San Jose, developed as part of San Jose's 2000 Downtown Strategy Plan, available at: www.sjredevelopment.org/publications.htm, or to projects in the 2006 North San Jose Deficiency Plan, available at: https://www.sanjoseca.gov/DocumentCenter/View/4373

STRATEGY 4

Shape communities around transit

Goal: VTA has a shared vision, developed with its member agencies, for a region that supports a multitude of transportation options for residents and workers. Communities are designed and grown in ways that support this vision.

Transportation is only a means to an end, not an end in itself. As part of the larger picture, transportation should help shape great places and support a high quality of life — not contribute to degrading these things. Because VTA is a transportation authority and it is the local cities that manage land use and the built environment, we must be proactive and intentional when it comes to integrating transportation and communities if we want to shape growth in a different way.

SPUR's recommendations for shaping communities

22. Create a Community Planning Team at VTA.

VTA should develop a cross-functional team composed of staff from different departments to lead efforts to make places around transit station and transit lines great for travel by foot, bike or even shuttle. The team would implement VTA's Community Design and Transportation Program, the One Bay Area Grant Program and the VTA Joint Development Program and would also focus on BART, Caltrain and high-speed station areas.

The Community Planning Team can also guide suburban cities that wish to diversify their transportation options. Suburbs function more and more like center cities and should be seen as places that can evolve to become more amenable to walking, cycling and transit.[57]

Organizing planning around corridors such as North 1st Street or El Camino Real is one way VTA can coordinate transportation and land use across and travel modes, and in the case of El Camino Real, across jurisdictions.[58]

23. Champion a grand vision for BART station areas.

BART is a multi-billion-dollar investment in Santa Clara County. Future BART station areas, especially Diridon, present unprecedented placemaking opportunities. Each BART station area should have a clear vision that is championed by both the city where it's located and by VTA. If there are any challenges to station area design, addressing these before the environmental review process offers the best chance of keeping the vision intact. (See "BART: VTA's Big Opportunity" on page 26.)

24. Integrate short- and long-range transit and land use planning.

Cities should regularly present their land use visions to VTA. Similarly, VTA should present its transit network plans to cities to inform them about how transit can shape land use plans. VTA board members are well-suited to engage their jurisdictions in continuous conversation with the agency to coordinate transportation and land use planning.

We also recommend:

- VTA and cities work together on the land development process at the concept phase, well before the CEQA process, to share best practices and design solutions to land use and transportation integration challenges.
- VTA work with member agencies to seek MTC or ABAG planning grants for land use planning and policy-making processes in priority transit corridors, including specific plans, station area plans, general plans and environmental impact reports.
- VTA make its Community Design and Transportation Manual available online and provide trainings for VTA board, staff and member agencies.
- When requesting a transit service extension, cities show a commitment to land use that supports transit (for example, through zoning for a minimum density near the proposed transit line).[59]

We recommend that VTA, together with its member agencies, work with the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) to help these regional planning agencies refine their definitions of priority development areas. (See Figure 8 map on page 42.) These areas should focus on those places that would be best served by transit and that are most likely to succeed in shifting people's travel habits away from driving.

25. Use VTA real estate to model transit-oriented development.

The primary goal for the real estate VTA owns around transit stations should be to develop great communities that are integrated with transit. Development projects on VTA sites could demonstrate to local jurisdictions how to do transit-oriented development well — for example, how to provide high-quality access to transit stations, manage cars and parking,

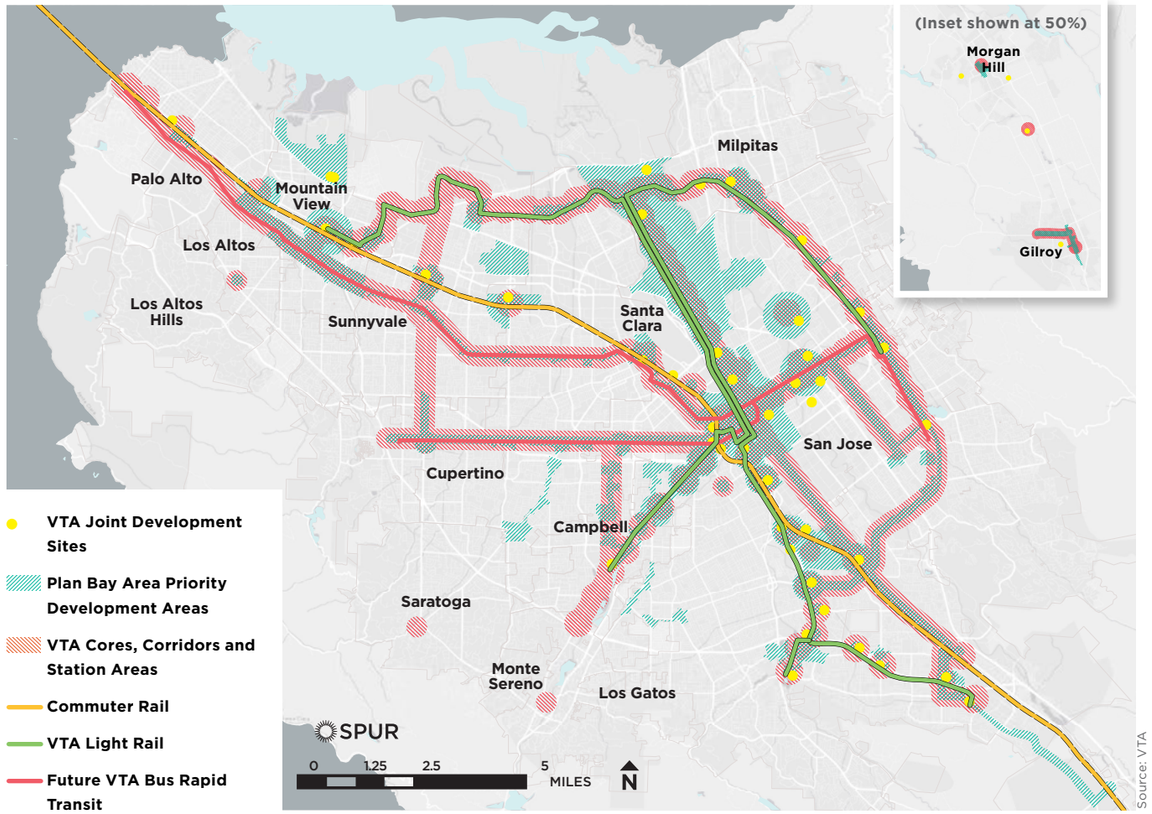
Sergio Ruiz

Building walkable, dense, multi-use development around transit stations makes the transit more useful and productive.

[57] Jane Williamson and Ellen Dunham-Jones, *Retrofitting Suburbia* (New Jersey: John Wiley & Sons, 2011).

[58] This would be a similar approach to the Grand Boulevard Initiative led by Samtrans. See www.grandboulevard.net

[59] MTC has a similar policy (Resolution 3434), which requires cities to complete zoning before releasing transit extension funds.



and use CEQA policies that support multi-modal solutions. When market realities don't allow for the suitable joint development for a station area, VTA and local partners can explore creative solutions or seek funding together to make projects feasible.

Many of VTA's real estate assets are light rail park-and-ride lots that provide more parking than future ridership growth requires. When the market presents an opportunity, VTA should accelerate the redevelopment of these sites.[60] Partial or full redevelopment of the VTA headquarters site on River Oaks Road and North 1st Street in San Jose presents a particularly exciting opportunity to showcase transit-oriented development.

