CHARLES TOWN UTILITY BOARD
AGENDA

TUESDAY, NOVEMBER 25, 2025

Special Meeting | **661 South George Street, Charles Town, WV 25414** | **4:00 PM**

CALL TO ORDER

1. **PUBLIC COMMENT**
   This portion of the agenda is designed for members of the general public to share thoughts on items of interest in the community. By law, Board members may ask clarifying questions or discuss procedural matters but are not permitted to discuss the policy merits of any issue unless it is scheduled for discussion.

   The public is invited to attend this meeting in person or via webcast (www.ctubwv.com- Board Meeting - Meeting Agendas and Minutes 2025) or by accessing the following zoom link:

   https://us06web.zoom.us/j/83839727006?pwd=KY9hj4N1bRraPabgLrIpgAeCsVmI8I.1

   Meeting ID: 838 3972 7006
   Passcode: 481767
   (301)715-8592

2. **UNFINISHED BUSINESS**
   a. Summit Point Motorsports Park and Training Facility Grant Opportunity
   i. Draft Letter to Region 9 Prepared by John Maxey
   CTUB Letter Summit Point-Draft.pdf
   b. Utility Manager Performance Evaluation Review and Contract Addendum

3. **NEW BUSINESS**
   a. Board Policy Regarding Availability Letters - Possible Executive Session Under: WV State Code Section §6-9A-4(b)(9) - To consider matters involving or affecting the purchase, sale or lease of property, advance construction planning, the investment of public funds or other matters involving commercial competition, which if made public, might adversely affect the financial or other interest of the state or any political subdivision and involving contract matters.

4. **INFORMATION ONLY**
   a. Next Meeting - December 10, 2025 at 4:00 P.M.
   b. CTUB Response to City of Ranson Request for Information on Capacity

Improvement Fees
2025-11-18 Ranson Information request response.pdf

5. **ADJOURNMENT**

CHARLES TOWN UTILITY BOARD

Tuesday, November 25, 2025

Special Meeting

661 South George Street
Charles Town, WV 25414

Summit Point Motorsports Park and Training Facility Grant Opportunity

CHARLES TOWN UTILITY BOARD

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Draft Letter to Region 9 Prepared by John Maxey

Attachments:

CTUB Letter Summit Point-Draft.pdf

Charles Town
Utility Board
661 S. George Street, Suite 101 Charles Town, WV 25414
Phone: (304) 725-2316 Fax: (304) 725-7150 Web: www.ctubwv.com

Ms. Rachel Miller, Executive Director
Eastern Panhandle Regional Planning and Development Council
226 Pilot Way, Suite E
Martinsburg, WV 25405

Ms. Miller:

The Charles Town Utility Board (CTUB) appreciates the Council's work to coordinate and support responsible development throughout the Eastern Panhandle. We also thank the Council for the recent offer to consider grant funding for water and sewer improvements at the Summit Point Training Facility.

The Summit Point Motorsports Park has been a valued economic asset in Jefferson County for many decades, and the proposed expansion represents an important opportunity for additional jobs and increased state revenue.

However, the Board respectfully requests that the Council reconsider limiting the potential grant to on-site water and sewer systems only - and instead allow for an investigation of the larger regional and environmental benefits of extending water and sewer service from the centralized Charles Town systems.

CTUB believes that:

• On-site package systems will, over time, be significantly more expensive to operate, maintain, and ultimately replace, increasing long-term risks and potential costs to ratepayers;

• A utility extension, while requiring greater upfront investment, would substantially reduce environmental risk, align with CTUB's long-term capital planning, and support regional resiliency.

South Jefferson Elementary – PFAS Contamination

The West Virginia DHHR and the Department of Environmental Protection (DEP) have documented PFAS contamination in the well serving South Jefferson Elementary School. Extending CTUB's public water and sewer infrastructure to Summit Point would simultaneously provide a long-term safe water solution for the Jefferson County Board of Education and remove reliance on vulnerable groundwater systems.

Tuscawilla Hills Wastewater Plant and 303(d) Impairment

CTUB currently operates two wastewater treatment plants: the main plant in Charles Town and a smaller plant located at Tuscawilla Hills on Summit Point Road. Both facilities

discharge into Evitts Run, which DEP recently designated as an impaired waterway due to fecal coliform contamination. A 2023 DNA source-tracking study confirmed the contamination is primarily from human wastewater.

Increased development in the service area will require construction of a significantly larger main plant within the next six years. Our consulting engineer advises that the most efficient and cost-effective approach is to decommission the Tuscawilla Hills plant and consolidate treatment at the new facility, providing a single, more manageable discharge point and improved protection of Evitts Run.

A properly sized extension from Charles Town to Summit Point would directly support this strategic consolidation and significantly advance water-quality improvements in the Evitts Run–Shenandoah watershed.

County Sewer and Septic Vulnerabilities

At the Board's meeting last month, the Jefferson County Health Department emphasized the growing vulnerability of aging septic systems. Many systems in the county are approaching 50 years old and were permitted on lot sizes that may be insufficient for replacement in the event of failure.

Although CTUB opposes mandatory hookups for existing residents, expanding service availability is a prudent long-term strategy for public health and environmental protection. CTUB already provides service along Route 9 to the west but currently has no ability to serve southern Jefferson County.

Fire Protection and Hydrants

A lack of public water service has posed difficulties for local fire departments responding to recent house fires in southern Jefferson County. Public hydrants along the Summit Point corridor would improve emergency response, enhance property protection, and reduce insurance rates for residents.

Environmental Risks of Package Plants in Karst Terrain

The Board strongly opposes the proliferation of small package wastewater plants in Jefferson County's karst topography. Package plants have a higher rate of operational failure than centralized facilities, and in karst terrain, failures can result in rapid groundwater contamination.

Additional risks include:

• Water balance impacts: On-site wells paired with package plant discharge to Bullskin Run would export water from the aquifer rather than returning it.

• PFAS concentration: PFAS levels in wastewater from a training facility may exceed typical residential levels, and package-plant treatment is significantly less capable of controlling

PFAS contamination. Discharge into Bullskin Run could allow contaminants to reach the Shenandoah River upstream of CTUB's surface water intake, for which the Utility currently has no backup source.

Request

For these reasons, the Charles Town Utility Board respectfully requests that the Council allow grant funding to include evaluation and potential construction of an extension of centralized water and sewer service, rather than limiting eligibility to on-site systems only.

The Board stands ready to provide any additional technical information or planning documentation the Council may require and looks forward to working collaboratively to support long-term economic growth and environmental stewardship in Jefferson County.

Thank you for your consideration,

Charles Town Utility Board

CHARLES TOWN UTILITY BOARD

Tuesday, November 25, 2025

Special Meeting

661 South George Street
Charles Town, WV 25414

Utility Manager Performance Evaluation Review and Contract Addendum

CHARLES TOWN UTILITY BOARD

Tuesday, November 25, 2025

Special Meeting

661 South George Street
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Board Policy Regarding Availability Letters - Possible Executive Session Under: WV State Code Section §6-9A-4(b)(9) - To consider matters involving or affecting the purchase, sale or lease of property, advance construction planning, the investment of public funds or other matters involving commercial competition, which if made public, might adversely affect the financial or other interest of the state or any political subdivision and involving contract matters.

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Next Meeting - December 10, 2025 at 4:00 P.M.

CHARLES TOWN UTILITY BOARD

Tuesday, November 25, 2025

Special Meeting

661 South George Street
Charles Town, WV 25414

CTUB Response to City of Ranson Request for Information on Capacity Improvement Fees

Attachments:

2025-11-18 Ranson Information request response.pdf

Charles Town
Utility Board

661 S. George Street, Suite 101 Charles Town, WV 25414
Phone: (304) 725-2316 ♦ Fax: (304) 725-7150 ♦ Web: www.ctubwv.com

November 18, 2025

Via Email

City of Ranson City Council
312 South Mildred Street
Ranson, West Virginia 25438

Honorable Ranson City Council,

In response to your request for information regarding the proposed amendments to the Capacity Improvement Fees now before the Charles Town City Council, please find attached the following information:

1) The Board recommendations with attachments. This is the analysis supporting the proposed water and sewer tariff amendments, including the assumptions or calculations used to determine the recommendation fee levels.
2) The current disposition and balance of Capacity Improvement Fee funds, along with any related analysis of how those funds have been applied or allocated to date.
3) Excerpts from the 2024-2027 Sewer Strategic Plan which is located on the CTUB website and the FY26 Approved Capital Improvement Budget are attached which document the strategic engineering and financial analysis as it relates specifically to the proposed fee revisions.
4) Final Report from Raftelis.
5) GDF summary on Water Treatment Plant and Wastewater Treatment Plant expansion.
6) With regard to the effect of revised estimated average use on available plant capacity, the Board has not yet discussed any impacts on future approvals or impacts to availability letters issued. CTUB does not reserve capacity, it is on a first come first serve basis, however CTUB does have an obligation to provide service and ensure that treatment facilities are available. The latest availability tracking spreadsheet from the October 22, 2025 Board meeting has been provided for your review.

The Board would be happy to provide City Council with a briefing on the Capacity Improvement fee assessment. Should you have any questions on this information, please let me know.

Regards,
Kristen Stolipher
Kristen Stolipher
Utility Manager

Whereas the Charles Town Utility Board has adopted a Capacity Improvement Fee policy requiring the cost of new infrastructure be paid by those creating the demand rather than by existing ratepayers,

Whereas the Charles Town Utility Board projects that existing capacity will be exhausted by new development within the next five years,

Whereas state and federal budget considerations may limit the future availability of traditional grant and low interest loan opportunities,

Whereas the entry of a $25 billion private utility into the Jefferson County market makes future expansion opportunities more difficult to assess,

Therefore, the Charles Town Utility Board recommends that the City Council adopt the forward looking "incremental" methodology presented by Raftelis Financial Consultants rather than any combined or backward-looking methodologies.

Whereas bid responses to Charles Town Utility Board RFPs have been running above estimates this year,

Whereas the U.S. Department of Labor reported that inflation accelerated to 2.9% in August 2025, up from 2.7% in July,

Whereas the Federal Reserve has projected that inflation will remain above the 2 percent target rate through at least 2027,

Whereas the cumulative effect of inflation at 2.5% per year over five years is 13.14%,

Whereas the Raftelis report is understood to have incorporated only 4.17% for inflation,

Therefore, the Board recommends adjusting the "Cost of Expansion to be Recovered" on the Raftelis sewer CIF worksheet from **$36,460,360** to **$39,730,854** to include the additional **8.97%** inflation allowance.

Sewer Project Cost Per Unit

Incremental	Cost
Cost of Expansion to be Recovered	$39,730,854
Total Capacity Added (MGD)	2.75
Cost per Gallon per Day (GPD)	$14.45

Inflation increase of an 8.97% to bring the total inflation accounted for to 13.14% (Five years at 2.5% per year).

1

Capacity Improvement Fee

Incremental	Cost
Water GPD	$1,909
Sewer GPD	$3,034

2

Whereas Raftelis identified 2.75 MGD of theoretical added treatment capacity from the planned wastewater plant expansion.

Whereas prudent utility practice requires reserving an operating margin to maintain compliance and reliability.

Whereas the Board's consulting engineer has reported BOD and ammonia concentrations as much as double typical design values and has expressed that these are not expected to abate.

Whereas the engineer has also reported significant infiltration and inflow during rain events that will consume a portion of the new capacity. Influent flows exceeded the monthly average by more than 10% on at least 20 days during the first eight months of 2025.

Whereas NPDES Permit WV0022349, issued on August 23, 2021, and valid through June 2026, requires CTUB to produce a plan of action demonstrating how insufficient capacity will be addressed if the facility discharges 90% or more of permitted flow for three consecutive months.

Whereas reserve capacity is not available for new taps and therefore cannot be allocated toward CIF recovery.

Therefore, the Charles Town Utility Board recommends that the City Council adopt 90% of the total new capacity, rounded to **2.475 MGD,** as the net capacity available for new growth for purposes of calculating the Capacity Improvement Fee.

