



MILPITAS

General Plan Update

MEMORANDUM- Transportation and Circulation Issues and Opportunities

August 31, 2017

TRANSPORTATION AND CIRCULATION

Milpitas is part of the greater San Francisco Bay Area in Silicon Valley and is geographically divided by major regional connectors. Interstates I-880 and I-680 run parallel in the north-south direction through the city while State Route (SR) 237 connects the two Interstates through the center of the City. Milpitas is bounded by San Jose to the south and west, Fremont to the north, and unincorporated Santa Clara County to the east. The Midtown area is currently growing as an employment and housing center as part of Silicon Valley through the vision of the *Midtown Specific Plan*.

The interstates and state highway that bisect Milpitas connect Silicon Valley to a majority of the San Francisco Bay Area and beyond into northern and southern California. Given its central location, Milpitas is home to many major regional employers creating high levels of traffic congestion during peak commute hours. A majority of commute trips by residents are in single occupancy vehicles, with a low percentage of residents using public transit. On-going improvement and investment in public transit infrastructure aims to shift commuters away from single occupancy vehicles to public transit.

The *Transit Area Specific Plan* guides the redevelopment of over 400 acres, near the Great Mall Shopping Center, Great Mall VTA Light Rail Station and the forthcoming Milpitas BART Station. Once complete, the Milpitas BART Station will provide connections to the entire BART network which includes stations in Contra Costa, Alameda, San Francisco, San Mateo, and Santa Clara counties, downtown San Francisco and Oakland, and San Francisco and Oakland International Airports.

Bicycle circulation in Milpitas is supported by an existing network of multi-use paths, on-street bike lanes, and bicycle routes. Notable facilities include the Coyote Creek Trail, which is part of the San Francisco Bay Trail and follows the western City Limits and extends from San Jose to Fremont, and the Berryessa Creek Trail, which provides north-south connectivity in Milpitas from North Abel Street to East Calaveras Boulevard.

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal infrastructure, curb ramps, and streetscape amenities. Milpitas has very thorough sidewalk coverage, despite several obstacles that present east-west barriers through the city, namely I-880, I-680, and the Union Pacific Railroad tracks. While marked crosswalks and signal pedestrian crossing phasing is provided at most signalized intersections, in some situations, a pedestrian may need to cross six or more travel lanes. Some pedestrians may find this experience uncomfortable or perceive it to be unsafe.

During the third Visioning Workshop held on November 16, 2016, participants were asked to identify which transportation issues they felt should be the top priorities for the General Plan Update. The majority of responses identified automobile related issues, such as traffic congestion, cut-through traffic, speeding, and red light running, as a top priority to address in the General Plan Update. Additionally, participants stated that transportation-related safety concerns should be addressed throughout the City. These concerns included safe routes to schools, locations of frequent collisions, high vehicle speeds, and what they felt were unsafe conditions for pedestrians and bicycles at key locations throughout the existing transportation network.

During the third Visioning Workshop, participants were also asked to identify locations (street corridors, intersections, missing pedestrian and bicycle connections, areas in need of transit, etc.) of concern throughout the City where they believe improvements should be included as part of the General Plan Update. The vast majority of participants identified traffic issues along the east-west connections, Dixon Landing Road, East Calaveras Boulevard, Great Mall Parkway, and Montague Expressway. Several participants identified pedestrian and bicycle safety concerns along Jacklin Road between North Milpitas Boulevard and Hillview Drive school peak hours.

Although not the top priority, some participants noted the need for increased parking options and the ability to “park once” and visit multiple retail centers located within walking distance. Other priorities included opportunities for local shuttle service or increased VTA transit services to further reduce vehicle congestion.

ISSUE: TRAFFIC CONGESTION

Milpitas’s transportation network experiences heavy congestion during both morning and evening peak hours with many facilities nearing or exceeding capacity. Currently, congestion hot spots in the city tend to be focused in three primary areas: transition from state highways to local transportation network, locations near concentrations of schools such as Jacklin Road/Escuela Parkway, and North-South and East-West connector routes.

