EPA Administrative Order Update

Brad Corcoran – City Manager

February 28, 2015

AGENDA

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- Update on Required Tasks
- Remediation Options & Projected Costs
- Current Situation & Immediate Recommendations Moving Forward
- Additional Recommendations Moving Forward
- Reminder….. Additional Identifiable Capital Costs
- What is Affordable?
- Raftelis Rate Study & Projected Rates
- Some May Say – Let's Do Nothing!
- Questions
- Appendix – Summary of Identified Deficiencies as of 02/24/2015

Background On EPA Administrative Order

- The elimination of Sanitary Sewer Overflows (SSOs) was one of the U.S. Environmental Protection Agencies (EPA) national enforcement initiatives for 2011 to 2013.
- Despite our proactive work in reducing our SSOs from an annual average of 2,028,819 gallons during 1987 to 2003 to a mere 25,314 gallons in 2011, Eden was mysteriously selected to be placed under an Administrative Order (AO) by the EPA.
- ***During the first seven months of FY 14/15 we have experienced just 3 SSOs totaling just 1,314 gallons. All 3 of these were due to blockages in the sewer line. We have not had an inflow/infiltration (I/I) related overflow since April 15, 2014. Clearly, the work we have already done is having a significant impact.***
- As everyone is aware, the EPA AO enforcement action against Eden poses a substantial challenge which has led to, and will continue to lead to, significantly increased costs for our sewer customers.
- It is important to remember - Regardless of affordability, the EPA judges full compliance as having **NO** discharges once you are placed into an enforcement action.

Background On EPA Administrative Order

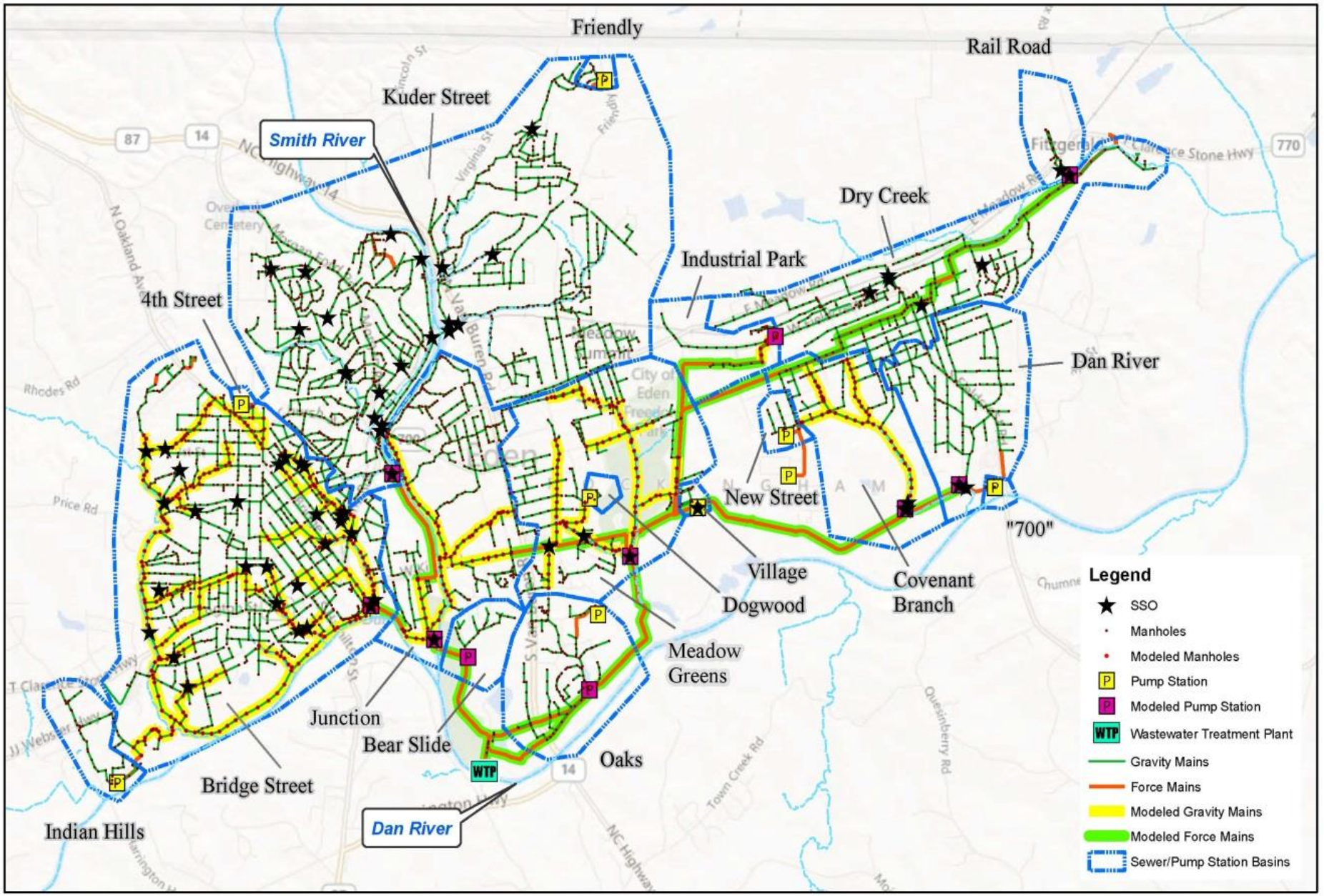
- Typical causes of sewer overflows include:
  - Significant Rainfall
  - Blockages
  - Inflow and Infiltration
  - Mechanical Failures of Equipment
  - Vandalism & Illegal Private Connections

- Since my arrival in February 2001, the City has spent approximately **$30,892,707** on improvements to our sewer collection system related to battling inflow/infiltration (I/I) and reducing our problems with SSOs. I am pleased to note that **$6,181,183** of this total was reimbursed to us as a result of various grants and principal forgiveness loans we've been fortunate to receive.

Background On EPA Administrative Order

- The AO as issued applied to the critical basins of the following pump stations:
    - Covenant Branch
    - Meadow Greens
    - Bridge Street
- After a brief period of initial field work, the Junction basin was added due to significant deficiencies both in terms of capacity and reliability.
- The next slide is a map which shows the location of these four critical basins and the identified overflow locations within each of those critical basins.

Sanitary Sewer Overflows – Critical Basins of Covenant Branch, Meadow Greens, Junction and Bridge Street



Update on Required Tasks

- The effective date for the AO was January 3, 2012.
- We immediately initiated our work to comply with each of the requirements outlined in the AO. In fact, we project that we will have already spent $7,687,002 on various tasks and projects that are required when this fiscal year comes to a close on June 30th.
- In the past three years we have completed the following checklist items:
  - Sanitary Sewer System Evaluation Study Work Plan (SSSESWP)
  - Capacity Assessment Plan Work Plan (CAPWP)
  - Rainfall and Flow Monitoring Work Plan (RFFMWP)
  - Pump Station Operations Program (PSOP)
  - Sewer Overflow Response Plan (SORP)
  - Pump Station Preventative Maintenance Program (PSPMP)
  - Short-Term Pump Station Repair Program (STPSRP)
  - Implementation Plan for the SSSESWP

Update on Required Tasks

- The programs listed in the Administrative Order (AO) are very comprehensive and have already required millions of dollars and significant staff/engineering time to complete.
- All initial segments of the AO including the Pump Station Operations Program (PSOP), Sewer Overflow Response Plan (SORP), Sanitary Sewer System Evaluation Study Work Plan (SSSESWP), Capacity Assessment Plan Work Plan (CAPWP) and Rainfall and Flow Monitoring Work Plan (RFFMWP) were actually completed over twelve months prior to the EPA reviewing and issuing approvals.
- Approvals of the SSSESWP, CAPWP and RFFMWP were received on January 27, 2014.
- Approvals of the PSOP and SORP were received on July 2, 2014.
- Approval of the Pump Station Preventative Maintenance Program (PSPMP) was received on August 28, 2014.

Update on Required Tasks

- The Short-Term Pump Station Repair Program (STPSRP) was submitted to the EPA on January 3, 2013. This program was approved on June 4, 2014.
- The implementation plan for the Sanitary Sewer System Evaluation Study Work Plan (SSSESWP) was submitted to the EPA on January 27, 2015. This plan is still under review by the EPA.

Update on Required Tasks

- As previously noted, the Capacity Assessment Plan Work Plan (CAPWP) was approved by the EPA on January 27, 2014. The approval required the City to further evaluate I/I for all expected upstream and downstream influences on a sewer affecting a critical basin. This requirement effectively required the inclusion of the Dry Creek and Kuder Street basins as part of the evaluation since they significantly impact the critical basins.
- Once the CAPWP was approved by the EPA on January 27, 2014 we were given 15 months (April 27, 2015) to submit the required Capacity Assessment Report (CAR). The CAR is expected to be completed within the next 30 days to provide a review and commentary period for City staff and it will then be submitted to the EPA prior to April 27th.

Update on Required Tasks

- The Wastewater Collection & Transmission System (WCTS) Remediation Plan must be submitted for EPA review and approval two months after submission of the Capacity Assessment Report (CAR). If the CAR is submitted on April 27, 2015 then the remediation plan must be submitted by no later than June 27, 2015.
- The **submittal date becomes "the remediation date"** and according to the EPA, the implementation of measures to cease all SSOs must be as *"expeditious as possible"*, but in no event later than two years after submission of the remediation plan.
- The current objective is to complete this document on or before May 27th to allow review and commentary by City staff before submission to the EPA by June 27th.
    - Work on the Remediation Plan is still underway and will contain three basic elements:
        - a rate analysis,
        - financial analysis and the
        - actual remediation plan (specific strategies and schedules).

Update on Required Tasks

- The City will be legally obligated to do whatever tasks and projects are included in the remediation plan.
- Anything in the remediation plan that is objected to by the EPA such as the extent of work to be performed or the timeline for work to be completed becomes a judiciary process where the EPA is saying, “you will do this” and we are saying, “we can only do A due to B, C, and D”.
- If this occurs, it will be during this judiciary process that we will need all of the political leverage and assistance we can get from our elected officials.

Update on Required Tasks

- **No Later Than June 27, 2017** – Construction of the remediation measures included in the EPA approved Wastewater Collection & Transmission System (WCTS) Remediation Plan must be initiated no later than two years after the submission of the WCTS Remediation Plan.
    - Although still in progress, it appears like the elements that are most critical to addressing SSOs that are in sensitive areas and adjacent to impaired waters will be completed within a three year time frame. The more long-term and programmatic functions are being supported with financial and socio-economical metrics that we hope will validate a heavy financial burden, which in turn should help us to cultivate a 10 to 20 year time frame for full compliance.