Charles Town Utility Board				
2025 Influent totals by day correlated to precipitation				
Date	Gallons/Day in millions	Varience from Average	Varience %	5 day rolling avge
2025-06-18	1.530	0.442	28.9%	0.53
2025-06-19	1.500	0.412	27.5%	0.58
2025-05-28	1.410	0.322	22.8%	0.58
2025-05-31	1.400	0.312	22.3%	0.45
2025-05-13	1.370	0.282	20.6%	0.45
2025-06-20	1.370	0.282	20.6%	0.61
2025-06-21	1.300	0.212	16.3%	0.47
2025-05-14	1.290	0.202	15.7%	0.37
2025-06-01	1.290	0.202	15.7%	0.35
2025-06-16	1.290	0.202	15.7%	0.35
2025-08-24	1.261	0.173	13.7%	0.07
2025-05-30	1.260	0.172	13.7%	0.06
2025-05-15	1.250	0.162	13.0%	0.05
2025-05-18	1.250	0.162	13.0%	0.17
2025-06-22	1.250	0.162	13.0%	0.34
2025-08-17	1.239	0.151	12.2%	0.30
2025-05-04	1.230	0.142	11.5%	0.30
2025-06-08	1.220	0.132	10.8%	0.30
2025-08-10	1.205	0.117	9.7%	0.17
2025-01-26	1.204	0.116	9.6%	0.00
2025-01-05	1.201	0.113	9.4%	0.00
2025-05-16	1.200	0.112	9.3%	0.00
2025-06-24	1.200	0.112	9.3%	0.00
2025-01-04	1.198	0.110	9.2%	0.00
2025-01-12	1.198	0.110	9.2%	0.01
2025-02-23	1.190	0.102	8.6%	0.02
2025-06-15	1.190	0.102	8.6%	0.07
2025-07-27	1.185	0.097	8.2%	0.16
2025-05-17	1.180	0.092	7.8%	0.16
2025-05-29	1.180	0.092	7.8%	0.20
2025-06-02	1.180	0.092	7.8%	0.19
2025-06-09	1.180	0.092	7.8%	0.14
2025-06-14	1.180	0.092	7.8%	0.07
2025-06-25	1.180	0.092	7.8%	0.07
2025-06-29	1.180	0.092	7.8%	0.03
2025-07-16	1.174	0.086	7.3%	0.08
2025-07-20	1.172	0.084	7.2%	0.08
2025-01-01	1.170	0.082	7.0%	0.29
2025-05-19	1.170	0.082	7.0%	0.06
2025-06-23	1.170	0.082	7.0%	0.06
2025-01-25	1.166	0.078	6.7%	0.00
2025-07-19	1.162	0.074	6.4%	0.00
2025-01-10	1.161	0.073	6.3%	0.01

Sewer Project Cost Per Unit

Incremental	Cost
Cost of Expansion to be Recovered	$39,730,854
Total Capacity Added (MGD)	2.475
Cost per Gallon per Day (GPD)	$16.05

Subtract 10% of total capacity added for reserve.

3

Capacity Improvement Fee

Incremental	Cost
Water GPD	$1,909
Sewer GPD	$3,371

4

4

Whereas the Raftelis study identifies the "Cost of Expansion to be Recovered" for water capacity projects,

Whereas the Charles Town Utility Board has determined that the inflation assumptions in the Raftelis study are insufficient in light of current U.S. Department of Labor inflation data and Federal Reserve forecasts,

Whereas the Board has adopted an 8.97% upward adjustment to the Sewer CIF cost basis to account for this additional inflation,

Whereas applying the same adjustment to the water capacity cost ensures consistent treatment of both water and sewer capacity improvement fees and protects existing ratepayers from subsidizing new development,

Therefore, the Charles Town Utility Board recommends that the City Council increase the "Cost of Expansion to be Recovered" for the Water Capacity Improvement Fee by **8.97%** above the baseline figure provided in the Raftelis study.

WEST VIRGINIA SECRETARY OF STATE

KRIS WARNER

ADMINISTRATIVE LAW DIVISION

eFILED
5/9/2025 10:58:32 AM

Office of West Virginia
Secretary Of State

NOTICE OF FINAL FILING AND ADOPTION OF A LEGISLATIVE RULE AUTHORIZED BY THE WEST VIRGINIA LEGISLATURE

AGENCY: Health TITLE-SERIES: 64-47

RULE TYPE: Legislative Amendment to Existing Rule: Yes Repeal of existing rule: No

RULE NAME: SEWAGE TREATMENT AND COLLECTION SYSTEM DESIGN STANDARDS

CITE STATUTORY AUTHORITY: W. Va. Code §16-1-4 and §16-1-9

The above rule has been authorized by the West Virginia Legislature.

Authorization is cited in (house or senate bill number) SB325

Section §64-5-1 Passed On 4/11/2025 12:00:00 AM

This rule is filed with the Secretary of State. This rule becomes effective on the following date:

July 1, 2025

This rule shall terminate and have no further force or effect from the following date:

August 01, 2030

BY CHOOSING 'YES', I ATTEST THAT THE PREVIOUS STATEMENT IS TRUE AND CORRECT.

Yes

Virginia M Payne -- By my signature, I certify that I am the person authorized to file legislative rules, in accordance with West Virginia Code §29A-3-11 and §39A-3-2.

10.9. A hotel or restaurant shall ensure that a grease trap manhole is closed and secured or locked, if applicable, at all times, except when accessed for pumping or maintenance.

§64-47-11. Administrative Due Process.

Those persons adversely affected by the enforcement of this rule desiring a contested case hearing to determine any rights, duties, interests, or privileges shall do so in a manner prescribed in the Rules of Procedure for Contested Case Hearings and Declaratory Rulings, 64 CSR 1.

§64-47-12. Enforcement.

This rule is enforced under W. Va. Code §16-1-6, §16-1-9, §16-1-17, §16-1-18 and other applicable code provisions.

TABLE 16-47-A.- APPLICATION PACKAGES

Package	Type of System
A	Collection System Only
B	Collection and Treatment System (100,000 gallons per day or less)
C	Collection and Treatment System (100,000 gallons per day or greater)
D	Individual on-site Sewage Collection and Treatment System
E	Subdivision Using Individual Sewage Disposal Systems
F	Mobile Home Parks

TABLE 64-47-B.- MINIMUM DESIGN LOADINGS FOR SEWAGE TREATMENT FACILITIES

Facility Description	Unit Sewage Design Flow (gpd)	Unit Five-Day BOD (lbs/day)
Airports		
Each employee	15	.05
Each passenger	5	.02
Assembly halls		
Per seat	2	.02
Bowling alleys (no food service)		
Per alley	75	.13
Per alley with bar	225	
**Brewery	2	.02
Per seat manufacture and sampling only	5	.04
Per seat with ABCA License for onsite consumption by the glass[1]		
Churches		
Per member with kitchen	5	.02
Per member without kitchen	2	.01
**Cidery	2	.02
Per seat manufacture and sampling only		
Per seat with ABCA License for onsite consumption by the glass[1]	5	.04

Facility Description	Unit Sewage Design Flow (gpd)	Unit Five-Day BOD (lbs/day)
Clinics		
Per staff	20	.03
Per patient	5	.02
Country clubs		
Per member (non-resident)	25	.05
Per member (resident)	70	.17
**Distillery	2	.02
Per seat manufacture and sampling only		
Per seat with ABCA License for onsite consumption by the glass[1]	5	.04
Domestic sewage		
Residences (per resident -a-)		
New collection system	70	.17*
Summer cottages, etc., per resident	50	.17
Apartment houses—one bedroom	140	.34
—two	210	.51
—three	280	.60
Factories (per worker)		
Heavy with café and shower	35	.04
Light with café	25	.02
Light with shower	25	.02
Light	20	.02
Hospitals		
Each patient (bedside)	300	.34
Each resident staff	100	.17
Each non-resident staff	20	.02
Hotels, boarding houses		
(Exclusive of restaurants, bars)		
per guest	50	.15
Industrial park (sanitary waste only)		
Per developable acre	500	.84
Institutions		
Per resident	70	.17
Laundry (coin operated)		
Per machine	400	1.34
Labor camps		
Per person	50	
Mine bath houses		
Per worker	15	.03
Mobile homes		
Per mobile home	280	.68
Motels (exclusive or restaurant or bar)		
Per unit	80	.15
Nursing and rest homes		
Per resident	150	.26
Per resident staff	70	.17
Offices and warehouses		
Per workers, no food service	20	.03
Add for food service, per worker	5	.01

Facility Description	Unit Sewage Design Flow (gpd)	Unit Five-Day BOD (lbs/day)
Recreation		
Parks, picnic areas, and beach areas	10	.02
Campground, per person	25	.05
Amphitheater, per person	5	.01
Historical site, per person	5	.01
Lodges, per person	70	.17
Park residences, per person	70	.17
Park washhouse, per person	30	.05
Restaurants		
24-hour service, per seat	50	.17
Ordinary, not 24-hour service, per seat	30	.10
Curb service (drive-in), per car space	50	.17
Fast food (single service), per seat	25	.06
Schools		
Elementary, each staff or student	8	.02
High school, each staff or student	10	.03
Boarding school	70	.17
Service stations		
Ordinary, not 24-hour service	500	.80
24-hour service	1000	1.60
Shopping mall per 100 sq. ft.	15	.03
Shopping center Based on individual store occupancy		
Swimming pools		
Per swimmer	5	.01
Add for shower facilities, per swimmer	2	.01
Taverns and bars, little or no food service		
Per seat	20	.04
Theaters		
Drive-in, per car space	4	.008
Movie, per seat	2	.004
Travel Trailer Park (b)		
No water to site, per person	35	.075
Water to site, per person	50	.10
**Winery	2	.02
Per seat manufacture and sampling only	5	.04
Per seat with ABCA License allowing on site consumption by the glass [1]		
Disco/Dance Halls, per seat	5	.01
Beauty parlors/barber shops		
Per chair	150	.50
Per operator	20	.02
Dentist		
Per chair	200	.10
Per staff	20	.02
Doctor		
Per patient	5	.01
Per staff	20	.02

Facility Description	Unit Sewage Design Flow (gpd)	Unit Five-Day BOD (lbs/day)
(a) Assume four persons per residence		
(b) Assume three persons per travel trailer site		

*See subsections 5.1.d.3., 5.1.d.4., 5.1.d.5.
** A calculation should be based upon an average of winter (November – March) usage and summer (April – October) usage

[1] Requirement of the ABCA License is that there must be food offered for sale onsite by the facility or an outside food or mobile food vendor

(NOTE 1: These factors do not apply to the design of municipal sewage systems. Refer to subsection 6.1. for design loadings for municipal sewage systems.)

(NOTE 2: If proposed facilities are not listed in the table above, and average daily water usage data is available, a peaking factor of 2.5 shall be required.)

(NOTE 3: Five-Day BOD, BOD_5 or BOD5 is the scientific method used to accurately measure dissolved oxygen consumption, by comparison of dissolved oxygen in a sample at the beginning and at the end of a five-day period.)

TABLE 64-47-C.- MINIMUM SLOPES FOR SANITARY SEWERS

Sewer Size	Minimum Slope in feet per 100 feet
6"	0.62
8"	0.40
10"	0.28
12"	0.22
14"	0.17
15"	0.15
16"	0.14
18"	0.12
21"	0.10
24"	0.08
27" and larger	0.07

Sewer Project Cost Per Unit

Incremental	Cost
Cost of Expansion to be Recovered	$39,730,854
Total Capacity Added (MGD)	2.475
Cost per Gallon per Day (GPD)	$16.05

5

Capacity Improvement Fee

Incremental	Cost
Water GPD	$1,909
Sewer GPD	$4,495

Increase GPD per residence to 280 per WV State design standard.

16.053 * 280 = 4494.84

6

Whereas the Raftelis study identifies the "Cost of Expansion to be Recovered" for water capacity improvement projects,

Whereas the Charles Town Utility Board has determined that the inflation assumptions in the Raftelis study are insufficient in light of current U.S. Department of Labor inflation data and Federal Reserve forecasts,

Whereas the Board has adopted an 8.97% upward adjustment to the Sewer CIF cost basis to account for this additional inflation,

Whereas applying the same adjustment to the water capacity cost ensures consistent treatment of both water and sewer capacity improvement fees and protects existing ratepayers from subsidizing new development,

Therefore, the Charles Town Utility Board recommends that the City Council increase the "Cost of Expansion to be Recovered" for the Water Capacity Improvement Fee by **8.97%** above the baseline figure provided in the Raftelis study.