State Route (SR) 237 is grade-separated from State Route 85 in Mountain View to Interstate (I) 880 in Milpitas. In Milpitas, SR 237 transition to Calaveras Boulevard and continues as a state highway until I-680 when it becomes a local arterial east of I-680. Calaveras Boulevard is three travel lanes in each direction with the exception of the grade-separated railroad crossing between Abel Street and Milpitas Boulevard. A bottleneck occurs at this location, causing queues to develop during peak hours. The 2016-2021 Capital Improvement Program estimated the cost of replacing the bridge structures at \$75 Million.

School-related congestion is not an issues unique to Milpitas, particularly in communities where the majority of students are picked up and dropped off (or drive themselves) versus using buses and where schools are located within close proximity to other schools. School peaks typically involve not only high vehicle volumes, but also high pedestrian and bicycle volumes. As such, projects to increase vehicular capacity should also consider the potential safety impacts to other travel modes (such as longer crossing distances for pedestrians). Prioritizing improvements to pedestrian and bicycle facilities near schools in a manner that both increases the attractiveness of walking and bicycling as well as the safety for these users

can result in meaningful reductions in traffic congestion. It is also important to consider the duration of school-related traffic peaks, which typically last between 15 and 30 minutes. It is often undesirable to design a street network about such narrow windows of the day, and alternative techniques such as staggering of school bell times and improvements to drop-off patterns can often lead to improved operation at a lower cost than roadway widening.

There are very few route options for the residents of Milpitas. The City is artificially divided into three sections by I-880 and I-680. Parallel north-south connections allow residents to travel within the sections: McCarthy Boulevard west of I-880, Abel Street and Milpitas Boulevard between I-880 and I-680, and Park Victoria Drive and Piedmont Road east of I-680. Collector and neighborhood streets feed directly into these connections. The following parallel east-west connections allow residents to travel between the two of the three sections: Dixon Landing Road, Jacklin Road, Yosemite Drive, and Great Mall Parkway. Calaveras Boulevard and Montague Expressway are the only east-west connections that connect all three sections. However, these routes are also major regional connectors that not only provide local access to residents but also serve greater Silicon Valley.

In order to reduce congestion on these routes, one of these three options or a combination of options would be needed:

1. Expand the capacity of key north-south and east-west connections
2. Provide a bypass route for regional traffic
3. Expect travelers to seek other travel times or modes

The other alternative would be to accept congested conditions.

Capacity Expansion

Increasing capacity by widening roads can often disrupt the urban fabric and has potential safety impacts for alternative modes. Potential obstacles to this solution could include public objection, lack of available right-of-way, and lack of funding to construct such improvements. The Transportation Concept Report (TCR) for SR 237 prepared by Caltrans recommends widening the section of Calaveras Boulevard that is currently four lanes, this project is also identified in the City's Capital Improvement Plan. The TCR also recommends pedestrian improvements at all marked crossings along Calaveras Boulevard. In addition, the TCR recommends the City should study the potential need for additional pedestrian and bicycle crossing opportunities.

Enhanced Bypass Routes

Any bypass option that would decrease congestion on east-west connections in Milpitas would like have to involve grade-separation of intersecting roadways. The City of Milpitas is fully built out and does not have the available land to construct new east-west connections. The Alameda County Transportation Commission is currently studying three cross connector corridors in Fremont that could include road modifications, intersection specific improvements, and transportation system management options in order to better facilitate east-west regional traffic.

Seek Other Travel Times

Vehicular trips have already been spreading outside of the traditional peak hour to other times of the day, and this is expected to continue over time.

Seek Other Modes

In order to have other modal options such as bicycling and transit make any impact on congestion, bicycle and trail facilities and transit connections would have to be significantly improved.

