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MEETING NOTICE

Charlottesville City Council – November 12, 2020
Budget Work Session

NOTICE OF SPECIAL MEETING

A SPECIAL MEETING OF THE CHARLOTTESVILLE CITY COUNCIL WILL BE HELD ON Thursday, November 12, 2020, FROM 6:00 p.m. TO 8:00 p.m., virtually/electronically via the Zoom platform, pursuant to the Continuity of Government ordinance passed by the Council of the City of Charlottesville on July 27, 2020, to prevent the spread of the novel coronavirus, commonly referred to as COVID-19. Registration will be made available at www.charlottesville.gov/zoom.

THE PROPOSED AGENDA IS AS FOLLOWS:

Budget Work Session to discuss Infrastructure and the Capital Improvement Program (CIP)

BY ORDER OF CITY COUNCIL

BY: Kyna Thomas, Chief of Staff/Clerk of Council

DATE: November 6, 2020

Persons with disabilities may request reasonable accommodations by contacting ada@charlottesville.gov or (434) 970-3182.

Sent by the City of Charlottesville Office of City Council, 605 E. Main St. Charlottesville, VA 22902
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November 12, 2020

FY 2022 CIP BUDGET DEVELOPMENT WORKSESSION

Agenda

1. Key Budget Dates
2. Long-term Financial Policies
3. CIP Spending Overview
 - Parking Garage Mixed Use Alternatives
 - Dogwood Memorial
 - 5th Street Traffic Improvements
4. CIP Funding Overview
5. Capacity vs Affordability
6. Other Considerations
7. Council Discussion and Decisions



Budget Process Update

Key Dates

- **December 8** – Planning Commission CIP Public Hearing
- **March 1** - Proposed City and School Operating and Capital Budget Formally Presented to Council
- **March 15** - First Budget and Tax Rate Public Hearings
- **April 5** - Second Budget Public Hearing/Budget Approval First Reading/Tax Levy Approval First Reading
- **April 13** - Budget and Tax Levy Approval Second Reading

Please visit www.Charlottesville.gov/budget for further details



Budget Process Update

Scheduled Worksessions

Dec 10	Budget Worksession (Budget Development)
Jan 26	Budget Worksession (Budget Development)
Jan 28	City Council and School Board Joint Worksession
Mar 4	Budget Worksession #1 (Revenue & Expenditures)
Mar 11	Budget Worksession #2 (Outside Agencies)
Mar 17	Community Budget Forum
Mar 25	Budget Worksession #3 (CIP)
Apr 8	Budget Worksession #4 (Wrap-up)

Please visit www.Charlottesville.gov/budget for further details.



Long Term Financial Policies

1. Maintain a minimum General Fund balance of at least 14% of General Fund budget.
2. Maintain a minimum Downturn Reserve Fund balance of no less than 3% of General Fund budget.
3. Maintain sufficient working capital in the utility funds (Water, Wastewater and Gas).
4. Stabilize all non-general funds by ensuring they have a positive fund balance.
5. Debt service as a percentage of the general fund total expenditure budget has a ceiling of 10%, with a target of 9%.
6. Transfer 1-cent of the meals tax revenue to the Debt Service Fund to be used for debt service.



FY 2022 CIP Budget Development

Capital Improvement Plan (CIP) Overview



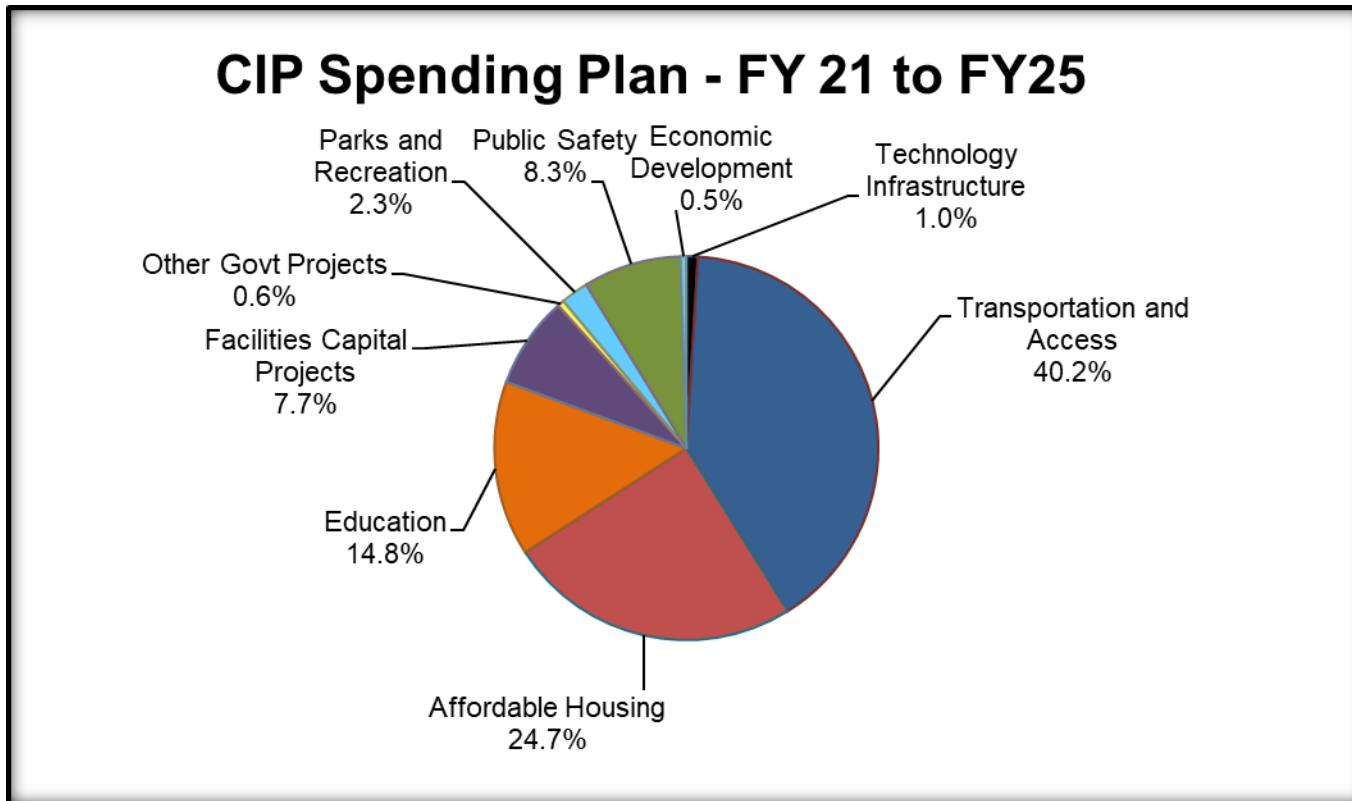
FY 21–25 Adopted CIP

Summary of Current CIP Plan

- \$25.8M in FY 2021
- \$124.1M over 5 year period
- Unfunded requests of over \$109M
- \$84M Bonds Authorized
- FY 21 CIP Cash Funding Re-Programmed to General Fund as a Reserve



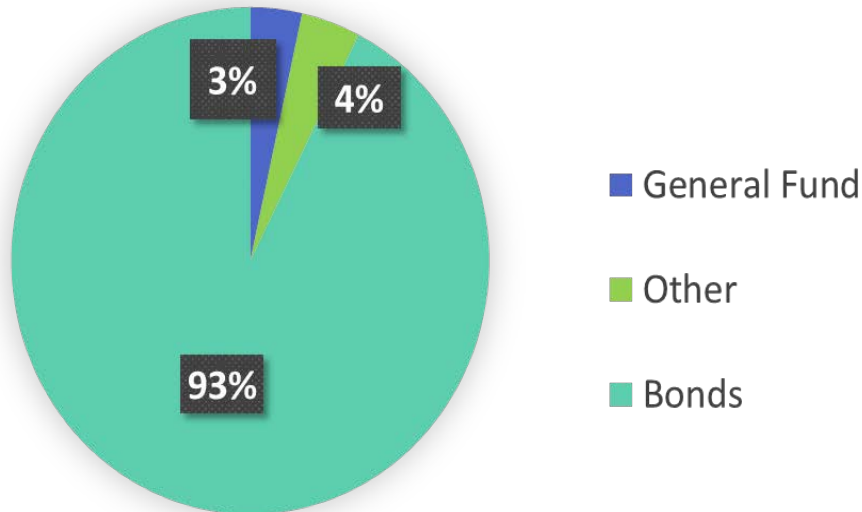
Where's the Spending?



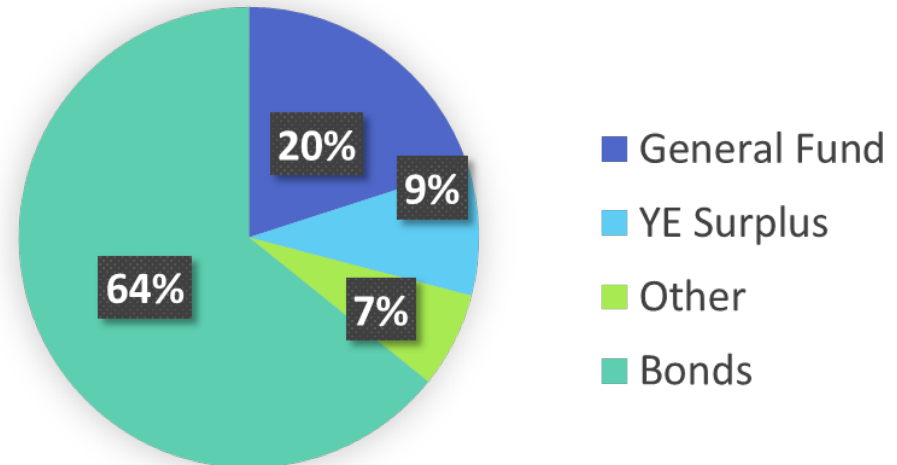
CIP Funding

The CIP is largely funded by cash and bonds. In response to COVID, projects were deferred in FY 21 and cash funding was significantly reduced.

