City of Winooski
Vermont's Opportunity City

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Memorandum

To: Honorable Mayor Lott and City Council

From: Jon Rauscher – Public Works Director

Cc: City Manager, City Engineer

Re: Main Street Revitalization Project – March 2021 Council Update

Date: March 15, 2021

This memorandum presents our quarterly update on the Main Street Revitalization (MSR) project. We have prepared this update for your review and feedback and have organized the information into the following categories:

- Project Funding and Cost Projections
- Schedule Update
- Technical Design Progress
    - Drinking Water / Sanitary Sewer / Stormwater
    - Electrical
    - Landscape and Streetscape
    - Public Outreach and Right-of-Way (ROW) Acquisition
- Coordination with Other Projects
    - Winooski School District (WSD) Capital Project
    - Vermont Agency of Transportation (VAOT aka VTrans) I-89 Exit 16 DDI
    - VTrans Replacement of Concrete Pavement
- Next Steps

No Council action items are requested for this update.

Project Funding and Cost Projections

The authorized bond capacity for this project is $23M. The December 2020 update indicated a total project cost estimate of $19.1M, with an estimated cost to the City of $16.4M after subtracting grant funding from the total. The cost estimate presented herein is $21.8M, with an estimated cost to the City of $17.1M after subtracting grant funding from the total. The differences between this estimate and the December 2020 estimate are attributable to a combination of cost assumptions and accounting methods. For this update we sought to

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provide additional detail about the secured funding sources (presented in Table 1) and estimated project costs (presented in Table 2).

Funding Overview

Table 1 presents the funding packages awarded to the City for the MSR project.

Table 1: Secured Funding Sources

Source	Program	Use	Loan	Grant	Total
USDA RD	WEP	Water - All Eligible Costs	$ 1,222,000	$ 988,000	$ 2,210,000
USDA RD	WEP	Wastewater - All Eligible Costs	$ 3,755,000	$ 2,705,000	$ 6,460,000
FHWA (VAOT)	TAP	General - Ped X-ings	$ -	$ 289,600	$ 289,600
FHWA (VAOT)	Bike-Ped	General - Sidewalks	$ -	$ 256,000	$ 256,000
NBRC	EIDIP	General - Underg Utils	$ -	$ 450,000	$ 450,000
USDA RD	CF	General - Other Costs	$ 7,450,000	$ -	$ 7,450,000
		Totals	$ 12,427,000	$ 4,728,600	$ 17,115,600

As indicated in Table 1, secured funding sources include over $4.7M in grants and $12.4M in low-interest federal loans. Please take note of the following:

1. The USDA Rural Development Water & Environmental Program (WEP) funding sources disburse funds from the loan first and the grant second. In other words, the USDA grant funds can be used only after the balance of the loan has been spent, and any funds remaining after the project is complete are returned to USDA. The loan and grant amounts for these funding sources, which were based on the preliminary engineering estimates from 2018, cannot be changed. Therefore, the project scope for water resources work is being defined around maximizing – but not exceeding – the available WEP grant funds.
2. Spending to date on preliminary and design engineering has been financed largely through bridge loans from the Clean Water and Drinking Water State Revolving Funds (CWSRF and DWSRF, which are US EPA funding mechanisms administered by VTDEC) and general

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obligation (GO) bonds from the Vermont Municipal Bond Bank (VMBB). Debt from these bridge loans will ultimately be refinanced and rolled into the final construction loans.

