CITY OF NOVI CITY COUNCIL
NOVEMBER 25, 2024

SUBJECT: Consideration of approval to award engineering services to Spalding DeDecker to update the City's Stormwater Master Plan in the amount of $110,200.

SUBMITTING DEPARTMENT: Department of Public Works, Engineering Division

KEY HIGHLIGHTS:

- The update will focus on 4 out of our 11 regional detention basins prioritized based on potential for further development along the Grand River Avenue corridor.
- Analyzes basins for existing and potential capacities and provides recommendations for improvement.
- A draft capacity purchase policy for use of the ponds by new developments will be developed.

FINANCIAL IMPACT

	FY 2024/25
EXPENDITURE REQUIRED	**$ 110,200**
BUDGET Drain Fund 211-445.00-805.000	**$ 110,200**
APPROPRIATION REQUIRED	**$ 0**
FUND BALANCE IMPACT	**$ 0**

BACKGROUND INFORMATION:

City engineering consultant, Spalding DeDecker (SD), assisted the City with preparing the last Stormwater Master Plan Update in 2014. Since then, SD has been involved in local basin concerns and providing the City with support in meeting updated state stormwater regulations. In 2023, the City tasked SD with reviewing its stormwater

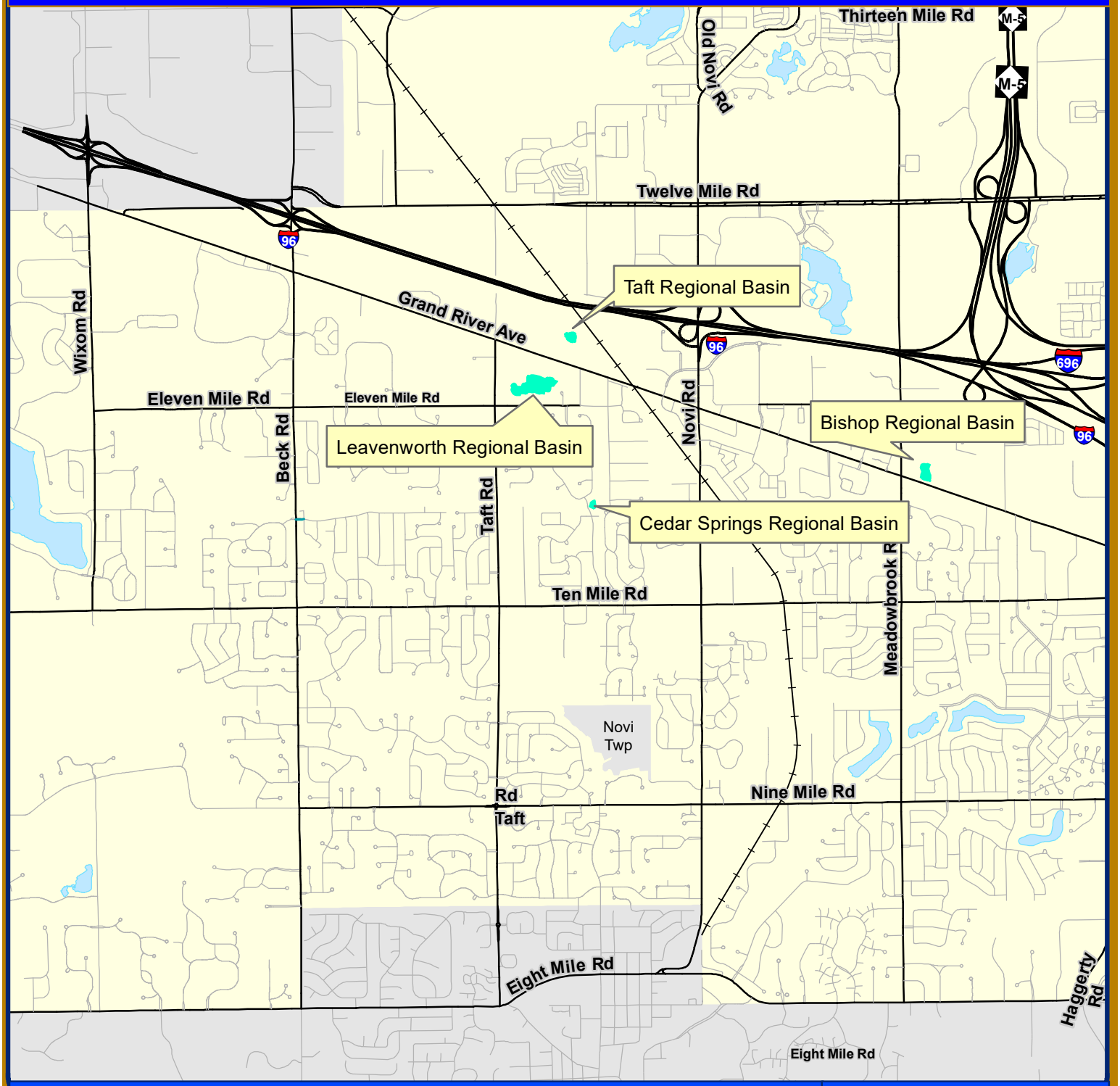
standards and ordinance for conformance with state Municipal Separate Storm Sewer System (MS4) permit requirements. This was prompted by the Environment, Great Lakes, and Energy's (EGLE's) MS4 permit renewal process where EGLE requested additional information on the use and capacity of the City's eleven regional detention basins.

