



# COMMUNITY DEVELOPMENT SERVICES

## LONG RANGE PLANNING

---

2850 Fairlane Court, Placerville, CA 95667  
Phone (530) 621-4650, Fax (530) 642-0508

February 6, 2018

**TO:** Board of Supervisors

**FROM:** Natalie K. Porter, Traffic Engineer

**Subject:** Missouri Flat Master Circulation and Financing Plan (MC&FP) Phase II – Board of Supervisors (Board) Study Session #2 (Previous Legistar File 15-0048)

---

### **PURPOSE AND SUMMARY**

The goals of the MC&FP Phase II are to:

- Establish a vital commercial center in El Dorado County.
- Improve the County's fiscal well-being.
- Establish the framework for revenue collection that will fund specific improvements identified in the Missouri Flat area.
- Allow for discretionary approvals of commercial development in the Missouri Flat area.
- Alleviate existing/projected traffic congestion.

The purpose of today's Board Study Session is to provide information and seek input on information related to the MC&FP Phase II. Staff is recommending that the Board:

- 1) Receive and file the draft Technical Memorandum (TM) 1-7 Future Traffic Analysis Results and Findings (Attachment B);
- 2) Receive and file the draft TM 1-8 Capacity Threshold Phasing Analysis and Alternative Screening Evaluation (Attachment C) and the US Highway 50/Missouri Flat Road Interchange Feasibility Study (Attachment D), and provide direction on the proposed Alternatives;
- 3) Receive information on the Outreach effort; and
- 4) Receive and file the updated MC&FP Phase II project schedule (Attachment E).

### **BACKGROUND**

The Board approved the original Missouri Flat MC&FP in December 1998. The MC&FP is comprised of a policy and action framework intended to relieve existing road deficiencies and create additional capacity for planned commercial development in the commercial area

surrounding the Missouri Flat Road and Highway 50 interchange (Project Area). The MC&FP is comprised of the following objectives:

- Alleviate existing traffic congestion.
- Create adequate capacity to meet County General Plan Level of Service (LOS) policy.
- Establish a vital commercial center in the County.
- Improve the County's fiscal well-being.
- Establish the framework for revenue collection that would fund specific improvements identified in the Project Area.
- Widen portions of Missouri Flat Road.

Originally envisioned as one funding plan, the MC&FP was subsequently divided into two phases after the November 1998 passage of Measure Y, which excluded certain improvements contained in the funding plan. Approval of the initial phase of MC&FP (Phase I) coincided with the approval of a number of commercial projects proposed for the Project Area, including Wal-Mart, the El Dorado Villages Shopping Center, and Sundance Plaza. Since approval of these projects in 1998, a number of retail projects have been constructed in the Project Area, including Wal-Mart and the El Dorado Villages Shopping Center.

MC&FP Phase I limits commercial development in the Project Area to about 730,000 square feet. With approximately 500,000 commercial square feet constructed in the Project Area to date, current approved and proposed commercial projects in the Project Area exceed remaining capacity in Phase I. In addition, further development in the Project Area would require an updated evaluation of requisite transportation improvements, including the need for an ultimate highway interchange solution at Missouri Flat Road. These two factors have triggered the potential implementation of MC&FP Phase II.

On May 22, 2012, the Board directed staff to initiate MC&FP Phase II (Legistar item 12-0643). Phase II would provide a framework to fund any necessary additional major improvements to the U.S. Highway 50/Missouri Flat Road Interchange and adjacent arterial and collector roads that will alleviate forecasted traffic congestion and facilitate additional commercial development in the Missouri Flat Road corridor.

On February 24, 2014, the Board directed staff to issue a Request for Proposal (RFP) to seek consultant assistance for MC&FP Phase II (Legistar item 14-0245). Staff released an RFP on June 20, 2014.

On March 30, 2015, the Board awarded RFP No. 14-918-090 for consulting services related to the MC&FP Phase II to Economic & Planning Services, Inc. (EPS) of Sacramento to begin the MC&FP Phase II analysis.

On December 7, 2015, the Board

- 1) Received and filed the history of funding mechanism for MC&FP monies;
- 2) Received and filed the draft Final Missouri Flat Retail Market and Financial Feasibility Analysis Report;
- 3) Directed staff to proceed with MC&FP Phase II;
- 4) Confirmed the approach to public outreach for the MC&FP Phase II; and
- 5) Received and filed the updated MC&FP Phase II project schedule.

