#46

LATE DISTRIBUTION

DATE 12/6/16

EDC COB <edc.cob@edcgov.us>

Dec. 6, 2016 BOS Meeting-TIM Fees

BOS 12/6/16

3 messages

Joe Harn <joe.harn@edcgov.us> Mon, Dec 5, 2016 at 4:52 PM
To: The BOSTWO <bostwo@edcgov.us>, The BOSONE <bosone@edcgov.us>, The BOSFOUR <bosfour@edcgov.us>, The BOSTHREE <bosthree@edcgov.us>, Sue Novasel <sue.novasel@edcgov.us>, EDC COB <edc.cob@edcgov.us>, James Mitrisin <jim.mitrisin@edcgov.us>, Donald Ashton <don.ashton@edcgov.us>, Michael Ciccozzi <michael.ciccozzi@edcgov.us>, David Livingston <david.livingston@edcgov.us>, Brian Veerkamp <brian.veerkamp@edcgov.us>, The BOSFIVE <bosfive@edcgov.us>, Claudia Wade <claudia.wade@edcgov.us>, Roger Niello <roger.niello@edcgov.us>, Shiva Frentzen <shiva.frentzen@edcgov.us>
Cc: Ruth Young <ruth.young@edcgov.us>

Dear Board Members,

I am concerned about the proposal to reduce the TIM Fees in El Dorado Hills. It is my opinion that reducing the TIM Fees in the El Dorado Hills Area could have an adverse effect on the County's ability to mitigate the traffic problems caused by new development unless we start negotiating Development Agreements (DAs) with residential real estate developers that are more favorable to the County.

Effective immediately, we need to offer TIM Fee Credit/reimbursement agreements that are less favorable to residential real estate developers. In all cases, the County should seriously consider conditioning DAs for residential real estate developers to require that the developer make necessary road improvements with either significantly delayed reimbursement or without any reimbursement from the County.

Conceptually, I support lowering the TIM Fees in El Dorado Hills if effective immediately we negotiate better DAs.

Joe Harn
Auditor-Controller
El Dorado County

EDC COB <edc.cob@edcgov.us> Mon, Dec 5, 2016 at 5:05 PM
To: James Mitrisin <jim.mitrisin@edcgov.us>

Hey Jim - Should I attach to the item? Thanks, Kim

Office of the Clerk of the Board
El Dorado County
330 Fair Lane, Placerville, CA 95667
530-621-5390

[Quoted text hidden]

Jim Mitrisin <jim.mitrisin@edcgov.us> Mon, Dec 5, 2016 at 5:40 PM
To: EDC COB <edc.cob@edcgov.us>

Yes. Thanks.

Jim Mitrisin
Clerk of the Board

[Quoted text hidden]

EDCAR
EL DORADO COUNTY ASSOCIATION OF REALTORS®
"Serving the Realtors - Serving the People"

December 5, 2016

El Dorado County Board of Supervisors
Clerk of the Board; Email edc.cob@edcgov.us
330 Fair Lane, Building A
Placerville, California 95667
Attention: Honorable Ron Mikulaco, Chair
Honorable Shiva Frentzen
Honorable Brian Veerkamp
Honorable Michael Ranalli
Honorable Sue Novasel

Claudia Wade, EDC Senior Civil Engineer; Email Claudia.wade@edcgov.us
El Dorado County Community Development Agency, Long Range Planning Division
2850 Fairlane Ct, Placerville, CA 95667

Re: BOS Meeting on December 6, 2016 – Agenda Item #46 – Legistar File 14-0245
Major Capital Improvement Program (CIP) and Traffic Impact Mitigation (TIM) Fee Update – Adoption of CIP and TIM Fee Program

Honorable Members of the Board of Supervisors and Ms. Wade,

The El Dorado County Association of Realtors (EDCAR) is IN FAVOR of the El Dorado County Planning Commission recommendation and the staff's recommendation to adopt the following:

1. Adopt Resolution 189-2016 and certify the EIR for the proposed Western Slope Roadway Capital Improvement Program and Traffic Impact Mitigation Fee Program for the County
2. Adopt the Mitigation Monitoring and Reporting Plan
3. Adopt Resolution 190-2016 amending the General Plan Transportation and Circulation Element
4. Approve the 2016 Capital Improvement Program (CIP) Book
5. Adopt Resolution 191-2016, which includes the updated Traffic Impact Mitigation (TIM) Fee Nexus Study
6. Authorize the Auditor-Controller to create new TIM Fee accounts
7. Approve and Authorize a budget transfer

8. Approve the Introduction (First Reading) of Ordinance 5044, adding a new Chapter establishing regulations for Frontage Improvements on County Roadways
9. Approve the Introduction (First Reading) of Ordinance 5045, amending Chapter 12.28 of the Ordinance Code
10. Approve Second Readings of Ordinances 5044 and 5045 at a subsequent meeting(s)

The Major CIP and TIM fee update has been an important endeavor consuming many years of time and financial resources exceeding $2 Million. Each facet over the years has been well vetted by the county and the public, and its conclusion is a benefit to all. One component for your consideration today is the reduction of TIM fees on residential development throughout the county, and EDCAR believes this will benefit the entire community by encouraging the construction of housing for the very low, low and moderate income earners, and our senior citizens. And the reduction of TIM fees on commercial development, combined with the opportunity for the construction of work force housing, should encourage the construction of new commercial properties and the expansion of existing commercial industry.

EDCAR requests you vote in favor of Item 46, Legistar File 14-0245, regarding the counties CIP and TIM Fee Program, scheduled on your December 6, 2016 Meeting Agenda.

Sincerely,

Kimberly Beal

Kimberly Beal
Government Affairs Director
kimberlyabeal@gmail.com

Cc: Mike Southwick, EDCAR President
Phyllis Bartosh, EDCAR Executive Officer

Dec. 5, 2016

Honorable Chairman Mikulako
El Dorado County Board of Supervisors

Re: Item 46 - Hearing on Impact fees Public Comment

Dear Chairman Mikulako,

The county is still collecting fees justified from data and studies from the 1990's when growth was robust. Things have changed dramatically but the county still uses the old studies to justify the current fees. The five year nexus update has taken over 5 years and is demonstrative of staff's gross negligence and incompetence. The county staff has failed to meet requirements to update the nexus findings and as a result the county has been sued. Staff watched idly as growth rates dropped 300% and permits dropped to 15 per year. The need for mitigation projects evaporated with the stoppage in growth. If the county reviews impact fee data yearly, they did not make the corresponding reductions to the fees.

The Austin lawsuit only encumbered the cash funds in the fee accounts per the Mitigation Fee Act (MFA). We believe the county collected additional fees totaling over $33,000,000 without a legal merit because of the failure to make nexus findings. We made claims 4 years ago of nexus failure based on low permit numbers after a significant 5 year decline. We also observe the county is still collecting traffic mitigation fees for safety studies, HOV lanes, depreciated facilities, inter-regional traffic , bicycle accommodations, and existing deficiencies. Our members paid fees during this time period and are harmed parties. We are demanding that fees be refunded to owners of record for parcels having paid the fee within the last 4 years. We assert traffic impact fees were collected without a valid nexus and thus are illegal taxes and should be returned.

We do not believe this new nexus study will pass a legal challenge. Measure E restricts impact fees to be used within the zone that fees were collected in. A project may be in a zone but have significant impacts in an adjacent zone leaving those impacts unfunded according to E. This leaves someone paying less than their fair share for their impacts – this is not fully funding impacts as is required in the general plan.

Staff's Arbitrary External Trip Calculations.

Several other issues regarding nexus failures have become apparent. Staff has failed to appropriately quantify, deduct, and address impacts of external trips on impact fees and Level

of Service (LOS) for our roads and highways. For example according to the Mitigation Fee Act, (gov. code 66000) new development doesn't have to pay for other's impacts. New residential homes are protected in this act from paying for traffic impacts caused by Sacramento, Jan Jose, Lake Tahoe, Placerville, or the Shingle Springs Rancheria Casino traffic. When traffic passes through the county, those thru trips also impact the Level of Service and remaining capacity. External trips are exponentially increasing because of surrounding inter-regional growth. Growth in Folsom and Rancho Cordova will add over 70,000 new homes while our county forecast 17,000 in 20 years. They use our roads now and the condition will worsen consuming more capacity on the roads and highways. External trip studies are available on the internet. Several studies indicate external trips are higher than expected – the average range is between 35% and 64% of total ADT trips. This transportation study on the matter shows 40% averages to be valid -
http://uknowledge.uky.edu/cgi/viewcontent.cgi?article=1861&context=ktc_researchreports

Staff objects to our comments on external trips as they do not fully understand fair share funding. Staff relates in memo 22A that the externals are fair share funded by the county future grants. <u>This is not a matter of fair share funding it is about the consumption of capacity by the parties.</u> The externals are significantly impacting capacity - to LOS F. With that reasoning we pose, but for external trips what would the LOS be? This postulate is used in the Rancho Cordova screening test to justify a fee. It doesn't matter which road or highway is involved – the screening process provides the equity by filtering out externals to determine the need for projects.

Further, staff memo 22A relates the reason for discounting and not using the Bay to Basin Study for external trip quantification was because it was only accurate for peak recreation season. **<u>This is not true</u>**.

We contacted the consultant and found the issue is addressed in the Bay to Basin Study (pg3-10). The study relates -

3.5 PEAK AND NON-PEAK TOURISM AND COMMUTER TRAFFIC As determined by the tourist and commuter traffic analysis, a significant amount of traffic in and around the communities within the Study Area can be attributed to tourism. Peak season is represented by data gathered between June 26, 2013 to July 12, 2013, a period that included the Fourth of July holiday. On average, along US 50 and I-80 approaching the Lake Tahoe Basin, approximately 60 to 70 percent of the vehicle trips were tourist trips. Commuter trips were 30 to 40 percent (Peak Annual Daily Traffic Conditions). ***<u>During non-peak periods, Project Team traffic engineers used data available to estimate average tourist trips along US 50</u>*** *and I-80 approaching Lake Tahoe at 60 percent tourist and commuter trips at 40 percent (Annual Average Daily Traffic Conditions).* ***<u>As discussed throughout this Study, tourism traffic has a significant impact on the</u>***

<u>Study Area roadway network, not just during peak periods,</u> *<u>but throughout the year.</u> Year round, there is a significant amount of local (commuter) traffic within the Tahoe Basin, so even though tourist traffic remains high during non-peak periods, the mix of tourist and commuter is more even."*

The study is entirely relevant in determining external tourist traffic. It was funded by our county transportation commission during the impact fee update process and it is the best and most recent information available for external recreation and tourist impacts. **<u>The county produces no other documentation for any external counts.</u>** The impact fees currently being charged are based on 1% external trips at the El Dorado Hills count location. At the same location, the study shows recreation externals by themselves account for 5% to 9%. At Schnell School Road in Placerville, recreational trips account for roughly 50% of peak hour trips. At Echo Summit , 60% to 70% of traffic is recreational tourist traffic. The county is unhappy with the results in the study because the county is on the hook to fund externals to meet nexus requirements in the Mitigation Fee Act.

In a joint county planning and administrative staff meeting with our board it was related by staff that the nexus study's externals were determined by calling around to other jurisdictions. Don Ashton's representative was present at the meeting.

The Shingle Springs Rancheria External Trip Issue

In a recent Public Records Act Request the county indicated that ALL traffic to and from the Shingle Springs Rancheria is considered internal trips. We contend all trips generated from within the Rancheria including homes, clinic, hotel, and casino are external trips. Trips to and from Folsom to the casino are external/external. The Rancheria trips are the same as Sacramento trips – they are both separate independent legal jurisdictions. Can the county charge an impact fee to Placerville for their traffic impacts to HWY 50% - only by agreement. The Indian lands have the same autonomy. The county relates the justification for collecting impact fees – *"The tribal lands are not considered to be external (i.e. they are not treated like an adjacent jurisdiction) in the TIM Fee Nexus Study. The primary reason for this is because the Tribe contributes TIM Fees to pay their fair share towards improvements on the County's roadway network."* No designation of projects to mitigate growth impacts are given. Within the last several months $8 million in tribe funds were removed from mitigation funding and moved into road maintenance. The county has determined it can spend the monies for maintenance and that is not growth mitigation.

