APPENDIX B BCA TECHNICAL MEMORANDUM

The Atlanta Downtown Improvement District (ADID) is pursuing the newly developed Reconnecting Communities Pilot Program (RCP) and Grant. The ADID is working with the City of Atlanta (the city) and the Georgia Department of Transportation (GDOT) on the development of a highway cap and park project (the Stitch) that would connect the City's Downtown and Midtown areas. Currently, these areas are bifurcated by the Downtown Connector (I-85/I-75), a multi-lane interstate through the center of the city. The Stitch is anticipated to directly impact ten local roadways that currently (or are anticipated to) cross over the Downtown Connector. These roadways are collectively referred to as the Cross Streets. As part of this effort, and analysis of the costs and benefits of the project has been conducted.

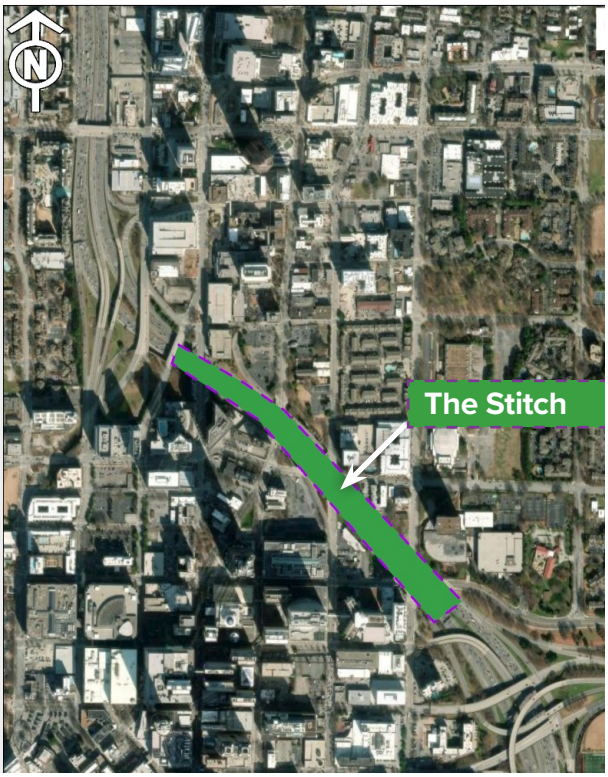
This document is a supporting technical memorandum (Tech Memo) for the Stitch Benefit – Cost Analysis (BCA) and associated methodologies and assumptions. The calculations related to this BCA are included within the accompanying Excel workbook; however, the results have been summarized within this document and numbered to correlate with the USDOT 2022 Benefit-Cost Analysis Guidance for Discretionary Grant Programs (BCA Guidance). The following sections will outline the assumptions and methodologies utilized in the development of this analysis.

The results of this BCA are described within Table 1. The methodology and data summarized in the following sections. The location of the Stitch is shown Figure B-1.

Table B-1
Benefit Cost Results Summary (2020$)

Life-Cycle Costs	$323,551,232
Life Cycle Benefits	$351,117,773
Net Present Value	$27,566,541
Benefit Cost Ratio	1.09

Figure B-1
The Stitch Location



Though some of the benefits associated with the Stitch have been quantified, many benefits to the region and communities were not assigned a numeric value. These additional benefits have been organized by the applicable merit criteria and outlined below:

Equity, Environmental Justice, and Community Engagement

The Stitch will promote racial equity and reduce barriers to opportunities by reconnecting the Atlanta community in an area where environmental justice populations have previously been displaced.

The proposed development will include public outdoor space, affordable housing, and additional development opportunities in an area currently limited in use by the Downtown Connector.

Stakeholder conversations have been held over the consideration of this project, and additional conversations are planned.[1]

Mobility and Community Connectivity

- The Stitch will modify the existing road network to include complete streets amenities with an additional focus on bicycle, pedestrian, and transit modes.
  - The project will also add/extend two roadway connections across the Downtown Connector.
  - As part of the project, the pedestrian and bicycle network will be greatly expanded both along the roadway and within the park area.
  - Walking and biking connections to both bus and rail stops will be improved.
- The project will also include the Metropolitan Atlanta Rapid Transit Authority (MARTA) Civic Center Rail Station (Civic Center Station) which is located on one of the bridges crossing the downtown Connector. The project will incentivize riders to use the station while also improving the station itself.[2]
  - In addition to user-experience upgrades to the Civic Center MARTA station, improvements will include a new off-street bus transfer center for regional bus operator transfers to/from the MARTA system including CobbLinc, Gwinnett County Transit, MegaBus, and Xpress.
- The project is anticipated to improve safety conditions along the interstate and the local roadway network through the implementation of complete streets methodologies and enhancements such as interstate lighting.

