



NAPA VALLEY TRANSPORTATION AUTHORITY

TAC Agenda Letter

TO: Technical Advisory Committee
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SUBJECT: Draft Countywide Transportation Plan: *Advancing Mobility 2045*
Project Scenarios Update

RECOMMENDATION

Information only

EXECUTIVE SUMMARY

Napa Valley Transportation Authority (NVTA) staff received projects from jurisdictions and assessed the projects using the NVTA Board-adopted goals and objectives in the draft countywide plan, *Advancing Mobility 2045*. Staff presented these assessment results to the TAC at its November 2020 meeting. NVTA conducted one more round of project assessment by inputting the draft Plan's projects into NVTA's travel model to understand the impact of projects on Napa County's future road network. Four different scenarios were analyzed:

1. Scenario 1. Basic Plan Projects (Basic Plan) - This scenario includes all the projects in the draft Plan that can be modeled *except* express bus frequencies of 30 minutes.
2. Scenario 2. Investment Plan with Improved Express Bus Service (Proposed Plan) - This scenario includes all the projects in the draft plan that can be modeled *including* express bus frequencies of 30 minutes and Enhanced Express Bus Route Frequency. Under this scenario, regional Route 10 and Route 11 buses would run every 30 minutes during the morning and afternoon commute peak periods (currently these routes run approximately every hour).

3. Scenario 3. Investment Plan with Enhanced Express Bus Service and Free Local Transit (Transit +) - This scenario includes all the projects in the draft plan that can be modeled. It also includes running regional bus routes 10 and 11 every 15 minutes and providing free fares on local bus service.
4. Scenario 4. Investment Plan with SR – 29 Capacity Expansion (Lanes +) - This scenario includes all the projects in the draft Plan that can be modeled *except* express bus frequency to 30 minutes. This scenario also includes a project to widen SR-29 from 2 lanes to 3 lanes in each direction between American Canyon Road and South Kelly Road.

A summary of the Plan's future scenarios are provided in Attachment 1.

BACKGROUND AND DISCUSSION

The Metropolitan Transportation Commission (MTC) requires NVTa to develop a 25-year long-range countywide transportation plan (CTP) to support regional planning and programming efforts and to prioritize local projects. This effort informs MTC's Regional Transportation Plan (RTP) and the Sustainable Communities Strategy (RTP/SCS) which are updated every four years. The new Countywide Transportation Plan – *Advancing Mobility 2045*, will be completed before the next regional transportation plan – Plan Bay Area 2050. *Advancing Mobility 2045* is scheduled for adoption by the NVTa Board in spring 2021.

As part of this current RTP and CTP cycle, projects were submitted by jurisdictions, and the project list was evaluated by the NVTa and DKS, the Plan's consultant team. Projects from that list were selected and entered into NVTa's recently validated and calibrated activity-based travel model. By inputting projects into the travel model, staff is able to forecast how the future road network will be impacted by projects in the Plan. Due to the large size of the travel model and its derivation from MTC's regional model, not all projects can be evaluated by the model. Program categories such as local street and road rehabilitation, sidewalk gap closures, intersection reconfiguration and signal installations are also not included in the modeling exercise because these programs do not yield the granular-level data required for the travel model output to be meaningful.

The next step in the draft Plan process is to develop an investment strategy. This will involve NVTa compiling a comprehensive list of funding sources, project the the amount of funds it anticipates to receive from each source over the next 25 years and apportion the funds to the projects proposed in the plan.

SUPPORTING DOCUMENTS

- (1) CTP 2045 Alternative Future Scenarios

INTRODUCTION

The first chapter of this plan described current transportation patterns and the importance of mobility to Napa County's communities and economy. The next chapter described some of the strategies that NVTA is employing to move towards a more equitable, safe, efficient, economically vital, and sustainable transportation system that also prioritizes keeping the existing network in good repair.

The NVTA TDM is a model of typical weekday travel patterns for the entire Bay Area but with focused detail on Napa County. Based on a travel demand model maintained by the Metropolitan Transportation Commission (MTC) – Travel Model 1.5 – the NVTA TDM has been calibrated and validated to a year 2015 baseline. The model reproduces all trips by travel mode by modeling the individual daily travel patterns of a synthesized population. Future year 2040 conditions can be modeled with assumptions about future growth in population and jobs alongside future transportation network improvements.