CIP Revenue Sources - FY21



CIP Revenue Sources - FY20

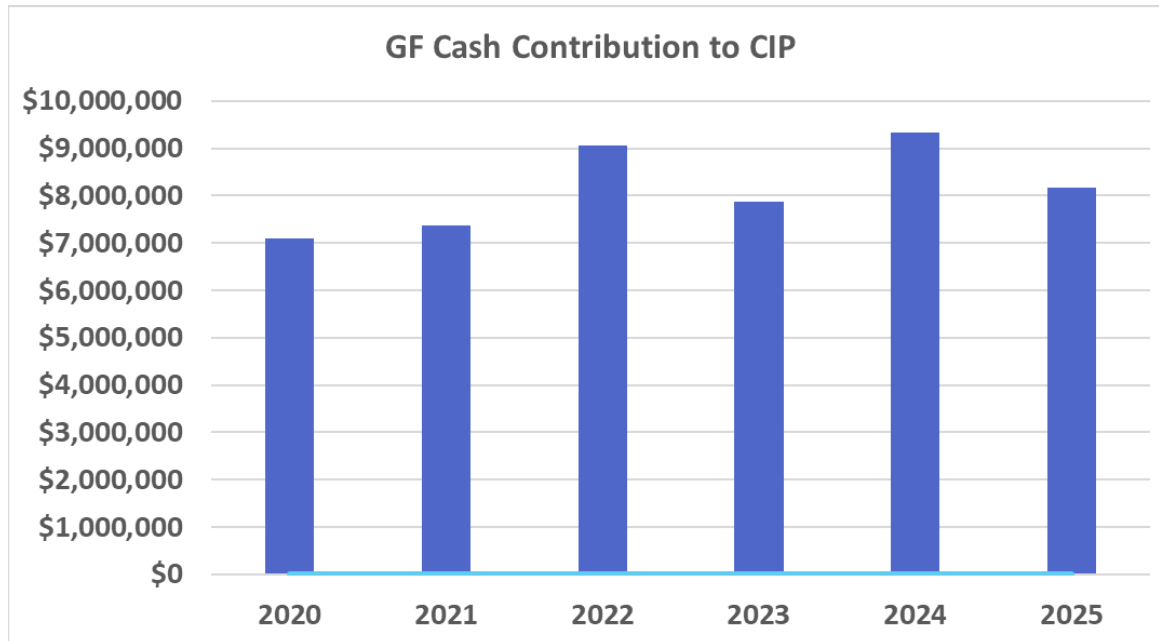


Since 2010, the City's cash or "pay go" funding has averaged about 37% annually

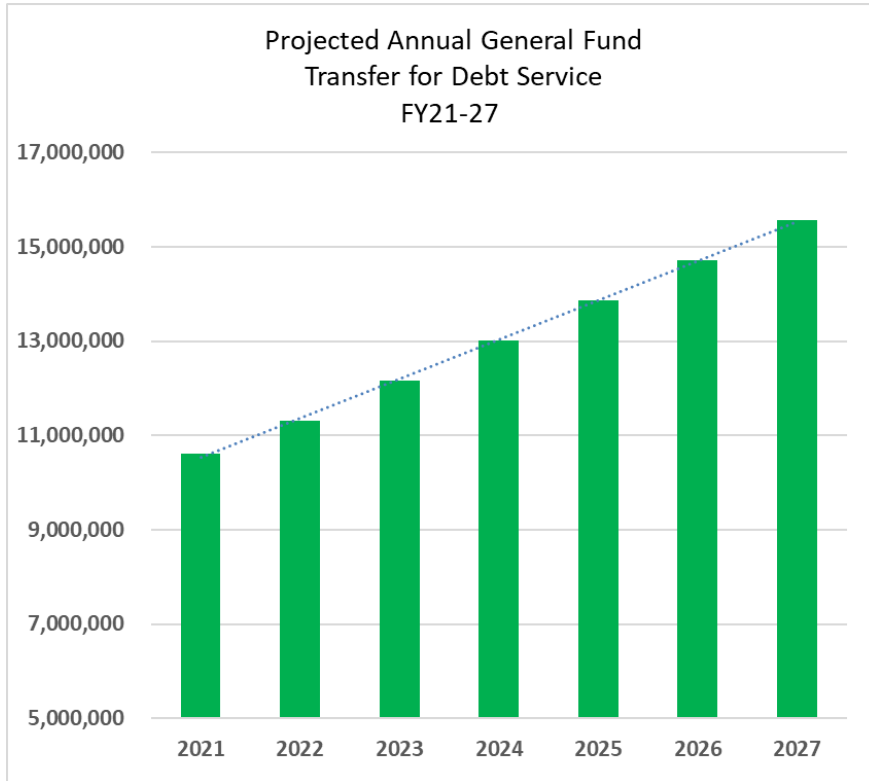


Cash Funding

\$8.2M or 4% of the General Fund Total Budget was the Average Annual CIP Cash Projection prior to COVID.



Outstanding Debt



- The City currently has approximately **\$90 million** in governmental debt outstanding.
- **\$80 million** in bonds have been authorized but not issued yet for projects approved prior to FY 22.
- FY 21 -25 CIP planned for **\$84 million** in bonds



Debt Service Estimates

FY2022 Debt Projection**

Fiscal Year	Bond Issue Amount ⁽¹⁾	Annual Debt Service ⁽²⁾	General Fund Expenditure Budget ⁽³⁾	Ratio of Debt Service to Total General Fund Expenditures	General Fund Transfer ⁽⁴⁾	\$ Increase	% Increase	Debt Service Fund Balance ⁽⁵⁾
2016	11,125,466	9,128,798	156,391,435	5.84%	9,279,578	-	0.00%	11,962,480
2017	11,140,000	10,103,067	162,018,737	6.24%	9,817,330	537,752	5.80%	11,880,013
2018	4,610,000	10,615,335	171,657,127	6.18%	10,371,750	554,420	5.65%	11,905,368
2019	9,520,000	10,375,167	179,725,535	5.77%	11,003,348	631,598	6.09%	12,830,074
2020	-	10,771,937	188,863,920	5.70%	11,049,584	46,236	0.42%	13,255,398
2021	13,455,000	10,465,180	191,195,873	5.47%	10,608,827	(440,757)	-3.99%	13,535,692
2022	32,000,000	10,983,075	194,063,811	5.66%	11,462,406	853,579	8.05%	14,140,250
2023	32,000,000	13,417,218	196,974,768	6.81%	12,312,439	850,032	7.42%	13,147,748
2024	32,000,000	15,516,769	199,929,390	7.76%	13,163,472	851,033	6.91%	10,893,817
2025	32,000,000	17,649,933	202,928,331	8.70%	14,015,526	852,054	6.47%	7,345,787
2026	32,000,000	19,293,290	205,972,256	9.37%	14,868,621	853,095	6.09%	2,994,543
2027	32,000,000	21,514,167	209,061,839	10.29%	18,461,777	3,593,157	24.17%	895

⁽¹⁾ Represents the amount of bonds previously issued or amounts we expect to issue in future years

⁽²⁾ Represents the actual and expected annual debt service payments based on projected issuance schedule

⁽³⁾ Assumes an annual General Fund budget growth rate of 1.5% and 2% meals tax growth in years 2022 - 2026

⁽⁴⁾ General Fund Transfer for the payment of annual debt service

⁽⁵⁾ Funds accumulated for the payment of debt service and used to help mitigate impact on the General Fund budget



** Estimates and subject to change

Capacity vs Affordability



Debt
Capacity

The maximum amount of debt that could be issued to stay within the parameters defined by the financial policy

How much debt can we issue before reaching the 10% max?



Affordability

The alignment of public policy and financial resources

How much can we pay with current resources before having to raise taxes?



Debt Capacity Quantified

Current Debt projections indicate:

\$160M could be issued before reaching the 9% policy target

\$192M could be issued before reaching the 10% policy maximum

Quick Math

New Debt at 10% Debt Ratio	\$ 192,000,000
Bonds Previously Authorized Not Issued (ABNI)	\$ (80,000,000)
	<u>\$ 112,000,000</u>
FY 21-25 CIP Bonds Authorized	\$ (60,000,000)
Remaining Bond Capacity	<u>\$ 52,000,000</u>

****** *Estimates and subject to change*



Affordability Quantified

- Debt Service is rising faster than the Payoff
- Issuing Debt at the 10% max would more than double debt service requirements
 - \$10.5M (current) to estimated \$21.5M
- Required Debt Service Increases Equate to \$0.01 to \$0.03 on the Tax Rate



Additional CIP Funding Considerations

- School Reconfiguration Project – cost TBD
- Parking Garage Mixed Use Alternatives
- Dogwood Memorial
- 5th Street Traffic Improvements
- Comp Plan Housing Spending Recommendation
- \$109M in Unfunded Departmental Requests



Other FY 2022 Budget Considerations

- City Operating Budget Needs and Unknowns
 - Due November 13th
 - Departmental Requests
 - Employee Compensation and Benefits
- Schools Operating Budget Needs
- Outside Agency Budgets



What are the Decisions?

1. For the FY 22 CIP Process

- What's the Commitment to the School Reconfiguration Project?
- What's the Commitment to the West Main Project?

2. Set Priorities

- Council will need to be strategic with CIP funding decisions.
- How will the remaining capacity be spent?
- Re-visit past funding decisions – are they still priorities?

