



2016 Annual Report

SAN MATEO RAIL CORRIDOR
TRANSPORTATION MANAGEMENT AGENCY

June 2017

Table of Contents

Executive Summary	1
Background	1
Purpose of the TMA	2
Trip Thresholds and TDM Measures.....	2
Corridor Area Project Status.....	2
Current Project TDM Programs	2
2016 TMA Activities.....	2
General TDM Services Provided by Commute.org	3
Data Collection	3
2016 Intersection Vehicle, Pedestrian, and Bicycle Volumes	3
Intersection Counts	3
Pedestrian Counts	3
Bicycle Counts	4
Driveway Counts.....	4
Levels of Service	4
Appendix A – San Mateo Rail Corridor Plan Area	6
Appendix B – Trip Threshold and Project Status Table.....	7
Appendix C – TMA Meeting Minutes and 2017 Proposed Meeting Schedule.....	9
Appendix D – 2016 San Mateo Rail Corridor TMA Annual Report, Completed by Hexagon Transportation Consultants.....	17

Executive Summary

During the 2016 calendar year, construction continued in the rail corridor area. One project, 2000 S. Delaware, also occupied in 2016 for a total of six occupied developments within the corridor area. Two Board of Directors meetings were held in 2016, and one General Membership and Board of Directors meeting was held in April 2017. One additional meeting was held in March 2017, but a quorum was not met which prompted the April 2017 meeting.

Since the Transportation Management Agency was in its 5th year in 2016, it was desired to conduct level of service analysis at the corridor area study intersections in addition to the standard intersection vehicular, bicycle, and pedestrian volumes counts, and driveway counts. Due to other staff priorities and weather delays, the annual counts were not conducted until March 2017 while schools were in session. These counts were used as the 2016 volumes. The overall vehicular volumes increased by five percent. However, vehicular volumes by intersection varied greatly. Overall pedestrian and bicycle volumes decreased by 25 percent and 36 percent, respectively. While some individual intersections saw increases, most showed decreased volumes. Hexagon speculates that the decrease in pedestrian and bicycle volumes are due to the seasonal variance in when the counts were taken. The City anticipates pedestrian and bicycle counts to see an increase over the 2015 and 2016 volumes when counts are collected for 2017 at the regularly scheduled time in October.

The project driveway and garage counts showed that most projects were meeting their short-term trip cap, and some were already meeting their long-term trip cap. One driveway at 1990 and 2000 S. Delaware had volumes over their short-term trip cap, which indicates that they are out of compliance. This driveway is shared by the Delaware Pacific and Westlake Urban developments. The City will contact both developments and request a revised TDM plan to address the excess volumes. The short-term trip cap requirements will need to be met by the 2018 reporting period.

Level of service was also analyzed as part of this 5th year report. Under existing conditions, all intersections but two are at acceptable levels of service. The two intersections are Hillsdale and Saratoga, and El Camino Real and 25th. However, buildout conditions show all intersections, including the two listed above, at acceptable levels of service. The 25th Avenue Grade Separation project will provide additional east-west connections at 28th and 31st Avenues which are anticipated to reduce volumes at the two outstanding intersections.

Background

On June 6, 2005, the City adopted the San Mateo Rail Corridor Transit-Oriented Development Plan (Plan). Within the Implementation chapter of the Plan, Policy 7.17 defined a Transportation Demand Management (TDM) goal of reducing new vehicle trips by 25 percent within the corridor area (Appendix A). Within that same chapter of the Plan, Policy 7.18 defines development of a Transportation Management Agency (TMA) tasked with coordinating efforts to meet the 25 percent trip reduction goal. Policy 7.25 requires that the TMA submit an annual report to City Council outlining compliance of occupied developments, on-going programs, and program changes.

Purpose of the TMA

As defined by their Bylaws, the TMA's purpose is to implement the Objectives of the Plan, shown in Chapter 3. Within the corridor area, the TMA:

- Oversees the TDM program implementation
- Arranges shared parking, as appropriate
- Markets TDM services and programs
- Coordinates TDM services and programs
- Coordinates with the City on annual trip generation monitoring for completed projects
- Participates in annual reporting to the San Mateo City Council about development trip generation information
- Consults with members regarding trip reduction options if trip generation goals are not being met

Outside the corridor area, the TMA coordinates TMA measures with other agencies.

Trip Thresholds and TDM Measures

During each project's entitlement phase, short-term and long-term trip reduction goals are defined by the City. Short-term goals are based on the varying status of completed and occupied projects within the corridor area, and the associated TDM measures in place at the time of project occupancy. Long-term trip reduction goals are based on the full buildout corridor area development, and the associated TDM measures coordinated and established through the TMA.

In addition to the short and long-term trip goals, a study is conducted to determine potential TDM measures available to a project. These are measures that a project might use to meet their trip reduction goals. Trip reduction strategies will vary by project based on type and proximity of adjacent projects, as well as the proximity to public transit. Prior to occupancy, projects are required to submit their own TDM program that includes a list of strategies that will be used to meet short- and long-term trip reduction goals.

Corridor Area Project Status

The corridor area currently has eight projects at various stages of completion, and are shown in Appendix B. Currently, six projects are occupied.

Current Project TDM Programs

All completed projects shown in Appendix B have TDM programs on file with the City.

2016 TMA Activities

During the 2016 calendar year, a total of six projects were occupied, and two projects under construction per the table in Appendix B. The only difference between 2015 and 2016 was the completion of the 2000 S. Delaware housing project, which added 60 residential units.

Four meetings for the 2016 TMA were held between March 2016 and April 2017, which includes a March 2017 meeting in which a quorum was not reached. The minutes from the three official meetings, as well as the Proposed 2017 Meeting Schedule, which shows March 2017 meeting, are included in Appendix C.

General TDM Services Provided by Commute.org

Commute.org is committed to addressing the challenges involved in transporting people to and from work in San Mateo County. Its goal is to help people find faster, cheaper, and easier alternatives to travel to work. It accomplishes this by providing commuter information, employer incentive programs, and city transportation demand management partnerships.

San Mateo County's Transportation Demand Management Agency, which created Commute.org, is comprised of an alliance of 17 cities and the County of San Mateo. The Agency's goal is to reduce the number of single occupancy vehicles traveling in, to, and through San Mateo County in an effort to reduce vehicle emissions and improve air quality. This is accomplished by providing services to employers in the County, such as coordination of carpools and vanpools and their associated incentive programs, oversight of several employer shuttles, and a guaranteed ride home program.

The Agency is funded by the City/County Association of Governments of San Mateo County, the San Mateo County Transportation Authority, the Bay Area Air Quality Management District, and the Metropolitan Transportation Commission.

The TMA contracted with the Agency to provide management services. The agency provides general TDM services to individual TMA members at no cost.

Data Collection

2016 Intersection Vehicle, Pedestrian, and Bicycle Volumes

Since 2016 was the fifth year of the TMA, it was desired to complete level of service analysis of the project locations. This study would compare current year level of service to buildout year. However, due to other staff priorities and weather delays, the City was unable to contract with Hexagon Transportation Consultants until early 2017. Hexagon collected 17 intersection traffic counts, driveway or garage counts, and observed the existing traffic conditions of roadways in the corridor area. Hexagon also completed the 5-year intersection traffic count comparison, reviewed intersection levels of service, and completed trip generation evaluations. All volume counts were completed in March 2017 while schools were still in session. These volumes were used to represent 2016 conditions. Hexagon submitted their draft report in April 2017, and this report can be seen in Appendix D.

