

# MOVING PEOPLE, NOT JUST CARS

Ensuring Choice, Equity & Innovation  
in MTC's Express Lane Network

## WHITEPAPER

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MAY 2013

# TRANSFORM



Formerly TALC, the Transportation and Land Use Coalition

# CONTENTS

EXECUTIVE SUMMARY .....	1
WHAT'S WRONG WITH MTC'S HOT NETWORK.....	3
The Bay Area's Planned HOT Network.....	3
(Still) Trying to Build Our Way Out of Congestion.....	6
Incomplete Equity Analysis .....	7
Environmental Impacts.....	10
HOW TO IMPROVE THE BAY AREA'S NETWORK .....	11
Equity: Mitigations For Low-Income Families .....	11
Choice: Invest In Transportation Choices .....	12
Innovation: Optimize Existing Lanes, Don't Build New Ones.....	15
CONCLUSION: MOVE MORE PEOPLE.....	20
GLOSSARY OF TERMS .....	21

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## ACKNOWLEDGEMENTS

Jeff Hobson, TransForm's Deputy Director, was the paper's project manager, primary researcher and wrote various sections. Clarrissa Cabansagan, TransForm's Transportation Advocate, contributed to research, writing, and editing.

Additional credit is also due to Stuart Cohen for the initial concept and key advice throughout the process, Briony Greenhill for initial research, and Shannon Tracey for final editing.

TransForm gratefully acknowledges the Resources Legacy Fund for supporting the production and publication of this report. We would also like to thank our donors and those foundations that have made our regional transportation work possible this year: The California Endowment, Clarence E. Heller Charitable Foundation, Ford Foundation, The Health Trust, James Irvine Foundation, Kaiser Permanente Northern California Community Benefit Program, San Francisco Foundation, Silicon Valley Community Foundation, Surdna Foundation and the William and Flora Hewlett Foundation.

## EXECUTIVE SUMMARY

Express lanes, also known as high-occupancy toll lanes or “HOT lanes,” could provide a regional highway network where transit and high-occupancy vehicle lanes work together to seamlessly provide convenient and swift transit connections through the Bay Area. Planned as a transit system that sells excess system capacity to non-carpool vehicles, this network could move more people and reduce greenhouse gas pollution by providing new transportation choices.

But MTC’s proposed Express Lane Network is out of balance. The Express Lane Network is the 2<sup>nd</sup>-largest project in Plan Bay Area, the region’s comprehensive transportation and land use plan that is supposed to reduce greenhouse gas pollution. MTC plans to collect \$6.5 billion in tolls from drivers and spend most of the money to build – or pay financing costs for – hundreds of miles of new highway lanes. There is no funding to expand transportation choices to support long-term congestion reduction. Nor is there funding for programs to ensure low-income families receive equitable benefits from this new transportation system.

Once billed as an innovative way to help manage traffic and provide a wide array of new transportation choices, MTC’s Express Lane Network has now primarily become a highway-building program whose main beneficiaries will be solo drivers who can afford to buy their way into new lanes.

Other regions have recognized the potentially inequitable impacts of HOT lanes, as higher-income drivers use them much more frequently and are the main beneficiaries of the travel-time savings. In Seattle, over 50% of HOT lane users had household incomes over \$100,000, while only 15% had incomes under \$50,000. These concerns have prompted other regions to incorporate expanded transportation choices – transit, vanpools, carpools, and other alternatives to solo driving – when they design their HOT network.

The Bay Area can do better. Some positive elements of MTC’s current network point the way. MTC plans to convert 173 miles of existing carpool lanes to HOT, mostly by 2015. These conversions are cost-effective: if done alone, they would produce net revenues that could be invested in a broad range of transportation improvements.

But MTC plans another 170 miles of new highway lanes, costing \$2.8 billion (plus financing costs). This new construction would use up the revenues generated by the rest of the system and leave nothing left for more transportation choices or mitigations for low-income families.

Instead, the Bay Area could pursue what we call an “optimize-a-lane” approach. This approach could move more people at lower cost, with less pollution, and a more equitable distribution of benefits and costs. “Optimize-a-lane” would convert one existing general purpose lane to HOT, save \$10+ million per mile, and use revenues to dramatically increase transportation options along the same corridor.

Properly managed, this HOT lane would flow freely, potentially carrying even more vehicles per hour than the previously-congested general purpose lane. With higher average vehicle occupancy from transportation choices paid for by HOT revenues, optimized HOT lanes would move more people, not just cars.

By contrast, MTC's plans to build new highway lanes with no new transportation choices will sink the vast majority of drivers' tolls into another fruitless attempt to build our way out of congestion. If we don't change course, we will spend 20+ years paying off construction bonds with driver tolls that could have been used to provide more people with more choices.

*Moving People, Not Just Cars* is a detailed analysis of MTC's network and how it compares to practices in regions around the country, and shows how MTC can prioritize choice, equity, and innovation to move more people for less money, make connections sooner, and invest in public transit and other long-term solutions. Key recommendations include:

## RECOMMENDATIONS FOR CHOICE

- MTC should dedicate at least 50% of HOT revenues to provide new transportation choices – transit, vanpools, carpools, and other alternatives to solo driving – along HOT corridors and to mitigate the network's impacts on low-income families.
- MTC should create a transportation choices expansion plan as part of the express lane network and include a commitment that with the opening of every new HOT lane, there will be a simultaneous improvement in transportation choices along the same corridor, over and above existing service.

## RECOMMENDATIONS FOR EQUITY

- MTC should design and implement mitigations to ensure low-income families receive an equitable share of the benefits and do not bear a disproportionate burden of the HOT network. Mitigations may include access to the network itself, as well as transit investments.
- MTC should expand its environmental justice analysis of the HOT lane network to include a primary research question on the distribution of benefits across different income and ethnic groups, considering differences in expected frequency of use of the HOT lanes.

## RECOMMENDATIONS FOR INNOVATION

- Along with the relevant CMA and Caltrans, MTC should study the “optimize-a-lane” approach (defined above) before pursuing new-construction projects in MTC's Phase II (after 2015) or beyond, and for any congested corridor with at least 8 mixed flow lanes and no HOV lanes.
- MTC and a CMA should seek approval from Caltrans, the state legislature, and if necessary federal authorities to try the “optimize-a-lane” approach in at least two Bay Area locations.

# WHAT'S WRONG WITH MTC'S HOT NETWORK

## THE BAY AREA'S PLANNED HOT NETWORK

The Metropolitan Transportation Commission (MTC) is planning to create a network of express lanes, or high occupancy toll (“HOT”) lanes, in the San Francisco Bay Area. Express lanes are meant to make use of excess capacity in high occupancy vehicle (HOV) lanes by allowing solo drivers the option to pay entry into the lane, while HOVs retain free use of the lane. The Bay Area now plans for a 570-mile network of these lanes, through a series of projects that are expected to take twenty years and \$7-8 billion to complete.<sup>1</sup> Drivers will be able to access the lanes with a FasTrak<sup>®</sup> toll tag for a fee of \$3-7.50 per average one-way trip.<sup>2</sup> The lanes will be managed through variable tolls in order to keep the HOT lane flowing smoothly—low enough to attract drivers out of congestion for a fee, but high enough so that not all cars buy their way into the lane. MTC states that the network aims to improve the reliability of travel, to create efficiencies in highway usage, and to generate revenues that can enhance the connectivity of the region.<sup>3</sup>

This paper focuses on the network that MTC described in its September 2011 application to the California Transportation Commission (CTC), consisting of lanes in Alameda, Contra Costa, and Solano Counties. The network includes 91 miles of “Legacy Programs,” lanes previously authorized in Alameda County on I-580 and I-680, and 285 miles of newly authorized lanes on I-80, I-880, I-680, and connections to the San Mateo and Dumbarton bridges.

