



MEMORANDUM

TO: Mayor and Council Members

FROM: Robert Spillar, P.E., Director
Austin Transportation Department

Victoria J. Li, P.E., Director
Watershed Protection Department

DATE: September 23, 2014

SUBJECT: Response to Council Resolution 20140515-063

On May 15, 2014, Council by Resolution No. 20140515-063 directed the City Manager to assess various transportation, environmental, and legal issues associated with the proposed State Highway 45 Southwest (SH45 SW). The attached report addresses each of the directives in the Council Resolution. Below is a summary of key findings and recommendations presented in the report.

Transportation

The Austin Transportation Department was directed to review and report findings and recommendations to Council regarding tasks 1-3 in the City Council Resolution.

Task 1 - Review and report findings and recommendations to Council regarding any identified alternative transportation investments that would improve commuting between northern Hays and far southern Travis counties and Central Austin while reducing total costs, environmental harm, and impacts to MoPac commuting including but not limited to improvements to Brodie Lane.

The following Sections under Task 1 are presented to provide additional context and address alternative transportation investments to SH 45 SW:

- I. Status of Projects Completed
- II. Brodie Lane, Single-Lane Roundabouts within Existing Right-of-Way
- III. Upgrade Existing Roadways
- IV. Active Transportation
- V. Planned and/or Funded Roadway and Transit Projects

Of particular note, the series of single-lane roundabouts along Brodie Lane within existing right-of-way have not been pursued for further development as they are not deemed a viable alternative to SH 45 SW due to ROW, costs, and environmental constraints, as further described in Section II. Moreover, the

roundabouts would not alleviate peak-hour demand or solve the greater mobility challenges in this area. Similar to the Brodie Lane roundabouts, upgrading existing roadways (as described in Section III) also is constrained by environmental issues. The proposed FM 1626 to Brodie Lane to Slaughter Lane route traverses through an established neighborhood, and improvements to widen the roadway would result in displacements of these homes. The FM 1626 to Manchaca Road to Slaughter Lane, at least, would not pass through as many environmentally sensitive areas; however, it would result in residential and commercial displacements. Nonetheless, any thorough environmental analysis to ascertain the feasibility of improving mobility in the region should include an evaluation of all possible improvements.

The central theme underlying all of these components is the fact that southern Travis County and northern Hays County will continue to experience increasing population growth and development pressures. The community has been and will continue to be challenged with this growth. A combination of transportation solutions, such as bicycle and pedestrian accommodations, Transportation System Management (TSM), Travel Demand Management (TDM), along with arterial improvements are all needed in order to increase system connectivity and reduce vehicular congestion.

Task 2 - Review and report findings and recommendations to Council regarding recent CAMPO and CTRMA traffic studies on the proposed SH45 SW.

The following Sections under Task 2 include three traffic forecasts that have studied the proposed SH45 SW and one vehicle license plate capture survey:

- I. CAMPO, SH45 SW alternative model runs
- II. Center for Transportation Research, DRAFT Dynamic Traffic Study (DTS) of SH45 SW, and
- III. TxDOT, DRAFT Traffic Forecasting Methodology
- IV. TTI Vehicle License Plate Capture Survey

Sections I, II, and III provide analysis on the data and reports available regarding the travel demand studies conducted for a no-build and build scenario for SH 45 SW. The underlying methodology and assumptions vary between each product as well as the modeled output.

The CAMPO SH45 SW alternative model runs were performed using the regional travel demand model. The CAMPO model now uses a more refined four-period model (AM, Mid-day, PM, Night-time), as opposed to the previous 24-hour model. Traffic volumes were modeled for the build and no-build scenarios using the adopted 2025 transportation network and an updated 2025 demographic forecast.

The CAMPO travel demand model provided the basis for both the Dynamic Traffic Study (DTS) and the TxDOT Traffic Forecasting. The CAMPO model was used in the DTS to obtain the trip matrix used as input into the Dynamic Traffic Assignment model. The CAMPO model was also used to develop the forecasts in the TxDOT traffic forecasting. Before any of the CAMPO model or model output could be used, the DTA model and TxDOT's use of the CAMPO model needed to be calibrated to reflect observed traffic counts and travel characteristics.

The individual traffic studies utilized the CAMPO travel demand model and each has their own merit; however, there is nothing that allows comparisons to be made across the studies making it difficult to draw a conclusion as to which forecast is the most accurate.