Intersection Counts

Hexagon's analysis shows that overall traffic volumes increased by 1,868 vehicles, or approximately five percent over the 2015 counts. Per Hexagon's analysis, "the volume trend for each intersection shows that year 2016 traffic volumes stayed generally constant in comparison to previous years for most intersections." However, individual intersection volumes varied from an 85 percent increase at the intersection of Delaware Street and 28th Avenue (296 vehicles), to a decrease of 24 percent at the intersection of Hillsdale Boulevard and the northbound El Camino Real ramp (802 vehicles) when compared to 2015. Overall, the total volumes for 2016 are less than the total volumes for 2014, and are comparable to the 2013 total volumes.

Pedestrian Counts

The total pedestrian volume decreased by approximately 25 percent, 290 pedestrians, from the 2016 count to 2015. The variance in pedestrian volumes was much greater than the vehicle volume variance. The

intersection of Delaware Street and 25th Avenue saw an increased pedestrian volume of 117 percent, equivalent to 14 pedestrians. On the opposite end, the intersection of Delaware Street and 28th Avenue saw a 68 percent decrease in pedestrian volumes, which is equivalent to 32 pedestrians. Hexagon speculates that the large decrease in pedestrian volume from 2015 to 2016 may be attributed to the seasonal variance in the time when volumes counts were conducted. The 2015 counts were conducted in October when pedestrian and bicycle activity is considered to be higher due to temperature, while the 2016 counts were conducted in March of the following year. In addition to the typical seasonal variance between October and March, the 2016-2017 winter saw higher than average rainfall amounts, which may have contributed to the decreased pedestrian and bicycle activity. The overall pedestrian volumes are closer to the values seen in 2014. It is anticipated that the 2017 pedestrian volumes counts will show an increase from both 2015 and 2016.

Bicycle Counts

Similar to pedestrian volumes, bicycle volumes decreased substantially from 2015 to 2016. The total volume of bicycles decreased by 128, or 36 percent. Also similar to the pedestrian counts, the variance in bicycle volumes between intersections was much greater than the vehicle volume variance. The intersections of Hillsdale and Saratoga, and Delaware and 28th saw increases in volumes of 200 and 74 percent, respectively. These percentages only account for 18 bicycles. All other intersections saw decreases in bicycle volumes, and ranged anywhere from a 14 to a 95 percent decrease. Hexagon attributed the decrease in bicycle volumes to the same reason the pedestrian volume saw a decrease – seasonal variances when the traffic counts were conducted. Also similar to the pedestrian volumes, the City speculates that the 2017 bicycle volumes will be higher than the 2015 and 2016 volumes counts.

Driveway Counts

Driveway counts, also called trip generation counts, were conducted at all occupied projects noted in Appendix B within the corridor area to determine if the short-term trip thresholds identified by the City for each project are being met.

Of all six complete projects, five projects are meeting their short-term trip-cap goals. Bay Meadows Phase II, Residential 1 and 2, Mode by Alta, and Nueva High School are also currently meeting their long-term trip-cap goals. The Delaware Pacific and 2000 S. Delaware projects are currently exceeding their short-term trip-cap, and are therefore out of compliance.

The Delaware Pacific and 2000 S. Delaware projects share one driveway, as well as their short-term and long-term trip-cap goals as defined by the City. The City will contact both developments and request a revised TDM plan to address the excess volumes. Because the 2016 volumes were not completed until early 2017, the trip reduction requirement will be enforced in 2018 rather than 2017 to allow the developments a full year to implement trip-reduction measures.

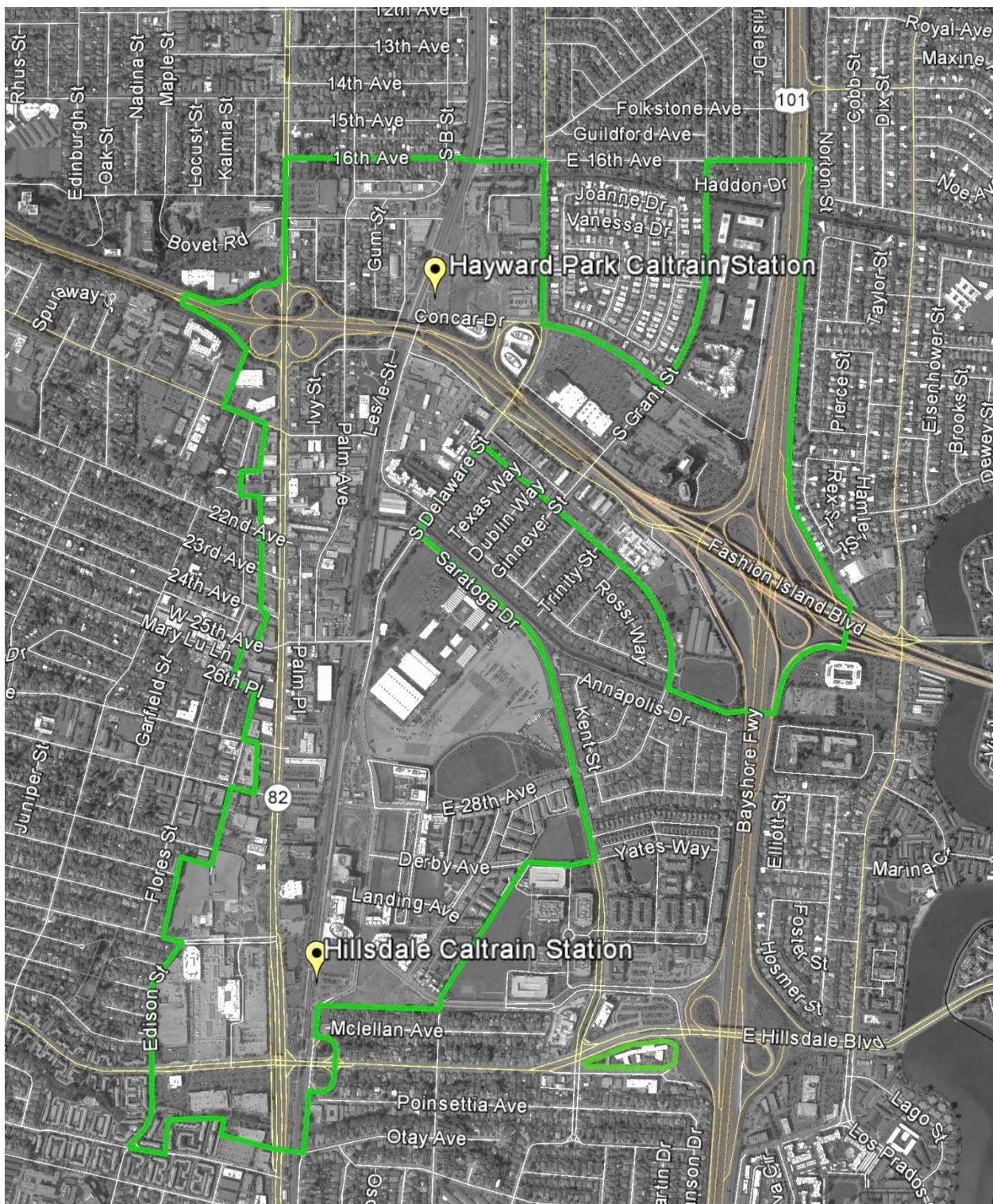
Levels of Service

Hexagon completed intersection level of service (LOS) analysis at all 17 study intersections. This included analysis for the study year, 2016, as well as buildout conditions. All intersections, except for two, are operating at acceptable LOS D or better under existing conditions. Under buildout conditions, which considers major roadway network improvements near the corridor area as well, all intersections including the two current deficient locations operate at acceptable LOS D or better.

The intersection of Hillsdale and Saratoga is currently operating at LOS F, with 116.7 seconds of average delay. At buildout conditions, this intersection is expected to operate at LOS D, with 36.4 seconds of average delay. Hexagon's field observations indicate that most of the afternoon volume is eastbound vehicles, and that most of the Rail Corridor's volumes are likely driving westbound. Therefore, they speculate that the Rail Corridor projects are unlikely to be the cause of the unacceptable LOS.