MTC's application to the CTC shows that the region would spend \$225 million to convert 173 miles of existing HOV lanes, but spend \$2,755 million on new construction: 170 new miles of highway lanes.<sup>4</sup> The new lanes cost \$16 million per mile, more than 12 times as much on a per-mile basis as the conversions! (See Figure 1.) The remainder of the network's costs are largely for operations and maintenance and debt servicing.<sup>5</sup>

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<sup>1</sup> MTC Memorandum from Lisa Klein to Policy Advisory Council dated March 27, 2012: *Regional Express Lane Network*. p13. [http://apps.mtc.ca.gov/meeting\\_packet\\_documents/agenda\\_1842/4\\_Express\\_Lane\\_Network.pdf](http://apps.mtc.ca.gov/meeting_packet_documents/agenda_1842/4_Express_Lane_Network.pdf)

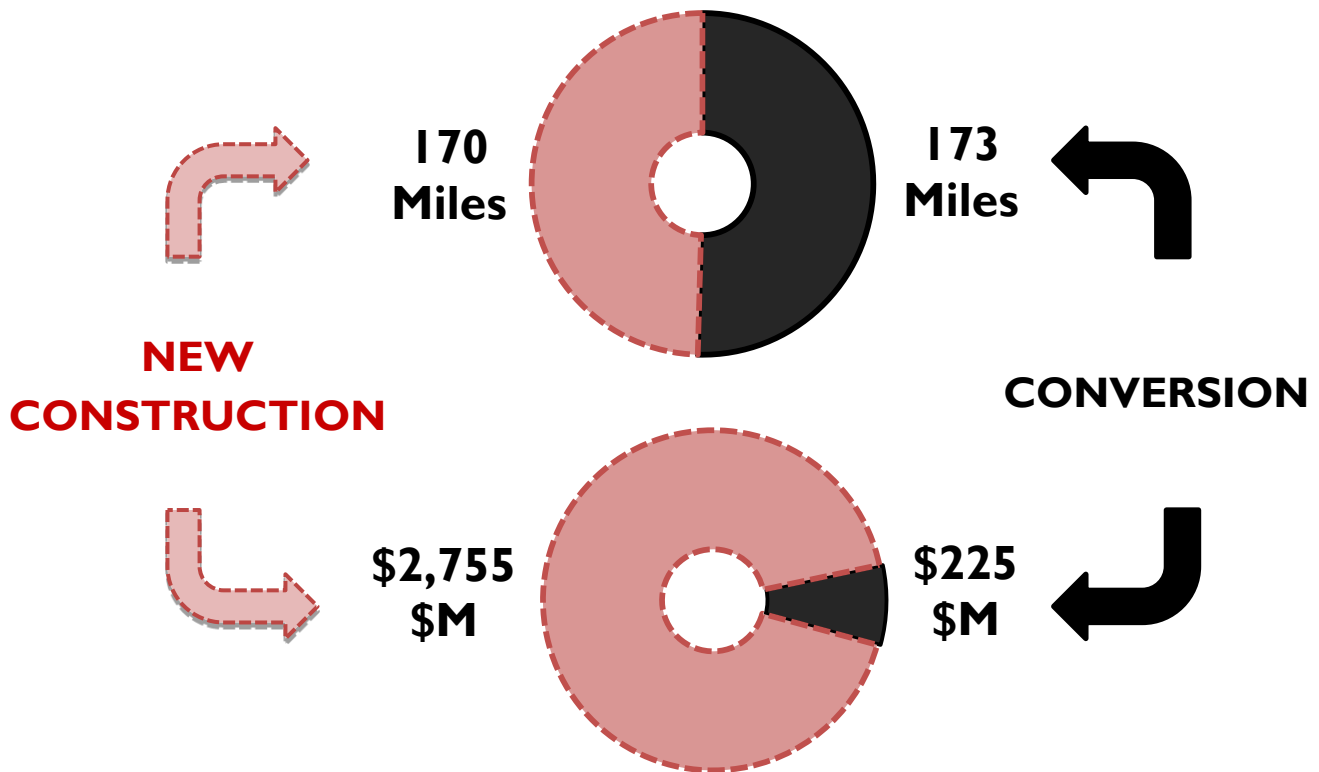
<sup>2</sup> MTC Application to the California Transportation Commission (CTC) dated September 28, 2011: *Bay Area Express Lanes: Public Partnership Application for High Occupancy Toll Lanes*. p44. [http://www.mtc.ca.gov/planning/hov/FINAL\\_CTC\\_Application\\_092811b.pdf](http://www.mtc.ca.gov/planning/hov/FINAL_CTC_Application_092811b.pdf)

<sup>3</sup> MTC Application to the CTC, 2011. Ibid, p1.

<sup>4</sup> MTC Application to the CTC, 2011. Ibid, pp2-4.

<sup>5</sup> MTC Memorandum, March 27, 2012. p13.

**Figure 1. Cost and Lane Miles: New Construction Versus HOV Lane Conversion**



The rest of the Bay Area's network includes 180 miles in Santa Clara County controlled by the Valley Transportation Authority.<sup>6</sup> The planned network has HOT lanes in Solano, Contra Costa, Alameda, and Santa Clara County (with a short connection to the southern edge of San Mateo County), and includes approaches to five of the seven state-owned bridges in the region. While MTC's original plans for the network included the North Bay, there are currently no plans for HOT lanes in San Francisco, Marin, Sonoma, or Napa Counties. A feasibility study is underway in San Mateo to create new HOV lane segments through the conversion of mixed flow lanes.

