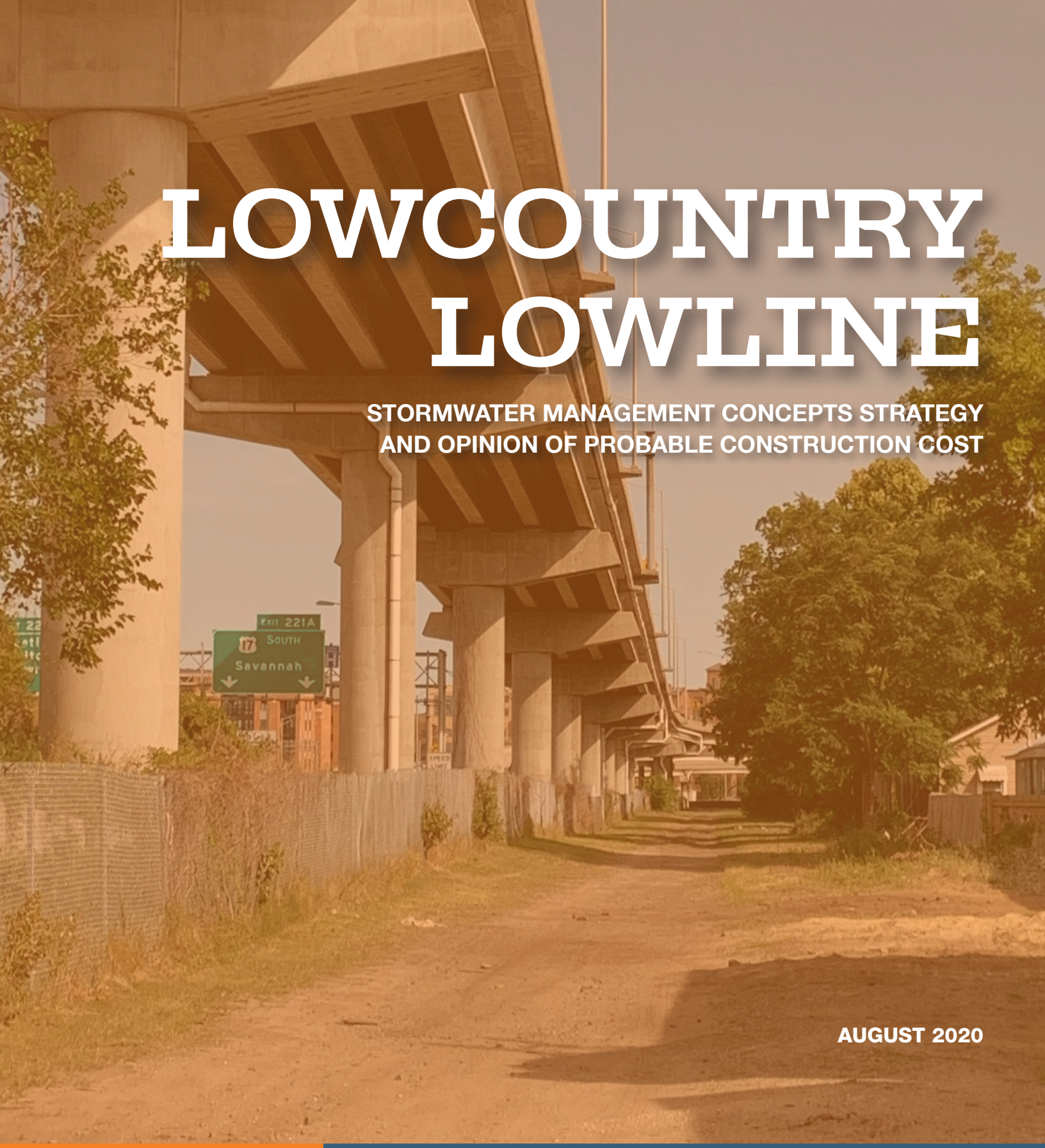

LOWCOUNTRY LOWLINE

STORMWATER MANAGEMENT CONCEPTS STRATEGY AND OPINION OF PROBABLE CONSTRUCTION COST

AUGUST 2020

PREPARED BY: Kimley»Horn

PREPARED FOR: LOWCOUNTRY LOWLINE

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Executive Summary

The Lowcountry Lowline stands to be an iconic project in the City of Charleston that will enhance mobility, pedestrian activity and overall community feel within the peninsula and beyond. This project has the ability to extend beyond the Lowline corridor and provide additional benefits to the community above and beyond the tangible pedestrian level improvements.

As flooding occurs more regularly on downtown streets and stormwater runoff becomes a focal point for every neighborhood, the Lowline has a unique opportunity to serve a greater purpose to the community. This project provides a unique opportunity for planners and engineers to study several ways in which to implement stormwater management practices and provide green infrastructure and innovative technologies to not only manage runoff from the expanded Lowline but to also improve stormwater quality and drainage in areas surrounding the Lowline corridor. The study, analysis and implementation of these best management practices stand to reduce flooding on the existing street network and low-lying areas all while focusing on creating a linear park, new green spaces and areas for community engagement.

