CITY OF BEVERLY

2020

CAPITAL EXPENDITURE PLAN

Submitted by:

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CAPITAL EXPENDITURE SCHEDULES

Introduction

The Beverly City Charter requires an annual submission by the Mayor of the City's capital improvement plan. The plan must include a list of all capital improvements proposed to be undertaken over the next five years however we feel it is important as a City to look beyond five years. Therefore, we have included the projects we feel will require attention within the next ten years to help aid in long term financial and service planning. It is also important to recognize that in addition to the foreseeable needs outlined in this plan that occasional capital needs arise unexpectedly. This plan should help to determine priorities and affordability of both the known investments and the occasional unexpected. As part of the plan development many assumptions need to be made. Costs of expenditures, timing of borrowing, market interest rates for short and long term loans and budgetary capacity for debt service are among those assumptions. Although the many assumptions are reasonable it is recognized that the plan is subject to change as those assumptions do.

The Capital Expenditure Plan is largely a discussion document and no project outlined herein can proceed without separate, specific individual City Council approval. The anticipated increase in the debt service budget as well as projected debt ratios are shown as a guide for planning. Each project outlined herein will require a more thorough affordability review prior to committing to undertaking a project. As budget demands change and financial resources increase or decrease, the timing and affordability of these projects can shift as well. Priorities and cost estimates often change, and this document serves to allow for effective discussion of such changes.

The Cahill administration believes strongly that many of the projects outlined in this document must be seen not only as necessary investments to continue to deliver core city services, but also as necessary to meet our obligation to ensure that Beverly becomes a sustainable, clean energy, low carbon impact community. Many of these projects involve city buildings, infrastructure and equipment purchases. As technology allows, every effort must be made to reduce the city's energy consumption, increase the city's clean energy generation and incentivize less pollution and carbon output through these projects.

Over the coming year, the City will develop a Climate Action and Resilience Plan. The plan will include a greenhouse gas emissions inventory which will identify current emission levels for all municipal operations, as well as the community wide emissions. The plan will identify priority action items, both near and long term, that will vastly reduce greenhouse gas emissions and increase community resilience, as we do our part to mitigate climate change. The plan will include a Community Climate Action Toolkit to assist the broader community with actions that can be accomplished at an individual and household level, and develop a monitoring and evaluation system, including an online community dashboard, to further ensure an aggressive and transparent approach to accomplishing priority actions and meeting the City's goals for emissions and waste reduction and environmental resilience.

City Hall

City Hall is the face of our municipal government. The original part of the building is rich in history dating to the 18th century while the "newer" section is from the 19th century. As with many older buildings ongoing maintenance is required to preserve and improve the asset. The City performed significant roof and facade work during 2014 and 2015 therefore attention can now begin to focus on the interior and major systems. Two new boilers were purchased and placed in the basement of the adjacent Police Station and City Hall was converted to forced hot water heating throughout allowing the building to switch from an oil fired system to a gas fired hot water boiler. This change is allowing us to heat the building more efficiently and achieve a huge improvement in the comfort level within the building while reducing our overall environmental impact.

Once the new police station is completed the old station will be available for reuse. It is anticipated that some of the remote offices, such as Municipal Inspections and the Health Department, will relocate to this space. In order for that to happen the building will need to be completely renovated with new mechanical systems and ADA improvements. We have included a place holder of $10M for the renovation work that can take place once the Police Department is moved into a new facility and the project is financially feasible. The City will most likely look to borrow funds to facilitate this project.

Public Safety Facilities

Currently the City operates three fire stations and one police station to meet its public safety needs. Fire stations are located strategically in the areas of North Beverly, Beverly Farms and Downtown to allow multiple access routes to all areas of the City while avoiding unnecessary travel delays.

The central fire station remains in good working order and despite being built in 1954 the major capital components are in fair shape. The exceptions are the windows, the exterior brickwork, some electrical and the roof. The exterior brickwork is in need of repointing and the windows need replacement to provide additional insulation and to meet current building codes. The roof, as with many buildings of this age, needs a full replacement. Improvements in available materials would allow the city to put a more durable roof on this building to ensure it remains leak free into the future while enhancing its insulating factor allowing it to heat and cool more efficiently. In addition, the living quarters could use some upgrades and space needs to be created for a co-ed environment. These items combined could carry a cost of $1M. It is also recommended that the city explore adding central air conditioning to the upper floor as it is both an office for all the city fire operations and living quarters for on-duty staff. The cost of these repairs will warrant a separate funding authorization likely through the use of Free Cash reserves.

The North Beverly fire station recently benefited from significant improvements with a new apparatus floor, entrance and a total renovation of the sleeping quarters. The building is now much more functional, comfortable as well as being more efficient. Similar to the Central fire station, a roof replacement will need to be evaluated and the building could benefit from some

repointing of the façade to preserve this asset. More analysis in needed to determine the remaining life of the roof, however the façade work can be funded through the Fire Department's annual building repair operating budget.

Although no capital needs are currently scheduled at the Beverly Farms station, the second garage bay door will require some expansion in the future to accommodate some of the larger equipment. This station has also benefited from some recent window and exterior work. Similar to the North Beverly station, this stations roof should be evaluated for replacement as it is approaching its expected useful life. For planning purposes we will estimate replacement of these two building roofs between four and seven years at a cost of $400,000 each. The City would most likely look to its Free Cash reserves to fund these expenses.

The new police station is well underway with a hoped for completion date of late summer 2021. This will provide the City with a modern and efficient facility that allows the entire department to function under one roof for the first time in many years. The building is also a model for future municipal buildings with geothermal heating and cooling and the anticipated installation of a significant on-site solar array.

The budget will be evaluated to gauge capacity to construct an indoor range at this new site. A range is an essential part of a modern police facility but given the added expense of over $1.5M, it will have to wait until funds are available.