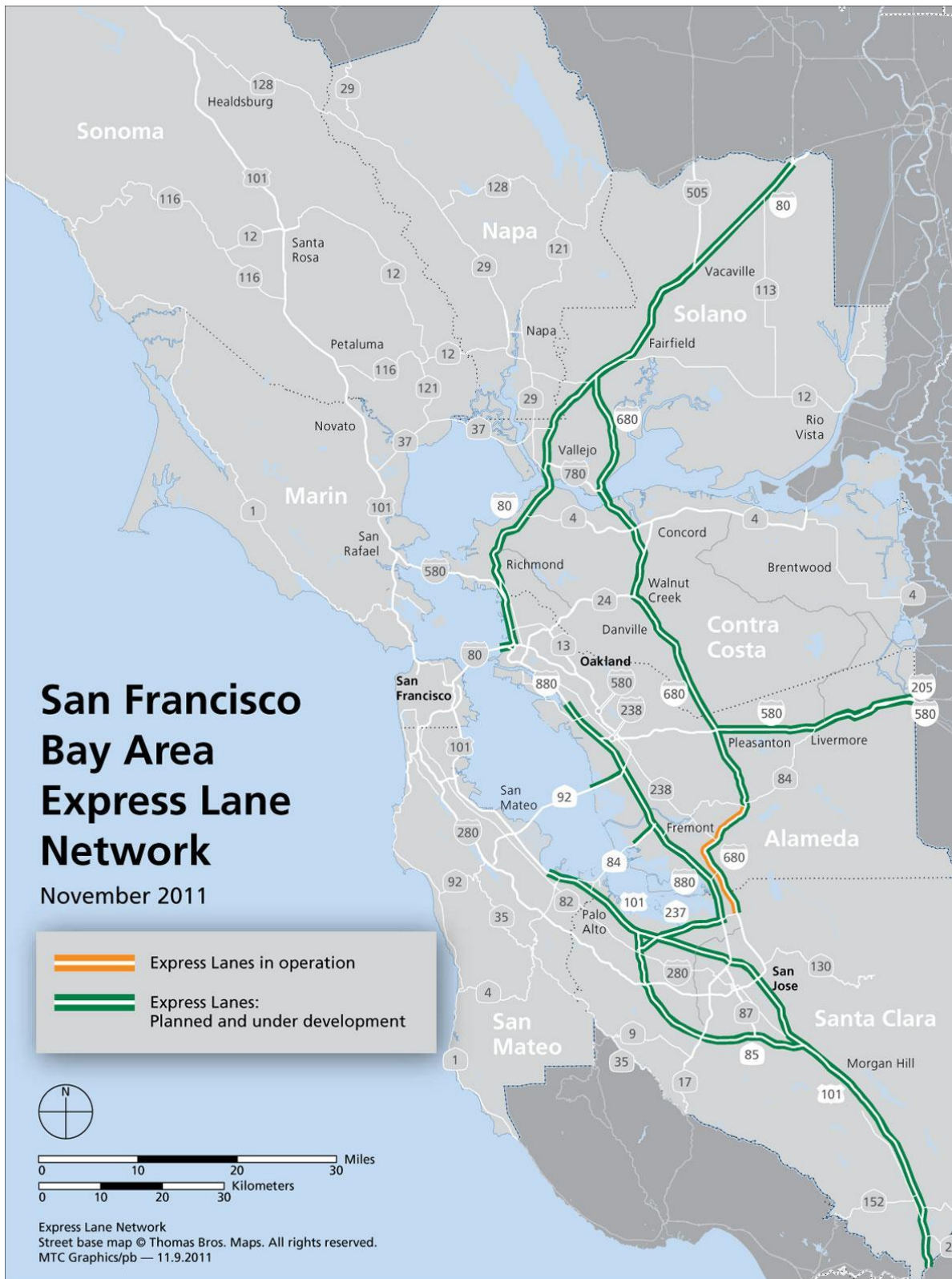
The project is one of the most expensive transportation projects of our generation. With a total projected cost of \$6.7 billion, the Bay Area's Express Lane Network is the largest highway investment in Plan Bay Area. This is the region's Sustainable Communities Strategy (SCS), a comprehensive transportation and land use plan that is supposed to reduce greenhouse gas pollution in accordance with SB 375. The Express Lane Network is the second-largest project in the whole plan.<sup>7</sup>

It needs more scrutiny.

<sup>6</sup> Santa Clara Valley Transportation Authority (VTA) Webpages: *Silicon Valley Express Lanes*. Retrieved March 6 2013. <http://www.vta.org/expresslanes/>

<sup>7</sup> MTC & ABAG Draft Plan Bay Area dated March 2013. "Top 10" Plan Bay Area Investments, by Project. p13.

**Figure 2. MTC's proposed Express Lane Network<sup>8</sup>**



<sup>8</sup> MTC Webpages: *Express Lane Network*. Retrieved March 4, 2013. [http://www.mtc.ca.gov/images/Express\\_Lane\\_Network-big](http://www.mtc.ca.gov/images/Express_Lane_Network-big)

## (STILL) TRYING TO BUILD OUR WAY OUT OF CONGESTION

Unfortunately, MTC's Express Lane Network is failing to innovate. The network fails to challenge Caltrans' 1970s thinking that we can't convert an existing general purpose lane to a high-occupancy lane. The vast majority of the money MTC expects to spend on the Express Lane Network is slated for building new highway lanes.

MTC's Express Lane Network, once billed as an innovative way to help manage traffic and raise new revenues for transit,<sup>9</sup> has now primarily become a highway-building program.

MTC starts off the network right: Phase I of the Bay Area Express Lane network, expected to be complete by 2015 consists almost entirely of converting existing HOV lanes to HOT lanes: 89% of the projected Phase I costs are for lane conversions. But Phase II, expected to be complete by 2020, is the opposite. Of the 5 projects in Phase II, projected for \$1,543 million in construction costs, fully 95% of the costs are devoted to building new lanes. Phases III and IV, planned for completion in 2025 and 2030, consist entirely of new lanes and will cost \$1,282 million.<sup>10</sup>

Through this phasing, MTC is planning to use all of the revenues from the entire network just to build new highway lanes in the other parts of the network. MTC's primary objective appears to be maximizing the number of lane-miles in the network.

This focus on building new lanes is a big reason that MTC's network includes no plans to add transportation choices (transit, vanpools, carpools and other alternatives to solo driving) with the implementation of the network. There is no expected funding for transportation choices before 2035 and there are no stipulations to guide revenues towards transit after 2035.<sup>11</sup> It appears that the Bay Area is not heeding a warning from the US Government Accountability Office: "meeting revenue targets [with HOT lanes] can be at odds with policies to increase throughput on highways and bridges by encouraging more people to use carpools and express bus service."<sup>12</sup>

MTC's plans stand in contrast to other planned HOT networks around the country. There are currently 14 HOT projects in operation around the United States, two of which are expanding, and 10 more in construction.<sup>13</sup> Several of these other regions include extensive networks; Los Angeles, San Diego, Dallas-Ft Worth, Atlanta, Minneapolis-St Paul, and Seattle all have HOT networks in development or in their long-range plans. As described in more detail in the section below titled

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<sup>9</sup> "High-Occupancy Toll (HOT) Network Implementation Principles", Attachment B to Resolution 3868, Metropolitan Transportation Commission. [http://www.mtc.ca.gov/planning/hov/Res3868\\_Att\\_B-HOT\\_Network\\_Principles.pdf](http://www.mtc.ca.gov/planning/hov/Res3868_Att_B-HOT_Network_Principles.pdf). These principles list five objectives, one of which is "Toll revenue collected from the HOT network will be used to operate the HOT network; to maintain HOT system equipment and software; to provide transit services and improvements in the corridors; to finance and construct the HOT network; and to provide other corridor improvements."

<sup>10</sup> CTC Memorandum to Chair and Commissioners from Bimla G. Rhinehart, Executive Director dated October 26-27, 2011. CTC Meeting. Attachment A, *Phasing Assumptions in the Financial Analysis*, pp2-4.

[http://www.catc.ca.gov/programs/HOTLanes/MTC\\_HOT\\_lanes\\_analysis.pdf](http://www.catc.ca.gov/programs/HOTLanes/MTC_HOT_lanes_analysis.pdf)

<sup>11</sup> MTC Application to the CTC, 2011. p3.

<sup>12</sup> GAO Report, 2012. pp25-26.