For key sites, VTA should work with member agencies and community stakeholders to adopt a development framework and funding sources that promote an integrated land use and transportation vision, rather than simply focusing on present-day revenue generation. Such a framework could also address the issues of housing affordability, job density, cultivating transit ridership and urban design.

26. Work to locate large institutions around transit.

Large institutions can be the ideal partner for a major transit-oriented development because of the size of their projects and the possibility of incorporating social or environmental goals. We recommend that VTA designate a point person for communicating with large institutions or employers (e.g., government agencies, health care providers and universities) about locating near VTA's transit service.

[60] *VTA Replacement Parking Study — Final Report*, available at: www.mtc.ca.gov/planning/smart_growth/tap/MTC_VTA_Replacement_Parking_Draft_FINAL.pdf

FIGURE 8

Policies Aim to Focus Investment and Growth Near Transit

To counter decades of car-oriented growth, VTA and other agencies are now adopting policies to concentrate growth and investment near transit. VTA has identified a set of "cores," "corridors" and "station areas." As part of Plan Bay Area, cities have defined "priority development areas." Working with its member cities, VTA has also prioritized "joint development sites" — VTA-owned property adjacent to transit stations — and set a schedule for their development. See Appendix A for details.

How Cities Shape Transportation

While VTA secures funding for, designs and manages transportation systems like highways and transit, the places the agency serves are shaped by local government: cities and towns. The decisions that cities make about land use and development shape the breadth and effectiveness of transportation choices. When it comes to designing cities, local governments have many tools at their disposal:

General Plans and zoning guide a city's growth. These tools should address density, types of land uses, smart parking policies and good urban design. Policies to support dense, walkable, mixed-use development in areas near transit stations are especially important. When good planning and zoning are embodied in a recent general plan, this gives developers certainty about what they can build. Executing general plans and zoning are essential to determining the success of transit.

CEQA guidelines are used by cities to project the environmental impacts that a new project will have on a community and how those impacts can be avoided or mitigated. For the most part, each city determines how the impacts of transportation projects are measured and then addressed. For example, through CEQA guidelines, cities can express the amount of congestion they are willing to live with before they charge developers impact fees. CEQA guidelines also guide whether impacts to pedestrians, cyclists or transit will be measured and disclosed.

Development fees can pay for mitigating project impacts or for other improvements to the community. These fees are typically standardized for an area and are used to fund projects outlined in an established program. For example, if a project is expected to increase congestion, the developer might pay the city a traffic impact fee, which can be used to widen roadways, improve transit or fund transportation demand management programs. Cities can also incentivize development without forgoing community benefits by delaying or deferring fees or by allowing developers to build higher-density projects in exchange for including affordable housing or creating parks.

Developer agreements are made between cities and individual developers to outline a set of near-term or long-term improvements, services or mitigations that will enable a project to move forward. Developer agreements can require that a project fund particular infrastructure improvements or amenities, such as bike sharing, streetscape improvements, shuttles or a transportation management association.

Capital program dollars can be used to shape transportation choices. Cities can prioritize funding from gas taxes, sales taxes and discretionary grants for investment in places where they want to encourage growth or redevelopment. Transportation choices are shaped by all kinds of capital investments; even a capital project like sewer rehabilitation can facilitate creating a bicycle lane.

Transportation engineering and design standards determine what happens on city streets. Do streets prioritize cars or transit? Do they integrate with citywide networks? When cities use multi-modal street and road guidelines, they can create streets that serve the most diverse set of users. Engineering standards can lower vehicle speeds and create safer spaces for those on foot, bicycle or transit.

Parking policies have been shown to have considerable influence over transportation choices. Giving developers the flexibility to reduce the amount of parking they provide can allow for better urban design, reduce project costs and provide space for transportation modes other than the car. In areas that are redeveloping, cities can strategically manage both on-street and off-street parking to ensure that parking is not overbuilt.

Public space and amenities, including a network of well-designed city streets, shape the experience of getting around. Amenities like lighting, trees, signage, bus shelters, street furniture or open space can make travel by foot, bike or transit more comfortable or accessible.

Development standards and design guidelines, which govern the shape and integration of new development, can contribute to walkable places, an essential element for effective transit service. Good urban design requires a clear vision and a sustained commitment. It depends on, and in turn supports, a robust multi-modal transportation system.

A reason for dialogue

Designing communities well at the outset is both more economical and simpler than retrofitting later. Cities can decide how early and how often to engage with VTA about shaping their communities. While VTA's Community Design and Transportation Manual offers clear guidance on urban design and designing for transit, the principles need to be applied in a nuanced way to each project in a community so that a city can achieve its livability goals.

STRATEGY 5

Set clear sustainable transportation goals and align resources to meet them

Goal: VTA adopts sustainability and mobility goals for the county's transportation system. Decision-making tools and processes help VTA make choices that support those goals.

VTA must have clear goals that turn the agency in a more sustainable direction. It is a large agency with a broad range of functions and goals, many of which lead to conflicting plans and investments. For example, highway expansion activities can undermine the productivity of transit services, or a road-widening project can making walking or cycling more difficult. Setting goals for the county's transportation system will help align VTA's functions, enable partnerships and resolve difficult decisions.

SPUR's recommendations for setting goals

27. Articulate shared goals and mobility objectives. Track progress against goals.

The VTA board should work to articulate the shared social, ecological and sustainability goals of its member jurisdictions. VTA and its member cities should work together to develop the goals so that they reflect local values.

In order to measure the effectiveness of VTA's investments against its goals, the board should adopt a set of performance indicators and track progress for the entire county, for priority development areas and for car-light corridors. A regular — even weekly — look at progress on key performance indicators could build continuous improvement into operations.

Some key performance indicators that point to a more balanced transportation picture were described on page 21. Additional performance indicators include:

- Lower per capita car ownership
- Lower per capita vehicle miles traveled
- Higher percentage of trips taken by bike, walking, transit or shared vehicle
- Lower average door-to-door travel times for residents
- Lower average annual household transportation expenditures per capita
- More quality transportation options for different user groups, such as non-drivers or lower-income people
- More quality pedestrian and cycling environments
- Greater land use accessibility (e.g., number of jobs and public services within walking distance of residents)
- Fewer vehicle crashes and crash fatalities per capita

New data sources or research tools may need to be developed to use these nuanced indicators.

28. Match investments to policy goals.

Rather than managing highways, transit and other modes separately, VTA should choose investments or strategies that best achieve the agency's transportation goals. Adopting "integrated" or "cross-modal" planning helps to identify options early, during the planning process, which allows economically efficient TDM solutions or street retrofit projects to compete for funding with road-capacity expansions.

We also recommend that the board define the role of VTA's bus and light rail transit more clearly so that it can allocate resources between ridership and coverage goals. This may take the form of a policy that states, "Devote ___ percent of resources to services justified by patronage, and the remaining ___ percent to maximizing coverage." Similarly, the board can divide resources between peak-hour, employment-oriented services and services for other types of transit trips. Once these goals are clear, VTA and its member agencies can seek out new, innovative solutions for areas that are difficult to serve with traditional transit.

29. Ensure that congestion monitoring program tools reflect multi-modal goals.

In general, the success of *all* transportation modes should be measured, and roadway capacity should be calculated, by the throughput of *people*, not cars. State congestion management program legislation offers some flexibility, and VTA should take advantage of that to promote multi-modal solutions for auto congestion. Programs to prioritize for reform include:

Valley Transportation Plan project selection
The board-adopted criteria for the Valley Transportation Plan — particularly for highways, expressways, and local and street and road projects — should reflect sustainable transportation and multi-modal goals. A simple set of performance measures should help the board determine which projects are most effective for achieving the most mobility for the least amount of money and in the most sustainable way.