Community Based Stewardship, Management, and Partnerships

- The Stitch will create a new public park space where programmed activities could be held in partnership with the many organizations and agencies in the area.
- The connection will become a vibrant community resource, in which greenspace and development will create a regional draw.
- The Stitch proposed 14-acre park will incorporate green infrastructure practices to improve stormwater management through the capture and reuse of rainwater for its own irrigation use.
- The proposed improvements to the roadway network will reduce vehicle emissions and enhance bicycle, pedestrian, and transit accommodations.
- The Stitch will increase the usable space in the area and allow for the development of currently underutilized and vacant spaces in downtown, including the airspace above the Downtown Connector.
- The Stitch includes affordable housing allotments to ensure equity is appropriately considered through its development.
- The planned improvements to the Civic Center Station will improve access and

1 Stitch Implementation Plan Report - 2019 - DaVinci.pdf | Powered by Box
2 Atlanta-Stitch_ULI-ASP_Report_2019.pdf | Powered by Box

connectivity in the Downtown and Midtown areas.

- The project and the associated anticipated development will promote new job growth, while providing additional opportunities for taxable revenue for the City of Atlanta. The project will improve the value of existing property and the associated anticipated development will increase property values.

BCA ASSUMPTIONS, METHODOLOGY AND RESULTS

General Project Assumptions:

The methodologies and assumptions used in the development of this BCA analysis are outlined in the following sections. Many values have been quantified using values identified within the BCA guidance and were supplemented with locally gathered data. During the development of this analysis a series of general assumptions were utilized as outlined in Table B-2.

Table B-2
BCA General Assumptions

Trucks/Buses allowed on roadway?	Yes
$ Value Year:	2020$
Data Base Year:	2021
Analysis Base Year:	2032
Analysis Forecast Year:	2051
Years to Construction:	10
Peak Hours / year:	12%
Non-peak Hours / year:	88%
Annual Traffic Growth Rate:	1.5%
Truck Percentage:	4%
Discount Rate:	7%
Discount Rate CO2:	3%

4.1 Safety

A safety analysis was conducted for both the Downtown Connector and the Cross Streets. Crash data was gathered for the five-year period between January 2017 and December 2021. Due to the significant differences between the Cross Streets and the Downtown Connector, crash data was separated for further review within the Excel workbook; however, the total results are described within this Tech Memo.

The implementation of the Stitch is anticipated to improve vehicular safety within the area through the implementation of complete streets related infrastructure improvements. Generally, the Stitch will convert nearby one-way streets back to bi-directional travel and will increase the perceived friction along the roadway through the implementation of parking, center turn lanes leading to slower speeds along the Cross Streets. The Stitch will effectively be a bridge over the Downtown Connector and will include improved tunnel lighting and stormwater management. Additionally, two Downtown Connector ramps have been considered for removal within the project area. Though not directly related to the Stitch development, it is anticipated that a reduction in interstate ramps will reduce crashes within the study area. Due to the reduction not being a direct

part of the Stitch planning efforts, a value has not been directly applied to this assumed reduction.

Safety Benefits

Within the five-year period, 3,350 crashes were identified within the study area. The majority of crashes were property damage only (78%). Possible injuries comprised 15.6% of crashes. Four fatal accidents occurred within the study period amounting to 0.1% of the total crashes. Table B-3 depicts the location, number of crashes, and their severity.

Due to the anticipated improvements related to the Stitch, the number of crashes within the area are anticipated to decline. A series of seven Federal Highway Administration (FHWA) crash mitigation factors (CMFs) have been identified to quantify the value of the assumed crash reductions. Each of the CMFs were applied to the appropriate crash type and were separated based on whether the improvement would impact the Cross Streets or the Downtown Connector. Table B-4 indicates the appropriate CMFs and the anticipated crash reduction factors.

The crash savings anticipated through the inclusion of the CMFs describe above are depicted within Table B-5.