Public Services Buildings

The current Public Services facility has been in use for close to 100 years. The buildings were designed for horse and wagon operations and originally housed only the City's Highway Division. Currently all Public Services operations, with the exception of the sign and fabrication divisions are housed at the Park Street facility. Seven different divisions operate in the same 1930's vintage buildings that have seen little improvement since constructed. Satellite storage areas throughout the City have also been sold leaving the Public Services Department with little capacity for properly storing its equipment. The minimal storage that is available remains in poor condition. Storing the equipment outdoors reduces its useful life and makes it difficult to access in adverse weather. This delays response times to street blockages and other storm damage during emergencies. It is also widely understood that the increased costs associated with improperly stored equipment exceeds the costs to build adequate storage facilities.

The motor pool is responsible for maintaining the City's fleet of equipment. The motor pool building has significant limitations. The building is not large enough to accommodate the mechanics. Additionally, employees must plan repairs carefully to ensure vehicles being repaired are not trapped by ones needing more serious repairs. There is only one door large enough to fit equipment through and some of the City's equipment cannot fit at all. The roof is too low to raise much of the equipment being repaired once inside and there is no lift to handle large trucks. In short, the building is truly inadequate and inefficient. In the Spring of 2020, the Department assumed the responsibility for maintaining fire apparatus. The fifth mechanic must work in a rented space that is not located at the Public Works yard. The rented space is less than ideal but it is impossible to add another mechanic in the space available.

The Water Division Building is newer (1960's) but poorly designed for the department's current operations. The garage bays are neither tall enough nor deep enough to safely house modern equipment.

The approach recommended to deal with these issues is a combination of short-term investments as needed to continue to safeguard against deterioration of the buildings and long-term planning to address current and future needs of the Department. Roofs on the DPS buildings were recently replaced and insulated to current building code. This work was necessary to mitigate any further deterioration of the buildings and the equipment housed within them. The city will continue to evaluate a longer-term solution for its storage and operational space needs. Current estimates and our budgeted debt service put replacement cost in excess of 24 million dollars and will eventually require a loan authorization to fund it. This number provides for completely new facilities including sufficient space for all vehicle mechanics within the city to work under one roof. It is apparent that additional land is required to construct the facility. Productive, effective operations cannot be conducted without more space. Difficult decisions will need to be made and we anticipate ample process to allow for input and suggestions as we get closer to committing to this investment.

Senior Center

The Senior Center opened in November 1992, and this coming November will mark its 28th anniversary. The City has been fortunate over the years to have had funding from the Friends of the Council on Aging for some major improvements such as a new roof, carpeting, furnishings, upgrade of the HVAC system and just recently the replacement of some plumbing fixtures. Unfortunately, the Friends of the Council on Aging has exhausted its funds and we must ensure that future needs of this building are planned for within our capital plan. We anticipate needing to increase the Senior Centers maintenance budget to address both ad hoc as well as planned less costly repairs and improvements. Currently the FY 2020 budget for building maintenance is at $10,000. We would expect the need for this budget to rise to a more appropriate level of $20,000 in the near future to cover costs associated with short term repairs such as thru wall air conditioning unit replacements, air cooled condensing units, gutter and vinyl repair work along with yearly maintenance of windows, doors and exterior grounds.

In addition to the needs noted above, we can expect significant costs related to the exterior envelope within the 5 to 9-year range. The scope of this work would include complete replacement of the windows and exterior doors throughout the building. This need is currently expected to cost in the range of $250,000 and would likely come from free cash reserves.

The heating and cooling system within the center will also require some investment in the next few years. The boilers are at the end of their useful life and should be updated with more efficient units. The 4 major HVAC units should also be replaced with more efficient equipment and also to eliminate the very expensive and environmentally harmful refrigerant in the current units. A building-wide energy management system should also be installed to allow better control of the building heating, cooling and lighting. The total cost for this scope is estimated at

$250,000 to $350,000 but can be broken into multiple phases and is expected to be needed in the next 3 to 8 years. A combination of grant opportunities, operating budget and free cash reserves would all likely contribute to funding this improvement.

GAR Hall

The Grand Army of the Republic (GAR) Hall is located at 8 Dane Street and currently houses the City's Inspectional Services Department. The Inspectional Services Department moved into the building a few years ago and prior to the move the city invested some resources to upgrade the building. Hazardous floor tiles were removed, electrical upgrades were preformed and painting throughout the basement and 1st floor was done. The building also has a relatively new roof. The Community Preservation Committee recently funded a façade restoration for the front exterior of the building. There still remains some improvements that are necessary to fully restore and preserve it for years to come.

School Buildings and Grounds

Beverly's school facilities have been brought to a first-class condition. The five Elementary schools in operation along with the McKeown School have all been renovated over the past two decades, the High School underwent a thorough renovation which was completed in 2010 and Beverly's Middle School is the last of the school buildings to be reconstructed and was completed for the 2018/2019 school year.

We are approaching the stated useful life of some of the earlier remodeled school roofs and proactive repair and maintenance along with an evaluation will help us prepare a reasonable replacement schedule over multiple years to ensure that those schools are properly protected. This work will also include the feasibility of solar panels on each of the school roofs.

While we still hope to participate in the Massachusetts School Building Association's repair program for these expected costs with a 56% reimbursement by the state, since this year the state changed the threshold eligibility requirement of the roofs from 20 to 25 years old and the roofs must essentially be failing, it is unclear whether we can take advantage of this program. Therefore, for planning purposes we have included all of them in the debt schedules at an average of $1 million each. To properly replace the roof systems, the HVAC equipment on the roof must be removed. Since the equipment is as old as the roofs, it is prudent to replace it at the same time with more efficient equipment. This may add $150,000 to the cost of each roof, but is a wise investment and eliminates the legacy refrigerant that current equipment uses.

The City has been aggressive in the upkeep and repairs of athletic and outdoor fields in and around the schools. A Replacement of the Hurd Stadium Seating has ensured the continued availability of that city and school asset well into the future. In addition to the new fields on the grounds of the new middle school the city has invested in the replacement of the track and construction of new softball fields on the grounds of the high school. We need to now turn our attention to the inevitable replacement of the turf at the high school. It is reaching the end of its

useful life and with the advancement in recent years of turf technology and products, we should replace the carpet and fill of that field in the near future. Based on the turf and fill cost of the field at the new middle school, we should expect the project to cost in the $800,000 range assuming the foundations and drainage systems would not need to be altered.