El Camino Real and 25th Avenue is the second intersection identified with an unacceptable LOS. The existing condition shows this intersection operating at LOS D, with an average delay of 49.7 seconds. However, the buildout conditions show this intersection improves to LOS C, with an average delay of 30.9 seconds. Hexagon suggests that the LOS will improve with the 25th Avenue Grade Separation project, which will provide two new routes from El Camino Real to Delaware.

Appendix A – San Mateo Rail Corridor Plan Area



Appendix B – Trip Threshold and Project Status Table

Appendix C – TMA Meeting Minutes and 2017 Proposed Meeting Schedule

MINUTES

SAN MATEO RAIL CORRIDOR TMA
Board of Directors

March 14, 2016
Engineering Office, City of San Mateo
1900 O'Farrell Avenue, San Mateo, CA

Present: Julie Baigent – Concar Enterprises
Sam Cheikh – Hines
Sarah Etheredge – MidPen Housing Corporation (Delaware Pacific)
Nevada Merriman – MidPen Housing Corporation (Peninsula Station)
Donovan Cole – Westlake Urban (2000 Delaware)
Sith Chaisurote – Land & Houses (Mode)
Genelle Volhontseff – Wilson Meany (Bay Meadows)
Rachael Stoddard – Essex Property Trust (SPG)
Gary Heap – City of San Mateo

Staff: John Ford – Commute.org

Guests: Dennis Chuck – City of San Mateo
Tracy Scramaglia – City of San Mateo

The meeting was called to order by TMA Chair Sam Cheikh at 3:10pm.

1. Approve Minutes of December 14, 2015 Board meeting.

This item was passed unanimously.

2. Approve Financial Statements thru February 29, 2016.

This item was passed unanimously.

3. Election of Officers

Sam was nominated and elected to serve as Chair. Rachael was nominated and elected to serve as Vice Chair. Nevada was nominated and elected to serve as Secretary/Treasurer.

4. Review Meeting Calendar for 2016

Meetings are scheduled to be held on June 13, September 12, and December 12.

5. New Business

None.

6. Adjournment

The meeting adjourned at 3:20pm.

MINUTES

SAN MATEO RAIL CORRIDOR TMA Board of Directors

September 12, 2016
Engineering Office, City of San Mateo
1900 O'Farrell Avenue, San Mateo, CA

Present: Sam Cheikh – Hines
Sarah Etheredge – MidPen Housing Corporation (Delaware Pacific)
Donovan Cole – Westlake Urban
Rachael Stoddard – Essex Property Trust
Deanna Chalfant – Essex Property Trust
Nataya Boonmark – Land & Houses
Gina Ishida – Land & Houses
Brad Underwood – City of San Mateo

Staff: John Ford – Commute.org

Guests: Tracy Scramaglia – City of San Mateo
Gary Heap – City of San Mateo
Kathy Kleinbaum – City of San Mateo
Christine Ferry – City of San Mateo

1. The meeting was called to order by TMA Chair Sam Cheikh at 2:03pm.
2. Approvals
 - Minutes from March 14, 2016 were approved as presented (M/S by Donovan/Rachael)
 - Financial statement from August 31, 2016 was approved as presented (M/S by Sarah/Donovan)
3. Project Updates
 - Hines (400/450 Concar) – first building will be ready for leasing by end of October. Second and third buildings have been leased and will be turned over to the tenant by end of May 2017.
 - Westlake Urban (2000 S. Delaware) – 60 units fully occupied
 - Essex Property Trust (Station Park Green) – Construction of first building underway
 - Land & Houses (Mode) – 111 units fully occupied
 - MidPen Housing (Delaware Pacific/Peninsula Station) – both sites fully occupied
4. City of San Mateo Update (Brad Underwood/Gary Heap)
 - Hwy 92/El Camino Real interchange project going out to bid in October 2016. 18 month project if all goes as planned.
 - Grade separation projects for 25th, 28th, and 31st Avenues are progressing through the design phase (95% complete). Project is slated for completion in December 2019. Approximate 4 week timeframe near end of project where Hillsdale station will be closed and moved to new location north of current station.

5. Presentation on San Mateo Bike Share/Connect San Mateo/Scoop programs (Kathy Kleinbaum)

- 50 bike pilot project using Social Bicycles ahead of plan for pilot goals – still searching for sponsor(s) – other peninsula cities considering similar model
- Bike Share operated by Bikes Make Life Better
- Connect San Mateo web site is operating – unclear on impact, but great source of information for employers, commuters and residents
- Partnership with Scoop to offer discounted carpool trips using the Scoop app. Commute.org is assisting City of San Mateo with outreach to employers and property managers

6. Report from Acting Executive Director (John Ford)

- TMA support activities have been minimal based on the direction given by the board
- TMA members received information about a grant that C/CAG is pursuing for EV infrastructure. Station Park Green was identified as a good candidate for a project. Other properties in the TMA area may get an opportunity to participate if the grant is awarded and funds become available.

7. New Business

- City staff gave a presentation on the proposal received from Hexagon Transportation Consultants for the 2016 driveway and intersection counts. The proposal included a more detailed LOS (level of service) study for each of the intersections as well as the effort to put together a more detailed report for city council. Staff recognized that the TMA did not budget for the increased scope and complexity that is being considered. Staff said they will work with the consultants to get lower pricing (where possible), absorb some of the additional cost in 2016 (if possible), and move some project costs into 2017. Sam asked the city to keep the board informed if they were not able to get the work done inside the budget that had been approved in March. Staff agreed, but recommended that the TMA plan on larger costs for this work in 2017 and beyond.
- No other new business

8. Adjournment: *The meeting adjourned at 3:00pm.*

MINUTES

SAN MATEO RAIL CORRIDOR TMA General Membership & Board of Directors Meeting

April 10, 2017
Engineering Office, City of San Mateo
1900 O'Farrell Avenue, San Mateo, CA

Present:	Julie Baigent – Concar Enterprises Sam Cheikh – Hines Sarah Etheredge – MidPen Housing Corporation (Delaware Pacific) Nevada Merriman – MidPen Housing Corporation (Peninsula Station) Donovan Cole – Westlake Urban (2000 Delaware) Nataya Boonmark – Land & Houses (Mode) Paul Roberts – Wilson Meany (Bay Meadows) Deanna Chalfant – Essex Property Trust (SPG) Paul Roberts – Wilson Meany (Bay Meadows) Steve Osborne – The Nueva School Gary Heap – City of San Mateo
Staff:	John Ford – Commute.org
Guests:	Bethany Lopez – City of San Mateo Stacy Servin – Land & Houses

1. Call to Order

The meeting was called to order by TMA Chair Sam Cheikh at 2:05pm.

2. Approvals

On a motion/second by Sarah/Deanna, the meeting minutes of March 14, 2016 were approved. On a motion/second by Deanna/Sarah, the meeting minutes of September 12, 2016 were approved. On a motion/second by Donovan/Nataya, the financial statements from March 31, 2017 were approved.

3. Project Updates

The general members introduced themselves and gave a brief update as to the status of their respective projects. Highlights included: 400/450 Concar (Hines) ready for tenants to move in over Memorial Day weekend; Station Park Green (Essex) underway with the second structure on their project; Station IV at Bay Meadows has a primary tenant (Survey Monkey) and the building is close to fully occupied; Mode, Delaware Pacific, Peninsula Station, and 2000 Delaware all reported that they are close to full occupancy.

3. Report from City of San Mateo

Gary Heap gave a brief update on projects happening in and around the TMA area. His report included an update on the delayed 2016 cordon/driveway counts. They will likely happen in May

and then October for the 2017 report. The 2016 report is the five-year anniversary of counts so the city is doing a more detailed count and report. 2017 will revert to a more normal count and report.