Update on Required Tasks

- Most of our required efforts are winding down and are anticipated to be completed within the next 90 days. During this time period we plan to complete the required condition assessment on the Junction siphon and the main outfall downstream and upstream of the siphon. Additionally, the inspection of air release valves and the condition assessment of the Covenant Branch Force Main will be completed.
- Unfortunately, we must remember that a greater amount of evaluation yields more data and often uncovers more problems which translates into even higher costs.

Remediation Options & Projected Costs - 5 Year Plan

- A 5 year remediation plan is consistent with the requirements of the EPA AO but would only worsen the significant burden on our rate paying customers.
- Based on the latest cost estimates received from W. K. Dickson Engineering, the City would be facing approximately $34,157,562.
- If you subtract the $7,687,002 projected to already be spent prior to July 1, 2015 it leaves a remaining balance of $26,470,560.
- After leveraging the $4,114,000 in principle forgiveness loans we've been awarded and are expecting to receive we would be faced with an additional $22,356,560 in just EPA AO related costs over a 5 year period.

Remediation Options & Projected Costs - 10 Year Plan

- Based on the latest cost estimates received from W. K. Dickson Engineering, the City would be facing approximately $35,164,893 in costs associated with the EPA AO if we pursue a 10 year remediation plan.
- If you subtract the $7,687,002 projected to already be spent prior to July 1, 2015 it leaves a remaining balance of $27,477,891.
- After leveraging the $4,114,000 in principle forgiveness loans we've been awarded and are expecting to receive we would be faced with an additional $23,363,891 in just EPA AO related costs ***BUT*** we would have 10 years to complete the required work compared to the 5 year timeframe that is consistent with the requirements of the EPA AO.

Remediation Options & Projected Costs - 15 Year Plan

- Based on the latest cost estimates received from W. K. Dickson Engineering, the City would be facing approximately $36,094,526 in costs associated with the EPA AO if we pursue a 15 year remediation plan.
- If you subtract the $7,687,002 projected to already be spent prior to July 1, 2015 it leaves a remaining balance of $28,407,524.
- After leveraging the $4,114,000 in principle forgiveness loans we've been awarded and are expecting to receive we would be faced with an additional $24,293,524 in just EPA AO related costs ***BUT*** we would have 15 years to complete the required work compared to the 5 year timeframe that is consistent with the requirements of the EPA AO.

Remediation Options & Projected Costs - 20 Year Plan

- Based on the latest cost estimates received from W. K. Dickson Engineering, the City would be facing approximately $36,320,130 in costs associated with the EPA AO if we pursue a 20 year remediation plan.
- If you subtract the $7,687,002 projected to already be spent prior to July 1, 2015 it leaves a remaining balance of $28,633,128.
- After leveraging the $4,114,000 in principle forgiveness loans we've been awarded and are expecting to receive we would be faced with an additional $24,519,128 in just EPA AO related costs ***BUT*** we would have 20 years to complete the required work compared to the 5 year timeframe that is consistent with the requirements of the EPA AO.

Remediation Options & Projected Costs – Timing of Expenditures

- It is important to note that all four of the remediation option time schedules submitted by W. K. Dickson Engineering are very costly at the front end of the proposed schedules.

Plan	Prior to 15/16	15/16 – 19/20	20/21 – 24/25	25/26 – 29/30	30/31 – 34/35	Total Costs
5 Year	$7,687,002	$25,913,154	$202,384	$170,907	$184,115	$34,157,562
10 Year	$7,687,002	$12,173,881	$14,948,988	$170,907	$184,115	$35,164,893
15 Year	$7,687,002	$11,900,933	$4,683,496	$11,638,980	$184,115	$36,094,526
20 Year	$7,687,002	$11,900,933	$4,683,496	$7,366,733	$4,681,966	$36,320,130

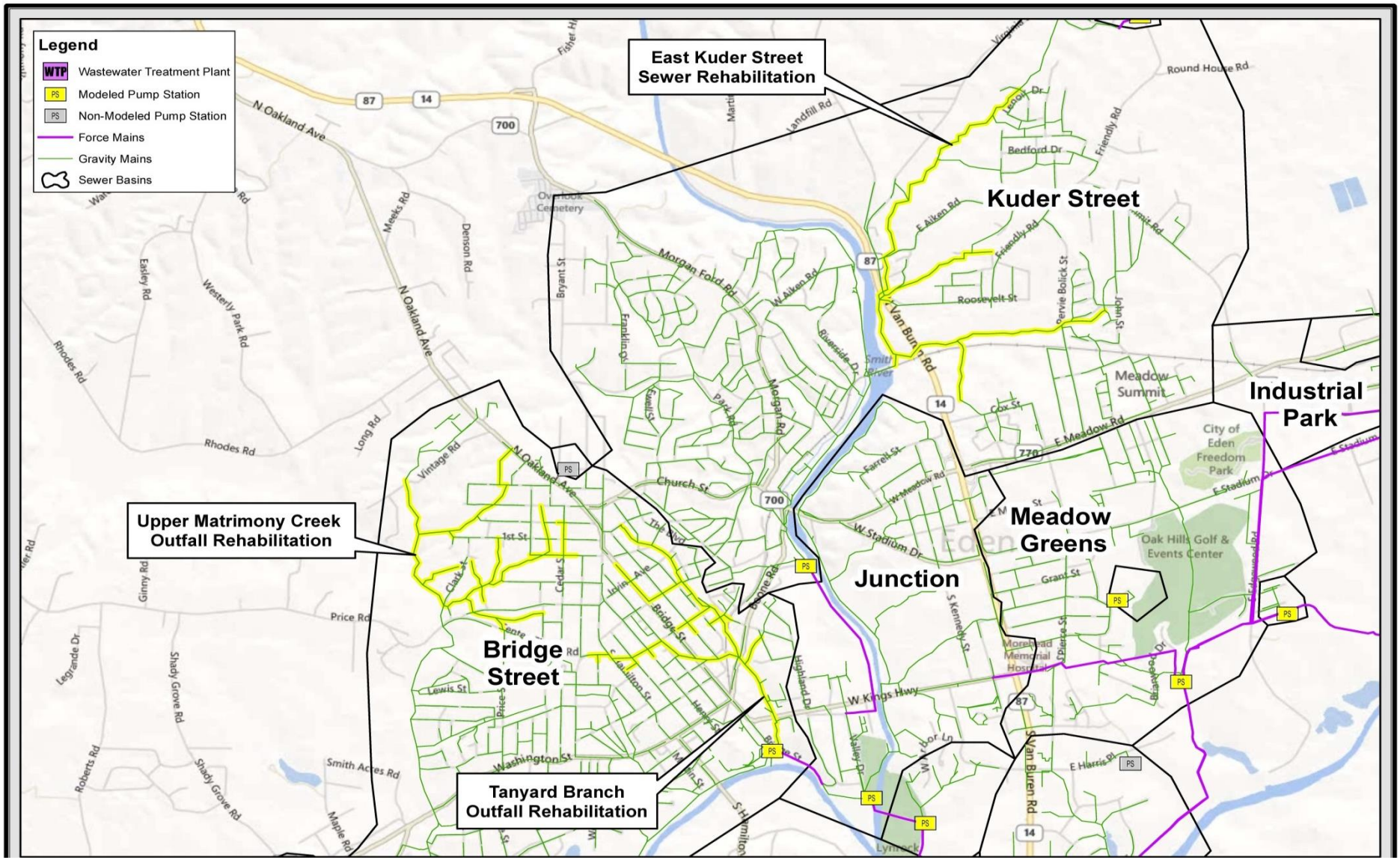
- It should be noted that we have been awarded $4,114,000 in principal forgiveness loans to date to help fund the above referenced costs.

Remediation Projects & Projected "*Remaining*" Costs – Next 20 Years?

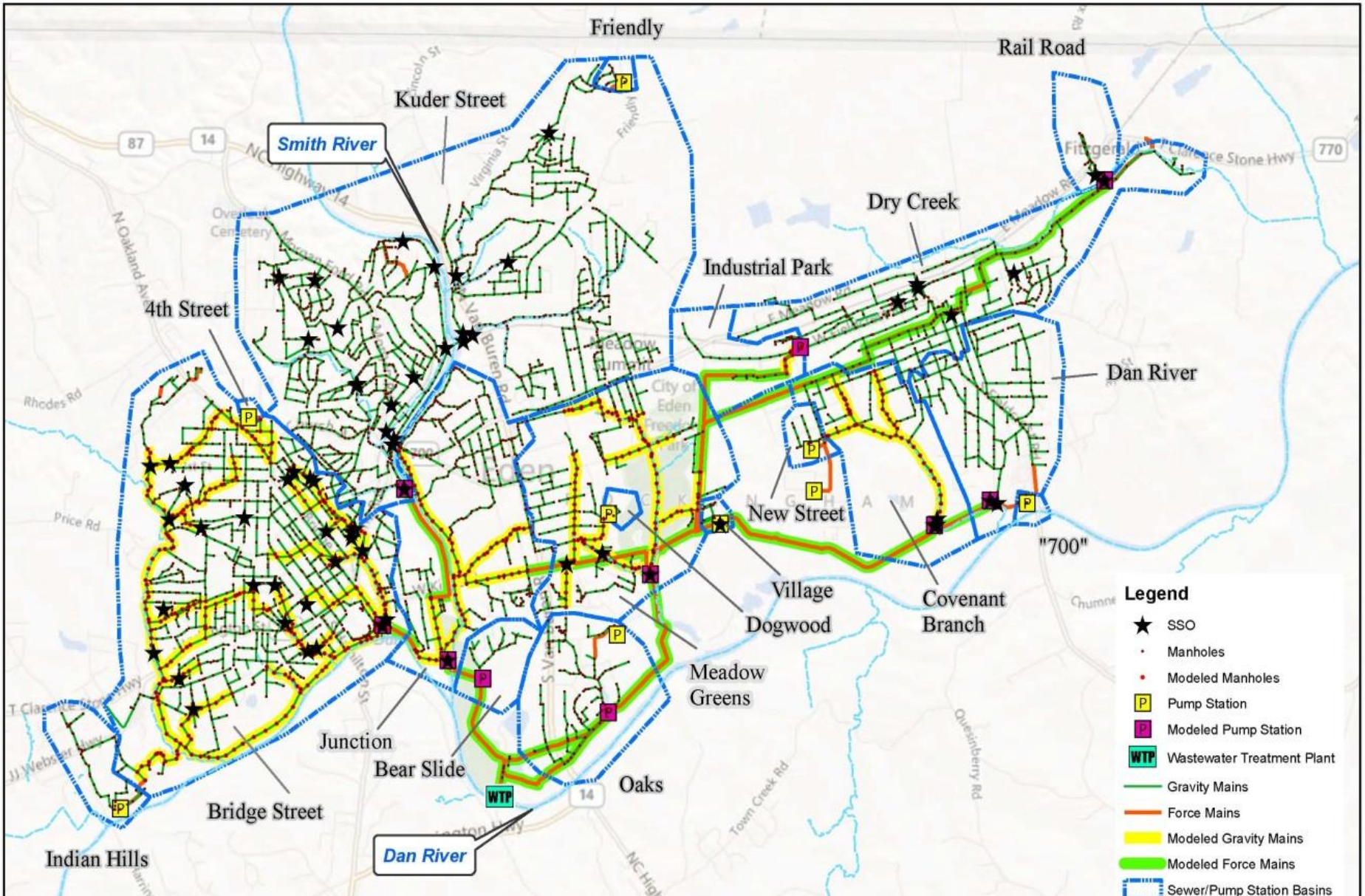
• Tanyard Branch Outfall & Rehabilitation & Repairs	$3,803,680
• Upper Matrimony Creek Rehabilitation & Repairs	$2,692,186
• CMOM (Capacity, Operation, Maintenance & Management) Program Fees – Flow Monitoring, Condition Assessments & Evaluations	$ 565,883
• CCTV Inspection of Identified Problem Sewers	$ 660,932
• Junction & Bridge Street Pump Station Rehabilitations	$3,711,110
• Meadow Greens & Covenant Branch Force Main Relief	$ 526,588
• Lateral & Manhole Repairs	$ 970,642
• Sealing/Protecting Flood-Prone Manholes	$ 230,116
• Elimination of Direct & Indirect Connections	$2,174,519
• Pipeline Repairs in Bridge Street Basin of PACP 4 Rating or Greater (Pipeline Assessment & Certification Program)	$5,560,429
• Pipeline Repairs in Junction Basin of PACP 4 Rating or Greater	$1,999,309
• Repairs in Junction Siphon & Outfall between Siphon & Kings Highway	$3,199,020
• Dan River Outfall Upsize – Capacity Project	$ 517,719
• Repair/Replace Force Main Air Release Valves & Covenant Branch Force Main	$2,020,995
Total	**$28,633,128**