Roads and Sidewalks

Using sophisticated pavement management tools we have been able to categorize and rate our roadways throughout the city. This process coupled with a significant increase in city funds for road and sidewalk work is allowing the city to make steady strides in improving and strategically maintaining our road and sidewalk infrastructure. The state is also a significant source of paving revenue which comes to Beverly via the gas tax. Combining this with an annual city appropriation of between $1.4M and $1.7M has and would continue to provide between $2.5M and $2.9M annually. In addition, the city sources many grant opportunities such as complete streets and MassWorks to help fund road projects. This remains an investment that is critical to improving our 150 miles of roadway. Our goal is to continue this level of investment for as long as possible.

We embrace the latest pavement preservation technologies to protect our investment while at the same time we are working with leaders in the field to develop new techniques to make sure this large investment in one of our most valuable assets is protected. Annual work including crack sealing and in-house grind and inlay compliments the larger reconstruction and repaving projects to provide a comprehensive approach to pavement management.

We will also incorporate ADA improvements in all this work to increase access for all residents and guests and incorporate the complete streets model when possible.

The Mobility Hub, as it is known, will be a major modernization of the area around the Depot that allows pedestrian, bicycles, buses, trains and other forms of transportation to interact and leverage their respective benefits. Designs are at 25% and significant capital will be necessary to complete the project. Funding will likely be a combination of grants, private, municipal and transportation agency sources.

Upgrading of Key Intersections

The city has long discussed an interchange project including direct access to Dunham Rd. from Rte. 128 mitigating traffic flow from the Brimbal Ave. area. This remains conceptual and the city continues to work with state officials to develop an attainable solution. It is likely that any project would be substantial in cost and take some time to develop. It is the city's expectation that funding for this type of project would fall outside the city's operating budget, therefore we have not included any costs associated with it in the debt models.

As we evaluate the status of traffic throughout the city it is clear that some intersections are causing significant amounts of congestion. Topping the list are the intersection of Dodge and

Cabot in North Beverly, the intersection of Balch and McKay and the intersection of Cabot and lower Rantoul by the Veterans Memorial Bridge. The city engaged an engineering firm to design solutions for these intersections and over this past winter the State put the construction out to bid. A contractor is now in place and the 3 intersections will be reconstructed over the next 24 months at a total cost of over $6M. The construction is entirely funded through the State budget. Improvements to these intersections will allow more efficient movement of traffic and greatly enhanced bicycle and pedestrian facilities. The engineering cost has been borne by the city and the City Council has already made an appropriation for the same.

The city also intends to implement improvements to the intersection of Essex St. and Corning and Spring St. by Montserrat Train Station. Additional study is required to ensure the most appropriate and effective solutions are implemented.

Bridge Street is another key artery in town and sorely in need of repair. The City was successful at getting this street onto the same list of future State funded work as the intersections noted above. Like the intersections above we will complete the engineering work over the next 12-18 months and turn the project over to the state to build with federal dollars. This will be a welcome and important streetscape project.

Parking Infrastructure

The City recently passed a revised parking ordinance and funded a new parking system in the downtown areas. The cost of the new system is expected to be fully paid by the close of FY 2021 with short term principal payments. The ongoing enforcement and upkeep costs is planned to be funded through a parking revenue transfer each year.

The City also recognizes the need for parking capacity improvements in and around the downtown area. Currently the City manages five public parking lots in the immediate downtown area. As demand for this limited parking increases, the City may need to invest in ways to increase parking availability in this area of the City.

Bass River

Dredging of the Bass River has long been noted as a need to allow improved access along the river and the project is divided into two phases. The first phase being from the Danvers River to the Hall Whitaker Bridge, and the second phase comprising dredging from the Hall Whitaker Bridge to the Bass Haven Yacht Club. The City is continuing to work through some of the logistical and legal barriers with the project, but we are including a place holder within the attached debt schedules as the scope of this effort would be significant if fully undertaken.

Fire Engines

The city currently maintains and operates four pumper trucks, Engine 1, Engine 3, Engine 5 and Engine 6, along with two Quint trucks. The Quint truck is a combination ladder and pumper vehicle. Of the pumper fire engines, Engine 3 and Engine 5 are newer trucks and were purchased in fiscal years 2014 and 2015. The acquisition of these engines, which are designed and equipped to pump water at the site of a fire, have ensured that our fire response capabilities are state-of-the-art. With the City's front-line pumper trucks relatively new, the city can begin to replace the backup pumpers. The City has historically kept older vehicles for back up purposes and the two back up pumpers (Engine 1 and Engine 6) are currently fourteen and seventeen years old. The city should look to replace the seventeen year old fire engine in the future by moving the 2014 pumper fire engine into a backup position and replace that with a fully equipped new pumper fire engine at an estimated cost of $545,000.

The most pressing need is for a new ladder truck. The main ladder truck (Quint) is now 11 years old. It has become increasingly expensive to maintain and frequently needs service. When it is down for service, we use the backup as a frontline piece. The backup ladder truck (Quint) is 24 years old and in need of significant repairs. In order to ensure the City's compliance with safety and regulatory standards this truck need to be replaced. To provide sufficient backup, the City has borrowed a reserve ladder from the City of Boston. The plan is to place the frontline ladder truck that is 11 years old as the reserve (backup) piece.

Each of these fire truck purchases would require a separate appropriation likely as a loan order or a combination of free cash appropriation and loan order. Grant funding was pursued for the ladder truck purchase, but not awarded based on the city's average truck age being too new. As City Councilors are aware, the Administration has requested the Council approve a loan authorization to allow the new ladder truck to be ordered this summer. The Administrations intent is still to pay for this truck with a free cash appropriation by the City Council, and the loan authorization will ensure the truck is built and in service sooner. As with other capital costs in this price range, the Administration is hopeful to utilize free cash reserves for this purchase in the future. However, for planning purposes the pumper purchase is contained in the debt schedules.