4. Report from Acting Executive Director (John Ford)

- John reviewed the TMA financial reports for 2016 and the first three months of 2017. The financials were accepted during the Board of Directors meeting which followed the General Membership meeting.
- Tax returns for calendar year 2016 were filed and accepted on January 30, 2017. Also, the State of California's Statement of Information was filed and accepted on January 30, 2017. Insurance policies are due for renewal in June. Renewal information was submitted to the agency in March.

5. New Business

a. Election of Directors

The following member representatives were nominated to serve on the board of directors:

- Deanna Chalfant, Essex Property Trust (Station Park Green)
- Paul Roberts, Wilson Meany (Bay Meadows)
- Sam Cheikh, Hines (400/450 Concar)
- Nevada Merriman, MidPen Housing Corporation (Peninsula Station)
- Sarah Etheredge, MidPen Housing Corporation (Delaware Pacific)
- Nataya Boonmark, Land and Houses USA Inc. (Mode Apartments)
- Donovan Cole, Westlake Urban (2000 S. Delaware Street)
- Steve Osborne, The Nueva School
- Julie Baigent, Concar Enterprises (Concar Village) – *non-voting Associate Member*
- Brad Underwood, City of San Mateo – *non-voting City Representative*

On a motion/second by Donovan/Sarah, the slate of directors was unanimously approved.

b. Election of Officers

Donovan was nominated and elected to serve as Chair. Deanna was nominated and elected to serve as Vice Chair. Sarah was nominated and elected to serve as Secretary/Treasurer.

c. 2017 Dues and Budget Review and Approval

John presented a draft budget for 2017 which included accruals for the City's production of the 2016 annual report as well as the driveway and cordon area counts for 2016 that will take place in May 2017. No budget was allocated for "programs" and the board/members agreed.

The discussion on dues was based on the members' desire to raise sufficient revenue to cover the expenses of the TMA and leave a small surplus for 2018. Several rates were discussed

before being finalized. On a motion/second by Nevada/Deanna, the 2017 dues were set as follows:

Dues:	2017
<i>Residential rate per unit</i>	\$ 6
<i>Commercial rate per rentable square foot</i>	\$ 0.0225
<i>Educational rate per square foot of buildings</i>	\$ 0.0075
<i>Pre-occupancy dues</i>	\$ 300

d. Calendar Review for 2017

The members and board of directors reviewed the proposed meeting schedule and agreed to continue with quarterly meetings in 2017. The remaining meetings will be held on June 12, September 11, and December 11.

e. Future Meetings Via Teleconference

The members and board of directors discussed whether to formally allow for members or directors to join a meeting via teleconference. While the TMA is not restricted from holding teleconference meetings, the group agreed that meeting “in person” was beneficial.

f. Other New Business

Julie described a transit hub concept that is being planned for Concar Village. It is currently being referred to as “The Depot” and would bring together a variety of public and private transportation options at the Concar Village site for use by tenants, local residents, and other businesses in the area.

6. Adjournment

The general members and board of directors meetings adjourned at 3:20pm.

San Mateo Rail Corridor TMA
Membership & Board of Directors Meeting Schedule 2017
Meeting Location TBA

PROPOSED MEETINGS

Date	Meeting Description	Start Time
March 13, 2017	Annual Membership Meeting - Election of Directors - Approval of Budget - Establishment of Dues Annual Board of Directors Meeting - Election of Officers - General Business	2:00 pm
April 10, 2017	Special Meeting (March 13 quorum issue)	2:00 pm
June 12, 2017	Q2 Board of Directors Meeting	2:00 pm
September 11, 2017	Q3 Board of Directors Meeting	2:00 pm
December 11, 2017	Q4 Board of Directors Meeting	2:00 pm

Appendix D – 2016 San Mateo Rail Corridor TMA Annual Report,
Completed by Hexagon Transportation Consultants



Draft Memorandum

Date: April 19, 2017

To: Ms. Bethany Lopez, P.E., City of San Mateo

From: Gary Black
Ollie Zhou

Subject: 2016 San Mateo Rail Corridor TMA Annual Report, San Mateo, CA

Hexagon Transportation Consultants, Inc. has completed an annual report for the San Mateo Rail Corridor Transportation Management Agency (TMA). On June 6, 2005, the City of San Mateo adopted the San Mateo Rail Corridor Transit-Oriented Development Plan. The implementation chapter of the plan included Policy 7.17 which defined a Transportation Demand Management (TDM) goal of reducing new vehicle trips within the corridor area by at least 25%, and Policy 7.18 to develop a TMA to coordinate efforts towards meeting the 25% trip reduction goal. Policy 7.25 required that the TMA submit an annual report to the City Council outlining compliance of occupied developments, on-going programs, and program changes.

Scope of Study

Hexagon collected PM peak period intersection counts at 17 locations. These counts included vehicular turning movement volumes, pedestrian traffic, and bicycle traffic at the intersections. City staff has determined that seven developments within the Rail Corridor Plan area have been completed and occupied. PM peak period trip generation counts at these seven developments were also collected. The count collection locations are listed below and shown on Figure 1:

Intersection Counts

1. Delaware St & 16th Ave (unsignalized)
2. Delaware St & Concar Dr
3. Delaware St & 19th Ave
4. Delaware St & Pacific Blvd (unsignalized)
5. Delaware St & Saratoga Dr
6. Delaware St & 25th Ave
7. Delaware St & 28th Ave
8. Pacific Blvd & Hillsdale Blvd WB Ramp
9. Grant St & Concar Dr
10. Grant St & 19th Ave
11. Saratoga Dr & 28th Ave
12. Saratoga Dr & Franklin Pkwy
13. Saratoga Dr & Hillsdale Blvd
14. El Camino Real & 25th Ave
15. El Camino Real & 28th Ave
16. El Camino Real & 31st Ave
17. El Camino Real NB Ramps & Hillsdale Blvd

Trip Generation Count Locations

1. Bay Meadows Phase II – Residential 1
2. Bay Meadows Phase II – Residential 2
3. Bay Meadows Phase II – Residential 3
4. Peninsula Station
5. Delaware Pacific
6. Mode by Alta
7. Nueva High School

Intersection Volume Comparison

Intersection vehicular, pedestrian, and bicycle counts were conducted during the PM peak period (4-6 PM) in March 2017. It is assumed that 2016 traffic conditions are similar to the counts collected in March 2017. Therefore, although the counts are collected in March 2017, they are used to represent 2016 conditions, and are referred to as “2016 counts” henceforth. The counts were compared to historic counts from years 2012 to 2015 collected by the City of San Mateo as part of the previous TMA annual reports (see Tables 1-3).

Intersection Vehicle Counts

A comparison of 2016 intersection vehicle counts to the 2012 through 2015 counts showed that overall traffic volumes increased by 1,868 vehicles (or 5%) in comparison to year 2015 conditions (see Table 1). The volume trend for each intersection shows that year 2016 traffic volumes stayed generally constant in comparison to previous years for most intersections (see Figure 2).

Intersections on Delaware Street between the Hillsdale Blvd westbound ramps and Pacific Boulevard showed a considerable volume increase in year 2016 in comparison to previous years. This segment of Delaware Street traverses the northern and southern boundaries of the Rail Corridor Plan area. The increase in volume could be due to additional developments within the plan area, or could be cut-through traffic. However, given that the City has indicated that no new developments have been completed and occupied within the plan area since 2015, Hexagon speculates that the additional traffic on Delaware Street could be traffic using Delaware Street as an alternate to El Camino Real or US 101. It is also possible that the 2015 counts on Delaware Street were low because the Delaware Street extension between Pacific Boulevard and 28th Avenue had just opened.