An approximate traffic count can be determined by using the square footage of the project times the generation rates in the manuals. Using the ITE 2008 Trip Generation Manual the casino is over 13 trips/1,000 s.f. floor and the 250 room Hotel at .4 trips/room (peak hour generation at 82% occupancy). According to the EIR, the project consisted of a 240,000-square-foot casino with multiple restaurants, a five-story, 250-room hotel, and a 3,000-space parking garage. The resort would employ as many as 1,900 people and generate approximately 10,000 car trips per day. These trips would consume capacity even if funds were given to the county for the new HOV lane. HOV lanes have been removed from the TIM CIP as they do not mitigate congestion. We contend all reservation traffic generated from the Rancheria is external and should be accounted for as external trips to provide equity to the fees. A trip leg ending in the county would be internal.

Placerville External Trip Issues

The total peak hour trips for HWY 50 at the Sacramento county line is 8,600/hr per CalTrans counts. About 2,000 trips are coming from Placerville City limits and 1,500 from Tahoe. Placerville has about 6,500 jobs (25,000 trips) and 4,400 sfd units (44,000 daily trips). This is a strong inference that Placerville externals consume > 20% of the available peak hour capacity of HWY 50 at the county line. Add in externals from the Bay to Basin Study and it comes to >25% of total peak hour trips at the Sac county line. **Removing these external trip impacts to capacity by 25% to 29% reduces the LOS E to LOS C at the sac County line**. This estimate does not include the Rancheria externals. The external trips impact the LOS because they have consumed capacity – even if mitigated to LOS E they are only in part mitigated leaving a burden on new development to meet the LOS threshold. We attach a visual aid column to show the capacity issue to be a nexus violation as well as a regulatory taking.

Included in this document is an excerpt from a study relating external trips in small communities average from 35% to 64% and the NCHRP Report 365 with instructions on how to compute external trips.

In staff memo 22A, staff contends the Cameron Park Interchange should wholly be funded by impact fees and that its depreciated functionally obsolete condition is of no account. Staff relates on page 17 of the memo –

"Structural Deficiency Fair-Share Payment of Bridges from Existing Residents
A member of the public questioned why existing infrastructure is not "depreciated" due to wear and tear over time and discount TIM Fees based on this depreciation. For example, a hypothetical improvement that has an anticipated 50 year lifespan and is 40 years old would be depreciated by 80%. Under this theory, the TIM Fee program and future TIM Fee payers would only be responsible for 20% of the improvement... The County's General Plan requires that new development fully fund all necessary road capacity improvements to fully offset and mitigate all direct and cumulative traffic impacts from new development."

The Cameron Park Interchange is an exception to fair share funding. In the final nexus report, other bridges in the county are fair share funded at the ratio of 11% new development funding and 89% existing deficiency funding. Externals are also funded fair share. The issue shows the arbitrary implementation of fair share funding requirements. The Cameron Park Interchange has sight and grade restrictions, short ramps, and low clearances and cracks 3" on center in the concrete decking. The forecast for the CP Interchange was studied and predicted to be at LOS F by 2015. CP Drive and Coach were at LOS F in 2010 (Legistar item #09-1523).

In the last 5 years, growth has virtually stopped in zones 2 & 3 with roughly 16 units per year constructed. Zone 8 (El Dorado Hills area) has over 10 times the growth as zones 2 & 3 combined. The link to the map library and permit chart is below. http://edcapps.edcgov.us/maplibrary/html/ImageFiles/gi0072338g_res.pdf This link includes the latest TIM Fee Annual Reports -http://www.edcgov.us/DOT/TIMReporting.aspx.

THE GROWTH RATE IN ZONES 1-7 IS NOT THE GROWTH RATE IN ZONE 8.

Zones 2 & 3 have the highest project costs with 4 interchanges and auxiliary lanes – substantially more than zone 8. In the last 5 years, zones 2 & 3 showed deep declines in permits from the earlier 2006-2010 period going from 605 units to 78 total units for the 5 years ending in 2015. Every transportation zone excepting zone 8 has slower growth than Lake Tahoe. In the last 5 years Zones 2 and 3 have only 78 permits and Lake Tahoe had 131 final permits. El Dorado Hills Zone 8 had 995 permits in the last 5 years. In statistical analysis, the most current data is the most relevant data. No consideration is given to the decline trend in forecasting transportation needs and indeed, to the extent that around 7,000 units are forecast in the next 20 years for these same zones 2 and 3. In the last 10 years, under $20 million dollars was collected in fees (under 700 permits in 10 years) in zones 2 & 3, yet, the nexus report relates in the next 20 years over $186 million is needed to fund growth of 7,000 units. This is a serious nexus failure as forecasting must reflect the reality of the situation. The growth rate must be determined by zone as there is a great difference in growth and vacancy rates between the zones.

In order for the CIP to be legally defensible, the need for infrastructure must be demonstrated and the cause must be from new development not existing problems i.e. - (the Cameron Park interchange (south deck) is rated structurally deficient with low clearances) with short on and off ramps. Existing deficiencies exist at all 4 interchange projects. In 2009, a transportation study was conducted by the county indicating the Cameron Park Interchange and surrounding intersections at Coach Lane and Palmer Drive would approach Level of Service "F" by 2015.

The proper calculation for impact fee fair share proportions includes the deductions of external trips, existing deficiencies, and the percentage of the fair share of use (existing residents trips). The county is in error to ascribe 100% funding of capacity improvements to new development (the interpretation of Measure "Y") and exclude the impacts from existing residents – existing trips are an impact to transportation projects. The benefactors from a new interchange would primarily be existing residents.

As such the cost of these projects should be borne by the users of the interchange.

Cal Trans provided instructions for preparing impact fee studies addressing fair share of use. The formula below is copied from the Cal Trans 2002 guide, GUIDE FOR THE PREPARATION OF TRAFFIC IMPACT STUDIES, and indicates the impact fees (for legal nexus considerations) **are a user based cost**. Existing development, according to the formula, does have a fair share responsibility for the Cameron Park Interchange improvements. All users are ascribed a portion in the calculation and thus new pays its fair share. Additionally, the Cal Trans guide includes cost formulas - included below this formula in the manual (attached).

EQUITABLE SHARE RESPONSIBILITY: Equation C-1

NOTE: $T_E < T_B$, see explanation for T_B below.

Where:

P = T/TB - TE

P = The equitable share for the proposed project's traffic impact.

T = The vehicle trips generated by the project during the peak hour of adjacent State highway facility in vehicles per hour, vph.

T_B = The forecasted traffic volume on an impacted State highway facility at the time of general plan build-out (e.g., 20 year model or the furthest future model date feasible), vph.

T_E = The traffic volume existing on the impacted State highway facility plus other approved projects that will generate traffic that has yet to be constructed/opened, vph.

NOTES

1. Once the equitable share responsibility and equitable cost has been established on a per trip basis, these values can be utilized for all projects on that State highway facility until the forecasted general plan build-out model is revised.
2. Truck traffic should be converted to passenger car equivalents before utilizing these equations (see the Highway Capacity Manual for converting to passenger car equivalents).

The manual also includes the legal justification for the impact fee fair share formula (page 2 Cal Trans 2guide, Exhibit "B") and fair share proportional funding formula for new developments costs. The CalTrans document is attached to show required equities provided by law and the approach to meet those requirements. El Dorado County negates the guidelines with Measure Y's BUT FOR logic.

In 2002, the county performed studies for the general plan which show the county's fair share funding for both LOCAL TIM and STATE HWY TIM fees. Existing (capacity) deficiencies for the LOCAL TIM were figured at 48% of trips and STATE HWY TIM at 52% trips (in record). These were based on future and existing trips 20 years out. The March 5, 2002 County DOT workshop handout also quantified the amounts of $162,000,000 in STATE HWY **existing deficiencies**, and $83,000,000 for LOCAL TIM **existing deficiencies** (attached). It should be noted that existing deficiencies are not confined to capacity considerations – safety, grade, regulatory changes, and narrow lanes are examples of existing deficiencies.

Sometime after 2002 and before 2006, the county abandon fair share funding. In the 2006 fee program, the entire burden for all future trips is placed on new development (minus 3% for external trips). Even though the county said they funded projects with transportation grants, the current fee (2006) is based on new developments full funding of infrastructure as shown in Resolution 06-266. (The county's new draft nexus report has somewhat improved the fee calculation to include a slight increase in external trips.) However, NO deduction for existing residents trips is included in the fee calculation. Existing residents impacts should be treated the same as external impacts and existing deficiencies – because new development is only required to pay for impacts caused by new development. Existing development is a substantial 80% of all trips at 20 years out. This benefit to existing users is evidenced in the current 2006 fee program and is also carried forward in the proposed draft nexus. We request the impact fees be changed and calculated appropriately to include existing users trips per the Cal Trans GUIDE FOR THE PREPERATION OF IMPACT FEE STUDIES and not based on an interpretation of Measure "Y".

Forecasting Blunder

The county provided permit location maps compiled by the GIS department. The maps show that zones 2 and 3 combined only had only 78 permits in the last 5 years. However, the traffic model is grossly inaccurate predicting about 7,000 residential units in 20 years for the two zones (combined by board action) or 350 new homes a year. The consultant's forecast in zones 2 and 3 ares not justified by permit histories, census, Department of Finance, or The Census Transportation Planning Package data (CTPP) http://download.ctpp.transportation.org/profiles_2015/transport_profiles.html .

Measure "Y" allows our land use policy to be dictated by external trips caused by other communities using the highway and local roads – with the strong potential of shutting down all projects over time. DOT staff member Claudia Wade indicated that recently a fruit stand was turned down because of Measure "Y".

We request the board revise the draft nexus report, quantify the external trips, screen externals out for 2035 LOS determinations, implement fair share funding appropriately (not arbitrarily), and finally make it right with the citizens who have paid the fees with no valid nexus study.