Table B-3

Project Study Area Crashes and Severity (January 2017-December 2021) (Excel tab 4.1)

Actual 5-Year Crash Data	Count (No.)	Percent of Crashes
K - Killed	4	0.1%
A – Incapacitating Injury	30	0.9%
B – Non-Incapacitating Injury	97	2.9%
C – Possible Injury	524	15.6%
O – No Injury	2617	78.1%
Total	3350	-

Source: GDOT GEARS via Numetric

Table B-4

Proposed CMFs to be Applied to the Project (Excel tab 4.1)

CMFs	Crash Reduction Factor	Applied to	Description
5509	22.6%	DT Connector	Increase paved outside shoulder width from 10ft to 12ft all crash types
5522	33.1%	DT Connector	Increase inside shoulder width from 10ft to 12ft K, A, B, and C crash types
193	18.0%	DT Connector	Provide highway lighting O crash types
192	28.0%	DT Connector	Provide highway lighting A, B, and C crash types
11181	18.0%	Cross Streets	Presence of a pedestrian crosswalk at midblock locations all crash types
8224	15.8%	Cross Streets	Install separated bicycle lane all crash types
1285	8.0%	Cross Streets	Add two-way left-turn lane all crash types

Table B-5
Anticipated Crash Cost Savings
(Excel tab 4.1)

	Crash Cost Savings (2020$)
Cross Streets	$1,538,980
Downtown Connector (I-85/I-75)	$28,455,874

Source: RS&H Analysis

Though not quantified in this analysis, several additional considerations of the Stitch project are anticipated to improve the safety within the area:

- The proximity of Georgia Institute of Technology (Georgia Tech) and Georgia Southern University highlight the potential of a mobile and young population within the area. The provision of more multimodal options is likely to reduce dependence on automobiles and reduce the overall interaction of cyclists and pedestrians with motor vehicles. The Stitch will provide safer facilities and modal choices for the local student populations.
- The highway cap will reduce the impact of inclement weather on the Downtown Connector, thereby, reducing the number of crashes along the corridor. Within the five-year period, over 25% of the crashes occurred on days with inclement weather and approximately 6% had one vehicle involved in which inclement weather was cited as a contributing factor. Given that the Stitch will create a bridge over the interstate and will be designed to manage it's expected stormwater, the facility should reduce crashes along the corridor typically made worse by weather conditions.

4.2 Travel Time Savings

Average Annual Daily Traffic (AADT) Demand Forecast

As part of this project, the identification of existing and future traffic volumes aided in the development of this BCA analysis. The GDOT Traffic Analysis Data Application (TADA) was utilized to determine existing and past roadway average annual daily traffic (AADT) volumes. In order to determine future volumes, a subset of the Atlanta Regional Commission's (ARC's) Activity Based Model (ABM) was developed which depicted an average annual vehicular growth rate of 1.5%. This growth rate was used to convert present day volumes to for the analysis years between 2032 and 2051.

Travel Time Savings

In order to quantify the assumed travel time savings, a recently completed study (the Midtown Connector Study) was employed. This study identified that the conversion of the one-way streets would amount to a 1.7% reduction in travel time. This 1.7% reduction was utilized to estimate the overall travel time savings resulting from the Stitch related roadway improvements.

The assumptions and data used in the travel time savings (TTS) analysis are presented in Table B-6 through Table B-8.

Vehicle Travel Time Savings

The recommended peak hour vehicle occupancy of 1.48 persons during peak hour travel and 1.67 persons during off-peak hour were utilized as an estimate for automobiles while heavy commercial vehicles/trucks were assumed to have only one driver.

The BCA corridors included within this project were 0.51 miles along the Downtown Connector and 1.76 miles along the Cross Streets.

The vehicular volumes are outlined in Table B-7 while the value of travel times savings is depicted within Table B-8.

Using the information described above, the value of travel time savings (VTTS) for automobiles and trucks was determined for the 20-year analysis period. The values have been discounted to 2020 dollars using a 7% discount rate and are depicted in Table B-8.

4.3 Operating Cost Savings

Vehicle operating cost savings are anticipated based on the overall reduction of vehicle miles traveled (VMT) within the study area. Similar to the TTS analysis above, the operating costs savings were determined based on the results of the Midtown Connector Study which identified a 0.5% reduction in VMT. This reduction in VMT was utilized to determine the overall reduction in motor vehicle operating costs using the values depicted in Table B-9. The total anticipated value of operating cost savings is depicted within Table B-10.