Accept Congestion

Because of the potential impact to community character and alternative modes with many capacity expanding projects, some communities have eliminated or relaxed their traffic level of service (LOS) thresholds to LOS F in favor of enhancing the street environment and/or prioritizing pedestrian, transit and bicycle travel modes. In this manner, they recognize that congestion along key routes is often a sign of concentrated activity and vitality.

KEY QUESTIONS

- Should traffic throughput be prioritized over local access and land use needs on east-west connectors in Milpitas?
- Does the community have a higher tolerance level for congestion along major arterial corridors as opposed to other parts of the city, to the degree that it would feel comfortable reducing LOS standards in defined area of the City?
- Should the city implement strategies on connector and local streets to discourage pass through traffic?
- Should the General Plan Update focus on developing strategies to encourage multimodal transportation options for Milpitas residents in an effort to reduce traffic congestion?

ISSUE: LEVEL OF SERVICE VERSUS VEHICLE MILES TRAVELLED

Transportation analysis under the California Environmental Quality Act (CEQA) currently primarily focuses on automobile delay, or level of service (LOS), as a metric of transportation impacts. California Senate Bill (SB) 743 required new methodologies to be developed for CEQA that are better able to promote the State's goals of reducing greenhouse gas emissions and traffic-related air pollution, promoting the development of a multimodal transportation system, and providing clean, efficient access to destinations. The goals of the bill are also to more appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions.

Since LOS is based on the average delay per vehicle, it can make it difficult for projects to provide multi-modal streets that include additional bicycle, pedestrian, and transit facilities which can require right-of-way once reserved for vehicular traffic. Further, LOS may also encourage sprawl and impede infill development projects as it encourages spreading out the transportation impacts over a large area. Additionally, LOS is a measure of mobility rather than access, which fails to optimize transportation networks for all users. In Milpitas, the threshold of significance for level of service is LOS E. Therefore, if

an intersection or segment of roadway is predicted to have an LOS F, the project would have a significant impact that should be mitigated. This may force additional road construction that community's cannot maintain or afford.

The Office of Planning Research (OPR), the lead agency in charge of developing guidelines related to and the implementation plan for SB 743, has created new criteria for analyzing transportation impacts under CEQA. The new criteria for land use planning and development projects is vehicle miles traveled (VMT). VMT is the measure of miles traveled within a specific geographic area for a given period of time and it provides an indication of automobile and truck travel on a transportation system. Regarding roadway construction and transportation network improvement projects, municipalities and agencies will have to take into account the potential for induced vehicular travel. According to OPR, research has shown that adding new lanes in areas subject to congestion tends to lead to more people driving further. Additional capacity may also lead to increased speeds which could have an adverse effect on safety. VMT is not the only impact associated with transportation; OPR also states that agencies should consider whether a project causes substantial unsafe conditions for various roadway users.

In theory, VMT based thresholds remove the barriers often associated with infill development and Transit Oriented Development (TOD), as well as, streamline approvals for transit and active transportation projects. Associated benefits also include a reduction in greenhouse gas emissions and health benefits as a result of more active transport and transit trips. VMT based thresholds may also reduce the cost of infrastructure capital and maintenance costs. Overall, development projects located near quality transit service likely would be considered to have a less than significant impact.

Once OPR's Guidelines are finalized, the new CEQA requirements for transportation analysis will immediately apply to projects located within one-half mile of major transit stops and high quality transit corridors. The bill also allows lead agencies to opt-in to these new procedures, regardless of location, immediately, provided they update their own CEQA procedures to reflect the new requirements. The new requirements will apply statewide two years after they are adopted. Lead agencies will maintain the power to develop their own thresholds of significance. SB 743 does not change existing general plans and traffic impact fee programs. In addition, LOS analysis may still be required under a City's General Plan guidelines, but will no longer be a metric to determine significant environmental impacts.