Congestion monitoring program guidelines and level-of-service policy
Moving away from the auto level-of-service metric to a multi-modal measurement tool or other performance measurement methods would lead to the development and funding of multi-modal solutions for roads. The congestion monitoring program should also require that cities adopt TDM programs for new development before they can receive some of their funds for road improvements. Updating these guidelines successfully will require the cooperation of member agencies.

Development review process and Transportation Impact Analysis Guidelines
VTA uses Transportation Impact Analysis (TIA) Guidelines and auto level-of-service standards when reviewing a development proposal for its impacts on transportation. This typically happens during the CEQA process. Similar standards are also used by member agencies, the county and Caltrans.

Existing standards can be a detriment to creating better development. The current TIA Guidelines don't provide much credit for putting active land uses near transit hubs or for including transportation or parking demand management strategies. Developers have little incentive to include these as part of their projects. Under CEQA, developers are often required to mitigate projected auto congestion through transportation investments that maintain the existing auto level of service (more lanes, narrower sidewalks, easier car turns). Not only are these investments costly, but they can also degrade the quality of the street environment by allowing less space for sidewalks or bike lanes. TIA Guidelines should be revised to measure impacts to all modes and to ensure that all other mobility options have been exhausted before expanding auto facilities at development projects.[61]

Local CEQA and level-of-service guidelines
Cities can use grants or other funding sources to support revising their CEQA and level-of-service guidelines to enable a full range of transportation solutions for increased demand.[62] VTA could require such updates as a condition for receiving some types of VTA funding. VTA could provide education and technical assistance to its member agencies about the unintended consequences of focusing on auto performance goals at the expense of other modes.

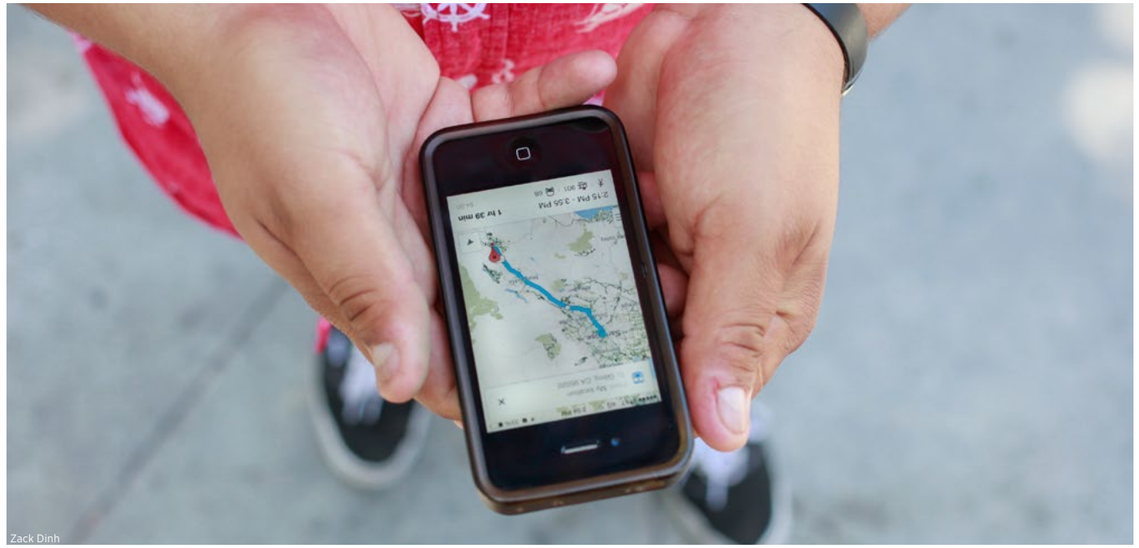
[61] VTA is currently updating its TIA Guidelines to require measurement of impacts to pedestrians, cyclists and transit.

[62] Some cities are now updating their auto level-of-service standards. The City of San Jose went from requiring a minimum of LOS D in its downtown to exempting downtown intersections from auto level-of-service standards. This means that it is city policy not to be concerned about auto throughput on any of the downtown streets. However, there is still opposition to projects that appear to impair the free flow of autos. SB 743, passed in 2013 by the state, will require an alternative to auto level of service for CEQA transportation analysis.

STRATEGY 6

Increase public engagement and innovation

Goal: VTA has a trusting and productive relationship with its constituencies. There is a culture of co-creation and open innovation, and the public is treated as a partner in moving the region forward.


Zack Dinh

Travelers increasingly use mobile devices to plan their trips. Smartphones can also enable communication between VTA and customers.

As an unofficial leader in the region, VTA touches every single person who lives in, works in or visits Santa Clara County. VTA can use its reach to help connect people with the agency and communicate a compelling vision for the future.

SPUR's recommendations for public engagement

30. Improve VTA's brand and public image.

Every interaction with VTA shapes the agency's brand and public image. Transit is a particularly important place to improve the public experience. Creating consistently branded, well-designed and up-to-date touch points — i.e., websites, apps, social media, maps and signage — for new and existing transit riders will be critical to the success of a multi-modal vision. VTA should regularly assess its brand and test new communications and tools with both riders and non-riders. While the agency focuses on attracting new riders to transit, it should continue to value existing riders and strive to improve those important relationships. From a marketing perspective, keeping riders is much less expensive than acquiring new riders.

31. Partner with the public for planning and problem-solving.

The challenges of making transportation work within individual communities while making it more sustainable across the county are complex and can't be solved by VTA alone. VTA has created new channels like social media to communicate with riders, but more can be done to make its processes feel accessible. VTA can welcome the public by:

- Better integrating outreach and planning efforts, making it easy for community members and other stakeholders to follow the planning process and understand how decisions get made. VTA should work with stakeholders sooner and more often during visioning and planning processes. New public participation models, such as social media, can help bring more people into conversation with VTA about the future of transportation in their communities. Smartphone apps could play a role in communicating with riders.
- Adopting best practices in crowdsourcing to attain the best ideas. This approach promises dual benefits: It brings the best thinking and ideas to VTA and creates a dialogue with VTA constituents. Consulting the "crowd" can help VTA collect, test and deploy ideas. Possible crowdsourcing projects include developing solutions to provide mobility to low-coverage or low-density areas and learning about pain points on bus or light rail lines. Collecting rider stories is one way to let riders become spokespeople, offering them the chance to communicate the value of transit in their lives and spreading the image of transit as a useful and desirable product.
- Finding ways to share transportation data more openly, such as opening up real-time General Transit Feed Specification (GTFS) data[63] or ridership information. Sharing this data could spur the local tech community to develop new programs and services that would be beneficial both to private industry and to VTA.

VTA can also improve its reach by partnering with community groups and businesses to hold public programs and events similar to CicLAvia in Los Angeles, which closes a section of roadway to cars and opens it to pedestrians and cyclists for a day.

[63] GTFS defines a common format for public transportation schedules and related geographic information. GTFS feeds allow public transit agencies to publish their transit data and developers to write applications that use that data in an interoperable way.

32. Partner with Silicon Valley companies and with universities.

The many Silicon Valley companies, universities and individuals who create new technology are driving dramatic changes in transportation. These innovations include social web technology to enable ride sharing, new ways of collecting data for real-time or strategic decision-making, and automotive technologies that improve safety or allow vehicles to use streets more efficiently (such as autonomous vehicle and connected vehicle technologies). Silicon Valley also offers expertise in tools like design thinking, an approach to problem-solving that focuses on human needs, and the lean startup, a methodology for testing and improving service. VTA can partner with universities like San Jose State University or Stanford University to apply for grants to pilot new technology or transportation research. Silicon Valley has embraced a culture of testing, iterating and accommodating failure that VTA could adopt.

