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**HOUSTON-GALVESTON AREA COUNCIL**

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**PO Box 22777 • 3555 Timmons Lane • Houston, Texas 77227-2777 • 713/627-3200**

February 5, 2013

Mr. Manny Francisco  
Texas Department of Transportation  
Houston District  
7600 Washington Avenue  
Houston, Texas 77007

RE: Congestion Mitigation Analysis (CMA) For SH 288 from US 59W to SH 99 / CR 60

Dear Mr. Francisco:

The Houston-Galveston Area Council (H-GAC), as the designated Metropolitan Planning Organization for the Houston-Galveston region, has completed the CMA for the Major Investment Study (MIS) project referenced above. Please find attached the CMA analysis report to be forwarded to the appropriate department of TxDOT.

Per your request, H-GAC has repeated the CMA analysis for this project. The results of the analysis still indicate that the level of mobility for this project will deteriorate enough by the Long-Range Plan Year of 2035 to justify adding capacity. Therefore, any widening of SH 288 from US 59W to SH 99 / CR 60 will be consistent with the Congestion Management System (CMP) Plan of H-GAC.

Since this is a freeway corridor, as per the CMP, we need to apply Computerized Transportation Management System (CTMS) as a Transportation System Management (TSM) Measure throughout the project length as congestion mitigating measure in this corridor. This will require the implementing agency to commit to include this TSM measure of CTMS as part of this roadway project.

If you have any comments or need additional information, please do not hesitate to contact me at (713) 499-6692.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Stephan Gage', is written in a cursive style.

Stephan Gage  
Sr. Transportation Planner

**CONGESTION MITIGATION ANALYSIS (CMA)**  
**SH 288 MIS From US 59W To SH 99 / CR 60**  
**DECEMBER 13, 2012**

## **FINDINGS**

These findings are an update to those issued on November 14, 2007, and reflect changes which potentially affect the justifications for the project. The Level of Mobility (LOM) by the Regional Transportation Plan (RTP) Year 2035 along SH 288 from US 59W To SH 99 / CR 60 will deteriorate significantly to justify adding road capacity. Since this is a freeway corridor, as per the Congestion Management Process (CMP), Computerized Transportation Management System (CTMS) Measure needs to be considered as the first mitigating element for the corridor. TCM-Tool-Box of H-GAC suggests that CTMS projects on an average mitigate congestion by two percent (2%). Any project which has a mitigating factor equal to or greater than one (1) is considered significant. However, the LOM in the RTP Year 2035 even after this two percent mitigation would not reduce sufficiently to negate the added capacity justification. In conclusion, adding capacity on this freeway corridor is consistent with the CMP contingent to the considerations described below.

## **BACKGROUND**

The CMP requires the performance of a Congestion Mitigation Analysis (CMA), formerly known as Single Occupancy Vehicle Analysis, on significant added capacity roadway projects. It is the stated policy of the CMP to apply cost-effective Transportation System Management (TSM) measures and Travel Demand Management (TDM) as the first component of all congestion reduction strategies. Added capacity roadway projects, such as this project, are only justified if cost-effective demand and system management strategies fail to reduce vehicular congestion to acceptable (or tolerable) levels.

## **PROJECT DESCRIPTION**

The limits of this Major Investment Study (MIS) are SH 288 from US 59 W to SH 99 / CR 60. The CSJ Numbers associated with this project are as follows:

### **PHASE 1**

- CSJ 0598-01-090: US 59 to IH 610 – Construct 2 Toll-Lanes (Reversible)
- CSJ 0598-01-092: IH 610 to Brazoria County Line – Construct 2 Toll Lanes (Reversible)
- CSJ 0598-01-904: Beltway 8 Interchange – Construct 4 Direct Connectors
- CSJ 0598-02-092: Harris County Line to SH 6 – Construct 2 Toll-Lanes (Reversible)

### **PHASE 2**

- CSJ 0598-01-901: US 59 to IH 610 – Widen to 4 Toll Lanes
- CSJ 0598-01-902: IH 610 Interchange – Reconstruct Interchange
- CSJ 0598-01-905: IH 610 to Brazoria County Line – Widen to 4 Toll Lanes
- CSJ 0598-01-906: IH 610 to BW 8 - Reconstruct and Widen to 8 Main Lanes
- CSJ 0598-01-907: At Beltway Interchange – Construct 4 Direct Connectors
- CSJ 0598-02-093: SH 6 to SH 99 – Construct 4 Toll Lanes in Medians with Grade Separations
- CSJ 0598-02-900: Harris County Line to SH 6 – Widen to 4 Toll Lanes