3. Commit to the Funding Requirements

- Anticipate Tax Increases



Appendix



CIP Guidelines

- Five year plan with projects costing \$50,000 or more with life of 5 years or more
- Funded by a combination of Cash and Bonds
- Cash funding must be at least 3.0% of general fund expenditures per the financial policy



Debt Service Fund

- Provides funds necessary to retire the City's general government bonds used to pay for public improvements
- Long Term Financial Policy
 - Debt service as a percentage of the GF total expenditure budget has a ceiling of 10%, with a target of 9%
- FY 2021 Transfer to Debt Service Fund = \$10.6M



The City's Bond Ratings

- Charlottesville has maintained the highest possible general obligation credit ratings:
 - Aaa from Moody's Investors Service since 1973
 - AAA by Standard & Poor's since 1964
- A high credit ratings allows the City to borrow funds at the lowest possible borrowing cost and ensures more money is going toward capital projects than interest payments.
- A high credit rating is also helpful in attracting economic development prospects.
- The City talks with the rating agencies on an annual basis.



Rating Agency Factors

- Rating agencies focus on four key factors:
 - **Economy** – demographics, employment base, property values and taxpayer composition
 - **Management** – policies and procedures, strategic planning and ability to achieve budgetary targets
 - **Financial** – budget practices, investments and fund balances
 - **Debt** – outstanding debt, future needs and pension/other post employment benefit obligations

Key Financial Policies

Maintain a minimum General Fund Balance of 14% of General Fund Budget

Maintain a minimum Downturn Reserve Fund of no less than 3% of General Fund Budget

Maintain a debt service to operating expenditures ratio below a ceiling of 10% with a goal of under 9%



The Importance of Bond Ratings

- Provide independent views of an entity's creditworthiness and the credit quality of their debt issues
- Facilitates the debt issuance process
 - Gives investors a way of evaluating risk and determining an appropriate level of return for a variety of credits
- Ratings are NOT a commentary on the quality of life in that locality; they are solely a way to judge a locality's ability to repay their debt



Capital Improvement Program Fund

Capital Improvement Program (CIP) Overview

The Capital Improvement Program (CIP) provides funding for streets, public buildings (both governmental and school facilities), land, and other capital assets. Capital improvement projects are projects, which generally have a life of 5 years, or more, cost more than \$50,000, and are non-operational in nature. City Council adopted budget guidelines and established a policy to allocate an amount no less than 3% of the General Fund budget for capital improvements.

The annual capital budget is part of the City's multi-year Capital Improvement Program, which is designed to coordinate the planning, financing, and construction of capital projects. Separate funding is adopted in the General Fund budget for the smaller maintenance projects, which are handled in the Facilities Repair Fund.

Many factors are taken into consideration during the development of the capital budget. For instance, the aging of public facilities and infrastructure, the need to accommodate a growing population, and enhancement of quality of life within the City. For these reasons, the City must respond to the capital needs of the community with investments aimed at improving, revitalizing, and maintaining the existing facilities and infrastructure of the City of Charlottesville.

CIP Process and Timeline

The City's CIP process is designed to coordinate and align capital projects with Council's strategic priorities while also balancing capital investments with available financial resources. The process attempts to also capture the true life cycle cost of the projects – including not only initial construction costs but also operational and replacement costs.

The City's 5-year capital improvement process officially begins in August of each year, when City departments receive the CIP submission request forms and start planning their requests for the upcoming five-year capital plan. The CIP request forms are received at the end of September by the Office of Budget and Performance Management, which organizes and prepares the submissions for review, and forwards the requests to the CIP **Budget Development Committee**. The **Budget Development Committee** consists of the City Manager, the two Deputy City Managers, the Finance Director and the Senior Budget and Management Analysts.

In an effort to increase outreach and engagement with neighborhoods during the CIP budgeting process, the City began soliciting CIP submissions requests from the various Neighborhood Associations located throughout the City of Charlottesville in FY 20. For FY 21, a modified and less complex CIP request packet was distributed to the neighborhood associations asking the neighborhoods to submit capital budget ideas as part of the FY 21-25 CIP process. These requests were received by the Office of Budget and Performance Management at the beginning of October and forwarded to the departments associated with the request for review and further refinement of the request. Projects that were not already funded or requested as part of another larger project, (i.e. New Sidewalks, Bicycle and Pedestrian Improvements, Neighborhood Transportation Improvements, etc.) were added to the FY 21 – 25 CIP submissions to be reviewed by the **Budget Development Committee**.

CIP Process and Timeline (cont.)

In September a work session was held to engage and discuss capital budgeting with the City Council. This helped to guide the deliberations of the Budget Development Committee in their review of the CIP submissions. The **Budget Development Committee** met throughout October and November to develop a recommendation that was then presented to the Planning Commission for feedback and approval at their November work session and December Public Hearing. After the public hearing, the Planning Commission puts forth its own set of recommendations and proposed changes for City Council to consider.

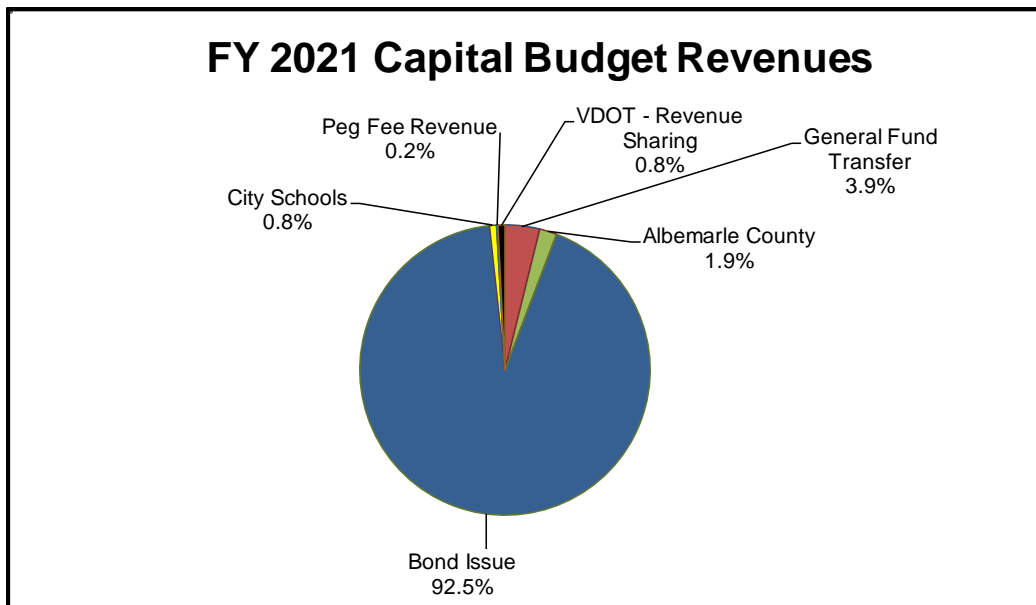
The revised five-year CIP, along with the proposed Planning Commission recommendations, are forwarded to the City Manager and City Council for inclusion in the annual budget. On March 16, 2020, a previous version of a Proposed CIP was formally presented to City Council as part of an overall Proposed City Operating and Capital Budget. The CIP budget adopted by Council represents revisions that were made in an attempt to more accurately reflect the City's CIP affordability based on the projected financial impacts of the COVID-19 pandemic.

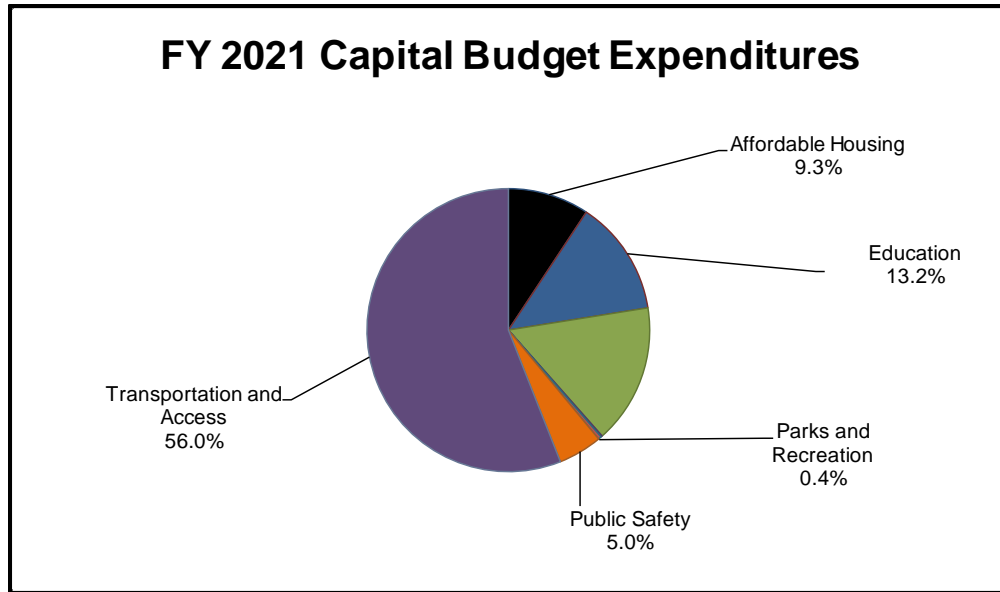
The adopted CIP budget includes bond funded projects or projects with revenue offsets. All cash funded projects have been deferred a year with one exception. \$900,000 in cash is allocated for Supplemental Rental Assistance to continue the previous commitment by City council for housing vouchers. The remaining \$6.6M previously planned for CIP cash funding for FY 21 will be held in a contingency fund in the General Fund to be used, if needed, to offset further potential impacts related to the economic downturn caused by the pandemic. City Staff and Council will be monitoring the City's financial status closely throughout the year. Should the cash reserve not be needed, funding for projects which were deferred will be revisited.