Water Project Cost Per Unit

Incremental	Cost
Cost of Expansion to be Recovered	$21,787,632
Total Capacity Added (MGD)	2.2
Cost per Gallon per Day (GPD)	$9.90

Inflation adjustment to 2.5% per year for five years

7

Capacity Improvement Fee

Incremental	Cost
Water GPD	$2,079
Sewer GPD	$4,495

8

Whereas the Raftelis study identified a capacity increase of 2.2 million gallons per day from planned water system improvements,
Whereas prudent utility practice requires that capacity calculations account for distribution system realities, including water loss and unbilled water,
Whereas the Charles Town Utility Board's annual reports document an average **lost water rate of approximately 7%**,
Whereas additional accounted-for but unsold water, including hydrant flushing, fire protection use, and water lost during periodic repairs, contributes further to unrecoverable capacity demands beyond the measured lost water rate,
Whereas these factors together reasonably require a reduction of at least **10%** to the theoretical 2.2 MGD capacity increase identified in the study,
Therefore, the Charles Town Utility Board recommends that the City Council adopt **2.0 MGD** as the net capacity available for new growth for purposes of calculating the Water Capacity Improvement Fee.

Water Project Cost Per Unit

Incremental	Cost
Cost of Expansion to be Recovered	$21,787,632
Total Capacity Added (MGD)	2.0
Cost per Gallon per Day (GPD)	$9.90

Capacity reduced by 10% for lost water

9

Capacity Improvement Fee

Incremental	Cost
Cost of Expansion to be Recovered	$21,787,632
Total Capacity Added (MGD)	2.0
Cost per Gallon per Day (GPD)	$9.90

Incremental	Cost
Water	$2,773
Sewer	$4,495

10

Response #2

Sewer CIF Funded Project Budget
August 31, 2025

Project:	CIF Funds Allocated	CIF Acct Disbursements	Balance 8/31/2025
Renewal and Replacement Project (Completed)	1,170,163.00	(1,170,163.00)	-
Job Corp Pump Station Upgrades (Completed)	80,997.00	(80,997.00)	-
Collection System Project	3,267,824.64	(1,159,096.05)	2,108,728.59
Flowing Springs Pump Station Upgrade	1,000,000.00	-	1,000,000.00
Greenfield Forcemain Project & PS Upgrade	1,360,000.00	(148,094.69)	1,211,905.31
CTWWTP Upgrades and Expansion - Preliminary Eng. Report	55,000.00	(43,106.67)	11,893.33
Fairfax Parallel Line/Collector Projects	2,500,000.00	-	2,500,000.00
	$ 9,433,984.64	**$ (2,601,457.41)**	**$ 6,832,527.23**

CIF Cash Account Detail:

CIF Cash Account Balance as of 08/31/2025:	9,077,305.68
Less: Remaining Funds Allocated and Not Paid from CIF Acct	(6,832,527.23)
Balance available for future projects:	**$ 2,244,778.45**

Projects above (excluding R&R & CS project) are based on cost estimates and not bids.

CIF Cash Account Detail:

CIF Cash Account Balance as of 08/31/2025:	8,382,227.12
Less: Remaining Funds Allocated and Not Paid from CIF Acct	-
Balance available for future projects:	**$ 8,382,227.12**

Response #3

Future Development Projections

In addition to the historical information that was provided, future development forecasts were obtained from the City of Charles Town, City of Ranson and Jefferson County Department of Planning Zoning and Engineering that will be monitored to determine necessary improvements to the sewer system. For the purposes of these future projections an average annual build-out of 30 units per year for larger subdivisions/developments is being used for those developments that have surpassed the Concept Plan stage. For those developments that have not entered the design phase but may still come to fruition, a projection of an average built-out of 20 units per year is being used. These averages are based on the most recent historical trends of building within the County. These projections may vary depending on various economic factors such as growth and development trends. Details of the projections are presented in Table 1.2 and known historical data has been utilized for future volumetric capacity forecasting. A full copy of the Development Forecast is included in Appendix A. Refer to Exhibit 1-2 in Appendix C for the location of projected developments.

The housing market in the region has experienced tremendous growth over the past three years and continues in an upward trend with several large housing developments currently under construction. Commercial growth has also seen significant upward trends since the development of the last SSP.

Table 1.2 -CTUB Sewer Strategic Plan 2024 Development Forecast

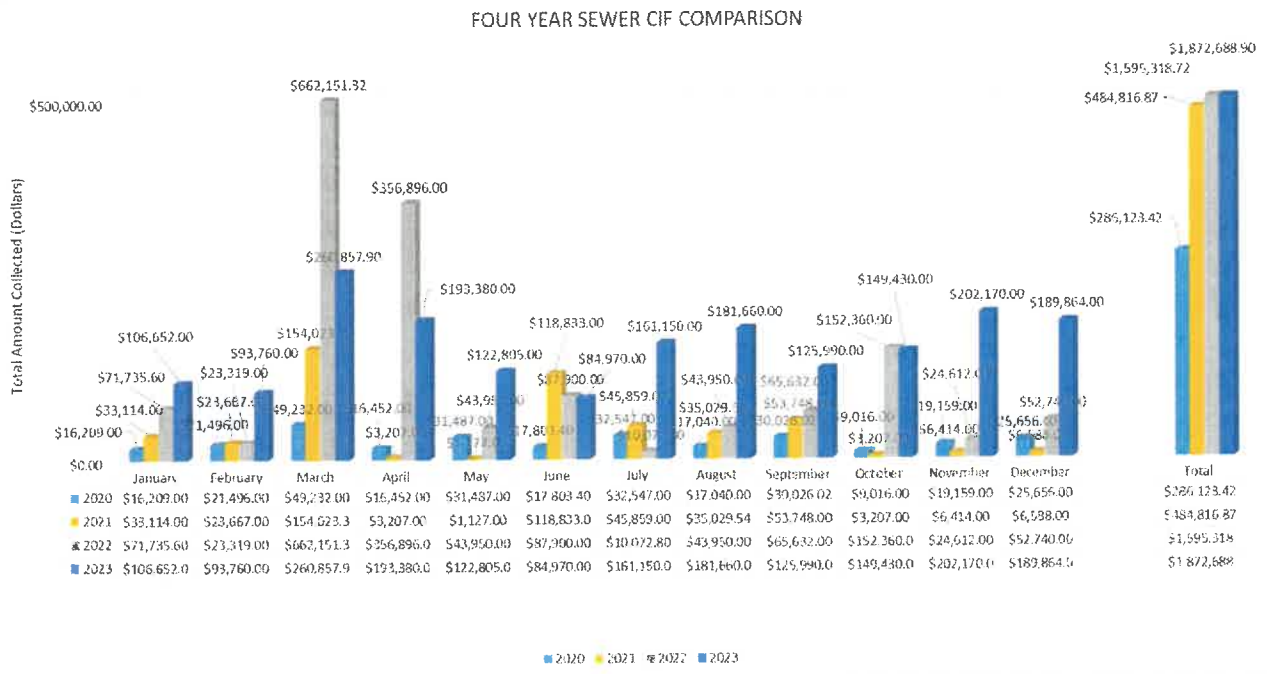
	Development	Total Design EDUs	Total Built as of 2024	20 year forecast to be built	Total Flow	Beyond 20 year forecast	Year 1 2024	Year 2 2025	Year 3 2026	Year 4 2027	Year 5 2028	Year 6 2029	Year 7 2030	Year 8 2031	Year 9 2032	Year 10 2033	Years 11-20 2034-2043	TOTAL @ Year 20	TOTAL REMAINING
1	Aspen Green	203	85	118	30,450	0	30	30	30	28	0	0	0	0	0	0	0	118	0
2	Beallair	372	176	196	55,800	0	30	30	30	30	30	30	16	0	0	0	0	196	0
3	Blackford Village/Tackley Mill	500	0	500	75,000	0	0	0	0	0	0	0	0	20	20	20	200	260	240
4	Briar Run	164	126	38	24,600	0	30	8	0	0	0	0	0	0	0	0	0	38	0
5	Burr Industrial Park & Bardane	200	178	22	30,000	0	3	3	3	3	3	3	3	1	0	0	0	22	0
6	Cambridge	134	92	42	20,100	0	3	3	3	3	3	3	3	3	3	3	12	42	0
7	Cantor Hollow	124	0	124	18,600	0	0	0	30	30	30	34	0					124	0
8	Charles Town Infill	250	38	212	37,500	112	5	5	5	5	5	5	5	5	5	5	50	100	112
9	Clayhill Farm	300	0	300	45,000	0	0	0	0	0	0	20	20	20	20	20	200	300	0
10	Country Club Commons	8	0	8	1,200	0	0	0	1	1	1	1	1	1	1	1	0	8	0
11	Fairview	450	0	450	67,500	0	0	0	30	30	30	30	30	30	30	30	210	450	0
12	Harvest Hills	392	6	386	58,800	166	0	0	0	0	0	0	0	0	0	20	200	220	166
13	Huntfield	3,200	554	2,646	480,000	2,046	30	30	30	30	30	30	30	30	30	30	300	600	2046
14	Huntwell West	350	26	324	52,500	0	30	30	30	30	30	30	30	30	30	30	24	324	0
15	Jefferson Orchards	888	0	888	133,200	688	0	0	0	0	0	0	0	0	0	0	200	200	688
16	Kable Townhomes	22	0	22	3,300	0	0	22	0	0	0	0	0	0	0	0	0	22	0
17	King's Crossing	404	58	346	60,600	0	30	30	30	30	30	30	30	30	30	30	46	346	0
18	Locust Knoll	300	0	300	45,000	0	0	0	20	20	20	20	20	20	20	20	140	300	0
19	Magnolia Springs	300	259	41	45,000	0	41	0	0	0	0	0	0	0	0	0	0	41	0
20	Norborne Glebe	1,050	626	424	157,500	0	30	30	30	30	30	30	30	30	30	30	124	424	0
21	Old Town Ranson - Infill	250	10	240	37,500	90	10	10	10	10	10	10	10	10	10	10	50	150	90
22	Orchard Springs	270	0	270	40,500	0	0	30	30	30	30	30	30	30	30	30	0	270	0
23	Potomac Marketplace	54	2	52	8,100	0	5	5	5	5	5	5	5	5	5	5	2	52	0
24	President's Pointe	1,100	233	867	165,000	267	30	30	30	30	30	30	30	30	30	30	300	600	267
25	Prospect Place	170	0	170	25,500	0	0	0	0	0	9	9	25	25	25	25	52	170	0
26	Ranson Gateway / Boulevard	1,175	0	1,175	176,250	815	0	0	20	20	20	20	20	20	20	20	200	360	815
27	Ranson Heights	428	0	428	64,200	0	30	30	30	30	30	30	30	30	30	30	128	428	0
28	Red Clover Meadows (formerly Lloyd Property)	258	0	258	38,700	0	30	30	30	30	30	30	30	30	18	0	0	258	0
29	Shenandoah Springs	705	285	420	105,750	0	30	30	30	30	30	30	30	30	30	30	120	420	0
30	Spring Hill	588	0	588	88,200	48	0	0	30	30	30	30	30	30	30	30	300	540	48
31	Stonecrest	320	0	320	48,000	0	30	30	30	30	30	30	30	30	30	30	20	320	0
32	Stone Spring (formerly Fritts Property)	328	0	328	49,200	0	30	30	30	30	30	30	30	30	30	30	28	328	0
33	Washington Landing	274	204	70	41,100	0	70	0	0	0	0	0	0	0	0	0	0	70	0
34	Windmill Crossing	150	146	4	22,500	0	1	1	1	1	0	0	0	0	0	0	0	4	0
35	Lakeland Place	464	0	464	69,600	0	0	0	30	30	30	30	30	30	30	30	224	464	0
36	Shoemaker Property	300	0	300	45,000	0	0	0	30	30	30	30	30	30	30	30	60	300	0
37	WVU Medical	500	0	500	75,000	50	0	0	0	0	0	30	30	30	30	30	300	450	50
38	Hillside	150	0	150	22,500	0	0	30	30	30	30	30	0	0	0	0	0	150	0
39	Vinton Property	300	0	300	45,000	0	0	0	30	30	30	30	30	30	30	30	60	300	0
	Total Projected Development	16,145	3,104	14,291	2,541,750	4,232	528	447	548	546	526	550	518	520	507	509	3,130	8,569	4,472

Capacity Improvement and Development Fees

Capacity Improvement fees (CIF's) are one-time charges assessed against new wastewater customers or developers/builders to recover a proportional share of capital costs incurred to provide capacity for the new utility customers. CTUB completed a CIF study that was completed in December 2021 which set the Sewer CIF at $2,930.00 per equivalent dwelling unit (or per single family home).

