

## **Change of Access Report Methods and Assumptions Document Procedure**

The intent of this document is to capture the assumptions to be used in the analyses within the Change Of Access (COA) report. This document will be developed in the beginning stages of the study [before the 15% design] and will account for the parameters and decisions set by the team.

Provided below is an example outline of the document to be produced and items to consider:

### **1. Stakeholder Acceptance**

The page after the cover page (“Change of Access Report, Methods and Assumptions for the <Title of Project>”) should have concurrent ADOT & FHWA signatures with the following information –

“The undersigned parties including all members of the team from ADOT, FHWA and the local agencies, concur with the Change of Access Report, Methods and Assumptions for the <Title of Project> as presented hereinafter.”

ADOT:

FHWA:

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Date)

The recommended ADOT stakeholder should be the Roadway Group Manager and the FHWA stakeholder should be the Operations Senior Engineering Manager.

If the stakeholders feel it is necessary the following notes may also be added:

“ (1) Participation and/or signing of this document does not constitute approval of the <Title of Project> Change of Access Report.

(2) All members of the project team will accept this document as a guide and reference as the study progresses through the various stages of project development. If there are any agreed upon changes to the decisions in his document, a revision will be made, and resigned by the stakeholders.”

## 2. Introduction and Project Description

There should be background information including: scope, potential environmental study, project schedule, involved stakeholders, and team members.

As well as project specific items such as: project location, type of interchange (i.e. partial/ service/ system), existing/ future conditions, project study area and traffic area of influence (all affected interchanges, intersections and streets to be included within the analysis).

## 3. Need for the Project

Briefly define the current need for the project. What are the traffic related congestion issues which are hoped to be resolved? What are the project constraints?

## 4. Analysis Years

The existing year (base), opening year (facility opens to the public), interim years (phased construction, if deemed necessary) and design year (at least 20 years from the opening date to traffic) should all be decided upon. If interim conditions exist, it should be defined if it is of the mainline traffic and/or interchange structure

Also, the peak hour should be discussed. If the project is located with a highly urbanized condition or if the location is currently (existing conditions) at or close to capacity, the peak hour may need to be extended into a peak period for AM and PM.

All Alternatives		Year of Analysis			
		<i>Existing</i>	<i>Opening<sup>1</sup></i>	<i>Interim<sup>2</sup></i>	<i>Design</i>
No Build		✓	✓	✓	✓
Build	Preferred Alternative		✓	✓	✓
	Other Alternatives		✓	✓	✓
TSM Alternative		✓	✓	✓	✓
Notes:					
1: Opening year can either be an interim configuration or build out configuration, must be defined					
2: Interim year can either be an interim configuration or build out configuration, must be defined					

## **5. Data Collection**

The type of data that will be used should be discussed and can include:

- Land use – existing and proposed, should be based on approved MPO model if within the MPO planning boundary. If outside a planning boundary the team should decide the most appropriate land use.
- Traffic data:
  - Geometry (interstate, ramps, intersections, arterials)
  - Control (signal timing, signs, ramp meters, time of day parking restriction, etc)
  - Volume (mainline, intersections, and other movements as needed)
- Traffic factors: identified traffic factors to be collected (PHF, K30, D30, Truck Traffic (T), Recreational Vehicles (RVs))
- Pedestrian, bicycle and transit data as warranted to multi-modal operational
- Calibration data (volumes, travel times, speed, queues, etc)

## **6. Travel Demand Forecasting**

A consensus should be reached between the project team, MPO and ADOT as to how to determine the future traffic to promote consistency between studies and adjacent projects. This section should describe what regional traffic model or trend line analysis will be used to take into account historical/ projected growth rate. Documentation should include the selected approved model/ studies for the traffic area of influence and the travel demand forecasting methodology (model to be used, validation / calibration efforts, etc). Also future improvements outside the control of the project (i.e. improvements in the long range planning model) should be decided if they will be included in the analysis as assumptions – if so, this should be clearly stated.

## **7. Traffic Operations Analysis**

Based on the project scope and traffic area of influence, describe what tool and what latest version will be used for Traffic Operation analysis. The tool could be deterministic (HCS, Synchro, etc), Mesoscopic Simulation (Dynasmart, Paramic, etc), or Microscopic Simulation (CORSIM, VISSIM, etc). The analysis tool should be established based on the specific objectives and goals of the project.

The traffic operation analysis efforts should include analysis of the following:

- Mainline analysis (performance MOE should be identified early in the process)

- Ramp roadway analysis
- Weave analysis
- Arterial analysis (intersections, queues, etc)
- Merge/ diverge analysis

## **8. Safety Analysis**

Detailed collision (crash) data within the study area should be analyzed (number of crashes per mile per year, with consequences of those crashes as specified by injuries, fatalities, or property damage). Suggested steps for analysis:

- 1) Establish the safety influence area (in some cases, will be the same as the traffic area of influence)
- 2) Collect traffic & geometric data (field data)
- 3) Collect safety data
- 4) Analysis of safety & traffic data
- 5) Assess existing & proposed geometric & operational conditions
- 6) Consider future safety conditions & corrective (countermeasure) actions (based on the imperial data that was collected)
- 7) Document safety considerations

The safety analysis should demonstrate the proposed project will not have significant or adverse impacts on the safe operation of the Interstate. This could not be due to better operation that the safety will be improved. Operational safety needs to be based on the analysis of the proposed geometrics and by addressing the findings from the crash data.

## **9. Selection of Measures of Effectiveness (MOE)**

Selection of metrics for displaying results of the traffic analysis – MOE's – should be done in support of and in order to accomplish the project objectives. Examples of common MOE's are:

- Travel time on network/ Interstate (minutes)
- % of demand served at pre-agreed to locations
- % of demand served in peak hour/period
- % of capacity used on signalized ramp terminals
- Confidence interval (allowable % of error)
- Maximum queue length at critical locations and intersections
- Average queue length
- Persons/vehicles served (vehicle-miles)

- Average speed & density
- Average trip length (vehicle/hours per trip)
- Duration of congestion (hours at defined density, speed or flow rate)
- Extent (segment miles congested)
- Reliability (buffer index)
- Variability in travel time
- LOS as defined by HCM

**10. Deviations/ Justifications**

Briefly discuss any potentially known deviations (i.e. software, model, studies, etc.), why they might be necessary and the possible justifications.