<sup>13</sup> United States Government Accountability Office (GAO) Report: *Traffic Congestion: Road Pricing Can Help Reduce Congestion, but Equity Concerns May Grow*. January 2012. p4. <http://www.gao.gov/assets/590/587833.pdf>



“Choice: Invest in Transportation Choices”, many other regions have added transportation choices with the implementation of their new HOT lanes.

Further, MTC has not yet made any plans to mitigate the impacts on low-income drivers. There is good reason to be concerned about what impact the HOT network will have on all Bay Area drivers, especially low-income and minority commuters.

## INCOMPLETE EQUITY ANALYSIS

Low-income families in the Bay Area currently spend 72%<sup>14</sup> of their income on housing and transportation—among the highest combined costs in the entire country. The Bay Area’s leaders recognized this problem and set a target that the region’s SCS cut this number by 10% (target 7).<sup>15</sup> Unfortunately, MTC’s latest analyses predict that the SCS moves the region in the opposite direction, increasing the burden on low-income families to 74%.<sup>16</sup> As a region we simply cannot accept this result. We must reassess major initiatives that may contribute to this problem and make sure we are doing all we can to combat it.

The economic literature on travel behavior says that equity should be analyzed in terms of the distribution of both costs and benefits across different income and ethnic groups. The US Government Accountability Office did an extensive review of equity impacts in HOT and congestion pricing projects around the country. The study concluded that equity concerns are particularly acute in situations like the Bay Area’s, where agencies are using pricing to raise revenue to build new projects.

MTC is in the process of conducting an Environmental Justice Analysis of the Express Lane Network. This analysis focuses on the question of whether low-income and minority populations will face barriers to using express lanes, either because of the toll tag requirement or the cost of tolls. Below are the key questions guiding MTC’s Environmental Justice Analysis:

- Is the toll tag requirement a barrier for low-income and minority persons, who may be more likely to lack access to a credit card or bank account?
- Are low-income populations likely to be able to afford and willing to pay the tolls?<sup>17</sup>

These are important questions. But they are far from sufficient. MTC’s analysis of the environmental justice impacts of the Express Lane Network is incomplete.

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<sup>14</sup> Joint MTC Planning/ABAG Administrative Committees Presentation dated May 11, 2012: *Plan Bay Area, Preferred Land Use and Transportation Investment Strategy*. Slide 39.

<http://www.abag.ca.gov/jointpolicy/pdfs/Preferred%20LU%20and%20Transp%20Investment%20Strategy.pdf>

<sup>15</sup> One Bay Area Webpage: *Performance Targets for the Sustainable Communities Strategy*. Retrieved April 25, 2013.

<http://onebayarea.org/pdf/PerfTargetsSCS-RTP.pdf>

<sup>16</sup> MTC & ABAG Draft Plan Bay Area, 2013. p117.

<sup>17</sup> MTC Presentation to MTC Policy Advisory Council dated July 11, 2012: *Bay Area Regional Express Lane Network - Environmental Justice Analysis: Setting the Context*. Slide 8.

[http://apps.mtc.ca.gov/meeting\\_packet\\_documents/agenda\\_1899/7\\_DRAFT\\_Express\\_Lanes\\_Network\\_EJ\\_Analysis.pdf](http://apps.mtc.ca.gov/meeting_packet_documents/agenda_1899/7_DRAFT_Express_Lanes_Network_EJ_Analysis.pdf)

A more complete analysis would also ask:

- Do some Bay Area residents benefit more than others from the HOT lane network?
- In particular, do low-income residents or people of color gain fewer benefits than higher income or white residents?

**“Individuals with higher incomes receive more direct benefits from the lane than those with lower incomes.”**

Evidence from other regions suggests that the answer is likely to be yes. In a 2012 review of actual HOT lanes in operation around the country, the Federal Highway Administration concluded, “Those who have higher incomes will tend to use congestion-priced facilities more often.”<sup>18</sup> This was supported by evidence of actual HOT lane use in San Diego, Orange County, Minneapolis, and Seattle. In Minneapolis, researchers similarly concluded, “Individuals with higher incomes receive more direct benefits from the lane than those with lower incomes.”<sup>19</sup>

This is not surprising. The principal beneficiaries of the HOT lanes themselves are solo drivers who are willing to pay a toll to go faster at peak times. Those drivers are more likely to be higher income. In the case of the Bay Area’s network, where there is added road capacity but no proposed added public transportation capacity, secondary beneficiaries may include riders of existing express bus service if those buses travel on new HOT lanes that move faster than existing traffic. But these secondary beneficiaries will receive much less benefit than the solo drivers who get new travel options.

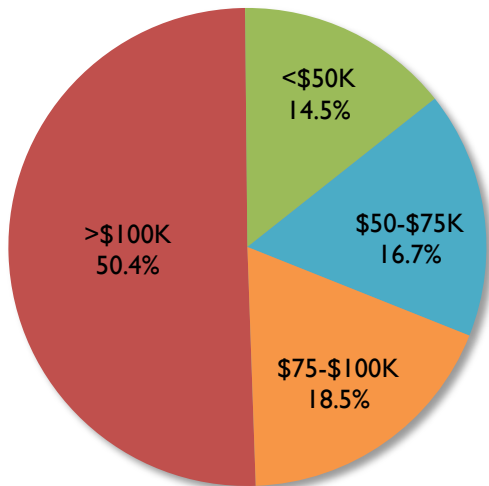
This evidence stands in contrast to statements in MTC’s application to the CTC, which argued that equity concerns “are not supported by the actual performance of those lanes in operation around the country. Travelers using and benefiting from express lane facilities are shown to represent all socio-economic backgrounds.”<sup>20</sup> MTC’s project application did not acknowledge the considerable evidence showing that while all drivers use the lanes, they do so at very different frequencies. The frequency pattern is what actually determines the distribution of benefits. The chart in Figure 3<sup>21</sup> depicts the disproportionate use of Seattle’s SR-167 toll lanes by income: those with annual household incomes under \$50,000 constitute less than 15% of HOT users, and over half of all users have incomes over \$100,000.

<sup>18</sup> U.S. Department of Transportation (USDOT) Federal Highway Administration (FHWA) Primer. *Income-Based Equity Impacts of Congestion Pricing, A Primer*. December 2008. p19. <http://ops.fhwa.dot.gov/publications/fhwahop08040/fhwahop08040.pdf>.

<sup>19</sup> Patterson, T. M., & Levinson, D. *Lexus Lanes or Corolla Lanes? Spatial Use and Equity Patterns on the I-394 MnPASS lanes*. Unpublished manuscript, Department of Civil Engineering, University of Minnesota, March 2008. <http://nexus.umn.edu/Papers/MnPASSEquity.pdf> (cited in USDOT & FHWA Primer, 2008, p11).

<sup>20</sup> MTC Application to the CTC, 2011. p61.

<sup>21</sup> Washington State Department of Transportation Study: *SR 167 HOT Lanes Pilot Project, Fourth Annual Performance Study May 2008-April 2012*. 2012. p11. [http://www.wsdot.wa.gov/NR/rdonlyres/2DA072CA-7D4A-4876-A58B-64DBE152D48D/0/SR167\\_AnnualPerformanceSummary\\_080812\\_web.pdf](http://www.wsdot.wa.gov/NR/rdonlyres/2DA072CA-7D4A-4876-A58B-64DBE152D48D/0/SR167_AnnualPerformanceSummary_080812_web.pdf)



**Figure 3.** Income Distribution of Seattle's SR-167 HOT Lane Drivers, 2012

With MTC's current HOT network, higher income drivers have more opportunity to experience these new options and receive the travel time benefits of unrestricted travel, while lower-income drivers will be less able to receive the same travel time benefits.