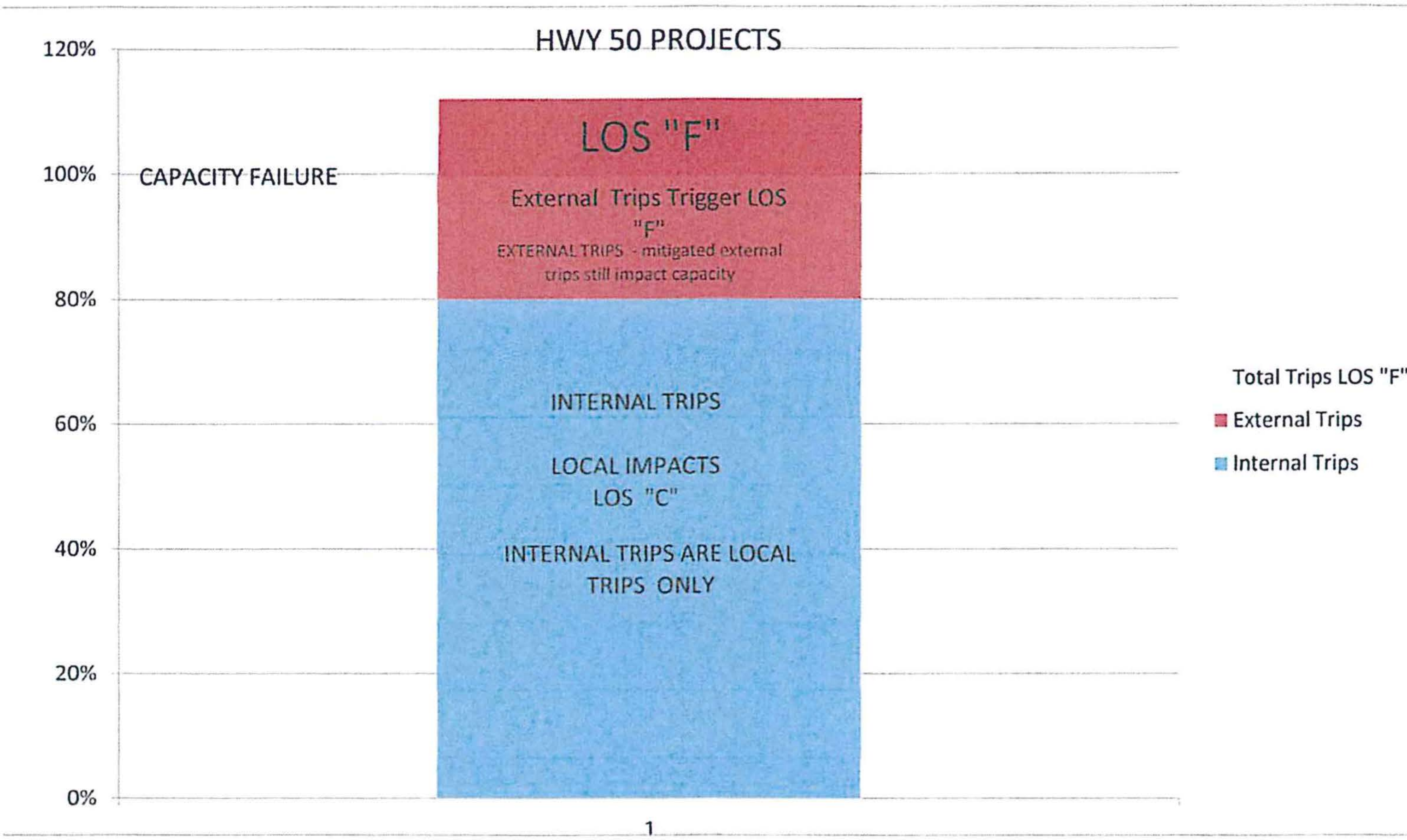
Respectfully,

Bernard Carlson by Henry Batsel (Carlson emailed signature)

Bernard Carlson
Friends of El Dorado County

Henry Batsel 12-6-16

Henry Batsel
Friends of El Dorado County



MEASURE "Y" DOES NOT REGULATE EXTERNAL AUTO TRIPS. EXTERNAL TRIPS CONSUME CAPACITY IMPACTING LOS – UP TO 50% WEEKDAYS AND 70% WEEKENDS (Bay to Basin Tourism and Recreation Study).

EXTERNAL TRIPS CONTRIBUTE SIGNIFICANTLY TO A MEASURE "Y" VIOLATION. WITH EXTERNAL TRIPS FIGURED AT JUST 20% THE LOS WOULD BE C.

EXTERNAL TRIPS WILL INCREASE OVER TIME AND WILL BECOME A BIGGER PERCENTAGE OF TOTAL TRIPS AND MORE DETERMINATE OF A LOS FAILURE.

THE COUNTY IS ONLY FUNDING TO A LEVEL OF SERVICE "E" FOR INTERREGIONAL TRAFFIC CAUSING IMPACT FEES TO BE HIGHER TO SUBSIDIZE INTERREGIONAL TRAFFIC – INTERREGIONAL TRAFFIC IF REMOVED FROM THE LOS CALCULATION WOULD REDUCE FEES.

RANCHO CORDOVA IMPACT FEES ARE CALCULATED REMOVING INTERREGIONAL TRIPS FROM THE LOS CALCULATIONS

INTERREGIONAL TRIPS ARE TRAFFIC IMPACTS CAUSED BY OTHERS AND ARE ONLY PARTLY MITIGATED TO THE TRIP LINE OF LOS F. STATE HWY TIM FEES SUBSIDIZE THE REMAINING INTERREGIONAL IMPACTS TO SATISY MEASURE Y REQUIREMENTS OF MAINTAINING A LOS E.

EDC'S IMPACT FEE PROGRAM LEGITIMIZES A TAKINGS FROM NEW RESIDENTS

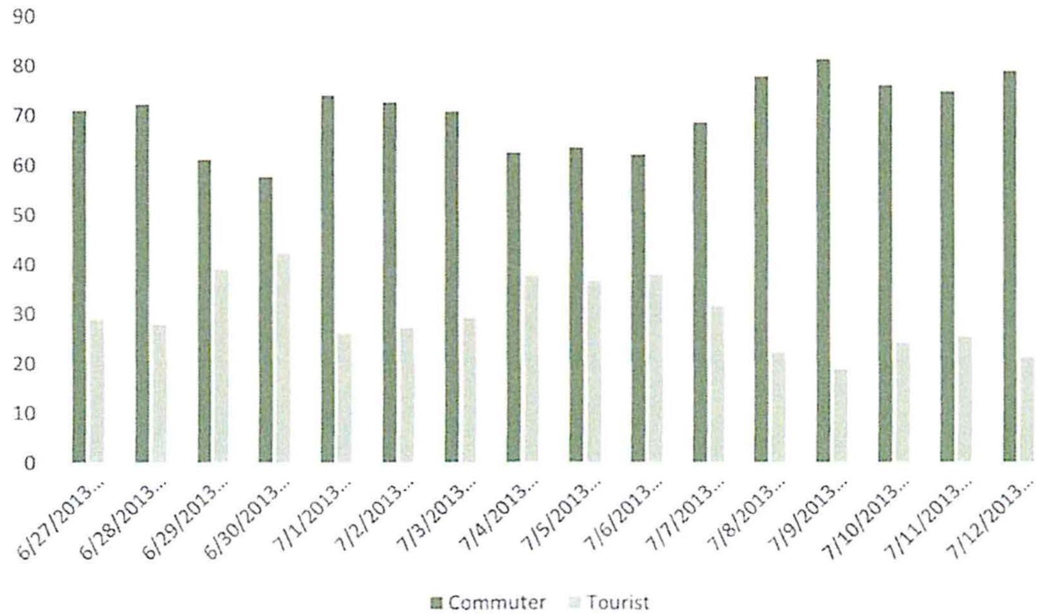


Figure 3-7 Percentage Commuters and Tourists Location 19 (US 50 Near Stateline)

3.4 Speed Analysis

The Bluetooth sensors recorded a time stamp along with the Bluetooth identifier. It was therefore possible to determine the time of travel for a specific Bluetooth identified when the unique Bluetooth identifier was detected at two or more Bluetooth sensors. In analyzing the relationship between traffic count and speed, as expected, as the number of tourists traveling increased, the speed of travel decreased. In general, the more tourists using the Study Area highway network, the slower the speed of traffic and the greater the level of congestion. Accordingly, it is reasonable to conclude that increased tourism traffic contributes significantly to congestion during peak tourism travel periods.

3.5 Peak and Non-Peak Tourism and Commuter Traffic

As determined by the tourist and commuter traffic analysis, a significant amount of traffic in and around the communities within the Study Area can be attributed to tourism. Peak season is represented by data gathered between June 26, 2013 to July 12, 2013, a period that included the Fourth of July holiday. On average, along US 50 and I-80 approaching the Lake Tahoe Basin, approximately 60 to 70 percent of the vehicle trips were tourist trips. Commuter trips were 30 to 40 percent (Peak Annual Daily Traffic Conditions). During non-peak periods, Project Team traffic engineers used data available to estimate average tourist trips along US 50 and I-80 approaching Lake Tahoe at 60 percent tourist and commuter trips at 40 percent (Annual Average Daily Traffic Conditions). As discussed throughout this Study, tourism traffic has a significant impact on the Study Area roadway network, not just during peak periods, but throughout the year. Year round, there is a significant amount of local (commuter) traffic within the Tahoe Basin, so even though tourist traffic remains high during non-peak periods, the mix of tourist and commuter is more even.

RESIDENTIAL TRANSPORTATION IMPACT FEES - ZONES 2 & 3

PROPOSED HWY 50 RESIDENTIAL

Source – Draft CIP 4/2016

CIP Project No.	Project Name	From	To	Total Cost
GP148	Aux. Lane Eastbound	Bass Lake Rd IC	Cambridge Rd IC	8,830,500
53126	Aux. Lane Eastbound	Cambridge Rd IC	Cameron Park Dr IC	8,743,500
53127	Aux. Lane Eastbound	Cameron Park Dr IC	Ponderosa Rd IC	8,381,000
53128	Aux. Lane Westbound	Ponderosa Rd IC	Cameron Park Dr IC	8,961,000
71332,GP149	Cambridge Rd	NA	NA	8,613,000
72361	Cameron Park Dr	NA	NA	87,284,000
71333, 71338, 71339	Ponderosa Rd	NA	NA	39,417,000
71347, 71376	El Dorado Rd	NA	NA	15,636,000
	TOTAL AUX AND INTERCHANGE IMPROVEMENTS Zones 2 & 3			185,866,000

PROPOSED LOCAL ROAD IMPACT FEE ZONES 2 & 3

Source – Draft CIP 4/2016

CIP Project No.	Project Name	From	To	Total Cost
72143	Cameron Park Dr	Palmer	Hacienda Rd	1,324,000
72142	Missouri Flat Rd	China Garden Rd	State Route 49	3,920,000
72334, 72375	Diamond Springs Pkwy	Missouri Flat Rd	State Route 49	23,303,000
71375	Headington Rd Connector	El Dorado	Missouri Flat Rd	3,796,000
	TOTAL LOCAL ROAD IMPACT FEE 2 & 3			32,343,000

THERE IS INSUFFICIENT GROWTH TO FUND PROPOSED INFRASTRUCTURE IN ZONES 2 & 3. THE FIVE YEAR GROWTH AVERAGE IS 15.6 UNITS PER YEAR. THE 10 YEAR RESIDENTIAL AVERAGE IS 69 UNITS PER YEAR. (However, the county's growth projections are 350 res. units per year in zones 2 and 3.) $185,866,000 IN INFRASTRUCTURE IS PROPOSED IN HWY PROJECTS OVER THE NEXT 20 YEARS. About $7,000,000 IN STATE HWY FEES WERE COLLECTED IN THE LAST 10 YEARS IN ZONES 2 AND 3.

20 YR FORECAST USING LAST 5 YEAR RESIDENTIAL FINAL PERMIT AVERAGES

HWY 50 AND LOCAL FEE BY ZONE (except no local fee for zone 8)	**20 YR UNIT FORECAST**	20 YR STATE TIM INFRASTRUCTURE
ZONE 8 - 20 YR GROWTH	3,980 UNITS	$ 21,911,500
ZONE 2 & 3 20 YR GROWTH COMBINED BY BOARD ACTION	312 UNITS	$ 185,866,000

The county forecast 17,000 new units in 20 years but in the last 10 years only 4,500 were constructed.

2011 - 2015 FINALED RESIDENTIAL BUILDING PERMITS

TIM Zone - SFR	2011	2012	2013	2014	2015	Grand Total
0	26	20	21	30	34	131
1	2	3	2		2	9
2	7	4	13	19	13	56
3	4	1	2	6	5	18
4	8	7	10	22	14	61
5	5	4	5	8	11	33
6	6	3	4	4	4	21
7	8	5	5	6	10	34
8	42	135	219	225	269	890
Grand Total	**108**	**182**	**281**	**320**	**362**	**1253**

TIM Zone - MFR	2013	2015	Grand Total
2		4	4
8	105		105
Grand Total	**105**	**4**	**109**

MFR values reflect actual Units built, not Finaled Permits

NOTE: Lake Tahoe is TIM zone 0 with 131 permits total. Lake Tahoe has double the growth of every zone except ED Hills zone 8.