In addition to an evaluation of estimated construction costs, this document explores the conceptual ways stormwater can be handled and accommodated in each section of the proposed Lowline through various technologies and infrastructure. Note, the effective planning, design and implementation, of infrastructure components of the Lowline will require a collaborative effort with the City, US Army Corps of Engineers, SCDOT, the surrounding communities and others. Some coordination with SCDOT and City authorities has been conducted in preparation of this document. Further collaboration is recommended in order to finalize these recommendations.

Image: The Lowline interfaces with six City drainage basins

Stormwater Management Concepts

"Embrace the Water"

An array of stormwater Best Management Practices (BMPs) can be constructed throughout the Lowline corridor to respond to current conditions and planned projects.

The section of the Lowline stretching from Marion Square to Line Street presents several opportunities to handle stormwater from the Lowline corridor itself as well as surrounding developing properties and adjacent side streets. Because this section of the Lowline is situated on higher topography within the peninsula, a key stormwater management objective is to decouple high ground peninsula drainage from low ground drainage systems. A good first step to moving toward this objective is to create high ground systems that detain and infiltrate stormwater and discharge stormwater volumes when capacity is available in downstream receiving stormwater systems. Design of these systems would include the potential incorporation of connections to a future high ground stormwater system that is decoupled from the low ground stormwater systems.

There are a host of stormwater management technologies that support this objective. The most viable technologies for this section of the Lowline are the use of underground detention and a synergistic network of low impact development stormwater devices.

Opportunity: Underground Detention

Within the Lowline corridor, the pathway itself can be utilized as an area to provide underground detention for stormwater that falls in the immediate Lowline area. This can be achieved through the use of a stormwater chamber technology as shown in the associated image.

StormTech Underground Chambers
Source: Titan Environmental

These underground chambers can be used to satisfy stormwater quantity measures in combination with other stormwater features to enhance stormwater quality. Proprietary devices that apply certain technologies, such as a vortex chamber, can be installed to meet certain stormwater quality criteria.

Permeable pavers are another option that could be well suited for the Lowline pathway, especially to preserve the historic feel of the more urban, currently developed portions of the corridor. Like underground chambers, permeable pavers provide below-surface storage and can be connected through a sub-surface

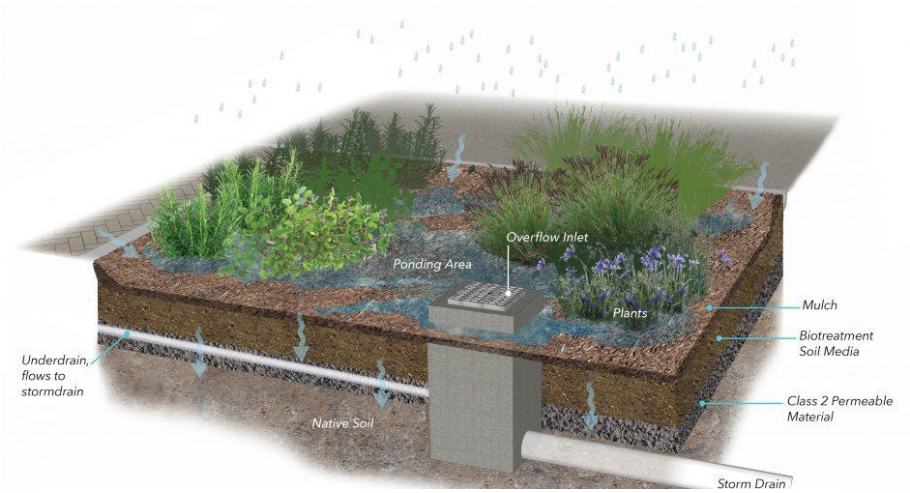
medium like sands and gravels to underground chambers to extend their storage capacity. Permeable pavers produce less direct surface runoff as compared to non-permeable surfaces; however, they require regular maintenance to maintain permeable void openings and can present ease-of-travel challenges for strollers, skate boarders and the like.

Opportunity: Low Impact Development Stormwater Technologies

There are also opportunities for additional low impact development stormwater features to be implemented in this section of the Lowline corridor that provide stormwater quantity management and quality enhancement. Such measures include bioretention areas, infiltration swales, tree box filters and sand filters. These low impact design features provide pollutant removal, runoff volume reduction, peak flow control and ground water recharge. They require less space than conventional stormwater management practices and would be well-suited for location adjacent to the Lowline path as well as within proposed private developments, such as the Lifestyle Communities development and Bi-Lo parcel redevelopment, proposed along the Lowline.

By implementing green infrastructure along the Lowline and within neighboring developments, we can multiply the power of each small technology and create a robust interconnected stormwater system that circulates runoff excess and maximizes the sharing of infiltration or storage opportunities.