A high-level assessment with this study provides the Board with assurance that the CIF fee remains consistent with the CIF study based on changes incorporated in this document. Additional projects will be considered to ensure that the CIF remains in alignment. The Board intends to evaluate the CIF every 3 years.

The following is chart depicts a four-year comparison of sewer capacity fees collected:



PROJECT REVIEW

Completed Projects

Since the last issuance of the SSP, significant improvements have been made throughout the treatment and collection system. Necessary upgrades and improvements to the CTWWTP and TWWTP were completed to address WVDEP Inspection requirements as well as operation and maintenance improvements to the collection and pump station network have been made as a result of consolidation into a regional utility. These improvements include elimination of pump stations through installation of gravity lines which reduce operation and maintenance expenses as well as projects that address rehabilitation of aging pump stations and lines to further reduce utility expenses.

Table 5.1: Projects Completed since 2021 SSP

Year	Project Description
2021	NPDES Permit Reissuance
2021	Completed 1st step in rate equalization
2021	Completed Manhole assessment
2021	$1,966,030 EEG Grant received for the Renewal and Replacement Project
2021	Decommissioned Hale Road and County Green Pump Stations
2021	Initiated and Completed Sewer Capacity Improvement fee assessment
2022	Issue Notice to Proceed on Renewal and Replacement Project in September 2022
2022	Cave Road and Shenandoah Junction Distressed Utility assistance
2022	Initiate Greenfield Force main upgrade project
2023	Received $1,620,000 EEG Grant from IJDC for the Collection System Project
2023	Completed Class Cost of Service Study on rates
2023	Wendy's Pump Station Upgrades
2023	Basin Cleaning at Charles Town Wastewater Plant
2024	Completed rate equalization of all rates in January 2024

It should be noted that since the last SSP several key projects have either been completed or are no longer viable projects for CTUB. Specifically, the initial phases of Inflow and Infiltration studies and sewer modeling efforts were completed. Additionally, the Shenandoah Junction and Cave Road distressed utility connections were deemed part of the Jefferson Utility acquisition by West Virginia American Water therefore they are no longer part of planning efforts for CTUB.

Current Development and Projects

There are numerous on-going sewer projects that CTUB is evaluating:

2022 Collection System Project (formerly JCPSD Flowing Springs Project/Modified Flowing Springs Plan)

CTUB is working with RK&K and various consultants to finalize this project and is currently in the process of obtaining easements for the project. The engineer's construction cost estimate for this project is currently $8,283,000. CTUB has received a grant award in the amount of $1,620,000. CTUB also anticipates contributing approximately $3,000,000.00 towards the project from Capacity Improvement Fees. Funding for the Project consists of (i) a $3,575,000 USDA RD loan at a 2.5 percent interest rate over 40 years. And (ii) a WVDEP SRF loan of $2,844,984 at .25 percent interest, and a .25 percent administrative fee for a term up to 40 years, and debt forgiveness in the amount of $500,000 per the January 17, 2017 WVDEP assurance letter. During the consolidation of utilities, CTUB committed to the WV PSC completing necessary components of the Flowing Springs project through submission of a Modified Flowing Springs Plan in March 2018. Since the utility consolidation and completion of the Route 9 sewer project, CTUB has evaluated efficiencies and operational alternatives to significantly reduce components and costs of the Modified Flowing Springs Plan. The Flowing Springs Project and Modified Flowing Springs plan have evolved into a 2025 Collection System projects which consists of necessary improvements to the CTUB collection system. Table 5.2 includes a summary of the anticipated components and costs of this project.

2021 Renewal and Replacement Project for CTWWTP and TWWTP

In 2022, CTUB issued the Notice to Proceed on the Renewal and Replacement Project for the Charles Town Wastewater Treatment Plant. This project was awarded to Alvarez Contractors, Inc. in the amount of $10,151,000.00. The project was designed by Gwin, Dobson and Foreman, Inc. (GDF) and included improvements to the following:

- Headworks screening
- The influent and effluent pump stations
- UV disinfection system
- Supervisory Control and Data Acquisition (SCADA) system modifications
- Solids Handling upgrade to Centrifuge
- New Electrical Building and electrical throughout the plant
- Implementation of full sludge digestion
- FRP Shelter installation for electrical components.

The Renewal and Replacement project is approximately 75% complete with several key electrical components waiting to be shipped. Although the project was expected to be substantially complete by June 2024, however it appears that these delays will impact the schedule and delay substantial completion by several months. The project continues to be within budget.

Table 5.2 below illustrates the anticipated costs associated with the current and future projects:

Table 5.2: 2024 Project Estimate Summary

WASTEWATER TREATMENT PLANT PROJECTS

Wastewater Treatment projects	Costs
Renewal and Replacement Project (Near Completion end of 2024)	$12,135,000.00
Preliminary Engineering for Plant expansion	$50,000.00
Blue-Nite Sand Filter Rehabilitation	$200,000.00
Maintenance Shop (split with Water Operations)	$250,000.00
Future Plant Projects	
CTWWTP Upgrades and Expansion (2030)	$20,500,000.00
Total Wastewater Plant Project Costs	**$33,135,000.00**

Collection System Projects	Costs
RK&K Task 7 Parkview MHP Pump Station Decommission	In-house (COMPLETED)
RK&K Task 7 Lloyd's Flat Pump Station Decommission	In-house (COMPLETED)
Upgrades to Existing Wendy's Pump Station	In-house (COMPLETED)
2022 Collection System Project	
Burr East Pump Station	$910,900.00
Moose Lodge	$426,400.00
Jett's Farm	$721,100.00
Lakeland Place	$1,257,800.00
Jefferson Memorial Park Collector	$332,500.00
Evitt's Run Collector	$1,668,400.00
Flowing Spring Pump Station (Possible Bid Alternate)	$2,965,900.00
Collection System Engineering, Legal, Design	$1,275,000.00
RK&K Collection System Project Total	**$9,558,000.00**
Future CTUB Collection System Projects	**Costs**
Cantor Hollow Pump Station	$145,000.00
Greenfield	$1,100,000.00
Greenfield Pump Station	$370,000.00
Fairfax Parallel Line/Collector Project	$510,000.00
2026/2027 Collection system project	$3,000,000.00
Collections Project and Pump Stations Project (2031)	$3,250,000.00
Total 2022 and Future Collection System Project Costs	**$17,933,000.00**

Total Plant and Collection Projects	**$51,068,000.00**

Future Projects

CTUB is actively working on various projects that will result in more operational efficiencies, tracking and growth of the utility system. CTUB continues to keep the sewer hydraulic model updated and follows changes in growth that may impact the collection and transmission system growth related projects. CTUB has developed a 10-year Capital Improvement Plan (CIP) Expenditure Plan to track capital projects and expenditures. The CIP prioritizes planning projects that are needed as a result of the following factors:

- Regulatory Compliance
- Condition/Probability of Failure
- Consequences of Failure/Risk
- Capacity / System Operational Efficiencies
- Improved Operations and Maintenance costs
- Safety
- Design Life / Best Replacement Practices
- Redundancy / Reliability
- Opportunity Projects
- Development Extensions

The CTUB Asset Management Plan will be updated to assist with the development and maintenance of a CIP over the next several years. CTUB is continuing to evaluate conversion to a software program that will provide cohesive interaction between accounting, billing, asset management and maintenance programming for all facilities.

CTWWTP Plant Expansion

Expansion of the CTWWTP is expected within the next 10 years based on the historical flow data in Table 1.4 as well as the development projections detailed in Table 1.2. Design efforts will be initiated in 2024/2025.

There are various factors that need to be evaluated with an expansion of the CTWWTP including location, size, type of facility and environmental protection. An expansion from 1.75 MGD is estimated to cost approximately $18 to $23 million in today's dollars. Every effort will be made to provide the most cost-effective design to minimize any burden to ratepayers.

RATE EQUALIZATION, FUNDING AND FINANCIAL OPTIONS

Rate Equalization

During the consolidation of utilities, the City of Charles Town agreed to exercise its best efforts to equalize the rates and charges for water service of all water and sewer customers within 10 years after the closing date. In January 2024, CTUB completed this obligation nearly 5 years ahead of schedule. CTUB continues to maintain a positive financial position. The ability to equalize rates well in advance of the 10-year mark demonstrates the benefits of the consolidation efforts.

The Class Cost of Service Study performed in 2023 identified several rate adjustments necessary for sewer. No rate increase was necessary however the rate tariff structure was revised to more appropriately align the various rates with the customer classes.

CTUB continues to maintain a minimum debt/service coverage ratio of 130%. The debt service coverage ratio required by bondholders for the combined utility is 115%.

Funding and Financial Planning

CTUB has successfully initiated the Renewal and Replacement project at the Charles Town Wastewater Plant. In addition, CTUB is nearing completion of the 2021 Collection System Project and expects to have the project out to bid in the summer of 2024.

CTUB continues to pursue a strategy for funding upgrades and expansion in a manner that will minimize the burden to the current and future ratepayers. CTUB intends to fund the costs for the above projects through conventional rate impacts, payment of prior bonds and Capacity Improvement Fees. The development of a capital improvement plan will identify future capital purchases that are necessary for the operation of the sewer system. CTUB continues to update the Capital Improvement Plan that will identify system needs and will aid in the evaluation of the Capacity Improvement fees. The next evaluation of Capacity Improvement Fees is anticipated to be underway in 2025.

Future CTWWTP expansion is expected to be necessary within the next 10 years. This will require a significant capital outlay and funding strategies in a future SSP and project discussion. It is anticipated that plant expansion could range from $18 to $23 million.

Charles Town Utility Board
Capital Improvement Plan FY26

Water Treatment and Distribution System Capital Improvement Projects					
Project Number	**Project Name**	**Department**	**Phase A - 2024-2026**	**Phase B - 2027-2028**	**Phase C - 2029-2032**
Main Zone Improvements					
PR-MZ-01	Charles Town RaceTrack	Water	$ 88,000.00		
PR-MZ-02	Fritts & Old Town Ranson	Water		$ 647,500.00	
PR-MZ-04	Church Street	Water	$ 595,000.00		
PR-MZ-05	South George Street	Water	$ 279,000.00		
PR-MZ-06	Water Street	Water			$ 240,000.00
PR-MZ-07	Route 340	Water		$ 1,200,000.00	
PR-MZ-16	West Academy Tie	Water	$ 88,000.00		
Total Main Zone Improvements			$ 1,050,000.00	$ 1,847,500.00	$ 240,000.00
Northern High Zone Improvements					
PR-NZ-05	East 10th Street	Water	$ 298,000.00		
PR-NZ-06	Burns Street PS Upgrade	Water		$ 1,175,333.33	
Total Northern High Zone Improvements			$ 298,000.00	$ 1,175,333.33	$ -
Huntfield Zone Improvements					
PR-HZ-01	Augustine Avenue PS Discharge	Water		$ 298,000.00	
PR-HZ-05	Augustine Avenue PS Upgrade	Water		$ 780,000.00	
Total Huntfield Zone Improvements			$ -	$ 1,078,000.00	$ -
Water Treatment Plant and Associated Projects					
PR-WTP-01	Well Development/Spring Source Construction	Water			$ 1,614,900.00
PR-WTP-02	WTP Chlorine Room Upgrades	Water	$ 401,910.00		
PR-WTP-04	WTP Sludge Forcemain/Pump Station	Water	$ 915,588.00		
PR-WTP-05	Intake Construction Cost	Water			$ 1,265,000.00
PR-WTP-06	WTP Upgrade	Water			$ 50,000,000.00
Total Huntfield Zone Improvements			$ 1,317,498.00	$ -	$ 52,879,900.00
Water Capital Project Improvements		**Total**	**$ 2,665,498.00**	**$ 4,100,833.33**	**$ 53,119,900.00**