FY 2021 Capital Improvement Program Revenues and Expenditures

The **FY 21-25** Capital Improvement Program recommends the use of approximately **\$84.19 million** in long-term debt to finance a portion of the **\$124.12 million** multi-year program. The balance will be funded through transfers of funds from the General Fund, PEG (public, education and governmental) programming fees, revenue sharing funds from Virginia Department of Transportation (VDOT), contributions from Albemarle County and the Charlottesville City Schools.

The Capital Improvement Program for **FY 21** contains bondable projects totaling **\$24.56 million**, along with non-bondable projects totaling **\$1.23 million**, for a total capital improvement program budget equaling **\$25.79 million**.





Capital Improvement Program Alignment to the Strategic Plan

City Council has identified five priority areas: **Affordable Housing, Race and Equity, Workforce Development, Economic Development, and Safety, Security and Preparedness.** The expenditures that fall under these priorities are listed first.

Strategic Plan Priority Areas



Affordable Housing

In the FY 21 Capital Improvement Program \$2.40 million is allocated for Affordable Housing projects.

Charlottesville Housing and Redevelopment is to receive \$1,500,000 in the FY 21 CIP for the future redevelopment of the City's public housing sites.

\$900,000 is allocated for **Supplemental Rental Assistance** to continue the previous commitment by City council for housing vouchers.



Safety, Security and Preparedness

\$300,000 is allocated in FY 21 to fund half of the cost new **General District Court.** The remaining needed funds are currently programmed in FY 22 CIP. This is for the construction of a new court as part of an agreement the City has with Albemarle County.

\$995,500 is allocated to replace **Fire apparatus**

Other Strategic Plan Areas



Prepare students for academic and vocational success

Continues a strong commitment to the schools, providing \$3.4 million in capital funding for school facility improvements, including \$1.25 million for **Charlottesville City Schools Priority Improvement projects.**



Engage in robust and context sensitive urban planning and implementation

\$4.0 million is allocated in FY 21, to fund a significant urban design and streetscape improvement project for **West Main Street Corridor Improvements** that could include changes to the street profile, green infrastructure, trees and street furniture.

As part of the FY 21 CIP, **Small Area Plans** will receive \$100,000. The Comprehensive Plan Update identified several specific areas of the city where planning and design issues or investment opportunities may warrant additional study through the development of specific small area plans in the coming years.



Provide reliable and high quality infrastructure

SIA Immediate Implementation will receive \$200,000 in the FY 21 CIP. This funding is intended to facilitate completion of projects outlined in the Strategic Investment Area Plan. The FY 21 CIP allocates \$1.4 million in funding to go towards **Undergrounding Utilities**. \$5 million is allocated to fund the remaining local dollars needed to match the State matching funds for the replacement of the **Belmont Bridge**.



Provide a variety of transportation and mobility options

\$100,000 is allocated for **New Sidewalks** and \$500,000 for **Sidewalk Repair**

Description of Capital Projects

Bondable Projects

Education

In FY 21, \$1.2 million is included for various City School capital improvements including projects relating to health/safety, facility asset preservation, code compliance (building & fire codes, and ADA), scheduled/periodic maintenance and quality of space/functionality. Some of the items to be covered by this appropriation include: CCS Modular Classrooms, Buford Envelope Restoration, Johnson Pedestrian lighting, School Security. \$750,000 is also provided for the schools HVAC replacement plan, as well as funding of \$1.25 million for City Schools priority improvement projects.

Facilities Capital Projects

Facilities Capital Projects is allocated \$4.12 million for improvements and repairs to various City facilities. These include: CATEC roof replacement \$500,000 and \$2.25 million for Smith Recreation Center Indoor Air Quality Improvements. This funding also provides for the City facility HVAC replacement plan and the City/School Solar PV program projects.

Public Safety and Justice

In FY 21 \$300,000 is allocated for the construction of a new General District Court and \$995,500 is allocated for Fire apparatus replacement.

Transportation and Access

For FY 21, a total of \$14.45 million is allocated to Transportation and Access projects which include: \$100,000 for the design and construction of new sidewalks; \$500,000 for sidewalk repair (including ADA ramp upgrades on streets scheduled to be paved); \$4,000,000 for the West Main Improvements project; \$200,000 SIA Immediate Implementation; \$100,000 Small Area Plan; \$2,000,000 for a new parking structure, \$240,000 for ADA Pedestrian Signal upgrades;\$50,000 for Blight Remediation, \$200,000 for Traffic Signal Infrastructure Replacement, \$50,000 for Historic Resources, \$1,430,000 to go towards the undergrounding of utilities; \$150,000 for State Revenue Sharing match; and \$225,101 for minor bridge repairs; \$200,000 for ADA improvements to sidewalks and curbs throughout the City and \$5,000,000 as part of the local match for the Belmont Bridge replacement..

Affordable Housing

\$1.5 million is allocated in FY 21 and an additional \$10.5 million is projected in FY 22 - 25 for a total of \$12 million over the 5 year CIP for the redevelopment of the City's Public Housing sites.

Non-Bondable Projects

Education

\$200,000 is allocated for the Charlottesville City Schools small capital improvement program, and is offset through a contribution from the schools specifically for this program.

Parks and Recreation

The Parks and Recreation Department is allocated \$93,750 for Downtown Mall infrastructure repairs this funding is provided by the café permit fees paid by downtown vendors.

Technology Infrastructure

The Communications Technology Account/Public Access Television project is allocated \$40,000 in order to allow the City to continue upgrading and improving its cable network services and programming to the citizens of Charlottesville. This item is offset 100% by PEG Fees paid to the City through the Comcast franchise agreement.

Affordable Housing

Non Bondable housing projects are allocated \$900,000 for supplemental rental assistance vouchers.

**Capital Improvement Program FY
2021-2025**

	<u>Adopted FY21</u>	<u>Projected FY22</u>	<u>Projected FY23</u>	<u>Projected FY24</u>	<u>Projected FY25</u>	<u>5 Year Total</u>
Revenues						
Transfer from General Fund	900,000	10,943,663	7,616,543	9,150,200	8,292,570	36,902,976
Transfer from General Fund - Mall Vendor Fees	93,750	95,000	95,000	95,000	95,000	473,750
Contribution from Albemarle County (CATEC)	500,000	90,000	62,500	0	0	652,500
Contribution from Schools (Small Cap Program)	200,000	200,000		200,000	200,000	1,000,000
PEG Fee Revenue	40,000	40,000	40,000	40,000	40,000	200,000
VDOT - Rev Share Hydraulic	150,000	0	0	0	0	150,000
VDOT - Rev Share East High Signalization	50,000	500,000	0	0	0	550,000
CY 2021 Bond Issue	23,861,092	0	0	0	0	23,861,092
CY 2022 Bond Issue		30,533,296	0	0	0	30,533,296
CY 2023 Bond Issue		0	9,587,755	0	0	9,587,755
CY 2024 Bond Issue		0	0	13,096,486	0	13,096,486
CY 2025 Bond Issue		0	0	0	7,110,575	7,110,575
TOTAL AVAILABLE REVENUES	\$25,794,842	\$42,401,959	\$17,601,798	\$22,581,686	\$15,738,145	\$124,118,430
Expenditures						
BONDABLE PROJECTS						
EDUCATION						
<u>Project</u>	<u>Adopted FY21</u>	<u>Projected FY22</u>	<u>Projected FY23</u>	<u>Projected FY24</u>	<u>Projected FY25</u>	<u>5 Year Total</u>
Lump Sum to Schools (City Contribution)	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	6,000,000
City Schools HVAC Replacement	750,000	750,000	750,000	750,000	750,000	3,750,000
City Schools Reconfiguration Design and Planning	0	0	0	0	0	6,250,000
City Schools Priority Improvement Projects	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000	7,570,000
Charlottesville High School Roof Replacement	0	120,000	1,200,000	0	0	1,320,000
SUBTOTAL	\$3,200,000	\$3,320,000	\$4,400,000	\$3,200,000	\$3,200,000	\$17,320,000
FACILITIES CAPITAL PROJECTS						
<u>Project</u>	<u>Adopted FY21</u>	<u>Projected FY22</u>	<u>Projected FY23</u>	<u>Projected FY24</u>	<u>Projected FY25</u>	<u>5 Year Total</u>
Lump Sum to Facilities Capital Projects	1,545,491	1,045,491	1,045,491	1,045,492	1,045,491	5,727,456
City Facility HVAC Replacement	250,000	250,000	250,000	250,000	250,000	1,250,000
City and Schools Solar PV Program	75,000	75,000	75,000	75,000	75,000	375,000
Smith Recreation Indoor Air Quality Corrections	2,250,000	0	0	0	0	2,250,000
SUBTOTAL	4,120,491	\$1,370,491	\$1,370,491	\$1,370,492	\$1,370,491	\$9,602,456
PUBLIC SAFETY AND JUSTICE						
<u>Project</u>	<u>Adopted FY21</u>	<u>Projected FY22</u>	<u>Projected FY23</u>	<u>Projected FY24</u>	<u>Projected FY25</u>	<u>5 Year Total</u>
General District Court	300,000	6,062,028	0	0	0	6,362,028
Replacement Fire Apparatus	995,500	0	0	1,152,415	0	2,147,915
Replacement EMS Apparatus	0	377,553	0	0	0	377,553
SUBTOTAL	\$1,295,500	\$6,439,581	\$0	\$1,152,415	\$0	\$8,887,496
TRANSPORTATION AND ACCESS						
<u>Project</u>	<u>Adopted FY21</u>	<u>Projected FY22</u>	<u>Projected FY23</u>	<u>Projected FY24</u>	<u>Projected FY25</u>	<u>5 Year Total</u>
Undergrounding Utilities	1,430,000	0	0	0	0	1,430,000
New Sidewalks	100,000	100,000	100,000	100,000	100,000	500,000
Sidewalk Repair	500,000	500,000	500,000	500,000	500,000	2,500,000
West Main Improvements	4,000,000	4,000,000	0	0	0	8,000,000
SIA Immediate Implementation	200,000	200,000	200,000	200,000	200,000	1,000,000
Small Area Plans	100,000	100,000	100,000	100,000	100,000	500,000
Street Milling and Paving	0	1,000,000	2,000,000	2,000,000	2,000,000	7,000,000
Parking Structure	2,000,000	8,000,000	0	0	0	10,000,000
ADA Pedestrian Signal Upgrades	240,000	240,000	240,000	240,000	240,000	1,200,000
Minor Bridge Repairs	225,101	231,854	238,810	245,974	253,353	1,195,092
Citywide ADA Improvements - Sidewalks and Curbs	200,000	200,000	200,000	200,000	200,000	1,000,000
Traffic Signal Infrastructure Replacement	200,000	228,000	757,120	787,405	818,901	2,791,426
Historic Resources	50,000	0	0	0	0	50,000
Blight Remediation	50,000	0	0	0	0	50,000
Hydraulic/250 Intersection Turn Lane - VDOT Rev Share	150,000	0	0	0	0	150,000
East High Street Signalization - VDOT Rev Share	0	1,000,000	0	0	0	1,000,000
Belmont Bridge - Local Match	5,000,000	2,500,000	0	0	0	7,500,000
SUBTOTAL	\$14,445,101	\$18,299,854	\$4,335,930	\$4,373,379	\$4,412,254	\$45,866,518
PARKS AND RECREATION						
<u>Project</u>	<u>Adopted FY21</u>	<u>Projected FY22</u>	<u>Projected FY23</u>	<u>Projected FY24</u>	<u>Projected FY25</u>	<u>5 Year Total</u>
City/County Joint Parks - Darden Towe	0	193,370	0	0	0	193,370
SUBTOTAL	\$0	\$193,370	\$0	\$0	\$0	\$193,370
AFFORDABLE HOUSING						
<u>Project</u>	<u>Adopted FY21</u>	<u>Projected FY22</u>	<u>Projected FY23</u>	<u>Projected FY24</u>	<u>Projected FY25</u>	<u>5 Year Total</u>
Public Housing Redevelopment - (CRHA)	1,500,000	1,500,000	3,000,000	3,000,000	3,000,000	12,000,000
SUBTOTAL	\$1,500,000	\$1,500,000	\$3,000,000	\$3,000,000	\$3,000,000	\$12,000,000
TOTAL BONDABLE PROJECTS	\$24,561,092	\$31,123,296	\$13,106,421	\$13,096,286	\$11,982,745	\$93,869,840