3. The USDOT Federal Highway Administration (FHWA) funding sources are administered by VTrans and include a local match requirement, which will easily be met. A requirement of these funds (henceforth referred to herein as "VTrans grants") was to satisfy the FHWA environmental review requirements, which differ slightly from the USDA and EPA requirements (a NEPA review of the project was completed in 2018 with a Finding of No Significant Impact). Because the VTrans grants would fund a relatively small portion of the project, the documents submitted for FHWA environmental review included only the scope of work that would be eligible for VTrans grant funding. This approach provides several benefits including minimized schedule impacts, but it does allow for the unlikely scenario that the full grant amounts may not be utilized if construction costs are substantially lower than estimated. VHB and the VTrans grant administrator anticipate that the project as submitted will receive a Categorical Exclusion (CatEx) ruling.
4. The USDA Community Facilities (CF) loan amount was based on the preliminary cost estimates for City-owned streetscape and landscape infrastructure only, and excluded all costs associated with undergrounding the overhead utilities. The understanding at the time of submitting the loan application was that costs attributable to private utility companies (including Green Mountain Power and the various telecommunication firms) were not eligible under the CF program; it was also unclear whether the City would own the underground conduits and duct banks post-construction. The intent now is that the City will own the underground infrastructure (at least for the life of the loan that finances that work, although ownership after the loan is paid is still to be determined), and that construction cost would therefore be eligible for CF funding. USDA is reviewing whether the direct costs to the City from utilities for privately owned infrastructure, such as GMP's equipment and cables, would also be considered eligible under CF.
5. The CF loan includes a $50,000 grant, which, similar to the WEP funding sources, would be disbursed after the full loan amount is expended. This grant is excluded from Table 1 for simplicity and due to the unlikelihood of actual costs exceeds the CF loan amount by less than the $50,000.
6. The Chittenden Regional Planning Commission (CCRPC) provided $40,000 in grant funds during preliminary engineering, but this funding source is not included in Table 1 because the majority of this funding helped pay for the Weaver Street Bike Lane "Pop Up" project in 2018. Nevertheless, we note that CCRPC staff played a valuable role in providing technical engineering and public outreach support during the preliminary engineering

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phase of the project, and we are immensely grateful and fortunate to have them as a project ally.

The total of funding sources presented in Table 1 does not cover the full project cost. Our project financing models have assumed that the remaining project costs would be financed through VMBB (for eligible costs) or a commercial lender (for privately owned infrastructure) or both. The City has received preauthorization for these loans so the project is considered fully funded, however, these funding sources are excluded from Table 1 because the extent to which the project would rely on VMBB or commercial lenders for final financing of the project is not yet known.

USDA and VMBB Funding Comparison

Since the December 2020 update, City staff have discussed with USDA the possibility of using VMBB instead of USDA CF to finance eligible General Fund project costs. Although VMBB interest rates are currently lower than those offered by USDA loans, a benefit of CF over VMBB is that USDA locks in the pre-authorized loan amount at the interest rate offered when the loan resolution is executed (shortly after the loan application is approved); USDA will also match a lower rate if they offer one at the time of closing on the loan. Final project loans would not be closed until after construction is completed, which is not anticipated until 2024 or later, so the CF loan would eliminate the risk associated with the potential for interest rates to rise over the next few years.

We therefore believe that the CF loan is the better option to finance this project. We would also suggest that we seek to increase the CF loan amount to cover all eligible General Fund project costs, which at a minimum would likely include the undergrounding utility infrastructure. We would seek Council approval to apply for additional CF funding if needed when the 90% cost estimate is available.

Project Costs

Table 2 presents estimated project costs, sorted by project phase and attributable City fund, as well as the approximate percentage of funds for each phase spent to date. Table 2 also includes final project costs adjusted to subtract the grant amounts presented in Table 1.

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Table 2: Estimated Project Costs

	Fund			Total	% Spent
	Water	Wastewater	General		
Preliminary	$ 106,638	$ 213,276	$ 83,888	$ 403,802	100%
Design	$ 154,980	$ 337,647	$ 1,024,146	$ 1,516,773	55%
Construction	$ 1,948,382	$ 5,909,077	$ 12,003,040	$ 18,604,459	0%
Total	$ 2,210,000	$ 6,460,000	$ 13,111,074	$ 21,781,074	6%
Grants	$ 988,000	$ 2,705,000	$ 995,600	$ 4,688,600	-
Total - Grants	$ 1,222,000	$ 3,755,000	$ 12,115,474	$ 17,092,474	-

Preliminary engineering was completed in 2018. Costs presented in Table 2 are actual costs associated with this phase of the project.

Design phase is ongoing; the total design cost is the fee for the engineering services agreement with the City's prime consulting engineer, VHB, plus two amendments. The first amendment ($25,000 budgeted, actual cost was lower) allowed DPW to subcontract CCTV inspection of the sewer mains in the project corridor, to confirm design assumptions related to pipe conditions and service line locations. The second amendment ($15,750, currently being reviewed for approval by VTDEC) will allow for additional surveying of side streets (Normand, Mansion, and West Spring) and additional design of water resources improvements on these side streets. Some of the additional project scope to be included under this second amendment will be included in bid documents as add-alternates, with the intention of including this work in the contract if the cost does not exceed the available WEP grant funds.