- Subtract the $4,114,000 in principal forgiveness loans awarded to date. This brings the total projected *"remaining"* costs down to: **$24,519,128**

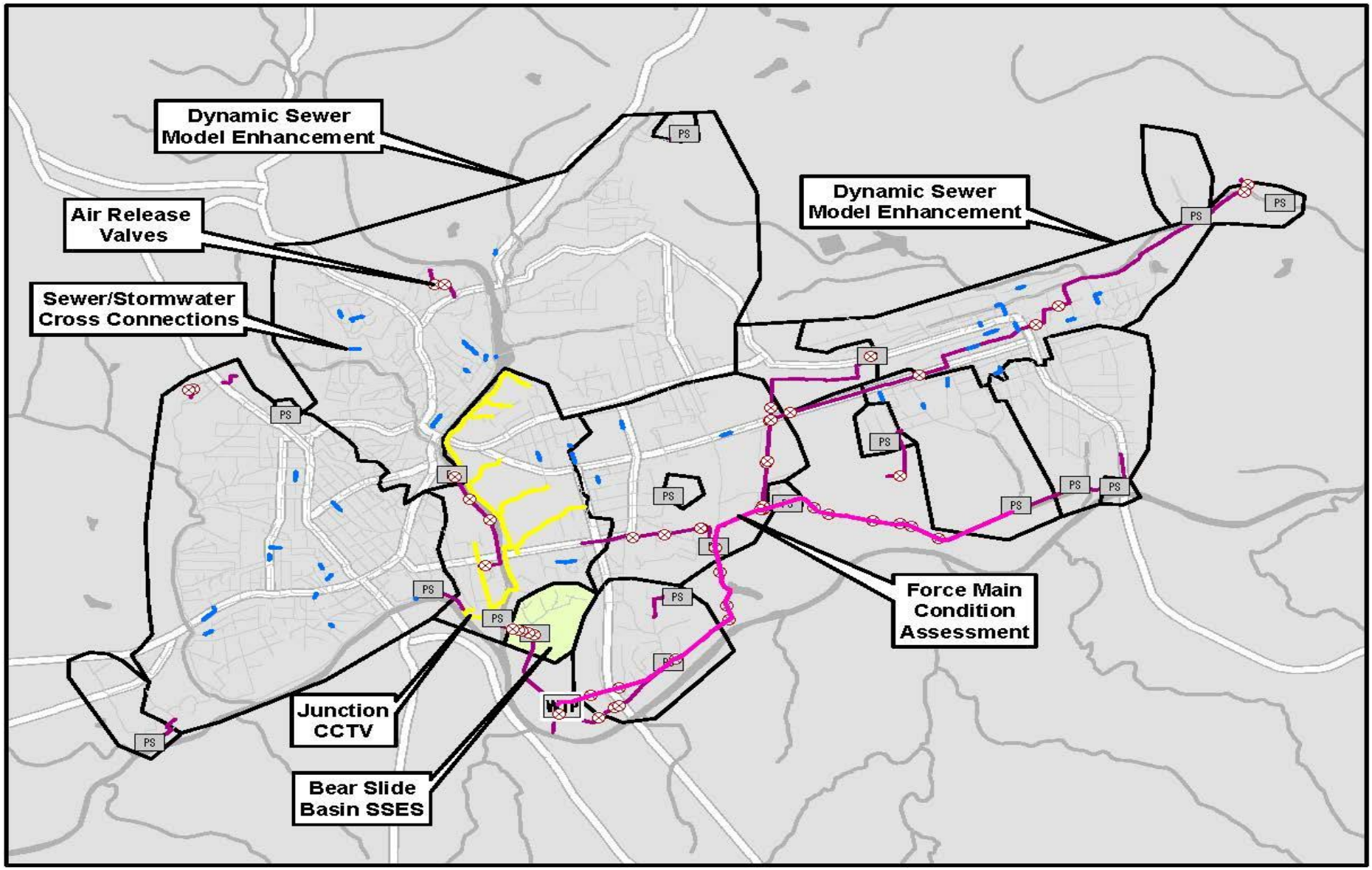
Location of Existing Projects



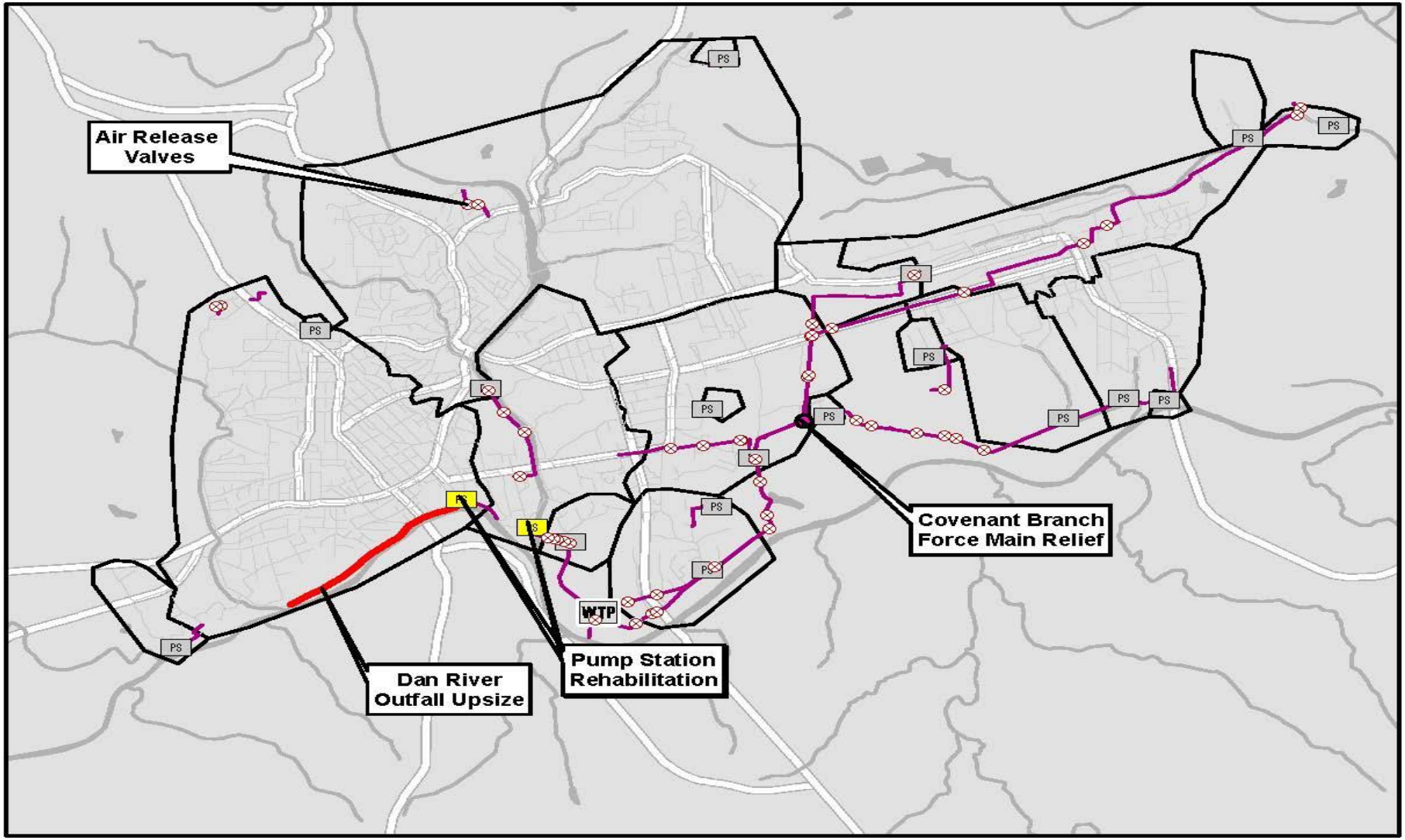
Pump Station Locations



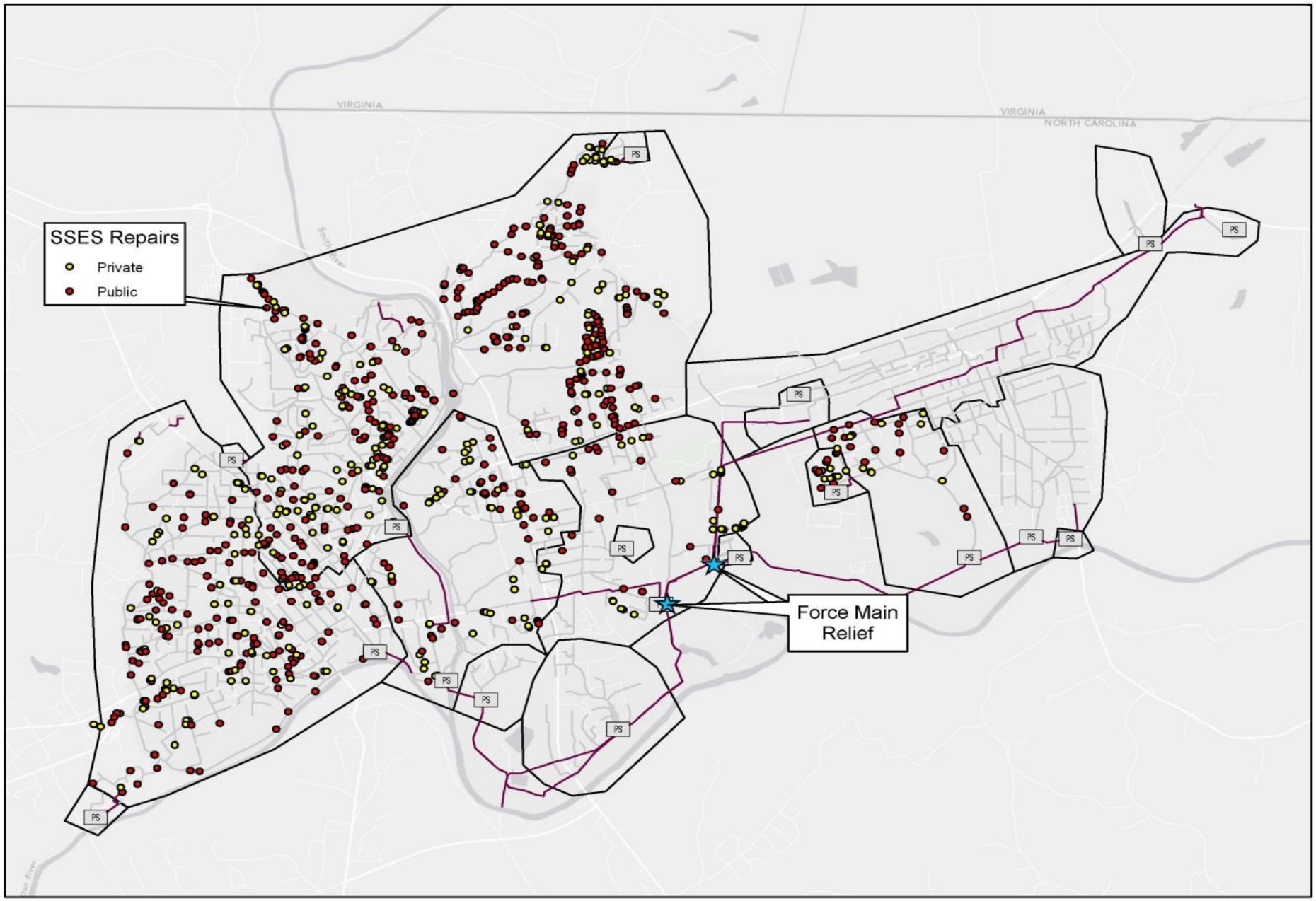
Location of Remaining Critical Asset Assessments



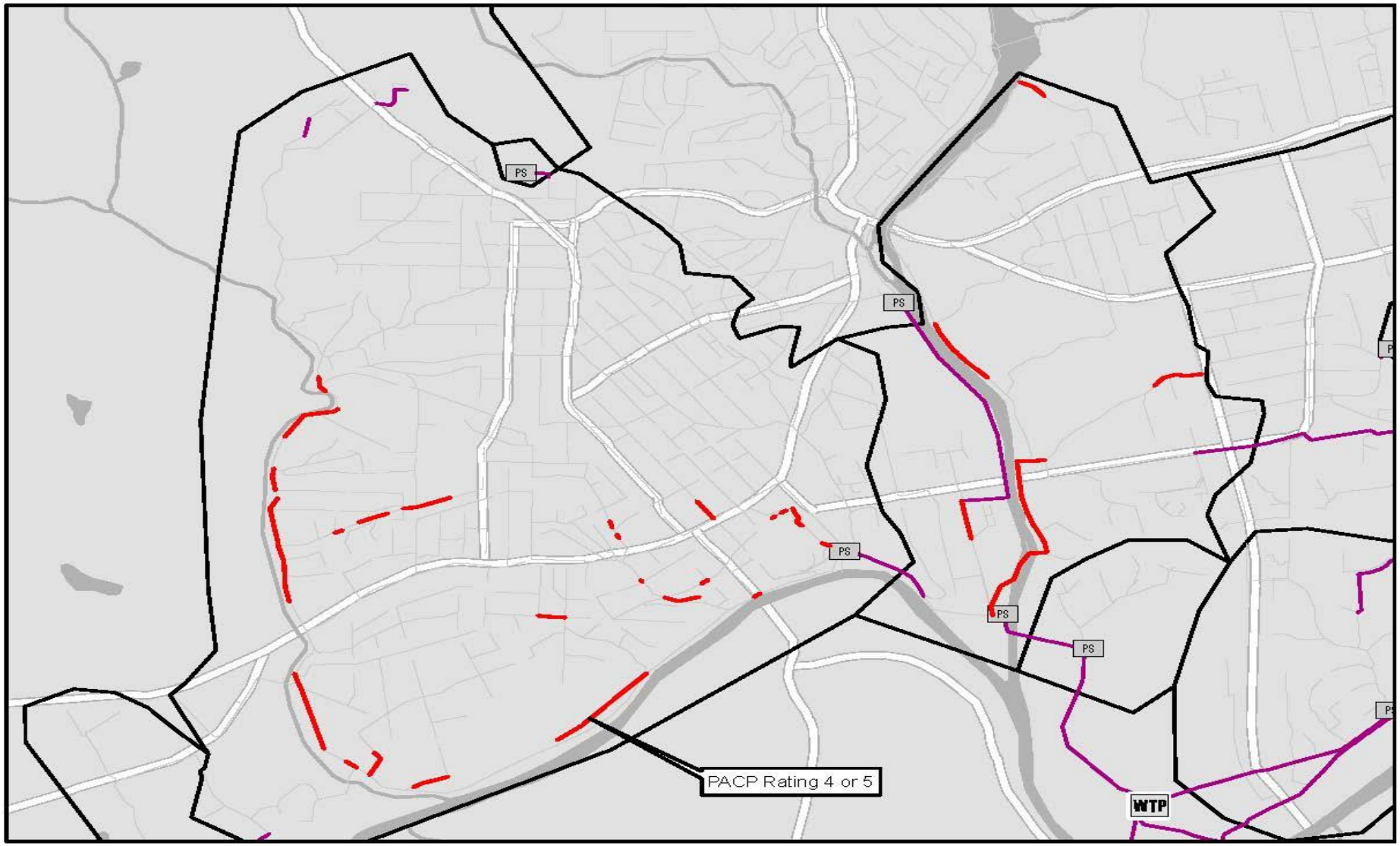
Remediation Plan Improvements



Public/Private Connections - SSSES Repairs



PACP Grade 4 and 5 Rated Sewers (Bridge Street and Junction Basins)



Current Situation & Immediate Recommendations Moving Forward

- Complete the condition assessments for the siphon (under Smith River), the main outfall in the Junction basin and the Covenant Branch force main as well as the force main air release valve inspections and the dynamic sewer model enhancement for the Dry Creek and Kuder Street basins.