Additionally, the Fire Department utilizes some smaller vehicles for dive activity, hazardous waste removal, contamination management, forest fires and a number of other purposes. These vehicles tend to be less expensive than the larger engines and ladders, but nevertheless require ongoing turnover to ensure safe and effective emergency response. The City recently replaced one of these smaller vehicles and plans to continue the replacement schedule over the next couple of fiscal years through the city's annual operating budget request.

Public Services Vehicles

The Public Services fleet includes a large number of vehicles, trailers, specialty equipment and heavy machinery. The fleet is so large that it's imperative we continue to have an equipment replacement schedule and spread out replacement costs equally over many years on a rolling basis. This strategy avoids putting the city in a position where major investment would be required in a shorter period of time. Also, continuing with a modest plan that provides a few new pieces each year will help keep the Department efficient and help hold down repair costs

and maximize staff time. It has been the City's practice to include funding within the operating budget for this purpose and we expect that practice to continue in the future.

A commonly used truck in the DPS fleet is the so called "one-ton." These trucks are used in support of a number of functions within the Department. At least one per year need to be purchased for the next few years to build the fleet back up. Each truck now costs approximately $85,000 with snow removal equipment.

There are many critical pieces to our fleet such as large front-end loaders and backhoes. Like all of the fleet our current stock is old and in need of replacement. At least $195,000 should be provided for replacing one piece per year.

The workhorses of the fleet are our medium duty trucks. Rust has taken its toll and we desperately need replacement trucks at an estimated price of $210,000 each. At least one per year should be budgeted.

It is our intent to fund these capital expenditures from operations whenever possible, i.e. in years which generate positive financial variances from operations. We have historically allocated $250,000 initially to the Public Services budget for this purpose and you will note those expenses not being bonded as they are appropriated directly each year. We anticipate continuing this strategy each year moving forward through the administrations annual budget submission.

IT and Communication Infrastructure

Historically the city has provided an annual allotment through the General Fund operating budget for the upkeep and replacement of technology equipment. This practice has enabled the city to maintain its existing infrastructure however as the need for enhanced computing and speed increases, so does the required upgrades necessary to ensure effective and secure environments.

The city will also look to invest in enhancing the internet access within its network. This will require a fiber based internet solution which will allow for less down time, quicker communication better security and overall just a more superior product than the current Comcast business product we currently rely on. The increase costs associated with this investment will be built into future General Fund operating budget requests.

The city is also evaluating the cost / benefit of standardizing the office suites throughout the city. This could provide for more streamlined sharing of files and standardized solutions and when coupled with robust training opportunities should empower our existing departments.

The primary telephone system used throughout City Hall, the police department, public works etc. is a soon-to-be obsolete Vertical –Comdial phone system. Parts are no longer available, there are, on occasion, operational issues and the IT department is finding it increasingly difficult to locate technicians to service the system. Recently we have upgraded the phones at the Recreation Department, the Library, the Fire Department and the Harbormaster building to a VOIP system, which is a scalable fiber based system. The city intends to complete the upgrade

by replacing all remaining legacy phones and frankly this need has been highlighted with the recent remote working environment brought on by the COVID-19 pandemic. The estimated cost is $185,000 and the city would look to utilize some CARES funding in the very near future to facilitate the upgrade.

The City also intends to invest Cares grant funding to upgrade its very outdated website to help facilitate increased need for online transacting, public notifications, citizen communication and ADA compliance.

Beverly Golf and Tennis Club

Improvements continue to be made to this facility including both interior and exterior work. Building preservation, mechanical system renovations and handicap accessibility continue to be the focus of these investments moving forward. Improvements have historically been funded through the Golf and Tennis Enterprise Fund and multiple awards from the Community Preservation Committee. A modest amount of roughly $75,000 is provided annually in the Golf Enterprise fund budget and it is anticipated that this annual investment will continue assuming annual City Council approval and barring any unforeseen competing demands. The Community Preservation Committee has awarded the Golf and Tennis Commission funds to assess and develop a rehabilitation plan. It is expected that the entire building will need an extensive overhaul to replace all of the major systems. This will come with a price tag in the millions of dollars. We can expect this scope of rehabilitation to be significant. An initial estimate of $5M has been discussed, which if borrowed would create an annual debt service payment unable to be supported by the Golf and Tennis Enterprise Fund alone. A likely solution would include funding from multiple sources possibly including historic preservation funding, Community Preservation Funding, possibly state and/or federal grants and the Golf and Tennis Enterprise fund. The debt schedules will carry the full $5M estimate within the Golf and Tennis Enterprise Fund.

Lynch Park Carriage House

Over the years a number of projects have been completed in the Carriage House that have bolstered the building and prevented the loss of this cherished asset. In order to have the building used to its full potential a significant renovation is required. This would include replacing the electrical and plumbing while also adding insulation and mechanical systems that don't exist at this time. An elevator would also be installed to allow complete access by all our residents.

Community Preservation funding has allowed us to complete a planning phase for a reconstruction. The reconstruction is proposed to take place over 2 phases with a total cost of over $4.5M. Funding will likely come from historic preservation grants, Community Preservation funds as well as Recreation Enterprise funds.

Water, Sewer and Drainage

Flood control has been a major objective for the past two decades. Significant time, effort and money have been invested in our stormwater system to mitigate flooding problems throughout the City. We have successfully completed the Chase Street project in Wards two and three, the Lawrence Brook project in Ward four, the Raymond Farms project, whose benefits are most felt in Ward five and most recently the North Beverly project which benefits residents of Wards five and three.

The Chubb's Brook project in Ward six was, in fact, overwhelmed by the so-called Mother's Day storm of 2006, which lasted a week. That project is dependent on detention basins to slow the flow of water rather than large pipes which carry off the offending water. We designed additional improvements to the Chubb's Brook area which were constructed a few seasons ago to bolster the already proven detention ponds. We have designed an additional pond to increase our storage capacity and replacements for three sections of existing culverts that will provide additional relief. Two culvert replacements are being performed by other agencies at no cost to the City other than design and permitting. The railroad completed replacement of its culvert and Mass DOT will hopefully be able to replace theirs this summer. The third culvert, (under Haskell Street) was replaced with the help of a grant from FEMA to complete the work along with some other improvements in the area. These projects have been carefully designed to work together to minimize the risk of flooding in this flood prone area.