Construction phase costs for all funds include construction and contingency, legal and administrative fees, short-term interest, ROW acquisition costs, and construction engineering. The estimated construction costs attributable to the Water and Wastewater Funds are their respective USDA WEP funding totals, minus preliminary and design costs. The reason for presenting in this manner is twofold:

1. Costs attributable to the Water and Wastewater Funds must be considered eligible for inclusion in those funds, whereas all other project costs would default to the General Fund. Although estimating quantities and costs of pay items is a fairly objective exercise, determining eligibility of a pay item for one fund or another is open to interpretation

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depending on the design. For example, pavement and curbing are street infrastructure that typically are covered by the General Fund, but if pavement and curbing are replaced as part of a trench restoration for installation of a new stormwater pipe, then those costs may be attributed to the Wastewater Fund. The latest cost estimate from our consultant projected Water construction costs slightly less than the WEP funding for Water, and Wastewater construction costs substantially less than the WEP funding for Wastewater. However, adjustments to the eligibility factors included in the estimate, in conjunction with the proposed scope additions, should bring the Water and Wastewater funds closer to their respective WEP targets and thereby optimize the use of available funding sources; this effort is currently in progress.

2. Regardless of adjustments to the cost estimate for Water and Wastewater Fund work, the actual cost of this project to these City funds will likely be the predetermined loan amount. As mentioned, the WEP grant funds are disbursed only after the loan is fully expended, and the water resources scope is being defined around maximizing but not exceeding the available WEP grant funds. It is for this reason that we are expanding project scope to include work into the sidestreets.

The estimated construction cost in Table 2 attributable to the General Fund is based on our consultant's 60% construction cost estimate, with a few adjustments. We note the following:

1. Our consultant's cost estimate includes a 15 percent contingency. Preliminary estimates included a 10 percent contingency.
2. Our consultant's cost estimate includes a $1.3M direct cost from GMP for new cable and equipment on Main Street. This cost was based on an estimate prepared in 2018 by GMP based on a conceptual electrical design. GMP is preparing a cost estimate based on the updated electrical design and we hope to have this updated estimate within the next month.
3. Our consultant's cost estimate does not include relocation fees from telecommunication firms. Although it has not been verified, we believe this is an accurate assumption, because once the City has installed the conduit infrastructure, moving from poles to underground would be a mandated relocation within the ROW.
4. The 60% construction cost estimate was increased by 12 percent to account for legal and administrative fees, short-term interest, ROW acquisition costs, and construction engineering. This add is approximately $1.26M.
5. A budget of $280,000 was included for upgrades to electrical services to private buildings, and is based on 70 properties requiring $4,000 in upgrades. We believe this

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figure is conservative, and it will serve as a placeholder until we receive a site-specific cost estimate from an electrician we engaged in December 2020. This cost was not explicitly included in initial cost estimates.

6. The cost estimate does include a modular tree pit system as opposed to structural soil. A later section herein elaborates on this topic.
7. The cost estimate does not include the latest approach to stormwater treatment, however, we expect this additional cost to be nominal. A later section herein elaborates on this topic.
8. Removal of petroleum-impacted soils is not addressed in this cost estimate. However, the project is eligible for the Petroleum Clean-Up Fund, which would reimburse the City for costs associated with hauling excess petroleum-impacted soil to the Coventry landfill. This portion of the project will be addressed in the Soil Management Plan, which will be developed after the 90% design documents are complete.
9. The cost estimate does not reflect the reduced estimated quantity of rock removal. However, we expect that this adjustment will have a nominal effect on the cost estimate.
10. The cost estimate includes full replacement of all reinforced concrete pavement north of the railroad overpass with bituminous concrete pavement. The VTrans resurfacing work scheduled for 2022 will replace the reinforced concrete pavement elsewhere on Main Street and West Allen Street. A later section herein elaborates on this topic.

Most of the increase in estimated project costs since the December 2020 update is due to the adds to the General Fund construction phase costs, including the 12 percent increase to account for other construction-related costs, and the additional budget for the electrical service upgrades to private properties. A portion of the increases is reflected in the manner to which the Water and Wastewater Fund costs are presented as the full amount of the WEP funding sources.