2006 - 2010 FINALED RESIDENTIAL BUILDING PERMITS

TIM Zone - SFR	2006	2007	2008	2009	2010	Grand Total
0	97	74	67	55	33	326
1	38	30	22	8	5	103
2	142	61	28	75	7	313
3	31	29	10	2	5	77
4	103	106	69	43	16	337
5	92	56	49	13	11	221
6	54	40	24	10	8	136
7	38	48	28	13	9	136
8	499	318	232	86	45	1180
Grand Total	**1094**	**762**	**529**	**305**	**139**	**2829**

TIM Zone - MFR	2006	2007	2008	2009	Grand Total
0			5		5
2	24	14	22	155	215
3		8	2		10
8		19	36		55
Grand Total	**24**	**41**	**65**	**155**	**285**

MFR values reflect actual Units built, not Finaled Permits

Measure Y allows for - An old man to borrow his neighbor's broken down truck and it blows up on the way to the grocery 1 mile away. According to the county's Measure Y the neighbor deserves repayment with a new BMW. The CP interchange is 46 years old with a 50 year life expectancy rated structurally deficient and functionally obsolete by CalTrans.

"A. Existing Deficiencies and the County's Interpretation of Measure Y
It was stated that the handling of existing deficiencies and the County's interpretation of the Measure Y voter initiative passed in 1998 and amended in 2008 are incorrect. The argument was made that since existing residents will use new roads, existing residents should pay a portion of the cost for the new road.

The County's current and draft updated TIM Fee program is based on requirements set forth via Measure Y and the General Plan. The TIM Fee program is created based on a "but for" logic: but for new development, certain roads would not need to be built or widened. Since new development causes the need for new or widened roads, new development pays for the full cost of those improvements. An argument made in favor of Measure Y that was included on the ballot directly addresses this issue:

The County's logic is that since current residents will be using these newly widened roads then they must pay something too. This ignores the fact that our roads wouldn't need to be widened if it weren't for new development. Measure Y requires new development to pay 100% of its way.

....Developer-paid traffic impact fees combined with any other available funds shall fully pay for building all necessary road capacity improvements to fully offset and mitigate all direct and cumulative traffic impacts from new development upon any highways, arterial roads and their intersections during weekday, peak-hour periods in unincorporated areas of the County..."

3 pages

①

Average externals for small communities

Available online at www.sciencedirect.com

SciVerse ScienceDirect

ELSEVIER

Procedia - Social and Behavioral Sciences 43 (2012) 284 – 293

Procedia
Social and Behavioral Sciences

8th International Conference on Traffic and Transportation Studies
Changsha, China, August 1–3, 2012

Forecasting External Trips in Small and Medium Cities Based on Local Economic Context

Zhe Qian[a,*], Yang Han[b], John R. Stone[c]

[a] *School of Civil and Transportation Engineering, South China University of Technology, Guangzhou, China 510640*
[b] *Thomas Jefferson Planning District Commission, 401 East Water Street, Charlottesville, VA 22902, USA*
[c] *Department of Civil, Construction, and Environmental Engineering, North Carolina State University, Raleigh, NC 27695, USA*

Abstract

The external trip estimation is important but usually neglected in travel demand modeling process for small and medium urban areas. This research develops a cost-effective method to forecast external trips from an economic point of view. A concept of Employment Index (EI) by NAICS sectors was initiated to represent local economic characteristics in statewide context and approved to be significant in predicting external trips. Based on recent survey data, separate external trip models were developed by urban categories. The new models minimize data requirements and are easy to use. They appear transferable to other small and medium urban areas.

Keywords: external trip; economic; regression; travel demand model; small and medium urban areas

1. Introduction

1.1. Background

Transportation planning in small and medium sized urban areas is becoming more and more important. U.S. census shows about 52% of U.S. residents live in small cities with populations less than 50,000, and 22% live in medium urban areas with populations between 50,000 and 200,000 (U.S. Census Bureau,

* Corresponding author. Tel.: (86) 13922186675; fax: (86) 20-22905610.
E-mail address: qianz1978@gmail.com.

doi:10.1016/j.sbspro.2012.04.101

2000). As a recent survey indicated, all U.S. MPOs (population > 50,000) have planning procedures for travel demand forecasting (TRB, 2007) to obey federal law. Some states, like North Carolina, extend the planning requirement to all municipalities regardless of size. Such smaller communities have sizable external trips, which thus affect the whole transportation planning process and decision-making.

The total traffic crossing an area's cordon line is comprised of through and external trips. When both the origin and destination of a trip are outside the cordon line, the trip is termed a through trip or external-external (E-E) trip. When only one end, either origin or destination, is within the study area, the trip is termed an external trip. External trips can be classified further into external-internal (E-I) or internal-external (I-E) trips, depending on the origin of a trip outside the study area or not. External and through trips are typically split at each external station, because separate origin-destination (O-D) tables need to be developed in travel demand modelling process. Therefore, good estimate of total external trips is desired.

Two reasons motivate this research. First, the local employment types and magnitudes represent the economic characteristics which significantly impact external trips. Second, the employment data is generally readily available from online sources of U.S. census, thereby making the possible new method easy to use.

1.2. Problem statement

Historically, the most popular method for collecting external trip data is to perform a roadside intercept survey at study area's cordon. However, very few roadside surveys have been conducted in recent years, primarily because of rising costs and the concern that stopping vehicles on the highway would be perceived as an unacceptable intrusion on the motorist (Martin, et al, 1998). Compared to large urban areas, performing surveys is not as feasible in smaller communities because most such areas have few if any financial and personnel resources to conduct an expensive survey. This cost issue supports the need for a cost-effective planning procedure in small or medium urban areas.

Some areas are using traditional through trip models to indirectly predict external trips (Martin, et al, 1998). This approach has been weakened by limitations of the traditional through trip models: (1) they are only suitable to small urban areas with population less than 50,000, and (2) they require intensive classified traffic counts, especially truck traffic data, which are not always available or expensive to collect. Therefore, a simple external trip forecasting methodology with minimum data collection is desired by smaller urban areas.

2. Literature review

The effort on studying external trips has been much less intensive than for internal trips. The primary reason is very little is known outside the planning area. Modlin (1971) provided a multiple regression equation to estimate I-E and E-I trip split based on community's employment characteristics. It is the only reference directly studying external trips can be found. Although this method was not widely used it motivated an approach to analyze external trips from an economic point of view.

In current modeling practice, through trip ends are firstly estimated and then subtracted from ADT to obtain external trips at each external station. NCHRP Report 365 (Martin, et al, 1998) represents an indirect approach to estimate external trips in small communities (population < 50,000) where an external survey is not available or possible. It is the traditional method being used by some areas. This methodology apply a through trip model (Modlin, 1982) to develop the through trip matrix based on urban population, highway functional classification, ADT, percentage of trucks and route continuity, and subtract the through trip totals from ADT counts at external stations. The remainders represent the

(2)

overall control totals by station for external trips. The directional differences of external trips are usually ignored by assuming E-I trips equal I-E trips in a typical daily period. Pigman (1978) also created an empirical through trip model. However, this model has not seen widespread use due to less accuracy (Chatterjee, et al, 1989). Other methods of developing through trip tables include the gravity-model structured equations recommended by Quick Response Freight Manual (Cambridge Systematics, 1996) and an improved version proposed by Horowitz (2000). Both methods focus on through trip distribution between external station pairs and assume through trip ends are already known at each external station.

In recent years, some new research shows that external trips are strongly related to community's socioeconomic characteristics which is the key determinant of external trips. Anderson (2005, 2006) determined an interaction between small communities and nearby major cities (or highway facilities). His studies indicate that the city of interest is not an isolated island and that the economic activities in the market area surrounding a city impact through and external trip patterns. Another recent research (Han and Stone, 2008) clarifies the definition of nearby major city in through trip estimation and statistically approves the significant influence of a study area's economic context on patterns of through trips and, eventually, the external trips.

3. Data collection

3.1. External O-D survey data

In 2005, the authors contacted cities and state agencies through U.S. which were known to have recent external survey studies. In addition, the members and friends of TRB Committee ADA30 (Transportation Planning for Small and Medium-Sized Communities) were asked for data. Twenty-three agencies in five states responded and afforded their survey reports. Data cleaning eliminated study areas that are located on the U.S. border or that are large metropolitan cities. The resulting data set used for this research includes 16 different study areas in Alabama (AL), North Carolina (NC) and Texas (TX). Table 1 summarizes these communities by two urban categories: small urban areas (populations < 50,000) and medium urban areas (populations > 50,000). In this research, survey data from communities in Alabama and Texas were randomly selected for model development, and the remainders in North Carolina were used for model performance evaluation.

In each study area, a one-way (inbound or outbound) or two-way survey was conducted to capture through trip ends, external-internal (E-I) trip ends and internal-external (I-E) trip ends at each external station. Related analysis has validated that one-way surveys and two-way surveys produce consistent percents of external trips (Han and Stone, 2008). Therefore, all external trips measured as percentage of total ADT ends that enter or leave the study area can be obtained from the survey to develop a new external trip estimating methodology. As Table 1 shows, the percentage of external trip ends of the ADT at all external stations for a small community ranges between 35% and 64%. Medium-sized urban areas have larger share of external trips.

3.2. *Employment data*

Employment is the primary criterion of an area's economic profile. The employment complexion is a key factor representing the "attractive" characteristics of a study area. It directly affects external trip patterns. Furthermore, employment data is easy to obtain from the U.S. economic census for any community, so it provides a cost-effective basis for developing external trip models.

U.S. economic census organizes employment data by different sectors defined by North American Industry Classification System (NAICS) (U.S. Census Bureau, 2002). NAICS is a unique, all-new

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

Report 365

Replaced by 716

Travel Estimation Techniques for Urban Planning

specifically external trips
Chapter 5

WILLIAM A. MARTIN
NANCY A. MCGUCKIN
Barton-Aschman Associates, Inc.
Washington, DC

Subject Areas

Planning and Administration

Research Sponsored by the American Association of State Highway and Transportation Officials in Cooperation with the Federal Highway Administration

TRANSPORTATION RESEARCH BOARD
NATIONAL RESEARCH COUNCIL

NATIONAL ACADEMY PRESS
Washington, D.C. 1998

CHAPTER 5

EXTERNAL TRAVEL ESTIMATION

INTRODUCTION

External trips are trips that have at least one end outside the study area defined by an encircling cordon line. When both the origin and destination of a trip are outside the cordon line, the trip is termed a through trip or external-external trip. When one trip end is outside the study area, the trip is classified as an external-internal or internal-external trip. The point on the roadway where the area cordon is crossed is referred to as an external station. Figure 10 displays the various types of external travel.

Because of the small proportion of external travel relative to total travel, the effort on measuring and modeling external travel has been less intensive than for internal travel. However, while the percentage of total travel that is external may be small, decisions regarding improvements to facilities that carry high percentages of external trips must be made with some degree of confidence in the estimate of external travel behavior. Very little is known about the population and employment characteristics at the end of the trip that is outside the internal study area. Travel is measured in vehicle trips instead of person trips, and transit trips from outside the region are often ignored. Future-year external travel is typically growth factored, using an average annual growth rate.

Historically, the most popular method for collecting external travel data is to conduct a roadside intercept survey at the regional cordon. Very few roadside surveys have been conducted ~~in recent years, primarily~~ because of the concern that stopping vehicles on the highway would be perceived as an unacceptable intrusion on the motorist. Poorly conducted roadside surveys have resulted in unnecessary delays and extended queues of vehicles. Alternative, nonintrusive survey methods have been used to collect external survey data. These include the following:

- The recording of license plate numbers (either through the use of video tape, direct reading of the plates into a tape recorder, or direct entry into a notebook computer by a survey recorder) and matching plate numbers at the cordon to obtain through trip tables; or
- The recording of license plate numbers (using one of the above methods), matching the number with Department of Motor Vehicle registration, and mailing out a survey form to the registered owner of the vehicle.

The first method provides data only on through travel and does not allow for the estimation of observed external-internal or internal-external travel. The second method, although providing data on all external travel, has the disadvantage of a definite time lag between the time the trip is actually made and the time the survey form is received by the driver. Even with direct entry of the plate number into a computer and overnight matching of numbers to registrant, it is at least 3 days (and more likely 4 to 5) before the registrant receives the survey forms. The registrant may not recall exactly where the trip was made or in some cases was not the driver of the vehicle. For these reasons, the roadside intercept is still the most cost-effective method for obtaining external travel data.

