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# MEMO

**To:** John Baumgartner, City Manager  
**Cc:** Jim Webb, CEO TGC  
**From:** Susan Maclay, Senior Associate TGC  
**Date:** Revised October 8, 2018  
**Re:** H-GAC TIP Call for Projects and Palomino Lane Extension Project Status

**Background:** The Houston-Galveston Area Council (H-GAC) has issued the 2018 Call-for-Projects, which will allocate approximately \$900M for transportation projects across the region. TGC, as part of the LAN team, has developed information to support a submittal for the extension of Palomino Lane from the south termini at Clear Springs High School to Grissom Road. This memo will address the purpose, need, benefit(s), and cost of the Palomino Lane extension and review alignment options. Note that a separate project to accommodate the widening of FM 270 from FM 646 to Abilene Street is being submitted through a partnership between League City and TxDOT.

**Purpose:** League City has limited north/south access. In public input sessions conducted by the City, residents listed congestion as the highest mobility priority to be addressed; supporting comments included insufficient routes over Clear Lake/Clear Creek and insufficient north/south routes.<sup>1</sup> The primary purpose of the Palomino Lane extension will be to construct a segment of an alternative north/south corridor to relieve congestion on the adjacent roadway network (Bay Area Boulevard, FM 518 and ultimately, FM 528). A secondary purpose is to provide an alternative exit to Clear Springs High School and improve connectivity between the school and other educational facilities.

**Need:** West of IH-45, Bay Area Boulevard is currently the only north/south corridor serving the City, carrying about 42,000 vehicles per day in the segment between FM 518 and FM 528. The Clear Springs High School (CCHS) has an enrollment of approximately 2,600 students and 155 teachers which contribute

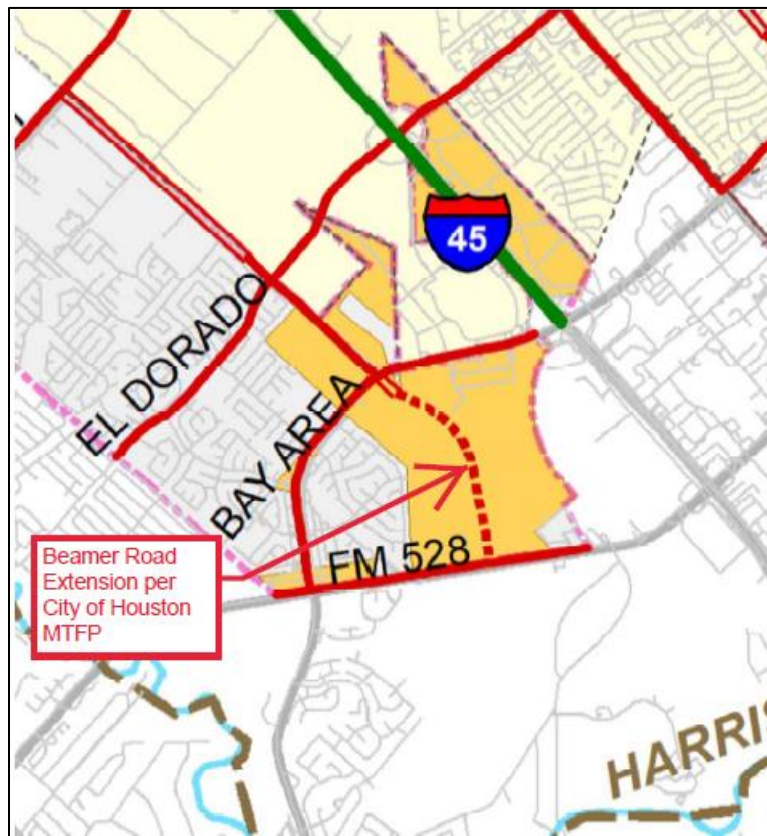
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<sup>1</sup> League City Speaks. Retrieved from: <http://www.leaguecity.com/DocumentCenter/Home/View/2842> on May 29, 2018.

to congestion in this area of League City. During the PM peak period commute, the intersection of Bay Area Boulevard and FM 528 is rated as a Level of Service of F, or “intolerable,” with delays extending 60 to 80 seconds per vehicle. Without improvement, this intersection will continue to deteriorate with delays extending 150 seconds or longer and congestion failing to clear. The intersection of Plymouth Colony and FM 528 is also anticipated to worsen from a LOS of B (current) to a LOS of D in 2040 if no improvements are implemented.