Caution – Additional Evaluations often = Additional $$$$$

- Finalize and submit the Capacity Assessment Report (April 27th) and Remediation Plan (June 27th).

Current Situation & Immediate Recommendations Moving Forward

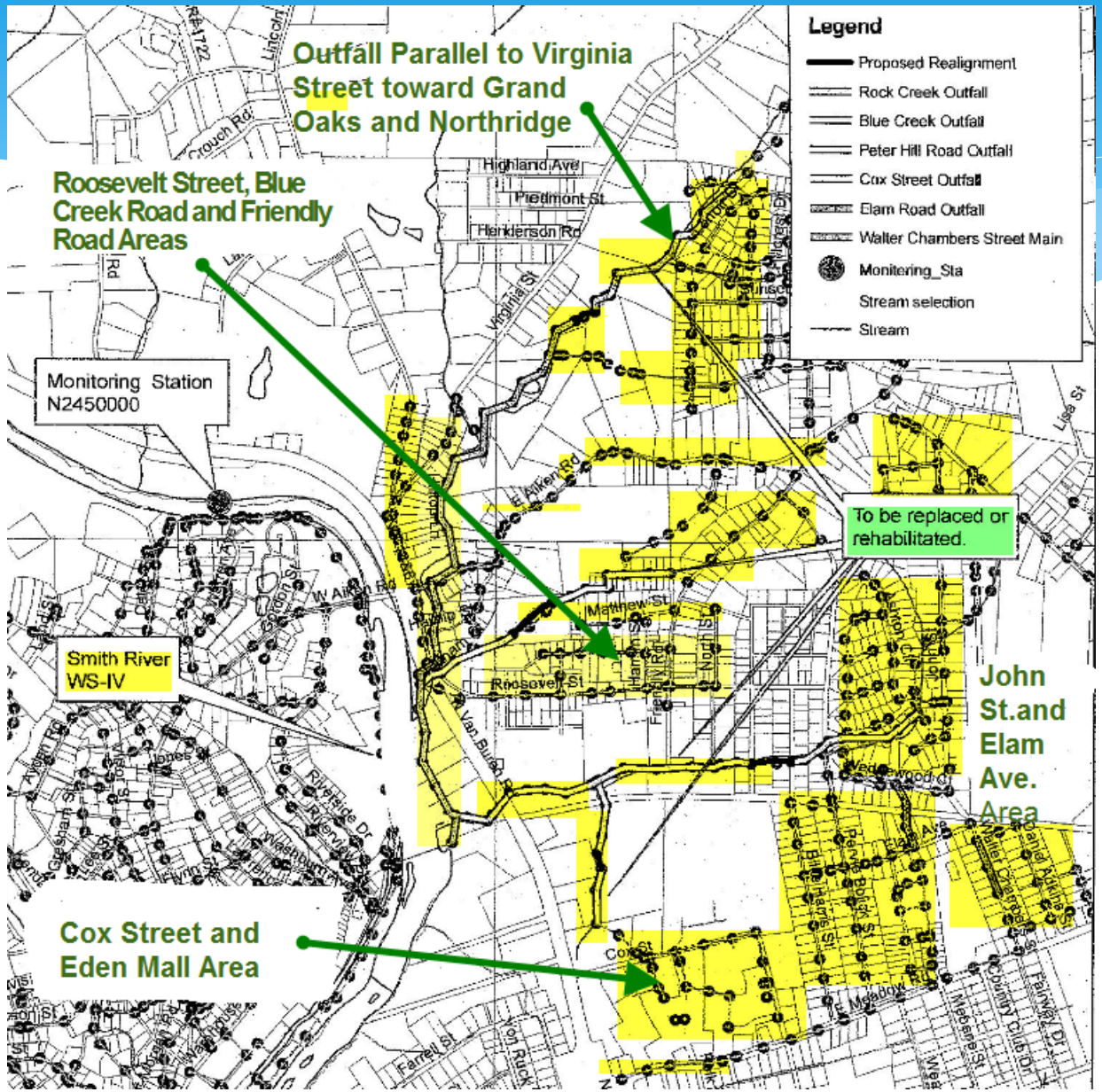
- Closeout, complete and/or initiate the following projects:
  - East Kuder Street Sanitary Sewer Improvements (Completed).
  - Tanyard Branch Sanitary Sewer Improvements (Approx. 35% Complete).
  - Upper Matrimony Creek Sanitary Sewer Improvements (Starting within next two months).
  - Covenant Branch & Meadow Green Force Main Relief Project (Proceed with design phase).
  - Junction & Bridge Street Pump Station Rehabilitation Projects (Proceed with design phase).
  - Let's review each of these one by one:

East Kuder Street Project

- The project was delayed significantly by strict buffering requirements imposed by the Land Quality Section of NC DENR (North Carolina Department of Environment and Natural Resources).
- This project is now complete and the final reimbursement should be made to the City next month so we can close this project out.
- We received a zero percent interest loan for this project estimated at $3,028,547 with $1,000,000 of principle forgiveness. Final Loan repayment will be $2,028,547 spread over 20 years.

East Kuder Street Project

East Kuder Street Subsystem Sewer Rehabilitation

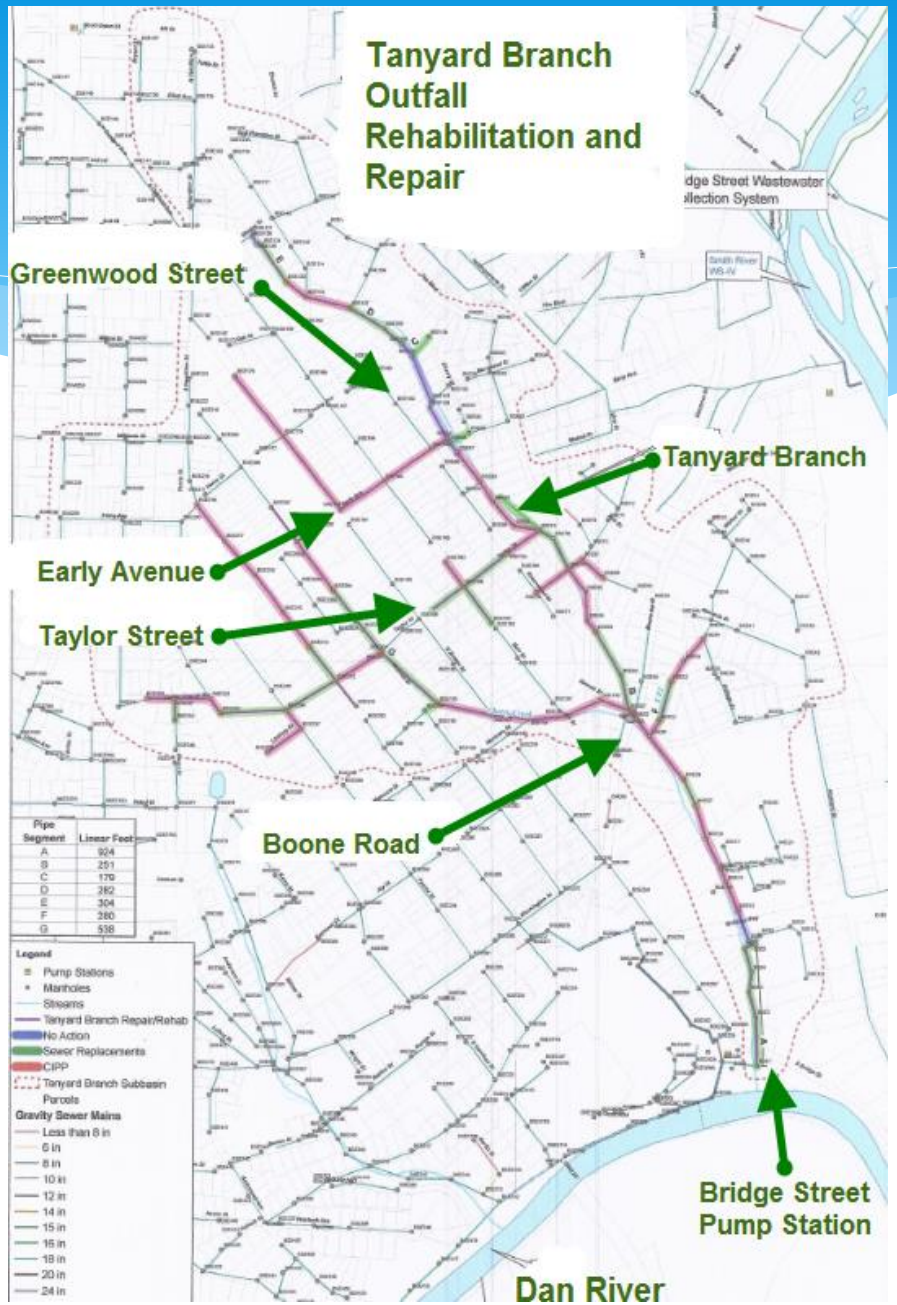


Tanyard Branch Outfall Rehabilitation & Repair Project

- We received a low interest loan for this project estimated at $5,099,333 with $1,000,000 of principle forgiveness funds from the Clean Water State Revolving Fund (CWSRF) and $500,000 in principle forgiveness funds from the Clean Water Management Trust Fund (CWMTF).
- Final Loan repayment will be $3,599,333 spread over 20 years.

Tanyard Branch Outfall Rehabilitation & Repair Project

This is a major rehab project with about 17,400 feet of sewer line to replace or reline and 337 manholes to rehab.



Tanyard Branch Outfall Rehabilitation & Repair Project

Tanyard Branch Outfall Rehabilitation & Repair Project

Tanyard Branch Outfall Rehabilitation & Repair Project

- The project is roughly 33 percent complete as of the end of February and will be completed during FY 2015-16. Yates Construction will have 4 crews working on this project at various times during the construction. Sam Smith Jr. has been subcontracted to provide one of the work crews.
- From the work that has been done to date, we are already seeing a reduction in flow at the Bridge Street Pump Station.

Upper Matrimony Creek Project

- This project is to rehab sewer line in the area North of Center Church, East to Hamilton Street- Bridge Street and Oakland, South of the Brian Center and bound by Matrimony Creek to the West.

- The area has been the source of major Inflow and Infiltration for many decades.

Upper Matrimony Creek Project

- This project has an anticipated cost of $4,036,020. This project is funded with a Clean Water State Revolving Fund (CWSRF) Loan and $1,000,000 in principle forgiveness funds.
- The project has been bid and awarded to Prillaman and Pace out of Martinsville, Va. The notice to proceed is expected to be issued the first or second week of March.
- This project should be completed within 12 months and financing closed out within 15 months.

Covenant Branch & Meadow Greens Force Main Relief Project

- The goal of this project is to increase capacity in the existing force mains with automated valves to divert flow into the Railroad Force Main pipe during periods of high flow.
- This project will be in the design phase over the next 6 to 9 months.
- Permitting and State approval of the project plans could take an additional three to four months.

Covenant Branch & Meadow Greens Force Main Relief Project

- Bidding and award of this contract will take up to 90 days.
- Construction should begin around June 2016.
- The project cost was estimated at $566,588. The State has approved two grants which include a High Unit Cost (HUC) grant in the amount of $34,811 and the Special Legislation grant for government units under EPA orders in the amount of $500,000. The City's cost for this project should only be $31,777.

Junction & Bridge Street Pump Station Rehabilitation Projects

- Both of these pump stations have been running for 21 years since the last upgrades to their controls and pumps.
- The pumps are outdated for the application they are servicing.
- New controls are needed to save energy and improve the efficiency.
- Some drywell piping modifications are needed to improve the pump operations.

Junction & Bridge Street Pump Station Rehabilitation Projects

- State Funding was awarded in December for a low interest loan. Typically, this type of project would have received a zero percent interest loan and possibly even a principle forgiveness loan.
- After discussions with Infrastructure Funding Section (IFS) Personnel, we believe that once this project is designed and the plans verify this is not an upgrade in capacity, the loan will be granted an interest rate of zero percent.

Junction & Bridge Street Pump Station Rehabilitation Projects

- If this project fails to be funded at an interest rate of zero percent, the City Council will still have the option to shelf the plans and wait for more favorable funding opportunities to proceed with the project.

- Regardless, the design work needs to be done at some point and this much will be done. The projected cost for these rehabilitation projects is $3,751,110.

Current Situation & Immediate Recommendations Moving Forward

- No increase in water and sewer service charges for FY 2015-16.
- A remediation plan of no less than 20 years should be submitted to the EPA.
- Meet with Congressman Mark Walker and other federal officials to see if we can get any relief consideration from the EPA based in part on the fact that we are the:
  - Only municipality in NC under an EPA AO despite what's going on in other sectors of the State,
  - We've been proactive by already spending in excess of $7.6 million dollars on this issue, and
  - The last SSO we experienced as a result of I/I was April 15, 2014.

Additional Recommendations Moving Forward

- During FY 2021-22 we will be making our final payment on a $7,500,000 water and sewer improvements loan that was taken out in May 2007 with an interest rate of 3.87%. This will eliminate a $663,778 annual debt service payment.
- During FY 2022-23 we will be making our final payment on a $6,875,755 water and sewer improvements loan that was taken out in June 2008. This will eliminate a $587,018 annual debt service payment.
- If we can delay a significant portion of the required AO improvements until these same periods in time it will reduce the amount of new revenue we will have to raise since our current rate structure already accounts for this combined $1,250,796 in annual debt service payments which could then be re-directed to new debt.

Additional Recommendations Moving Forward

- We should continue to pursue State Revolving Funds (SRF) that currently offer 0% interest since we don't know how much longer such an attractive rate will exist. In addition, we will seek any eligible grants although funds for grants seem to be drying up and are now much more competitive. Examples include the Community Development Block Grant (CBDG) and Clean Water State Revolving Fund (CWSRF).