Techniques for estimating the number of trips generated within an area were discussed in Chapter 3. Depending on the size and geography of the study area, a majority of these trips will take place completely within the study area. The larger the study area's geographic limits, the less impact that external travel has on total travel.

This chapter presents a method for estimating external travel in a study area where an external survey is not available or possible. This step is typically done before trip distribution because the external-internal trips are distributed using the same procedure as internal trips. Through trips are needed before a traffic assignment can be performed. As will be noted in the next section, the procedure for estimating external travel is applicable only to smaller sized urban areas.

BASIS FOR DEVELOPMENT

In most regional or large-area studies, an external cordon survey is a required input to the travel modeling process. An external survey can provide accurate information on trip interchanges, particularly for through trips. In addition to the trip origin and destination, a number of other variables are needed to model external travel. The following information is typically asked during a roadside survey of vehicles entering the study area:

1. *Vehicle Class.* Vehicle class is important from several points of view. The vehicle's impact on the highway varies by size and weight, as does its impact on capacity and air quality. The minimum number of categories

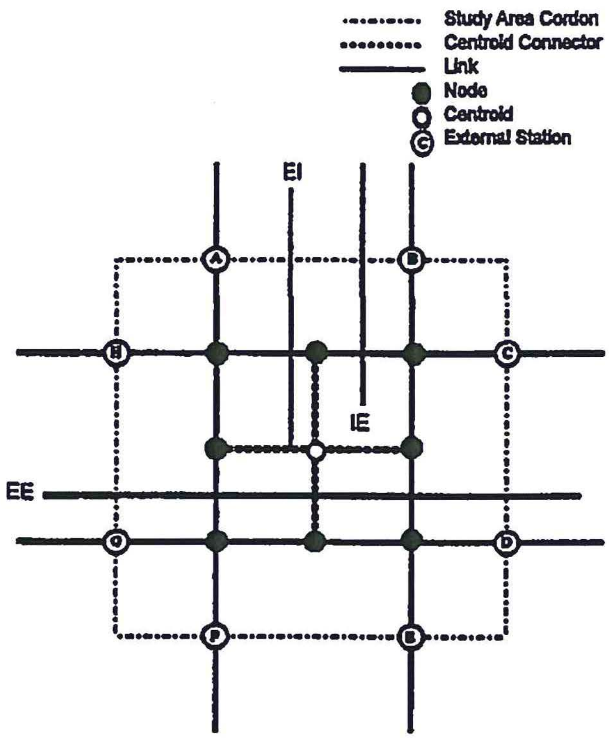


Figure 10. External travel diagram.

would seem to be cars, vans, and pickups as a group and trucks as a group. Some argument might be made for dividing trucks into light, medium, and heavy, and combining light trucks with automobiles, vans, and pickups to yield three strata. Of course, each added stratum imposes additional base year data requirements and methodological requirements.

2. *Trip Purpose.* The major person-trip purposes are work, shop, and school. The work trips typically have a longer trip length than do the shop trips. A minimum stratification probably should include work and other. No stratification of truck trips by trip purposes seems necessary.
3. *Resident Status.* The resident status for persons is simply whether they reside in the region, and for trucks, where they are garaged; i.e., if a truck is garaged in the study area normally, it is considered a resident.

The smaller area- and sketch-planning studies for which this report has been designed may not have the resources to conduct a survey of external travel. An alternative method for estimating external travel is required and presented in this chapter.

The trip rates presented in Chapter 3 represent all trips made by residents, including trips in which one end of the trip is outside the study area. These internal-external trips are part of the total productions for a zone. To create a trip table of internal-external movements, the relative attractiveness of each exit route or external station is needed.

The estimation of external trips assumes that counts of the average daily traffic (ADT) on each of the major highways entering the study area at the cordon line are available. The sum of the counts for all stations, representing total cordon crossings, is greater than the total number of external trips because through trips cross the cordon twice. If possible, classification counts should be conducted to determine the split between autos and trucks.

The following steps are required for developing internal-external, external-internal, and external-external volumes:

- Estimation of through trips at each station,
- Distribution of through trips between stations,
- Estimation of external-internal trip productions and attractions, and
- Distribution of internal-external and external-internal trips between internal zones and external stations.

The procedure presented below produces reasonable results for small urban areas, particularly those with populations of 50,000 or less. For interstates and principal arterials, the rates appear to be reasonable for areas with a population up to about 100,000. For areas with populations greater than 100,000, the method produces through trip percentages that are less than zero, an illogical conclusion. The research conducted in this project yielded very little in the treatment of external travel behavior. The characteristics of external travel are much more a function of the unique geographic location and character of each urban area and, as such, the opportunity for transferring external travel characteristics between urban areas is limited. The procedures presented below should be applied with extreme caution and the reasonableness of the results must be thoroughly reviewed.

ESTIMATION OF THROUGH TRIPS AT EXTERNAL STATIONS

The first step in the process will be to estimate through trips at the external stations. Previous research has shown that the percent of through trips at and between stations is related to the functional classification of the external highway, the connectivity of each external station pair, the average daily volume at the station, the relative size of the station, the size of the population of the study area, and the vehicle composition at the external station.

Through trips as a percent of all external trips vary from place to place. Data for selected cities are shown in Table 16.

TABLE 16 Through trips as a percent of external trips

Place	1990 Population	External - Internal Internal - External	External - External (Through)	Total
Chicago	6,070,000	95%	5%	100%
Twin Cities	2,464,000	93	7	100
San Diego	2,498,000	88	12	100
Phoenix	2,122,000	86	14	100
Reno	255,000	87	13	100
Wausau	37,000	80	20	100

Through trips as a percent of total external trips range from 5 percent in the largest region, Chicago, to 20 percent in the smallest region, Wausau.

D.G. Modlin, Jr., working with the State of North Carolina,[1,2] developed a model for estimating through trip ends at a station on the cordon of a study area. The model used functional classification of the highway, the ADT at the external station, the percentage of trucks (excluding vans and pickups), the percentage of vans and pickups, and the population of the study area.

The equation for estimating the percent through trips at an external station is

$$\begin{aligned} Y_i = {} & 76.76 + 11.22 \times I - 25.74 \times PA \\ & - 042.18 \times MA + 0.00012 \times ADT_i + 0.59 \\ & \times PTKS_i - 0.48 \times PPS_i - 0.000417 \times POP \end{aligned} \tag{5-1}$$

where

- Y_i = percentage of the ADT at external station i, that are through trips,
- I = interstate (0 or 1),
- PA = principal arterial (0 or 1),
- MA = minor arterial (0 or 1),
- ADT_i = average daily traffic at external station i,
- $PTKS_i$ = percentage of trucks excluding vans and pickups at external station i,
- PPS_i = percentage of vans and pickups at external station i, and
- POP = population inside the cordon area.

In equation 5-1, an external station can be only one of the three functional classifications. For that classification, the value of the variable is 1; for the other two, the value will be 0 (i.e., functional class is a dummy variable).

[1]David G. Modlin, Jr. *Synthesis of Through Trip Patterns in Small Urban Areas*, Department of Civil Engineering, North Carolina State University, Raleigh (1971).

[2]David G. Modlin, Jr., "Synthesized Through-Trip Table for Small Urban Areas," *Transportation Research Record 842*, Transportation Research Board, National Research Council, Washington, DC (1982).

For illustration, given a route with ADT of 7,000, 6 percent heavy and medium trucks (excluding vans and pickups), and 10 percent vans and pickups, the following through trips percentages shown in Table 17 would be predicted by functional class using equation 5-1.

Because total through-trip percentages can vary substantially, it is important that the overall through trips be reasonable and the total should be checked after application of the equation. Regression models are particularly susceptible to error when used outside of the range of data used for the initial fitting or calibration.

If classification counts are not available at the cordon, the percentage of trucks at the external stations must be estimated. In *NCHRP Report 187*, total areawide truck trips were presented as a percent of areawide vehicle trips. At the time that report was released, truck traffic represented anywhere from 27 percent of total trips in areas with less than 100,000 population to 16 percent of total trips in the largest urbanized areas. Recent studies suggest that trucks are a smaller portion of the total vehicles on the road now, because of the increase in personal nonwork trips. A truck percentage between 5 percent and 15 percent of the total trips might be more realistic.

Once the percent of through trips crossing the cordon is estimated, the number of through trips can be calculated by station.

Using the example problem from Table 17, assume that an area with a population of 25,000 had a minor arterial with counts of 3,600 inbound and 3,400 outbound for a total of 7,000 ADT. The total through trips at the station would equal 24 percent of 7,000 or 1,680 crossings. This would be split into 864 through trips entering the area and 816 through trips leaving the area. The remaining 5,320 crossings have a trip end in the study area.

DISTRIBUTION OF THROUGH TRIPS BETWEEN STATIONS

The distribution of the estimated through-trip ends from an external station to each of the other external stations is the next step in obtaining a matrix of through trips among sta-

TABLE 17 Alternative through-trip percentages

Functional Class	Population 25,000	50,000	100,000
Interstate	77%	67%	46%
Principal Arterial	40	30	9
Minor Arterial	24	13	0 [2]

[1] Example problem assumes the following:

ADT = 7,000
Heavy and Medium Trucks = 6%
Vans and Pickup Trucks = 10%

[2] Computed value less than 0%, therefore use 0%

tions. If an area had 10 external stations, then the resulting vehicle trip table would be a matrix with 10 origins and 10 destinations.

Modlin developed equations, one for each functional class, to estimate the distribution of through trips that enter the analysis area at an origin external station (i) to each of the destination stations (j). For estimation of each interchange, the functional class of the destination station dictates which equation is to be used.

Interstate:

$$Y_{ij} = -2.70 + 0.21 \times PTTDES_j + 67.86 \times RTECON_{ij} \quad (5\text{-}2)$$

Principal Arterial:

$$Y_{ij} = -7.40 + 0.55 \times PTTDES_j + 24.68 \times RTECON_{ij} + 45.62 \times \frac{ADT_j}{\sum_{j=1}^{n} ADT_j} \quad (5\text{-}3)$$

Minor Arterial:

$$Y_{ij} = -0.63 + 86.68 \times \frac{ADT_j}{\sum_{j=1}^{n} ADT_j} + 30.04 \times RTECON_{ij} \quad (5\text{-}4)$$

where

Y_{ij} = percentage distribution of through-trip ends from origin station i to destination station j,

$PTTDES_j$ = percentage through-trip ends at destination station j,

$RTECON_{ij}$ = route continuity between stations i and j: 1 = Yes, 0 = No, and

ADT_j = average daily traffic at the destination station j.

Station-to-station trip movements also can be estimated using a simple factoring procedure which uses an external station's portion of the total through trips. However, because the geographic characteristics of the study area often determine the likely connections between stations, some effort should be made to ascertain the existing through movement patterns either by reference to earlier studies of the area or by general observations. The likely movements can be set using control totals.

Example of Through-Trip Table Estimation

To illustrate the application of through-trip procedures, a simple five-station external example is presented. Assume that the data in Table 18 have been observed at the external stations.

In this example, stations 101 and 103 are two points on a continuous route, and stations 102 and 104 are two points on another continuous route.

The estimated through trips for each station are computed using the equation:

$$Y_i = 76.76 + 11.22 \times I - 25.74 \times PA - 42.18 \times MA + 0.00012 \times ADT_i + 0.59 \times PTKS_i - 0.48 \times PPS_i - 0.000417 \times POP$$

For example, the percent through trips for station 101 would be:

TABLE 18 Example data for through-trip estimation

Station	Functional Classification	ADT	Percent Trucks	Percent Vans and Pickups
101	Principal Arterial	15,000	5	10
102	Interstate	25,000	10	10
103	Principal Arterial	10,000	7	10
104	Interstate	20,000	10	10
105	Minor Arterial	5,000	3	10
Total		75,000		

$$
\begin{aligned}
Y_{101} = {} & 76.76 + 11.22 \times 0 - 25.74 \times 1 - 42.18 \times 0 \\
& + 0.00012 \times 15{,}000 + 0.59 \times 5 - 0.48 \times 10 \\
& - 0.000417 \times 50{,}000 = 30
\end{aligned}
$$

The resulting through trips are presented in Table 19. The trips have been rounded to the nearest 100 trips.