ISSUE: TRANSPORTATION NETWORK SAFETY

Participants of the third Visioning Workshop noted issues related to vehicle speeds and what participants felt were unsafe conditions for pedestrians and bicycles on the major arterial routes in the City. The Existing Conditions Report reviewed five years of collision records, from July 2011 through June 2016, at key intersections throughout the City and determined that 19 of 37 study intersections experienced collision rates higher than the statewide average. The intersections that experienced collision rates higher than the statewide average were clustered near freeway off-ramps, along Calaveras Boulevard, and near the Great Mall.

Freeway off-ramps represent the transition from high-speed uninterrupted travel to lower-speed local streets. These intersections involve frequent turning movements in order to transition onto the local

street network. While some of the freeway off-ramps in Milpitas are clover interchanges, many off-ramps are signalized intersections. It is at these signalized intersections where many collisions occur. Broadside collisions involving conflicting turning movements and rear-end collisions were the most prevalent collisions types at these intersections. The primary collisions factor for a majority of collisions at these intersections was determined to be unsafe speeds.

Calaveras Boulevard has significant commercial activity while also accommodating regional through traffic between I-880 and I-680. Commercial activity often contributes to frequent vehicle turning movements while regional through traffic could contribute to higher speed conditions. Along the Calaveras Boulevard corridor many right turn movements are facilitated by slip right-turn pockets, leading to higher speed turning movements in conflict with potential pedestrians and bicyclists. The collision rate many intersections along the corridor are nearly double the statewide average for similar suburban arterial intersections. Safety improvements along this corridor would be subject to review of Caltrans. Additional obstacles include funding and the potential of increased congestion along the corridor.

Great Mall Boulevard is bifurcated by the VTA light rail tracks, both at grade and elevated, in the median through Milpitas. The light rail tracks add additional travel distance for turning movements at the intersections along this corridor as well as increasing the crossing distance for pedestrians and bicycles. During the five year review period there was one fatal collision involving a bicycle and a vehicle. Rear-end collisions accounted for nearly half of the collision on the corridor. Any safety improvements on the corridor would need to take into consideration the existing VTA light rail tracks and the proposed increase in development near the BART station.

KEY QUESTIONS

- Should the City consider evaluating the posted speed limits through the City in an effort to reduce high speed travel?
- Are there additional steps or measures the City should consider to improve safety on the transportation network?

ISSUE: BICYCLE AND PEDESTRIAN NETWORK IMPROVEMENTS

While bicycle circulation in Milpitas is supported by an existing network of off-street multi-use paths, on-street bicycle lanes, and bicycle routes there are a number of areas of concern regarding bicycle circulation in the city. A variety of physical barriers, such as the north-south interstate corridors, exist in Milpitas that both shape transportation patterns and/or inhibit access for bicyclists. There are no continuous east-west bicycle routes that travel through the city. There are limited opportunities to cross the interstate corridors and freeway ramp intersections are often designed to increase vehicle throughput and therefore not comfortable for bicyclists and pedestrians. In addition to the interstate corridors, the north-south railroad tracks and newly constructed BART tracks act as a barrier for east-west bicycle routes. Since the BART crossings are grade-separated, there are only four east-west connections available to vehicles or bicycles. Only the Abel Street grade-separated railroad crossing has dedicated bicycle facilities.

Bicycle circulation is addressed in the *City of Milpitas Bikeway Master Plan Update (2009)*. The Master Plan includes goals and policies for the development of a trail and bike lane system that provides connections to key areas through the City. While many proposed on-street bicycle lanes and routes

connect neighborhoods and destinations to the existing off-street trail network, some of the proposed routes could make bicycles feel uncomfortable or unsafe. Contextually appropriate facilities are crucial in order to transition trips away from automobiles. Bicyclist should not be expected to share lanes or ride in close proximity to high-speed regional through traffic or be subjected to vehicle weaving sections at freeway ramp intersections. The National Association of City and Transportation Officials (NACTO) has developed a number of design guides including the *Urban Bikeway Design Guide* to provide cities with state-of-the-practice solutions that are safe and enjoyable for bicyclists.