The city is also engaged in a flood mitigation effort in and around the Shoe Pond and Bass River. Tidal gates and increased drainage capacity are proposed and we are working with State and Federal Emergency Management agencies on this effort. Funding has and will be made available through grants for the majority of this work. A total of close to $2M is needed and 75% of that will come from grants that have been secured.

In addition to the larger projects that are constructed by outside vendors, the Department of Public Services constructs dozens of smaller projects each year to alleviate drainage problems. When the projects are constructed with City forces, the costs are modest and the work of high quality. Funding drainage repairs and extensions each year ensures that this effort can continue. Providing funding of $100,000 - 150,000 each year allows several projects to be accomplished. We will continue to include an annual request of $125,000 within the annual operating budget in the future.

In recent years we have reconstructed many brooks within the City. Years of neglect had left them choked with brush and debris. A small-scale program of ditch maintenance began several years ago to reclaim overgrown brooks and to maintain the newly refurbished waterways. This program is vital and should be expanded to allow clearing of some of the brooks within the flood prone areas in the City. An annual budget request of $50,000 will provide a basic level of service and allow the City to catch up with the substantial backlog of work.

Several water main projects are contemplated for the upcoming year. The goal of these specific projects is to bolster our ability to provide the highest level of service possible to our customers. The Beverly Farms main lining project was completed as was the replacement of the Haskell

Street main. These projects have provided a significant improvement to water quality and quantity in the Farms section of the city.

To fully augment fire flows in the Beverly Farms area it is also necessary to upgrade a section of water main on Standley St. The section from Foster Street to Eagle Lane needs to be upgraded from six inch to sixteen inch pipe. The cost of this is anticipated to be $800,000 and the authorization to borrow was approved by the city council in late FY 2014. This will be completed over the next year by city forces.

With the upcoming road project on Bridge Street in the design phase, we can anticipate the water main will also need rehabilitation. The Bridge Street water main will need to be replaced at a cost of close to $1.5M within the next 2 years. Depending on the level of the Enterprise Fund balance, this request could consist of a portion of fund balance and a portion of loan authorization. For illustrative purposes we have included the full cost in the attached debt schedule.

Citywide Water Main Replacement

It is industry practice to allow for the renewal and replacement of water mains on an annual basis. A rule of thumb is to renew or replace 1% of total pipeline length every year with a goal that after 100 years, all pipe in the system will have been replaced. Beverly has about 200 miles of water pipe within the City. The first goal of the program will be to install pipe in those areas of the City known to have problems of low water flow or poor water quality. Overall, the program will also allow small mains to be replaced by new larger pipes and dead-ends looped. Current cost is estimated at $1,000,000 per year which we will continue to incorporate into the annual water budget request. The estimated cost includes engineering and construction costs to install about two miles of new pipe per year.

Citywide Gate Valve Replacement

There are almost 4,000 valves in the City's water system, some more than 100 years old. Many of these valves operate poorly which limits our ability to quickly control a water break. The Water Department is starting a unidirectional main flushing program. Unidirectional flushing is a very effective way to remove sediment from water mains, but it requires the operation of main valves. It is expected that this process will identify some valves that need replacement. The cost to replace a single valve averages $2,200. An estimated 50 valves should be replaced each year for a total annual cost of $110,000 which will be built into the annual water budget request.

Water & Sewer Vehicles

This division recently purchased a large dump truck and a new backhoe, however additional equipment such as a utility truck and other smaller pieces are required going forward. An ongoing expenditure of $200,000 per year for vehicles is necessary to keep the water/sewer

equipment and fleet in reasonable condition. This amount will be included in the Mayor's budget request.

Paint and Repair of the Folly Hill Tower

Originally constructed to serve a small section of the City, the tower at Folly Hill now serves to support the entire City along with the recently renovated Brimbal tank. Now that our main tank has been painted, we need to turn our attention to its backup. The painting project at Brimbal helped us to clearly demonstrate the value of the Folly Hill tank. A complete interior and exterior recoating is necessary and will cost close to $2M. This work will likely be necessary within the next 5 years. The debt payment for this project would be the obligation of the water fund.

Water Meter Replacement

Many of the city's water meters are approaching 20 years old. The battery in the communication portion of the meter is guaranteed for 10 years but is expected to last for years beyond that. It is important that we begin planning for the replacement of our meters and the current reading system. Currently as batteries are failing we are replacing the meters with newer technology with our ultimate goal of installing a newer network of meter reading equipment that will allow us to monitor water usage in real time. Current technology will allow for immediate notification to our customers of a leak on their property. It also allows us to compare daily water usage citywide so that we may better manage this important asset. The work to identify the best system for the future will be done over the coming year. Current estimates place a cost at $4.8M which would be split between water and sewer funds and require a separate loan authorization from the City Council.

Sewer Pumping Station Improvements

The environment of a sewer pump station is a hostile one. Constant attention is needed to keep the stations operating efficiently. Safety codes have improved greatly since most of our stations were built and as a result many of our stations could benefit from a renovation project. The goal would be to make the stations reliable and safer to maintain. A total of $250,000 annually for the next 10 years is a realistic investment in the 35 stations we operate and maintain. The current budget holds $100,000 for this purpose.

Two of the sewer pump stations are due for extensive overhauls this year. Upgrades are necessary to provide adequate capacity and reliability and to eliminate inherent hazards of the stations that make maintenance work a dangerous activity. The estimated cost of upgrades is $250,000 which will necessitate a separate appropriation likely from the enterprise fund balance.