The next step is to estimate the distribution of the through trips between the external stations. The equations presented previously are used and the results are normalized in order for the sum of the distribution percentages to be equal to 100 percent. For example, the distribution of trips from station 101 to the other four stations is presented in Table 20.

The through-trip distributions are computed for each of the four remaining external stations. Table 21 contains the normalized percentages of through trip distributions among the five stations. The percentages sum to 100 percent down each column.

TABLE 19 Through trips

Station	ADT	Percent Through	Through Trips	E-I and I-E Trips
101	15,000	30	4,500	10,500
102	25,000	71	17,800	7,200
103	10,000	31	3,100	6,900
104	20,000	71	14,100	5,900
105	5,000	11	600	4,400
Total	75,000		40,100	34,900

TABLE 20 Distribution of through trips for external station 101

Origin Station	Destination Station	Calculated Percent	Normalized Percent
101	102	12%	18%
	103	40	58
	104	12	17
	105	5	7
	Total	70	100

TABLE 21 Through-trip distribution percentages

Destination Station	Origin Station 101	102	103	104	105
101	—	15	59	16	31
102	18	—	17	67	21
103	58	13	—	13	27
104	17	67	17	—	21
105	7	4	7	4	—
Total	100	100	100	100	100

The percentages presented in Table 21 are applied to the through trips presented in Table 19 for each external station. Table 22 contains the initial through-trip table.

Note that the row totals of trips do not equal the desired number of trips for each external station and that the table is not symmetrical about the intrastation diagonal. For example, the trips from 101 to 102 equal 2,736 trips while the trips from 102 to 101 equal 790. Because the trips represent average daily trips, the table should be symmetrical. The trip table is averaged to produce a table symmetrical about the diagonal. This symmetrical trip table is presented in Table 23.

At this step in the process, the row and column totals are equal; however, they are not equal to the desired number of through trips at each external station. This difference is presented in Table 24.

The most common procedure for adjusting a trip table to match desired row and column totals is the matrix balancing or Fratar technique. Many of the travel demand software packages have programs for applying this technique. The major use of the technique is to produce future-year trip tables that are growth factored. Table 25 contains the balanced or "Fratared" external through-trip table.

The resulting through-trip table is saved for later use in traffic assignment. The station-to-station vehicles are added to the total vehicle trips and assigned using the standard highway assignment procedures. Although the through trips are a minor portion of total vehicle trips in a region, the external-external volumes have a significant impact on facilities crossing the cordon line and passing entirely through the study area.

ESTIMATION OF EXTERNAL-INTERNAL TRIP PRODUCTIONS AND ATTRACTIONS

The estimation of external-internal trip productions and attractions is needed as part of the trip generation process. In Chapter 3, the section on balancing productions and attractions specified the need for external travel information in developing regional control totals by purpose. In fact, the approach for developing external productions and attractions is determined by whether or not the external trips made by

TABLE 22 Initial through-trip table

Destination Station	Origin Station 101	102	103	104	105	Total
101	—	2,736	1,837	2,165	188	6,926
102	790	—	524	9,483	126	10,924
103	2,595	2,329	—	1,843	160	6,927
104	782	11,965	519	—	125	13,391
105	332	770	220	609	—	1,932
Total	4,500	17,800	3,100	14,100	600	40,100

Red Hawk Casino Adds 10 ClipperCreek EV Chargers

by ccadmin | Mar 24, 2015 | Public EV Charging | 0 comments

Ten EV chargers (ClipperCreek LCS-25) have been installed at Red Hawk Casino.

2 EV chargers each on parking structure floors 1,3,5,7 and in the Porte Cochere at the main entrance. The EV chargers are located on floors 1, 5 and 7 are at the southwest corner. The EV chargers on floor 3 are at the northwest corner. Signage has been ordered.

There is no charge for use. The Casino is located just off Highway 50 in the Shingle Springs area and is open 24/7. The address is 1 Red Hawk Parkway, Placerville.

These EV chargers were funded by an Indian Gaming Special Distribution Fund grant. The Indian gaming grants are to offset Casino impacts. Traffic counts indicate 10% of the Highway 50 traffic at this location is vehicles traveling to and from the casino.

Thank you for working with us to improve air quality.

Dave Johnston
Air Pollution Control Officer

Tahoe Placerville Externals

4400/8600 75% - land use consider 4400 SFD's

Dist	Route	County		Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
3	50	SAC		15.759	NIMBUS ROAD	11300	130000	116000	10100	139000	119000
3	50	SAC		16.1	AEROJET ROAD	10100	139000	119000	9100	136000	117500
3	50	SAC		17.008	FOLSOM BOULEVARD/NATOMA	9100	136000	117500	7800	105000	92000
3	50	SAC		19.233	PRAIRIE CITY ROAD	7800	105000	92000	7800	90000	78000
3	50	SAC		21.502	SCOTT ROAD	7800	90000	78000	8600	101000	90000
3	50	SAC		23.136	SACRAMENTO/EL DORADO COUNTY LINE	8600	101000	90000			
3	50	ED		0	SACRAMENTO/EL DORADO COUNTY LINE				8600	101000	90000
3	50	ED		0.857	LATROBE ROAD	8600	101000	90000	7000	78000	70000
3	50	ED	R	3.232	BASS LAKE ROAD	7000	78000	70000	5700	68000	63000
3	50	ED		4.962	CAMBRIDGE ROAD	5700	68000	63000	5600	64000	62000
3	50	ED		6.57	CAMERON PARK	5600	64000	62000	5900	67000	63000
3	50	ED	R	8.564	SHINGLE SPRINGS	5900	67000	63000	3850	51000	49000
3	50	ED	R	10.295	EAST SHINGLE SPRINGS	3850	51000	49000	3800	49500	48500
3	50	ED	R	12.19	GREENSTONE ROAD	3800	49500	48500	3650	48500	47500
3	50	ED	R	14.011	EL DORADO ROAD	3650	48500	47500	3550	47500	46500
3	50	ED	R	15.055	MISSOURI FLAT ROAD	3550	47500	46500	4150	56000	53000
3	50	ED		15.829	PLACERVILLE, FAIRGROUNDS	4150	56000	53000	3650	44000	40000
3	50	ED		16.99	WEST PLACERVILLE	3650	44000	40000	4600	51000	49500
3	50	ED		17.42	EB OFF TO MAIN STREET	4600	51000	49500	4650	58000	52000
3	50	ED		17.52	PLACERVILLE, CANAL STREET	4650	58000	52000	3950	48000	45000
3	50	ED		17.667	PLACERVILLE, JCT. RTE. 49	3950	48000	45000	3900	47500	41500
3	50	ED		17.788	PLACERVILLE, COLOMA STREET	3900	47500	41500	4250	45000	42000
3	50	ED		18.032	PLACERVILLE, BEDFORD AVENUE	4250	45000	42000	3850	38500	34600
3	50	ED		18.517	PLACERVILLE, MOSQUITO ROAD OH	3850	38500	34600	3250	34000	30000
3	50	ED		18.99	PLACERVILLE, SCHNELL SCHOOL ROAD	3250	34000	30000	2650	28000	24000
3	50	ED		20.296	PLACERVILLE, POINT VIEW DRIVE	2650	28000	24000	2300	25000	20400
3	50	ED		20.741	NEW TOWN ROAD	2300	25000	20400	2650	25500	20600
3	50	ED		23.957	JCT. OLD HIGHWAY, CAMINO, WEST	2650	25500	20600	2900	22100	18100
3	50	ED	R	25.949	EAST CAMINO ROAD	2900	22100	18100	2650	25000	18800
3	50	ED	R	28.842	SAWMILL (TO POLLOCK PINES)	2650	25000	18800	2500	21000	15600
3	50	ED	R	31.299	SLY PARK ROAD	2550	21300	15600	1750	11800	9500

Towards SAC.