NONBONDABLE PROJECTS

	Adopted	Projected	Projected	Projected	Projected	5 Year
Project	FY21	FY22	FY23	FY24	FY25	Total
EDUCATION						
School Small Capital Improvements Program	200,000	200,000	200,000	200,000	200,000	1,000,000
SUBTOTAL	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$1,000,000
ECONOMIC DEVELOPMENT						
Economic Development Strategic Initiatives	0	150,000	150,000	150,000	150,000	600,000
SUBTOTAL	\$0	\$150,000	\$150,000	\$150,000	\$150,000	\$600,000
PUBLIC SAFETY AND JUSTICE						
Police Mobile Data Terminals	0	405,344	202,667	0	0	608,011
Police Portable Radio Replacement	0	75,000	75,000	75,000	75,000	300,000
Fire Portable Radio Replacement	0	75,000	75,000	75,000	75,000	300,000
Sheriff Portable Radio Replacement	0	40,000	40,000	40,000	40,000	160,000
SUBTOTAL	\$0	\$595,344	\$392,667	\$190,000	\$190,000	\$1,368,011
TRANSPORTATION & ACCESS						
State Bridge and Highway Inspections	0	40,000	60,000	80,000	100,000	280,000
CAT Transit Bus Replacement Match	0	134,000	139,510	114,400	114,400	502,310
Intelligent Transportation System	0	180,786	450,000	100,000	100,000	830,786
City Wide Traffic Engineering Improvements	0	150,000	150,000	150,000	150,000	600,000
Neighborhood Transportation Improvements	0	50,000	50,000	50,000	50,000	200,000
Bicycle Infrastructure	0	150,000	150,000	150,000	150,000	600,000
Right of Way Appurtenance	0	129,000	129,000	129,000	129,000	516,000
Traffic Sign Retro Reflective Compliance	0	122,762	63,222	0	0	185,984
ADA Ramp Corrections	0	134,930	138,978	0	0	273,908
SUBTOTAL	\$0	\$1,091,478	\$1,330,710	\$773,400	\$793,400	\$3,988,988
PARKS & RECREATION						
Parks and Recreation Lump Sum Account	0	200,000	200,000	200,000	200,000	800,000
Parks and Schools Playground Renovations	0	112,000	112,000	112,000	112,000	448,000
Urban Tree Planting	0	75,000	75,000	75,000	75,000	300,000
Parkland and Trails Acquisition and Development	0	250,000	125,000	125,000	125,000	625,000
Refurbish Parks Restrooms	0	50,000	0	0	0	50,000
Downtown Mall Infrastructure Repairs	93,750	95,000	95,000	95,000	95,000	473,750
SUBTOTAL	\$93,750	\$782,000	\$607,000	\$607,000	\$607,000	\$2,696,750
TECHNOLOGY INFRASTRUCTURE						
Communications Technology Account/Public Access	40,000	40,000	40,000	40,000	40,000	200,000
City Wide IT Strategic Infrastructure	0	250,000	250,000	250,000	250,000	1,000,000
SUBTOTAL	\$40,000	\$290,000	\$290,000	\$290,000	\$290,000	\$1,200,000
AFFORDABLE HOUSING						
Supplemental Rental Assistance	900,000	900,000	900,000	900,000	900,000	4,500,000
Housing Rehabilitation	0	500,000	500,000	500,000	500,000	2,000,000
Friendship Court Infrastructure Improvements	0	2,000,000	0	2,500,000	0	4,500,000
Friendship Court Redevelopment - Phase 1	0	394,841	0	0	0	394,841
Friendship Court Redevelopment - Phase 2	0	3,250,000	0	0	0	3,250,000
Friendship Court Redevelopment - Phase 3	0	0	0	3,250,000	0	3,250,000
SUBTOTAL	\$900,000	\$7,844,841	\$1,400,000	\$7,150,000	\$1,400,000	\$18,694,841
OTHER GOVERNMENTAL PROJECTS						
Home Energy Conservation Grant Program	0	125,000	125,000	125,000	125,000	500,000
Citywide Fee Study	0	200,000	0	0	0	200,000
SUBTOTAL	\$0	\$325,000	\$125,000	\$125,000	\$125,000	\$700,000
TOTAL NONBONDABLE PROJECTS	\$1,233,750	\$11,278,663	\$4,495,377	\$9,485,400	\$3,755,400	\$30,248,590
TOTAL PROJECT EXPENDITURES	\$25,794,842	\$42,401,959	\$17,601,798	\$22,581,686	\$15,738,145	\$124,118,430

Operational Impacts

When deciding to construct or purchase an asset, consideration is given to the allocation of the resources (both people and funding) necessary to sustain the operations and maintenance of the investment. The operational impacts of projects in the FY 2021 – 2025 CIP are discussed below.

Operational Impacts FY 2021-2025 CIP

<u>Public Works</u>	Operational Impact	Operational Impact	Operational Impact	Operational Impact	Operational Impact	5 Year	Operational Impacts
<u>Project</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>	<u>FY25</u>	<u>Total</u>	
City Schools HVAC Replacement	-	-	-	-	-	-	- Utility use reductions can be assumed for most projects, but that will vary. The fact that utility rates will inevitably rise typically offsets the energy use reductions, making the operational impacts of the projects budget neutral.
City Facility HVAC Replacement	-	-	-	-	-	-	- Utility use reductions can be assumed for most projects, but that will vary. The fact that utility rates will inevitably rise, will result in offsetting the energy use reduction making the operational impacts of the project budget neutral.
City Solar PV Program	(134,590)	(144,590)	(154,590)	(164,590)	(174,590)	(772,950)	Cumulative savings achieved through reduced utility cost through utilization of solar energy.
General District Court	-	-	37,118	152,925	152,925	342,968	Exact amount of operational impacts are unknown at this time. Until such time as a design concept is agreed upon and finalized, and a cost sharing agreement negotiated, this estimate – based on design alternatives currently under discussion – should be considered provisional. Operational cost increases in utilities, maintenance, and custodial services are anticipated in all design scenarios. FY 23 amount assumes 3 months of operations.
<u>Public Safety</u>							
<u>Project</u>							
Bypass Fire Station	31,096	32,273	33,499	34,504	35,539	166,912	Exact amount of operational impacts are unknown at this time. Costs represent estimates based on proposed square footage until such time as a design concept is finalized. Operational cost increases in utilities, maintenance, and custodial services are anticipated in all design scenarios.
<u>Neighborhood Development Services</u>							
<u>Project</u>							
New Sidewalks	22,538	23,215	23,911	24,629	25,368	119,661	Increased maintenance and lifecycle replacement costs, approximately \$40 per linear foot of new sidewalk constructed. It is estimated that it would be 10 years before maintenance is necessary on a newly constructed sidewalk, and this will vary based on location, weather, damage, proximity to trees, initial construction, etc. Operational estimates are based upon additional sidewalks previously constructed.
West Main Improvements	0	450,455	224,780	229,275	233,861	1,138,371	Based on current phasing in the proposed CIP operational costs are anticipated to begin in FY 21. Costs include maintenance efforts from Parks and Rec. and Public Works. Maintenance of area would require 3 new FTE's once completed. Does not include additional cost for other areas such as an increased public safety presence.
SIA Immediate Implementation	-	-	-	-	-	-	- Depending upon which projects are selected there could be an operational impact but until the exact projects to be completed are selected by Council, potential operational increases/savings will not be known.