VTA can also pursue financial partnerships with Silicon Valley companies or other partners. For example, VTA could seek voluntary contributions toward an existing VTA project or program, a joint venture to try a new technology or service, or an in-kind donation such as data or equipment.

STRATEGY 7

Grow funding

Goal: Increased funding is available for transit capital projects, operations, station area improvements, partnerships with cities and new mobility solutions.

Zack Dinh

VTA's expansive Silicon Valley Express Lanes program employs tolling as a way to use road space more efficiently and raise new funds.

There is not enough funding today, nor is the funding that exists flexible enough, to implement all the recommendations presented in this report. SPUR provides suggestions below for local sources of transportation funding, but the importance of addressing the predictability and growth of regional, state and federal transportation funding, while beyond the scope of this report, cannot be overstated. New funding sources such as California's cap-and-trade program or a future regional measure are opportunities for VTA to fund catalytic transit projects, active transportation or transit-oriented development.

SPUR encourages VTA to test and pilot new funding sources. Some sources, like user fees or impact fees, could even drive behavior changes or land use patterns and help VTA achieve its mode-shift goals.

SPUR's recommendations for funding

33. Charge user fees to rebalance funding to travel modes other than cars.

Charging user fees means that those who benefit from something pay for it directly. For many years, those who benefitted most from road widening or parking were drivers, but the costs were borne by all taxpayers. New technology makes the collection of user fees feasible for greater numbers of facilities; it also allows us to vary the fee schedule over the course of the day (for example, charging higher fees for roads during peak hours). The possibilities for charging user fees include road pricing (all types of roads are eligible), parking at transit stations, taxes on fuel or vehicle registration fees.[64] VTA is currently undertaking a major road-pricing project, the Silicon Valley Express Lanes network, which is explained in more detail in Appendix A.

34. Collect impact fees as a way to fund sustainable growth.

Impact fees are like user fees, but they're paid by new development projects for benefits enjoyed over time. These fees can be a good way to fund the transportation improvements needed to accommodate growth. But it's important that any impact fees that contribute to improving conditions for drivers don't come out of the pockets of those who don't drive.

VTA could also consider a regional impact fee, paid by projects that impact roadways or projects that don't adopt an approved aggressive TDM program. This would allow VTA to control which projects would be worth funding — a better approach than the current strategy of widening roads and/or ignoring impacts that worsen congestion.[65] Other types of impact fees that could be studied include fees for property owners in areas that enjoy a specific benefit from transit service (a transit benefit district) or a transit payroll tax on employers.

35. Continue to use broad-based revenue sources.

Broad-based transportation revenue sources such as sales taxes and property taxes generally provide funding for a set of large projects like highways or BART. If a local transportation sales tax is proposed or renewed in Santa Clara County, it should cover several priorities identified in this report that currently do not receive sales tax funding, such as the planned countywide bicycle network, as described in Recommendation 20, or transit-oriented development. A sales tax can also stipulate new requirements for the use of the funds; for example, it can mandate that jurisdictions adopt a complete streets policy if they are receiving funds for road maintenance. While the county does not currently have a parcel tax for transportation, it is possible to enact one in the future.

[64] A vehicle miles travelled (VMT) tax, which is being evaluated by the state as a replacement for the gas tax, is also a user fee.

[65] VTA has begun a voluntary impact fee that development can pay to contribute toward regional transportation projects. This was based on a similar program to fund county expressway projects.

Appendix A

About VTA: History, governance and services

Most local transportation agencies have a narrower focus, but VTA does everything from planning and operating transit to constructing highways. Here we look in more detail at how VTA evolved, how it is governed and the many kinds of services it provides.

How VTA came to be

At the end of the 19th century, South Bay cities were oriented around a robust network of streetcars. The country's first electric streetcars appeared in San Jose in the 1890s; the lines eventually ran west to Los Gatos and north to Palo Alto. Service began to decline in the 1930s due to the rise of the private automobile and freight trucks. As streetcars were abandoned, many routes were converted to bus service. In the 1950s, bus ridership declined as prosperity and suburban growth brought more cars to the region. Bus companies were increasingly losing money and asking for government subsidies to continue service.

In 1972, the Santa Clara County Transit District, predecessor to VTA, was created to manage a gasoline tax and assume control over the failing private bus lines. The county supervisors governed the new transit district, supported by a 29-member County Transportation Commission. The new county transit district began operating public bus service in 1973. In 1976, voters approved a half-cent sales tax to support transit operations (which continues to be collected today).

Due to growing congestion in the 1970s, the transit district and the Santa Clara County Transportation Commission, with support from MTC and ABAG, began to undertake a serious study of rapid transit.[66] County leaders eventually settled on a plan to construct a 55-mile light rail system with a 1,500-bus feeder system. Construction began on the first light rail line, along the Guadalupe corridor (the line that today runs in the median of Highway 87), in 1984. The corridor opened in 1991 and was followed by extensions to Mountain View, Milpitas, East San Jose and Campbell. By 1999, the light rail network covered 29 miles, connecting Mountain View with downtown San Jose.

Despite a stated interest in moving away from cars, the county taxed itself in the 1980s and 1990s to complete links in the interstate highway network and to grow a network of expressways. For example, when Santa Clara County passed sales tax Measure A in 1984, the county was contemplating building a rail transit system to handle congestion. But the measure put forward a package of highway projects (separating Route 237 from local roads, widening Highway 101 and building Highway 85). The highway investments undermined attempts to grow the county around a robust transit network. The growth in road capacity has not decreased congestion — in fact, congestion has only increased.

In 1991, the state passed legislation creating congestion management agencies, or CMAs. A state-designated body in each county would spend a five-cent gas tax to relieve congestion and coordinate land uses with transportation. In 1995, the county transit district assumed the CMA role, and in 2000 the transit district became the Santa Clara Valley Transportation Authority (VTA). That year, motivated by increasing car traffic, voters approved a sales tax to bring BART to Silicon Valley.

Transit ridership peaked in 2001 during the dot-com boom, but the recession that followed coincided with declining ridership and a declining operating budget. The recession revealed problems in VTA's operations: low ridership, low productivity and the highest subsidy rate in North America. VTA engaged in several programs to reform its internal practices, adopted policies to make transit services more efficient and won the trust of voters on a sales tax to fund BART operations in 2008. One outcome of the new transit policies has been the development of three bus rapid transit projects, a light rail efficiency project and an express bus program.

VTA's Transit Sustainability Policy and accompanying Service Design Guidelines, adopted in 2007, provide specific guidelines to determine where transit extensions should be built and what type of transit service should be provided based on expected or actual ridership. This was an important change to help facilitate difficult decisions about where to allocate limited transit resources.

VTA board and member cities

The VTA Board of Directors is composed of 17 locally elected officials who are assigned based on their city's population and geography; 12 of these are voting members while five members serve as alternates. The county's representative to MTC also serves as a nonvoting, ex-officio member of the VTA board.

As the county's population center, the City of San Jose appoints five directors; the other cities are grouped and allocated one or two director seats that rotate among the cities in that group. (See map on page 9.) Santa Clara County also appoints two members to the board. Voting representatives from cities are appointed to VTA as follows:

Group 1	San Jose	Five directors
Group 2	Los Altos, Los Altos Hills, Mountain View, Palo Alto	One director
Group 3	Campbell, Cupertino, Los Gatos, Monte Sereno, Saratoga	One director
Group 4	Gilroy, Morgan Hill	One director
Group 5	Milpitas, Santa Clara, Sunnyvale	Two directors
Santa Clara County		Two directors[67]

Three VTA board members are ex-officio members of the Caltrain Board of Directors.