**Proposed Solution:** The proposed project constructs an extension of Palomino Lane north from its current termini adjacent to Clear Springs High School, across Clear Creek, to Grissom Road. Ultimately, it is projected that this facility would interface with the proposed Beamer Road Extension, which is included as a component of the City of Houston Major Thoroughfare Plan (MTFP). Note that the Beamer Road extension project is currently planned, but unfunded.

**Figure 1. Beamer Road Extension per City of Houston MTFP**



The proposed cross-section for the expanded Palomino Lane is a 4-lane, divided major thoroughfare with raised and landscaped median, and an 8-foot, behind-the-curb, shared-use path. The Clear Creek bridge would be designed to meet revised 500-year flood plain requirements. Utility improvements include an enclosed conduit storm sewer system. See Attachment A, Palomino Lane Cross Section.

Two alternative alignments were considered. Option 1 is approximately 2,900 linear feet. It travels west of Challenger Park and within 215 feet of residences at the closest point. Option 2 is approximately 3,400 linear feet. It travels west of Challenger Park and within 1,040 feet of residences at the closest point. See Attachment B, Palomino Lane Extension Alignment Options.

**Estimated Benefits:** The AM-, School PM-, and regular PM-peak traffic volume are estimated to total approximately 2,000 vehicles per day.<sup>2</sup> The 24-hour traffic volumes are modeled to be approximately twice that, or 4,000 vehicles per day. This is assuming the existing and funded roadway network, traffic counts collected in April 2018, and a growth factor of 2.2%.<sup>3 4</sup> Under this same set of assumptions, the traffic volume is calculated to grow to approximately 5,500 vehicles by 2040. Note that these estimates do not assume the completion of the Beamer extension. If and when the Beamer extension is completed, the trip volumes would increase.

In addition, the project will relieve congestion throughout the network and reduce vehicle-hours-travelled (VHT) by approximately 90 hours per day (or 23,000 hours annually) by 2025. This reduction in VHT grows to 270 hour per day (or 70,000 hours annually) in 2040. Reductions in VHT also generate secondary benefits such as reductions in air pollutants and fuel use.

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<sup>2</sup> SYNCHRO micro-simulation model

<sup>3</sup> H-GAC Travel Demand Model, CAGR 2025- 2040.

<sup>4</sup> H-GAC Travel Demand Model reflects traffic volume estimates based on the modeled roadway network, which includes the extension of Landing Boulevard. The impact of Landing Boulevard on future traffic volumes is embedded in the CAGR.

Relative to FM 528 at Bay Area Boulevard and FM 528 at Plymouth Colony, the project will reduce intersection specific delay as follows by year 2040:

- Bay Area at FM 528 = 26.6 seconds per vehicle
- Plymouth Colony at FM 528 = 18.9 seconds per vehicle

**Estimated Costs:** Costs range for approximately \$4,000 to \$4,500 per linear foot, including right-of-way, PS&E, environmental clearance, construction soft costs, and a 30% contingency as follows:

- Option 1: \$12,989,000 or approximately \$4,500 per linear foot;
- Option 2: \$13,564,000 or approximately \$4,000 per linear foot.