Sewer System Evaluation

The drainage system in the vicinity of Corning Street and East Lothrop was significantly improved by the Lawrence Brook drainage project. The ultimate test of this was the May 2006 rain event. During that storm the drainage system worked well and there was no significant flooding. Without the flooding waters we soon became aware of another problem. Extraneous water is entering the sanitary sewers causing them to periodically overflow. The result was basements with raw sewage flowing back into them from the street during the largest rain events.

Over the last few years, the City has worked with Dewberry Engineers Inc. to investigate the scope of the problem and recommend possible solutions. Extensive field investigations were performed and raw data was collected. The preliminary results indicate that there is a significant amount of both groundwater and surface water entering the sanitary sewers from a variety of sources.

Construction of sewer improvements in this area was completed over the past two years. All leaking sewers have been sealed with waterproof liners. This includes the service connections to the homes. This work should greatly reduce the amount of groundwater leaking into the sewers and mitigate flooding of the sewers in heavy rain events within that sewer subsection. We keep this project on the books as it is a sort of test bed for us to prove the efficacy of various rehabilitation methods. We continue to study the area so that we can do a better job with our work in other areas of the city.

Due to recent changes in DEP regulations we will be required to complete this type of work throughout the city. The City maintains 25 subsections of sewer each containing an average of 25,000 linear feet (five miles). Now that we have a proven methodology for repairs and have completed the first subsection we can estimate safely that it will take in excess of $3M per year to perform the work now required by law for the remaining subsections. The current budget provides $1.25M within the operating budget to address the engineering and planning components for this purpose which will need to increase in future years.

The Environmental Protection Agency (EPA) has published the most recent updates related to the MS4 regulations that the City of Beverly is required to comply with. The requirements published by the EPA relate to our storm water sewer system. The regulation is quite complicated, and we are still evaluating the potential impact but it is safe to say it will require significant investment to comply. The next year is a planning year to prepare for compliance but even that can be expected to cost $150,000. Subsequent years are expected to be much more expensive. The regulation is so burdensome that we were successful in appealing the permit in the court system to obtain a one-year delay while the equity of the permit is reviewed.

Funding Source Summary
Capital Expenditures

Project	Est. Cost	Potential Funding Source: GENERAL FUND – Free Cash	Annual Operating Budget	Debt Service	Other
Library HVAC System	300,000	X			
City Hall Refurbishment	10,000,000			X	
Police Station	29,000,000	X		X	
Firing Range	1,500,000	X		X	
North Beverly / Farms Fire Station Roofs	800,000	X			
Central Fire Station Façade, Roof, Windows and HVAC	1,000,000	X			
School Roofs (each roof)	1,000,000	X		X	
High School Turf Field	800,000	X			X
Public Services Buildings	24,000,000			X	
Senior Center (ongoing maintenance, exterior envelope & HV.	600,000	X	X		
GAR Hall	TBD				X
Annual Paving of Roads and Sidewalks	2,500,000-2,900,000		X		X
Upgrading of Key Intersections	6,000,000				X
Bass River Dredging	5,000,000			X	X
Fire Pumper Truck	545,000	X		X	
Fire Ladder Truck	1,300,000	X			
Public Services Vehicles	250,000 / yr.		X		
Citywide Phone System	135,000				X
Email System Upgrade	50,000		X		X

Project	Est. Cost	Potential Funding Source: ENTERPRISE FUNDS – Retained Earnings	Annual Operating Budget	Debt Service	Other
Beverly Golf and Tennis Club	5,000,000			X	X
Lynch Park Carriage House	4,500,000			X	X
Flood Mitigation Shoe Pond	2,000,000		X		X
Drainage Repairs and Extensions	100,000 -150,000 / yr		X		
Brook Drainage repairs and maintenance	50,000 / yr		X		
Standley St Water Main	800,000			X	
Bridge Water Mains	1,500,000			X	
Water and Sewer Vehicles	200,000 / yr		X		
City Wide Gate Valve Replacement	110,000 / yr		X		
City Wide Watermain Replacement	1,000,000 / yr		X		
Foly Hill Water tank	2,000,000			X	
Water Meter Replacement	4,800,000			X	
Sewer Station Improvements	250,000 / yr + 250,000 one time	X	X		
Sewer System Evaluation	2,500,000-3,000,000		X		