	Operational Impact FY21	Operational Impact FY22	Operational Impact FY23	Operational Impact FY24	Operational Impact FY25	5 Year Total	Operational Impacts
Small Area Plans	59,425	60,614	61,826	63,062	64,324	309,250	In the Comprehensive Plan twelve areas are recommended for Small Area Plans. Until the exact area to be examined is identified and plans are completed, the full operational increases/savings will not be known. Operational expenses shown here represent estimated additional staff time required for plan completion.
Neighborhood Drainage	13,516	13,921	14,339	14,769	14,769	69,667	Operational cost include maintenance of new drainage structures.
Transit							
Project	Operational Impact FY21	Operational Impact FY22	Operational Impact FY23	Operational Impact FY24	Operational Impact FY25	5 Year Total	Operational Impacts
Transit Bus Replacement Match	-	-	-	-	-	-	Will be some minor maintenance savings once the buses are delivered (normally 18 months from when they are ordered), but savings amount depends upon the maintenance record of the buses being removed from fleet.
Parks and Recreation							
Project							
Parks and Recreation Lump Sum Account	(2,060)	(2,122)	(2,185)	(2,251)	(2,319)	(10,618)	Decreased utility costs resulting from facility modernization.
Parkland and Trail Acquisition and Development	28,450	30,844	33,257	35,690	35,690	163,931	Increase in seasonal maintenance costs - both supplies and temporary employees - associated with improved trail system.
Urban Tree Preservation and Planting	-	20,388	20,796	21,211	21,636	84,030	Increase in seasonal maintenance costs - both supplies and temporary employees - required to maintain newly planted trees. In addition to these costs there was \$50,000 added to the Parks Maintenance budget in FY19 to keep up with increased maintenance demands of our mature trees throughout the City.
Riverview Park Restrooms	2,910	9,181	9,456	9,740	10,032	41,320	Increase in maintenance costs - both supplies and temporary employees - associated with new restroom facilities.
TOTAL PROJECTED OPERATIONAL EXPENDITURES ALL PROJECTS	21,286	494,179	302,206	418,965	417,235	1,653,870	



Bonds Authorized vs Bonds Issued by Project
as of November 2020

Acct Code	Project	2021 Bonds Authorized but not Issued
P-00127	Undergrounding Utilities	4,430,000
P-00335	New Sidewalks	630,000
P-00336	West Main Streetscape	18,250,000
SH-070	City Schools HVAC Replacment Plan	3,358,640
P-00511	Old Lynchburg Road	1,000,000
P-00207	McIntire Park - Master Plan Implementation	1,998,632
P-00436	Belmont Bridge Replacement - City Match	9,500,000
P-00770	Martha Jefferson Neighborhood Streetscape	800,000
P-00768	Market Street Park Retaining Wall	240,000
P-00818	SIA Implementation	1,200,000
P-00819	Small Area Plans	650,000
P-00777	Tonsler Park	2,100,000
CP-071	City Facility HVAC Replacement	800,000
P-00868	800MHz Radio System Upgrade (ECC)	3,141,341
CP-082	Citywide ADA S&C	400,000
P-00817	Meadow Creek Valley Master Plan	175,000
P-00916	CHS Field House	100,000
P-00919	General District Court	800,000
SH-017	Schools Lump Sum FY17	845,491
SH-018	Lump Sum to Schools - FY18	944,462
P-00939/SH-004	CCS Priority Improvements	1,250,000
P-00943	ADA Pedestrian Signal Upgrades	860,000
P-00944	Route 250/Emmet Street Bridge Repairs	1,337,500
P-00942	Penn Park Tennis Court Renovations	295,000
CP-018	Facilities Lump Sum FY18	1,045,491
CP-019	Facilities Lump Sum FY19	1,045,491
SH-019	Lump Sum to Schools FY19	409,162
P-00985	Downtown Pedestrian Lighting	188,000
PR-003	City/County Joint Parks - Darden Towe and Ivy Creek	1,669,051
CP-020	Facilities Lump Sum	1,045,491
SH-020	Lump Sum to Schools	700,000
P-01012	City Schools Reconfiguration and Design	3,000,000
P-01013	Energy Performance Audit	150,000
P-00988	Bypass Fire Station	3,700,000
P-00214	Minor Bridge Repairs	443,646
P-01004	State Revenue Sharing	413,218
P-01017	Riverview Park Restroom	245,000
P-00937	Public Housing Redevelopment	4,500,000
SS-012	Sidewalk Repair	500,000
CP-021	Fac Lump Sum FY21	1,545,491
P-00484	New Historic Surveys	50,000
P-01011	Smith Center IAQ	2,250,000
P-01036	Traffic Signal Replacement	200,000
P-01038	VDOT Hydraulic/250	150,000
SH-021	School Lump Sum FY21	1,000,000
	GO/CIP Total	79,356,107
	Bond Contingency	353,583
	Total with Contingency	79,709,690



Memo

TO: John Blair, Interim-City Manager
FROM: Chris Engel, Director of Economic Development
DATE: 10/14/2020
SUBJECT: Mixed-use Development Consideration in Conjunction with 7th Street Deck

The City has plans to construct a parking structure on a one-acre assemblage of property it owns at the intersection of Market Street and 7th Street. A conceptual design study indicates that a four level structure of approximately 300 parking spaces and 12,000 square feet of street front commercial space is feasible on the site and such a structure is permissible by-right within the City's current zoning ordinance. The City is using a design/build delivery method for the project due to the efficiencies it provides.

Given the high costs of land in the City and the variety of public and private needs, the following question was recently raised: **Should the City invest additional funds now so that the necessary infrastructure is in place to support additional development above the parking structure at a future date?**

This is a logical question and one that staff and the design consultant spent considerable time evaluating before arriving at the recommendation to proceed with constructing the four level parking structure. This memo details the reasoning leading to that decision.

Background

The primary driver for this project is the December 2018 Memorandum of Agreement with Albemarle County to jointly develop a new Courts building in historic Court Square. A key provision of the agreement is a guarantee by the City to provide the County with 90 parking spaces for their exclusive use in a new downtown garage to be in operation by November 30, 2023. Doing so is expected to be achievable within that timeframe and within the estimated \$10M price tag for the parking structure. The City has programmed \$10M across the FY21 and FY22 CIP years for this purpose.

The design concept and cost estimates were derived from work performed by Kimely-Horn acting as a consultant to the City. KH has significant experience in design and development in urban areas as well as parking facility development. As part of the engagement in November of 2019, the City requested a white paper outlining the impacts of a mixed-use garage. The full paper is attached and summarized herein.

Mixed-use Parking Garages

Mixed-use parking facilities that incorporate ground level retail, restaurant or office space are common as evidenced by several such structures in Charlottesville (e.g. Market Street Parking Garage and Water Street Parking Garage). However, adding another occupancy type such as residential to the top of a garage is not very common as it adds considerable cost and complexity. Accounting for and allowing for future addition of other occupancy types to the initial facility construction presents additional challenges.

These challenges are summarized as:

1. **Additional Structural Reinforcement:** This may involve either a reconfiguration of column layout or the use of a transfer slab or podium. The increase cost is in the 15% to 25% range.
2. **Service Requirements:** The need for elevators, stairways, loading docks and trash removal are very different for a mixed-use parking garage.
3. **Utilities:** Parking garages have much simpler electrical, fire protection and plumbing needs than either residential or office space.
4. **Garage Closure:** Additional construction at a later date will have serious impacts on the operation of the garage to include at a minimum the closure of the roof level and removal of any installed solar arrays.
5. **Garage Design Efficiency:** Based on the need to accommodate items 2, 3 and 4 above, the design efficiency of the actual parking area of the garage is typically reduced and the cost per space increases by 40% or more.

With structural costs and loss of design efficiency the typical cost of building the needed infrastructure to accommodate any future construction is estimated to be at least 50% more than the otherwise planned construction cost.

In the case of this facility, with an estimated standalone cost of \$10M, that translates to roughly \$5M in additional funding requirements.

Cost/Benefit considerations of Additional Development

To better assess the benefits of additional vertical development above the parking structure, a rough determination of the buildable envelope (assuming a Special Use Permit is granted) must be calculated. The zoning designation for the property assemblage is 'Downtown', which has a minimum height of 45 feet and a maximum of 70 feet along the streetwall. Above 45 feet, a 25 foot stepback is required along the primary street. A Special Use Permit allows up to 101 feet in height.

The property assemblage is nearly 1 acre, but is long and narrow in configuration at 380' by 90'. This presents challenges for any type of vertical development, but is particularly difficult for parking and residential uses in which efficiencies are gained with double loaded aisles/corridors.

The stepback requirement of 25' from the primary street above 45' severely reduces the buildable area on this site by nearly one-third.