In addition, SD prepared a technical memo for the City that investigated the capacity of the City's regional detention basins. Based on that report, the proposed stormwater master plan update will focus on four regional detention basins that were prioritized based on their potential for further development. The four basins selected are part of drainage districts that connect to or are downstream of the Grand River Avenue Corridor: Taft regional basin, Bishop regional basin, Cedar Springs basin, and the Leavenworth basin. SD will further analyze these basins for existing and potential capacities and provide recommendations for improvement.

The proposal also includes the formation of a draft capacity purchase policy for use of the regional basins by new developments. During their review of the City Ordinance, SD recommended a payment-in-lieu program that could be adopted by the City to help offset costs of basin improvements or storm sewer upsizing when a development wishes to discharge to a regional basin. Currently, for developments to use off-site detention, the City Ordinance (Sections 12-70 to 12-72) requires a stormwater detention fee based on the amount of impervious surface area proposed on the site. The draft capacity purchase policy would better define who pays for what when capacity upgrades are needed due to new developments, and the proposed fees would be more in line with what it would cost a developer to construct a basin onsite. The attached proposal details the scope of services. Work would begin following City Council approval with a final draft plan expected to be completed by fall 2025.

RECOMMENDED ACTION: Approval to award engineering services to Spalding DeDecker to update the City's Stormwater Master Plan in the amount of $110,200.

2024-25 Stormwater Master Plan Update
City of Novi



Map Author: Runkel
Date:11/13/2024
Project: Regional Basins

MAP INTERPRETATION NOTICE

Map information depicted is not intended to replace or substitute forany official or primary source. This map was intended to meetNational Map Accuracy Standards and use the most recent,accurate sources available to the people of the City of Novi. Boundary measurements and area calculations are approximateand should not be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 132of 1970 as amended. Please contact the City GIS Manager to confirm source and accuracy information related to this map.

City of Novi
Engineering Division
Department of Public Works
26300 Lee BeGole Drive
Novi, MI 48375
cityofnovi.org

Feet
0 750 1,500 3,000 4,500

1 inch = 3,669 feet

SPALDING DEDECKER
Engineering & Surveying Excellence since 1954

October 30, 2024

Rebecca Runkel
Project Engineer
City of Novi
26300 Lee Begole Drive
Novi, MI 48375

Re: Novi Stormwater Master Plan Update-Revised Proposal
City of Novi
SDA No: PR24-393

Rebecca Runkel,

Spalding DeDecker (SD) is pleased to have this opportunity to present this proposal to provide engineering services relating to the update of the existing stormwater master plan to include the updated MS4 standards, ordinance changes and the inclusion of regional basin solutions.