Section IV is a license plate capture survey that was done in support of the TxDOT traffic forecasts. The license plate capture survey was used to analyze trips that utilized Brodie Lane between S Loop 1 and FM 1626. This section utilized the same data to draw further conclusions about traffic patterns in the study area. This study provides the most realistic travel conditions of the southwest area, finding that on average 80% of the traffic on area roadways is local.

Task 3 - Review and report findings and recommendations to Council regarding the appropriateness of adding traffic to South MoPac by construction of SH45 SW in advance of developing and implementing a plan to address the “bottleneck” at the MoPac bridge over Lady Bird Lake.

This section examines the Loop 1 South Environmental Study and the recent CAMPO travel demand model run scenarios to provide insight on the appropriateness of adding traffic to South MoPac by construction of SH45 SW in advance of developing and implementing a plan to address the “bottleneck” at the MoPac bridge over Lady Bird Lake.

Under the sponsorship of TxDOT and CTRMA, the Loop 1 South Environmental Study will analyze and determine the best alternatives for improving mobility from Cesar Chavez Street to Slaughter Lane. The study will also identify future needs and possible modifications to the Lady Bird Lake Loop 1 bridge. Furthermore, TxDOT and CTRMA are collaborating to conduct environmental studies on several projects in the vicinity (i.e. MoPac South, MoPac Intersections, and SH 45 SW) simultaneously.

Absent of the corridor-level traffic projections planned as part of the Loop 1 South Environmental Study, or a comparable detailed study, City Staff concludes it is difficult to evaluate how much traffic and potential additional delay or detriment will be added to the Lady Bird Lake bridge as a result of SH 45 SW construction. The available regional travel forecasts staff examined, as part of the recent CAMPO travel demand mode runs, are not a product suited to this type of corridor analysis.

Environmental

The Watershed Protection Department (WPD) and Law Department completed the requested analyses of environmental issues and the State of Texas process for environmental review for proposed roadway projects. .

Task 4 - Review and report findings and recommendations to Council regarding any existing environmental surveys of City lands along the SH45 SW right of way, including but not limited to surveys of karst features, and subsurface flow.

There are a large number of environmental surveys for the City-owned properties along the SH45 SW right-of-way. The City’s properties are the Water Quality Protection Lands (WQPL) and the Balcones Canyonlands Preserve (BCP) Lands. Over the span of several decades, studies have been conducted by the City of Austin, state agencies and universities, and private entities. While most of these studies are not directly related to SH45 SW, they provide a substantial body of scientific information and data about the environmental conditions and sensitivity of the area. This includes information about surface and groundwater resources, karst features and other critical environmental features, and the presence and habitat of endangered species.

It is well established from the extensive body of environmental studies and surveys that the area within and in proximity to the proposed roadway has a very high concentration of karst features, including large caves and sinkholes. Many of these karst features are known to be occupied by rare karst invertebrates and provide significant recharge conduits to the Barton Springs segment of the Edwards Aquifer. Some properties have had multiple karst surveys and with each survey additional karst features have been found. A July 2014 survey by WPD staff has documented that the Tabor Crevice Cave extends 500 feet further than previously thought in the direction of the SH45 SW right-of-way and Flint Ridge Cave. A TxDOT karst survey within the SH45 SW right of way is underway and will provide important additional information that is needed for the assessment of potential impacts of the roadway. While this work is still in progress, the draft Environmental Impact Statement for the project was issued with a conclusion that there will be no significant impacts to karst features or that impacts can be largely avoided during

project design. City staff believe that additional studies are needed to confirm the presence or absence of karst invertebrates in one or more caves on or near the right of way consistent with U.S. Fish and Wildlife Service (USFWS) protocols. Several dye studies have been conducted in this area of the recharge zone that demonstrate the hydraulic connectivity of the project area to the Edwards Aquifer, to nearby public water supply wells, and to Barton Springs. One dye study found a much higher recharge potential in this area than expected for areas outside of obvious recharge features like crevices, sinkholes, and caves, indicating that simply paving over soil in the area may adversely impact Edwards Aquifer recharge to a greater degree than previously thought. WPD is currently conducting a dye study to better delineate subsurface drainage to and near Flint Ridge Cave, a large portion of which underlies the proposed alignment of SH45 SW. No additional studies are recommended at this time.