Wastewater Treatment and Collection System Capital Improvement Projects					
Project Number	**Project Name**	**Department**	**Phase A - 2024-2026**	**Phase B - 2027-2028**	**Phase C - 2029-2032**
Wastewater Treatment Plant Projects					
PR-WW-01	Renewal and Replacement Project	Sewer	$ 12,131,815.92	$ -	$ -
PR-WW-02	CTWWTP Upgrades and Expansion	Sewer	$ 55,000.00	$ -	$ 50,000,000.00
PR-WW-03	Blu-Nite Sand Filters @ CTWWTP	Sewer	$ 200,000.00	$ -	$ -
Total Wastewater Treatment Plant Projects			$ 12,386,815.92	$ -	$ 50,000,000.00
Collection System Projects					
PR-CS-01	Collection System Project	Sewer	$ 7,665,544.00	$ -	$ -
PR-CS-02	Flowing Springs Pump Station Upgrade	Sewer	$ -	$ 1,000,000.00	$ -
PR-CS-03	Greenfield Forcemain & Pump Station Upgrades	Sewer	$ 1,360,000.00	$ -	$ -
PR-CS-04	Cantor Hollow Pump Station	Sewer	$ 145,000.00	$ -	$ -
PR-CS-05	Asbury Church Area - Sewer Main Replacement	Sewer	$ 1,215,146.00	$ -	$ -
PR-CS-06	Fairfax Crossing Parallel Line/Collector Projects	Sewer	$ -	$ 2,500,000.00	$ -
PR-CS-07	Collections System Upgrade	Sewer	$ -	$ 3,000,000.00	$ -
PR-CS-08	Collections Pump Stations Project	Sewer	$ -	$ -	$ 3,500,000.00
Total Collection System Projects			$ 10,385,690.00	$ 6,500,000.00	$ 3,500,000.00
Wastewater Capital Project Improvement Projects		**Total**	**$ 22,772,505.92**	**$ 6,500,000.00**	**$ 53,500,000.00**

General Facilities Maintenance					
Project Number	**Project Name**	**Department**	**Phase A - 2024-2026**	**Phase B - 2027-2028**	**Phase C - 2029-2032**
	Maintenance Building	Water/Sewer	$ 935,000.00	$ -	$ -
General Facilities Maintenance		**Total**	**$ 935,000.00**	**$ -**	**$ -**

RAFTELIS

October 17, 2025

Ms. Kristen M. Stolipher
Utility General Manager
Charles Town Utility Board
Charles Town, WV 25414

Subject: 2025 Capacity Improvement Fee Study Update

Dear Mrs. Stolipher:

Raftelis Financial Consultants, Inc. (Raftelis) has completed an evaluation to develop cost-justified water and sewer capacity improvement fees (CIF) for fiscal year (FY) 2025 for consideration by Charles Town Utility Board (CTUB). This report documents the results of the analysis, which was based on an approach for establishing capacity improvement fees set forth according to Public Service Commission (PSC) of West Virginia, and industry standard methodologies as published by the American Waterworks Association (AWWA). The purpose of this report is to summarize Raftelis' analysis related to cost justified water and sewer capacity improvement fees. It is not intended to address anything else associated with the capacity improvement fees, such as the administration of these fees, etc.

The preparation of this report was developed by Raftelis for CTUB based on a specific scope of work agreed to by both parties. The scope of Raftelis' work consisted of completing a calculation of cost justified water and sewer CIFs using common industry practices and industry standards. We provide no opinion on the legality of the capacity improvement fees implemented by CTUB. It is the responsibility of the Town to ensure compliance of the capacity improvement fees with the West Virginia PSC. The scope of work does did not include any additional work other than the calculation associated with the capacity improvement fees, such as opinions or recommendations on the administration of these fees, the timing and use application of revenues from the collection of these fees, etc., as that is the responsibility of CTUB.

In developing the conclusions contained within this report, Raftelis has relied on certain assumptions and information provided by CTUB staff and CTUB's engineer, who are most knowledgeable of the water and sewer system, its finances, etc. Raftelis has not independently verified the accuracy of the information provided by staff and engineer. We believe such sources are reliable and the information obtained to be reasonable and appropriate for the analysis undertaken and the conclusions reached. The conclusions contained in this report are as of the stated date, for a specific use and purpose, and made under specific assumptions and limiting conditions. The reader is cautioned and reminded that the conclusions presented in this report apply only to the effective date indicated. Raftelis makes no warranty, expressed or implied, with respect to the opinions and conclusions contained in this report. Any statement in this report involving estimates or matters of opinion, whether or not specifically designated, are intended as such, and not as a representation of fact.

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Charlotte, NC 28202
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Background

Capacity improvement fees are one-time charges assessed to new water and sewer customers for their use of system capacity and serve as an equitable method by which to recover up-front capacity costs from those using the capacity.

In general, capacity improvement fees are calculated based on (1) a cost analysis of the existing or planned infrastructure that is in place, or will be constructed, to serve new capacity demands, and (2) the existing or additional capacity associated with these assets.

There are three methodologies that could be used to calculate capacity improvement fees. These include the Buy-In method, the Incremental Cost method, and the Combined cost method. A description of each of these methods is included in the following paragraphs:

Buy-In Method:

Under the Buy-In Method, a capacity fee is calculated based on the proportional cost of each user's share of existing system capacity. This approach is typically used when existing facilities can provide adequate capacity to accommodate future growth. The cost of capacity is derived by dividing the estimated value of existing facilities by the current capacity provided by existing facilities. Adjustments to the value of existing facilities are made for developer contributed assets, grant funds, and outstanding debt.

Incremental Cost Method:

Under the Incremental Cost Method, also referred to as the Marginal Cost Method, a capacity fee is calculated based on a new customer's proportional share of the incremental future cost of system capacity. This approach is typically used when existing facilities have limited or no capacity to accommodate future growth. The cost of capacity is calculated by dividing the total cost of growth-related capital investments by the additional capacity provided as a result of the investments.

Combined Method:

Under the Combined Method, a capacity fee is calculated based on the blended value of both the existing and expanded system capacity. This method is typically used when existing facilities provide adequate capacity to accommodate a portion of the capacity needs of new customers, but significant investment in new facilities to address a portion of the capacity needs of future growth is also anticipated, or where some capacity is available in parts of the existing system, but incremental capacity will be needed for other parts of the system to serve new customers at some point in the future.

While capacity fees were calculated using each of the three methods, Raftelis recommends that CTUB assess the fee based on the Incremental Cost Method. This recommendation is based on the system's current capacity, which will not be sufficient to accommodate the future growth of the area. CTUB has both Water and Sewer Plant Expansions planned within their Capital Improvement Plan (CIP). Thus, the Incremental Cost methodology is the most appropriate method at this time.

Calculation of CIFs

Step 1 – Examine Capital Improvement Plan to determine Projects Related to Growth

A copy of the CIP for both the water and sewer utilities was provided by Staff, containing costs through 2032. The CIP was reviewed together with staff and the Engineering Consultant, and each individual project was assigned a growth percentage. The plant expansion projects underwent a lengthy analysis component by component done by CTUB's Engineer, to calculate the specific costs related to adding new capacity versus replacing the old plant. The total water and sewer project costs and the associated growth allocations are in Table 1 and Table 2. These costs are as provided by Staff and Engineering, and are inclusive of inflation and contingency, therefore no further inflation or escalation was included in the costs. The total costs included in the study pertain only to those projects within the CIP that aid in creating capacity for growth in the system- any Replacement and Rehabilitation (R&R) projects cannot be included in the calculation. Any allocated project dollars realized through Grant Funding are also excluded from the calculation, as CTUB does not pay for those portions of the projects.

Table 1. Water Capital Improvement Plan

Water Growth Related CIP	Total Cost	Growth %	Total Cost Included
Charles Town RaceTrack	$ 88,000	50%	$ 44,000
Fritts & Old Town Ranson	647,500	100%	647,500
Church Street	595,000	70%	416,500
South George Street	279,000	30%	83,700
Water Street	240,000	30%	72,000
Route 340	1,200,000	50%	600,000
West Academy Tie	88,000	30%	26,400
East 10th Street	298,000	30%	89,400
Burns Street PS Upgrade	1,175,333	50%	587,667
Augustine Avenue PS Discharge	298,000	50%	149,000
Augustine Avenue PS Upgrade	780,000	50%	390,000
Well Development/Spring Source Construction	1,614,900	50%	807,450
WTP Upgrade 1	50,000,000	54%	27,000,000
Total Water Growth Projects	**$ 57,303,733**		**$ 30,913,617**

Table 2. Sewer Capital Improvement Plan

Sewer Growth Related CIP	Total Cost	Growth %	Total Cost Included
Renewal and Replacement Project	$ 10,165,786	10%	$ 1,016,579
CTWWTP Upgrades and Expansion 1	55,000	70%	38,500
CTWWTP Upgrades and Expansion 2	50,000,000	60%	30,000,000
Collection System Project	6,088,544	60%	3,653,126
Flowing Springs Pump Station Upgrade	1,000,000	70%	700,000
Greenfield Forcemain & Pump Station Upgrades	1,360,000	100%	1,360,000
Fairfax Crossing Parallel Line/Collector Projects	2,500,000	100%	2,500,000
Collections System Upgrade	3,000,000	70%	2,100,000
Collections Pump Stations Project	3,500,000	70%	2,450,000
Total Sewer Growth Projects	**$ 77,669,330**		**$ 43,818,205**

Next, the total growth related CIP net of Grants becomes the gross value of each system in calculating the CIFs. The next step in the calculation is to determine the net system value, which is calculated by subtracting future debt service credit from the gross system value. CTUB staff provided input about certain capital projects that will be funded with future planned Debt Service. The two projects to be funded using future Revenue Bond borrowing are the Water Treatment Plant Upgrade and the Sewer Treatment Plant Upgrade. Raftelis calculated planned future borrowings for the project start years based on a 30-Year term and a 5.00% interest rate for each borrowing. A discount rate based on the Utility's Weighted Average Cost of Capital (WACC) of 4.82% was applied to each planned borrowing's outstanding principal to generate a Net Present Value, calculated for a total of $10,919,461 credit for the water system, and $7,537,845 for the sewer system. The calculated Net Present Value (NPV) of the borrowings is then subtracted from the growth related CIP of the system to calculate the net system value. This value is removed from the calculation to avoid double charging new customers, who pay their portion of the Debt Service through their monthly water and sewer rates. Table 3 shows the resulting Net System Value Calculation for each Utility.

Table 3. Net System Value Calculation

Description	Water	Sewer
Growth Related CIP Net of Grants	$ 30,913,617	$ 43,818,205
Less: NPV of Future Debt	(10,919,461)	(7,357,845)
Net System Value	**$ 19,994,156**	**$ 36,460,360**

Step 2 – Calculate the Unit Cost of System Capacity

The cost per unit of system capacity was calculated by dividing the net system values (derived in Step 1) by the expected water and sewer system capacities added through the Growth Related CIP projects. The treatment capacity of the water system is currently 2.8 million gallons per day ("MGD"). The Water Treatment Plant Upgrade adds another 2.2 MGD of capacity to the existing system, bringing the total system capacity to 5.0 MGD. Only the expected added capacity is included in the Incremental Cost approach. Therefore, the cost per unit of system capacity for the water system was calculated to be $9.09 per gallon per day ($19,994,156 ÷ 2.2 MGD).

The treatment capacity of the sewer system is currently 2.25 MGD. The Sewer Treatment Plant Upgrade adds another 2.75 MGD of capacity to the existing system, bringing the total system capacity to 5.0

MGD. Only the expected added capacity is included in the Incremental Cost approach. Therefore, the cost per unit of system capacity for the sewer system was calculated to be $13.26 per gallon per day ($30,460,360 ÷ 2.75 MGD). The calculations are provided in Table 4.

Table 4. Calculation of Water and Sewer Capacity Improvement Fees Unit Cost

Description	Water	Sewer
Net System Value	$ 19,994,156	$ 36,460,360
Added System Capacity (MGD)	2.20	2.75
Unit Cost of Capacity ($ / gallon per day)	**$ 9.09**	**$ 13.26**

Step 3 – Estimate the Level of Service for each Equivalent Residential Unit (ERU)

West Virginia Code of State Rules recommends that there is a Level of Service (LOS) value of 70 gallons per day per person in a household for design purposes. The State Rules indicate using 4 people per household for calculating a residential equivalent unit, however the current Census data shows that households for Charles Town has an average of 2.76 people. Additionally, based on actual billing data provided by CTUB staff, the average annual use per household is 158 gallons per day, which when multiplied by a peaking factor of 1.40 generates a LOS of 210 GPD. This is similar to assuming 3 people per household at 70 gallons per person, which also calculates a LOS of 210 GPD. Therefore, since the Town is currently utilizing 150 GPD in their CIF calculation, Raftelis recommends adopting a LOS of 210 GPD for both the Water and Sewer CIFs.