4.4 Emissions Reduction Benefits

Emissions reduction benefits have been quantified using the overall reduction in travel times along the corridor. The reduced trav-

Table B-6

Travel Time Savings Assumptions (Base Year Traffic Volumes)

	Cross Streets	Downtown Connector (I-85/I-75)
Data Base Year	2021	
Analysis Base Year	2032	
Years to Construction	10	
Analysis Forecast Year	2051	
Peak Hour Vehicle Average Volume (Year)	3,724,714	17,610,337
Non-Peak Hour Vehicle Avg. Volume (Year)	27,648,837	130,722,883
Peak Hour Vehicle Occupancy	1.48	
Non-Peak Hour Vehicle Occupancy	1.67	
Hourly Value of Travel - Personal Vehicles	$20.17	
Hourly Value of Travel - Commercial Trucks	$55.24	

Source: GDOT TADA, BCA Guidance, Texas A&M Transportation Institute

Table B-7

Estimated Annual Volume (Excel tab 4.2a and 4.2b)

Segment Description	Year	Avg. Volume (total vehicles/year)	AUTOS Avg. Volume (Autos / year)	TRUCKS Avg. Volume (Trucks / year)
Cross Streets	1	31,373,551	30,275,477	1,098,074
	20	41,631,157	40,174,066	1,457,090
Downtown Connector (I-85/I-75)	1	148,333,220	143,141,557	5,191,663
	20	196,830,877	189,941,796	6,889,081

Source: GDOT TADA and RS&H Analysis

Table B-8
VTTS (Excel tab 4.2a and 4.2b)

	Autos (2020$)	Trucks (2020$)	Total (2020$)
Cross Streets	$10,447,752	$588,933	$11,036,685
Downtown Connector (I-85/I-75)	$16,594,359	$1,004,183	$17,598,542

Source: RS&H Analysis

el times are anticipated to impact NOX, CO_2 and $PM_{2.5}$ emissions within the study area. Using the BCA Guidance, CO_2 was discounted at 3% while NO_x and $PM_{2.5}$ were discounted at 7% to 2020 dollars. The quantified emissions reductions are identified within Table B-11 over the 20-year analysis period; however, it is anticipated that this project will have significantly more benefit to the area. The Stitch will incorporate an approximately 14-acre park which is likely to aide in carbon sequestration in an urbanized area.

4.5 Facility and Vehicle Amenity Benefits

The Stitch is anticipated to improve mobility and general amenities within the study area. The Metropolitan Atlanta Rapid Transit Authority (MARTA) operates a series of bus routes and a passenger train within the project study area. Access to, and the amenities of this system, are anticipated to be improved in conjunction with this project.

Table B-9
Anticipated Operating Costs Per Mile (Excel tab 4.3)

	Value Per Mile
Light Duty Vehicle (Autos)	$0.45
Commercial Truck	$0.94

Source: BCA Guidance

Pedestrian Facilities and Bicycle Facilities

One of the primary goals of the Stitch project is the improvement of bicycle and pedestrian facilities. This project intends to create a desirable location for non-motorized users to enjoy the center of Atlanta, in an area that is largely a pass-through location. In order to quantify the bicycle and pedestrian improvements to the area, a series of assumptions have been made based on the preliminary scope of the project. To remain consistent with the methodologies within the BCA Guidance the following assumptions have been developed to be representative of the build condition:

- Additional bicycle/pedestrian width was assumed to be an additional one foot, larger than the exiting sidewalk network.
- Bicycle and Pedestrian Corridor: The newly created area will have pedestrian and cyclist space which will cross throughout the park and along the roadways. As such, 2 miles of corridor was assumed.

Table B-10
Total Operational Cost Savings by Segment (Excel tab 4.3)

	Autos (2020$)	Trucks (2020$)	Total (2020$)
Cross Streets	$1,226,325	$44,478	$1,270,803
Downtown Connector (I-85/I-75)	$10,046,639	$761,162	$10,807,800

Source: RS&H Analysis

Table B-11
Value (in 2020$) and Amount of Assumed Emissions Reduction (Excel tab 4.4)

Carbon Dioxide (CO_2) Avoided*	Value of CO_2 Avoided	NOx Avoided*	Value of NOx Avoided	PM2.5 Avoided*	Value of PM2.5 Avoided	Total Value (2020$)
11,862.70	$191,540	21.25	$92,551	0.30	$64,111	$348,202

*Values are in Short Ton; Source: RS&H Analysis

- Assumed number of additional midblock crossings: Nine locations are assumed to have midblock locations when constructed.