Section 01 – Background

Over the last several decades, rain events have become more frequent and intense. This is putting additional stress on stormwater infrastructure and resulting in stricter regulatory standards throughout the region. The City of Novi has an extensive stormwater system including private and regional stormwater systems that have been subject to these trends. Over the past few years, the City has commissioned Spalding DeDecker (SD) to investigate several flooding concerns and assist with regulatory updates. As a result, SD understands the City's ongoing stormwater priorities and has already identified potential solutions to many of them. In addition, SD prepared the 2014 Stormwater Master Plan and is familiar with ongoing concerns and the City's long-term stormwater priorities.

Most recently, SD assisted the City with updating the stormwater design manual and stormwater ordinance to reflect new Municipal Separate Storm Sewer System (MS4) permit requirements. This work was prompted as part of the MS4 permit renewal process which included discussions with EGLE regarding the use of regional stormwater basins. Our services included reviewing the City's stormwater standards and ordinances for conformance with state MS4 permit requirements and drafting regulatory updates. In addition, we performed a high-level analysis of the City's regional detention basins. The analysis included determining the existing capacity of each basin and estimating whether any of the basins could be modified to serve future developments. As the City continues to expand, it has become essential to understand how existing resources can be retrofitted to manage sustainable growth.

In addition to the regional detention basins, SD has investigated flooding concerns for several smaller systems and private detention basins. While these private basins were primarily designed to serve a single development, they face many of the same challenges as the regional basins. Recent areas of concern include Summerlin Detention Basin, East Lake Drive, and Lexington Green Detention Basin. SDA has already studied these areas with site visits, topographic surveys, and preliminary calculations. Preliminary findings and recommendations have been discussed with the City and summarized in technical memorandums.

Given the extensive work that we have already completed on the City's stormwater system, we are prepared to develop specific detailed approaches to the individual stormwater issues in an updated Master Plan. The Master Plan update will expand on ongoing concerns noted in the 2007 and 2014 versions while introducing more recent priorities. Given the recent updates to the stormwater manual, we are prepared to evaluate potential solutions from both a technical design and regulatory perspective.

Section 02 – Existing Concerns

The City's systems have more than twenty distinct drainage districts with different historical concerns noted in fourteen of these locations in past studies. The proposed Stormwater Master Plan update will include four of these regional detention basins: Taft, Bishop, Cedar Springs, and Leavenworth. These four regional basins have been prioritized by the City for further study due to their high development potential. Historic concerns noted in previous reviews are detailed below for each location.

1. Taft
   Taft regional detention basin is located north of Grand River Avenue between Taft and Novi Roads. This basin is considered online as it is located on the Walled Lake Branch of the Rouge River. It manages runoff from approximately 360 acres. High level calculations suggest that this regional basin has sufficient capacity to detain the 100-year 24-hour storm. However, past studies have found significant sediment accumulation (depths greater than 2 feet), erosion around the inlet pipe, and undercut banks.

2. Bishop
   The Bishop regional basin located north of Grand River Avenue and east of Meadowbrook Road is an online basin which was constructed to detain flows within Bishop Creek. The approximately 720-acre drainage area has a larger potential for new developments compared to the other regional detention basin drainage districts given the large amount of greenspace. In addition, high level calculations suggest that the basin would be prone to flooding during large storm events given the current capacity. Due to the high development potential, additional studies should identify retrofits that would allow the basin to serve future developments. This would improve the capability for development if the developing sites are unable to provide detention due to limiting constraints. Issues noted in past studies include sediment removal and undercut banks which should be addressed in conjunction with other retrofit projects.

3. Cedar Springs
   The Cedar Springs online basin located between Taft and Novi Roads, and between 10 Mile and 11 Mile Roads was constructed to detain flows in the Munro Creek. Approximately 270 acres drains to this basin which was found to be under capacity during large storm events according to high level calculations. Because of the capacity concern and significant development potential of the drainage district, retrofits for this basin should be prioritized and may include dredging the bottom, widening the banks, and adjusting the outlet control structure. Other issues noted in past studies include cracking around the outlet pipe apron, lack of a vegetation buffer, sedimentation, and erosion.