Impacts to Property Tax and Utility Rates

Please note that this project update does not include an update to the financing models, which estimate annual debt service resulting from this project, and aid in projecting impacts to property tax and utility rates. Even so, none of the changes to date would affect the models for water and wastewater rates, because these models have assumed that the Water and Wastewater Funds would carry the full debt service of the WEP loans. No significant change to the General Fund model would be anticipated as a result of these updates either, however, the potential for eliminating a commercial loan debt service would greatly improve the

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financial forecast for this project. We expect to provide more information on this topic and our continued discussions with USDA at the next quarterly update for the project.

USDOT BUILD Grant Application

We intend to submit another application to the BUILD Transportation Discretionary Grant program if the program is renewed for another cycle in 2021. The grant application would be for the full cost of the project, minus the USDA WEP funds and other FHWA and NRBC funds. In past years, the program was announced mid-winter and applications were due in May, with award announcements made at the end of the calendar year; however, this schedule may be delayed due to this year's change in administration. We note that under previous program criteria, the project scores poorly under the DOT's Benefit-Cost Analysis; however, again, these criteria may change with changing priorities under the new administration. If and when the grant program is announced, we will request Council authorization to prepare and submit the grant application.

Schedule Update

An updated Gantt chart is included as an attachment to this memorandum. The schedule shows a construction bid advertisement date of October 2021, award of contract in January 2022, and groundbreaking in May 2022. The 90% design document preparation will continue through Spring 2021 and permitting will occur through Summer 2021. ROW, Public Outreach, and environmental review for VTrans grants is ongoing and will continue through Summer 2020. Although some task completion dates related to Design Documents were extended, these items are not currently considered critical path items and the changes did not impact the projected schedule of contractor procurement.

As has been noted in previous updates, this project is unlike other projects in that the design development schedule is largely driven by external stakeholders (e.g. utilities, funders, regulators, etc.). At this time we believe that the greatest risk to the schedule is ROW Acquisition. Details about this coordination and communication-intensive process are provided in a later section, but the assumed schedule relies on the active participation and cooperation of impacted property owners, as well as the continued improvements in the trajectory of the pandemic.

Design Progress

This section provides additional updates related to the various technical disciplines of the project. The 90% plans have not changed substantially to date; the previously presented draft

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is available here: *https://www.winooskivt.gov/DocumentCenter/View/4040/2020-12-09__Draft-Drawings*.

Drinking Water / Sanitary Sewer / Stormwater

As has been mentioned, the water resources design will be revised to include additional scope along a few side streets of Main Street. The reason for this addition is to optimize use of the WEP grant funds and address important infrastructure needs that are considered eligible adds under the MSR project scope. These additions include:

- A realignment of stormwater runoff drainage infrastructure from West Sprint Street. The existing drainage path runs through old pipes located on private property, so the realignment will bypass this old infrastructure by installing new drainage piping within the ROW.
- A replacement of water and sewer infrastructure on Normand Street. Replacement of this watermain would be particularly valuable because it would extend new infrastructure to the termination of watermain recently installed as part of the Winooski School District Capital project.
- A replacement of about 200 linear feet of old sewer infrastructure on Mansion Street.

The first bulleted item would be included in the base bid, whereas the second and third bulleted items would be included in the bid as add-alternative items.

VHB has also developed a concept design for stormwater treatment as required under the anticipated VTDEC operational permit. The concept will consist of:

- Substantially reducing the new net impervious surface area through the installation of a permeable paver systems within the amenity belts and other non-trafficked areas within the project area, and
- Treating the remaining new net impervious with onsite treatment systems in the form of gravel wetlands to be located within the new traffic medians north of Tigan Street. The gravel wetlands will treat runoff within the roadway and will be designed to accommodate future maintenance requirements.

Gravel wetlands were considered for elsewhere within the corridor, however, the City had concerns with trip hazards as well as the appearance of stagnant water along heavily used sidewalks. More aesthetically pleasing stormwater features such as rain gardens may be added elsewhere in the corridor if desired, however, these systems would not provide the stormwater quality treatment volumes required under the operational permit.

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Electrical

The majority of technical progress made since December 2020 was on the undergrounding utilities design. We have received review comments from the major telecommunication firms along the corridor, and the project team has been working closely with GMP to iteratively develop the proposed layout of conduits, vaults and pad-mounted equipment. A 90%-level design document for the electrical design is near completion, and GMP is working on an estimate for their direct costs to the City for the new cable and equipment to be installed on Main Street. We note that the design scope may need to change in areas depending on the ROW acquisition progress, however we are hopeful that such changes would have relatively minor impacts to the project schedule and cost.