- ***Attracting large water and sewer users must remain a top priority and a main focus of our ongoing economic development efforts.*** A new industry (even if offered significantly reduced contract rates) still results in a huge plus to our other customers and would help alleviate some of their burden.

Reminder…..
Additional Identifiable Capital Costs

- There will be additional capital outlay needs during the next 20 years that will have to be addressed in addition to what's legally required as a component of the EPA AO. These could include:

• Eden 20 Year Capital Improvement Plan (CIP) (Water Filtration Plant, Wastewater Treatment Plant, Collection & Distribution, Waterline Replacements…)		$31,830,942
• Programmatic Elements Related to Sanitary Sewer System (Identified by W. K. Dickson Engineering)		$16,307,945
• Non-WCTSRP Projects (Non-Wastewater Collection & Transmission System Remediation Plan Projects Identified by W. K. Dickson Engineering		$41,961,992
	Total	$90,100,879

- We make a **HUGE** mistake if we proceed as if the EPA AO projects are the only capital expenses we will be facing moving forward.

Eden 20 Year Capital Improvement Plan

* Water Resources	$ 350,442
* Billing & Collections	$ 17,700
* Water Filtration Plant	$ 5,212,383
* Collection & Distribution	$ 3,247,260
* Wastewater Treatment Plant	$15,168,940
* Water Construction	$ 7,834,217
Total	**$31,830,942**

Non-EPA AO Programmatic Sewer System Elements
Per W. K. Dickson Engineering

• Annualized Sewer Rehabilitation/Replacement (Year 10 through 20)	$10,291,643
• Annualized Pump Station Replacement/Rehabilitation (Year 10 through 20)	$ 3,595,984
• Access Improvements (Year 10)	$ 336,557
• Force Main Condition Assessment (Year 10, 15 and 20)	$ 225,458
• Gravity Sewer Condition Assessment (Year 10, 15 and 20)	$ 375,763
• 10% Contingency (Year 10 through 20)	$ 1,482,540
Total	**$16,307,945**

Non-EPA AO WCTSRP Projects

(Wastewater Collection & Transmission System Remediation Plan)
Per W. K. Dickson Engineering

• Kuder Street Basin – West Side Improvements	$ 3,650,000
• Bridge Street Sewer Rehabilitation (PACP 3 or Less)	$ 6,900,905
• Dry Creek Phase 3 Rehabilitation	$ 1,850,000
• Glovenia Street/Chestnut Street/Spruce Street Sewer Relocation	$ 1,000,000
• Village Sub-Basin Sewer Replacement	$ 700,000
• Irvine River Company Canal Crossing Replacements	$ 840,000
• Smith River Crossing by Trestle	$18,114,996
• Bear Slide Pump Station Replacement	$ 625,000
• Fourth Street Pump Station Replacement	$ 200,000
• Dogwood Pump Station Replacement	$ 300,000
• Industrial Park Pump Station Improvements	$ 625,000
• Railroad Pump Station Improvements	$ 4,300,000
• Programmatic Force Main Condition Assessment	$ 240,000
• Programmatic Gravity Sewer Condition Assessment	$ 400,000
• Access Improvements	$ 290,000
• Contingency	$ 1,926,091
Total	**$41,961,992**

What is Affordable?

- There is a method for analyzing the affordability of federal mandates from the U.S. Environmental Protection Agency (EPA) stemming from the Clean Water Act (CWA).
- The EPA has developed a formal "affordability" criteria matrix to indicate when they believe such mandates would cause substantial and widespread economic distress in a community.
- We believe this criteria has many flaws but it's all we have. In the case of undue economic stress caused by wastewater requirements, the EPA may be willing to exercise some requested flexibility in the mandate by allowing a longer time frame to achieve compliance or by relaxing compliance standards.

What is Affordable?

- Eden has limited resources, so the investments we make need to address the most important needs and deliver maximum benefits at a cost that is affordable.
- The problem?

What we feel is affordable will likely differ from what the EPA feels is affordable.

- Bottom Line:

The investment to meet federal wastewater requirements is and will continue to impose significant financial hardships on households, businesses, and industries.

What is Affordable?

- The cumulative suite of required investments not only strains our financial capacity but is also displacing other important investments, including critical but non-mandated capital improvement and infrastructure renewal projects such as the Digester System at the Mebane Bridge Wastewater Treatment Plant with an estimated cost of approximately $3,336,000.

- For the greater community, mandatory investments may also squeeze out other important priorities due to timing and sensitivity issues such as a new Aquatic Facility or Eden Civic Center with estimated costs ranging from $3,358,000 to $13,600,000 .

- For our residents, businesses and industries, the capital expenses associated with this AO will be reflected in wastewater bills that must grow faster than household incomes and the general rate of inflation. Very real and significant affordability challenges will be created, particularly for lower-income households.

What is Affordable?

- If the EPA affordability criteria functioned properly, the economic hardship imposed on lower-income households would actually be alleviated.
- Unfortunately, there are several critical limitations as to how the EPA defines affordability and applies its assessment criteria. This is due in part to the EPA's reliance on metrics such as median household income (MHI), which is highly misleading as an indicator of a community's ability to pay.
- Unfortunately, regulatory relief is not provided in many communities where substantial and widespread economic hardships are indeed being created.

What is Affordable?

- The EPA based decisions on affordability are the result of two benchmarks: a residential indicator (RI) and a financial capability indicator (FCI).
- The RI weighs the average per household cost of wastewater bills relative to median household income in the service area. Ultimately, an RI of 2% or greater is deemed to signal a "large economic impact" on residents, meaning the community is likely to experience economic hardship in complying with federal water quality standards.
- With a 2012 median household income of $28,248 and the average annual household cost of wastewater bills equaling $399.12 ($33.26 per month x 12) our RI is currently 1.41%. Our rates would need to average $564.96 per year or $47.08 per month to reach an RI level of 2%.

What is Affordable?

- The Financial Capability Indicator (FCI) is more complex and reflects the average of six economic indicators. Those indicators include:

  1. Bond Rating
  2. Property tax collection rate
  3. Median Household Income
  4. Local unemployment rate
  5. Property tax burden
  6. Net debt

  Each indicator is assigned a score of 1 to 3 based on EPA established benchmarks. Lower FCI scores imply weaker economic conditions and thus an increased likelihood the mandate would cause substantial and widespread economic impact on the community or service area.

- The results of the RI and FCI are ultimately combined into an overall rating based on the EPA's Financial Capability Matrix. This rating is intended to demonstrate the overall level of financial burden imposed on a community by full compliance.

What is Affordable?

- The EPA affordability criteria breaks down the final score into one of three general scheduling boundaries:

Financial Capability Matrix Category	Implementation Period
Low Burden	Normal Engineering & Construction
Medium Burden	Up to 10 Years
High Burden	Up to 15 Years*

* (Schedule up to 20 years based on negotiation with EPA and state NPDES authorities)

- A preliminary assessment was completed on February 19, 2014 and based on the data at that time and the July 1, 2014 rate increase it appeared Eden would fall somewhere between the medium burden and high burden range of the EPA established benchmarks but a more detailed assessment will need to be completed once we are ready to submit our formal remediation plan.

What is Affordable?

- The projected level of annual debt service payments on the eight loans in the Water and Sewer Fund representing $24,471,389 worth of work that has been completed or will soon be completed since 2007 is a staggering $1,887,842.
- Actual revenue from water and sewer service charges for FY 2013-14 equaled $7,308,796. Annual debt service payments of approximately $1,887,842 represent 25.83% of the total revenues collected.
- The average residential water/sewer customer is currently using just over 4,000 gallons per month. Prior to July1, 2014 the monthly bill for a residential customer inside the corporate limits and using 4,000 gallons per month equaled $48.75. On July 1, 2014 rates were raised due in large part to the EPA AO. Currently, this same customer is now paying $60.11 per month, an increase of $11.36 per month or 23.30%.
- Based on the latest information available, the average water/sewer bill for a residential customer using 4,000 gallons per month for the State of North Carolina is $55.92 and for the Commonwealth of Virginia the average bill is $55.56.