Green infrastructure stormwater systems employ plants and trees of a variety of textures and colors which can serve as visual amenities to the Lowline and surrounding areas. Incorporating tree wells where possible should be of focus, because not only do they uptake and treat stormwater from below ground, but they also intercept a significant amount of rainfall and therefore act as detention facilities in their own right.



Sample Bioretention Area
Source: acfloodcontrol.org

Constraints:

While underground detention systems make it possible to provide stormwater detention in areas with certain site constraints, they do require ongoing maintenance. Underground

detention systems must be vacuumed out through the use of a vacuum truck at least once per year.

A potential challenge associated with underground detention devices is the possible need for maintenance ports (typically manholes) being located within the path itself.

Maintenance of bioretention areas, infiltration swales, tree box filters and sand filters require ongoing maintenance to ensure they remain free of debris and sediment and that trees and plants remain alive and vibrant.

All opportunities for stormwater enhancements in this section and overall Lowline will rely on geotechnical data to confirm soils information and their potential for infiltration as well as groundwater elevations. Soil borings will be needed to fully understand existing soil conditions and fluctuations in groundwater levels.

While the viability of tree well and underground vaults are not as dependent on their separation from groundwater levels, bioretention areas, infiltration swales and sand filters perform best with separation from the groundwater table of at least 2 ft. Geotechnical reports prepared by the Department of Geology and Environmental Geosciences at the College of Charleston indicate that groundwater levels are found between approximately 3.5 to 6 feet below the surface. This information provides some promise in the viability of the proposed stormwater systems which depend on perhaps not complete but more extended periods of separation.

In addition to groundwater and soil infiltration, consideration for mitigating contaminated soils within the project area is also a constraint. Understanding the extent of required contaminated soil removal will provide a better understanding of the need for the import of clean soils that are better-suited for the aforementioned stormwater features. Such factors are needed for making decisions about which type of underground detention system to design relative to the ability of soils to drain and the need for fill soils.

The City of Charleston's recently adopted Stormwater Design Standards Manual puts forth new requirements for stormwater quality and quantity that are to be applied to redevelopment projects as well as additional standards for projects within Special Protection Areas. These additional design requirements and designations, if applicable, would have to be accounted for in regards to developments projects in this section of the Lowline and for the overall Lowline project. For example, the proposed Lifestyle Communities project on Line Street that abuts the Lowline is known to be in a Special Protection Area.

The section of the Lowline corridor from Line Street up to Huger Street provides opportunity for large-scale reduction in stormwater volume and flow rate rates as well as water quality treatment. These opportunities are possible through the creation of the Lowline Park surface water management area as well as through recognizing and leveraging the inherent value of the Newmarket Creek wetland area in the overall movement and treatment of stormwater draining from the peninsula.

Opportunity: Floodable Park Space

The creation of Lowline Park reveals a new opportunity to address stormwater along and around the Lowline. Although this area does not currently flood, creating spaces to hold their own stormwater is in line with the principles defined by the Dutch Dialogues conducted by the City. Lowline Park can include a floodable space or water capture area within the park which receives and holds stormwater runoff from areas within and surrounding the park. The intent of this floodable space would be similar to that of a dry detention basin and would be in keeping with the goal of detaining and infiltrating stormwater until capacity is available in downstream receiving stormwater systems. Flooding a space that does not typically flood could be achieved through engineered hydraulic controls potentially by creating a gentle bubbling up affect. This would provide a benefit to City stormwater systems by delaying the peak discharge from this area such that it does not occur at the same time as the peak discharge for surrounding areas and potentially reduce flooding in the nearby streets. The floodable "water park" space would incorporate grasses and plantings intended to be used in a more wet environment.

In addition to the floodable space, stormwater green infrastructure such as bioretention, infiltration swales, rain-fed fountains and tree plantings can be incorporated to add beauty to the space, reduce stormwater volumes and peak flows and incorporate water quality benefits. It is estimated that the park has the potential to provide approximately 10-20% of the water quality volume required for the Lowline project based on draft City stormwater design guidelines and assuming the use of only Tier III stormwater control measures.

Opportunity: Expand Capacity and Quality of Existing Wetland Areas

Newmarket Creek is a vital stormwater outfall for the peninsula and for the area surrounding the Lowline sections. This creek receives water from the Huger Street drainage basin, Meeting Street north basin, Grove Street basin and I-26 roadway drainage. This results in over 300 acres draining to Newmarket Creek.