On March 7, 2017, the Board:

- 1) Authorized the use of MC&FP revenue for the completion of the MC&FP Phase II Study as originally directed by the Board on May 22, 2012 and as authorized on March 30, 2015;
- 2) Directed staff to look at the analysis on a global scale to determine if there are other areas that might benefit from such a financing plan or other plan that could assist the County with its economic development needs consistent with the strategic plan; and
- 3) Included the Community and Economic Development Committee as a participant in the process.

## **DISCUSSION**

### **1) TM 1-7 Future Traffic Analysis Results and Findings (Receive and file)**

The County's transportation sub-consultant, Kittelson & Associates (KAI), has completed the draft TM 1-7 Future Traffic Analysis Results and Findings (Attachment B). The memorandum summarizes the travel demand forecasting assumptions and methodologies used to develop traffic forecasts for 2035 and 2040. The analysis considers many factors including future transportation improvement projects and future land development projects. The future transportation projects include Diamond Springs Parkway and the widening of Missouri Flat Road between China Garden Road and Pleasant Valley Road (State Route 49). County staff, KAI and EPS staff met with Caltrans on October 11, 2017 to discuss the future forecasts and to solicit input on the methodology, analysis and results for the MC&FP Phase II project. The County and Caltrans provided input and KAI addressed the comments and incorporated the feedback into the analysis. KAI provided traffic forecasts through 2040.

Staff recommends the Board receive and file the draft TM 1-7 Future Traffic Analysis Results and Findings (Attachment B).

**2) TM 1-8 Capacity Threshold Phasing Analysis and Alternative Screening Evaluation and US Highway 50/Missouri Flat Road Interchange Feasibility Study (Receive and provide direction on proposed Alternatives)**

The draft TM 1-7 provided the information needed to complete the draft TM 1-8 Capacity Threshold Phasing Analysis and Alternative Screening Evaluation (Attachment C). TM 1-8 was completed by KAI and the Interchange Feasibility Study (Attachment D) was completed by Quincy Engineering.

The traffic analysis indicates that seven of the 23 study intersections are projected to operate at LOS F by 2035 without improvements. The future deficiencies include:

1. Missouri Flat Road & US 50 Eastbound (EB) Ramps
2. Missouri Flat Road & Industrial Drive
3. Missouri Flat Road & Enterprise Drive
4. Pleasant Valley Road (SR 49) & Forni Road
5. Pleasant Valley Road & SR 49 (West)
6. El Dorado Road & US 50 Westbound (WB) Ramps
7. El Dorado Road & US 50 EB Ramps

A focused analysis was performed for the US 50/Missouri Flat Road interchange. The analysis concluded that signal phasing and timing modifications may provide for LOS D or better operations at all intersections without physical improvements for the year 2035. By the year 2040, physical improvements will be required to maintain acceptable LOS.

**Alternatives**

The project team developed two interim improvement alternatives and six ultimate improvement alternatives. Each alternative is described below; the graphical representation is included in the report by Interchange Feasibility Study (Attachment D).

All alternatives meet Caltrans and County standards unless otherwise stated, and provide standard Class 2 bicycle facilities and sidewalks through the interchange.

Two types of alternatives were considered – short term and long term. The former are low cost alternatives designed to extend the period of acceptable traffic operations for the existing interchange by an incremental amount. Long term alternatives are intended to provide acceptable operations for the interchange for a period of at least 20 years. The implementation of short term alternatives does not preclude the implementation of long term alternatives. As a result, it is possible to implement a short term alternative and then at a later date replace it with a long term alternative.

***Short term alternatives considered include the following:***

- A. Lane Reconfiguration #1** – This alternative restripes lanes on Missouri Flat Road from 12' in width to 11' to provide an additional Northbound (NB) lane as well as storage for the NB to Westbound (WB) on-ramp movement. This alternative extends the period of acceptable traffic operations for the existing interchange by approximately 5 years – well below the desired 20-year period of the project objectives. This project would require design exceptions for 11' lane widths as well as reduction of shoulders from 8' to 5'. Class 2 bike lanes would be reduced to 5', which is still considered a standard width. Estimated construction cost: \$675,000
  
- B. Lane Reconfiguration #2** - This alternative restripes lanes on Missouri Flat Road from 12' in width to 11' to provide an additional Southbound (SB) lane as well as storage for the SB to EB on-ramp movement. This alternative extends the period of acceptable traffic operations for the existing interchange by approximately 3 years – well below the desired 20-year period of the project objectives. This project would require design exceptions for 11' lane widths as well as reduction of shoulders from 8' to 5'. Class 2 bike lanes would be reduced to 5', which is still considered a standard width. Estimated construction cost: \$675,000.