The cities of Santa Clara County are very diverse in size, demographics and setting, which can result in differing transit needs depending on, for example, the proportion of young people or older adults in the population, the accessibility of jobs and transit, and the average distance to community services like schools or health care.

VTA's transit services

VTA runs or helps to run nearly all of the public transit services in the county.[68] Transit services fall under three operating categories:

Operated by VTA: Buses, light rail, the Downtown Area Shuttle (DASH) and the Airport Flyer shuttle. The county's planned bus rapid transit (BRT) service will also be operated by VTA.

Operated by VTA contractors or cities: ACE shuttle buses, Caltrain shuttles and Outreach paratransit. The Silicon Valley BART extension will be operated by BART.

Operated by others and governed by VTA and partners: Regional bus service (the Highway 17 Express, Dumbarton Express and San Jose-Monterey Express), ACE commuter rail, Caltrain, Capitol Corridor regional rail and Bay Area Bike Share.[69]

In addition to this existing transit network, more than $8 billion in investments in new public transit services are underway — the largest set of transportation investments the county has ever seen. These projects include:[70]

- VTA's extension of BART to Silicon Valley: Warm Springs to Berryessa ($2.4 billion)
- VTA's extension of BART to Silicon Valley: Berryessa to San Jose/Santa Clara ($3.6 billion)
- Modernization and electrification of the Caltrain system ($608 million)
- Santa Clara-Alum Rock bus rapid transit ($128 million)
- El Camino Real bus rapid transit ($200 million[71])
- Stevens Creek bus rapid transit ($145 million[72])
- Light Rail Efficiency project ($75 million[73])
- Capitol Expressway light rail project Phase 1 ($276 million)
- Capitol Expressway light rail project Phase 2 ($254 million)
- Vasona light rail extension ($176 million)

[66] A plan from a 1976 study to build a medium-capacity rapid transit system elevated over a 140-mile arterial network had to be shelved because of high costs.

[67] VTA Adopted Biennial Budget — Fiscal Year 2014-2015, p. 8, available at: www.vta.org/sfc/servlet.shepherd/version/download/068A0000001HS8E

[68] In many cities, large employers and institutions are increasingly providing private transit services in the form of local or regional shuttles or feeder services from VTA transit stations. In some cases, a private shuttle is required by a development agreement or as mitigation for traffic impacts.

[69] Average weekday ridership as of 4th Quarter 2013: Caltrain 50,800; ACE 4,100; Capitol Corridor 4,300; Highway 17 Express 1,217. See www.apta.com/resources/statistics/Documents/2013-q4-ridership-APTA.pdf and www.scmtd.com/images/department/planning/april2013_ridership.pdf

[70] Several of these projects are under construction, others are regional priorities for federal New Starts and Small Starts transit funding. Several transit projects are not included in this list due to the uncertainty of their implementation, such as the Mineta San Jose International Airport Automatic People Mover Connector. All figures from VTP 2040 project list, available at http://www.vta.org/projects-and-programs/planning/valley-transportation-plan-2040-vtp-2040, unless otherwise specified.

[71] El Camino Real Bus Rapid Transit Project, accessed April 2014, available at: www.vta.org/sfc/servlet.shepherd/document/download/069A0000001FiIJIAS

[72] Stevens Creek BRT Project, accessed April 2014, available at: www.vta.org/projects-and-programs/transit/stevens-creek

[73] Light Rail Efficiency Project, accessed April 2014, available at: www.vta.org/sfc/servlet.shepherd/version/download/068A0000001HBvI

With faster connections to San Francisco and new local transit services like BRT, Diridon Station in San Jose will become a far more significant transit hub, serving tens of thousands passengers per day.[74] The Milpitas and Downtown San Jose BART stations will connect with VTA light rail. VTA's BRT will also connect with Caltrain and BART at several stations.

VTA local transit

VTA buses and light rail transit, which operate across the county, are the VTA services most familiar to locals. Buses provide approximately 78,000 weekday transit trips on 71 lines that serve more than 4,000 bus stops. VTA's bus service is most concentrated and frequent through downtown and East San Jose; 18 core network routes account for 74.2 percent of total bus system ridership.[75] The three initial corridors planned for high-quality BRT service will run on these high ridership routes. (See page 22 for a description of BRT service.)

VTA also operates two shuttle buses. The DASH shuttle is designed as a last-mile solution, providing a free bus connection from Diridon Station to downtown San Jose, including San Jose State University. The Airport Flyer is a free bus running between the Santa Clara Caltrain station and the Metro/Airport light rail station, connecting passengers with the Mineta San Jose International Airport.

VTA's light rail system serves approximately 35,000 weekday riders. The current network is centered in downtown San Jose. Two lines and one spur operate across 42.2 miles to the cities of Campbell, Milpitas, Mountain View, San Jose, Santa Clara and Sunnyvale. Light rail connects to several regional transit services at Diridon Station in San Jose, as well as to Caltrain at Mountain View. The Light Rail System Analysis, adopted by the VTA board in 2010, recommended immediate development of several capital projects and service improvements to increase the efficiency and effectiveness of VTA's light rail system. The resulting Light Rail Efficiency project is expected to produce a 20 to 30 percent savings in travel time between key origins and destinations. Some of the projects have been accelerated to be completed before the opening of Levi's Stadium in 2014.

[74] *Diridon Station Area Plan — Draft Program Environmental Impact Report*, accessed April 2014, available at: www.sanjoseca.gov/DocumentCenter/View/25153

[75] VTA Transit Service Plan — Fiscal Year 2014–2015, available at: www.vta.org/sfc/servlet.shepherd/version/download/068A0000001FZVM

FIGURE 9

Santa Clara County Cities Differ From One Another

The populations of VTA's 15 member cities and towns share some characteristics and differ in other areas. For example, 50 percent of Milpitas residents are foreign-born while only 17 percent of those in Los Gatos are. The City of San Jose's population is greater than that of all the other cities combined.

City	Area *(square miles)*	Total Population	Percentage of Foreign-Born Residents	Age of Residents: Under 18 years	Age of Residents: 18-64 years	Age of Residents: 65 and older	Travel Mode to Work: Drive Alone	Travel Mode to Work: Carpool	Travel Mode to Work: Transit
Campbell	6	39,349	23%	21%	68%	11%	84%	6%	2%
Cupertino	11	58,302	50%	28%	60%	13%	78%	11%	2%
Gilroy	16	48,821	24%	31%	61%	8%	72%	17%	3%
Los Altos	6	28,976	23%	26%	54%	20%	80%	4%	1%
Los Altos Hills	9	7,922	31%	23%	54%	23%	79%	6%	1%
Los Gatos	11	29,413	17%	22%	60%	18%	83%	5%	1%
Milpitas	14	66,790	50%	23%	68%	10%	80%	12%	2%
Monte Sereno	2	3,341	14%	24%	56%	19%	82%	4%	0%
Morgan Hill	13	37,882	19%	29%	62%	10%	74%	13%	2%
Mountain View	12	74,066	38%	20%	70%	11%	72%	10%	5%
Palo Alto	26	64,403	31%	23%	60%	17%	67%	6%	5%
San Jose	180	945,942	38%	25%	65%	10%	78%	11%	4%
Santa Clara	18	116,468	39%	21%	59%	10%	69%	9%	3%
Saratoga	12	29,926	37%	24%	56%	20%	85%	6%	0%
Sunnyvale	23	140,081	45%	22%	66%	11%	77%	10%	5%

Source: US Census American Community Survey 2012 1-year estimates; age distribution from 2010 Census.