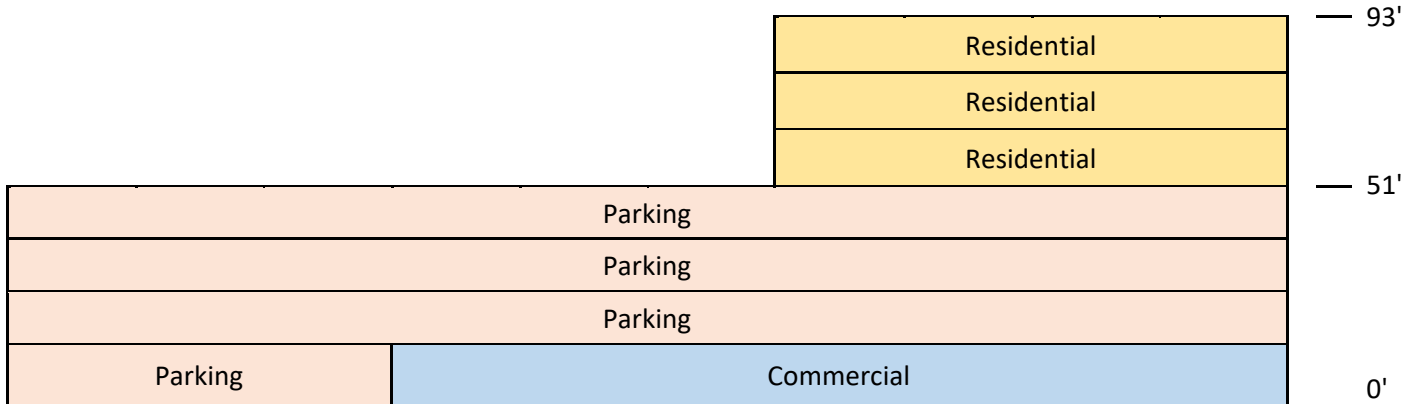
It is assumed for purposes of this analysis that a Special Use Permit for height up to 101' and considerable relief of the 25' stepback requirement is granted. While it is conceivable that there could be a number of uses for the additional development, a residential use is assumed for this analysis.

Below are four concepts that demonstrate options for development of the site. The first, Concept A, is the basic parking structure with ground floor commercial space. Concepts B, C & D include parking, commercial space and some amount of residential above that. These three concepts all require a special use permit and considerable additional investment in infrastructure to support the added vertical development.

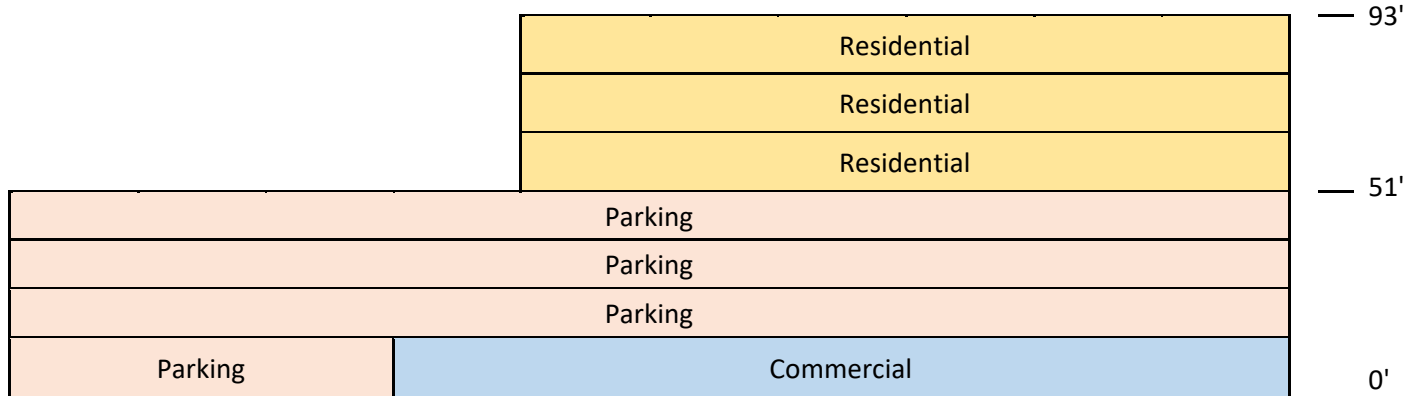
Concept A - Parking Structure w/306 spaces, 12,000 SF Commercial



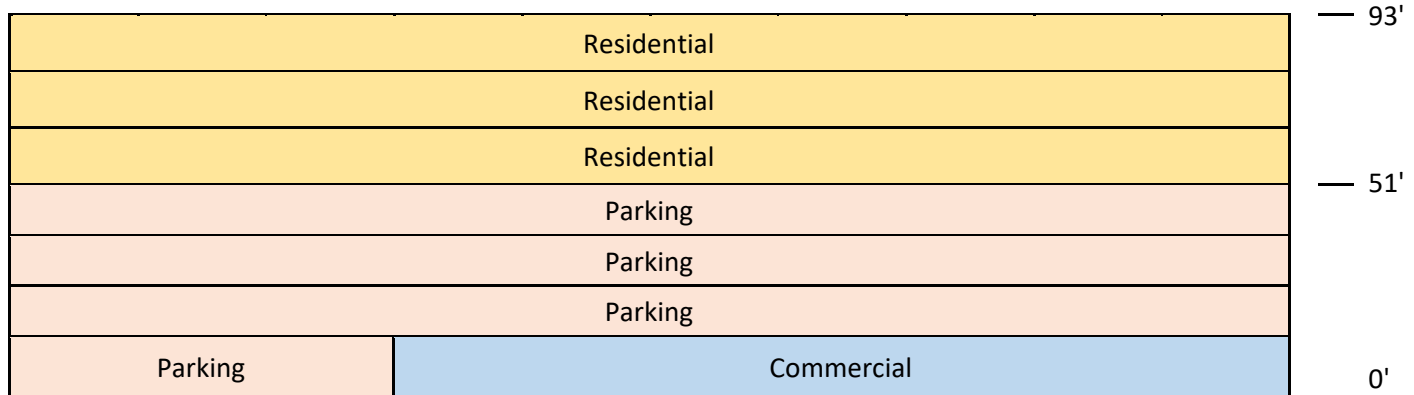
Concept B - Parking Structure w/222 spaces, 12,000 SF Commercial, 12 Residential Units



Concept C - Parking Structure w/214 spaces, 12,000 SF Commercial, 24 Residential Units



Concept D - Parking Structure w/199 spaces, 12,000 SF Commercial, 36 Residential Units



Notes: Floor Heights Level 1 (Parking and Commercial) – 15', Parking Levels – 12', Residential Levels - 14'. Units are all 1,000 SF and are allocated 1 parking space. All concepts are general approximations and are only intended to demonstrate the relative differences in various levels of development.

Concept A fits within the by-right zoning and does not require a special use permit. This concept was developed by the City’s consultant and forms the basis for the other concepts. After accounting for all internal parking requirements, this concept yields a surplus of 117 spaces (see Summary of Parking Demands chart below).

Concept B exceeds the by-right height and does require a special use permit. This concept adds 3 floors of residential on the primary corner at 9th Street along the eastern side of the site. It yields 12 residential units. After accounting for all internal parking requirements and the reduced efficiency created by the additional supporting infrastructure this concept yields a surplus of 21 spaces.

Concept C exceeds the by-right height and does require a special use permit. This concept adds 3 floors of residential on the primary corner at 9th Street and extending west along more than two-thirds of the Market Street frontage of the site. It yields 24 residential units. After accounting for all internal parking requirements and the reduced efficiency created by the additional supporting infrastructure this concept yields a surplus of 1 space.

Concept D seeks to fully maximize the developable area and exceeds the by-right height and does require a special use permit. This concept adds 3 floors of residential along the entire Market Street frontage of the site. It yields 36 residential units. After accounting for all internal parking requirements and the reduced efficiency created by the additional supporting infrastructure this concept yields a deficit of 26 spaces.

Summary of Parking Demands

	Concept A	Concept B	Concept C	Concept D
Total Spaces	306	222	214	199
Residential	0	12	24	36
Commercial	36	36	36	36
Courts	90	90	90	90
Replacement ¹	63	63	63	63
Surplus or Deficit	+117	+21	+1	-26

¹There are 63 surface spaces on the property now that are part of the downtown inventory. The project needs to replace these spaces to prevent an erosion of available capacity.

The additional infrastructure needed to allow the opportunity to construct any units above the parking structure is estimated to be \$5M. At 36 units, that translates to \$138,888 per unit of added cost before any units are actually constructed. This surcharge puts any unit constructed under this scenario at a distinct disadvantage from an affordability standpoint when compared to others on the market. In addition, due to the nature of this type of mixed-use development there would typically be management fees or common area maintenance item expenses over and above a sale price or monthly rental cost. Also, while the zoning regulations would require at least one parking space per unit be included in the building, there is typically an additional monthly fee associated with that use.

Under this scenario, the minimum estimated starting price for a 1,000 SF unit with a basic level of finishes including a pro rata share of all building costs (land, site development, infrastructure, labor and materials, parking and maintenance) is \$500,000. At \$500 per square foot, the market in Charlottesville will simply not support this pricing structure and thus the private sector would not pursue this project (the median price per square foot of homes sold in the area is in the \$175 - \$200 range).

Summary

Major developments with multiple use types within them are complicated to design, finance, build and operate. The additional costs and complexities multiply when this is attempted on constrained sites, with undefined ownership and in multiple phases. Furthermore, the loss of efficiency on the parking levels coupled with the added demand from the residential levels place the facility in a deficit situation from the start when considering all program needs.

From a market-based perspective, the cost benefit analysis reveals that the return on investment is not sufficient when considering the added costs of the additional infrastructure. The opportunity cost (i.e. the missed opportunity when comparing investments) would be significant in scenarios B, C and D likely leading decision-makers to choose to invest the \$5M elsewhere.