4. Leavenworth (Grand River)
   The Leavenworth basin is located north of 11 Mile Road and east of Taft Road. The online basin which was constructed to manage runoff from approximately 400 acres was constructed to detain flows in the middle reaches of Leavenworth Creek. The basin includes two pre-treatment basins upstream of the main volume control basin and required wetland mitigation at the time of construction. While basin capacity is not expected to be a main concern, other issues noted in past studies include sediment accumulation, standing water in the first flush basin, high potential for debris blockages at the outlet, and limited access.

Section 03 – Scope of Services

SD proposes to update the existing Stormwater Master Plan, including providing future recommendations for each pond (Bishop, Cedar Springs, Leavenworth, and Taft) based on further analysis, review of the groundwater elevations, and existing and potential capacities of each basin.

This review would include options and recommendations for future expansion, maintenance, a review of the potential regional growth and development, and an estimated level of hard surface development that could be accommodated by the basins and within the drainage district. The provided recommendations will also include a high-level feasibility assessment including potential utility conflicts, permitting issues, and necessary easements.

We understand that the driving factors behind this study are to establish a plan and system for approving the sale of and selling capacity within each pond as development opportunities arise. Any capacity sold in the ponds could be used to fund the maintenance and expansion of the pond in the respective drainage district to offset needs for special assessments. While the review of the ponds is one facet of this study, the City and Developers also need to be aware that development needs may also demand the upsizing of the stormwater routing systems. These capacity reviews need to occur separately from this study, but the study will identify a mechanism for the City's participation in upsizing stormwater systems for the long-term development of the drainage areas.

In these areas where significant additional development opportunities are available, we propose to prepare high level hydraulic models to compare the existing conditions to a developed buildout set of conditions to identify the available capacity with flow routing taken into consideration. This will include calibration of the estimated existing flow rates and data against a real storm event for these four drainage districts. Aerial survey is also included in the budget below for these four locations. For additional accuracy in the models, our survey team can also complete additional survey of the bottom of the ponds with spot elevations to confirm how much sediment is in the ponds, assess underground utilities at the inlet and outlets to the ponds and establish benchmarks.

SD proposes to provide a marked-up as-built and/or detailed descriptions of work proposed, utilizing the topographic survey, to relieve the flooding. Desktop calculations will be provided to confirm the deficiency in detention volume and cross-reference the calculated top-of-bank elevation with the topographic survey provided.

SD does not anticipate any detailed specifications, permits or construction drawings outside of the drawings necessary to direct the recommended stormwater improvements.

Section 04 – Fee

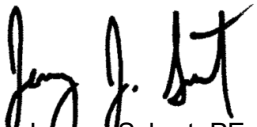
SD proposed to provide the scope above for an hourly not-to-exceed fee of $110,200 utilizing our standard hourly rates. These efforts will include the following:

Meetings and Site Reviews (3 meetings assumed)	$9,900
Drainage Area and Capacity Reviews (4 Locations)	$8,800
Drainage Area Modeling and Calibration (Up to 4 Locations)	$35,000
Aerial Survey (Up to 4 Locations)	$11,300
Additional Pond Bottom and Utility Survey (Up to 4 Locations)	$30,200
Master Plan Update	$10,000
Draft of Capacity Purchase Policy (to be finalized by an Attorney)	$5,000
Total	**$110,200**

In limited situations, we may find that infiltration testing would be beneficial for determining the capacity of the ponds. If we identify locations where this may be a consideration, then infiltration testing can be completed for $500 per test.

Thank you for the opportunity to submit this proposal, and we look forward to working with the City on this effort. If you find this proposal acceptable, please sign and return one copy to our office and retain one for your records. If you wish to discuss this proposal or require additional information, please feel free to contact me.

Sincerely,
Spalding DeDecker



Jeremy Schrot, PE
Project Manager

Accepted by:
City of Novi

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Date: _____