

Memorandum

To: Kimberly Kerr, Assistant Chief Administrative Officer

Cc: Natalie Porter, PE, TE
Shawna Purvines, AICP
Claudia Wade, PE

From: Michael Schmitt, AICP, PTP

Re: Technical Memorandum #3: Revised Roadway Network
El Dorado County Travel Demand Model Update

Date: June 13, 2012

The purpose of this memorandum is to present information on the development of the roadway network for the ongoing update to the El Dorado County (EDC) Travel Demand Model (TDM). The roadway network is an essential part of the TDM that serves multiple purposes including:

- Basis for estimating travel time between Traffic Analysis Zones (TAZs),
- Basis and repository for traffic assignments,
- Tool to facilitate an understanding of how trips are distributed; and
- Tool for displaying the level of traffic congestion associated with different land use scenarios.

I. Network Review

Kimley-Horn and Associates, Inc. (Kimley-Horn) reviewed the following network data sets provided by EDC and the Sacramento Area Council of Governments (SACOG):

- **GPSroads** – this Geographical Information System (GIS) layer is an inventory of existing roadways in the County, including all of the highways and major roads identified in the Circulation Element.
- **2025 SACMET Network** – this network from the SACMET model was converted from its Cube format for analysis in GIS.
- **2025 EDC Model Network** – this network from the current EDC model was converted from its MINUTP format for analysis in GIS.

The GPSroads layer is a detailed inventory of existing roadways in El Dorado County. The network classifies roadways in three categories: highways (freeways and Caltrans operated arterials); major roads; and minor roads. This layer consists of line features with several data attributes coded in a GIS database. The review focused on the data attributes that stored information about the physical characteristics of the roadway, including pavement status (paved or unpaved), existing number of lanes and segment length.

The SACMET roadway network includes regional highways and major arterials in the Sacramento region, including those in El Dorado County. The network is used to assign traffic for the current 2025 SACMET forecast (note that SACOG's official model of record is now SACSIM). The review focused on the data attributes coded for roadway classification, free-flow speed, capacity, number of lanes and link distance.

II. Network Comparison Process

The process for developing the base year and future networks for the updated El Dorado County model consisted of the following:

- Preparing an overlay of the GPSroads network with the 2025 SACMET and 2025 EDC Model network to analyze the high-level differences between the detailed GIS network and the coarser, 2025 model networks originally developed in Cube/MINUTP formats;
- Preparing a comparison map in GIS of the roadway network in the Circulation Element and the 2025 model networks; and
- Using the information above in conjunction with information in the EDC General Plan Circulation Element to develop a network of existing and future roadways for discussions with EDC staff.

III. Network Analysis

GPSroads/2025 Model Networks: A comparison of the GPSroads network and the 2025 SACMET and 2025 EDC Model networks is mapped in **Figure 1**. As shown, neither the SACMET nor the EDC Model Networks are true GIS representations of existing roadways. Beneath, in black and gray, is the GPSroads network roadway displaying classification information identifying highways, major roads and minor roads. The GPSroads network is GIS-based, showing detailed, curvilinear features.

As shown, most highways and major roads in the GPSroads network are represented in the 2025 model networks, with the exception of some roads that do not overlap with either network. Not surprisingly, minor roads are not included in the 2025 model networks as collector streets are at too fine a scale for travel demand modeling purposes. Instead, collector streets are represented using centroid connectors to convey traffic loading onto the network from each TAZ.

Circulation Element/2025 Roadway Networks: A comparison of the Circulation Element and the 2025 SACMET and 2025 EDC Model networks is mapped in **Figure 2**. The segments shaded in blue identify areas of the Circulation Element that are represented in the SACMET and EDC Model networks. The segments shaded in gold are those in the Circulation Element that are represented in the SACMET network, but not included in the EDC Model network. The unshaded segments (black) identify paved roadways in the Circulation Element that are not represented in either the SACMET or EDC Model networks. The unpaved segments in the Circulation Element that are not represented in either the SACMET or EDC Model networks are identified with a red dashed line. Most of these unpaved segments are classified as minor roads in the GPSroads network.

Most of the roadways included in the Circulation Element are represented in both 2025 model networks. The 2025 SACMET network includes several roads from the Circulation Element that are not shown in the 2025 EDC Model network. All roads featured in the 2025 EDC Model network are included in the 2025 SACMET network. Both 2025 model networks omit roads in the Tahoe Basin Planning Area located in the eastern edge of the County as the Tahoe Regional Planning Agency is responsible for travel demand modeling for that area.