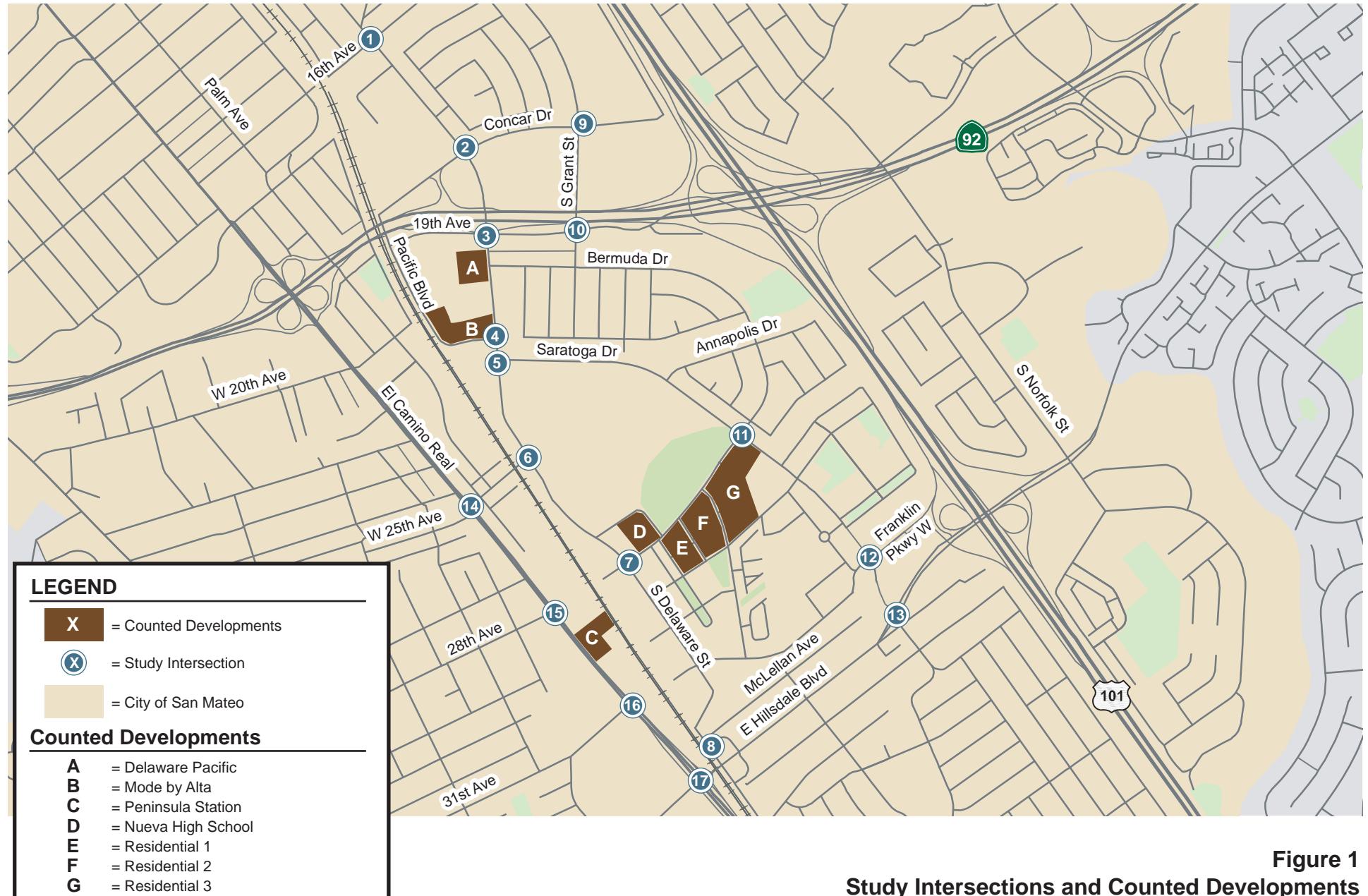


Figure 1
Study Intersections and Counted Developments

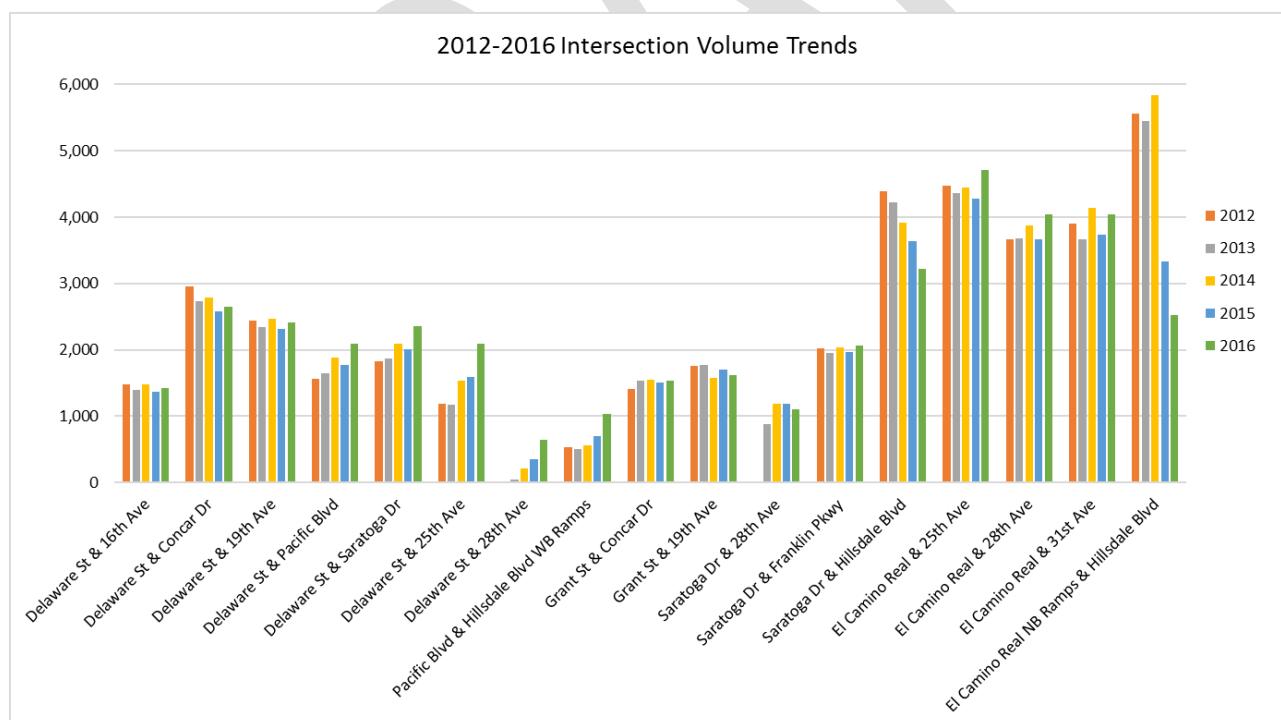
Table 1
Intersection Vehicle Volume Comparison

Intersection	PM Peak Hour Vehicle Count ¹					2016 Count vs. 2015 Count	
	2012	2013	2014	2015	2016	Volume Δ	% of 2015 Count
1 Delaware St & 16th Ave	1,485	1,392	1,481	1,365	1,425	60	4%
2 Delaware St & Concar Dr	2,960	2,737	2,787	2,584	2,656	72	3%
3 Delaware St & 19th Ave	2,442	2,344	2,463	2,317	2,407	90	4%
4 Delaware St & Pacific Blvd	1,568	1,645	1,879	1,770	2,086	316	18%
5 Delaware St & Saratoga Dr	1,821	1,866	2,096	2,004	2,358	354	18%
6 Delaware St & 25th Ave	1,187	1,167	1,539	1,590	2,086	496	31%
7 Delaware St & 28th Ave	0	41	208	348	644	296	85%
8 Pacific Blvd & Hillsdale Blvd WB Ramps	537	503	562	703	1,036	333	47%
9 Grant St & Concar Dr	1,407	1,530	1,554	1,507	1,539	32	2%
10 Grant St & 19th Ave	1,754	1,774	1,577	1,706	1,616	-90	-5%
11 Saratoga Dr & 28th Ave	0	877	1,187	1,181	1,103	-78	-7%
12 Saratoga Dr & Franklin Pkwy	2,021	1,948	2,043	1,965	2,066	101	5%
13 Saratoga Dr & Hillsdale Blvd	4,396	4,221	3,913	3,632	3,216	-416	-11%
14 El Camino Real & 25th Ave	4,477	4,356	4,447	4,284	4,710	426	10%
15 El Camino Real & 28th Ave	3,665	3,678	3,869	3,668	4,039	371	10%
16 El Camino Real & 31st Ave	3,902	3,670	4,136	3,737	4,044	307	8%
17 El Camino Real NB Ramps & Hillsdale Blvd	5,556	5,452	5,846	3,329	2,527	-802	-24%
Total	39,178	39,201	41,587	37,690	39,558	1,868	5%