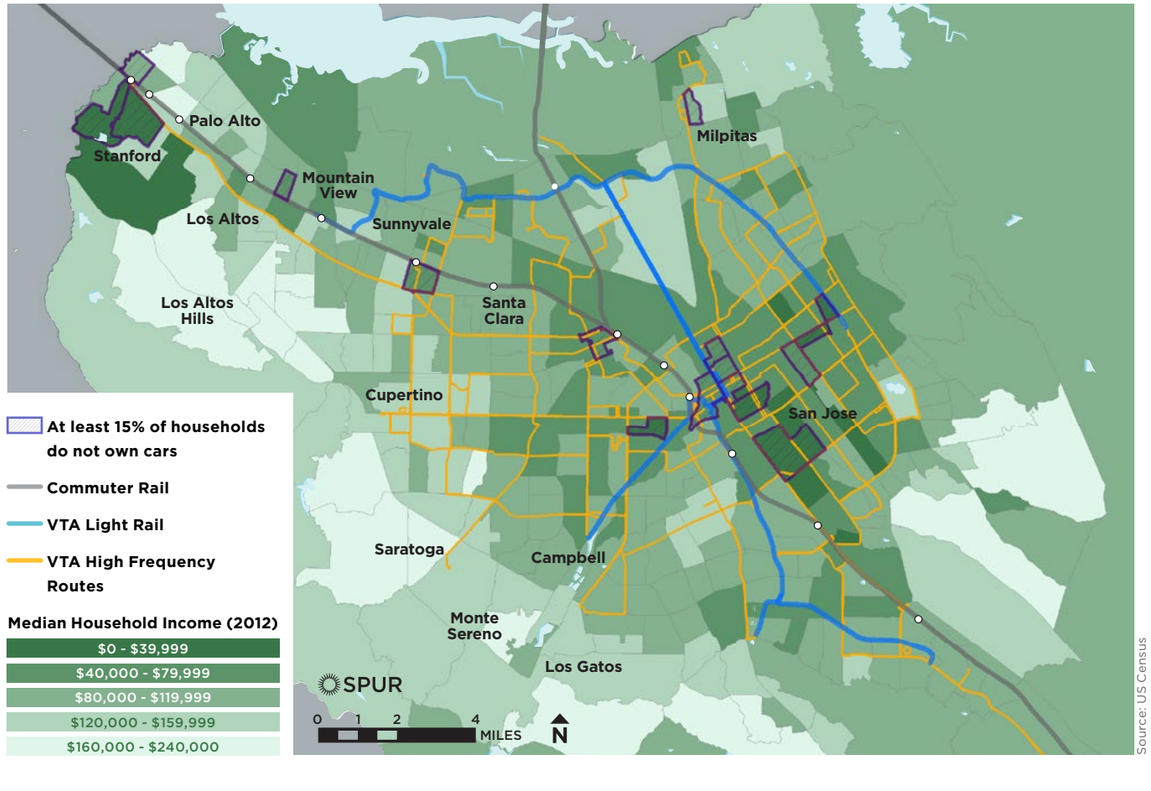


FIGURE 10

No-Car Households in Santa Clara County

Household incomes vary widely among different parts of the county. Meanwhile, certain corridors have a higher concentration of households with no car. Lower income and no-car households may have a higher reliance on public transportation to meet their mobility needs.

Transit operated by VTA contractors or cities

VTA contracts with partner agencies and companies to run paratransit and some shuttle services. Shuttles are generally used to connect passengers with workplaces that are not immediately adjacent to stations. ACE shuttles are designed to improve connections: Eight shuttles transport commuters from the Santa Clara Great America Station to employment destinations in the northern and western parts of the county, especially within the area bounded by highways 237, 880 and 101 (known as the "Golden Triangle"). Caltrain shuttles connect to the rail line at University Avenue and California Avenue (Palo Alto), Mountain View, Lawrence and Santa Clara University (Santa Clara), Tamien (San Jose) and Gilroy. These shuttles are managed by VTA together with the Bay Area Air Quality Management District, Caltrain and certain employers.[76]

For passengers with disabilities who are unable to access VTA's bus and light rail routes, VTA contracts with partners to provide paratransit service within three-quarters of a mile of all regular bus and light rail system stops. Paratransit is available to these customers for no more than twice the standard transit fare. The nonprofit organization Outreach has been providing paratransit services in the county for more than 30 years.

[76] Caltrain shuttle services information, accessed April 2014, available at: www.caltrain.com/schedules/shuttles.html

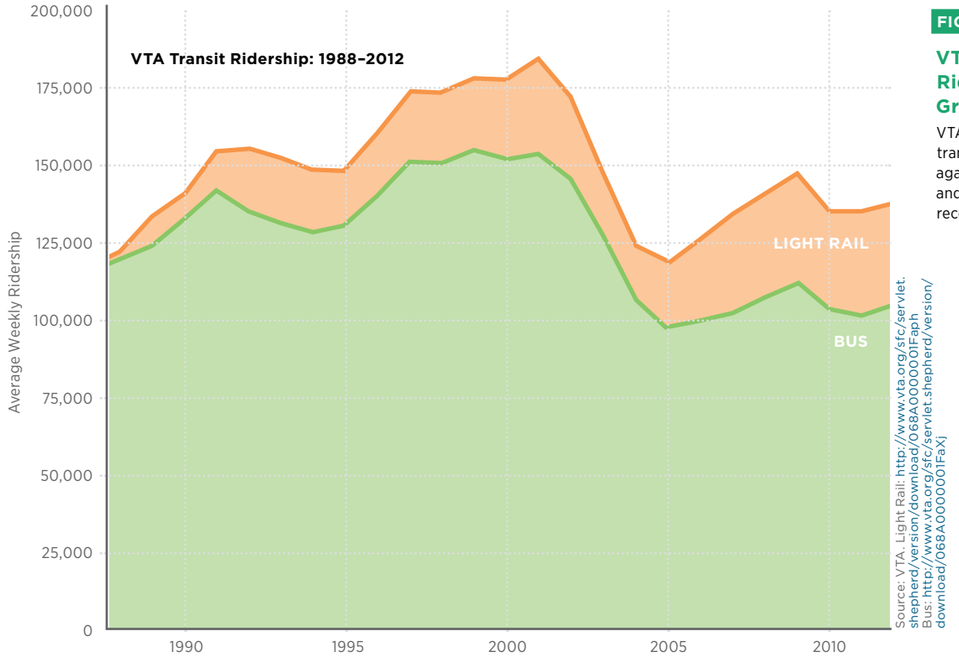


FIGURE 11

VTA Transit Ridership Is Growing

VTA's bus and light rail transit ridership is rising again after reduced demand and service cuts during the recession.

Transit governed by VTA and partners

VTA participates in the management of several regional transit services. Along with the San Mateo County Transit District (SamTrans) and the City and County of San Francisco, VTA provides operating and capital funding for Caltrain. Caltrain provides weekday and weekend train service between San Jose and San Francisco along the peninsula. Trains run most frequently during peak hours, when "baby bullet" express service is offered. Weekday peak commute-direction service also runs south to Gilroy. Caltrain has experienced a surge in ridership following the creation of the baby bullet service, job growth in San Francisco and peninsula/South Bay cities, and growing car traffic on Highways 101 and 280.

VTA also partners to provide regional bus services (to Santa Cruz and Monterey from San Jose), the Dumbarton Express bus and the ACE train. The Dumbarton Express provides service across the Dumbarton Bridge, connecting the Union City Intermodal Station with the Palo Alto Caltrain station and Stanford Research Park. The ACE connects workers in the San Joaquin Valley with places of employment in Silicon Valley; four daily roundtrip commuter trains travel between San Joaquin, Alameda and Santa Clara counties. Service runs from Stockton to San Jose in the mornings, and San Jose to Stockton in the evenings.