MTC plans to spend all HOT revenues on expanding the network, so the primary beneficiaries will be solo drivers who get new transportation options. Those solo drivers will be more likely to be high-income. There will be equity impacts, and MTC is not making adequate efforts to understand and respond to them.

Another nuance to the disproportionate impacts and benefits of HOT lanes is the reality that an individual's propensity to carpool is also directly linked to income.

Professor Deb Niemeier, with the UC Davis Department of Civil and Environmental Engineering, conducted an independent analysis of MTC's Express Lane Network. Her analysis finds that the current plan will result in more stringent HOV thresholds (requiring 3+ occupants to qualify for carpool) to maintain the flow of vehicles in HOT lanes. "Those who ride in 2+ carpools but cannot pay tolls will eventually experience increased delays...[and only] some carpools (those who are 2+ in the short term and 3+ in the long term) will benefit from travel time reductions when new HOT lanes are built."<sup>22</sup> Carpoolers that are unable to conform to more stringent HOV requirements may be pushed out of the fast lane. Compared to more affluent travelers, lower-income commuters are more likely to carpool than drive alone and more likely to be impacted by this change. The current HOT network plans for the Bay Area enable solo driving and do very little to incentivize other transportation choices. It is likely, given the track record of other HOT projects, that most benefits of the HOT network will accrue to those who can afford tolls, who are expected to be higher income drivers.

HOT projects in LA, San Diego, Minneapolis, Miami and Atlanta foresaw equity challenges and designed mitigations into their initial project funding. In LA, "SB 1422 requires Metro to study the impact of the demonstration program on low income commuters and develop ways to provide low income commuters the same opportunity to use toll lanes as any other commuter."<sup>23</sup>

<sup>22</sup> University of California, Davis (UC Davis) Memorandum from Dr. Deb Niemeier, et al. to TransForm dated September 28, 2011: Re: Bay Area Public Partnership Application for High Occupancy Toll Lanes. p3.

[http://apps.mtc.ca.gov/meeting\\_packet\\_documents/agenda\\_1745/8\\_Staff\\_Liaison\\_Report.pdf](http://apps.mtc.ca.gov/meeting_packet_documents/agenda_1745/8_Staff_Liaison_Report.pdf)

<sup>23</sup> Los Angeles Metropolitan Transportation Authority (LA Metro) Factsheet dated July 2012: Metro Express Lanes, Equity Program Factsheet. Retrieved November 13, 2012.

[http://www.metro.net/projects\\_studies/expresslanes/images/ExpressLanes\\_Factsheet\\_Toll\\_Credit\\_Program.pdf](http://www.metro.net/projects_studies/expresslanes/images/ExpressLanes_Factsheet_Toll_Credit_Program.pdf)

By contrast, MTC denies the equity challenge and proposes no mitigations, putting the issue off until later: “If it is later determined that there is a negative impact on low-income persons, special provisions, such as discounts for low-income travelers, may be considered at a future time.”<sup>24</sup>

MTC’s “wait-and-see” approach is unacceptable. MTC must understand the equity impacts of the currently planned HOT lane network before the network is launched.

## ENVIRONMENTAL IMPACTS

MTC’s current HOT network plans also harm Bay Area efforts to meet regional goals for reducing pollution from greenhouse gas emissions (GHGs), the region’s first target and a statutory requirement of California’s landmark greenhouse gas reduction bills, AB 32 and SB 375. The state has set a goal that the Bay Area’s plans would lead to a 15% per capita reduction of GHGs by 2035.<sup>25</sup>

MTC claims that HOT lanes can reduce GHGs by allowing drivers to get out of gridlock.

But this claim is contradicted Professor Niemeier’s study that identified several weaknesses in MTC’s method for evaluating the HOT lane network, stating “we find MTC’s evaluation to be an overly optimistic portrayal of project benefits that ignores climate and equity impacts.”<sup>26</sup> The analysis shows that the HOT lane network is likely to have a negative climate impact in the long run unless the project is revised to have a focus on promoting public transportation and other alternatives, rather than lane expansions. In fact, the HOT lanes are likely to increase greenhouse gases by enticing more motorists to drive. “The cyclical effects of building new lane-miles to mitigate congestion are well documented in the academic literature: increased roadway supply brings increased demand, or vehicle miles traveled.”<sup>27</sup> Called “induced demand,” this effect has not been adequately recognized in MTC’s analyses of the HOT network plans. MTC has to recognize these induced demand impacts.

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<sup>24</sup> MTC CTC Application, 2011. p25.

<sup>25</sup> MTC & ABAG One Bay Area Performance Targets: *Performance Targets for the Sustainable Communities Strategy / Regional Transport Plan*, Retrieved November 21 2012. <http://onebayarea.org/pdf/PerfTargetsSCS-RTP.pdf>

<sup>26</sup> UC Davis Memorandum, 2011. p1.

<sup>27</sup> UC Davis Memorandum, 2011. Ibid.

## HOW TO IMPROVE THE BAY AREA'S NETWORK

If, as we expect, a complete equity analysis of the Bay Area's planned HOT network shows that it would provide more choice and benefits to higher income residents than lower-income residents, or cause other unequal distribution of benefits, then we must change our plans.

We must design the HOT network so that it helps the Bay Area meet one of our regional goals: a 10% reduction in the share of income spent on transportation and housing by low-income families. Given the magnitude of this investment in the SCS, the HOT network must reduce the share of income spent on transportation by low-income families. At the very least, we must be able to tell that the HOT network will not *increase* the share of income spent on transportation by low-income families. The system as currently defined cannot do that.

We propose that the HOT network must have three policy responses to achieve these goals: equity, choice, and innovation. The following sections describe each of these responses.

### EQUITY: MITIGATIONS FOR LOW-INCOME FAMILIES

The Federal Highway Administration has suggested numerous ways to ensure low-income residents receive equal benefit from HOT lanes. These generally fall into two categories: increasing choice and compensation. Increasing choice is addressed in the next section. Ways to provide compensation that the tolling authority may administer could include discounted per-mile tolls, credits towards toll payments, rebates, and toll exemptions. Other means of compensation, that would likely require involvement by the state, could include tax rebates, tax credits, or income supplements.<sup>28</sup>

Other regions around the country have seen these needs and put mitigations in place. For example, Los Angeles (LA) offers a discount on FasTrak<sup>®</sup> toll tags for low-income drivers. The LA network is the first in California to include an "Equity Program" to offset the unequal benefits that HOT lanes otherwise provide to high-income drivers. The program offers a \$25 credit to low-income drivers for the deposit on toll tags, and even waives monthly account maintenance fees.<sup>29</sup> MTC's ongoing Environmental Justice analysis that considers impacts on access to toll tags and financial institutions may also play a useful role in helping to identify good mitigations.