The proposed Newmarket Park can include expansion and enhancements to the natural wetland areas that exist today. Expansion of existing wetland areas can provide more

stormwater storage and increased wetland habitat. Enhancements could include the incorporation of shallow land areas to facilitate more circuitous flow through the wetland park to increase water exposure to the wetland to encourage more settling of sediment and more contact time with filtering plants. Enhancements could also include the capture and pre-treatment of proposed Lowline stormwater outfalls and existing stormwater outfalls to the wetland such as the drainage from Interstate 26. Currently the interstate drainage system incorporates no mechanisms for peak flow rate reduction or water quality treatment. By incorporating water quality swales, vegetated filter strips and forebays at proposed and existing outfalls, a reduction in sediment, heavy metals, and oils and grease entering the creek and wetland area could be achieved.

The Newmarket Creek Park wetland enhancements would be designed to accommodate the more frequent King tides and Sea Level Rise. Design recommendations presented in A *Sea Level Rise Strategy* published by the City, would be incorporated in the design of the revitalized Newmarket Creek wetland. Such design recommendations include the consideration for a 5.5 feet tailwater boundary condition as well as the use tide flex valves on outfall pipes to prevent water from high tides backing up into existing pipe networks. Stormwater modeling is necessary to fully understand the impacts of Sea Level rise and the high tides frequently occurring in Newmarket Creek. Such modeling would guide proposed improvements.

The future design of the Newmark Creek revitalized wetland area would need to be in concert with and take into consideration proposed improvements related to the wall proposed by the Army Corps of Engineers.

Opportunity: Underground Detention

This section of the Lowline, like the section from Marion Square up to Line Street, provides several opportunities for underground detention of stormwater. Underground chambers could be installed under the Lowline path itself in this section. These chambers provide detention and storm event peak attenuation that staggers peak flows to the receiving storm sewer networks resulting in the potential for reduced flooding in surrounding areas. Due to the natural topography of the Lowline, as well as Lowline Park, one challenge related to underground chambers would be the possible need for expensive pumps. Depending upon where certain detention features are best suited to alleviate nearby flooding, pumps could be utilized to move water from low lying areas to detention areas where gravity-based drainage is not an option.

Also within this section of the Lowline, are three areas designated for future parking. Each of these parking areas are locations where underground detention, through the use of chambers, can be implemented in addition to a proprietary water quality devices. These new parking

areas would be subject to the City of Charleston's stormwater quality and quantity regulations as set forth in the newly adopted Stormwater Manual.

In addition to Best Management Practices for floodable park space, revitalized wetland areas and underground detention, there are locations along this section of the Lowline to provide stormwater quality through low impact development measures such as rain gardens and infiltration swales. One such location for a rain garden could be situated upstream of the start of Newmarket Creek to intercept I-26 drainage that currently goes to Newmarket Creek without any stormwater detention or treatment.

The northern portion of the Lowline, from Huger Street up to Mt. Pleasant Street and the future Transit Hub, abuts neighborhoods that have endured recent flooding events. Addressing Interstate drainage in this section of the Lowline is a critical component of improvement how stormwater is handled in this area.

Opportunity: Capture and Treat Elevated Roadways Runoff

Currently, stormwater runoff from older sections of I-26, from Mt. Pleasant Street up to Romney Street splashes to grade. This runoff splashes from downspouts of the I-26 deck either at elevated levels, or the downspouts are run down columns and discharge closer to ground level. All of this water flows overland into the current network of stormwater conveyance in the surrounding streets. This water then ultimately discharges into Newmarket Creek via the Meeting Street storm sewer network.

This runoff from the elevated portion of I-26 is almost 6 acres of drainage that can be captured and brought underground to disrupt the follow from going directly to the street network storm system. This drainage could be detained in underground chambers and slowly released back to the network of storm sewer in the streets. This detention can provide attenuation of peak flows lessening the initial impact on the street storm system and reducing flooding potential in adjacent streets.

Approximately 23 acres of I-26 drainage area ultimately outfalls into Newmarket Creek. This stormwater runoff could receive water quality treatment from the enhanced wetland described above.

Opportunity: Temporary Storage – Underground Detention

The northern portion of the Lowline corridor provides opportunities for stormwater underground detention under new impervious areas constructed as part of the Lowline. Detention for new impervious areas may be able to mete City water quantity design standards.

Green spaces throughout this section can also be designed as bioretention areas. The opportunity to disconnect and disrupt drainage from the elevated highway and route it to and through green infrastructure provides a way to slow down and treat the water prior to it entering the street storm network.

Bioswales and other green infrastructure could also be implemented in this portion of the corridor in smaller pockets where they are able to be fit in.

Opinion of Probable Construction Costs

The Opinion of Probable Construction Costs included herein is a limited analysis based on initial concepts depicted in the *Lowline Conceptual Design* Document prepared by DesignWorks dated October 2019. The cost estimates are prepared by phase in accordance with the phasing outlined in the *Lowcountry Lowline Design Guidelines & Implementation Framework (Working Draft July 2020)*. Kimley-Horn has utilized typical construction cost unit rates based on similar projects and adjusted for current Charleston, SC unit rate data at the time of this publication. All unit rates are variable and can be affected by many factors including the current pandemic event being felt worldwide.