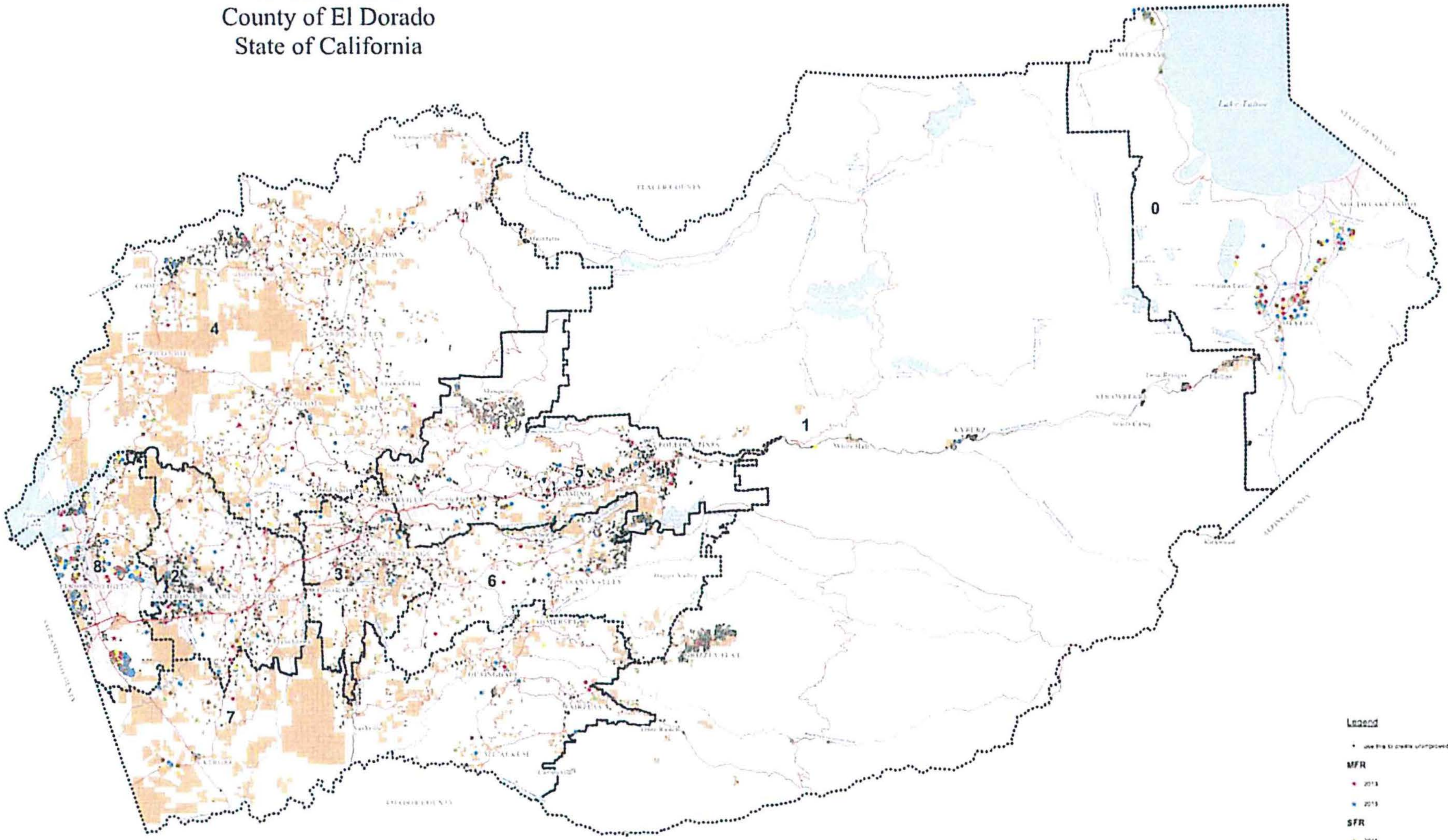
Placerville City Limits Boundary Area

1450

Tahoe Ext.
1950

Dist	Route	County	Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
3	50	ED	39.772	ICEHOUSE ROAD	2200	16300	12900	1950	15300	13300
3	50	ED	65.619	ECHO LAKE ROAD	1950	15300	13300	1650	11300	8100
3	50	ED	70.245	UPPER TRUCKEE RIVER ROAD	1650	11300	8100	1700	13300	10400
3	50	ED	70.621	JCT. RTE. 89 SOUTH	1700	13300	10400	1900	17200	12600
3	50	ED	71.48	MEYERS, PIONEER TRAIL ROAD	1900	17200	12600	1850	17200	13100
3	50	ED	72.71	SAWMILL ROAD	1850	17200	13100	1700	15600	11600
3	50	ED	74.33	SOUTH LAKE TAHOE, H STREET	1700	15600	11600	2400	26000	19000
3	50	ED	75.448	SOUTH LAKE TAHOE, JCT. RTE. 89 NORTH	2400	26000	19000	3850	39500	33000
3	50	ED	76.407	UPPER TRUCKEE RIVER BRIDGE	3850	39500	33000	2850	35500	27500
3	50	ED	78.42	SOUTH LAKE TAHOE, RUFUS ALLEN BOULEVARD	2850	35500	27500	2850	36500	28000
3	50	ED	79.29	SOUTH LAKE TAHOE, SKI RUN BOULEVARD	2850	36500	28000	3000	39000	31500
3	50	ED	80.02	SOUTH LAKE TAHOE, PIONEER TRAIL ROAD	3000	39000	31500	2450	34500	27500
3	50	ED	80.14	SOUTH LAKE TAHOE, PARK AVENUE	2450	34500	27500	2800	31000	24600
3	50	ED	80.44	NEVADA STATE LINE	3050	34000	25000			
3	51	SAC	0	SACRAMENTO, JCT. RTES. 50/99				11600	161000	156000
3	51	SAC	0.241	SACRAMENTO,VIADUCT (P/N STREET RAMPS)	11600	161000	156000	11400	159000	153000
3	51	SAC	1.204	SACRAMENTO, H STREET	11200	159000	153000	10800	154000	149000
3	51	SAC	1.444	SACRAMENTO, E STREET	10900	154000	149000	11700	165000	162000
3	51	SAC	3.357	SACRAMENTO, EXPOSITION BOULEVARD	11700	169000	163000	12300	161000	159000
3	51	SAC	3.688	SACRAMENTO, JCT. RTE. 160 WEST	12300	165000	159000			
3	51	SAC	3.688 R	BEGIN RIGHT ALIGN, JCT. RTE. 160 WEST				6300	88000	87000
3	51	SAC	4.061 R	SACRAMENTO, ARDEN WAY	6300	88000	87000	7200	95000	93000
3	51	SAC	4.353 R	END RIGHT ALIGN	7200	95000	93000			
3	51	SAC	3.688 L	BEGIN LEFT ALIGN, JCT. RTE. 160 WEST				6500	94000	91000
3	51	SAC	4.335 L	END LEFT ALIGN	6500	94000	91000			
3	51	SAC	4.743	SACRAMENTO, EL CAMINO AVENUE	12200	195000	188000	10100	175000	166000
3	51	SAC	5.498	SACRAMENTO, MARCONI AVENUE	10100	175000	166000	9600	145000	140000
3	51	SAC	5.783	SACRAMENTO, AUBURN BLVD	9600	145000	140000	9800	145000	140000
3	51	SAC	5.963	SACRAMENTO, HOWE AVENUE	9800	145000	140000	9800	146000	142000
3	51	SAC	6.213	SACRAMENTO, BELL STREET	9800	147000	142000	9800	144000	140000
3	51	SAC	6.788	SACRAMENTO, FULTON AVENUE	980	14500	14000	10700	143000	140000

2011 - 2015 FINALED RESIDENTIAL BUILDING PERMITS
w/ TIM Zones
County of El Dorado
State of California



Legend

MFR
- 2013
- 2015

SFR
- 2011
- 2012
- 2013
- 2014
- 2015

Unimproved HDR, LDR, MDR, MFR or RR

TIM Zones

Parcel Base

Major Roads

Rivers & Creeks

0 1 2 4 6 Miles

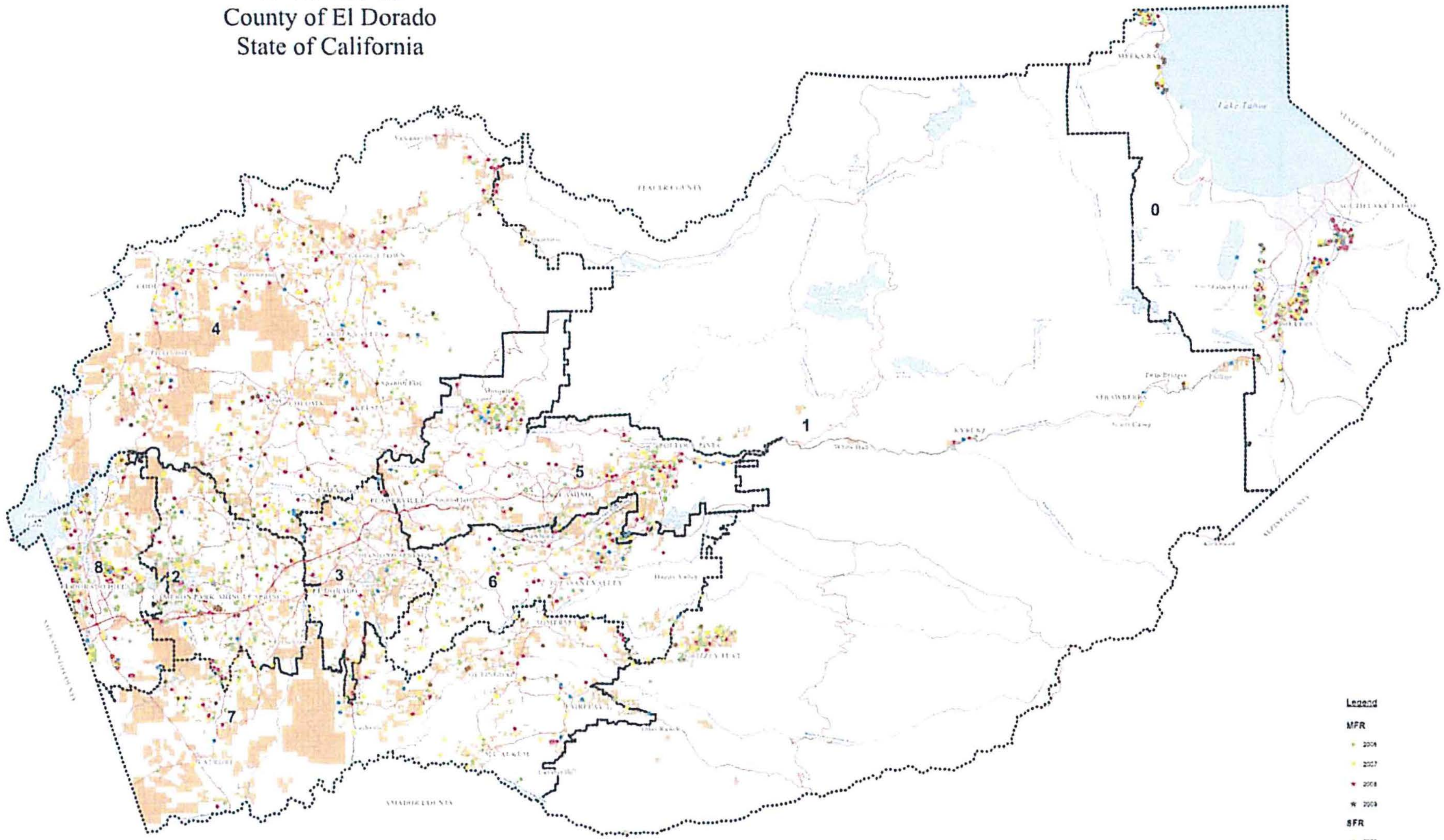
TIM Zone - SFR	2011	2012	2013	2014	2015	Grand Total
0	26	27	11	30	34	131
1	2	2	2		2	8
2	7	4	11	19	13	54
3	4	1	2	6	5	18
4	8	7	12	22	14	63
5	5	4	5	8	11	33
6	6	3	4	4	4	21
7	8	3	5	6	10	34
8	42	136	219	225	268	890
Grand Total	108	172	281	330	362	1253

TIM Zone - MFR	2013	2015	Grand Total
2		4	4
8	105		105
Grand Total	105	4	109

MFR values reflect actual Units built, not Finaled Permits

TIM Zone	Unimproved HDR, LDR, MDR, MFR or RR
1	1127
2	564
3	654
4	2441
5	1253
6	448
7	1050
8	651
Grand Total	8294

2006 - 2010 FINALED RESIDENTIAL BUILDING PERMITS
w/ TIM Zones
County of El Dorado
State of California



TIM Zone - SFR	2006	2007	2008	2009	2010	Grand Total
0	87	74	67	55	13	326
1	38	30	22	9	5	103
2	142	61	28	75	7	313
3	31	29	10	2	5	77
4	109	108	69	43	18	337
5	92	56	49	13	11	221
6	54	40	24	10	8	136
7	38	44	26	13	9	130
8	479	318	232	80	45	1180
Grand Total	1094	762	529	305	139	2829

TIM Zone - MFR	2006	2007	2008	2009	Grand Total
0			5		5
2	24	14	22	155	215
3		8	2		10
8		19	36		55
Grand Total	24	41	65	155	285

MFR values reflect actual Units built, not Finaled Permits

Legend

MFR
- 2006
- 2007
- 2008
- 2009

SFR
- 2006
- 2007
- 2008
- 2009
- 2010

Unimproved HDR, LDR, MDR, MFR or RR

TIM Zones

Parcel Base

Major Roads

Rivers & Creeks

0 1 2 4 6 Miles

Map depicted in State Plane Coordinate System (NAD 1983 California Zone 2, feet)

Discussion on U.S. 50/Cameron Park Dr Interchange

Prepared for the Board of Supervisors

January 25, 2010
Legistar Item #09-1523

1

Existing Deficiencies

Short ramps, existing development, close intersections, and limited space under Hwy 50 lead to challenges:

1. Traffic backing up on off-ramps and onto the freeway; IN 2010

2. Sight distance restrictions prevent right turns on red;

...And 3. Long waits at the Coach and Cameron Park Dr. intersection...

^

Traffic study results show that improvements are already needed at the Cameron Park Dr/Coach Ln intersection and that they will be needed in general by 2015.

