



# CITY OF COMMERCE AGENDA REPORT

Item No.: \_\_\_\_\_

**TO:** Honorable City Council

**FROM:** Interim City Administrator

**SUBJECT:** APPROVAL OF PLANS AND SPECIFICATIONS FOR PAVEMENT  
REHABILITATION PROGRAM FY 2016-17

**MEETING DATE:** August 15, 2017

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## RECOMMENDATION:

It is recommended that the City Council approve the plans and specifications for Pavement Rehabilitation Program FY 2016-17 and authorize staff to advertise the project for bid.

## BACKGROUND:

On June 21, 2016, City Council approved the City of Commerce Fiscal year 2016-17 Capital Improvement Program (CIP) which included approval of the Annual Street Rehabilitation Program in the amount of \$2,500,000.

The Project will provide for the pavement rehabilitation of selected streets throughout the City. Streets based on the recommendations identified within the City's Pavement Management System (PMS). Selected streets are below:

Streets included in 2017/18 Pavement Rehab Program	
Location	
1.	Garfield Ave (North City Limit to Telegraph Rd) was in the original list
2.	Ferguson Dr (West City Limit to East City Limit) was in the original list
3.	Marianna Ave (North City Limit to Dunham St) added due to recent complaints
4.	Dennis Ave (Washington Blvd South to street end) added as option due to street condition
5.	Connor Ave (Washington Blvd South to street end) added as option due to street condition
6.	Bedessen Ave (Washington Blvd South to street end) added as option due to street condition
7.	Ayers Ave (Washington Blvd South to Sheila St) added as option due to street condition

On April 4, 2017, City Council authorized staff to proceed with the FY 2017/18 Pavement Rehabilitation Project design utilizing the \$2,500,000 CIP previously approved by the City Council on June 21, 2016.

## **ANALYSIS:**

### PMS (Pavement Management System):

Staff used PMS (City's Pavement Management System) recommendations as a preliminary evaluation during the initial review. It should be noted that the final design differs from the recommendations included in the PMS. The PMS is used as a planning tool, and is not a final engineering design document. The final design is based on engineering judgement, field conditions, pavement/geotechnical reports, coordination with other projects, and various other factors. Therefore, final design reflects a street rehabilitation program based on the detailed engineering analysis, budget, and the needs of the City.

### Engineering, Geotechnical/Pavement Analyses

The design phase of the project included an engineering analysis to establish rehabilitation criteria options to be implemented based on technical recommendations, value analyses, and available budget. The work also included pavement/geotechnical analyses along Ferguson Drive and Garfield Avenue, including pavement borings and sampling to recommend various options for rehabilitation based on existing conditions.

### Pavement Rehabilitation Alternatives

Pavement rehabilitation alternatives were analyzed and recommendations provided. However, due to various parameters contributing to the projects, other alternatives may be considered and selected by the City based on life-spans, construction costs, community impact, and other engineering considerations.

The geotechnical analyses considered various pavement rehabilitation options including:

- Mill and Overlay (MO) consists of milling part of the existing Asphalt Concrete (AC) and overlaying the removed AC with new AC. This method is used for roadways with lower Traffic Index (TI).

The Mill and Overlay (MO) alternative consists of grinding a thickness of the existing AC pavement and placing the same thickness of new AC overlay on the surface. The existing cracks in areas to be overlaid with HMA (Hot Mix Asphalt) may eventually reflect through, and less likely when overlaid with Rubberized Hot Mix Asphalt (RHMA). However, reflective cracking cannot be eliminated unless the pavement is completely removed and replaced.

- Full Depth Reclamation (FDR) consists of removing, pulverizing, and recycling existing AC and partial base into a cement stabilized pulverized base (CSPB) overlain with new AC. Compared to Full Removal and Reconstruction (R&R), FDR may be approximately 40% less expensive, and is completed faster, minimizing not only costs, but also construction duration and inconveniences. However, this method is more expensive than Mill and Overlay.

FDR commonly includes grinding and mixing the full or partial depth of the existing AC and predetermined portion (full or partial) of base material together with cement to create cement stabilized pulverized base (CSPB). The pulverized mix for CSPB is placed back, moisture-conditioned, compacted, and is overlaid by compacted layers of new HMA and Asphalt Rubberized Hot Mix (ARHM). Compared to full reconstruction of the pavement, this alternative will result in increased economic construction and is recommended as an alternative for highly distressed areas with high TIs.