Notes:

1. Counts for years 2012-2015 referenced the *San Mateo Rail Corridor Transportation Management Agency Annual Report, December 2015*. Counts for year 2016 were conducted in March 2017. It is assumed that year 2016 traffic conditions are similar to the counts collected in March 2017.

Figure 2
Intersection Vehicle Volume Trends



Intersection Pedestrian and Bicycle Counts

A successfully implemented system of TDM measures throughout the Rail Corridor Plan area will result in increased bicycle and pedestrian activity within the plan area. Bicycle and pedestrian counts are gathered during the intersection count data collection.

As shown on Tables 2-3 and Figures 3-4, the overall level of pedestrian and bicycle activity has declined 25% and 36% in comparison to year 2015 conditions. The intersections at Delaware Street and 25th Avenue, and at Pacific Boulevard and Hillsdale Boulevard westbound ramps are the only two intersections with relatively considerable increases in bicycle volumes. The 2015 pedestrian and bicycle volumes were counted in October, while the 2016 counts were collected in March. It is possible that seasonal variation could explain why pedestrian and bicycle volumes at individual intersections have fluctuated and shown no clear trend from year to year. It should be noted that the pedestrian activity levels at the intersections east of the rail tracks are relatively low in comparison to the El Camino Real intersections. The bicycle activity levels at the intersections east of the rail tracks are relatively high in comparison to the El Camino Real intersections.

Table 2
Intersection Pedestrian Volume Comparison

Intersection	PM Peak Hour Pedestrian Count ¹					2016 Count vs. 2015 Count	
	2012	2013	2014	2015	2016	Volume Δ	% of 2015 Count
1 Delaware St & 16th Ave	43	24	37	27	47	20	74%
2 Delaware St & Concar Dr	63	31	55	117	42	-75	-64%
3 Delaware St & 19th Ave	15	19	21	38	14	-24	-63%
4 Delaware St & Pacific Blvd	22	6	8	6	7	1	17%
5 Delaware St & Saratoga Dr	19	33	32	32	39	7	22%
6 Delaware St & 25th Ave	9	8	38	12	26	14	117%
7 Delaware St & 28th Ave	0	5	37	47	15	-32	-68%
8 Pacific Blvd & Hillsdale Blvd WB Ramps	41	66	53	91	65	-26	-29%
9 Grant St & Concar Dr	57	24	61	70	66	-4	-6%
10 Grant St & 19th Ave	21	29	23	41	33	-8	-20%
11 Saratoga Dr & 28th Ave	0	11	8	50	28	-22	-44%
12 Saratoga Dr & Franklin Pkwy	27	36	9	54	53	-1	-2%
13 Saratoga Dr & Hillsdale Blvd	14	42	17	37	40	3	8%
14 El Camino Real & 25th Ave	88	54	102	97	75	-22	-23%
15 El Camino Real & 28th Ave	31	50	55	82	79	-3	-4%
16 El Camino Real & 31st Ave	97	51	104	128	100	-28	-22%
17 El Camino Real NB Ramps & Hillsdale Blvd	57	150	245	213	123	-90	-42%
Total	604	639	905	1,142	852	-290	-25%

Notes:

1. Counts for years 2012-2015 referenced the *San Mateo Rail Corridor Transportation Management Agency Annual Report, December 2015*. Counts for year 2016 were conducted in March 2017. It is assumed that year 2016 traffic conditions are similar to the counts collected in March 2017.