Landscape and Streetscape

Much of the progress on the landscape and streetscape design has been associated with the stormwater operational permit. As noted, the project will include permeable pavers within the amenity belts to reduce the new net impervious surface area resulting from the project. VHB has also been in communication with vendors of light fixtures, and DPW will have samples to review in the coming weeks. The project will also include about three topographic benchmarks. As is the case for all other disciplines, VHB is also developing the supplemental sections to the technical specifications for the various streetscape and landscape materials not covered under the VTrans construction specifications.

A recurring topic has been the discussion of root systems for street trees to be included in the MSR project. The following subsections provide additional information about the options for tree root systems and the approach to receiving bid pricing for both options.

Street Tree Overview

An important goal of the MSR project is to increase the urban tree canopy along the Main Street corridor. Street trees improve urban aesthetics, provide shade, benefit stormwater management, and generally increase the grand list along the corridor. However, it is important to manage the tree roots to promote healthy tree growth, prevent damage to underground infrastructure, and limit surface deformations.

The MSR project proposes to replace about four dozen existing trees with about ten dozen new trees. The new trees will typically be spaced about 50 feet, on both sides of Main Street, within a tree belt between the curbing and sidewalk. New trees will be limited to species that perform well in urban environments, such as the common honey locust (*Gleditsia triacanthos*)

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and maidenhair (*Ginkgo biloba*). The following describes two different below-grade systems for planting trees, along with the benefits and costs of each alternative.

Silva Cells

Silva Cells, a proprietary system developed by DeepRoot Green Infrastructure (additional information about Silva Cells: https://www.deeproot.com/products/silva-cell.html), consist of modular matrices of rigid plastic that both supports the overlying pavement and promotes healthy root growth. The system supports a variety of surface treatments around the tree trunk, and at this time we are considering small tree rings within either permeable or impermeable pavers throughout the tree belt.

Benefits of the Silva Cell include healthier street trees that live longer, and reduced likelihood of surface deformations due to root growth. The Silva Cell matrix runs continuously through the tree belt, and root growth is generally contained within the matrix; Silva Cells can also be outfitted with vertical barriers that would contain roots within the tree belt and protect other underground infrastructure from root intrusion.

At about $9,800 per tree, the Silva Cell system is the higher cost alternative. Silva Cells have been installed in several communities in Vermont, including Burlington, South Burlington, Essex and Middlebury. Silva Cells provide trees with the greatest available soil volume for planting in urban conditions when surrounding by buildings and hardscape. When considering utility work in the corridor, some local contractors may not be familiar with this system; therefore, post-MSR construction that involves trenching through the tree belt would require greater oversight from DPW to ensure that the disturbed Silva Cells are replaced correctly. This replacement would not pose substantially higher costs to private development, and DPW may consider stockpiling excess Silva Cell materials to sell to contractors when and if replacement components are necessary.

CU Structural Soil

The alternative to Silva Cells would be the use of CU Structural Soil, a patented material developed by Cornell University. This soil is similar to what was installed throughout Downtown Winooski in the mid-2000s. Structural soil is a planting medium that can be compacted to pavement design and installation requirements, while allowing for root growth. Structural soil is a two-part system comprised of rigid angular stone and uncompacted soil.

At about $4,000 per tree, this type of planting system is commonplace and less expensive than other systems, but it does have drawbacks. As is the case Downtown, roots can cause

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the grate frame to heave and the surrounding surface material to deform over time, resulting in trip hazards, ADA non-compliance, and drainage issues. DPW has eliminated some of these trip hazards Downtown by removing the grate frame, but this is only a partial and short-term solution; eventually the trees must have their roots ground down, likely reducing the lifespan of the tree, and the deformed surfaces will need to be resurfaced. We understand that this upward root growth is partly due to the roots extending beyond the limited planting soil and into the structural fill, which is a poor growing media, and extending upward in search of water. These poor growing conditions also impact the health of the trees, limit the growth of their canopies, and reduce their lifespans.