Several assumptions have been made in the process of determining estimated construction costs. One specific assumption is that 2 feet of undercut for unsuitable soils will be needed, and therefore 2 feet of fill has been used for the grading line item. This depth is an estimate and further discussion on unsuitable soils and the amount of undercut needed will be required. A value engineering technique can include the capping of unsuitable soils; this may be a possibility to be explored further and can have a positive effect on cost.

Additionally, here is a brief description or explanation of the information used to arrive at the cost for line items in the cost estimate.

Field offices – An office for each of 3 sections is budgeted based on level of construction effort, construction time, and closeout. A cost savings could be realized by combining phases, combining section effort, or strategically placing a field office near two sections.

Contaminated Soil – As previously mentioned, the means and methods to deal with soil contamination after years of pathway/corridor maintenance can affect construction costs and should be evaluated after testing is completed and recommendations are offered by a Geotechnical consultant. Complete removal and replacement of select fill can be a costly effort. Other means may be available in various sections.

Surfacing – A variety of materials could be used as the surface for the Lowline path in each section. For the purposes of this estimate a unit price for asphalt has been used.

Storm Drainage – The estimated costs for storm drainage included lump sum costs for stormwater components that may be provided in the Lowline sections such as underground detention chambers, rain gardens and proprietary water quality devices. A separate line item has been provided for a potential pump.

Utility Duct Bank - Some existing utilities may require realignment and/or replacement into consolidated duct banks depending on local conditions. A detailed survey is needed prior to the design phase. Budgets defined in the cost analysis are based on similar projects.

Lighting – A lump sum cost has been provided for each section based off estimates for similar projects.

Signing/Marking- The budget is based on a consistent branded signage, marquee, and pavement marking system throughout with the intent to not “overdo it”.

Erosion control- A budget per section is set based on required BMP’s to control erosion to City and State Standards. Based on other pathway projects this can be managed in subsections. Due to gentle grades it is envisioned that minimal structural and temporary vegetative BMP’s will be required as long as they are maintained in response to predicted and unanticipated storm events. Inlet protection for surrounding street systems will be required.

Landscaping - Landscape and Hardscape budgets can be affected greatly by overall concepts, materials, public/adjacent landowner participation, Lowline sections, etc. It is suggested that a cost approach to this line item be commissioned to involve section landowners in the process. This has been done on similar projects.

Midblock crossings - Mid-block crossing budget is based on effective crossings on similar urban pathway projects and can be affected by level of design. Note, some communities involve landowners in the vicinity to participate and/or cover these costs.

Site Furnishings - Successful pathway projects in urban settings have different levels of site furnishings, many of which are funded through donations and/or covered by the adjacent landowners. Public outreach programs and tours of similar projects may affect the budgets in turn affecting overall cost.

Consulting and Design- Budget based on similar projects in different pathway projects in the southeast. These budgets can vary depending on timing, length of section, permitting requirements, and final design concepts.

Examples of items not currently detailed in this cost estimate are:

- Security systems throughout the alignment including call boxes, cameras, monitoring staff, and overall security program.
- Local, state, Federal permit fees and mitigation costs
- Annual Landscape and Hardscape maintenance costs
- Public Parking areas beyond the three specifically described within this document
- Staging areas for events in park areas along pathway
- Pathway Electricity to power lighting, security systems, and provide electrical stations for events
- Pathway sound system or speaker systems
- Major Utility Relocations

At this time the cost estimate is preliminary, and it will be necessary to revisit in the future. Unit prices and construction costs may vary, and therefore it is recommended this Opinion of Construction Cost be updated as the Lowline planning and design process progresses and becomes more detailed.

CITY OF CHARLESTON LOWLINE
OPINION OF PROBABLE CONSTRUCTION COST
PHASE 1A LOWLINE PARK & TRAIL
AUGUST 2020

Kimley»Horn

ITEM NUMBER	ITEM DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	ESTIMATE AMOUNT
	FIELD OFFICE/MOBILIZATION	EA	1	$150,000.00	$150,000.00
	GRADING / DEMOLITION	CY	3,700	$50.00	$185,000.00
	CONTAMINATED SOIL	CY	3,700	$75.00	$277,500.00
	SURFACING	SY	2,800	$65.00	$182,000.00
	STORM DRAINAGE	LS	1	$400,000.00	$400,000.00
	UTILITY DUCT BANK	LS	1	$200,000.00	$200,000.00
	LIGHTING	LS	1	$150,000.00	$150,000.00
	SIGNING/MARKING	LS	1	$25,000.00	$25,000.00
	EROSION CONTROL	LS	1	$125,000.00	$125,000.00
	LANDSCAPING	LS	1	$250,000.00	$250,000.00
	STORMWATER WETLAND (~1.2 Acres)	EA	1	$500,000.00	$500,000.00
	STORMWATER PUMP STATION	LS	1	$3,500,000.00	$3,500,000.00
	PARKING LOT WITH ASSOCIATED STORM DRAINAGE	EA	2	$265,000.00	$530,000.00
	SPORTS COURTS	EA	0	$75,000.00	$0.00
	SITE FURNISHINGS	LS	1	$50,000.00	$50,000.00
	CONSULTING AND DESIGN	EA	1	$600,000.00	$600,000.00
	MISCELLANEOUS ITEMS	EA	1	$250,000.00	$250,000.00