Revised Model Network: **Figure 3** was created to facilitate discussion with EDC regarding the final determination of both the baseline and 2035 networks. The segments in black are all the paved highways and major roads in the GPSroads network that correspond to the Circulation Element. Segments identified with a red dashed line are roadways in the Circulation Element that are unpaved. Unpaved, minor roads that are in neither the SACMET or existing EDC 2025 model networks were identified for further discussion with EDC staff to determine their importance to the future model network. Additionally, future roadway facilities including interchanges identified in the Circulation Element are colored purple.

The majority of the unpaved, minor roads targeted for further discussion consist of stubs at the end of a roadway segment, with the exception of a few connecting segments. The future roads considered for the 2035 network also include those identified in the County's Capital Improvement Program.

Figure 1 – GPSroads/2025 Model Network Comparison

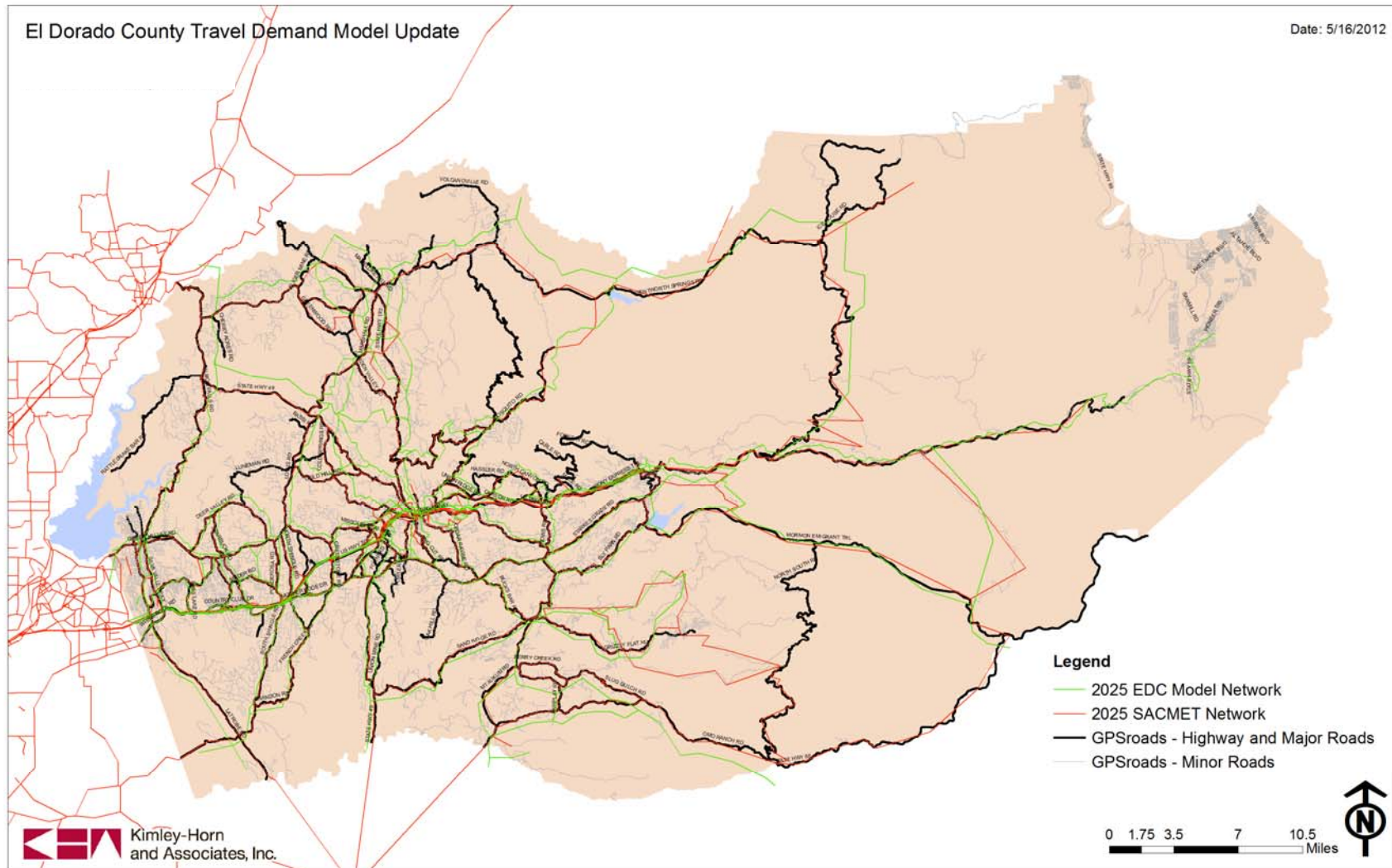


Figure 2 – Circulation Element/2025 Model Network Comparison

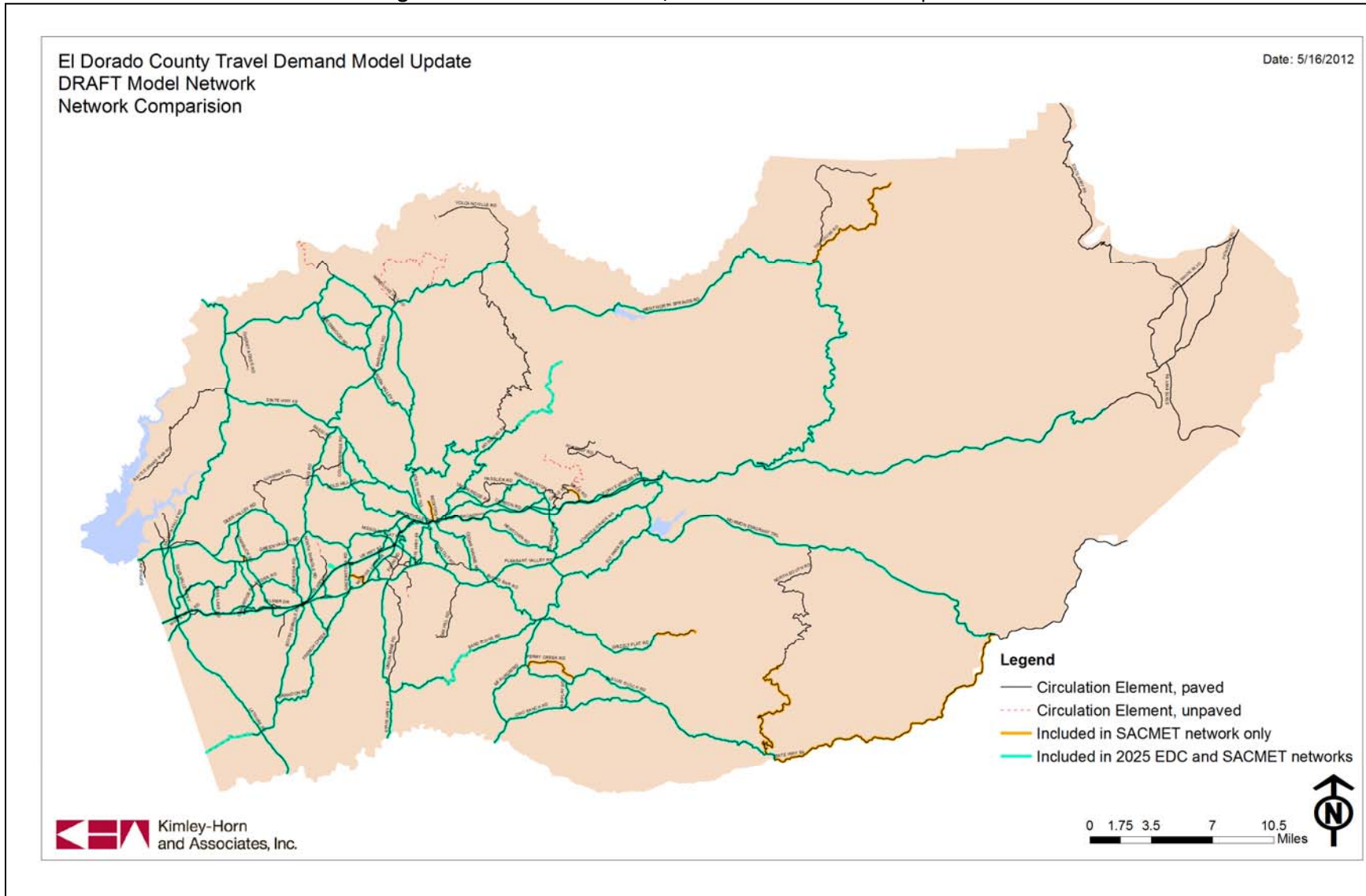
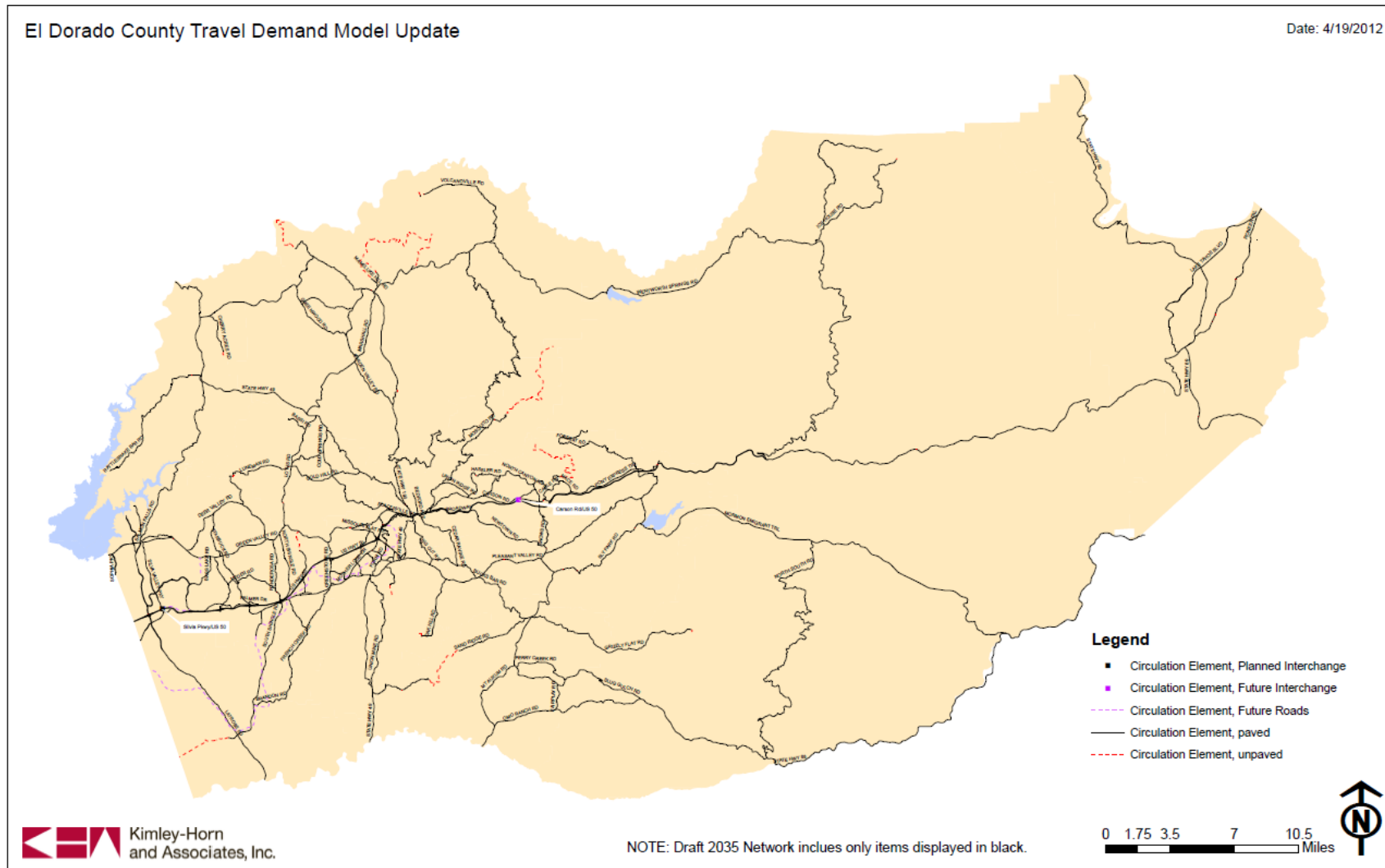