Intentions for Bid Documents

Although the Silva Cell system presents many advantages over the CU Structural Soil system, the additional cost for a Silva Cell system is significant, currently estimated at around $350,000 for all trees. This cost is currently carried in the cost estimates presented in Table 2. One possible approach to reducing these costs would be to use both systems, such as installing Silva Cells south of Spring Street and CU systems north of Spring Street. As was discussed in previous discussions, we propose to include both tree root systems in the project bid document, and make a decision once contract pricing for the project is available.

Public Outreach and Right-of-Way (ROW) Acquisition

Public outreach for this project has been ongoing since late 2017. The latest iteration of outreach included more targeted communication with properties along the corridor to allow DPW to investigate cellars for utility information; however, this outreach was paused at the onset of the Covid-19 pandemic. DPW is developing a communication plan that, similar to the Hickok Street project, will include email updates to residents, property owners, and any other interested individuals. DPW staff will be working closely with the City's Communication Coordinator and Communication and Economic Development Officer on these efforts.

ROW documents are dependent on the design and location of proposed infrastructure (especially the electrical design), and the execution of ROW acquisition is closely tied to Public Outreach. For the project to move to final Bid Documents, the City will need to execute agreements with:

- Nearly every property owner for a temporary work easement. The limits of proposed work will extend beyond the existing ROW and encroach on private lots for the entire corridor. The temporary easement allows this work to occur; all such work is temporary and the private property will be returned to its existing condition upon completion of construction.

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- Most property owners for a permanent easement for underground power and telecommunication services and equipment. These easements would allow for permanent installation of service cables underground to the building, and in some cases include a small pedestal-mounted utility box that would be located just outside the City ROW, typically at the corner of a lot. The unassuming pedestals are typically limited to 2-ft-square in plan and are commonly seen in residential subdivisions with undergrounded utilities.
- Several property owners for a permanent easement for larger pad-mounted equipment, including three-phase electrical transformers and clusters of telecommunication pads. An example of this type of equipment includes the new GMP transformer installed to the north of the 211 Main Street development. These easement areas would require more space, and therefore GMP and the project team strategically selected areas along the corridor to locate this equipment in currently open areas at the required spacing intervals.

We are engaged with the City Attorney in drafting easement agreement language for each impacted property. We recently received the latest iteration of ROW documents from our consultant, and expect to begin sharing these documents with impacted property owners in the coming weeks.

Coordination with Other Projects

The MSR project team continues to coordinate with other nearby projects that will likely be in construction concurrently with MSR. Updates on this coordination are as follows.

Winooski School District (WSD) Capital Project

WSD has indicated that they intend to move up the proposed Main Street exit realignment (combining the two drives to one) from Summer 2022 to Summer 2021. We are coordinating with VTrans and WSD as to how this may affect the existing signal towers at the intersection.

VTrans I-89 Exit 16 Double-Diamond Interchange (DDI)

VTrans is anticipating that this work will begin in Spring 2022. We will continue to coordinate with VTrans to ensure that the traffic control plans for the MSR and DDI projects do not conflict with one another.

VTrans Replacement of Concrete Pavement

The VTrans resurfacing of Route 15 in Winooski will include replacement of the reinforced concrete pavement with bituminous concrete on West Allen Street and on Main Street from

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the northern end of the Circulator to the railroad overpass. VTrans and the City have agreed to establish a clear boundary between the two projects at the northern joint of the railroad overpass. Because the concrete pavement north of the bridge was originally included in the VTrans project scope, it may be possible for VTrans to contribute some additional funding cover pavement costs on the MSR project; we are discussing this possibility with VTrans.

Similar to the DDI project, we will continue to coordinate with VTrans to ensure that the traffic control required for the two projects do not conflict with one another.