***Long term alternatives considered include the following:***

- C. Hook Ramps** – This alternative replaces the existing EB Off-ramp with a Type L-6 configuration (aka “hook ramps”) connecting into Mother Lode Drive. Traffic operations are improved due to the removal of the 100' intersection spacing on the south side. The Park and Ride lot would require relocation to the Southeast (SE) quadrant. Due to the limited distance between the SB to EB & NB to EB on-ramps, a 300' auxiliary lane could not be accommodated and would require a design exception to Caltrans standards. In addition, the Type L-6 configuration is highly undesirable to Caltrans policies, and as a result, the probability of approval of this configuration is low. Estimated construction cost: \$3,000,000. Estimated total cost: \$4,710,000.
  
- D. Partial Cloverleaf** – This alternative replaces the existing EB Off-ramp with a Type L-9 configuration (aka “Partial Cloverleaf”), requiring the relocation of Mother Lode Drive. Traffic operations are improved due to the removal of the 100' intersection spacing on the south side and the modification of the EB ramp intersection to a two-phase operation. The Park and Ride lot would require relocation to the SE quadrant. Due to the limited distance between the SB to EB & NB to EB on-ramps, a 300' auxiliary lane could not be accommodated and would require a design exception to Caltrans standards. This

configuration is highly desirable to Caltrans policies and as a result, the probability of the approval of this configuration is very high. Estimated construction cost: \$11,750,000. Estimated total cost: \$18,565,000.

**E. Roundabout Intersections** – This alternative replaces the existing ramp intersections with unsignalized roundabouts. Mother Lode Drive would be preserved in its current configuration and connect into the EB ramp intersection on a fifth leg. As a result, traffic operations are improved due to the removal of the 100' intersection spacing on the south side and the general efficiencies of a roundabout as opposed to a conventional intersection. The Park and Ride lot would not require relocation. There is precedent for this configuration in the area and as a result, it is acceptable to Caltrans policies. However, the traffic analysis indicates that a multi-lane roundabout design could not accommodate the 2040 peak hour volumes and therefore the roundabout concept is not recommended for further evaluation. Estimated construction cost: \$3,800,000. Estimated total cost: \$5,928,000.

**F. Diverging Diamond Interchange** – This alternative reconfigures Missouri Flat Road and the ramp intersections to a diverging diamond interchange (DDI) configuration. The overcrossing structure would be widened to accommodate six lanes on Missouri Flat Road. Traffic operations are improved due to the general efficiencies of two-phase signals at the ramp intersections. The Park and Ride lot would not require relocation. Although there have been approximately 60 DDI's constructed in the United States, this configuration is relatively new to Caltrans as the first one in the state is being constructed in 2018. The probability of approval of this configuration is high.

Mother Lode Drive could either be preserved or relocated, and as a result, two sub options are considered for this configuration. In the event Mother Lode Drive remains, it is likely that Caltrans will require turn restrictions and removal of the traffic signal at this location. The left-turn from Mother Lode Drive to northbound Missouri Flat Road and the left-turn from northbound Missouri Flat Road to Mother Lode Drive would be prohibited. If the DDI is selected as the preferred alternative, County staff will continue to work with consultants to identify options regarding these movements. Options include allowing u-turns on Missouri Flat Drive, providing private driveways, partial signals, etc. . Estimated construction cost: \$4,600,000. Estimated total cost: \$7,130,000.

Alternatively, Mother Lode Drive could be relocated at least 400 feet southward. If moved, all turn movements would be accommodated at the new intersection. Moving Mother Lode Drive will significantly improve signal operations and queuing and ensure long-term viability of the interchange. Estimated construction cost with the relocation of Mother Lode Drive: \$11,300,000. Estimated total cost: \$17,515,000.

**G. 6-Lane Tight Diamond Interchange** – Also known as Phase 2a, this alternative is one of the possible ultimate configurations for Phase 2. It widens Missouri Flat Road to 8 total lanes (6 through and 2 left) and adds a lane onto each off-ramp. Traffic operations are improved due to the increased capacity. The Park and Ride lot would not require relocation. The overcrossing structure will require widening to add one lane on each side. The probability of approval of this configuration is high, but will require a design exception for intersection spacing to Mother Lode Drive. Estimated construction cost: \$4,500,000. Estimated total cost: \$6,975,000.