[77] The first phase of Bay Area Bike Share, sponsored by the Bay Area Air Quality Management District, launched in August 2013 with 700 bicycles and 70 stations in five cities along the Caltrain corridor.

Active transportation: walking and cycling

While "active transportation" (i.e., walking and cycling) are generally local transportation modes supported by cities, VTA does have some specific programs to promote active transportation and can support these modes more through its policies and funding.

VTA's Countywide Bicycle Plan was adopted in 2008 and identifies cross-county bicycle corridors, intended to complement local and regional bicycle plans. In 1996, VTA was one of the first transit agencies in the nation to equip all buses and light rail vehicles with bicycle racks. It was also a pioneer in developing a bike-sharing program, which has now been implemented as part of Bay Area Bike Share. This program allows members to rent shared bicycles in several downtown areas in the county and across the Bay Area.[77]

Existing and planned trail networks in the county provide more off-street biking facilities than most other parts of the Bay Area. The City of San Jose Trail Program aims to develop 100 miles of paved trails. A trail like San Jose's Guadalupe River Trail, thanks to its connection to downtown San Jose from outlying neighborhoods, or the Upper Penitencia Creek trail, which will connect with the Berryessa BART station, enable bicycling to jobs or to transit in addition to recreational riding. The county also operates a network of dedicated bike trails, such as the Los Gatos Trail.


Daniel Hoherd

While road investments have dominated VTA's past, transit investments dominate today.

VTA also works with MTC to develop a complete streets program for the county. This program promotes designing streets that are safe and functional for all kinds of users, including transit riders. VTA's Bicycle Technical Guidelines provide design standards for cycling facilities, and VTA supports Safe Routes to School, which facilitates and encourages active transportation to schools in the county; the program is run by the Traffic Safe Communities Network and the Santa Clara County Public Health Department.

VTA works with its member agencies to improve active transportation through the Land Use Transportation Integration working group, a forum that shares information on regional land use and transportation planning.

[78] CMAs are expected to coordinate transportation, air quality and land use among their member jurisdictions. VTA's congestion management program focuses on ensuring that 252 intersections, 270 freeway segments and seven rural highways meet its performance standards for auto level of service.

Roads and highways

Roads and highways dominate the county's transportation system, and as a CMA, VTA exerts a large influence over them.[78] When part of the designated congestion management program network drops below established car throughput standards, VTA is responsible for funding improvements to reduce the delay. The program does not similarly evaluate the performance of other parts of the transportation system, such as transit, cycling or walking, nor does it assess the overall travel experience or availability of transportation options through the county. To measure the performance of other modes like biking, walking and transit would be a complex task using today's tools, but it would also enable better decision-making for the transportation network and the region as a whole.

VTA builds and operates the Silicon Valley Express Lanes network. This project redesigns existing carpool lanes on several highways so that solo drivers can use them for a fee, which is collected using a Fastrak transponder. The price to use the lane is raised or lowered throughout the day to manage demand and ensure free flow of traffic in

this lane. (Carpools and buses continue to use the lanes for free.) The project's objective is to provide relief from car traffic while also generating revenue. VTA's express lane legislation requires the tolls to be used to pay back project costs and to finance highway operations and maintenance, but they can also be spent on transit in the same corridor.[79]

Caltrans, the state Department of Transportation, owns the highways and also owns and operates state routes within Santa Clara County, including parts of State Route 82 (El Camino Real), State Route 152 and State Route 17. VTA funds and builds highway projects for Caltrans. Caltrans opened an office housed at VTA in 2013, the Caltrans iTeam Demonstration Program. The iTeam focuses on reducing costs and delivery time for Caltrans projects within the county.[80]

Various agencies manage other roads within Santa Clara County. The County Roads and Airports Department owns and operates the county's expressway system and unincorporated roads. The 62-mile expressway system is composed of regular streets that were turned into expressways in the 1960s and early 1970s through the addition of lanes and shoulders. Expressways promote high-speed travel but have some intersections and driveways.

[79] The first phase of the SR 237 express lanes, one of the first segments of express lanes in operation, had revenue of $1,049,000 in its first year of operation between July 2012 and June 2013. See http://santaclaravta.iqm2.com/Citizens/FileOpen.aspx?Type=30&ID=1734

[80] VTA's major projects on Caltrans roads include the express lanes project, implementation of traffic management technology and the development of the SR 152 Trade Corridor.

Local streets and arterials are managed by cities, which make policy decisions about how to allocate street space among different modes; maintain the pavement; manage the traffic through traffic signals or stop signs; and enforce traffic laws that promote safety. Many local jurisdictions also have bicycle or pedestrian plans and strategies that they implement on their roadways.

Countywide transportation planning

As a CMA, VTA is responsible for developing a countywide transportation plan, called the Valley Transportation Plan (VTP). The VTP addresses funding needs that include transit, land use, pedestrians, bicycles, highways, expressways, local streets and roads, and technology. This 25-year plan is updated every four to five years; its process parallels the development of the Regional Transportation Plan by MTC. Projects are proposed by cities, VTA, the county and other agencies, such as Caltrain. VTA uses its board-adopted guidelines to score projects for inclusion. Based on anticipated funding and input from MTC, VTA develops a list of projects that are likely to be funded during the life of the plan. Proposed projects are vetted internally at VTA, through VTA committees and with outside stakeholders. A final project list is approved by the VTA board.

VTP 2040 Project Expenditures	*(millions of dollars)*
Transit Projects	**$8,130**
BART	$6,065
Bus Rapid Transit	$509
Light Rail	$585
Commuter Rail (Caltrain, ACE, High Speed Rail)	$855
Other Transit Related Projects	$116
Major Road Projects	**$3,391**
Expressways Projects	$267.2
Express Lane Projects	$2,282
Highway Projects	$842
Local Streets & County Roads Projects	**$781**
Multimodal Transportation Investments	**$1,000**
All Projects	**$13,302**

Source: VTP 2040, accessed April 2014, available at: www.vta.org/sfc/servlet.shepherd/version/download/068A0000001FbTw

FIGURE 12

VTA Transportation Spending

Valley Transportation Plan Expenditures: 2013–2040 (millions of dollars in 2013 dollars)

Expenditures through 2040 include both capital and operating funds. Constructing the BART Silicon Valley extension leads to the large share for transit.

VTA's influence on land use and urban design

While VTA is a transportation authority, it does have some influence over land use. In its CMA role, VTA reviews development projects, provides planning expertise to member agencies and can tie funding to land use planning or policies. VTA also owns real estate and can develop it.

VTA reviews and comments on development and transportation projects in and adjacent to the county and VTA facilities.[81] The process aims to improve land use and transportation coordination and encourage a balanced approach to addressing motor vehicle congestion. The CMA maintains the county's Transportation Impact Analysis (TIA) Guidelines, which are used by member agencies to measure the impacts of land use and development projects on transportation. VTA requires cities to produce TIA reports for projects that are expected to generate 100 or more new peak-hour trips.[82] VTA reviews the TIA report and provides suggestions to comply with the process and improve the project. VTA calls this process its Proactive Congestion Monitoring Program and reports to the VTA board quarterly on major project recommendations and approved development conditions. In addition to this program, VTA staff members review environmental documents and development proposals submitted by member agencies.

To facilitate partnership with local jurisdictions, VTA established its Community Design and Transportation (CDT) Program in 2002. The CDT manual identifies places where growth should be focused and designed to be walkable and transit-friendly: "cores," i.e., downtowns and other community centers; "corridors" that parallel transit routes; and "station areas" around transit stations.[83] The CDT manual explains best practices in urban design and street design.

