San Mateo County’s Highway 101 corridor is stretched to capacity AND it has the traffic congestion to prove it!

San Mateo County residents are impacted the most, with little or no choice but to sit hours on end in gridlock or brave the overcrowded Caltrain. With regional job centers in San Francisco and Silicon Valley only planning for more growth, we need fresh ideas that unclog our highways and get more people moving faster and cheaper!

This factsheet presents forward-thinking analysis of strategies that can lead to smoother commutes on the 101 by 2018.
SAN MATEO’S CURRENT PLANS WILL NOT WORK

For several years, San Mateo County has been studying what they call a “Staged Hybrid HOV” proposal: widening the highway to provide a two-passenger carpool lane (HOV-2+). But a new analysis from the Bay Area’s transportation agencies* shows that the new lane would be congested from the day it opens. Worse, county and Caltrans reports suggest it would take nearly a decade to complete (although Caltrans reportedly is trying to shorten that timeframe).

The chart below shows that there would be too many drivers attempting to use the carpool lane: the lane would be “degraded” upon opening. This means that people using the new carpool lane would have little to no time advantage over people driving in the other lanes.

A New Carpool Lane Will Exceed Capacity on Day #1

Too many carpoolers will be unable to enter into the lane, offering very little or no congestion relief!

Chart shows northbound cars that can enter the carpool lane. Bars in chart represent passenger car equivalents and assumes 4% of solo drivers operate Clean Air Vehicles.

*Metropolitan Transportation Commission
SAN MATEO COUNTY RESIDENTS WANT MORE TRANSIT OPTIONS

Because of budget cuts, SamTrans had to slash express bus service in 2010 and 2014, eliminating all but one express bus route on the Peninsula. As a result, weekday SamTrans express bus ridership to San Francisco plummeted from more than 6,000 riders in 2002 to fewer than 1,000 in 2015. Caltrain is pushing the limits of its capacity, and its most crowded stations are in San Mateo County.

When there’s no room on the train and only a few available express buses, residents have to resort to driving.

Transit Ridership Depends on the Amount of Service Provided

- Introduced Baby Bullet
- Eliminated 7 of 8 express bus routes
- SamTrans Service Plan – further express bus cuts
- Milbrae BART opened 6/2003

Crowding at Stations Limits Ridership

The County has lost 7 out of 8 express bus routes
Caltrain is most crowded in San Mateo County!

February, 2014
AM Peak
Currently solo drivers make up the overwhelming majority of rush hour traffic on Highway 101 in San Mateo County: 75% of vehicles on the road carry only 52% of the people. At the other end of the spectrum, buses, vanpools, and three-person-plus carpools make up less than 3% of the vehicles during commute times – but carry over 20% of the people. This is an inefficient use of our highways.

On average, there are currently 30 passengers per bus. Each van can relieve the space needed for eight cars! We can move so much more people just by filling empty seats in cars on the highway.
The chart below shows congestion levels today (far left) and then how those levels would change based on several scenarios (which they call “steps”). The chart shows the number of cars per hour traveling in the four lanes of Highway 101 at one data collection location (Ralston Avenue) between 4-5 PM, at the most congested time of day.

The first two sets of columns show current traffic levels (“Existing Lanes” = actual traffic in each lane, while “= Existing” shows lanes 2-4 averaged together). Note also that this graph shows different colors/patterns for different types of vehicles, shown in the legend to the right.

- **STEP 1** in the chart shows what would happen to congestion levels if the existing leftmost lane were converted into an HOV-2+ carpool lane (requiring two or more people per car). The result would be less congestion in the new carpool lane (B) but more congestion on all other lanes, since solo drivers would no longer be allowed in this lane (C).

- **STEP 2** shows what would happen if the leftmost lane were converted to a carpool lane that instead required three or more people per vehicle (HOV-3+), as is currently the case on I-80 in the East Bay. Fewer cars would form HOV-3+ carpools, so the new carpool lane would appear empty (D), pushing cars to the remaining lanes (E). This would create levels of congestion much worse than the current gridlock.