**H. Single Point Diamond Interchange** – Also known as Phase 2b, this alternative is one of the possible ultimate configurations for Phase 2. Traffic operations are improved due to the removal of the 100' intersection spacing on the south side, the increase of intersection spacing on the north side to 700', and the general efficiencies of combining the ramp intersections into a single point. The Park and Ride lot would not require relocation. The overcrossing structure will require widening to triple its current area, which adds significant cost. The probability of the approval of this configuration is high, as it has already gained Caltrans approval as part of Phase 1. Estimated construction cost: \$25,750,000. Estimated total cost: \$39,655,000.

The close spacing between the eastbound ramps and Mother Lode Drive is identified as the primary cause of deficient operations with the 2040 traffic forecasts. The relocation of Mother Lode Drive is also under consideration in some of the alternatives previously discussed. To provide adequate spacing on the south side of the interchange, Mother Lode Drive would require relocation at least 400 feet southward (see Attachment D). However, this would require significant retaining walls due to the 80 foot tall hillside in the southwest quadrant. Right of Way acquisition from the Best Western and Casa Ramos would be required as well. Moving Mother Lode Drive will significantly improve signal operations and queuing and ensure long-term viability (beyond 2040) of the interchange, regardless of the interchange type. This relocation, though helpful in reducing congestion is costly (approximately \$7 million).

The KAI memorandum (TM 1-8, Attachment C) summarizes the traffic operations analysis for each interchange alternative under consideration. Several ultimate interchange configurations could provide LOS D or better operations at all interchange intersections, including a hook ramp concept, a partial cloverleaf concept, a diverging diamond concept or a single point diamond concept.

Quincy Engineering performed an alternatives comparison based on weighted criterion and a value index developed for each alternative based on the performance to cost ratio. Each alternative provides similar sidewalk and Class II bike facilities. The other performance criterion

used to determine the value index was Traffic Performance (50%), Environmental Impacts (10%), Right of Way Impacts (10%), and Caltrans Approvability (30%). Based on these factors the Diverging Diamond Interchange without the relocation of Mother Lode Drive has the highest value index. The Hook Ramps alternative, and the 6-Lane Tight Diamond Interchange alternative have the second and third highest value indexes, respectively. The previously identified preferred alternative, the Single Point Diamond Interchange (previously referred to as SPUI, or Single Point Urban Interchange) had the lowest value index due to its high cost.

Staff recommends the Board select the Diverging Diamond Interchange Alternative as the preferred alternative for the future configuration for the Missouri Flat Road Interchange. The DDI has the highest Value Index of all of the alternatives. The analysis indicates that the DDI offers the most efficient traffic operations, high chance of Caltrans approvability, and fewer environmental impacts.

### **3) Receive Information on Outreach efforts**

The draft TM 1-7, TM 1-8 and Interchange Feasibility Study results were presented to two focus groups and at a public workshop on November 20, 2017 in order to solicit feedback. The County's sub-consultant, Regional Government Services (RGS), led the discussion during the two focus group meetings and at the public workshop. Each focus group had nine participants, and RGS used polling equipment to solicit opinions on each interchange alternative. The Diverging Diamond Interchange was the most highly favored alternative among the participants. Kendall Flint of RGS will present highlights of the meetings during the power point presentation (see Attachment F) for the February 6 Board Meeting.

Staff recommends the Board receive the information on the project outreach efforts.

### **4) Updated MC&FP project schedule (Receive and file)**

Attachment D represents the updated project schedule.

Staff recommends the Board receive and file the updated MC&FP project schedule.

### **NEXT STEPS**

Following the identification of the preferred alternative configuration for the future Missouri Flat Road Interchange, County staff and their consultants will complete the contract work which includes:

- Conducting a California Environmental Quality Act review
- Completing the cost burden analysis
- Forecasting Public Service Costs
- Forecasting Public Revenues



- Analyzing Net Fiscal Effects
- Evaluating Potential Financing Mechanisms
- Preparing a Cash Flow Analysis and Draft Financing Strategy
- Coordinating Traffic Impact Mitigation Fee and Capital Improvement Programing
- Preparing a Financing Plan and Report
- Conducting additional Focus Group workshops, Public workshops and Board study sessions
- Planning Commission and Board of Supervisors presentations
- Outreach Summary Report

**CONTACT**

Roger Trout, Director  
Community Development Services, Planning and Building Department

Natalie K. Porter, Traffic Engineer  
Community Development Services, Long Range Planning Division