Figure 3
Intersection Pedestrian Volume Trends

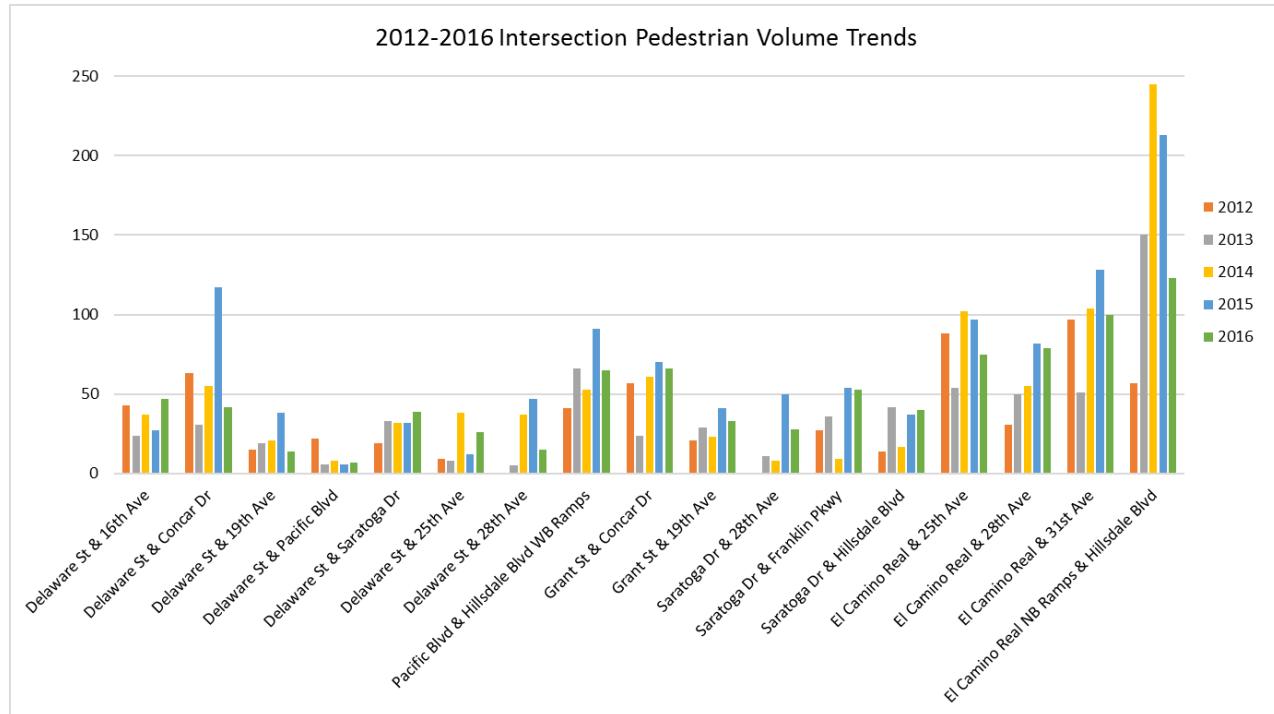


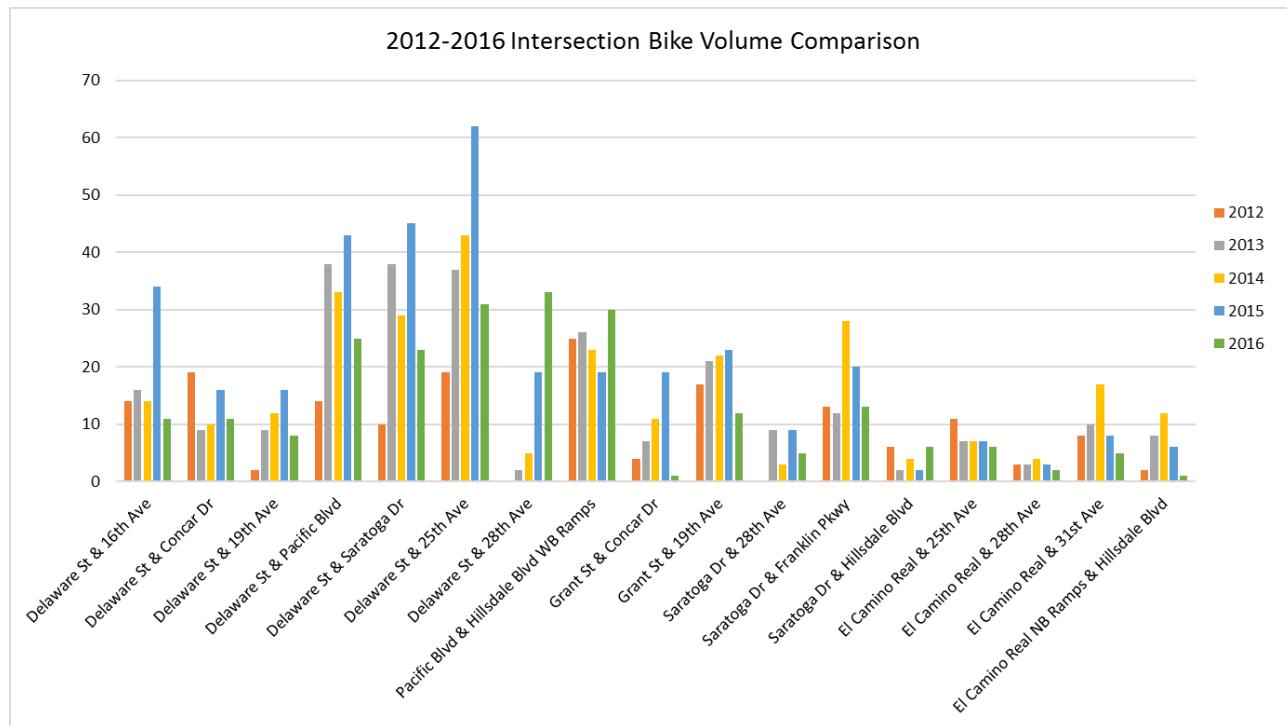
Table 3
Intersection Bicycle Volume Comparison

Intersection	PM Peak Hour Bike Count ¹					2016 Count vs. 2015 Count	
	2012	2013	2014	2015	2016	Volume Δ	% of 2015 Count
1 Delaware St & 16th Ave	14	16	14	34	11	-23	-68%
2 Delaware St & Concar Dr	19	9	10	16	11	-5	-31%
3 Delaware St & 19th Ave	2	9	12	16	8	-8	-50%
4 Delaware St & Pacific Blvd	14	38	33	43	25	-18	-42%
5 Delaware St & Saratoga Dr	10	38	29	45	23	-22	-49%
6 Delaware St & 25th Ave	19	37	43	62	31	-31	-50%
7 Delaware St & 28th Ave	0	2	5	19	33	14	74%
8 Pacific Blvd & Hillsdale Blvd WB Ramps	25	26	23	19	30	11	58%
9 Grant St & Concar Dr	4	7	11	19	1	-18	-95%
10 Grant St & 19th Ave	17	21	22	23	12	-11	-48%
11 Saratoga Dr & 28th Ave	0	9	3	9	5	-4	-44%
12 Saratoga Dr & Franklin Pkwy	13	12	28	20	13	-7	-35%
13 Saratoga Dr & Hillsdale Blvd	6	2	4	2	6	4	200%
14 El Camino Real & 25th Ave	11	7	7	7	6	-1	-14%
15 El Camino Real & 28th Ave	3	3	4	3	2	-1	-33%
16 El Camino Real & 31st Ave	8	10	17	8	5	-3	-38%
17 El Camino Real NB Ramps & Hillsdale Blvd	2	8	12	6	1	-5	-83%
Total	167	254	277	351	223	-128	-36%

Notes:

1. Counts for years 2012-2015 referenced the *San Mateo Rail Corridor Transportation Management Agency Annual Report, December 2015*. Counts for year 2016 were conducted in March 2017. It is assumed that year 2016 traffic conditions are similar to the counts collected in March 2017.

Figure 4
Intersection Bicycle Volume Trends



Trip Generation Counts

The Rail Corridor Plan established a Transportation Demand Management (TDM) goal of reducing new vehicle trips within the corridor area by at least 25%. Individual developments have also been subjected to short-term and long-term peak-hour trip generation thresholds to achieve the overall 25% trip reduction goal. Trip generation counts are conducted annually for all fully occupied projects within the Rail Corridor Plan area to determine whether the short-term thresholds have been exceeded.

The occupied projects at the time of the counts were indicated by City staff and are shown above in Figure 1. The trip generation counts were conducted in February and March 2017 on a regular weekday while schools were in session. As shown on Table 4, most development sites are currently generating peak-hour trips in compliance with the short-term thresholds. The Delaware Pacific (1990-2000 S. Delaware St) development with 120 residential units is currently generating 67 trips, which is higher than the short-term threshold of 59 trips. The Delaware Pacific development is not in compliance with the established short-term threshold.

Table 4
Rail Corridor Plan Development Project Trip Generations

Project Name	Project Address	Project Scope	Counted Trip Generation	PM Peak Hour			Short-Term Compliance (Y/N)
				Short-Term	Trip-Cap	Long-Term	
Bay Meadowos Phase II ¹	Residential 1	108 Residential Units	41	60	50	50	Y
	Residential 2	80 Residential Units	36	45	38	38	Y
	Residential 3	156 Residential Units	77	87	73	73	Y
Peninsula Station ²	2901 S. El Camino Real	68 Residential Units	34	36	25	25	Y
Delaware Pacific ²	1990-2000 S. Delaware St.	120 Residential Units	67	59	45	45	N
Mode by Alta ¹	2089 Pacific Blvd.	111 Residential Units	35	59	47	47	Y
Nueva High School ¹	131 E. 28th Ave.	High School	42	95	95	95	Y

Notes:

1. Trip generation counts were conducted in March 2017.
2. Trip generation counts were conducted in February 2017.

Bold and boxed indicates that the counted trip generation exceeds the short-term trip cap.

Intersection Levels of Service Comparison

Intersection levels of service (LOS) were analyzed using the collected counts. *Level of Service* is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. The LOS results were compared to the Corridor Plan buildout conditions LOS results, which was assumed to be the Corridor Plan Z + Bay Meadows scenario as documented in the *Bay Meadows Phase II and Transportation Corridor Plan TIA*, prepared by Hexagon Transportation Consultants, Inc., dated February 6, 2004. A brief description of the LOS analysis methodology and a discussion of the LOS results and comparison is presented below.

LOS Methodology

This study utilizes the 2010 Highway Capacity Manual (HCM) methodology for signalized intersections, calculated with Synchro software. This method evaluates intersection operations on the basis of average control delay time for all vehicles at the intersection. This average delay can then be correlated to a level of service. Table 5 presents the level of service definitions for signalized intersections. The City of San Mateo level of service standard is mid-LOS D (delay of 45 seconds) or better for all of the signalized study intersections.

Unsignalized Intersections

Intersection levels of service for unsignalized intersections are calculated utilizing the 2010 HCM methodology, calculated with Synchro software. For side-street stop-controlled intersections, the reported delay and LOS correspond to the approach with the worst average delay. For all-way stop-controlled intersections, the reported delay and LOS represent an average of all vehicles at the intersection. The City of San Mateo does not have a level of service standard for unsignalized intersections. The correlation between delay and level of service for unsignalized intersections is shown in Table 6.