There have also been many studies of surface water quantity and quality in streams in close proximity to the SH45 SW right of way, primarily Bear Creek. These studies generally have found that water quality in the area is good and that the stream is highly sensitive to pollutants from nutrients and other contaminants. Importantly, Bear Creek itself contributes significant recharge to the Edwards Aquifer.

The proposed roadway lies within and near BCCP Zones 1 and 2, which designate occupied habitat (Zone 1) or potential habitat (Zone 2) for the endangered Golden Cheek Warbler. Past surveys have found these birds near the roadway alignment on adjacent City properties. Additional surveys may be required under USFWS protocols to confirm the presence or absence of the Golden Cheek Warbler. No other protected bird species habitat is known in this area.

Task 5 - Review and report findings and recommendations to Council regarding any significant differences between the state environmental review process and the National Environmental Policy Act.

After shifting federal funding out of the proposed project, TxDOT determined that it could conduct the required environmental review under state regulations and guidance rather than under the requirements of the National Environmental Policy Act (NEPA). This determination by TxDOT was also based on an expectation that no federal actions (e.g., approvals) will be necessary for construction of the roadway. Per the Council resolution, City staff have conducted a comparative analysis of state environmental review requirements and the requirements under NEPA. Generally, state environmental review requirements and process followed by TxDOT and the resultant environmental documentation (e.g., Environmental Impact Statement) mirror federal requirements and documentation. There are, however, subtle differences including:

- There is no overarching state statute similar to the federal NEPA.
- For federal reviews of projects involving state highway systems, TxDOT actually oversees the preparation and drafting of an Environmental Impact Statement in compliance with NEPA and all other federal environmental requirements, while the Federal Highway Administration conducts an independent legal sufficiency review of the draft and final versions of the document. As a result, a project undergoing a federal review will subject to a greater number of reviews than a project conducted under state regulations.
- Federal environmental reviews must comply with the federal court's "hard look" doctrine and comply with NEPA to the "fullest extent possible". TxDOT must "consider the results" of the environmental review which must be based on "sound reasoning and accepted scientific and engineering principles."
- There is no state agency analogous to the U.S. Council on Environmental Quality (CEQ) or the U.S. Environmental Protection Agency, both of which have responsibilities for overseeing implementation of NEPA.

- Disputes between federal agencies arising through the NEPA process are resolved by the CEQ, which is not affiliated with either the project sponsor or reviewing agency. There is no similar state agency for resolving disputes between state agencies participating in a state environmental review.
- Federal agencies must ensure that their actions will not jeopardize the existence of a listed endangered species or destroy protected habitat and the federal agency must consult with USFWS if there is the possibility of impact. While TxDOT (or CTRMA) will have to acquire a federal incidental take permit if the project will result in “take” of a listed species, there is no requirement for consultation with USFWS nor is there any required USFWS review.

Task 6 - Review and report findings and recommendations to Council regarding State environmental protection measures on existing roadways and construction sites within the Barton Springs Watershed.

Over the past year City staff has had discussions with TxDOT regarding temporary and permanent water quality protection measures on state road projects, including future improvements to U.S. Highway 290 in the Oak Hill area, improvements to MoPac South, and other planned projects in the Austin area. As a result of these discussions and site visits to area state road projects staff have concluded that:

- State environmental regulations are similar to the City’s requirements for temporary erosion controls, but required implementation varies significantly and results in a disincentive for state contractors to install and maintain adequate controls.
- TxDOT has limited inspection capability locally and the Texas Commission on Environmental Quality does not routinely inspect state projects for compliance with applicable regulations.
- Temporary erosion controls at current TxDOT road projects in the Barton Springs Zone were generally limited in number and the controls that were in place were often in poor condition.
- State requirements for permanent water quality controls are similar to City of Austin requirements outside the Barton Springs Zone but are not as protective as the requirements for public infrastructure and private land development in the Barton Springs Zone.

We hope the attached report fully satisfies the intent of Council Resolution 20140515-063. If you or your staff have any questions on the transportation elements of the attached report, please contact Gordon Derr, P.E. at (512) 974-7228; and if you have questions on the environmental elements of the report, please contact Chuck Lesniak at (512) 974-2699.

Attachment

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