MIXED-USE PARKING GARAGES

It is common to create mixed-use parking facilities in an effort to maximize a given downtown site. This can be achieved by adding ground level uses, such as retail, restaurant, or office space. Ground level mixed-use often activates the street frontage and has some, albeit minor, impacts to the initial design of the parking garage. In contrast, providing another occupancy type, such as office or residential, on top of a parking garage adds a level of complexity that should be fully evaluated; however, there are many precedents where this has been successfully accomplished. Many of these projects are in dense, urban locations. The contractual mechanism, such as leasing air rights, varies from project to project, but the overall impacts to the built structure is similar.

External influences such as land use codes, zoning, height restrictions, local policy, and local market factors will likely have significant impact on the viability of building a mixed-use structure. Aside from these, understanding some of the impacts to design and construction that comes with a mixed-use garage, when compared to a stand-alone parking garage, will help an Owner / Developer make an informed decision as to what is the right solution for a given project.

DESIGN AND CONSTRUCTION SUMMARY

- **Occupancy Type** – early identification of the occupancy on top of a garage keeps costs lower; need to factor in additional parking demands
- **Parking garage efficiency and functional design** – building on top of a garage typically lowers the efficiency (and increases cost as you have to build more to get same parking yield) as compared to a standalone garage; this can be minimized with long span construction but that comes with additional cost of transfer level.
- **Structural** – adding levels to a parking garage has impacts to both the gravity and lateral loads that must be carried by the structural system. This can add anywhere from 15% to 25% to the garage costs.
- **Stairs / elevators** – The number, size, capacity, location, and security of stair and elevator towers changes depending on the building occupancy type. Building on top will increase the requirements and costs.
- **Service requirements** – Service requirements, such as loading/unloading and trash is impacted by the type of building. This may add costs to the project.
- **Utilities** – Mechanical, electrical, plumbing, and fire protection requirements are increased for a mixed-use building as compared to a stand-alone garage; increasing costs.
- **Additional Cost Notes** – Initial construction cost of the parking garage would be higher where a building is designed above a garage. In addition, long-term maintenance costs should be evaluated.
- **Construction** – There are two primary ways to construct a mixed-use facility. Either construct the full building at one time or construct the garage and then complete the building above at a later time. Both approaches have been done successfully but building at a later date likely adds closures to the existing facility and is costlier for the building above.

DESIGN AND CONSTRUCTION CONSIDERATIONS

A mixed-use facility is oftentimes required to make compromises in an effort to blend multiple occupancies. For example, a stand-alone garage can maximize all aspects of the facility to best meet the needs for a garage, such as setting up the column grid to park most efficiently. Similarly, a stand-alone office building or residential building can optimize its layout. When combined, sometimes a compromise is required with one or both building types.

The following list describes several key elements that impact the facility design and construction when planning for a mixed-use structure, especially an occupied use (office or residential being the most typical) over a parking garage.

- **Occupancy Type** – it is most economical to plan for a specific occupancy type early in the design phase. Trying to design for an “unknown” future building on top of a structure becomes significantly more inefficient as conservative decisions begin to compound on one another to accommodate any scenario.
 - *Office Occupancy vs Residential* – Each of these will have different requirements and needs as further described below. In general, Residential occupancy has a few more restrictions and requirements as compared to office occupancy.
 - *Parking demand* – Occupancy type will impact the parking demand within the parking structure below. Therefore, the parking supply planned for the site must account for any external parking needs from surrounding sites in addition to the parking demand generated by the building above. Residential parking often comes with reserved parking which must be factored in.
- **Parking garage efficiency and functional design** – as noted above, a stand-alone garage is typically most efficient as that is the primary and only use. When an occupied building above is added, additional columns, piping, mechanical shafts, elevators, stairs, etc. are required to penetrate the parking levels.
 - A typical, above grade, stand-alone garage might have an efficiency of approximately 325 sf/space assuming long span construction, double loaded bays, park-on ramps, and end bay parking.
 - A typical, above grade, mixed-use parking garage with a building on top could have parking efficiencies closer to 450 sf/space due to the columns, chases, and other impacts. This 35% loss in efficiency shows up most prominently in cost per space metrics. For example, using \$65/sf (varies by project) results in a typical garage cost increasing from \$21,000/space to \$30,000/space simply due to loss in efficiency. Part of this may be mitigated depending on structural grid as discussed below.
- **Structural** – adding levels to a parking garage has impacts to both the gravity and lateral loads that must be carried by the structural system.

- *Loading* – The extent of additional loading is a function of the number of levels on top of the garage. In general, parking garage live loads per level are lower than residential and office live loads per level.
- *Framing approach* – There are two approaches to framing a mixed-use garage; long-span vs short-span.
 - Long-span construction for the parking levels would result in more efficient parking levels and negate some of the loss in parking efficiency. However, the challenge is how to handle the office or residential building which will likely have more closely spaced columns than the parking garage below. Therefore, the transfer level (roof of the parking garage and floor of the building) becomes more expensive.
 - Short-span construction allows for the column grid to be more controlled by the building above, maximizing its efficiency and not requiring as robust a transfer level. However, those added columns impact the parking efficiency of the garage below.
- *Columns and Foundations* – Columns and foundations would also be required to be increased to carry the added loads from the building above. However, increasing the size and reinforcing slightly can typically accommodate these added loads. Since a large part of column and foundation costs are associated with mobilization, forming, etc., the increase in costs for the additional capacity is likely not more than 10% to 15%.
- *Structure Type* – Materials used to build the parking garage would likely be impacted by whether or not a building would be constructed on top. A stand-alone garage can be evaluated for either precast or cast-in-place in most situations. For mixed-use buildings, the typical construction type is cast-in-place concrete. However, depending on the layout, precast can be an option but needs to be carefully designed and constructed. The material used for the building above also needs to be considered as it will impact the design loads for the garage structure below. Structural steel, cast-in-place concrete, and potentially precast concrete are all possible types for an office or residential building.
- *Horizontal separation* – Garages below other occupancy types require a horizontal separation between uses. This fire separation is effectively the roof of the garage and the floor of the building above. The cost of this elevated floor must be accounted for in one of the two building estimates.
- **Stairs / elevators** – The number, size, capacity, and location of stair and elevator towers changes depending on the building occupancy type.
 - Location of stair/elevator towers impacts design
 - Parking garages typically put stair and elevator towers in the unused corners of the garage. This location is also driven by how the users access the building; they want to head to the perimeter to leave and be presented with a stair tower upon return.

- Office buildings often locate stairs and elevators on the interior to maximize the building corners and perimeter for the tenants.
- Residential buildings can locate stairs and elevators in the middle or on the ends with the preference being more inboard to preserve exterior facing rooms.
- Office and residential stair/elevator towers often have lobbies at the ground floor, further impacting the parking functional layout of that level.
- Requirements for the number of stairs and elevators are fairly limited in a parking garage. In contrast, additional size and capacity of both the stairs and elevators are required in a mixed-use building due to the occupancy type.
- Security and access must be considered as well. Trying to isolate public spaces from office or residential spaces often results in duplication of stairs and elevators, thereby adding to the cost of the building. Otherwise, security access controls would be required at all doors and floors to prevent unwanted access to occupied spaces.
- **Service requirements** – Service requirements, such as loading/unloading and trash is impacted by the type of building. A parking garage does not have these service requirements typical to an occupied building. These elements would have to be evaluated as part of the site planning process and may impact the lowest level, depending on the site.
- **Utilities** –Mechanical, electrical, plumbing, and fire protection requirements are increased for a mixed-use building as compared to a stand-alone garage.
 - Stand-alone garages need water for wash-down hose bibbs, dry standpipe fire protection, power for lighting and elevators, and typically no sanitary sewer. Mechanical systems are limited to small HVAC units in various rooms of a garage.
 - Mixed-use buildings, by contrast, require water service, automatic fire suppression, power for the building, sanitary sewer, and HVAC systems for habitable spaces. Many of these systems have to travel up to the building through the parking garage.
 - It is noted that in some configurations, such as office on top of a garage, that the garage may not be required to be sprinklered. However, if a residential occupancy type is built over a parking garage, the entire building must be sprinklered; adding to the cost of the parking garage.
- **Cost Items** – Initial construction cost of the parking garage would be higher where a building is designed above the garage. In addition, long-term maintenance costs should be evaluated.
 - Initial construction cost increases are primarily a result of increased foundations, increased structural capacity of columns/walls, increased utility requirements, and the transfer level.
 - Long-term maintenance costs should also be agreed upon as part of the development agreement. A clear understanding of what is a parking garage cost (i.e. lights on the parking

- floors), a building cost (i.e. fire suppression), and a common element cost (i.e. shared stairs) is critical to the long-term maintenance plan.
- **Construction** – There are two primary ways to construct a mixed-use facility. Either construct the full building at one time or construct the garage and then complete the building above at a later time. Both approaches have been done successfully.
 - The more economical, and lowest impact is to design and construct the mixed-use building at the same time. This allows items such as construction access, cranes, mobilization, etc. to be handled one time.
 - If the parking garage is designed to accommodate the future mixed-use building above, then it is possible to delay that construction to a future time. Again, it is recommended to go ahead and fully design that building above to eliminate overly conservative designs. A delayed construction of the building after the garage is open might have the following impacts:
 - Site access could be extremely limited based on surrounding parcels and roadways now that a garage is occupying the site. Locating a crane could become more challenging based on the site. That crane is also not as efficient as it now has to “reach” over an existing built garage.
 - If the transfer level is not constructed as part of the original garage construction, then 2 to 3 floors of the existing garage would likely be impacted for some period of time to allow forming and shoring of the transfer level above.
 - If the transfer level is constructed as part of the original garage construction, it may be possible to allow full use of the garage for a majority of construction,
 - Stair and elevators would likely be shut down for some period of time as they are vertically extended.

Please do not hesitate to contact me, Adam P Cochran, P.E. adam.cochran@kimley-horn.com 919-678-4072 with any questions about the information presented above.