This chapter presents a list of projects that NVTA and its member jurisdictions have agreed to seek funding for and hope to implement over the next 25 years. Many of the projects considered can be incorporated into NVTA's Travel Demand Model to predict how they might affect system performance in the future¹. Four alternative project packages were developed to test the relative effectiveness of the scenarios with respect to mode share, vehicle miles traveled (VMT), and person hours of delay.

ALTERNATIVE FUTURE SCENARIOS

SCENARIO 1 –BASIC PLAN PROJECTS ("PLAN BASIC")

This scenario includes all the projects in the Investment Plan that can be modeled (see Section 5.3) *except* Project #67, which increases express bus frequency to 30 minutes.

SCENARIO 2 - INVESTMENT PLAN WITH IMPROVED EXPRESS BUS SERVICE (PROPOSED PLAN)

This scenario includes all the projects in the Investment Plan that can be modeled (see Section 5.3) *including* Project #67, Enhanced Express Bus Route Frequency. Under this scenario, regional Route

¹ The mode choice models in the NVTA TDM are primarily sensitive to travel time and cost. Therefore, the model can be used to predict the effects of projects that change roadway capacity (number of lanes), roadway connectivity, driving costs, transit fares, and transit frequency. Other types of projects, while important and supportive of Advancing Mobility 2045 goals, cannot be reflected in a regional scale travel demand model such as the NVTA TDM.

10 and Route 11 buses would run every 30 minutes during the morning and afternoon commute peak periods (currently these routes run approximately every hour).

SCENARIO 3 – INVESTMENT PLAN WITH ENHANCED EXPRESS BUS SERVICE AND FREE LOCAL TRANSIT (“TRANSIT+”)

This scenario includes all the projects in the Investment Plan that can be modeled (see Section 5.3). In addition, regional bus routes 10 and 11 would run every 15 minutes and local bus service would be provided free of charge (zero fare).

SCENARIO 4 – INVESTMENT PLAN WITH SR-29 CAPACITY EXPANSION (“LANES+”)

This scenario includes all the projects in the Investment Plan that can be modeled (see Section 5.3) *except* Project 67, increased express bus frequency. This scenario also includes a project to widen SR-29 from 2 lanes to 3 lanes in each direction between Napa Junction road and South Kelly Road.

FUTURE PERFORMANCE – KEY FINDINGS

Table 1 summarizes the results of the model runs for the 2015 baseline and the four alternative 2040 scenarios.

As shown in Figure 1, overall demand in terms of daily person trips is expected to increase by approximately 19% from 2015 to 2040.

Given the predominance of automobile travel, the differences among the future scenarios can be subtle.

- Figure 2 shows the percent change in number of trips by mode for Scenarios 2 and 3 as compared to the “Plan Basic” scenario.
- Figure 3 shows the percent change by mode for Scenario 4 (Lanes+) as compared Scenario 2 (Proposed Plan) scenario

Figure 4 compares all the future scenarios with respect to mode share to the Plan Basic scenario. As shown, the biggest decrease in transit mode share is seen with Scenario 4 (Lanes+) while the biggest increase is with Scenario 3 (Super Transit). The drive alone mode share is decreased somewhat with Scenarios 2 and 3 which offer improved transit service.

Figure 5 compares the daily VMT that occurs in Napa by future scenario. The lowest VMT is associated with Scenario 3 (Super Transit) and the highest with Scenario 4 (Lanes+).