To understand the existing bicycle and pedestrian volumes in the area, both the ARC ABM and another modeling software, Replica, were utilized. The Replica model was utilized to determine the existing number of cyclists and pedestrians utilizing the Cross Streets. This number was then compared with known pedestrian and cyclist high-volume areas within the city which are representative of the build condition. These high-volume areas estimated that the cyclist and pedestrian activity in the area would increase by 300% from the existing Cross Street volumes if the Stitch facility was constructed. This increase in volume was used as a baseline from which anticipated growth rates were applied. Building upon these figures, the ARC ABM annual growth rates for bicycle and pedestrian movements were assumed to grow at 1.7% and 1.3% respectively. Once identified, the total impact of additional bicycle and pedestrian users within the area were discounted by the rule of ½ for the future considerations per the BCA Guidance.

The total assumed benefit from the pedestrian and cyclist increase in the area is depicted within Table B-12.

Table B-12
Anticipated Bicycle and Pedestrian Benefit (Excel tab 4.5)

Bicycle and Pedestrian Benefit (2020$)	$79,158,678

Source: RS&H Analysis

Transit Facility and Vehicle Amenities

The Stitch project is anticipated to directly impact and improve transit related facilities within the study area; however, these values are being included as a qualitative measure.[3] It is anticipated that the bus stations within the study area will be improved in both form and function to meet the aesthetic improvements associated with the Stitch development. The most significant improvement to transit in the area is likely to come from the Civic Center Transit Station located on the northwestern corner of the Stitch. The transit station is currently underutilized and limited due to its location on the W. Peachtree Street bridge over the Downtown Connector. As part of the Stitch build condition, it is likely that MARTA would be able to contribute additional funds to this station to include additional bus staging and other amenities. Preliminary design concepts have been developed which highlight possible bus bay and turnaround areas related to the development of the Stitch adjacent to the Civic Center Station.[4] These improvements

3 Atlanta-Stitch_ULI-ASP_Report_2019.pdf | Powered by Box
4 Stitch Tech Analysis Appendix G - Civic Center Bus Options.pdf | Powered by Box

would contribute to the state of good repair of the transit system and are in line with anticipated transit improvements in the area.[5]

Reduced Facility Crowding

This project is not anticipated to reduce crowding on public transit in this area; however, it is likely that the improved facilities will lead to increased rider satisfaction.

4.6 Health Benefits

The proposed Stitch project is anticipated to greatly increase the overall number of cyclists and pedestrians within the area. Due to the increase in these user types, the Stitch is anticipated to have positive health benefits on the nearby population. The BCA Guidance allows for the calculation of health benefits for both walking and cycling populations between the ages of 20-74 and 20-64 respectively. Local Census Tracts were identified to determine the percentage of the population meeting these criteria which was later applied to the assumed bicycle and pedestrian volumes. This analysis allowed for value to be placed on the assumed health benefit of the Stitch as depicted in Table B-13.

4.7 Other Benefits

Agglomeration Technologies

The development of the Stitch will bring together the Downtown and Midtown areas of Atlanta which are currently divided by a multi-lane interstate. This connection will allow for increased development within the area while also providing space for parks and affordable housing. While the development of this project is anticipated to have significant benefits to the community at large, these benefits have not been directly quantified.

Table B-13

Anticipated HealthBenefit (Excel tab 4.6)

Health Benefit (2020$)	$103,887,954

Source: RS&H Analysis

Noise Pollution

The Stitch project is anticipated to reduce the overall noise pollution within the area by the creating a tunnel for the Downtown Connector through the study area. The existing open air highway noise levels should be reduced which are likely to increase property values in the area. Though studies have been conducted on the assumptions of noise impacts on property values, this data has not been quantified in this analysis. Any noise pollution created as a result of construction will be temporary.