SUBTOTAL BEFORE CONTINGENCY	$7,374,500.00
25% CONTINGENCY	$1,843,625.00
TOTAL WITH CONTINGENCY	$9,218,125.00

ALL COST ESTIMATES SHOULD BE CONSIDERED PRELIMINARY, ARE NOT BASED ON FINAL ENGINEERING PLANS OR DESIGN AND ARE SUBJECT OT CHANGE. THESE ESTIMATES SHALL NOT BE USED FOR CONTRACT PURPOSES. ESTIMATES DO NOT INCLUDE REGULATORY AGENCY OR PERMIT FEES OR ENVIRONMENTAL MITIGATIONS COSTS.

CITY OF CHARLESTON LOWLINE
OPINION OF PROBABLE CONSTRUCTION COST
PHASE 1B URBAN CORE AREA
AUGUST 2020

Kimley»Horn

ITEM NUMBER	ITEM DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	ESTIMATE AMOUNT
	FIELD OFFICE/MOBILIZATION	EA	1	$100,000.00	$100,000.00
	GRADING / DEMOLITION	CY	4000	$50.00	$200,000.00
	CONTAMINATED SOIL	CY	4000	$75.00	$300,000.00
	SURFACING	SY	6000	$75.00	$450,000.00
	STORM DRAINAGE	LS	1	$500,000.00	$500,000.00
	UTILITY DUCT BANK	LS	1	$200,000.00	$200,000.00
	LIGHTING	LS	1	$100,000.00	$100,000.00
	SIGNING/MARKING	LS	1	$35,000.00	$35,000.00
	EROSION CONTROL	LS	1	$50,000.00	$50,000.00
	LANDSCAPING	EA	10	$25,000.00	$250,000.00
	MID-BLOCK CROSSINGS	EA	3	$50,000.00	$150,000.00
	SITE FURNISHINGS	LS	1	$25,000.00	$25,000.00
	CONSULTING AND DESIGN	EA	1	$300,000.00	$300,000.00
	MISCELLANEOUS ITEMS	EA	1	$200,000.00	$200,000.00

SUBTOTAL BEFORE CONTINGENCY	$2,860,000.00
25% CONTINGENCY	$715,000.00
TOTAL WITH CONTINGENCY	$3,575,000.00

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CITY OF CHARLESTON LOWLINE
OPINION OF PROBABLE CONSTRUCTION COST
PHASE 2 NEWMARKET PARK AREA
AUGUST 2020

Kimley»Horn

ITEM NUMBER	ITEM DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	ESTIMATE AMOUNT
	FIELD OFFICE/MOBILIZATION	EA	1	$250,000.00	$250,000.00
	GRADING / DEMOLITION	CY	6,700	$50.00	$335,000.00
	CONTAMINATED SOIL	CY	6,700	$75.00	$502,500.00
	SURFACING	SY	10,000	$65.00	$650,000.00
	STORM DRAINAGE	LS	1	$500,000.00	$500,000.00
	UTILITY DUCT BANK	LS	1	$200,000.00	$200,000.00
	LIGHTING	LS	1	$150,000.00	$150,000.00
	SIGNING/MARKING	LS	1	$30,000.00	$30,000.00
	EROSION CONTROL	LS	1	$75,000.00	$75,000.00
	LANDSCAPING	LS	1	$300,000.00	$300,000.00
	MID-BLOCK CROSSINGS	EA	1	$50,000.00	$50,000.00
	STORMWATER WETLAND (~8.5 ACRES)	EA	1	$1,500,000.00	$1,500,000.00
	PARKING LOT WITH ASSOCIATED STORM DRAINAGE	EA	1	$265,000.00	$265,000.00
	SPORTS COURTS	EA	8	$75,000.00	$600,000.00
	SITE FURNISHINGS	LS	1	$100,000.00	$100,000.00
	SIDE STREET LANDSCAPING	EA	2	$25,000.00	$50,000.00
	CONSULTING AND DESIGN	EA	1	$700,000.00	$700,000.00
	MISCELLANEOUS ITEMS	EA	1	$250,000.00	$250,000.00

SUBTOTAL BEFORE CONTINGENCY	$6,507,500.00
25% CONTINGENCY	$1,626,875.00
TOTAL WITH CONTINGENCY	$8,134,375.00

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CITY OF CHARLESTON LOWLINE
OPINION OF PROBABLE CONSTRUCTION COST
PHASE 3 THE PINCH
AUGUST 2020