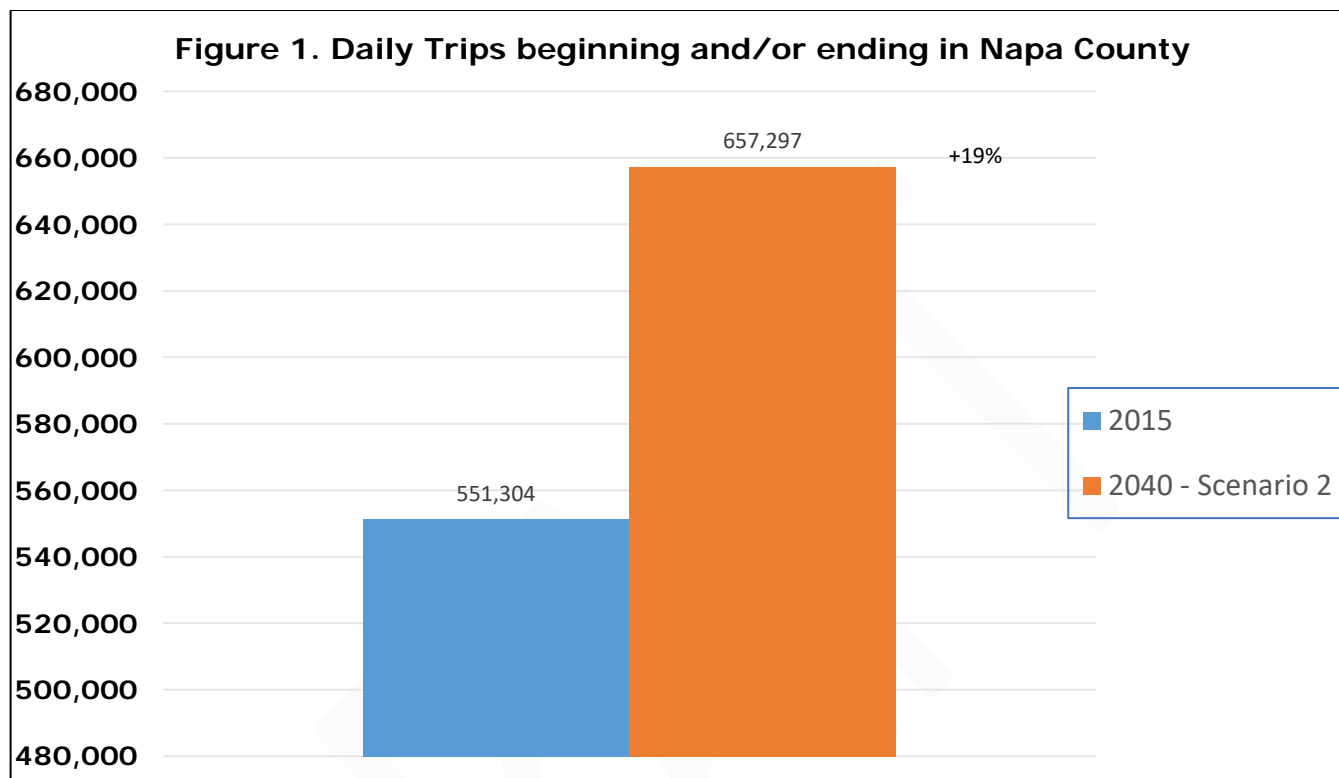
Figure 6 compares the daily person hours of delay associated with trips beginning or ending in Napa County. The highest level of delay is associated with Scenario 1 (Plan Basic). While Scenario 4 (Lanes+) is associated with somewhat reduced delay compared to Plan Basic, the reduction in delay only occurs on a relatively short stretch of roadway and affects fewer trips. In contrast, the improved levels of transit service associated with Scenarios 2 and 3 reduce waiting times for a larger number of trips and are associated with greater overall reductions in delay.