Santa Clara County is currently in the process of updating the *Countywide Bicycle Plan (2008)*. The goal of the plan is make it easier and safer for people to bike when travelling from one city to the next throughout the County. The plan currently identified Cross County Bikeway Corridors and identifies locations where new and improved bike connections are needed across freeways, railroad tracks, and creeks. The update will include advancements in bicycle infrastructure design and accommodate new bicyclists who desire physically separated bikeways. The draft plan will be available for public review during the planning process for this General Plan, summer 2017.

One impediment to implementing bicycle-oriented transportation facilities in Milpitas is the approvals required to change state highways, cross interstate freeways, and/or develop new grade-separated railroad crossings. The state highways and interstate freeways are subject to the review and approval of the California Department of Transportation (Caltrans). New railroad crossings would be subject to the review and approval of both Union Pacific Railroad and BART. This situation represents an important disconnect between the local community and its transportation network.

While marked crosswalks and signal pedestrian crossing phasing is provided at most signalized intersections, in some situations, a pedestrian may need to cross eight or more vehicle lanes and slip right-turn pockets. Some pedestrians may find this experience uncomfortable or perceive it to be unsafe, effectively resulting in a barrier to these users. During the third Visioning Meeting, workshop participants stated that pedestrian facilities need to be expanded in order to allow residents to park once and visit multiple, disconnected, retail centers.

Another impediment to the implementation of and construction of bicycle and pedestrian network improvements is a lack of funding. Funding sources for bicycle and pedestrian network improvements are varied, and generally include:

- Federal, State, regional, and local government
- Private sector development and investment
- Community, special interest, and philanthropic organizations

Private sector investments for bicycle and pedestrian facility improvements are usually tied to new development of commercial and residential projects. The City can require facility improvement as part of a development agreement. The City currently collects funds from project applicants to assist with implementation of projects identified in a Capital Improvement Plan or Master Plan.

Funds from Federal, State, regional, and local government sources often require the submittal of a grant application and the administration of grant funds to be applied to transportation improvements. The process of preparing grant applications and administering grants can be cumbersome and time consuming for staff.

KEY QUESTIONS

- Should the City develop and adopt a stand-alone Safe Routes to Schools Plan?
- Should the City retain the Bikeway Master Plan and the Trails Master Plan as the primary planning tools for the bicycle and pedestrian network?
- Should the City review its Traffic Impact Fee structure to promote alternative modes of transportation?
- What type of bicycle and pedestrian network improvements should be prioritized in the General Plan Update?
- Do opportunities exist for increased regional collaboration with entities such as VTA, MTC, Caltrans, etc. to fund bicycle and pedestrian improvements in Milpitas?
- Should the City emphasize local leadership in pedestrian and bicycle facility planning or prioritize regional collaboration on these issues?

ISSUE: MULTIMODAL TRANSPORTATION NETWORK

Well-used public transit reduced traffic congestion, helps improve air quality, and provides essential services to youth, seniors, and persons with disabilities. Increasing the availability of public transit can also provide economic benefit to residents of Milpitas.

The vast majority of people living in Milpitas, or approximately 80 percent of workers, driving to work alone. Alternative transportation modes accounted for 17 percent of commute trips with approximately 12 percent of workers in carpools, three percent riding public transit, one percent walking or bicycling to work, and the remaining one percent utilizing other means of transportation. Approximately three percent of workers in Milpitas work from home. Public transit ridership in Milpitas is consistent with Santa Clara County as a whole.

The Milpitas BART Station is the first of two stations included in the Silicon Valley South Bay Extension, the first ten miles of the BART Silicon Valley extension. The BART extension will provide convenient connections to VTA bus and light rail lines that serve Milpitas' major employment centers, including the Cisco Systems campus, local residential neighborhoods, and the greater Silicon Valley. The Milpitas BART Station concourse will be located at ground level with the boarding platforms below grade. A bridge will connected the BART Station to the existing Montague VTA Light Rail Station. Two BART lines will service the station, resulting 7.5 minute headways during peak hours. The station is projected to provide access to 20,000 passengers daily in 2030. In addition to the on-site uncovered parking and parking garage, there will be loading zones for private shuttle buses and conventional passenger drop-off and pick-up.