Step 4 – Calculate the Capacity Improvement Fee for One ERU

The capacity improvement fee for one ERU was calculated by multiplying the unit cost of capacity from Step 2 by the calculated LOS from Step 3. The calculations are shown in Table 5. The water and sewer capacity improvement fees shown in Table 5 represent the maximum cost-justified capacity improvement fees for a 5/8" meter that can be assessed by CTUB based on the current data provided by CTUB staff and CTUB's Engineer.

Table 5. Calculation of Water and Sewer Capacity Improvement Fees per ERU

Description	Water	Sewer
Unit Cost of Capacity	$ 9.09	$ 13.26
Level of Service (GPD)	210.00	210.00
Calculated Capacity Improvement Fee	**$ 1,909**	**$ 2,784**

We appreciate the opportunity to assist Charles Town Utility Board with this important engagement. Should you have questions, please do not hesitate to contact me at 843-253-0357.

Very truly yours,

Mihaela Coopersmith,
Manager

RAFTELIS FINANCIAL CONSULTANTS, INC.

Charles Town Wastewater Treatment Plants

Improvements Necessary in Next Five (5) Years

Headworks

- The plant currently has no screening, compactor, vortex grit removal or grit classifier redundancy. Thus, these single equipment items are running continuously and wearing out quickly.
- There is not enough room in the building to construct redundant equipment, thus a new building is required similar and adjacent to the existing.
- New building would be almost identical to the existing in terms of construction and layout.
- Building construction cost $1.5 million
- Equipment construction cost $1.0 million
- Electrical, HVAC and plumbing construction cost $0.5 million

GD&F recommends constructing an entire new redundant headworks building similar and adjacent to the existing.

Estimated construction cost is $3.0M

SBR Splitter Box

- The existing splitter box features dual 24 feet adjustable weirs.
- The weirs collect a lot of debris and floatable solids thus affecting equal flow distribution through the SBR tanks.
- The weirs are extremely difficult to adjust, especially since they are submerged in wastewater.
- The flow through the SBR basins vary as such does the loading through each basin.
- GDF recommends a new splitter box with electrically actuated downward operating weir gates to adjust and evenly split the flow through each basin.

Estimated construction cost for a new SBR Splitter Box is $0.5M

SBR Basins

- Basins No. 1 and 2 were constructed in 1988 and No. 3 was constructed in 2001.
- All three (3) basins have been known to leak. DEP has reported this on numerous occasions, most recently last month.
- The basins have been coated several times; however, the old coating systems have failed and are just a temporary fix.
- The basins do not have sloped bottoms to the WAS lines. This results in excessive wasting into the digester tanks which is very inefficient and hampers the digestion time.
- The diffusers are coarse bubble type as opposed to fine bubble type thus resulting in non-effective oxygen transfer which has led to high ammonia in the discharge on numerous occasions.
- The decanter devices and arms are original and should be replaced.
- GD&F recommends constructing three (3) new SBR basins with sloped bottoms and new fine bubble diffusers.

The total estimated concrete construction cost per basin is $2.0M, with new diffusers and decanters costing $0.5M per basin. The total estimated construction cost for all three (3) basins is $7.5M

SBR Blowers

- Three (3) SBR blowers were installed in 2000, with the other two (2) added in 2004. These are 25 and 21 years old respectively and run consistently. Blowers of this size have a 20 year life cycle.
- The blowers, filters, air control valves and mass air flow meters all have reached the end of their useful life and should be replaced with new more energy efficient turbo blowers.

Estimated construction cost to replace all five blowers, motors, filters, air control valves and mass air flow meters is $1.5M.

3 Small Digester Tanks

- The two (2) small digester blowers, piping and diffusers and mixers are original to the 2000 upgrade.
- The submersible mixers are broken and do not work, thus at least one (1) blower has to run continuously.

Estimated construction cost to replace the blowers, motors, piping, diffusers, and mixers is $1.0M.

Effluent Pumps and Discharge Apron

- The three (3) existing submersible effluent pumps were installed in 1988 and need to be replaced.
- The discharge piping and check valves also need to be replaced.
- DEP has commented that the existing riprap discharge apron needs grouted.
- This project requires extensive temporary bypass pumping.

Estimated construction cost to replace the pumps, piping and provide a grouted riprap apron is $0.75M.

Denitrification Filters

- All existing denitrification filters, which are not currently used, need cleaned with all new filter media and startup

Total estimated cost is $0.50M

New Laboratory/Control Room/Office/Rest Room/Mechanical Room/Storage

- The laboratory and office building dates back to pre-1988, therefore, it is over 37 years old and in need of replacement.
- All existing rooms shall be replaced that are currently located inside existing WWTP including all doors/windows, furnishes, HVAC, plumbing and electrical.

Estimated construction cost is $1.0M

Sitework/Underground Electrical

- Costs associated for excavation/backfill, paving, underground piping and underground electrical service.

Estimated construction cost is $0.75M

Tuscawilla WWTP

- Tuscawilla WWTP originally had three (3) sets of MBR filters installed. There is currently only one (1) set of newer MBRs installed, thus no redundancy is provided. When the MBRs need cleaned multiple times per year, all this flow goes to the CT plant. This also requires excess use of the overflow pond.
- The existing RAS pumps are currently oversized which is causing process control issues.
- The existing pond has been causing all kinds of odor and elevated nitrate issues. It needs cleaned, and new blowers and diffusers/mixers installed and possibly an odor control system.
- The overflow pond is currently un-lined and contains raw sewerage.
- The fine drum screens will need upgraded/replaced.

Estimated construction cost for one new set of MBRs, upgraded fine drum screens, new RAS pumps and pond renovations is $1.5M

CTUB Wastewater Treatment Plant Upgrades - Required Versus Growth Related Cost Calculation	
Required Construction Items	**Total Required Construction Cost ($M)**
Headworks Screen, Compactor, Grit and Classifier	$3.00
SBR Splitter Box	$0.50
SBR Basins	$7.50
SBR Blowers	$1.50
3 Small Digester Tanks	$1.00
Effluent Pumps and Discharge Basins	$0.75
Denitrification Filters	$0.50
Lab/Control/Office/Rest/Mechanical	$1.00
Site Work/Underground Electrical	$0.75
Tuscawilla MBR, RAS and Pond	$1.50
Soft Costs (Eng., Legal, Contingency, Inflation)	$2.00
Total:	**$20.00**

Engineer's Recommendations: The total probable project cost for a new single central wastewater treatment plant is estimated to be $50 million. For comparison purposes, $20.0M would be necessary to upgrade the existing WWTFs over the next five (5) years even without new growth. So 40% of the total $50.0M project cost for a new centralized treatment plant should be attributed to necessary required upgrades, while 60% should be attributed to growth.

August 13, 2025 Board Workshop to discuss the Water Treatment Plant Expansion

On August 13, 2025 at 4:30 P.M. the Charles Town Utility Board and several members of the Charles Town City Council attended a workshop at the Charles Town Water Plant to discuss details surrounding the upcoming Water Plant Expansion which is anticipated within the next 5 years.

As demonstrated by an excerpt from the original construction documents (attached) the Charles Town Water Treatment Plant was constructed in 1988 and dedicated in 1990, therefore the original building and the following facilities are all **37 years old**:

- Filters
- Clearwell
- Chemical Feed Systems
- Laboratory
- Control Room
- Office
- Mechanical Room
- Storage Room
- Electrical System
- Raw Water Intake

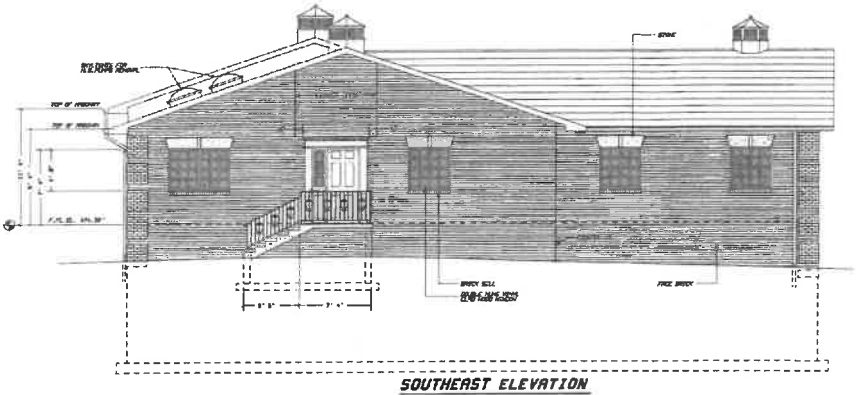
In 2016, CTUB made several improvements to the Charles Town Water Plant to include the construction of new Flocculation and Sedimentation Basins, High Service Pump Building and 1-million-gallon storage tank. There is also a potential to re-use the existing sludge thickener tank and sludge pumps. This will be evaluated during design. The project cost for these plant upgrades was $5.3 million. These improvements are anticipated to remain and be incorporated into the future plant expansion. These cost savings have been considered in the engineer's recommendation of costs.

According to CTUB's Capitalization Policy all assets of significant value and having a useful life beyond one year are classified into a valuation category, given a life cycle and assigned a value. The Charles Town Water plant includes various valuation categories such as buildings, improvements, equipment and furniture and fixtures. **The life cycle of the Water plant overall is 30 years.** There are three (3) remaining 40-year Bond issues from the 1987/1988 timeframe that have a total remaining to be paid amount of $65,844.92. **Therefore, the Charles Town Water Plant is 7 years beyond its' replacement timeframe today and requires upgrades that are not attributed to growth.**

In addition to the above improvements that are necessary to extend useful life and repair structural deficiencies, recommendations have been made in the most recent Water Treatment Facility Plan Update Dated March 2022 which detail new treatment facility construction improvements including Membrane Filtration, GAC Filtration, UV Disinfection, Chemical Feed, Disinfection, Solids Handling and Piloting all of which are not attributed to growth.

The plant is proposed to be expanded from 2.8 MGD to 5 MGD within the next 5 years. Based on the Engineer's recommendation, the total plant expansion is expected to cost $50 million including soft costs such as engineering, land, legal, permitting, contingency and inflation. **The engineer's cost estimate for required plant upgrades is $18.3 million and the growth-related costs are $21.7 million.**

A summary of the Water Treatment Upgrades is attached along with a breakdown of each upgrade and the required plant upgrade cost versus the growth-related costs. At the workshop on August 13, 2025, an initial Engineer's recommendation of costs was presented. A subsequent review of those costs identified areas within the GAC filtration system that were more equally split between growth and plant upgrades.