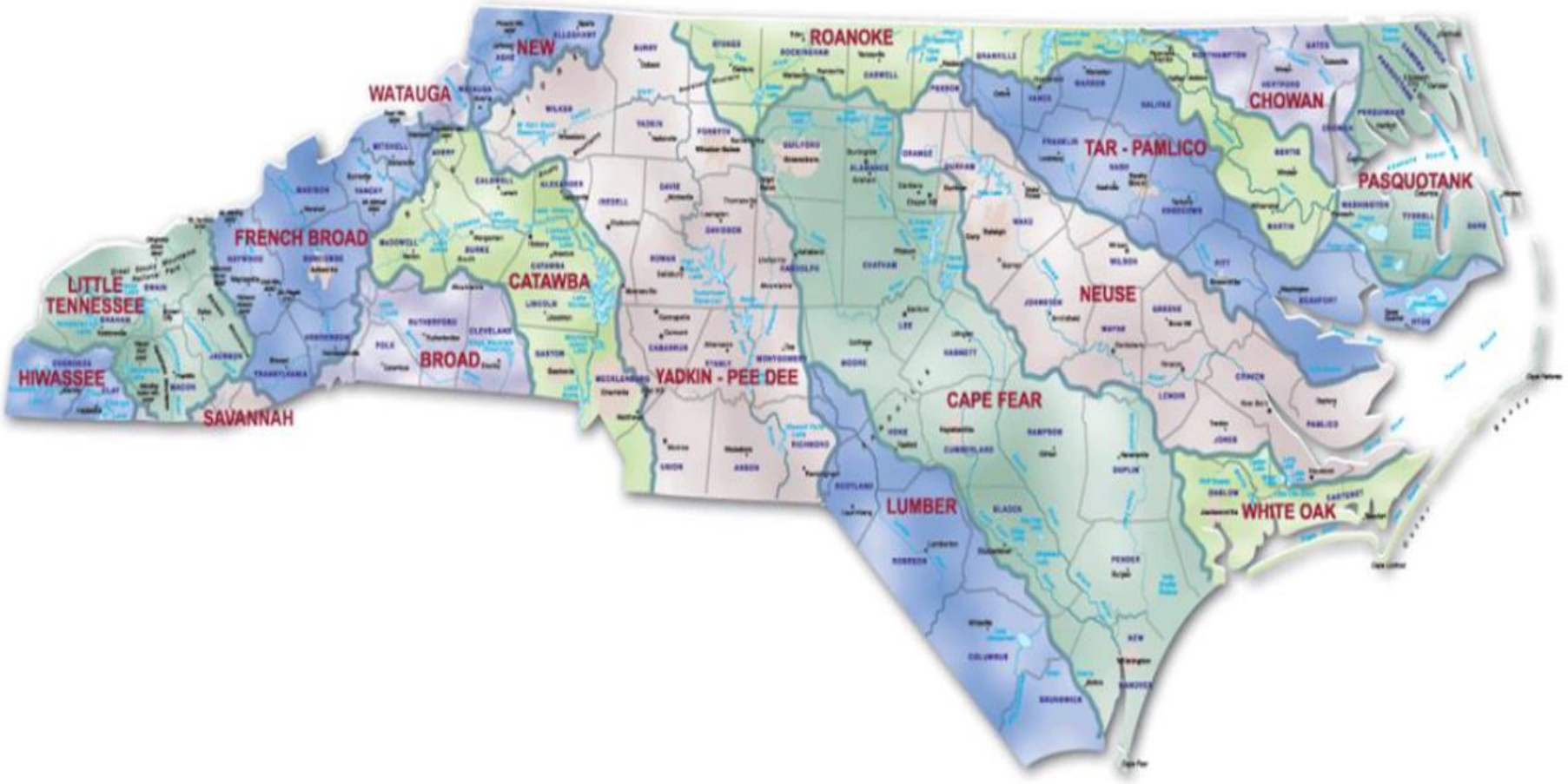
Comparison to Other Communities

Average Residential Customer @ 4,000 Gallons Per Month

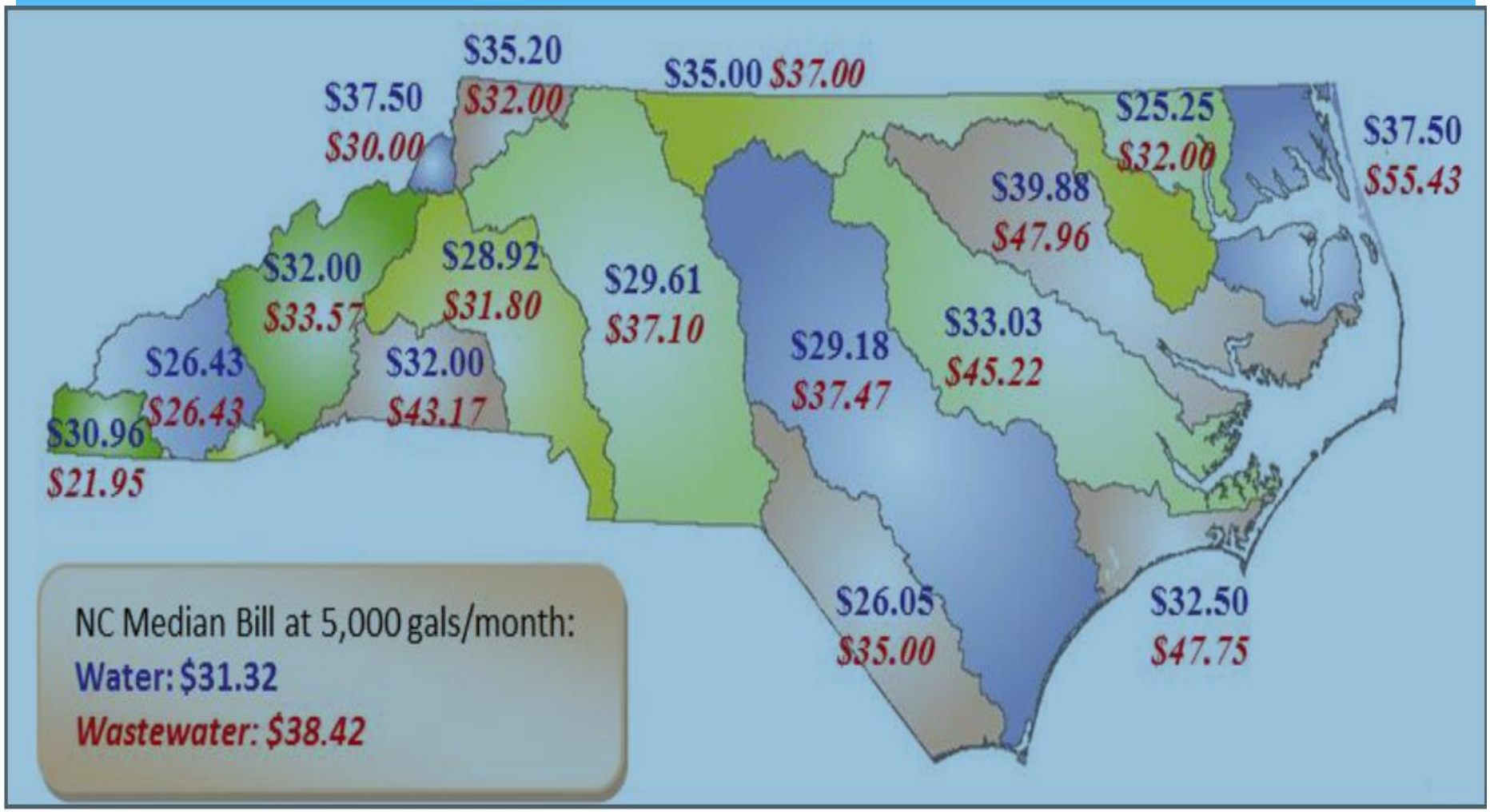
Community	Water	Sewer	Total
Eden – Prior to July 1, 2014	$23.91	$24.84	$48.75
Eden – Current	$26.85	$33.26	$60.11
Madison	$32.87	$36.93	$69.80
Mayodan	$17.36	$17.36	$34.72
Reidsville	$14.38	$35.45	$49.83
Rock. County	$44.33	$37.16	$81.49
Stoneville	$25.56	$25.56	$51.12
Dan River Water	$37.74	-------	$37.74
N.C. State Average	$24.00	$28.92	$52.92
VA. State Average	$24.08	$31.48	$55.56

- State averages are from February 2014 and data collected from other communities is based on current February 2015 rates.

North Carolina River Basins



Water & Sewer Costs – Various River Basins in NC
Based on 5,000 Gallons Per Month
@ 5,000 Gallons Eden = $31.10 (Water) and $39.27 (Sewer)



Customer Usage Patterns

- Growth/Decline in Customers Usage Patterns???
  - Review recent trends in water & sewer usage:

Fiscal Year	Billable Water	Billable Sewer
2005-2006	3,150,306,200 Gallons	1,769,763,100 Gallons
2011-2012	1,770,174,700 Gallons	512,557,100 Gallons
2012-2013	1,555,782,500 Gallons	470,638,200 Gallons
2013-2014	1,475,073,900 Gallons	459,190,300 Gallons

* The average water/sewer usage per residential customer is down to just 4,092 gallons per month.

REDUCED USAGE = LESS $$$

Raftelis Financial Consultants, Inc. Rate Study

- Due to the magnitude of the projected costs, Raftelis Financial Consultants, Inc. was asked in 2013 to develop a financial planning rate model that would assess our operational, capital and debt level planning needs in order to calculate projected rates that would be sufficient enough to meet our ongoing obligations while maintaining our liquidity and reserves.

- The first set of numbers we received from Raftelis were in February 2014. In an effort to assess our current situation moving forward we used the Raftelis Rate Model earlier this week and it revealed the following:

Forecasted Rate Adjustments – Next 10 Years
As of February 24, 2015
Combined Water/Sewer Bill @ 5,000 Gallons

Year	5 Year Remediation		20 Year Remediation	
(Current)	$70.32/Mos.		$70.32/Mos.	
FY 2016	$70.52/Mos.	0.21%	$70.52/Mos.	0.21%
FY 2017	$76.32/Mos.	8.22%	$74.92/Mos.	6.24%
FY 2018	$81.97/Mos.	7.40%	$80.57/Mos.	7.54%
FY 2019	$98.24/Mos.	19.85%	$90.27/Mos.	12.04%
FY 2020	$99.89/Mos.	1.68%	$91.87/Mos.	1.77%
FY 2021	$101.84/Mos.	1.15%	$93.07/Mos.	1.31%
FY 2022	$102.29/Mos.	1.24%	$94.42/Mos.	1.45%
FY 2023	$102.29/Mos.	0.00%	$94.42/Mos.	0.00%
FY 2024	$102.29/Mos.	0.00%	$94.42/Mos.	0.00%
FY 2025	$102.29/Mos.	0.00%	$94.42/Mos.	0.00%
10 Year Increase	$31.97 or 45.46%		$24.10 or 34.27%	

Reminder…..
Some May Say - Let's Do Nothing!

- The U.S. Environmental Protection Agency (EPA) is authorized through the U.S. Department of Justice to file actions in federal district court to obtain civil penalties and/or appropriate injunctive relief against violators. Criminal penalties are also authorized. The civil penalty alone can be as high as $37,500 per day for each violation in addition to possible criminal penalties.
- Between the communities of DeKalb County, Georgia; Lexington/ Fayette, Kentucky; Winchester, Kentucky; Knoxville, Tennessee; and Mobile, Alabama, a total of $2 billion in injunctive relief and $1.5 million in civil penalties were levied by the EPA for non-compliance issues.

Reminder…..
Some May Say - Let's Do Nothing!

- In a July 11, 2013 EPA press release, it was announced that the City of Wilmington, New Hanover County and the Cape Fear Public Utility Authority were hit with a civil penalty of $300,000 AND placed under a consent decree.
- In March 2007, the Charlotte-Mecklenburg Utility Department had to pay a $125,000 civil penalty and was the first major city in the Carolinas to face EPA enforcement related to SSOs.