Figure 3 – Roadway Network for Discussion Purposes



IV. County Staff Review of Network Comparisons

The network comparison maps were distributed to El Dorado County staff and discussed with the project team at a meeting on April 19, 2012. Following the meeting, EDC staff reviewed the maps and compiled a list of edits for developing the revised base year and future 2035 networks. The final, revised network is shown in **Figure 4** and reflects the following EDC staff comments:

Roads to add to the Base Year Network

- Sophia Parkway
- Harvard Way
- Blackstone Parkway/Valley View Parkway
- Mt. Murphy Road between Marshall Road and SR 49
- Empire Ranch Road
- Iron Point Road

Roads to remove from the Base Year Network

- Unpaved segments of dead end roadways
- White Rock Road spur to the east of Silva Valley Parkway
- Shingle Springs Road – gated segment between US 50 and Green Valley Road
- Mosquito Road to the east of Rock Creek Road
- Bottle Hill Road
- Sliger Mine Road
- Cable Road to the north of Mace Road

Roads to add to the Future Network

Projects in 2012 10-Year CIP (Project No.)

- Silver Springs Parkway (76107 and 76108)

Projects in 2012 20-Year CIP (Project No.)

- Headington Road Extension (71375)
- Country Club Drive Extension (GP124, GP125, and GP126)
- Diamond Springs Parkway (72334, 72368, and 72375)
- Latrobe/White Rock Connector (66116)
- Saratoga Way Extension (71324 and GP147)

Project not contained in 2012 CIP

- Ray Lawyer Drive Extension

Figure 4 – Final Model Network