Low-income mitigations that make it cheaper to drive on the network need to be designed carefully. If we make access to solo drivers too cheap for some drivers, it would threaten to undermine the lanes' ability to provide smooth and fast service to transit vehicles and carpools. In designing ways to provide equivalent benefits to low-income residents, the region needs to strike a balance between providing access into HOT lanes for low-income drivers and providing mobility for low-income residents via increased transportation choices.

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<sup>28</sup> USDOT & FHWA Primer, 2008. p19.

<sup>29</sup> LA Metro Factsheet, 2012. p2.

## RECOMMENDATIONS FOR EQUITY

- MTC should design and implement mitigations to ensure low-income families receive an equitable share of the benefits and do not bear a disproportionate burden of the HOT network. Mitigations may include access to the network itself, as well as transit investments.
- MTC should expand its Environmental Justice Analysis of the HOT lane network to include a primary research question concerning the distribution of benefits across different income and ethnic groups, based on differences in expected frequency of use of the HOT lanes.
- MTC should further expand its analysis to understand how low-income carpoolers may be affected by the switch from 2+ to 3+ occupancy requirements.

## CHOICE: INVEST IN TRANSPORTATION CHOICES

The HOT network needs to move more people so it can reduce greenhouse gas pollution, distribute benefits equitably, and reduce congestion. Decades of experience have shown us that building more and more highway lanes has not worked to build our way out of congestion. We need to increase the average number of people travelling in each vehicle. Transportation planners call this “average vehicle occupancy.” And we’ll only do that if we invest in expanding transportation choices: transit, vanpools, carpools, and other alternatives to solo driving.

This is not only good planning, it is good politics. For example, Seattle found that public support “grew substantially if a portion of the toll revenue was dedicated to transit.”<sup>30</sup> In the Bay Area, public acceptance of the HOT network will be more likely if drivers know that the tolls they pay on the HOT lanes will provide transportation choices that will either give them an option in the future, or that will provide other commuters with options that reduce the number of cars on the road.

Expanding transportation choices is also the best way to address the significant potential inequitable impacts of pricing described above. The Federal Highway Administration’s (FHWA) report on equity in HOT lanes states that “Low-income transit riders can benefit significantly from toll-financed transit improvements, which are generally included in any pricing package.”<sup>31</sup>

But the Bay Area’s HOT network has no plans to invest toll revenues into public transportation improvements.

**“Low-income transit riders can benefit significantly from toll-financed transit improvements, which are generally included in any pricing package.” -- FHWA**  
**But the HOT network has no plans to invest toll revenues to expand public transportation.**

<sup>30</sup> GAO report, p.27.

<sup>31</sup> USDOT & FHWA Primer, 2008. p19.

Many other regions have recognized the potentially inequitable impacts of HOT lanes and have designed mitigations to ensure low-income residents share in the benefits. When transportation planners in other parts of the country design their HOT networks, they plan for simultaneous improvements in transportation choices. These other areas support public transit, vanpooling, and in some cases access to the HOT lanes themselves, to allow low-income and people of color residents access to the fast lane. MTC's plans do not.

The following table shows what other regions have done to expand transportation choices, compared to what the Bay Area is planning.

**Table I. Transit Improvements Associated with HOT Projects**

LOCATION	IMPROVEMENTS
ATLANTA	Providing 36 new 57-passenger coaches, several new express coach routes, and two new Park and Ride lots that will create 1,900 additional Park and Ride spaces. <sup>32</sup>
LOS ANGELES	Adding 59 more clean fuel buses to routes along HOT corridors and has also expanded and updated transit facilities, all using initial project funding. <sup>33</sup>
MIAMI	Purchased 23 new articulated buses, added peak hour transit service on HOT corridor, and introduced three new transit routes. The HOT network will be used as the backbone for a bus rapid transit system subsidized through HOT revenues. <sup>34</sup>
MINNESOTA	Purchased 27 new buses are currently in operation on the new and expanded bus service on HOT lanes. <sup>35</sup>
SAN DIEGO	About 25% of I-15 project revenue goes directly to subsidize transit service on the HOT corridor. Revenues to transit total \$1M/year, \$12M since project inception. <sup>36</sup>
BAY AREA	No plans for transit expansion funded by or linked to HOT network.

<sup>32</sup> Georgia Department of Transportation Webpages: *I-85 Express Lanes*. Retrieved November 15, 2012.

<http://www.dot.ga.gov/travelingingeorgia/expresslanes/185expresslanes/Pages/default.aspx>

<sup>33</sup> LA Metro Webpages: *Metro ExpressLanes*. Retrieved March 12, 2013. <http://www.metro.net/projects/expresslanes/>

<sup>34</sup> USDOT Urban Partnership Agreement/Congestion Reduction Demonstration (UPA/CRD) Annual Report: Miami, FL I-95 Express Lanes. pp1-2. <http://www.upa.dot.gov/docs/fhwajpo11044/armiami1.pdf>

<sup>35</sup> USDOT UPA/CRD Annual Report: Minnesota: *Innovative Choices for Congestion Relief*. 2010. p2.

<http://www.upa.dot.gov/docs/fhwajpo11039/arminn1.pdf>

<sup>36</sup> Personal Communication with Helen Gao of San Diego Association of Governments (SANDAG) dated November 13, 2012.

San Diego’s system is an example of how other regions understand that transportation officials should increase transportation choices when introducing HOT lanes as an option for solo drivers. The Federal Highway Administration writes that “I-15 was the first project to demonstrate that implementing tolls as a demand management measure can play a major role in paying for transit and reducing the negative impact of this strategy on low-income individuals.”<sup>37</sup> Currently San Diego commuters can purchase a regional monthly transit pass for \$100/month for unlimited access to six express bus routes on I-15.<sup>38</sup> San Diego is now planning a massive expansion of transit and vanpooling, whose funding is tied to plans for an expanded HOT lane network.<sup>39</sup> The network plans to integrate Bus Rapid Transit through direct access at four transit stations along I-15.<sup>40</sup>

**Table 2. San Diego HOT Network Highlights**

PRESENT	<ul style="list-style-type: none"> <li>Revenues from San Diego’s HOT network provide \$1M per year in transit subsidies (about 25% of the I-15 Express Lane budget). To date these subsidies have totaled \$12M.<sup>41</sup></li> </ul>
	<ul style="list-style-type: none"> <li>San Diego has 749 vanpools that carry 5,900 daily passengers, reducing vehicle-miles traveled by 575,000 each day.<sup>42</sup></li> </ul>
	<ul style="list-style-type: none"> <li>Very sharp growth in vanpool usage since introducing a subsidy of \$400 per van per month.</li> </ul>
FUTURE	<ul style="list-style-type: none"> <li>Add 130 miles of Managed Lanes (current HOT network is 28 miles).<sup>43</sup></li> </ul>
	<ul style="list-style-type: none"> <li>Add 13 new BRT lines that take advantage of Managed Lanes, by 2020.<sup>44</sup></li> </ul>
	<ul style="list-style-type: none"> <li>Increase the number of vanpools from 749 to 1,124 by 2020.<sup>45</sup></li> </ul>
	<ul style="list-style-type: none"> <li>Increase carpools by 5,300 new carpools per year.<sup>46</sup></li> </ul>

<sup>37</sup> USDOT & FHWA Primer, 2008. p.11

<sup>38</sup> San Diego Metropolitan Transit System Webpages: *Dump the Pump!* Retrieved May 1, 2013.