- **STEP 3** introduces pricing: it would add tolling to the carpool lane, transforming it into a high-occupancy toll lane. Solo drivers and two-person cars would be able to buy their way into the lane (shown in the chart as “tolling vehicles”). This would allow the new express lane to be more effective at moving vehicles, but it is not enough. Traffic in all other lanes would still be worse than existing conditions (G).

- **STEP 4** adds transit and Transportation Demand Management (TDM). In this step, not only would the existing lane be converted to an express lane, but any revenues would also be used to boost transit service and encourage alternatives to solo driving. This option’s success would depend on employers instituting policies to discourage solo driving and adding more private and public shuttles. It would be strengthened if the tech community encouraged people to form carpools using ride-matching apps. MTC estimates that a combination of all of these efforts would result in a 10-15% shift of current solo drivers to carpools and transit. It would also reduce current congestion levels in all other lanes by 5% compared to existing conditions (H).
OPTIMIZED HOT OFFERS THE MOST TRAFFIC RELIEF, COSTS LESS, AND CAN HAPPEN SOONER!

<table>
<thead>
<tr>
<th>Strategies</th>
<th>HOV/T Volumes</th>
<th>HOV/T Speeds</th>
<th>General Purpose Speeds</th>
<th>Bus &amp; Carpool (Speeds &amp; Effectiveness) (GP or HOV/T)</th>
<th>Network Connectivity</th>
<th>Schedule</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: Staged Hybrid HOV + 380-SF Auxiliary Lane</td>
<td>Too high</td>
<td>Degraded</td>
<td>Slightly better, but only temporarily</td>
<td>Bus &amp; carpool travel at GP speeds (not attractive)</td>
<td>Doesn’t extend HOV to SF, doesn’t connect well with VTA ELS</td>
<td>2023</td>
<td>8+ Years</td>
</tr>
<tr>
<td>B: Change-A-Lane HOT 3+ + Transit + TDM</td>
<td>Fills HOT lane</td>
<td>45+ MPH</td>
<td>No worse, likely better</td>
<td>45+ MPH</td>
<td>Extends express lanes to SF, better connection to VTA</td>
<td>2018</td>
<td></td>
</tr>
<tr>
<td>A+B</td>
<td>Fills HOT lane</td>
<td>45+ MPH</td>
<td>Some improvement</td>
<td>45+ MPH</td>
<td>Extends express lanes to SF, better connection to VTA</td>
<td>2018 / 2023</td>
<td></td>
</tr>
</tbody>
</table>

The “Steps” described above evaluate how three strategies measure up in terms of traffic reduction, time to complete, and cost. Only one strategy succeeds on all three counts: Optimized HOT, (strategy “B” in the table above).

A: STAGED HYBRID HOV

Add a new carpool lane by widening the highway.

- Less congestion but only temporarily **FAIL**
- Complete in 2023 or later **FAIL**
- Costs $250M **FAIL**

B: OPTIMIZED HOT

Convert an existing lane to an HOT 3+, use toll revenue to boost transit service; and work with the business community to implement strategies that increase carpools and encourage transit and shuttle use.

- Likely better congestion levels **PASS**
- Complete in 2018 **PASS**
- Costs $140M **PASS**

A+B: CONVERT STAGED HYBRID TO HOT

Add a carpool lane by widening and then convert to an express lane.

- Some improvement in congestion **PASS**
- Partially complete in 2018; fully complete in 2023 or later **PARTIAL PASS**
- Costs $390M **FAIL**
CONCLUSION:
FOR HIGHWAY 101 IN SAN MATEO COUNTY, THIS ANALYSIS SHOWS THAT
CONVERTING A GENERAL PURPOSE LANE TO HOT AND USING THE REVENUES FOR TRANSIT + TDM CAN BE
DONE SOONER,
WILL REDUCE TRAFFIC,
COST LESS,
AND MOVE MORE PEOPLE WITH LESS POLLUTION
THAN CURRENT PLANS TO BUILD A NEW CARPOOL LANE.
For more information please contact:

Clarrissa Cabansagan
Community Planner
clarrissa@transformca.org
510.740.3150 x333

Icons on cover page created by Luis Prado, Richard de Vos and riyazali from Noun Project. Icons on this page created by Gregor Črešnar, Evan Shuster, Sergey Demushkin, yng, Katya Sotnikova, and Pavel N. from Noun Project.