GENERAL FUND DEBT SCHEDULE
As of 7/7/20

	Issued	2021 Total	2022 Total	2023 Total	2024 Total	2025 Total	2026 Total	2027 Total	2028 Total	2029 Total	2030 Total
McKeown School	6,659,000	-	-	-	-	-	-	-	-	-	-
Ayers School	7,340,000	-	-	-	-	-	-	-	-	-	-
School Bonds	19,908,000	-	-	-	-	-	-	-	-	-	-
School Planning	5,300,000	-	-	-	-	-	-	-	-	-	-
Landfill Closure	2,848,000	244,800	-	-	-	-	-	-	-	-	-
Drainage	5,890,000	280,640	263,670	-	-	-	-	-	-	-	-
Centerville School	11,437,000	838,600	836,400	-	-	-	-	-	-	-	-
North Beverly School	11,400,000	833,340	832,320	-	-	-	-	-	-	-	-
Farms Library	3,165,000	168,800	162,600	152,250	-	-	-	-	-	-	-
Fire Equipment	400,000	33,968	32,250	26,775	-	-	-	-	-	-	-
Carriage House	200,000	16,746	15,900	14,175	-	-	-	-	-	-	-
Fire Equipment	830,000	87,200	84,000	81,200	-	-	-	-	-	-	-
Drainage	3,207,000	172,425	166,225	155,875	146,813	-	-	-	-	-	-
Drainage	3,000,000	161,400	155,600	145,600	141,750	-	-	-	-	-	-
Police Communications / Fiber	1,000,000	132,000	126,500	121,000	115,500	-	-	-	-	-	-
Parking Lots	1,300,000	112,875	104,175	101,025	98,550	96,300	93,938	91,350	-	-	-
BHS #1	20,000,000	1,117,907	1,103,756	1,067,206	1,029,656	993,156	956,656	920,156	890,956	861,756	832,556
Land acquisition	720,000	48,794	46,550	44,800	43,050	41,300	39,550	37,800	36,400	-	-
BHS #2	10,000,000	646,000	632,000	616,000	600,000	584,000	568,000	552,000	536,000	520,000	504,000
Fire Trucks	974,000	76,125	73,625	71,125	68,625	66,125	63,625	62,125	60,625	59,125	57,625
City Hall / Police Station Repairs	2,483,000	193,600	187,350	181,100	174,850	168,600	162,350	158,600	154,850	151,100	147,350
Library Repairs	2,458,000	192,850	186,600	180,350	174,100	167,850	161,600	152,850	149,250	145,650	142,050
BHS #3	2,059,000	161,925	156,675	151,425	146,175	140,925	135,675	132,525	124,375	121,375	118,375
BHS #4 (Final)	1,753,000	130,900	128,100	120,000	117,000	114,000	111,000	108,000	105,000	102,000	99,000
Middle School #1	25,000,000	1,596,813	1,566,888	1,532,688	1,498,488	1,464,288	1,430,088	1,395,888	1,361,688	1,327,488	1,293,288
Middle School #2	23,875,000	1,601,438	1,573,438	1,545,438	1,500,563	1,460,813	1,421,063	1,381,313	1,341,563	1,305,788	1,273,988
SUBTOTAL CURRENT DEBT SERVICE		**8,849,145**	**8,434,621**	**6,308,031**	**5,855,119**	**5,297,356**	**5,143,544**	**4,992,606**	**4,760,706**	**4,594,281**	**4,468,231**
PROPOSED DEBT SERVICE	**EST VALUE**										
Short Term Borrowing / financing		400,000	250,000	250,000	250,000	-	-	-	-	-	-
Middle School #3 (equal princ 4.0%) (30 YRS)	10,800,000	-	792,000	777,600	763,200	748,800	734,400	720,000	705,600	691,200	676,800
Parking keosks and equipment	1,000,000	435,000	-	-	-	-	-	-	-	-	-
Police Station (4.0% equal principal) (30 YRS)	24,000,000	-	1,760,000	1,728,000	1,696,000	1,664,000	1,632,000	1,600,000	1,568,000	1,536,000	1,504,000
Fire truck ladder (assumed to be paid with FC)	1,100,000	-	-	-	-	-	-	-	-	-	-
Fire truck pumper (equal rpinc) (4.5%) (15YR)	545,000	-	-	60,858	59,223	57,588	55,953	54,318	52,683	51,048	49,413
School roofs #1 & #2 (4.5%) (10 YR)	2,000,000	-	-	-	290,000	281,000	272,000	263,000	254,000	245,000	236,000
School roofs #3 & #4 (4.5%) (10 YR)	2,000,000	-	-	-	-	290,000	281,000	272,000	263,000	254,000	245,000
School roof #5 (10 YR)	1,000,000	-	-	-	-	-	145,000	140,500	136,000	131,500	127,000
Bass River Dredging (4.0%) (10YR)	TBD	-	-	-	-	-	-	-	-	-	-
City Hall Refurbishment (4.5% equal principal) (20 YR	10,000,000	-	-	950,000	927,500	905,000	882,500	860,000	837,500	815,000	792,500
Public Services Building (4.5% equal principal)	24,000,000	-	-	-	-	1,880,000	1,844,000	1,808,000	1,772,000	1,736,000	1,736,000
SUBTOTAL PROPOSED DEBT SERVICE		**835,000**	**2,802,000**	**3,766,458**	**3,985,923**	**5,826,388**	**5,846,853**	**5,717,818**	**5,588,783**	**5,459,748**	**5,366,713**
TOTAL CURRENT + PROPOSED DEBT SERVICE		**9,684,145**	**11,236,621**	**10,074,489**	**9,841,042**	**11,123,744**	**10,990,397**	**10,710,424**	**10,349,489**	**10,054,029**	**9,834,944**
Est. General Fund Operating Budget (est 2.5% increase)		136,426,495	139,837,157	143,333,086	146,916,413	150,589,324	154,354,057	158,212,908	162,168,231	166,222,437	170,377,998
Debt Ratio		7.10%	8.04%	7.03%	6.70%	7.39%	7.12%	6.77%	6.38%	6.05%	5.77%

WATER FUND
CAPITAL EXPENDITURE PLAN
EXISTING DEBT SERVICE REQUIREMENTS BY FISCAL YEAR

Project		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Rte 1A Water System	Prin	-	-	-	-	-	-	-	-	-	-
437,725 9 yr	Int	-	-	-	-	-	-	-	-	-	-
Water Improvements	Prin	70,000	61,500	-	-	-	-	-	-	-	-
641,500 10 yr	Int	3,860	1,230	-	-	-	-	-	-	-	-
Water Improvements	Prin	25,000	23,000	-	-	-	-	-	-	-	-
258,000 10 yr	Int	1,420	460	-	-	-	-	-	-	-	-
Hale & West Streets	Prin	39,600	40,000	40,000	40,000	40,000	40,000	40,000	35,000	35,000	35,000
892,060 20 yr	Int	16,704	15,450	13,450	11,450	9,450	7,450	5,450	3,850	2,450	1,050
Beverly Farms Main	Prin	80,000	80,000	80,000	80,000	80,000	80,000	80,000	75,000	75,000	75,000
2,150,000 28 yr	Int	63,431	60,631	57,431	54,231	51,031	47,831	44,631	41,531	38,531	35,531
TOTAL EXISTING WATER DEBT SERVICE		**300,015**	**282,271**	**190,881**	**185,681**	**180,481**	**175,281**	**170,081**	**155,381**	**150,981**	**146,581**