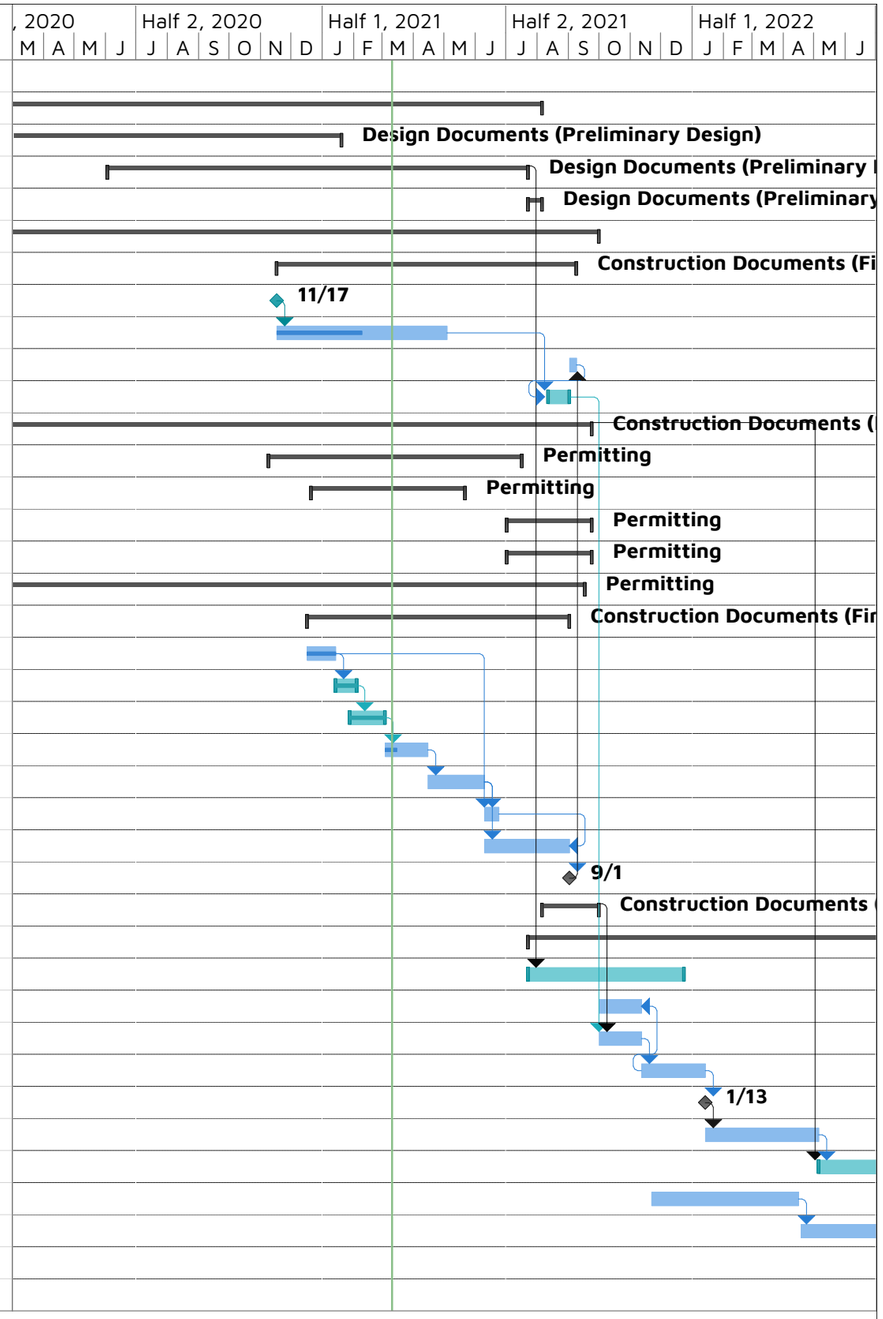
Next Steps

The next quarterly update is slated for June 2021. At that time, we expect to provide you with an updated project schedule, an updated project cost estimate, and an updated financial model. We will also provide progress updates on the design development, permitting, and ROW, as well as coordination with other projects.

Sadly, this will be the final MSR update made before Jessie Baker leaves the City Manager position. Jessie was instrumental in the initiation of the MSR project (including coining the project name!) and has been the primary project sponsor ever since. Thank you Jessie!