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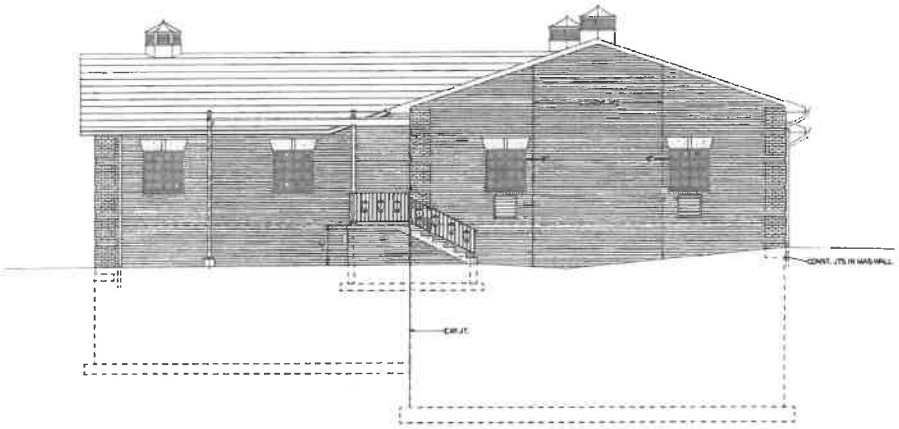

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Drawn: LA | Checked: AH | Approved: JWH | Date: FEB 1999

Kelley Gidley Blair & Wolfe

Consulting Engineers
950 Eagan Street
Charleston, West Virginia 25301
Charleston Huntington Parkersburg Beckley WV

Owner: CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

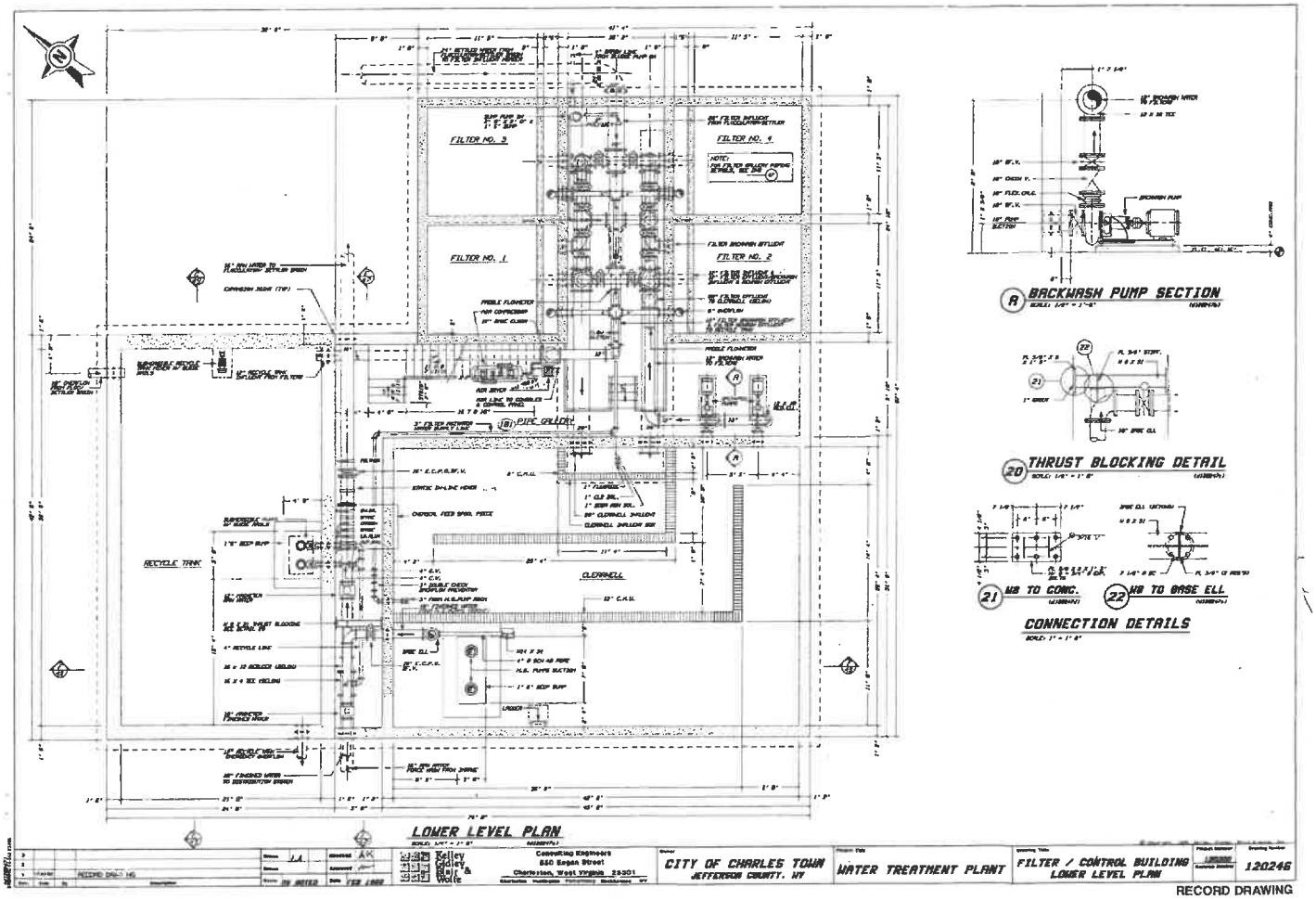
Project Title: WATER TREATMENT PLANT

Drawing Title: FILTER / CONTROL BUILDING ELEVATIONS

Project Number: 126288

Drawing Number: 120245

RECORD DRAWING



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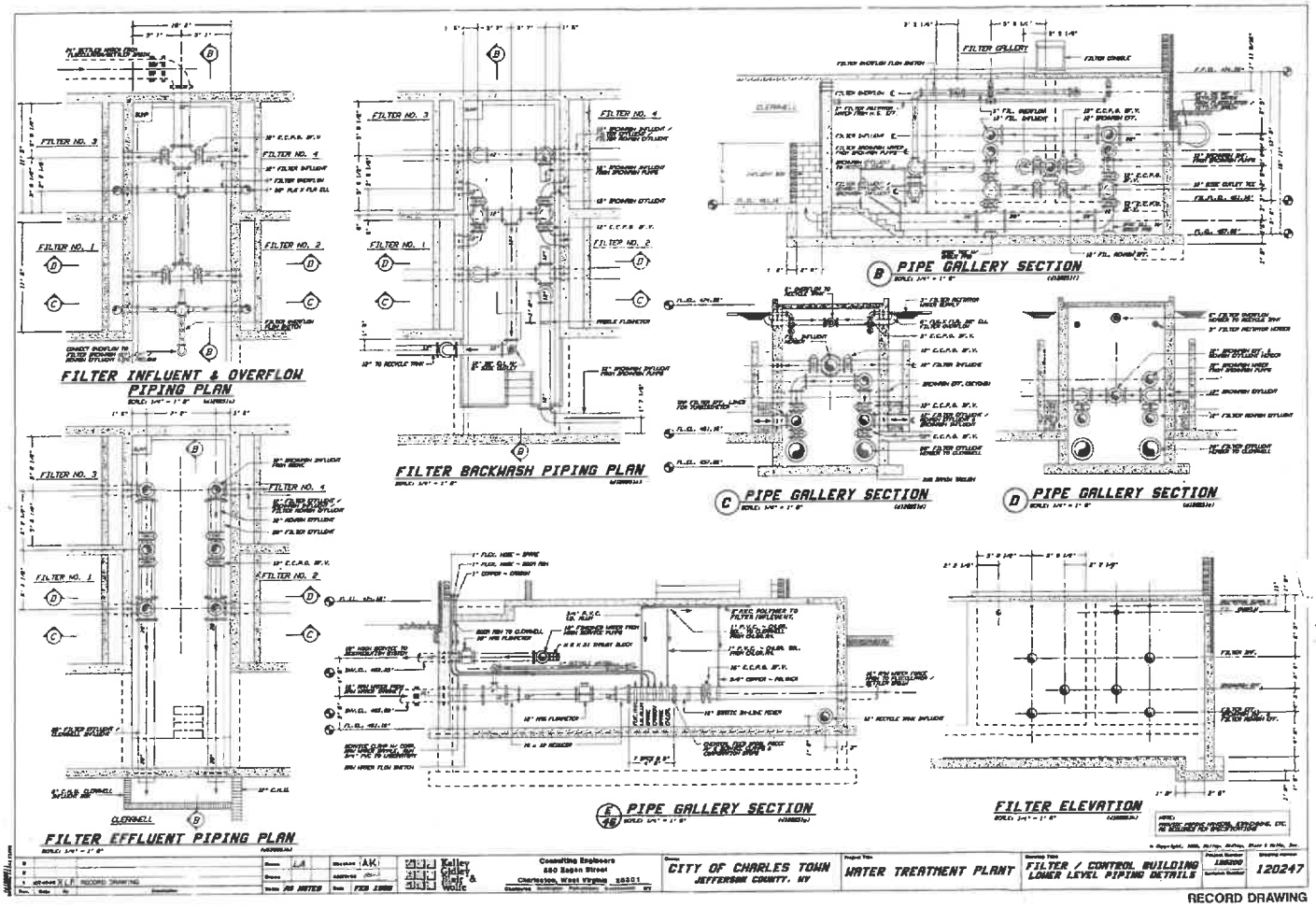
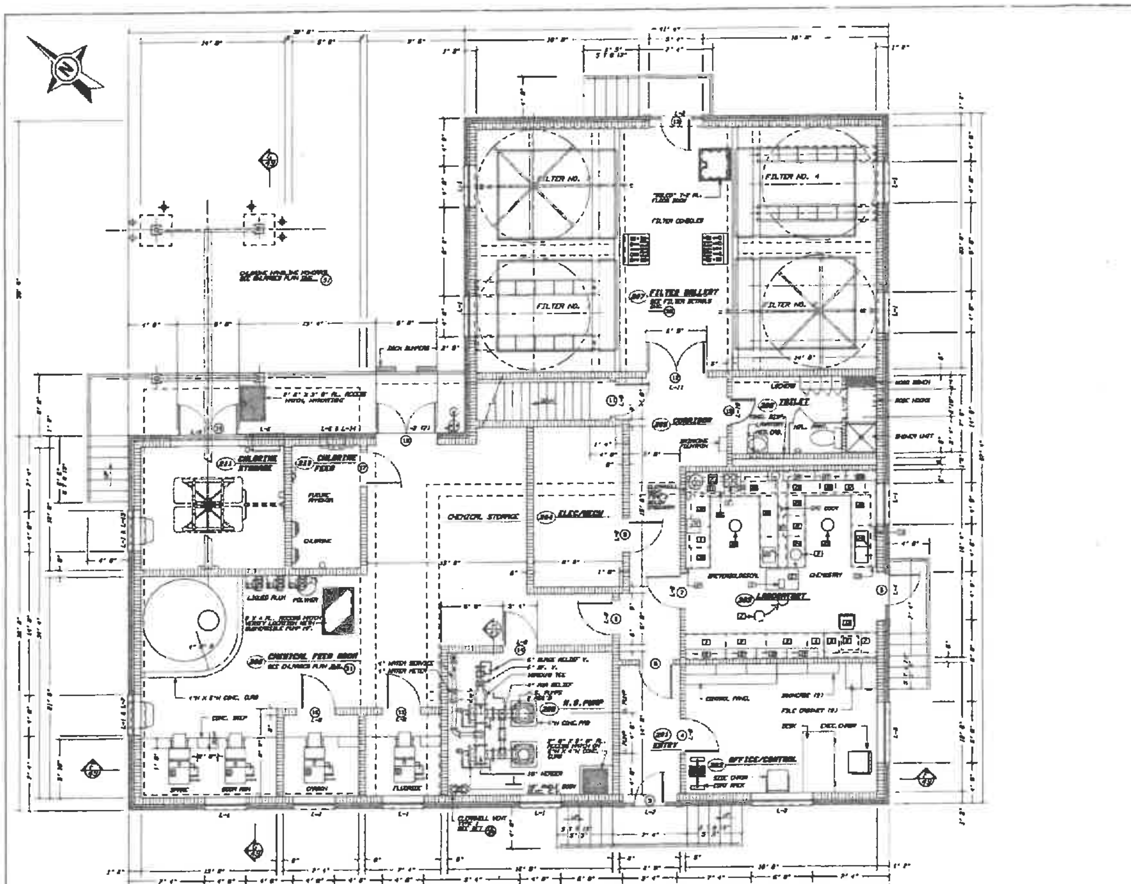

FILTER INFLUENT & OVERFLOW PIPING PLAN
FILTER BACKWASH PIPING PLAN
B PIPE GALLERY SECTION
C PIPE GALLERY SECTION
D PIPE GALLERY SECTION
FILTER EFFLUENT PIPING PLAN
E/16 PIPE GALLERY SECTION
FILTER ELEVATION
FILTER GALLERY
FILTER NO. 1
FILTER NO. 2
FILTER NO. 3
FILTER NO. 4
CLEARWELL
Kelley Gidley Blair & Wolfe
Consulting Engineers
CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV
WATER TREATMENT PLANT
FILTER / CONTROL BUILDING
LOWER LEVEL PIPING DETAILS
120247
RECORD DRAWING