TABLE 1 SUMMARY

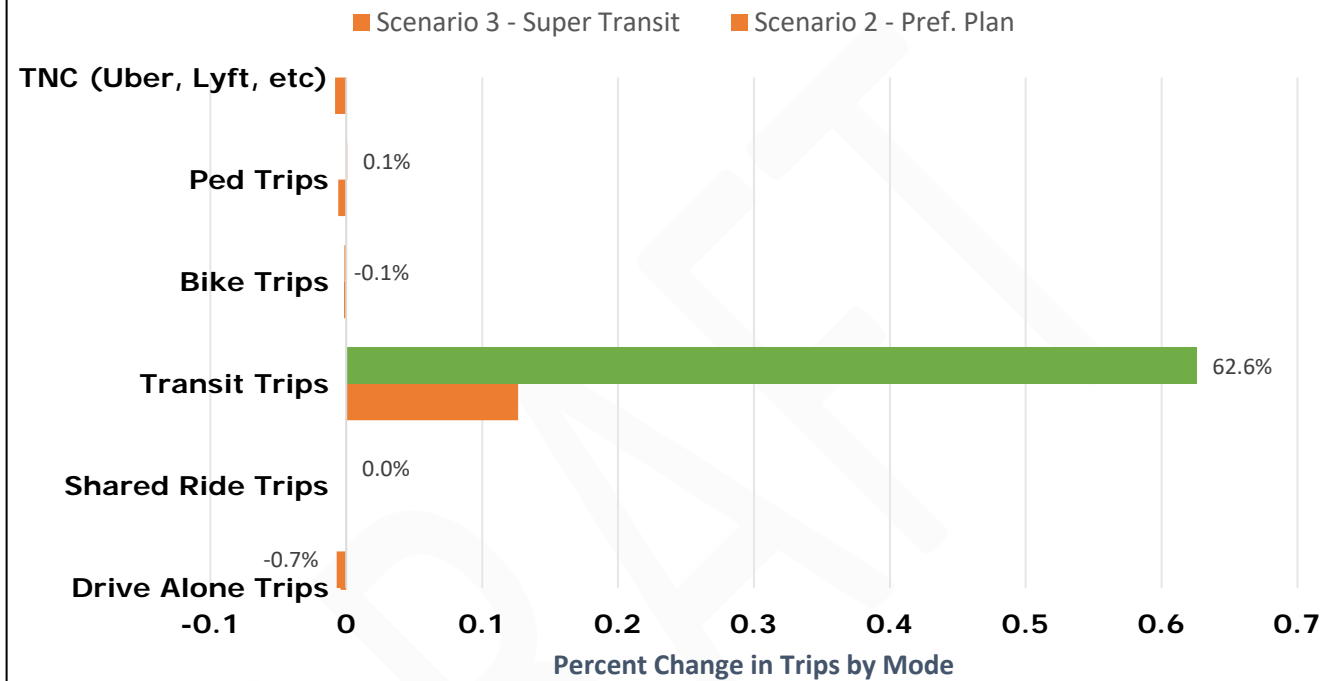
Metric	2015 Conditions Baseline	Scenario 1 Plan Basic	Scenario 2 - Preferred Plan		Scenario 3 - Super Transit		Scenario 4 - Lanes+	
		(1)	(2)	Difference from (1)	(3)	Difference from (1)	Scenario 4 - Lanes+	Difference from (2)
Drive Alone Mode Share	57.03%	58.44%	58.12%	-0.31%	57.96%	-0.48%	58.44%	0.54%
Shared Ride Mode Share	31.68%	30.70%	30.67%	-0.02%	30.66%	-0.03%	30.70%	0.07%
Transit Mode Share	1.00%	0.92%	1.04%	0.12%	1.50%	0.58%	0.92%	-11.13%
Bike Mode Share	1.49%	1.36%	1.36%	0.00%	1.36%	0.00%	1.36%	0.29%
Ped Mode Share	7.21%	6.95%	6.90%	-0.05%	6.95%	0.00%	6.95%	0.70%
TNC (Uber, Lyft, etc)	1.58%	1.63%	1.62%	-0.02%	1.57%	-0.06%	1.63%	0.93%
Total VMT	2,831,209	3,862,312	3,849,521	-0.3%	3,844,006	-0.5%	3,863,409	0.4%
Delay	5,468	19,428	18,938	-2.5%	18,919	-2.6%	19,213	1.5%

Notes: Mode shares based on average daily person trips with origin and/or destination in Napa County. Total VMT is daily and occurring on Napa County roadways. Delay is total daily person hours of delay for trips beginning or ending in Napa County

Source: NVTA Travel Demand Model.