PROPOSED DEBT SERVICE BY FISCAL YEAR

Project		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
short term interest		72,000									
Standley Street Main	Prin	-	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000
800,000 20 yr	Int	-	32,000	30,400	28,800	27,200	25,600	24,000	22,400	20,800	19,200
Pershing Pump Station	Prin	-	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
1,000,000 20 yr	Int	-	40,000	38,000	36,000	34,000	32,000	30,000	28,000	26,000	24,000
Brimbal Ave Standpipe	Prin	-	140,000	140,000	140,000	140,000	140,000	140,000	140,000	140,000	140,000
2,800,000 20 yr	Int	-	112,000	106,400	100,800	95,200	89,600	84,000	78,400	72,800	67,200
Cabot Water Mains	Prin	-	185,000	185,000	185,000	185,000	185,000	185,000	185,000	185,000	185,000
3,700,000 20 yr	Int	-	148,000	140,600	133,200	125,800	118,400	111,000	103,600	96,200	88,800
Water Meters	Prin	-	-	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000
2,400,000 15 yr	Int	-	-	96,000	89,600	83,200	76,800	70,400	64,000	57,600	51,200
Bridge Water Mains	Prin	-	-	-	75,000	75,000	75,000	75,000	75,000	75,000	75,000
1,500,000 20 yr	Int	-	-	-	64,125	60,750	57,375	54,000	50,625	47,250	43,875
Foly Hill Water Tank	Prin	-	-	-	100,000	100,000	100,000	100,000	100,000	100,000	100,000
2,000,000 20 yr	Int	-	-	-	85,500	81,000	76,500	72,000	67,500	63,000	58,500
TOTAL PROPOSED WATER DEBT SERVICE		**72,000**	**747,000**	**986,400**	**1,288,025**	**1,257,150**	**1,226,275**	**1,195,400**	**1,164,525**	**1,133,650**	**1,102,775**
COMBINED DEBT SERVICE		**372,015**	**1,029,271**	**1,177,281**	**1,473,706**	**1,437,631**	**1,401,556**	**1,365,481**	**1,319,906**	**1,284,631**	**1,249,356**

SEWER FUND
CAPITAL EXPENDITURE PLAN
EXISTING DEBT SERVICE REQUIREMENTS BY FISCAL YEAR

Project		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
MWPAT	Prin	40,795	40,795	40,795	45,327	-	-	-	-	-	-
567,192 17 yr	Int	6,190	4,274	2,223	-	-	-	-	-	-	-
MWPAT	Prin	4,198	4,283	4,369	4,458	-	-	-	-	-	-
64,771 17 yr	Int	304	219	133	45	-	-	-	-	-	-
Hale and West Streets	Prin	81,200	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000
1,670,000 20 yr	Int	31,443	28,750	25,000	21,250	17,500	13,750	10,000	7,000	4,000	1,200
Chubb's Brook	Prin	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000
774,000 20 yr	Int	21,381	19,381	17,381	15,381	13,381	11,381	10,181	8,981	7,781	6,581
Raymond Farms Drainage	Prin	72,700	75,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000
1,657,940 20 yr	Int	30,556	28,250	24,500	21,000	17,500	14,000	10,500	7,700	4,900	2,100
North Beverly Brook	Prin	150,000	150,000	150,000	150,000	150,000	150,000	150,000	145,000	145,000	145,000
3,708,000 20 yr	Int	90,450	85,200	79,200	73,200	67,200	61,200	55,200	49,300	43,500	37,700
Rantoul St. Sewer	Prin	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000
1,250,000 28 yr	Int	36,988	35,413	33,613	31,813	30,013	28,213	26,413	24,613	22,813	21,013
Cove Area Sewer	Prin	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000
1,250,000 28 yr	Int	36,981	35,406	33,596	31,806	30,006	28,206	26,406	24,606	22,806	21,006
TOTAL EXISTING SEWER DEBT SERVICE		**733,186**	**711,971**	**685,809**	**669,280**	**600,600**	**581,750**	**563,700**	**542,200**	**525,800**	**509,600**

PROPOSED DEBT SERVICE BY FISCAL YEAR

Project short term interest		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Water Meters	Prin	-	-	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000
2,400,000 15 yr	Int	-	-	96,000	89,600	83,200	76,800	70,400	64,000	57,600	51,200
TOTAL PROPOSED SEWER DEBT SERVICE		-	-	**256,000**	**249,600**	**243,200**	**236,800**	**230,400**	**224,000**	**217,600**	**211,200**
COMBINED DEBT SERVICE		**733,186**	**711,971**	**941,809**	**918,880**	**843,800**	**818,550**	**794,100**	**766,200**	**743,400**	**720,800**

BEVERLY GOLF AND TENNIS FUND
CAPITAL EXPENDITURE PLAN
EXISTING DEBT SERVICE REQUIREMENTS BY FISCAL YEAR

Project		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Veranda	Prin	35,000	31,000	30,000	-	-	-	-	-	-	-
306,000 10 YR	Int	2,840	1,520	450	-	-	-	-	-	-	-
Building / Course Improvements	Prin	105,000	105,000	105,000	105,000	105,000	-	-	-	-	-
1,500,000 15 YR	Int	18,375	14,700	10,500	6,300	2,100	-	-	-	-	-
G&T Handicap Renovations	Prin	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
500,000 20 YR	Int	13,844	12,594	11,344	10,094	8,844	7,594	6,844	6,094	5,344	4,594
TOTAL EXISTING BG&T DEBT SERVICE		**200,059**	**189,814**	**182,294**	**146,394**	**140,944**	**32,594**	**31,844**	**31,094**	**30,344**	**29,594**

PROPOSED DEBT SERVICE BY FISCAL YEAR

Project		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Clubhouse Rehabilitation	Prin	-	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
5,000,000 20 YR	Int	-	225,000	213,750	202,500	191,250	180,000	168,750	157,500	146,250	135,000
TOTAL PROPOSED BG&T DEBT SERVICE		-	**475,000**	**463,750**	**452,500**	**441,250**	**430,000**	**418,750**	**407,500**	**396,250**	**385,000**
COMBINED DEBT SERVICE		**200,059**	**664,814**	**646,044**	**598,894**	**582,194**	**462,594**	**450,594**	**438,594**	**426,594**	**414,594**

Note: Potential Debt Service represetns the total estimated project cost of $5M. This cost will need to be born by multiple funding sources as the enterprise fund cannot absorb an annual payment of this magnitude.