<http://www.sdmts.com/marketing/dumpthepump.asp>

<sup>39</sup> SANDAG 2050 Regional Transportation Plan (RTP) dated October 2011. *Chapter 8: Demand Management: Innovative Incentives for Taking the Path Less Traveled.*

<http://www.sandag.org/uploads/2050RTP/F2050rtp8.pdf>

<sup>40</sup> 511 San Diego Webpages: *I-15 MTS Express Bus.* Retrieved May 1, 2013. <http://fastrak.511sd.com/i-15-mts-express-bus>

<sup>41</sup> Personal Communication with Helen Gao of SANDAG dated November 11, 2012.

<sup>42</sup> SANDAG 2050 RTP, 2011. *Chapter 8: Demand Management: Innovative Incentives for Taking the Path Less Traveled.* p8-6 <http://www.sandag.org/uploads/2050RTP/F2050rtp8.pdf>

<sup>43</sup> SANDAG 2050 RTP, 2011. *Chapter 6: Systems Development: Offering More Travel Choices.* p6-38, network image on p6-29.

<http://www.sandag.org/uploads/2050RTP/F2050rtp6.pdf>

<sup>44</sup> SANDAG 2050 RTP, 2011. *Chapter 6: Systems Development: Offering More Travel Choices.*

<http://www.sandag.org/uploads/2050RTP/F2050rtp6.pdf>

<sup>45</sup> Personal Communication with Antoinette Meier of SANDAG dated November 9th 2012.

<sup>46</sup> SANDAG 2050 RTP. 2011. *Chapter 8.* p8-7.



MTC is making important policy choices about how much of the system's revenues to use to *build* the network versus how much to use to help people *use* the network. Currently, these policy choices are out of balance: all of the system revenues are dedicated to building the network, with no funds committed to public transportation or other alternatives and not even a plan for those parallel transit expansions.

The Bay Area must change its HOT network from a highway-building program to one that supports transportation choices with HOT and other new revenues. These must be new revenues over and above those being used for existing services, and these new investments must support new service, on top of existing service.

## RECOMMENDATIONS FOR CHOICE

- MTC should dedicate at least 50% of HOT revenues to provide new transportation choices – transit, vanpools, carpools, and other alternatives to solo driving – along HOT corridors and to mitigate the network's impacts on low-income families.
- MTC should create a transportation choices expansion plan as part of the express lane network. This plan should include a commitment that with the opening of every new HOT lane, there will be a simultaneous improvement in transportation choices along the same corridor, over and above existing service.

## INNOVATION: OPTIMIZE EXISTING LANES, DON'T BUILD NEW ONES

The Bay Area is the home of innovation: high tech and biotech industries, world-class universities, and movements for social change that have reverberated across the United States and throughout the world. This makes it all the more disturbing that the Bay Area is not innovating when it comes to building this Express Lane Network. In addition to the flaws above, the proposed network accepts outdated policies that inflate network costs and limit the positive impacts it could have.

The description in the section above titled "What's Wrong with MTC's HOT Network" shows that MTC's proposed HOT lane network is prioritizing maximizing the number of highway miles in the system. Instead, MTC should change the HOT network to maximize the number of people who can travel. We need to move more people, not just more vehicles.

The network's shortcomings are most clear in its failure to provide solutions in some of most congested corridors in the region, such as US-101 in San Mateo County and I-880 in Oakland. This lack is due in large part to an unwillingness to consider innovative solutions.

Currently, most Bay Area studies of highway lanes only study a few options. Agencies will study adding a new HOV lane with new construction and, as with MTC's network, adding an HOT lane with new construction. MTC and Santa Clara Valley Transportation Authority (VTA) networks both consider converting existing HOV lanes to HOT lanes. Very occasionally an agency will study converting an

**“We’re stuck with 1970s thinking in a world that has changed so much in so many other ways.”**

existing mixed flow lane into an HOV lane. But no agency, to our knowledge, has considered converting an existing mixed flow lane into an HOT lane *and* using the revenue to dramatically increase transit, vanpool, and other transportation demand management (TDM) measures along the same corridor. This is a failure of imagination and a failure of planning.

HOT lanes should attempt to make more cost-effective and efficient use of existing highways through by congestion pricing. But Caltrans' orthodoxy holds that it is not acceptable

to convert an existing mixed flow lane to a high-occupancy lane. This is based on one bad experience in Southern California in the 1970s.<sup>47</sup> This practice, reinforced by state legislation,<sup>48, 49</sup> severely limits the Bay Area's ability to implement a more innovative and efficient HOT network that focuses on moving more people in the fast lane. The result is that the Bay Area and other places keep trying to build our way out of congestion. We're stuck with 1970s thinking in a world that has changed so much in so many other ways. Caltrans and MTC must start considering converting existing lanes and using the revenue to dramatically improve public transportation, vanpools, and TDM.

There is some planning rationale for prohibiting conversions from mixed flow lanes to HOV. In places where there are too few HOV vehicles to fill the converted HOV lane, a conversion could result in a dramatic increase in congestion in the mixed flow lanes next to a significantly under-used HOV lane. This could cause the same kind of backlash Caltrans experienced in 1976 in Santa Monica.

But a properly-managed HOT lane should not have the same problem. If managed properly, a HOT lane (converted from a mixed flow lane) should be able to use dynamic pricing to ensure free flow of 45mph-plus. Free flow at 45 mph-plus should carry as many, if not more, vehicles as the previous

<sup>47</sup> Markham, Kelly. *District 7 Reaches HOV Milestone: 500 Lane Miles and Counting!* Inside 7 from Caltrans, July 2010. [www.dot.ca.gov/dist07/Publications/Inside7/story.php?id=518](http://www.dot.ca.gov/dist07/Publications/Inside7/story.php?id=518) California's first HOV lane opened in 1976 (the El Monte Busway, originally a bus-only facility, began allowing 3+ vehicle pools). Also in 1976, a mixed flow lane on the Santa Monica Freeway (I-10) was converted to a 3+ carpool lane. This resulted in extremely congested mixed flow lanes and an empty HOV lane. Public outcry over the conversion led to its reversal. Since then Caltrans policy has been to never establish an HOV lane by conversion. Since then, there has never been a California study to observe and evaluate the feasibility of mixed flow conversion to high occupancy.

<sup>48</sup> AB 798 was approved into California Government Code §64112b. It specifies that every "highway project for which tolls are imposed shall have nontolled alternative lanes available for public use in the same corridor as the proposed toll project. Nothing in this division shall allow the conversion of any existing nontolled or non-user-fee lanes into tolled or user-fee lanes, except for the conversion of high-occupancy vehicle lanes into high-occupancy toll lanes."

<sup>49</sup> Gress, Jennifer. *Bill Analysis: AB 798 (Nava)*. June 24, 2009. Retrieved May 2, 2013. [http://leginfo.public.ca.gov/pub/09-10/bill/asm/ab\\_0751-0800/ab\\_798\\_cfa\\_20090706\\_112725\\_sen\\_comm.html](http://leginfo.public.ca.gov/pub/09-10/bill/asm/ab_0751-0800/ab_798_cfa_20090706_112725_sen_comm.html). This requirement for HOT facilities is based overwhelmingly on the criticism that toll roads act as a "double tax" on users, elaborating that drivers already pay fuel taxes to support transportation and that HOT users would be burdened by an additional fee, the burden tolls place on low-income households.

mixed flow lane. With higher average vehicle occupancy, the converted HOT lane will definitely carry more people. By saving millions per mile in reduced construction costs, the lane will have net revenues. Those net revenues can be used to provide more people with more transportation choices. The result is a win-win-win: more service and choices for current and potential transit riders, a quicker ride for carpoolers, and a new option (at a price) for solo drivers.