**Figure 2. PERCENT CHANGE IN TRIPS BY MODE
COMPARED TO "PLAN BASIC" SCENARIO**



**Figure 3. PERCENT CHANGE IN TRIPS BY MODE
"LANES+" COMPARED TO PROPOSED PLAN "
SCENARIO**

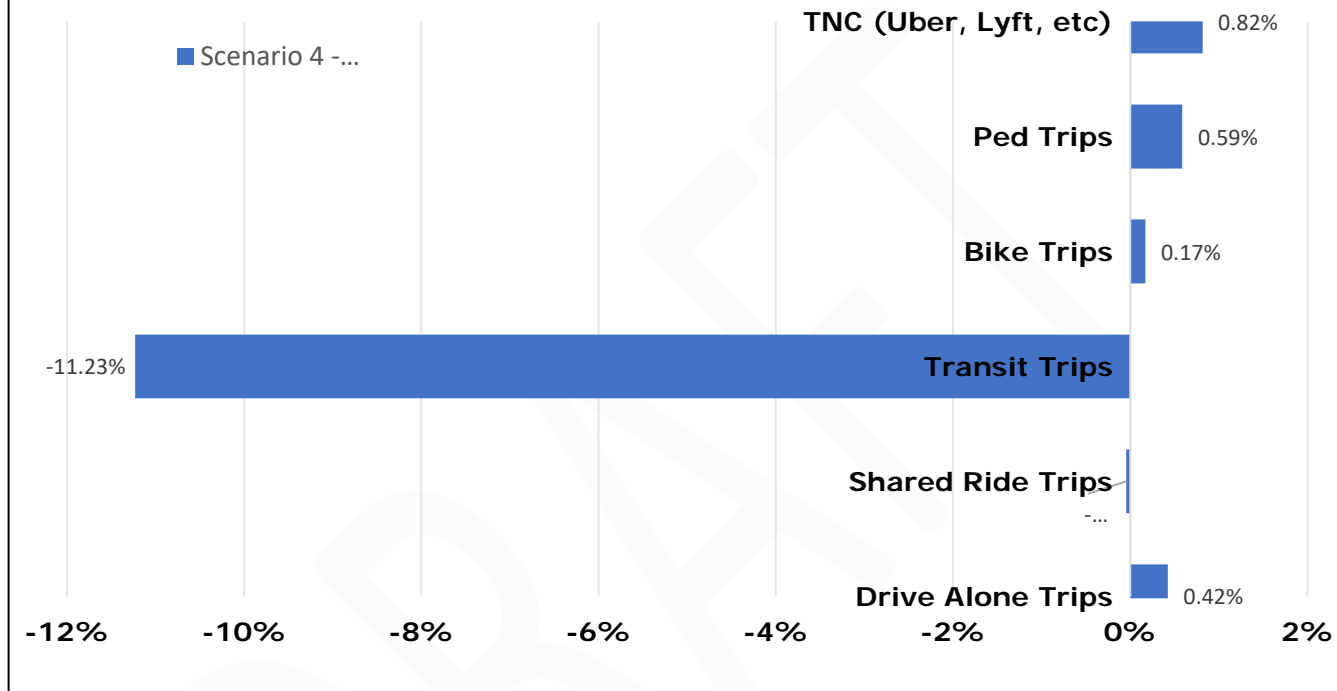


Figure 4a– Scenario 1 (Plan Basic) Mode Shares

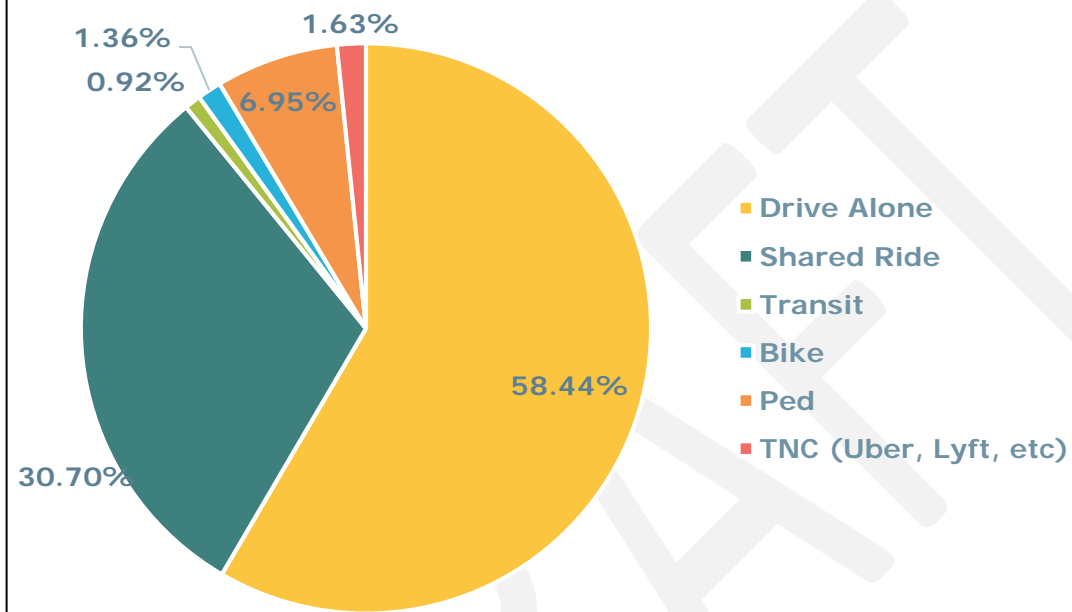
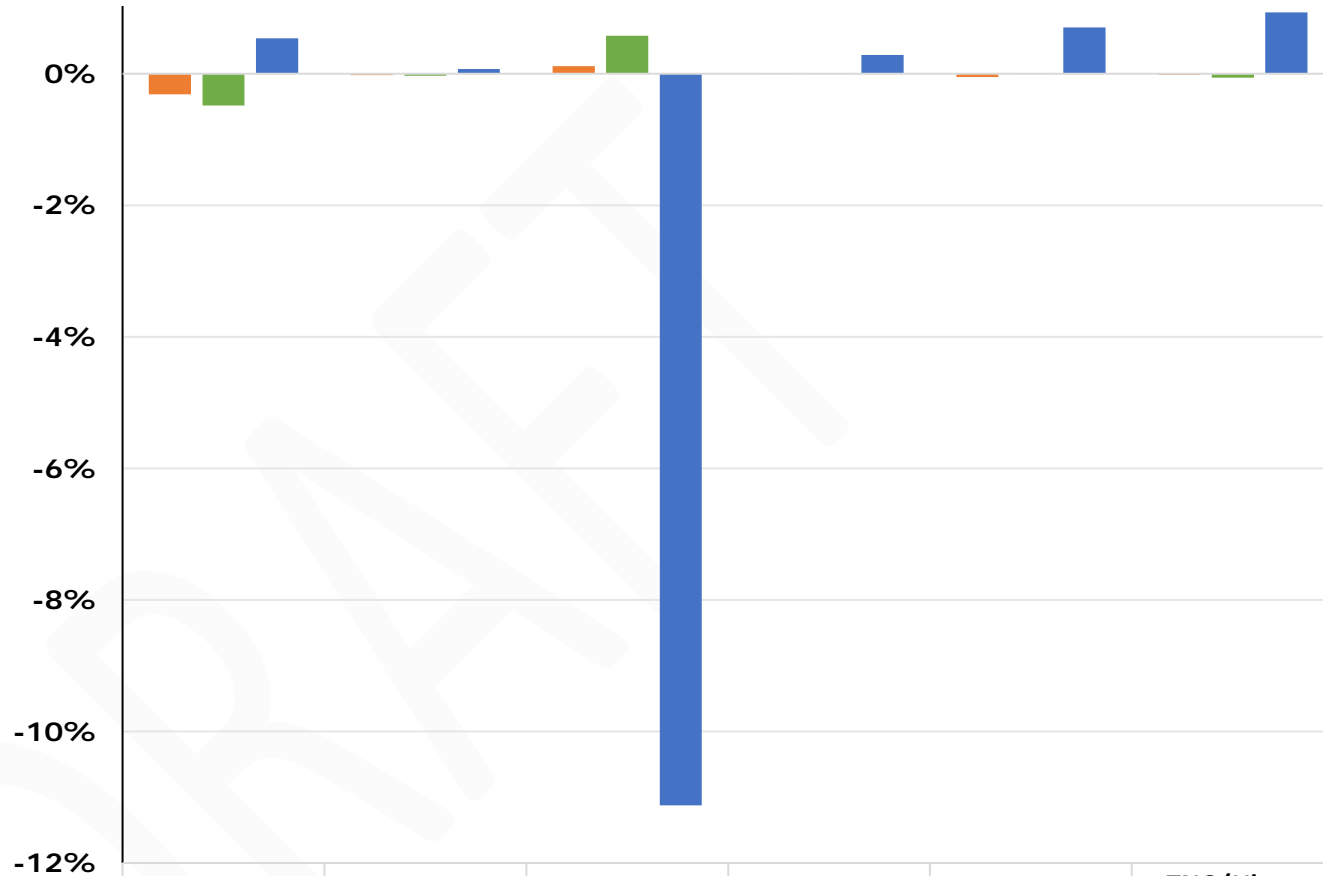