Attachment: (1) 2021-03-11 MSR Design Gantt Chart

ID	Task Name	Duration	Start	Finish	% Complete	Predecessors
1	**Procurement and SRF Step II Loan App**	**350 days**	**Wed 8/29/18**	**Tue 12/31/19**	**100%**	
26	**Design Documents (Preliminary Design)**	**493 days**	**Tue 9/17/19**	**Thu 8/5/21**	**51%**	
27	**60% DDs**	**351 days**	**Tue 9/17/19**	**Wed 1/20/21**	**100%**	
66	**90% DDs**	**297 days**	**Wed 6/3/20**	**Thu 7/22/21**	**20%**	
116	**100% DDs**	**10 days**	**Fri 7/23/21**	**Thu 8/5/21**	**0%**	
121	**Construction Documents (Final Design)**	**519 days**	**Mon 10/7/19**	**Thu 9/30/21**	**27%**	
122	**VTrans (TAP TA17(2) and Bike-Ped)**	**212 days**	**Tue 11/17/20**	**Wed 9/8/21**	**43%**	
123	NEPA Submission to VTrans	0 days	Tue 11/17/20	Tue 11/17/20	100%	
124	FHWA NEPA Review	120 days	Tue 11/17/20	Mon 5/3/21	50%	123
125	VTrans ROW Review	5 days	Thu 9/2/21	Wed 9/8/21	0%	177
126	VTrans Review Bid Docs and Sign-off on Advertisement	15 days	Thu 8/12/21	Wed 9/1/21	0%	124,125
127	**Permitting**	**514 days**	**Mon 10/7/19**	**Thu 9/23/21**	**22%**	
128	**Operational Phase Stormwater**	**180 days**	**Mon 11/9/20**	**Fri 7/16/21**	**48%**	
135	**Construction Phase Stormwater**	**110 days**	**Mon 12/21/20**	**Fri 5/21/21**	**0%**	
142	**Drinking Water**	**60 days**	**Fri 7/2/21**	**Thu 9/23/21**	**0%**	
147	**Wastewater System & Potable Water Supply (Sewer)**	**60 days**	**Fri 7/2/21**	**Thu 9/23/21**	**0%**	
152	**Contaminated Soil and Groundwater Mgmt**	**509 days**	**Mon 10/7/19**	**Thu 9/16/21**	**23%**	
169	**Right of Way**	**185 days**	**Thu 12/17/20**	**Wed 9/1/21**	**34%**	
170	ROW Plans, Detail Sheet, and Acquisition Table - 60%	20 days	Thu 12/17/20	Wed 1/13/21	100%	56
171	City Review of 60% ROW Documents	15 days	Thu 1/14/21	Wed 2/3/21	100%	170
172	VHB Revise and Update 60% ROW Documents Per UU Design Changes	25 days	Thu 1/28/21	Wed 3/3/21	100%	171
173	Initiate Contact with Property Owners	30 days	Thu 3/4/21	Wed 4/14/21	25%	172
174	Preliminary Negotiation and Acquisition	40 days	Thu 4/15/21	Wed 6/9/21	0%	173
175	ROW Plans, Detail Sheet, and Acquisition Table - 100%	10 days	Thu 6/10/21	Wed 6/23/21	0%	170,174
176	Negotiation and Acquisition	60 days	Thu 6/10/21	Wed 9/1/21	0%	175FF,174
177	ROW Complete	0 days	Wed 9/1/21	Wed 9/1/21	0%	176
178	**100% CDs**	**40 days**	**Fri 8/6/21**	**Thu 9/30/21**	**0%**	
183	**Bid and Construction**	**606 days**	**Fri 7/23/21**	**Fri 11/17/23**	**0%**	
184	Procurement and Award (Engineering, Construction Inspection)	110 days	Fri 7/23/21	Thu 12/23/21	0%	66
185	DBE Notice	30 days	Fri 10/1/21	Fri 11/12/21	0%	187SF
186	Advertise Bids	30 days	Fri 10/1/21	Thu 11/11/21	0%	126,178
187	Bid Analysis	45 days	Fri 11/12/21	Thu 1/13/22	0%	144,181,186
188	Award of Construction Contract	0 days	Thu 1/13/22	Thu 1/13/22	0%	187
189	Contractor Submittals	80 days	Fri 1/14/22	Thu 5/5/22	0%	188
190	Construction - Season 1	140 days	Fri 5/6/22	Thu 11/17/22	0%	127,189
191	Winter Shutdown	105 days	Mon 11/22/21	Fri 4/15/22	0%	
192	Construction - Season 2	155 days	Mon 4/18/22	Fri 11/18/22	0%	191
193	Winter Shutdown	105 days	Mon 11/21/22	Fri 4/14/23	0%	192
194	Construction - Season 3	155 days	Mon 4/17/23	Fri 11/17/23	0%	193



Project: Winooski MSR
Date: Thu 3/11/21

Task	Project Summary	Manual Task	Start-only	Deadline			
Split	Inactive Task	Duration-only	Finish-only	Progress			
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress			
Summary	Inactive Summary	Manual Summary	External Milestone				