Emergency Services

Related to both emergency services and resiliency, the FEMA Resilience Analysis and Planning Tool (RAPT) was used to identify sensitive infrastructure in the area that may benefit from the Stitch development. There are two nearby hospitals (Grady Memorial Hospital and Emory University Hospital Midtown) which are likely to directly benefit from the mobility benefits associated with the Stitch. In addition to these main facilities, nearby college campuses and law enforcement offices are located within the area further highlighting the need for a safe and efficient transportation network in the area. By increasing activities in the area, the Stitch will work toward addressing some of the healthcare inequities that have been identified in the region.

5 Sens. Ossoff and Rev. Warnock Announce More Than $5.4 Million for Electric Buses in Metro Atlanta - U.S. Senator for Georgia Jon Ossoff (senate.gov)

Stormwater Management

The Atlanta area averages approximately 50 inches of rain annually over a 30-year comparison period. Though flooding is not a typical issue, there have been a series of events that occur approximately every 3-5 years in which the Downtown Connector or Cross Streets become inundated with stormwater. The Stitch will incorporate, capture, and filter technologies which will manage the anticipated 19 million gallons of stormwater a year that the park is expected to receive.

Though not all of this stormwater will be reused, a significant portion of the captured water will be used for irrigation of the 14-acre park, reducing the need for additional strain on Atlanta's water system. According to the NRI, Fulton County is subject to winter weather, tornado, hail, and lightening, which the dangers would all be mitigated within the study area due to the roadway cover provided by the Stitch.

Wildlife Impacts

The project is not anticipated to have a negative impact on wildlife due to the heavily built nature of the area. However, it is likely that the inclusion of a 14-acre park will provide additional habitat for wildlife. The value of this increased habitat area has not been quantified.

4.8 Other Issues in Benefits Estimation

Benefits to Existing and Additional Users

The Stitch project is anticipated to have a significant positive impact on existing and future residents or visitors of the City of Atlanta. Though outlined throughout this documentation, the Stitch will improve safety, create a public space, promote additional development (including affordable housing), and connect a bifurcated community. The Stitch has the potential to mitigate previous fragmentation by maximizing the use of space that is currently occupied by a multi-lane interstate.

Modal Diversion

The Stitch is anticipated to shift modal preference in the area away from personal automobile use. Overall, the project will create a safer and more aesthetically pleasing environment for cyclists, pedestrians and transit users alike. This in addition to the provision of additional facilities for these modes will greatly enhance choice within the area. This activity will promote the City of Atlanta's modal split goals for the reduction of personal auto trips.

Work Zone Impacts

Work zone impacts associated with this project will be temporary and have not been included within this 20-year analysis period.

State of Good Repair

The Stitch will increase the state of good repair in the area by including the bridges of seven roadways which are currently traversing the Downtown Connector. The bridges will be updated as necessary to meet the needs of the planned improvements within the area. Additionally, the Civic Center Station will be updated as part of this project. Considerations for the Stitch include adding bus bays and staging areas into the area, further improving the Station and ensuring it remains in good repair.

Resilience

This project is anticipated to have significant positive impacts on the resilience of the area. The Stitch Cap project will include the development of a park, affordable housing, and create value in an area of the communi-

ty which cannot be currently used.

This analysis considered the inclusion of vulnerable populations and their location in relation to the Stitch. Given that the Stitch is intended to provide an activity space, affordable housing, and repair the community through the provision of these spaces it is important to identify and understand the population in the area.

This analysis utilized the Environmental Project Agency's EJ Screen tool to compare local census tracts to national percentiles:

- Low Household Income
  - 95-100% Northwest of the Stitch
- Less than High School Education
  - 90-95% Northwest of the Stitch
- POC (People of Color)
  - 70-80% Surrounding the Stitch

An additional review was conducted of The Federal Emergency Management Agency's (FEMA) National Risk Index (NRI) which identifies the general risk of natural disasters within an area. The NRI identifies the area surrounding the Stitch range from Very Low to Relatively low, indicating a lower risk to the proposed infrastructure improvements.