The Transit Area Specific Plan guides the redevelopment of approximately 437-acres in Milpitas that currently include various industrial uses near the Great Mall Shopping Center. The Preferred Plan, directed by City Council, proposed approximately 7,000 dwelling units, a million square feet of office space, 340

hotel rooms, and 287,000 square feet of retail space. This redevelopment will be centered near the Milpitas BART Station and the Great Mall and Montague Light Rail Stations.

By ensuring successful implementation of the Transit Area Specific Plan and planned local alternative transportation infrastructure, the City can assist in reducing local traffic congestion, reducing air pollution and noise from vehicle trips, increasing the import of workers to local jobs, better positioning the city for future job growth and economic development, and provide residents with an affordable and convenient transportation opportunity for travel throughout the county and Bay Area.

KEY QUESTIONS

- Should the City prioritize transportation network improvements to support multimodal transportation network?
- Does the existing and planned bicycle and pedestrian system within the city adequately meet the needs of residents wishing to utilize transit?

ISSUE: DISRUPTIVE TRANSPORTATION TECHNOLOGIES AND INNOVATIONS

Disruptive technologies and innovations are rapidly evolving advancements and improvements that are typically simpler, cheaper, more reliable, and more convenient than established technologies. These innovations can be significant technological breakthroughs, with relatively fast penetration in the market and widespread adoption, thereby resulting in significant transportation implications. Consequentially, these technologies end up edging out existing technology.

In regards to the transportation sector, disruptive technologies and innovations present challenges for government agencies and other stakeholders due to advancements occurring at an explosive pace, and the difficulty in predicting these innovations. With widespread and rapid adoption by the public, agencies struggle to keep up due to their traditional approach to transportation technology and infrastructure, which typically requires thorough vetting before implementation. As a result, a majority of transportation disruptive technologies work within the confines of the existing physical transportation network, with disruptive technology companies aiming to provide direct-to-consumer services rather than establishing working relationships with agencies.

Disruptive technologies and innovations will change and can be used as a resource to expand the way agencies and communities plan, assess, and improve transportation networks. Following are examples of technologies that have already been implemented, or will come into force, in the near future.

- Mobile internet provides seamless access to on-demand transportation services and information. Examples of existing technology includes ridesharing (Lyft, Uber), carsharing (Getaround, Zipcar), Waze (crowd-sourced real-time traffic data), and transit data applications.
- Embedded sensors and data communication technologies allow transportation infrastructure to be monitored and operated in real-time and can aggregate data for use in evaluating operational performance measures such as traffic speed and volume on roadways.
- Automated vehicle technology that allows for an increasing number of driving tasks to be performed on an automated basis, with decreasing need for human intervention. Automated vehicles will fundamentally change the basis of roadway design and operation analysis, as these

guidelines were developed from empirical data derived by the interaction of human drivers with the built environment.

- Advanced materials could affect the transportation sector by providing a cost-effective, efficient replacement for traditional materials used in infrastructure development.

The City should leverage these technologies to their advantage to optimize the transportation network. Fortunately, the City is uniquely positioned within Silicon Valley, where much of the technology advancements are taking place. The General Plan will need to contain “Smart Mobility” transportation policies that allows the City flexibility to advantageously implement emerging technology and to adaptably assess demand of the transportation network.

KEY QUESTIONS

- How can the City position itself as a Smart City, to take advantage of Smart Mobility and provide enhanced public benefit from the transportation system?
- How will the City interact with disruptive technology companies?
- How will the City assess and reassess guidelines and regulations with the emergence of new technologies?