Table 5
Signalized Intersection Level of Service Definition Based on Average Delay

Level of Service	Description	Average Control Delay Per Vehicle (sec.)
A	Signal progression is extremely favorable. Most vehicles arrive during the green phase and do not stop at all. Short cycle lengths may also contribute to the very low vehicle delay.	10.0 or less
B	Operations characterized by good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average vehicle delay.	10.1 to 20.0
C	Higher delays may result from fair signal progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.	20.1 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable signal progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	This is considered to be the limit of acceptable delay. These high delay values generally indicate poor signal progression, long cycle lengths, and high volume-to-capacity (V/C) ratios. Individual cycle failures occur frequently.	55.1 to 80.0
F	This level of delay is considered unacceptable by most drivers. This condition often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major-contributing causes of such delay levels.	greater than 80.0

Source: Transportation Research Board, *2010 Highway Capacity Manual* (Washington, D.C., 2010) p18-6.

Table 6
Unsignalized Intersection Level of Service Definition Based on Average Delay

Level of Service	Description	Average Control Delay Per Vehicle (sec.)
A	Little or no traffic delay	10.0 or less
B	Short Traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Extreme traffic delays	greater than 50.0

Source: Transportation Research Board, *2010 Highway Capacity Manual* (Washington, D.C., 2010) p20-3.

LOS Results

Intersection levels of service were analyzed using counts collected in 2017. As shown on Table 7, most signalized intersections are currently operating at an acceptable LOS during the PM peak hour, except for the following two intersections:

- Saratoga Dr & Hillsdale Blvd (LOS F)
- El Camino Real & 25th Ave (low LOS-D, 49.7 seconds of average delay)

The unsignalized intersections are all currently operating at an LOS D or better, which suggests that the intersections are not experiencing traffic operational issues.

Table 7
PM Peak Hour Intersection Levels of Service Results

#	Intersection	Control	Count Date	Note	Existing Conditions (Year 2016)		Buildout Conditions ¹	
					Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS
1	Delaware St & 16th Ave	All-Way Stop	03/16/17	4	34.7	D	-	-
2	Delaware St & Concar Dr	Signal	03/16/17		24.7	C	43.0	D
3	Delaware St & 19th Ave	Signal	03/16/17		20.1	C	28.4	C
4	Delaware St & Pacific Blvd	Side-Street Stop ²	03/16/17	4	19.7	C	-	-
5	Delaware St & Saratoga Dr	Signal	03/16/17		13.7	B	20.0	C
6	Delaware St & 25th Ave	Signal	03/16/17		6.8	A	17.0	B
7	Delaware St & 28th Ave	Signal	02/28/17		6.0	A	43.9	D
8	Pacific Blvd & Hillsdale Blvd WB Ramp	All-Way Stop	03/16/17	4	12.5	B	-	-
9	Grant St & Concar Dr	Signal	03/16/17		23.9	C	21.5	C
10	Grant St & 19th Ave	Signal	03/16/17	*	24.0	C	27.3	C
11	Saratoga Dr & 28th Ave	Signal	03/16/17		6.6	A	24.9	C
12	Saratoga Dr & Franklin Pkwy	Signal	03/16/17		19.9	B	24.0	C
13	Saratoga Dr & Hillsdale Blvd	Signal	03/16/17		116.7	F	36.4	D
14	El Camino Real & 25th Ave	Signal	03/16/17		49.7	D	30.9	C
15	El Camino Real & 28th Ave	Signal	03/16/17		22.0	C	30.5	C
16	El Camino Real & 31st Ave	Signal	03/16/17	*	22.3	C	29.5	C
17	El Camino Real NB Ramps & Hillsdale Blvd ³	Signal	03/16/17	*	38.2	D	29.8	C

Notes:

* indicates the intersection level of service is calculated using the HCM 2000 module with the Synchro software. These intersections have unusual lane geometries and/or signal operations that cannot be supported by Synchro HCM 2010 module.

1. Buildout conditions referenced the Corridor Plan Z + Bay Meadows scenario documented in the *Bay Meadows Phase II and Transportation Corridor Plan TIA*, prepared by Hexagon Transportation Consultants, Inc., dated February 6, 2004.

2. Delays and LOS reported for side-street stop-controlled intersections are for the worst approach.

3. This intersection was analyzed as one intersection with the El Camino Real SB Ramps and Hillsdale Blvd intersection for Buildout Conditions.

4. This intersection was not previously analyzed.

BOLD indicates a substandard level of service

LOS Comparison

The current (year 2017) LOS results are compared against the year buildout conditions as documented in the *Bay Meadows Phase II and Transportation Corridor Plan TIA*, prepared by Hexagon Transportation Consultants, Inc., dated February 6, 2004. It should be noted that three intersections were not studied in the 2004 TIA. As shown on Table 7, for the intersections that were studied both in the 2004 TIA and in this study, most intersections have not exceeded the forecasted intersection levels of service under buildout conditions. Two intersections (Grant St & Concar St, and El Camino Real NB Ramps & Hillsdale Blvd) have existing intersection levels of service slightly worse than the forecasted buildout conditions. The following two intersections have experienced considerable worsening in traffic operations:

- Saratoga Dr & Hillsdale Blvd
- El Camino Real & 25th Ave

A brief discussion of the potential causes of the worsening of the intersection operations at these two intersections are discussed below.

Saratoga Drive and Hillsdale Boulevard

The intersection of Saratoga Drive and Hillsdale Boulevard was forecasted to operate at an acceptable LOS D under buildout conditions during the PM peak hour. This intersection is currently operating at an unacceptable LOS F during the PM peak hour. Recent field observations indicate that the peak direction of travel during the PM peak hour is in the eastbound direction on Hillsdale Boulevard. Feedback queues extend from the Norfolk Street intersection westward past the Saratoga Drive intersection towards Pacific Boulevard. This congestion may be partially caused by cut-through vehicles. No considerable operational issues were observed along westbound Hillsdale Boulevard between Norfolk Street and Pacific Boulevard. The projects that are completed and occupied within the Rail Corridor Plan area are mostly residential developments. Residential land uses typically generate inbound trips during the PM peak hour. At the intersection of Saratoga Drive and Hillsdale Boulevard, trips generated by these developments would most likely be on westbound Hillsdale Boulevard. Therefore, it is not expected that the currently completed and occupied projects within the Rail Corridor Plan area are contributing much to the congestion at the intersection of Saratoga Drive and Hillsdale Boulevard. The Bay Meadows Phase II plan indicates that both 28th Avenue and 31st Avenue will be extended across and grade-separated from the rail tracks, providing two new east-west roads parallel to Hillsdale Boulevard. The grade separations may reduce traffic on Hillsdale Boulevard west of Saratoga Drive.

El Camino Real and 25th Avenue

The intersection of El Camino Real and 25th Avenue was forecasted to operate at an acceptable LOS C under buildout conditions during the PM peak hour. This intersection is currently operating at an unacceptable LOS D during the PM peak hour with an average delay of 49.7 seconds. 25th Avenue is currently the only street (except freeways) that provides east-west vehicular connection across the rail tracks within the Rail Corridor Plan area between SR 92 and Hillsdale Boulevard. Therefore, it is expected that completed and occupied projects within the Rail Corridor Plan area have likely contributed to the congestion at the intersection of El Camino Real and 25th Avenue. The Bay Meadows Phase II plan indicates that both 28th Avenue and 31st Avenue will be extended across and grade-separated from the rail tracks, providing two new east-west roads. Furthermore, the City of San Mateo is currently studying alternatives to improve the intersection operations at the intersection of El Camino Real and 25th Avenue. The above discussed improvements are expected to improve intersection operations at El Camino Real and 25th Avenue to acceptable levels of service.

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