Kimley»Horn

ITEM NUMBER	ITEM DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	ESTIMATE AMOUNT
	FIELD OFFICE/MOBILIZATION	EA	1	$100,000.00	$100,000.00
	GRADING / DEMOLITION	CY	1100	$50.00	$55,000.00
	CONTAMINATED SOIL	CY	1100	$75.00	$82,500.00
	SURFACING	SY	1600	$75.00	$120,000.00
	STORM DRAINAGE	LS	1	$450,000.00	$450,000.00
	UTILITY DUCT BANK	LS	1	$100,000.00	$100,000.00
	LIGHTING	LS	1	$100,000.00	$100,000.00
	SIGNING/MARKING	LS	1	$25,000.00	$25,000.00
	EROSION CONTROL	LS	1	$35,000.00	$35,000.00
	LANDSCAPING	EA	7	$25,000.00	$175,000.00
	MID-BLOCK CROSSINGS	EA	2	$50,000.00	$100,000.00
	SITE FURNISHINGS	LS	1	$40,000.00	$40,000.00
	CONSULTING AND DESIGN	EA	1	$450,000.00	$450,000.00
	MISCELLANEOUS ITEMS	EA	1	$200,000.00	$200,000.00

SUBTOTAL BEFORE CONTINGENCY	$2,032,500.00
25% CONTINGENCY	$508,125.00
TOTAL WITH CONTINGENCY	$2,540,625.00

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CITY OF CHARLESTON LOWLINE
OPINION OF PROBABLE CONSTRUCTION COST
PHASE 4 THE COLUMNS
AUGUST 2020

Kimley»Horn

ITEM NUMBER	ITEM DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	ESTIMATE AMOUNT
	FIELD OFFICE/MOBILIZATION	EA	1	$200,000.00	$200,000.00
	GRADING / DEMOLITION	CY	2250	$50.00	$112,500.00
	CONTAMINATED SOIL	CY	2250	$75.00	$168,750.00
	SURFACING	SY	3500	$65.00	$227,500.00
	STORM DRAINAGE	LS	1	$650,000.00	$650,000.00
	UTILITY DUCT BANK	LS	1	$150,000.00	$150,000.00
	LIGHTING	LS	1	$150,000.00	$150,000.00
	SIGNING/MARKING	LS	1	$75,000.00	$75,000.00
	EROSION CONTROL	LS	1	$100,000.00	$100,000.00
	LANDSCAPING	LS	1	$250,000.00	$250,000.00
	SERVICE STREET	EA	1	$150,000.00	$150,000.00
	PLAZA/STREET	EA	2	$100,000.00	$200,000.00
	SITE FURNISHINGS	LS	1	$150,000.00	$150,000.00
	STREET NETWORK CONNECTION POINTS	EA	4	$20,000.00	$80,000.00
	STORMWATER PUMP STATION	LS	1	$3,500,000.00	$3,500,000.00
	HAWK SIGNAL/MID-BLOCK CROSSING	EA	2	$125,000.00	$250,000.00
	PUBLIC ART ALLOWANCE (2% OF SUB-TOTAL)	LS	1	$75,000.00	$75,000.00
	CONSULTING AND DESIGN	EA	1	$650,000.00	$650,000.00
	MISCELLANEOUS ITEMS	EA	1	$250,000.00	$250,000.00

SUBTOTAL BEFORE CONTINGENCY	$7,388,750.00
25% CONTINGENCY	$1,847,187.50
TOTAL WITH CONTINGENCY	$9,235,937.50

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CITY OF CHARLESTON LOWLINE
OPINION OF PROBABLE CONSTRUCTION COST
PHASE 5 TRANSIT HUB
AUGUST 2020

Kimley»Horn

ITEM NUMBER	ITEM DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	ESTIMATE AMOUNT
	FIELD OFFICE/MOBILIZATION	EA	1	$100,000.00	$100,000.00
	GRADING / DEMOLITION	CY	1100	$50.00	$55,000.00
	SURFACING	SY	1700	$75.00	$127,500.00
	STORM DRAINAGE	LS	1	$100,000.00	$100,000.00
	UTILITY DUCT BANK	LS	1	$10,000.00	$10,000.00
	LIGHTING	LS	1	$10,000.00	$10,000.00
	SIGNING/MARKING	LS	1	$5,000.00	$5,000.00
	EROSION CONTROL	LS	1	$15,000.00	$15,000.00
	LANDSCAPING	LS	1	$20,000.00	$20,000.00
	PLAYGROUND REVITALIZATION	LS	1	$100,000.00	$100,000.00
	SITE FURNISHINGS	LS	1	$10,000.00	$10,000.00
	CONSULTING AND DESIGN	EA	1	$300,000.00	$300,000.00
	MISCELLANEOUS ITEMS	EA	1	$300,000.00	$300,000.00

SUBTOTAL BEFORE CONTINGENCY	$1,152,500.00
25% CONTINGENCY	$288,125.00
TOTAL WITH CONTINGENCY	$1,440,625.00

ALL COST ESTIMATES SHOULD BE CONSIDERED PRELIMINARY, ARE NOT BASED ON FINAL ENGINEERING PLANS OR DESIGN AND ARE SUBJECT OT CHANGE. THESE ESTIMATES SHALL NOT BE USED FOR CONTRACT PURPOSES. ESTIMATES DO NOT INCLUDE REGULATORY AGENCY OR PERMIT FEES OR ENVIRONMENTAL MITIGATIONS COSTS.