All of VTA's member jurisdictions endorsed the CDT guidelines. In 2012, approximately 66 percent of approved housing units and 37 percent of jobs added within the county were located within the identified cores, corridors and station areas.[84] VTA previously administered a grant program to assist cities with planning and capital projects that implement the CDT guidelines, but that has been blended with the new One Bay Area Grant Program (OBAG) established by MTC and ABAG as part of the 2013 Plan Bay Area.

Similar to the CDT Program, OBAG supports focused growth near transit service. OBAG offers funding for capital projects near transit stations and also includes planning funds to assist cities and counties in promoting employment and housing growth in their city centers and transit-served corridors.[85] As part of the program, VTA must produce an annual Investment and Growth Strategy to explain how funds can encourage development in the region's priority development areas, places that cities have identified to focus their growth over the next 30 years in order to meet the objectives of Senate Bill 375, the Sustainable Communities and Climate Protection Act of 2008.[86]

VTA real estate

VTA owns considerable real estate assets and continues to acquire real estate as needed for transportation projects. Many of these properties are used for VTA operations, while others are available for sale, and a small subset of VTA's real estate assets have been prioritized for joint development projects. (See map on page 42.) VTA adopted a revised Joint Development Policy in 2009. The stated goals are to generate revenue, carry out transit-oriented development and increase ridership on VTA's transit system, in that order. The Joint Development Program was projected to provide $554 million in revenue toward transit and transportation projects over the 25-year duration of the 2035 Valley Transportation Plan.[87] Projects completed under the Joint Development Program are the Tamien Child Care Center, Almaden Lake Village housing and the Ohlone-Chynoweth Mixed-Use Project. Like other land use efforts, the Joint Development Program relies on cooperation with municipalities and local communities.

As part of its light rail system development, VTA acquired a great deal of land around the transit stations with the expectation of growing transit-oriented communities. VTA has obtained authority from the state to acquire land for transit-oriented development and to create a transit benefit district to assess property owners for special benefits provided by their transit service.

[81] CMP statute requires "a program to analyze the impacts of land use decisions made by local jurisdictions on the regional transportation systems, including an estimate of the costs associated with mitigating those impacts." See California Government Code: 65089(b)(4).

[82] VTA Transportation Impact Analysis Guidelines, accessed April 2014, available at: www.vta.org/sfc/servlet.shepherd/document/download/069A0000001ELtsIAG

[83] The CDT Program structure considers all transportation modes and stresses the importance of a healthy pedestrian environment, concentrated mixed-use development patterns integrated with transit service, innovative street design and the interrelationships of buildings and sites with transportation facilities and services. The VTA is working to update this program in 2014–15.

[84] VTA 2012 Annual Monitoring and Conformance Report. Available at http://www.vta.org/cmp/monitoring-report

[85] From 2013–2017, $88 million has been allocated for OBAG grants in Santa Clara County.

[86] SB 375 (Chapter 728, Statutes of 2008) directs the California Air Resources Board to set regional targets for reducing greenhouse gas emissions. The new law establishes a "bottom up" approach to ensure that cities and counties are involved in the development of regional plans to achieve those targets. See "The Basics of SB 375," accessed April 2014, available at: www.ca-ilg.org/post/basics-sb-375

[87] Institute for Local Government, available at: www.vta.org/sfc/servlet.shepherd/version/download/068A0000001Hdwl

VTA funding

In 1984, Santa Clara County became the first "self-help" county in the state, passing a local tax to build a specific list of projects. While county voters have repeatedly supported transportation sales taxes, state and federal funding is also necessary to keep the transportation system running and to build new projects. However, the existing transportation funding framework in the United States is based on the federal gas tax, and this pot of money is approaching bankruptcy. This is because the gas tax has been set at the same rate of 18.4 cents per gallon since 1993, yet Americans are driving less and cars are becoming more fuel-efficient.

Because of VTA's unique structure (it's a transit operator, CMA and sales tax authority all in one), it's difficult to compare its budget to that of other transportation agencies. VTA's funding sources today include:

User fees. User fees collected by VTA include transit fares, express lane tolls and vehicle license fees.[88]

Local sales taxes. 1976 Measure A, a half-cent sales tax that never expires, provides about $170 million per year, or about half of VTA's transit budget.[89] 2000 Measure A, a 30-year half-cent sales tax, was the main funding source to begin constructing the BART extension to Silicon Valley and provides additional operating funds for light rail, as well as for several transit capital projects either completed or underway. 2008 Measure B provides one-eighth of a cent in sales tax for operating BART. Santa Clara County has repeatedly gone through boom and bust cycles, experiencing large influxes of sales taxes or other funding followed by a rapid decline in revenue. Other sales taxes — the 1984 10-year half-cent sales tax for highway improvements and the 1996 half-cent 9-year sales tax for transit, highways and roadways — have both concluded.

State funding. VTA receives state funding through several programs that allocate gas and diesel tax revenue, sales tax revenue, general fund revenue, bond revenues and a vehicle license fee. California's Transit Development Act allows counties to devote a quarter-cent of a 1 percent state sales tax for public transportation operations. These funds finance transit operations for VTA.

[88] In 2010, Measure B increased the vehicle license fee by $10 in Santa Clara County.

[89] See www.vta.org/sfc/servlet.shepherd/document/download/069A0000001HQK9IAO

FIGURE 13

Where VTA's Funds Come From

Valley Transportation Plan Revenue Sources: 2013–2040 (millions of dollars in 2013 dollars)

VTP receives funding from a variety of local, regional, state and federal sources.

VTP 2040 Funding Sources		*(millions of dollars)*
Federal	Federal New Starts	$2,900
	Federal Small Starts	$300
	Congestion Management and Air Quality Improvement Program	$252
Federal/State	Transportation Enhancements + Transportation Fund for Clean Air + Transportation Development Act	$254
Regional	Regional Transportation Improvement Plan	$975
	Interregional Transportation Improvement Program	$271
	MTC Freeway Performance Initiative	$300
State	2000 CA Traffic Congestion Relief Program	$176
	CA Prop. 1A and 1B	$145
	CA High Speed Rail	$150
Local	County Measure A (with renewal)	$3,357
	Express Lane and Toll Revenues	$2,607
	Local Transporation Impact Fees (committed)	$617
	Other Anticipated Funding	$877
	County Measure B Vehicle Registration Fee	$71
Total		**$13,252**

Source: VTA VTP 2040 Project List, www.vta.org/sfc/servlet.shepherd/version/download/068A0000001FbTw (accessed April 2014)

Federal funding. Federal Transit Administration New Starts and Small Starts funding is used for large and small transit capital projects, such as BART and BRT. This funding source is getting increasingly competitive and is also very unpredictable due to the lack of a long-term federal transportation funding bill. Some VTA transit funds also come from Federal Transit Administration formula programs. Flexible federal funding comes from several other programs that are funded largely by the Highway Trust Fund.

Impact and mitigation fees. Development projects may pay voluntary fees to VTA to mitigate transportation impacts identified through CEQA or through a development agreement negotiated with a city. Several cities in the county levy transportation impact fees to fund projects identified in an area transportation plan. Impact or mitigation fees may also be collected by VTA through CMA mechanisms, such as a local area or countywide deficiency plan, and funds from those efforts could be used for a range of mitigation measures.

Member agency dues. Member agencies pay a fee to be a member of the CMA. The actual fee is based on a formula adopted by the VTA board, based on each agency's share of state gas tax monies and each agency's proportion of total employment in the county. Funds are paid out of the total gas tax funding the member agency receives from being a part of the CMA.

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