UPPER LEVEL FLOOR PLAN

LABORATORY CASEWORK SCHEDULE

MARK	DESCRIPTION	CAT. NO.	COMMENTS
1	BASE CABINET	[illegible]	
2	BASE CABINET	[illegible]	
3	BASE CABINET	[illegible]	
4	BASE CABINET	[illegible]	
5	BASE CABINET	[illegible]	
6	APRON	[illegible]	W/ 1 DRAWER 88" L.
	KNEESPACE PANEL	[illegible]	
7	BASE CABINET	[illegible]	
8	WALL CABINET	[illegible]	
9	WALL CABINET	[illegible]	
10	WALL CABINET	[illegible]	
11	WALL CABINET	[illegible]	
12	CHAIR	[illegible]	"COLE BUSINESS FURNITURE"
13	END PANEL	[illegible]	
14	SINK BASE	[illegible]	
	DOUBLE BOWL	[illegible]	
	FAUCET, H & CW	[illegible]	VAC. BRKR.
	FAUCET	[illegible]	RAW WATER SAMPLE
	TRAP, P.E.	[illegible]	
15	PEGBOARD	[illegible]	
	DRIP TROUGH	[illegible]	
16	BASE CABINET	[illegible]	
17	BASE CABINET	[illegible]	36" L.
18	BASE CABINET	[illegible]	
19	BASE CABINET	[illegible]	36" L.
20	WALL CABINET	[illegible]	
21	WALL CABINET	[illegible]	
22	WALL CABINET	[illegible]	
23	BASE CABINET	[illegible]	
24	SINK BASE	[illegible]	
25	STOOL	[illegible]	
26	SINK BASE	[illegible]	
	SINGLE BOWL	[illegible]	
	FAUCET, H & CW	[illegible]	VAC. BRKR.
	TRAP, P.E.	[illegible]	
27	REAGENT SHELF	[illegible]	
	UPRIGHTS	[illegible]	
28	BASE CABINET	[illegible]	
29	BASE CABINET	[illegible]	36" L.
30	BASE CABINET	[illegible]	
31	BASE CABINET	[illegible]	36" L.
32	BASE CABINET	[illegible]	
33	BASE CABINET	[illegible]	
34	END PANEL	[illegible]	
35	STOOL	[illegible]	
36	CANOPY HOOD	[illegible]	[illegible]

NOTES:
1. All tops shall be Hamilite No. [illegible] unless otherwise noted.
2. Field verify all dimensions.
3. Catalog numbers shown are "Hamilton" wood casework or equal.

LABORATORY EQUIPMENT SCHEDULE

MARK	DESCRIPTION	COMMENTS
A	DISHWASHER	
B	EMERGENCY EYEWASH	
C	BALANCE TABLE	N.I.C. (BY OWNER)
D	PERCENT MOISTURE BALANCE	N.I.C. (BY OWNER)
E	WATER BATH	N.I.C. (BY OWNER)
F	HOT PLATE	N.I.C. (BY OWNER)
G	STERILIZER	N.I.C. (BY OWNER)
H	INCUBATOR	N.I.C. (BY OWNER)
I	REFRIGERATOR, UNDERCOUNTER	
J	SAFETY SHOWER	

RECORD DRAWING

Kelley Gidley Blair & Wolfe
Consulting Engineers
550 Eagan Street
Charleston, West Virginia 25301

CITY OF CHARLES TOWN
JEFFERSON COUNTY, WV

WATER TREATMENT PLANT

FILTER / CONTROL BUILDING
UPPER LEVEL PLAN

Drawing Number: 120248

FEB 1988

RECORD DRAWING

Raw Water Intake

- Existing building is over 35 years old. Pumps have been re-built (bearings) but are original.
- Only have a single tee screen and intake supply line from river.
- Backwash must be done daily, manually from station.
- Room is small and piping configuration is less than ideal.
- Not enough room for a dual compressor automatic airburst system.
- No secondary screen or barrier to protect existing screen.
- Consider parallel main to WTP.

GD&F recommends constructing an entire new river intake structure with dual screens, supply lines, knife gate valves, compressors, etc.

Estimated cost is $5.0M

Filters

- Filters and building constructed in 1989, both have reached the end of their useful life
- Air scour system has not worked properly for years.
- Recent inspection by filter media provider yielded concerns over lack of backwash rate needed to properly fluidize the bed.
- Media replaced in 2017 but needs topped off yearly.
- Piping/valves very difficult to access.

GD&F recommends replacing existing conventional filters with membrane filters which provide a physical barrier type of filtration. Estimated cost is $6.5M. Room can be left for a future membrane skid.

Floc and Sed Basin

- Existing flocc and sed undersized by volume. Does not consistently produce settled turbidity under 1.0 NTU.
- Tube settlers and basin sludge is difficult to clean and maintain. Requires a lot of water to get vacuum sludge collection system to work.
- Basin do not have drains or slopped bottoms.

GD&F recommends installing a new 5.0 MGD capacity floc and sed basin for a minimum of 4 hours of detention time. Estimated cost is $4.5M

GAC Filtration

- This would be a completely new treatment process.
- Specifically, to reduce DBP's in the system and potential future PFAS, EDCs, Pharmaceuticals and personal care products.
- Should help to eliminate need for ammonia/chloramination process.

Estimated construction cost is $4.0M. Could leave room for future GAC units.

Clearwell

- Old clearwell is undersized and obsolete. A new below grade baffled clearwell should be provided rated for up to 5 MGD. The existing 1 MG clearwell can be re-used to reduce the size of the new clearwell.

Estimated construction cost is $2.5M

High Service Pumps

- The existing high service pump building and piping can remain. There is already space for a third pump. By adding a 3rd pump, you would get over 5 MGD with unit redundancy.

Estimated construction cost is $0.5M

Chemical Feed Systems

- All existing chemical feed systems have reached the end if their useful life and should be replaced with new bulk tanks, day tanks, scales, secondary containment, dual chemical feed pumps, valves, etc.

Estimated construction cost is $2.5M

New Laboratory/Control Room/Office/Rest Room/Mechanical Room/Storage

- All existing rooms shall be replaced that are currently located inside existing WTP including all furnishes, HVAC, plumbing and electrical.

Estimated construction cost is $2.0M

New SCADA System and Electrical

- The existing SCADA system should be replaced including all panelboards, MCC's, transformers, generator, etc.

Estimated construction cost is $5.5M

New Waste Handling

- The existing floc/sed basins and thickener could potentially be utilized for a new waste handling system.
- Major modifications would be necessary and the existing plant would have to be kept in service.

Estimated construction cost is $1.5M

Site Work

- All new site piping, paving, stabilized surfaces, sidewalks, stormwater management, grading, would be required.

Estimated construction cost is $4.0M

Interior Plant Piping, Instrumentation and Accessories

- All new plant mechanical and process piping, instrumentation and accessories

Estimated construction cost is $1.5M

Original as presented at Workshop on August 13, 2025

CTUB Water Treatment Plant Upgrade - Required Versus Growth Related Cost Calculation					
Construction Item	Total Construction Cost ($M)	Required Plant Upgrades Cost ($M)	Percent Attributed to Required Plant Upgrades (%)	Growth Related Cost ($M)	Percent Attributed to Growth (%)
Raw Water Intake	$5.0	$2.0	40%	$3.0	60%
Filters	$6.5	$4.5	69%	$2.0	31%
Floc and Sed Basins	$4.5	$1.5	33%	$3.0	67%
GAC Filtration	$4.0	$3.2	80%	$0.8	20%
Clearwell	$2.5		0%	$2.5	100%
High Service Pumps	$0.5		0%	$0.5	100%
Chemical Feed Systems	$2.5	$2.0	80%	$0.5	20%
New Rooms in Plant	$2.0	$2.0	100%		0%
New SCADA and Electrical	$5.5	$2.0	36%	$3.5	64%
New Waste Handling	$1.5	$0.5	33%	$1.0	67%
Site Work	$4.0	$1.0	25%	$3.0	75%
Interior Plant Piping and Acc.	$1.5	$1.0	67%	$0.5	33%
Total:	**$40.0**	**$19.7**	**49%**	**$20.3**	**51%**

Engineer's Recommendations: The total probable construction cost for the water treatment upgrades is $40 million. Of this total construction cost, GD&F estimates 51% to be attributed to growth and 49% attributed to required upgrades. A total of $50 million should be included in the CIP to account for soft costs such as engineering, land, legal, permitting, contingency and inflation.

Revised by Chris Eckenrode on 8/15/2025

CTUB Water Treatment Plant Upgrade - Required Versus Growth Related Cost Calculation					
Construction Item	Total Construction Cost	Required Plant Upgrades Cost ($M)	Percent Attributed to Required Plant	Growth Related Cost ($M)	Percent Attributed to Growth (%)
Raw Water Intake	$5.0	$2.0	40%	$3.0	60%
Filters	$6.5	$4.5	69%	$2.0	31%
Floc and Sed Basins	$4.5	$1.5	33%	$3.0	67%
GAC Filtration	$4.0	$1.8	45%	$2.2	55%
Clearwell	$2.5		0%	$2.5	100%
High Service Pumps	$0.5		0%	$0.5	100%
Chemical Feed Systems	$2.5	$2.0	80%	$0.5	20%
New Rooms in Plant	$2.0	$2.0	100%		0%
New SCADA and Electrical	$5.5	$2.0	36%	$3.5	64%
New Waste Handling	$1.5	$0.5	33%	$1.0	67%
Site Work	$4.0	$1.0	25%	$3.0	75%
Interior Plant Piping and Acc.	$1.5	$1.0	67%	$0.5	33%
Total:	**$40.0**	**$18.3**	**46%**	**$21.7**	**54%**

Engineer's Recommendations: The total probable construction cost for the water treatment upgrades is $40 million. Of this total construction cost, GD&F estimates 54% to be attributed to growth and 46% attributed to required upgrades. A total of $50 million should be included in the CIP to account for soft costs such as engineering, land, legal, permitting, contingency and inflation.

October 17, 2025

Development	Water	Sewer	Total Design EDU's	Total Built as of 2025	Remaining to be built	
Aspen Green		X	203	85	118	Under Construction
Avalon (formerly Fairview)	X	X	450	0	450	Design Complete - entering construction
Beallair		X	372	221	151	Under Construction
Birdhill		X	720	0	720	Design Phase
Blackford Village/Tackley Mill		X	500	0	500	Long term build-out
Briar Run		X	450	404	46	Long term build-out
Burr Industrial Park & Bardane		X	200	175	25	Long term build-out
Cambridge		X	140	92	48	Long term build-out
Cantor Hollow	X	X	124	0	124	Design Phase
Charles Town Infill	X	X	250	0	250	Long term build-out
Clayhill Farm		X	300	0	300	Conceptual Design
Country Club Commons		X	8	0	8	Design Phase
Harvest Hills		X	392	0	392	Conceptual Design
Hillside	X	X	150	0	150	Design Phase
Huntfield	X	X	3,200	661	2,539	Under Construction
Huntwell West		X	350	180	170	Under Construction
Jefferson Orchards		X	888	0	888	Long term build-out
Kable Townhomes	X	X	22	0	22	Conceptual Design
King's Crossing	X	X	404	193	211	Under Construction
Lakeland Place		X	464	287	177	Design Phase
Locust Knoll		X	300	0	300	Long term build-out
Madison Greens (formerly part of Ranson Gateway)		X	292	0	292	Under Construction
Magnolia Springs	X	X	300	300	0	Complete
Media Farms		X	45	0	45	Design Phase
Norborne Glebe	X	X	1,050	728	322	Under Construction
Old Town Ranson - Infill	X	X	250	0	250	Long term build-out
Potomac Marketplace (Commercial)		X	54	50	4	Long term build-out
President's Pointe		X	1,100	484	616	Under Construction
Prospect Place	X	X	170	0	170	Conceptual Design
Ranson Gateway (Commercial)		X	883	150	733	Long term build-out
Riverpointe		X	335	45	290	Under Construction
Red Clover Meadows		X	258	206	52	Under Construction
Shenandoah Springs		X	705	565	140	Under Construction
Shoemaker Property	X	X	300	0	300	Conceptual Design
Sleepy Hollow	X	X	500	0	500	Conceptual Design
Stonecrest		X	320	79	241	Under Construction
Stone Spring (formerly Fritts Property)	X	X	325	184	141	Under Construction
Washington Landing	X	X	274	274	0	Complete
West Branch Apartments		X	235	0	235	Design Complete - entering construction
Windmill Crossing	X	X	150	145	5	Long term build-out
WVU Medical	X	X	500	0	500	Conceptual Design
340 Mixed used Dan Ryan	X	X	500	0	500	Design Phase
Vinton Property	X	X	300	0	300	Design Phase
Total Projected Development			18,733	5,508	13,225	