Geographic Extent

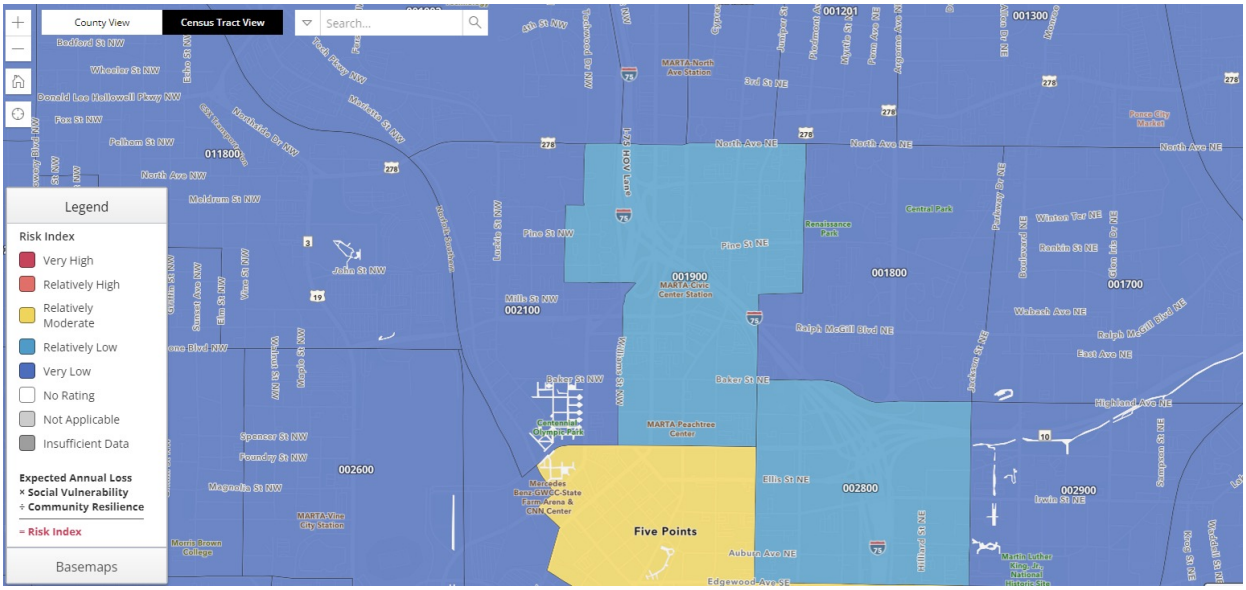
The Stitch is centrally located between the Downtown and Midtown areas of Atlanta. This central location will help mesh two areas of town which had previously been separated by a multi-lane interstate. The intent of this project is to create a community resource and to encourage increased development within the city to maximize the potential in the area. Once completed, the park and expected nearby development will be a regional draw to the area.

Property Value Increases

The Stitch has been reviewed to determine the potential increase in property values associated with its development. The 2019 Financial Planning and Implementation Strategy indicated that the Stitch area of property value impact should be identified within ¼ mile (Zone 1) and ½ mile (Zone 2) of the Stitch. The property values for Zone

Figure B-2

FEMA NRI for the Stitch Area



Source: FEMA NRI

1 are anticipated to increase by 15% and those in Zone 2 are anticipated to see a 7.5% increase in value from their proximity to the Stitch.

Figure B-3 depicts the location of the Stitch and the two zones which are likely to see the highest increase in property values from its development. The 2021 property values were gathered from the City Department of Planning[6], whereupon the unimproved land value was assumed to increase based on the Zones described above. The anticipated land value is included as a one-time cost in accordance with the BCA Guidance.

Though not included within the BC Ratio, two other metrics were also calculated to highlight the potential benefit of this project. The expected growth of improved land value was noted in addition to the anticipated yearly tax values. These two values were not included in the BC Ratio calculation but have been included to highlight other benefits that this project will likely include.

The expected land value increase (used in the BC Ratio), the improved land values, and projected yearly tax value are depicted within Table B-14.

Table B-14
Single Year Anticipated Land Value Increase (Excel tab 4.8)

Land Value Increase (2020$)	$78,190,423

Source: RS&H Analysis

5.1 Capital Costs

The development of the Stitch is anticipated to cost $713 million over the planning horizon. However, due to the project costs being discounted to the value depicted in Table B-15.