CITY OF CHARLESTON LOWLINE
OPINION OF PROBABLE CONSTRUCTION COST
PHASE 6 BUS MALL & CAMDEN DEPOT
AUGUST 2020

Kimley»Horn

ITEM NUMBER	ITEM DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	ESTIMATE AMOUNT
	FIELD OFFICE/MOBILIZATION	EA	1	$50,000.00	$50,000.00
	GRADING / DEMOLITION	CY	1000	$50.00	$50,000.00
	SURFACING	SY	1500	$75.00	$112,500.00
	STORM DRAINAGE	LS	1	$150,000.00	$150,000.00
	UTILITY DUCT BANK	LS	1	$50,000.00	$50,000.00
	LIGHTING	LS	1	$25,000.00	$25,000.00
	SIGNING/MARKING	LS	1	$10,000.00	$10,000.00
	EROSION CONTROL	LS	1	$15,000.00	$15,000.00
	LANDSCAPING	EA	7	$25,000.00	$175,000.00
	MID-BLOCK CROSSINGS	EA	3	$50,000.00	$150,000.00
	SITE FURNISHINGS	LS	1	$15,000.00	$15,000.00
	CONSULTING AND DESIGN	EA	1	$200,000.00	$200,000.00
	MISCELLANEOUS ITEMS	EA	1	$200,000.00	$200,000.00

SUBTOTAL BEFORE CONTINGENCY	$1,202,500.00
25% CONTINGENCY	$300,625.00
TOTAL WITH CONTINGENCY	$1,503,125.00

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CITY OF CHARLESTON LOWLINE
OPINION OF PROBABLE CONSTRUCTION COST
PHASE 7 HUTSON ALLEY EXTENSION
AUGUST 2020

Kimley»Horn

ITEM NUMBER	ITEM DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	ESTIMATE AMOUNT
	FIELD OFFICE/MOBILIZATION	EA	1	$100,000.00	$100,000.00
	ALLEY RETROFIT	LS	1	$125,000.00	$125,000.00
	SIGNING/MARKING	LS	1	$5,000.00	$5,000.00
	EROSION CONTROL	LS	1	$15,000.00	$15,000.00
	LANDSCAPING	EA	2	$30,000.00	$60,000.00
	STORM SEWER	LS	1	$25,000.00	$25,000.00
	MID-BLOCK CROSSINGS	EA	1	$50,000.00	$50,000.00
	SITE FURNISHINGS	LS	1	$15,000.00	$15,000.00
	CONSULTING AND DESIGN	EA	1	$150,000.00	$150,000.00
	MISCELLANEOUS ITEMS	EA	1	$150,000.00	$150,000.00

SUBTOTAL BEFORE CONTINGENCY	$695,000.00
25% CONTINGENCY	$173,750.00
TOTAL WITH CONTINGENCY	$868,750.00

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CITY OF CHARLESTON LOWLINE
OPINION OF PROBABLE CONSTRUCTION COST
SUMMARY
AUGUST 2020

Kimley»Horn

PHASE	PHASE DESCRIPTION	ESTIMATED AMOUNT
1A	LOWLINE PARK &TRAIL	$9,218,125.00
1B	URBAN CORE AREA	$3,575,000.00
2	NEWMARKET PARK AREA	$8,134,375.00
3	THE PINCH	$2,540,625.00
4	THE COLUMNS	$9,235,937.50
5	TRANSIT HUB	$1,440,625.00
6	BUS MALL AND CAMDEN DEPOT	$1,503,125.00
7	HUTSON ALLEY EXTENSION	$868,750.00
	ESTIMATED LOWLINE TOTAL	$36,516,562.50

PHASE	PHASE DESCRIPTION	ESTIMATED STORMWATER AMOUNT
1A	LOWLINE PARK &TRAIL	$4,930,000.00
1B	URBAN CORE AREA	$500,000.00
2	NEWMARKET PARK AREA	$2,265,000.00
3	THE PINCH	$450,000.00
4	THE COLUMNS	$4,150,000.00
5	TRANSIT HUB	$100,000.00
6	BUS MALL AND CAMDEN DEPOT	$150,000.00
7	HUTSON ALLEY EXTENSION	$25,000.00
	ESTIMATED STORMWATER TOTAL	$12,570,000.00
	% STORMWATER	34%

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