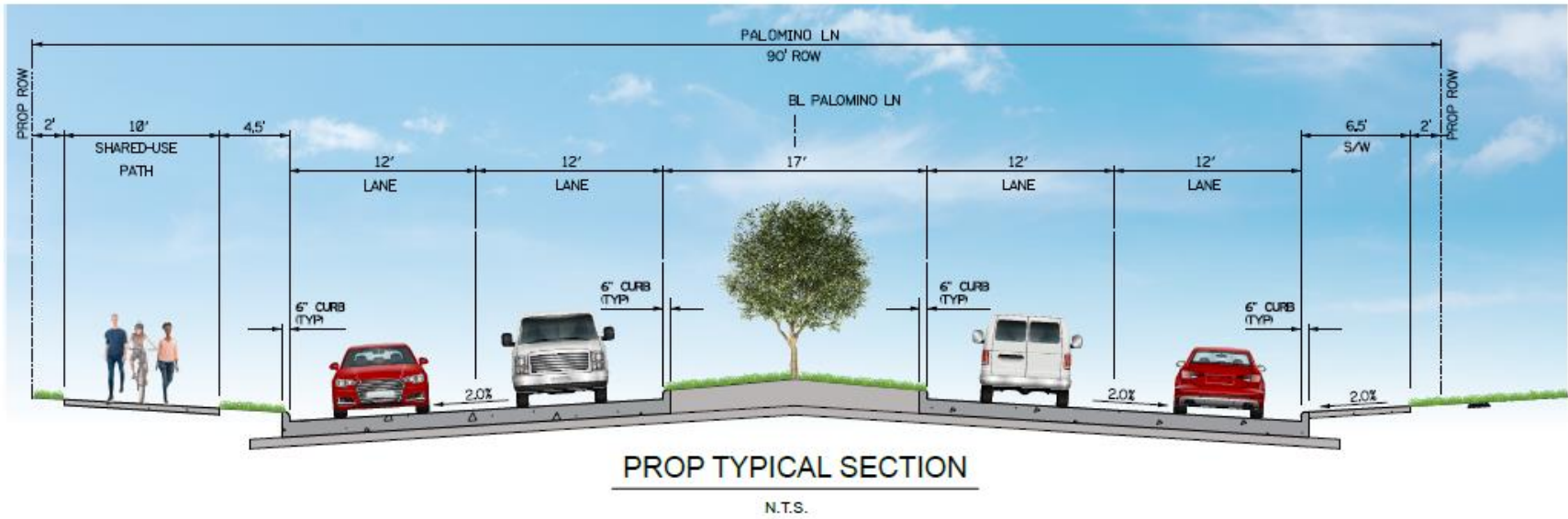
**H-GAC Benefit Cost Analysis (BCA):** The H-GAC will evaluate projects by a common methodology that compares the monetized benefit(s) to the project funding request over a 20-year period. A competitive project will have a BCA (benefit over funding requested) greater than one. The range of benefits evaluated are dependent on the type of project. In the case of the Palomino Lane Extension project, changes to VHT will be the primary measure to evaluate reductions in congestion. As mentioned previously, the current VHT reduction is estimated to be 23,000 hours annually in 2024, increasing to 70,000 in 2040. Based on this data, it is estimated that the monetized benefit of this project is approximately \$7.5 million. Consequently, the City should consider limiting its H-GAC TIP funding request to less than \$7.5 million to ensure a competitive project; a 50 percent local share would result in a \$6.5 million to \$6.9 million cost to the City.

If a travel demand model were run that includes all potential network changes in the adjacent area (e.g. extension of Beamer Road, connection to West NASA Boulevard and I45), the travel demand estimate and the estimated benefits are expected to be significantly higher, which could consequently increase the amount of the funding request. For the purposes of the upcoming H-GAC TIP call-for-projects, the potential impacts of the Beamer Road Extension are not included in the BCA since the project would be considered speculative, that is, not included in the HGAC Traffic Demand Model nor the League City FY2019 to FY2023 Capital Improvement Plan.

**H-GAC Project Readiness:** H-GAC is emphasizing project readiness in this call. Currently, this project lacks control of the required right-of-way, which will impair the ability of the City to provide a “shovel ready” project for consideration.

**Summary and Next Steps:** There is a demonstrated need to improve mobility and reduce congestion west of IH-45 in League City. The extension of Palomino Lane is one way of satisfying that need. The H-GAC TIP process is an opportunity, approximately every 24-36 months, to pursue discretionary funding to support this project. This project can be submitted for funding consideration or can be further studied towards the identification of additional alternative solutions.

Attachment A: Palomino Lane Extension Typical Cross Section



Attachment B: Palomino Lane Extension Alignment Options