The consultants for this MIS have divided the project area limits into eight segments, namely:

- Segment 1 – SH 288 from US 59W to US 90A;
- Segment 2 – SH 288 from US 90A to IH 610;
- Segment 3 – SH 288 from IH 610 to BW 8;
- Segment 4 – SH 288 from BW 8 to FM 518;
- Segment 5 – SH 288 from FM 518 to CR 58;
- Segment 6 – SH 288 from CR 58 to SH 6;
- Segment 7 – SH 288 from SH 6 to CR 57;
- Segment 8 – SH 288 from CR 57 to CR 60 / SH 99.

## TRAFFIC AND LEVEL OF MOBILITY

**Table 1** illustrates level of mobility ranges used to define congestion by H-GAC. These LOMs were developed by the H-GAC Travel Modeling Committee and approved by the Technical Advisory Committee. Roadway segments with LOMs that are above the tolerable level (i.e., volume/capacity (V/C) ratio  $\geq 0.85$ ) are considered congested, thus added capacity is considered to be justified, provide mitigation strategies fail to reduce the V/C ratio below 0.85.

**Table 1**  
**Summary of Levels of Mobility (LOM)**

LOM	Volume/Capacity (V/C) Ratio
Tolerable	$< 0.85$
Moderate	$\geq 0.85 < 1.00$
Serious	$\geq 1.00 < 1.25$
Severe	$\geq 1.25$

For the purpose of this CMA, the V/C ratios (LOMs) were calculated. V/C ratios were calculated using capacities developed by H-GAC for the region’s travel demand model as well as actual 24-hour traffic counts done by consultant. Adjusted capacities were determined using H-GAC’s capacity tables, which are based on the standard “*Highway Capacity Manual*” procedures for different facility types and number of lanes, as well as other traffic-related factors. These include:

- Percent Trucks
- Number of Lanes
- Lane Utilization Factor
- Traffic Signal Timing  
[Green/Cycle Length (g/c) Ratio]
- Percent Left-turns
- Peak Hour Factor
- Peak Hour Directional Factors

Information for these factors was collected in 2011 for the Eight Segments by project consultant. The consultant also collected traffic volume within the eight segments. Using this information, the adjusted capacity was calculated using Capacity Tables and then the Weighted Average V/C Ratios were determined for the Year 2011 for all the eight segments. The two percent mitigating factor was then applied for CTMS and Adjusted V/C Ratios calculated as listed in **Table 2**.

## ANALYSIS AND RESULTS

V/C ratios for various Segments for the RTP Year 2035 are given here under in **Table 2** after applying the two percent mitigation reduction.

**Table 2**  
**LOM for Year 2011 & Year 2035**  
**SH 288 MIS from US 59W to SH 99 / CR 60**

<b>ROADWAY SEGMENT</b>	<b>LOM AFTER TSM / TDM (2011)</b>	<b>LOM AFTER TSM / TDM (2035)</b>
Segment 1 – SH 288 From US 59W & US 90A	1.87	2.38
Segment 2 – SH 288 From US 90A & IH 610	1.57	2.21
Segment 3 – SH 288 From IH 610 & BW 8	1.72	2.49
Segment 4 – SH 288 From BW 8 & FM 518	1.13	1.39
Segment 5 – SH 288 From FM 518 & CR 58	0.78	1.02
Segment 6 – SH 288 CR 58 & SH 6	0.68	0.84
Segment 7 – SH 288 From SH 6 & CR 57	0.62	1.02
Segment 8 – SH 288 From CR 57 & CR 60 / SH 99	0.54	0.95
<b>AVERAGE LOM FOR CORRIDOR</b>	<b>1.11</b>	<b>1.54</b>

As the analysis indicates, even after applying the mitigation factor, LOMs were not sufficiently reduced to negate the added capacity justification.

Information from TxDOT about exact time frame of construction of this project is being requested in order to facilitate evaluating the before-and-after results.