



MEMORANDUM

To: Mayor and City Council

From: Ken Griffin, P.E., Director of Engineering and Public Works

Date: April 25, 2017

Reference: Update on Belt Line Road (IH-635 to Southwestern) Reconstruction

2030: Sustainable City Government, Goal 3
Excellent and Well-maintained City Infrastructure and Facilities

General Information:

- Belt Line Road between IH-635 and Southwestern was originally constructed in 1985.
- Scope includes full pavement replacement, utility replacement and rehabilitation, landscaping, sidewalk construction, signal work, and significant traffic control and temporary paving to maintain mobility during construction.
- Design contract is currently in negotiation with Halff Associates, Inc. (Halff) and will be presented for approval on May 23rd at an estimated cost of \$1.2 million.
- Current opinion of probable construction cost is \$19.3 million (includes over 3 million in contingency).
- Planned start of construction Spring 2020
- Estimated completion Spring 2022
- A temporary overlay project is being planned to span the time until the start of construction

Introduction:

This agenda item is being presented as a status update for the Belt Line Road (IH-635 to Southwestern) Reconstruction project. Staff is currently in negotiations with Halff to begin design of the Belt Line Road reconstruction project and anticipates presenting a design contract for award during the May 23rd City Council meeting. This is an update on the design elements being considered for inclusion and how those elements will impact construction and cost.

Analysis:

Belt Line between Southwestern and IH-635 was originally constructed in 1985, and has therefore outlasted the original design life (20 years). The roadway has been maintained over the years to extend the life, and one additional overlay project is being planned in partnership with Dallas County

to span the gap between now and the start of the reconstruction project. An agreement for this project will be presented for approval on May 9th.

Staff is currently negotiating a contract with Halff to design the reconstruction of Belt Line. Halff is one of the firms selected through a request for statements of qualifications (SOQ) that was completed earlier this year. Halff is a full-service engineering design firm based in Richardson with other local offices in Dallas, Fort Worth, Frisco and Flower Mound. The design team proposed for this project has extensive experience working on arterial construction and reconstruction design for both local and state-owned projects. Pending feedback from the Mayor and City Council, staff plans to present a design contract for approval on May 23rd.

The basic scope of the Belt Line reconstruction project. includes the following elements:

- Replacement of all existing pavement with an updated pavement section targeted at prolonging the life of the infrastructure
- Intersection enhancements to improve mobility and safety
- Sidewalks, street lights and landscaping
- Replacement of the water and wastewater infrastructure to renew the lines to match the expected life of the new pavement
- Strategic replacement/rehabilitation of the existing storm sewer system
- Signal work as needed to accommodate intersection changes and/or traffic control

Reconstruction of any street will negatively impact mobility and access. The planned traffic control and phasing for the Belt Line reconstruction include reducing traffic flow to two lanes in each direction. This plan will impede traffic flow and affect access to the businesses in the area, but early discussions on scope have also included a 4-lane cross-section to maintain two lanes of traffic in each direction during construction. A 5-lane cross-section may be possible that would allow left-turn lanes to be retained during construction. Staff will also work with the design engineer to examine breaking the project into phases or segments to shorten the direct impact timeframe for any of the property owners. Night work is also being considered to allow the contractor to work more efficiently on elements where maintaining traffic is particularly difficult and allow motorists to avoid the elements where traffic cannot be reasonably maintained. Current traffic volumes on Belt Line are between 40,000 and 50,000 vehicles per day, which is more than double the traffic volume on Freeport Parkway. Removing one or two lanes from the link capacity will result in congested conditions during the morning and evening peak periods, though Belt Line will not go under construction until Freeport Parkway and Airline Drive are both complete, allowing for a reasonable alternate route for this traffic.

To allow for four or five lanes of traffic during construction, the center median would need to be removed, which would require removal of approximately 73 trees. Staff has directed that tree preservation (remove, store and re-plant) be included in the plans for any trees determined to be good candidates by an arborist. Based on a sampling, they are 12"-caliper trees on average, and there is a mixture of tree species but predominately live oaks. The median is generally 24'-wide and the tree line is approximately centered. If this is allowed, the plans would include re-establishing the medians with new landscaping as part of the project, incorporating the preserved trees strategically. The new landscaping would be in keeping with the new median landscaping implemented along Denton Tap and Sandy Lake. One of the concerns with the existing trees is that the root systems may be contributing to the pavement failure, so replacing trees with a lower-intensity landscape could help extend the life of the new roadway.

During the design phase of the project, staff plans to engage a third-party engineer to assist with plan review. This is not intended to reduce staff effort, but to enhance the depth of experience of the review team. Extra focus will be placed on the pavement design to ensure a long life after the project is complete. And, staff has asked the engineer to incorporate TxDOT standards and details in the street and drainage design to attract contractors that are experienced working on major arterials. As the project proceeds to construction, staff plans to select a team to provide project management assistance to enhance the expertise and experience of staff, and help fill any manpower gaps that might arise during the project. A communication strategy will be developed to ensure the project management team and the construction contractor are working together to keep residents, motorists and businesses informed.

The current estimated construction cost, understanding that no design work has been started, is \$19.38 million. This estimate includes the unique elements that were discussed above (more robust pavement section, removal of median and landscaping new median, tree preservation, maintaining 4-5 lanes of traffic during construction, improving intersections) and includes a 20% contingency given the project risks that exist at this stage of development. This estimated cost is different from the current five-year plan number based on the following: concrete costs; TxDOT like standards; more extensive landscape plan; initial contingency; and unknowns associated with maintaining traffic. The contract documents will also include incentive clauses to encourage early completion. Construction costs tend to rise and fall with the economy, so as design progresses, updates to this estimate will be developed to ensure the unit costs are current. As the project moves into design, staff will also evaluate ways to value engineer the project to reduce the construction cost.

In summary, staff is working to implement best practices on the Belt Line reconstruction project to ensure the project is long-lasting and aesthetically pleasing when complete, is managed properly through design and construction, minimizes impacts to stakeholders, and attracts quality contractors. An interim project will be proposed to bridge the gap between now and the start of the reconstruction project. Staff expects to begin design this Summer with an anticipated construction start date in Spring of 2020 and completion in Spring of 2022.

Legal Review:

This item did not require legal review.

Fiscal Impact:

This item has no fiscal impact.

Recommendation:

Staff will present a design contract for approval on May 23rd.