6 https://gis.atlantaga.gov/?page=OPEN-DATA-HUB

Figure B-3
City Parcel Map and Zones ½ (Excel Tab 4.8)

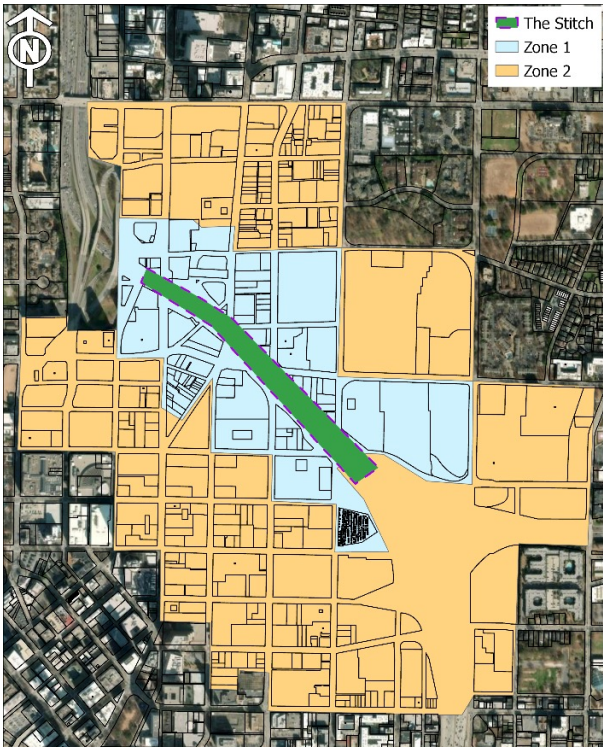


Table B-15
Capital Cost (Excel tab 5.1)

Capital Cost (2020$)	$255,537,036

Source: RS&H Analysis

5.2 Operations and Maintenance Costs

The Stitch is anticipated to require $12 million in annual maintenance costs. This figure has been included in the calculations and discounted to the 2020 dollar. The total anticipated maintenance costs over the 20-year analysis period are depicted in Table B-16.

Table B-16
Maintenance Costs (Excel tab 5.2

Total Maintenance Costs (2020$)	$68,014,196

Source: RS&H Analysis

5.3 Residual Value Analysis

The Stitch is anticipated to have a 50-year lifespan, well beyond the 20-year analysis period. As such, a residual value analysis has been conducted to determine the value of the Stitch after the 20-year period. The anticipated residual value is depicted within (Table B-17) and calculated using the following formula:

Residual Value Formula:

$$RV = \left(\frac{U - Y}{U}\right) x\ Project\ Cost$$

Where: RV = Residual Value
U = Useful Service Life of Project
Y = Years of Analysis Period Project Operation

Source: Benefit Cost Analysis Guidance for Discretionary Grant Programs, 2022

5.3 Innovative Technologies and Techniques

Highway capping is an innovative solution to city separation that has seen success in areas throughout the nation. The Stitch project is an innovative reuse of property that is currently limited by the presence of a multi-lane interstate. This project will utilize the airspace above the interstate to create public spaces, affordable housing, and additional development opportunities to bring the Downtown and Midtown areas of Atlanta together. During the design and construction of the Stitch, opportunities to increase the efficiency or reduce maintenance needs will be considered; however, these values have not been quantified.

Table B-17

Residual Year Value (Excel tab 5.3)

Residual Year Value Calculation (50-Year Service Life)	
Constant Dollar Value	$187,393,826
Discounted Dollar Value (2020$)	$23,006,903

BENEFIT-COST RATIO

The BC Ratio for the Stitch was generated using the assumptions and methodologies explained within this Tech Memo. Though many of the anticipated benefits of the Stitch have not been quantified, those benefits which have been assigned a value are outlined below. These quantified benefits result in a positive BC Ratio for the Stitch. Table B-18 depicts the outlined benefits and costs.

The Stitch BC Ration was developed with the following formula:

Benefit Cost = Total Benefit /Total Cost

Table B-18

The Stitch Benefit Cost Analysis (in 2020$) (Excel tab Benefits + Costs Summary)

The Stitch 20 Year Benefits Period (2032-2051)
Values in 2020$, Discounted at 7% (3% for CO2)

Total Costs	$323,551,232

Benefits (2020$)	
Fatalities and Crashes	$29,994,855
Residual Value	$18,823,830
Travel Time Savings (Peak)	$3,694,124
Travel Time Savings (Non-Peak)	$24,941,103
Vehicle Operating Savings	$12,078,603
Emissions Savings	$348,202
Facility and Vehicle Amenity Benefits	$79,158,678
Health Benefits	$103,887,954
Single Year Land Value Increase	$78,190,423

Life-Cycle Costs	$323,551,232
Life Cycle Benefits	$351,117,773

BC Ratio	1.09
Net Present Value	$27,566,541