- Full Depth Removal and Reconstruction (R&R) option includes removal of the entire AC and base layer, reworking and compacting of the subgrade soils, and constructing new layers of base and asphalt concrete. This alternative is considerably more expensive than the above options as none of existing structural section materials is recycled. This option is not recommended for Commerce Pavement Management Program.

### Project Cost estimates

Cost estimates were developed for pavement rehabilitation options at the various project locations. Engineering design and costs analysis has produced the list of potential streets that may be rehabilitated with the available budget as construction bids are received. Additional funding may be added and/or the final street locations/limits may be adjusted at City Council discretion. Preliminary cost estimates for various limits of work and pavement rehabilitation strategies range from \$2.5 to \$5 million depending on the inclusion and/or exclusion of the Optional bid items (additive bids).

With consideration to geotechnical and pavement reports and analyses, and value engineering, based on product, life span, and budget constraints, structural sections for the various streets included in the base bid and additive alternate bids have been included in the construction bid package.

### Rehabilitation Options for various Streets

It is recommended that, based on the geotechnical analysis, for streets with lower Traffic Indices, the Mill and Overlay option be utilized. These include Ferguson Drive, Marianna, Ayers, Bedessen, Conner and Dennis streets. The depth and overlay for each will differ based on geotechnical investigation and pavement condition as well as the Traffic Indices.

Garfield Avenue has a higher traffic index than other streets, and coring indicates the existing structural section is approximately five inches of asphalt concrete over ten inches of base. Full depth reclamation (FDR) was selected for Garfield including pulverizing the existing asphalt concrete section and recycling, mixing, and cement stabilizing a portion with the existing base section. Six inches of new asphalt concrete and two inches of rubberized asphalt concrete would then be constructed.

### Final Work Limits Strategies

Based on the results of the project bidding and the available budget, the scope of work, budget, and/or rehabilitation strategies may be modified. Typically engineers' estimates are preliminary opinions of probable costs. Construction costs may vary greatly due to many factors including, but not limited to, economy, cost of material, price of oil, availability of labor and equipment, etc. It is not uncommon to receive contractor's bids at lower and higher costs than those indicated on the engineer's estimate. Additive (optional) alternates are included in construction bid packages due to the uncertainty of the project bidding results and to allow the project to efficiently utilize the available budget maximizing the hard construction improvements versus the program and project implementation costs.

Pavement rehabilitation construction cost and pavement life are directly proportional with mill and overlay being the least costly with a lower estimated life span than full depth reclamation or full depth removal and replacement. The engineering estimates for the pavement rehabilitation alternatives range from approximately \$2.5 million for mill and overlay to approximately \$5 million for full depth removal and replacement. The recommended pavement rehabilitation strategies included in the construction bid package include mill and overlay and full depth reclamation strategies and rubberized asphaltic concrete as the wearing course in most locations.

Construction bids received will influence the confirmation of the final scope of work and pavement rehabilitation strategies included in the project. Low construction bids may facilitate additional areas to receive longer lifespan rehabilitation strategies or additional areas to be included for pavement rehabilitation. Higher construction bids may necessitate the reduction of project limits, areas of pavement rehabilitation, and/or less costly pavement rehabilitation strategies, which would be less durable. In addition to direct construction hard costs, there will be about 10% for contingency allowance and 10% for construction management, inspection, materials site and lab inspection/testing, labor compliance, etc.

### **FISCAL IMPACT:**

Although this was approved in FY 2016/17, the funds for the Pavement Management Rehabilitation Program will be expended in FY 2017/18 (Annual Street Rehabilitation Program 16/17) for \$2,500,000.

Staff will come back to City Council with the bid results to request City Council direction that may include the allocation of additional funding as necessary, reduction of the work limits and streets included in the project scope, and/or modification of the pavement rehabilitation strategies proposed for the project at the Council's discretion.

**RELATIONSHIP TO STRATEGIC GOALS:**

The issue before the Council is applicable to the following Council's strategic goal:  
*"Improve and maintain infrastructure and beautify our community"*

Recommended by: Maryam Babaki, Director of Public Works & Development Services

Reviewed by: Vilko Domic, Finance Director

Approved as to form: Eduardo Olivo, City Attorney

Respectfully submitted by: Matthew Rodriguez, Interim City Administrator

**Attachments:**

ATTACHMENT 1-DRAFT FINAL BID PACKAGE, PLANS AND SPECIFICATIONS

ATTACHMENT 2A-PAV REPORT, GARFIELD

ATTACHMENT 2B-PAV REPORT, FERGUSON

ATTACHMENT 2C-PAV REPORT, MARIANNA