**“This optimize-a-lane approach has the potential to move more people at lower cost, with less pollution, and a more equitable distribution of benefits and costs, than the alternatives.”**

Anywhere there are at least four mixed flow lanes each direction in the existing highway, MTC, the relevant CMA, and Caltrans should consider more than just the “new HOT with no transit” option currently planned for MTC’s network. The agencies should also consider an “optimize-a-lane” approach: convert one lane into an HOT lane and use some of the revenue to support aggressive new public transportation, vanpool, carpool, and other alternatives to solo driving along the corridor. This optimize-a-lane approach has the potential to move more people at lower cost, with less pollution, and a more equitable distribution of benefits and costs, than the alternatives.

The other alternatives are not enough. Adding a fifth lane in each direction as HOV usually has high costs, increases pollution, and does not carry enough people. This is particularly true where freeways are physically constrained, such as along US-101 in San Mateo County and I-880 in Oakland. In these cases, adding a fifth lane in each direction generally would entail unacceptable takings of private property through eminent domain or the huge costs of putting new lanes overhead.

We have one agency in the region that is starting to innovate. The City/County Association of Governments of San Mateo County (C/CAG) is about to embark on a study to consider what they are calling a ‘Hybrid HOV’ lane along US-101.<sup>50</sup> It is a ‘hybrid’ because it combines conversion of existing auxiliary lanes<sup>51</sup> and new construction at interchanges. The combination is planned to provide a fifth lane and allow an HOV lane plus four continuous mixed flow lanes. C/CAG is considering this because it found that the cost of an entirely new lane to be too prohibitive: over \$20 million per mile for new construction compared to \$11-17 million/mile for the ‘hybrid’ option. Of course, the conversion option is even cheaper, less than \$1 million/mile.<sup>52</sup>

C/CAG’s ‘hybrid’ approach is a step forward, but the relevant agencies should take the next step and consider the optimize-a-lane approach along the same corridor. Doing so without construction at the interchanges could be done much sooner and more cheaply than the approach C/CAG is about to study. By using HOT revenues to make simultaneous investments in transportation choices along the

<sup>50</sup>City/County Association of Governments of San Mateo County (C/CAG) Meeting Minutes dated October 11, 2012: *Meeting No. 250*. p3.

<sup>51</sup> Auxiliary lanes are lanes that run between exits but are not fully continuous.

<sup>52</sup> *San Mateo – 101 HOV Lane Feasibility Study*. Dowling/Kittleson & Associates, Inc., June 2012, unpublished.

same corridor, we could move more people along the corridor. This is especially true for the US-101 corridor, which has so much private transit in employee shuttle buses.<sup>53</sup>

TransForm has engaged a former C/CAG planner to conduct a scenario analysis for this corridor and plans to work with C/CAG and other relevant agencies to encourage consideration of the optimize-a-lane approach. MTC and the CMAs should be considering the same approach along several other corridors.

Areas such as I-880 in Oakland, other stretches of US-101, and CA-24 are ripe for considering a package in which one existing lane is converted to an HOT lane and a majority of the resulting revenue is used to support aggressive new transportation choices. The optimize-a-lane may not work in every situation, but it must be considered at least in every situation where there are four or more mixed flow lanes in each direction, without an existing HOV lane.

We recognize that there will be political and legislative obstacles to the optimize-a-lane approach. It is not something that MTC, an individual CMA, or Caltrans can do unilaterally.

There will be drivers who object to having an existing mixed flow lane, built with taxpayer dollars, converted to a tolled facility. But there are also many who object to our highways' current conditions, choked with congestion and lacking sufficient choices to avoid it. Many drivers, carpoolers, and transit riders would benefit from this new approach. We believe the optimize-a-lane approach can move more people at less public cost than MTC's current plans, many of which amount to "new highway lanes with no new transit." There are compelling reasons to believe the optimize-a-lane approach would work. We should at least study it in several locations and try it in a few.

MTC proposes to widen highways to build new HOT lanes. Because of the high capital costs for those highway widenings, the network provides no money for transportation choices. If we don't at least try something new, MTC will be stuck with its current business-as-usual plan of building new lanes only to see them become congested before too long.

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<sup>53</sup> Tweney, Dylan. *Corporate Busses Taking Over Silicon Valley*, Venturebeat, September 24, 2012. <http://venturebeat.com/2012/09/24/shuttle-buses-taking-over-silicon-valley-awesome-visualization-shows/>

## RECOMMENDATIONS FOR INNOVATION

- Along with the relevant CMA and Caltrans, MTC should study the “optimize-a-lane” approach (defined above) before pursuing new-construction projects in MTC’s Phase II (after 2015) or beyond, and for any congested corridor with at least 8 mixed flow lanes and no HOV lanes.
- MTC and a CMA should seek approval from Caltrans, the state legislature, and if necessary federal authorities to try the “optimize-a-lane” approach in at least two Bay Area locations.
- MTC should ensure that all environmental analyses of the HOT network recognize the impacts of induced demand.
- MTC should ensure that the overall impact of the HOT network itself – through combined effects of the road network and transit improvements funded by HOT revenues – reduces GHGs, separate from the analysis of whether the overall SCS reduces GHGs.

## CONCLUSION: MOVE MORE PEOPLE

The priority of the Bay Area's HOT network should be to move more people. The gauge of success should be how many people are served per dollar of investment. The gauge of success should not be how extensive the network is, or how many miles of roadway are built. Incorporating mitigations for equity, choice, and innovation will create a more balanced plan.

MTC's proposed HOT plans, which would build new highway lanes without new transportation choices, will sink the vast majority of drivers' tolls into another fruitless attempt to build our way out of congestion. If we don't change course, we will spend 20 plus years paying off construction bonds with driver tolls that could have been used to provide more people with more choices.

The Bay Area could have a regional highway network in which public transportation and high-occupancy vehicle lanes seamlessly connect residents to the region's job centers, providing convenient and swift connections throughout the region. If planned as a system, one that sells excess system capacity to non-carpool vehicles, this could help the Bay Area meet our region's goals—reducing greenhouse gas emissions and achieving other environmental, economic, equity, and health targets—while also providing new transportation choices that maximize the benefit for all residents.

## GLOSSARY OF TERMS

C/CAG	City/County Association of Governments of San Mateo County
CMA	congestion management agency
CTC	California Transportation Commission
FHWA	Federal Highway Administration
GAO	Government Accountability Office
GHG	greenhouse gas
HOT	high occupancy toll
HOV	high occupancy vehicle
MTC	Metropolitan Transportation Commission
RTP	Regional Transportation Plan
SANDAG	San Diego Association of Governments
SCS	Sustainable Communities Strategy
TDM	transportation demand management
UPA/CRD	Urban Partnership Agreement/Congestion Reduction Demonstration
USDOT	United States Department of Transportation
VTA	Santa Clara Valley Transportation Authority

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