INTERSECTION	EXISTING		2015		2025		2035	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1. Cameron Park Dr./Palmer Dr.	B	D	F	F	F	F	F	F
2. Cameron Park Dr./US 50 WB off-ramp/Country Club Dr	C	C	D	E	E	F	F	F
3. Cameron Park Dr./US 50 EB ramps	C	C	C	F	E	F	F	F
4. Cameron Park Dr./Coach Ln.	B	F	E	F	F	F	F	F
5. Durock Rd/Robin Ln.	C	C	D	F	F	F	F	F

Source: "Traffic Report for the US 50/Cameron Park Drive Interchange PR" by Fehr & Peers, May 23, 2008

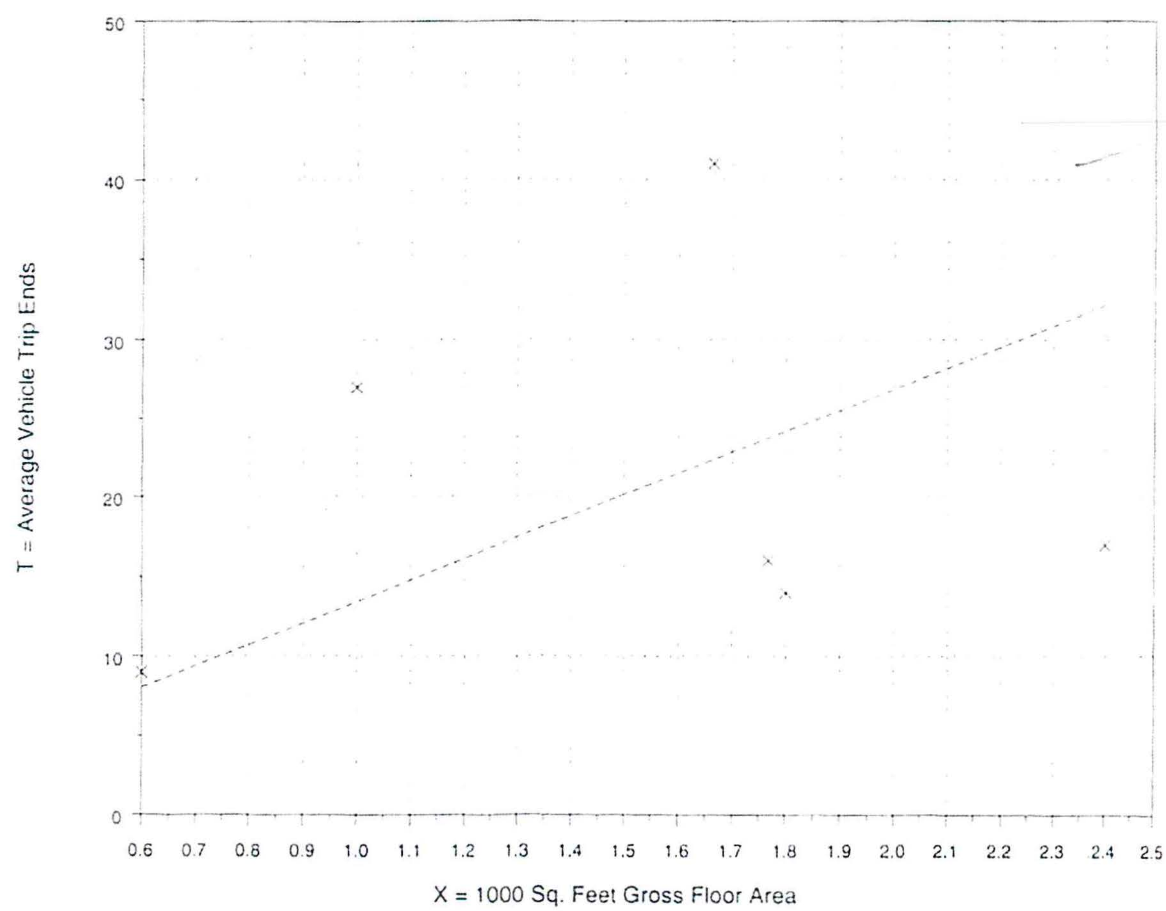
Casino/Video Lottery Establishment
(473)

Average Vehicle Trip Ends vs:	1000 Sq. Feet Gross Floor Area
On a:	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.
Number of Studies:	6
Average 1000 Sq. Feet GFA:	2
Directional Distribution:	56% entering, 44% exiting

Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
13.43	7.08 - 27.00	8.65

Data Plot and Equation



Fitted Curve Equation: Not given R^2 = ····

Shingle Springs Rancheria
Casino
Hotel
Residential

LATE DISTRIBUTION

DATE 12/6/16 ITEM 46

EDC COB <edc.cob@edcgov.us>

Submission ITEM 46 - Nexus counts and Bay to Basin Study are in accord

1 message

Henry Batsel <hbatsel@gmail.com> Tue, Dec 6, 2016 at 9:22 AM
To: Donald Ashton <don.ashton@edcgov.us>, michael.ciccozzi@edcgov.us, edc.cob@edcgov.us
Cc: Bernard Carlson <1bcc@comcast.net>, Ellen Day <ellendaypriderealty@yahoo.com>, Todd <toddwhite2006@hotmail.com>, Dennis Jordan <dnlelect@netscape.net>, Jerry Homme <homme1@comcast.net>

Good Morning,

This is a late submission and it is part of our other comments to the board.

Thank You!
Henry Batsel

Reasonable externals 12 6 16.pdf
362K

EXTERNAL TRIP COMPUTATIONS - PASS-THRUS
FOR PLACERVILLE & TAHOE ONLY = > 24% @ COUNTY LINE

BAY TO BASIN STUDY - REASONABLENESS OK

Volume Forecasts for State Facilities

Route	Postmile	Segment Length	Description	2013 Caltrans Volumes Published AADT x K x D: AM EB/NB PHV	AM WB/SB PHV	PM EB/NB PHV	PM WB/SB PHV	Type	Model Volumes - AM (Interim Step – Not Used for LOS Operations): EB/NB 2015	EB/NB 2035 Amended GP	WB/SB 2015	WB/SB 2035 Amended GP	Model Volume - PM (Interim Step – Not Used for LOS Operations): EB/NB 2015	EB/NB 2035 Amended GP	WB/SB 2015	WB/SB 2035 Amended GP	Final Adjusted Forecast Volume (Final Volumes Used for LOS Operations): EB/NB 2035 Amended GP AM	WB/SB 2035 Amended GP AM	EB/NB 2035 Amended GP PM	WB/SB 2035 Amended GP PM
50	0		SACRAMENTO/EL DORADO COUNTY LINE																	
		0.857		2470	3790	4749	1879	Freeway	3003	4800	5525	7040	5805	7449	3800	5311	4,110	5,070	6,250	3,010
50	0.857		LATROBE ROAD																	
		2.375		1234	3596	3400	2350	Freeway	[illegible]	3062	[illegible]	5703	3686	[illegible]	[illegible]	3589	[illegible]	5,500	[illegible]	[illegible]
50	3.232		BASS LAKE ROAD																	
		1.73		1379	3102	3331	2095	Freeway	[illegible]	2978	4098	4876	3735	4897	2391	3697	2,280	3,790	4,[illegible]10	3,330
50	4.962		CAMBRIDGE ROAD																	
		1.608		1700	2610	3010	20[illegible]	Freeway	[illegible]	2980	3499	4018	[illegible]	[illegible]	[illegible]244	[illegible]	2,630	[illegible]	[illegible]	3,210
50	6.57		CAMERON PARK DRIVE																	
		1.994		1730	2650	3060	[illegible]	Freeway	1710	2261	3077	3479	2615	3360	1893	2576	2,290	3,030	3,630	2,840
50	8.564		PONDEROSA ROAD																	
		1.731		1340	2060	2305	1891	Freeway	[illegible]	2013	2468	3011	2347	2934	1694	2316	1,800	2,560	2,890	2,550
50	10.295		SHINGLE SPRINGS																	
		1.895		1330	2040	2360	1630	[illegible]	1531	2013	2468	[illegible]	2347	[illegible]	[illegible]	[illegible]	1,790	2,540	2,950	2,240
50	12.19		GREENSTONE ROAD																	
		1.821		1100	1770	1910	16[illegible]0	Freeway	[illegible]	2088	2513	2896	[illegible]	2918	1817	2311	1,480	2,100	2,340	2,160
50	14.011		EL DORADO ROAD																	
		1.044		1070	1740	1870	1640	Freeway	1648	2066	2404	2729	2337	2737	[illegible]	2181	1,420	2,020	2,220	2,060
50	15.055		MISSOURI FLAT ROAD																	
		0.774		1220	1980	2130	1870	Freeway	1323	1660	1968	2259	1885	2212	1466	1848	1,550	2,280	2,480	2,310
50	15.829		PLACERVILLE, FAIRGROUNDS																	
		1.161		920	1490	1610	1410	Freeway	1266	1539	2155	2235	2035	2297	1470	1756	1,160	1,560	1,850	1,700
50	16.99		WEST PLACERVILLE																	
		0.43		1140	1850	1990	1750	Freeway	1266	1539	2155	2235	[illegible]	2297	[illegible]	1756	1,400	1,930	2,250	2,070
50	17.42		EB OFF TO MAIN STREET																	
		0.1		1200	1940	2090	1840	Multi-lane	1356	1726	2243	2593	2149	2678	1639	2114	1,550	2,270	2,620	2,350
50	17.52		PLACERVILLE, CANAL STREET																	
		0.147		1010	2050	2130	1570	Multi-lane	1356	1726	2192	2403	2149	2678	1799	2028	1,340	[illegible]	2,660	1,790
50	17.667		PLACERVILLE, [illegible]																	
		0.121		900	1823	1890	[illegible]	Multi-lane	[illegible]	[illegible]	2011	2252	2060	2313	1529	1822	[illegible]	2,050	2,140	[illegible]
50	17.788		PLACERVILLE, COLOMA STREET																	
		0.244		910	[illegible]	[illegible]	[illegible]	Multi-lane	1395	1668	2011	2252	2060	2313	1529	[illegible]	1,140	2,090	2,170	1,700
50	18.032		PLACERVILLE, BEDFORD AVENUE																	
		0.485		760	1530	[illegible]	1170	Multi-lane	1395	1668	2065	2314	[illegible]	[illegible]	1593	[illegible]	980	1,750	[illegible]	1,440
50	18.517		PLACERVILLE, MOSQUITO ROAD OH (BROADWAY)																	
		0.473		680	1370	1420	[illegible]	Freeway	838	1018	1865	2064	[illegible]	[illegible]	1204	1430	850	1,550	1,680	1,260
50	18.99		PLACERVILLE, SCHNELL SCHOOL ROAD																	
		1.306		540	1090	1140	[illegible]	Freeway	[illegible]	1018	1855	[illegible]	[illegible]	[illegible]	1037	1232	[illegible]	1,250	1,310	1,020
50	20.296		PLACERVILLE, POINT VIEW DRIVE																	
		0.445		460	930	[illegible]	[illegible]	Freeway	[illegible]	[illegible]	1583	[illegible]	[illegible]	[illegible]	923	1065	580	1,040	[illegible]	840
50	20.741		NEW TOWN ROAD																	
		3.216		460	940	980	720	[illegible]	[illegible]	989	1622	1765	1472	1626	960	1114	[illegible]	1,060	[illegible]	860
50	23.957		JUNCTION OLD HIGHWAY, CAMINO-WEST																	
		1.992		260	840	940	620	Multi-lane	838	989	1622	1765	1472	1626	960	1114	360	[illegible]	[illegible]	750
50	25.949		EAST CAMINO ROAD																	
		2.893		270	870	980	640	Freeway	838	989	1622	1765	1472	1626	960	1114	370	[illegible]	[illegible]	770
50	28.842		SAWMILL (POLLOCK PINES)																	
		2.457		380	670	790	460	Freeway	838	989	1622	1765	1472	1626	900	1114	490	780	910	580
50	31.299		SLY PARK ROAD																	
		2.92		230	410	480	280	Two-lane	838	989	1622	1765	1472	1626	960	1114	[illegible]	[illegible]	590	380
50	34.219		OLD CARSON ROAD																	
		5.553		310	540	650	380	Multi-lane	633	741	1168	1279	1038	1148	688	[illegible]	390	610	740	[illegible]
50	39.772		ICEHOUSE ROAD																	
		6.82		320	560	670	390	Two-lane	438	515	466	538	430	[illegible]	411	484	390	640	760	470
50	46.592		W O ALDER R[illegible]																	

DISPARITY NO OFF

670 TRIPS

$\frac{670}{4749} = 14\%$ PASS THRU PM EAST

THE BAY TO BASIN STUDY COMPORTS TO COUNTS EAST & WEST

BAY TO BASIN REASONABLENESS CHECK

OK OK OK

PLACERVILLE BOUNDARIES

400
+560
960

$\frac{960}{3790} = 25\%$ PASS THRU AM WEST

470
+670
1140

$\frac{1140}{4749} = 24\%$ PASS THRU PM EAST

920-540
= 380

TAHOE PASS THRUS

380
+ 320
700 TAHOE PLACERVILLE PASS THRU

$\frac{700}{2470}$ TAHOE, PLAC. / COUNTY LINE = 28.34% PASS THRU CO LINE AM EAST