**Final Pass Integrating all Relevant text, tables, figures and discussion from** “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC” into one of two places:

* The approved methodology outline.
* The approved validation outline.

This work is complete. A few dozen tables, joined tables or segments of tables were adapted for the approved outlines. Introductory text, some figures, and structure were likewise borrowed. We can effectively place “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC” in an archived file as part of the historical documentation of the CFRPM.

**STEP 1**

The final step of the outline editing was to take the 39 page report called “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC” and use it to fill the two well developed and approved report frameworks for CFRPM Description and Validation. Prior to the editing, I renamed them with the suffix “\_withInserts from LegacyReports\_IncludingTWO37” to yield:

* CFRPM Model Description Outline March2016\_withInserts from LegacyReports\_IncludingTWO37.DOC
* CFRPM\_Validation\_Outline\_Detailed V3\_withInserts from LegacyReports\_IncludingTWO37.DOC

**STEP 2**

In Step 2, I actually inserted the recent and relevant components from “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC”into one of the well-developed and approved framework documents using these rules:

* The overall goal was to separate the CFRPM model description and the model validation, per client direction.
* Where possible I used “Track Changes”
* I also used the “Comment” function to show where the inserts were put and why.
* I fleshed out the inserts so that they are ready for final document inclusion – leaving no need to return to the legacy reports for “harvesting”.

**Inserts to “CFRPM Model Description Outline March2016\_withInserts from LegacyReports\_Including TWO37.DOC”**

Acronyms were added to the approved outline.

**Section 1 Introduction** chapter was rewritten to include:

* A first paragraph that references the current version, CFRPM Version 6.01, and that includes a list of the tasks completed in that update.
* A citing of the base and future scenario years of the updated CFRPM; these will likely not be 2010 and 2040, but may be.
* The two key overview figures, Model Flow and Model Extent which frame the CFRPM. These were taken from the tech memo “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC”.
* Two analysis sections: (1) “commute mode shares” and (2) “commuter direction balance” that provide a data driven snapshot of the region. These will need to be updated to the CFRPM region. An Orange County example “Figure 1 3: Orange County Worker Flows” was generated for this outline to show the value of LODES worker data.

**Section 2 Traffic Analysis Zones and SE Data** was rewritten to:

* Add a figure for the TAZ System.
* The accepted outline already has a list of items required for a comprehensive model methodology report. All are covered in detail in the accepted outline.

**Section 3 Network Development**

* Introduction from “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC” is used.
* Tables 4-2 and 4-3 from “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC” are not used since the free flow and congested speed development will likely be a revised approach. A sample table (Table 3-2) was inserted with a simple functional class, speed and capacity lookup for five roadway types used in a mid-sized city (Colorado Springs). This table will be revised to include all the selected highway functional classes designated for the CFRPM.
* The approved outline starts with the establishment of a highway attribute file then moves on to a capacity lookup table; this approach was retained.
* Introduction to transit route coding was added using text from “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC”

**Section 4 Household Travel Survey and Trip Generation**

* As there is no section on household survey use in “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC”, there are no updates from it to the approved outline.
* Section 3.0 “Trip Generation” from “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC” was reviewed. This section discusses the “lifestyle trip generation model” which will likely be replaced by cross classification. Also the validation benchmarks and comparison of productions and attractions will be moved to the document called “CFRPM\_Validation\_Outline\_Detailed V3\_withInserts from LegacyReports.DOC” in accordance with having separate reports for methodology and validation.

**Section 5 Transit Network**

* Table 5-3 from “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC” is adopted for the accepted outline.

**Section 6 Truck/Commercial Vehicles**

* As there is no section on trucks/commercial vehicle in “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC”, there are no updates from it to the approved outline.

**Section 7 External Models**

* Section 2 of “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC” discussed external models but did not include new modules or approaches to the external modules of the CFRPM.

**Section 8 Time of Day**

* As there is no section on time of day in “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC”, there are no updates from it to the approved outline.

**Section 9 Transit Data & Analysis**

* As there is no section on transit data and analysis in “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC”, there are no updates from it to the approved outline.

**Section 10 Mode Choice**

* Introduction adapted from “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC”.
* Both Figure 10-1 Mode Choice Structure and Table 10-1Mode Choice Coefficients are taken from “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC” to the approved outline.

**Section 11 Highway Assignment**

* Selected text from “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC” was added to the highway assignment section of the approved outline as 11.5 Reporting Protocol. The summary tables were transferred to the approved outline. These include: Table 11-2: Systemwide Daily Model VMT and VHT by County with Total, Table 11-3: Systemwide TOD Model VMT and VHT by County with Total, Table 11-4 Systemwide Daily Model VMT and VHT by Functional Class, Table 11-5: Systemwide TOD Model VMT and VHT by Functional Class, and Table 11-6: Screenline/Cutline Traffic Summary. The tables related to validation, such as the RMSE model stats tables from “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC” were transferred to the approved validation outline.

**Inserts to “CFRPM\_Validation\_Outline\_Detailed V3\_withInserts from LegacyReports\_Including TWO37.DOC”**

In general, all discussion and tables related to **validation** from any of the model four steps were transferred to the approved outline called “CFRPM\_Validation\_Outline\_Detailed V3\_withInserts from LegacyReports\_Including TWO37.DOC”.

Acronyms were added to the approved validation outline.

**Section 1 Version Updates**

* Added Table 1-1 from “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC” to record the most recent version updates of the CFRPM.

**Section 3 Trip Generation**

* Added Table 3‑1: Percentage Comparison, similar to Table 3-4 in “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC”.
* Added Table 3‑2: Trip Rate Summaries by Person Trips” to the approved outline. It is similar to Table 3-5 in “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC”.

**Section 4 Trip Distribution**

* Table 4 1: Average Trip Length by Purpose (Observed and Estimated) was added to the approved validation outline. It is a version of Table 6-2 from “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC”.
* Table 4 2: Percent Intrazonal Trips by Purpose (Observed and Estimated) was added to the approved validation outline. It is a version of Table 6-6 from “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC”.

**Section 5 Mode Choice**

* Table 5 1: Mode Choice Validation Summary (Person Trips) was added to the approved validation outline. It was adapted from Tables 7-43 and 7-4 of the “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC”.

**Section 6 Highway Assignment**

* The Guideline or benchmark tables for traffic assignment review in “TWO 37 Model Calibration and Validation CFRPM 601 Final 04 25 2016.DOC”, are to be blended in the reporting tables in the final approved outline. These include Tables 8-2, 8-3, 8-4, 8-5 and 8-6. A sample table with guidelines inserted in the table is provided in Table 6-3 of the approved validation outline.
* NCHRP Guidelines – both tabular and visual to be used and cited. A sample table and figure were inserted.

**Appendix A** – Optional – was added to the validation outline. This appendix would address the integration of the most recent AWDT and truck counts into the validation process. Alternatively it can take up 2-3 pages at the start of Section 6 – Highway Assignment. Section 3.2 of the Model Methodology approved outline covers a brief overview of the observed traffic approach and could be expanded in this proposed appendix.

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