Figure 4b. CHANGE IN MODE SHARE – COMPARISON TO "PLAN BASIC" SCENARIO



	Drive Alone	Shared Ride	Transit	Bike	Ped	TNC (Uber, Lyft, etc)
Scenario 2 - Pref. Plan	-0.31%	-0.02%	0.12%	0.00%	-0.05%	-0.02%
Scenario 3 - Super Transit	-0.48%	-0.03%	0.58%	0.00%	0.00%	-0.06%
Scenario 4 - Lanes+	0.54%	0.07%	-11.13%	0.29%	0.70%	0.93%

Figure 5. AVERAGE WEEKDAY VMT BY FUTURE SCENARIO

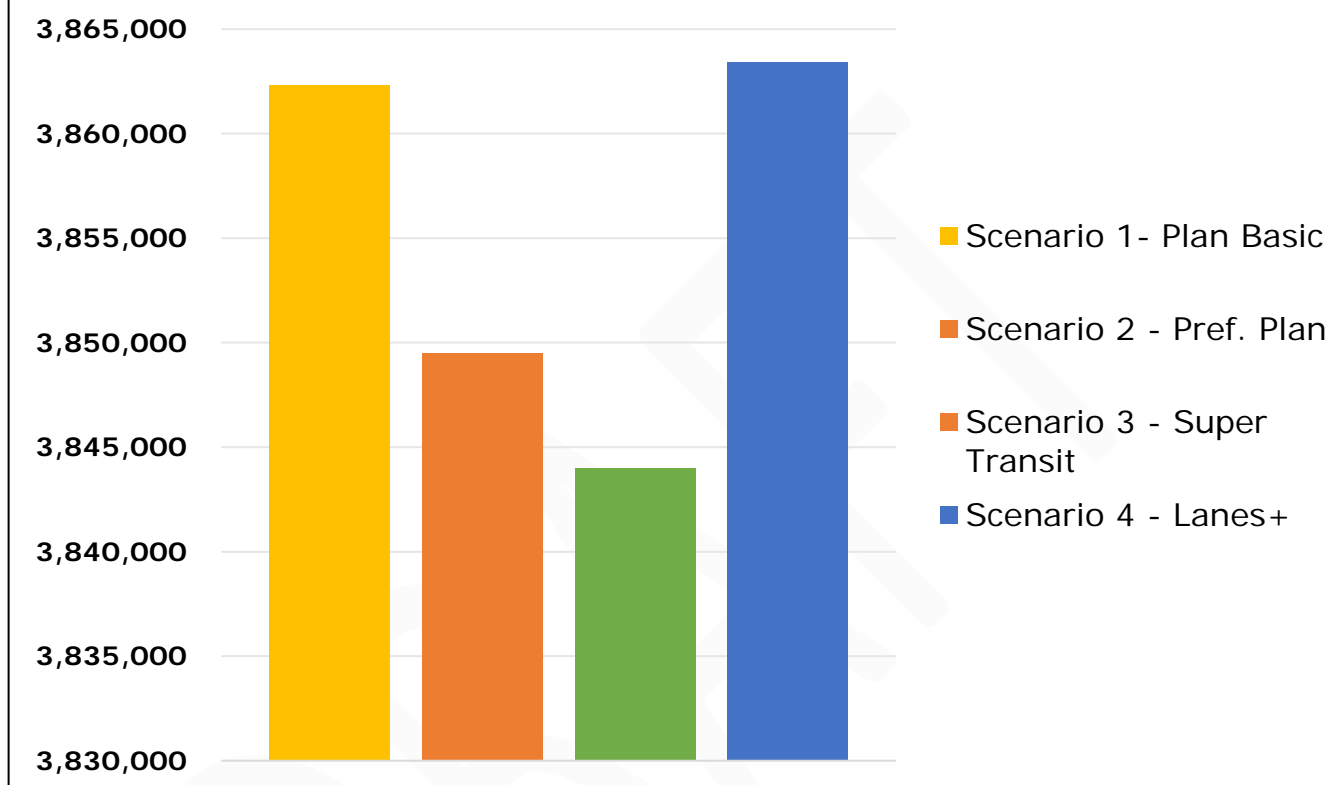


Figure 6. HOURS OF DELAY BY FUTURE SCENARIO