Comparatively Speaking

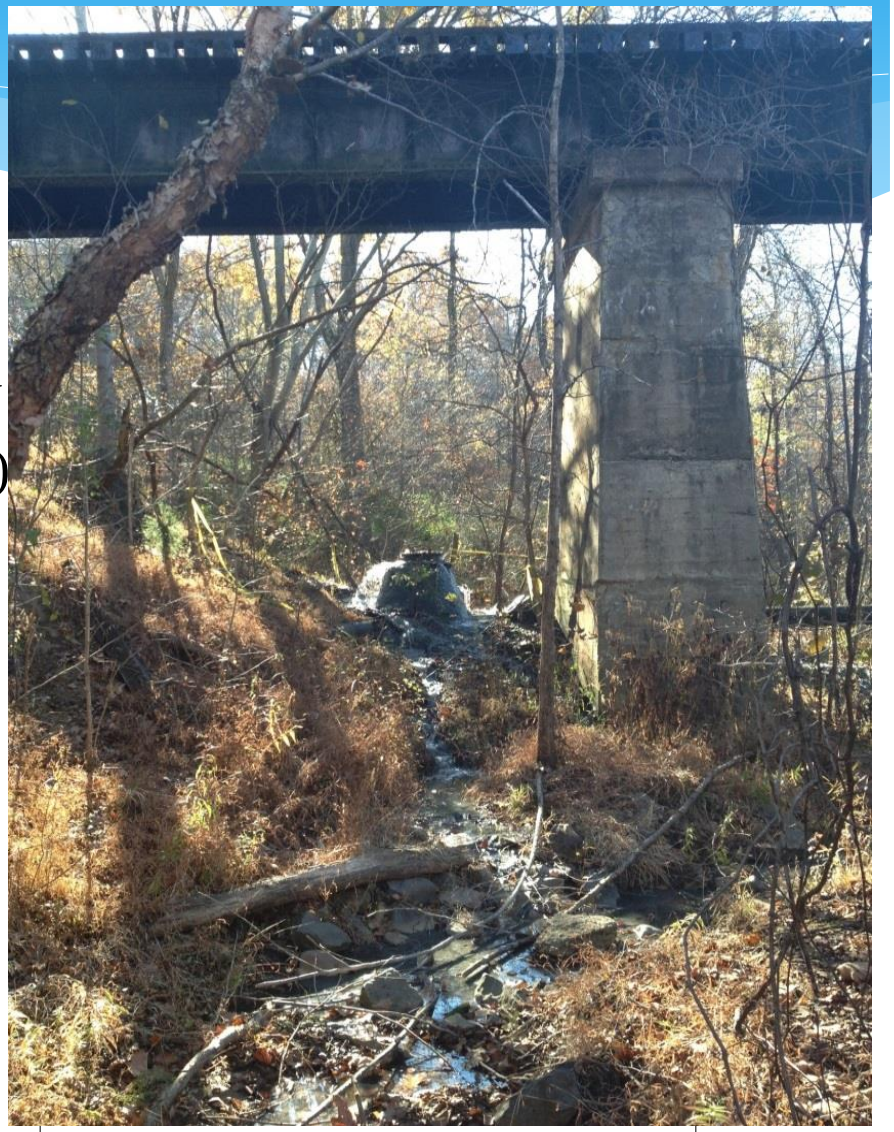
- Despite the rate increase that became effective on July 1, 2014 our existing average cost of $60.11 for **TWO** utilities ($26.85 water and $33.26 sewer) is still very competitive compared to the average monthly cost for:
    - Cable TV
    - Electricity
    - Natural Gas
    - Cell Phone Service
    - Internet Service
    - Home Phone Service

Questions and Discussion?

??????????

Summary of Identified Deficiencies

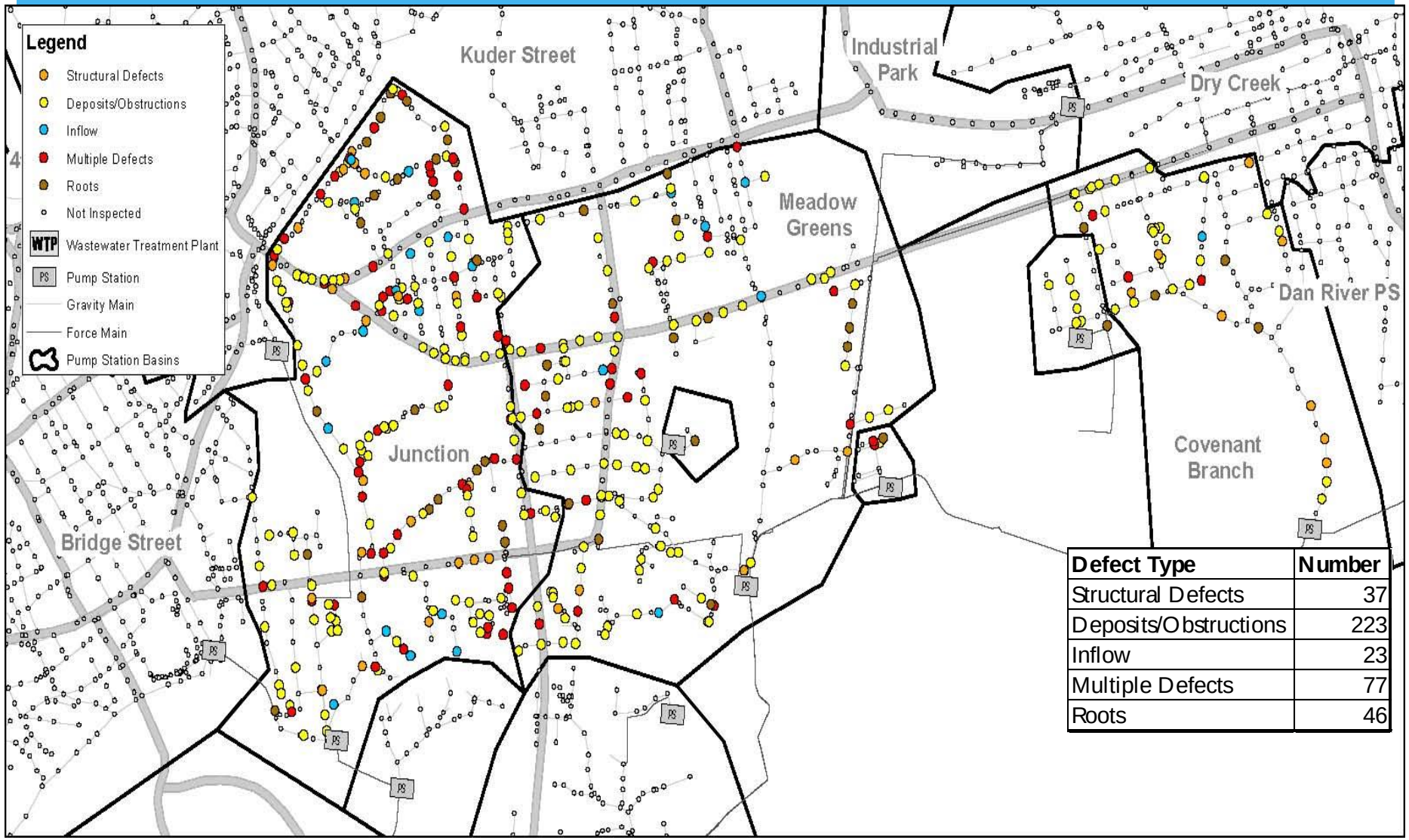
- Sanitary Sewer System Evaluation Survey (SSSES)
- Pump Station Evaluation
- CCTV Inspections
- Wastewater Collection/Transmission System (WCTS)



Sanitary Sewer System Evaluation Survey

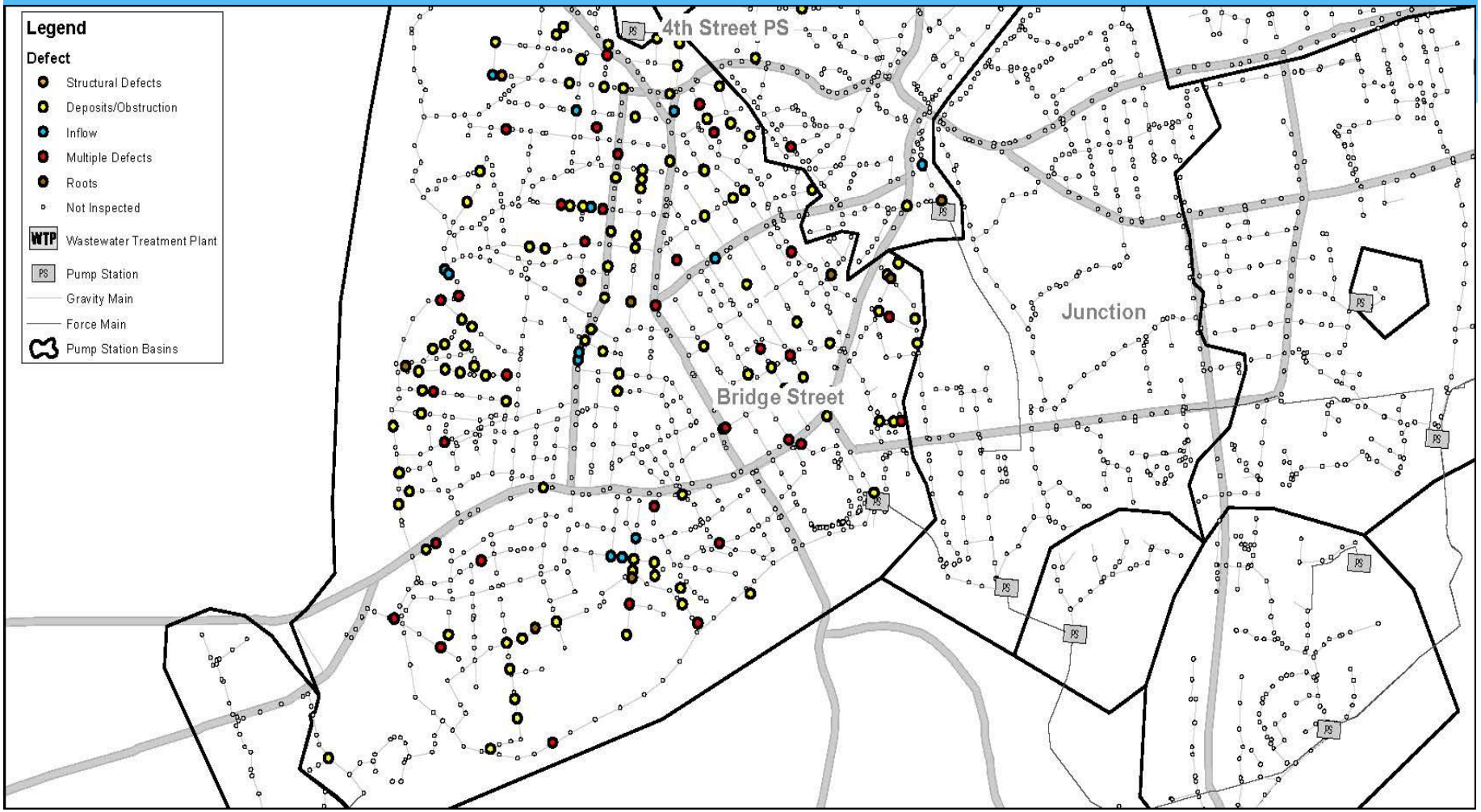
- 4 critical basins initially selected for inventory:
  - Bridge Street
  - Junction
  - Meadow Greens
  - Covenant Branch
- 860 manholes inventoried.
- 422 manholes surveyed to obtain true elevations.
- All captured data input into GIS database.
- Dry Creek, Bridge Street and Kuder Street required inspection to meet the approval of Sanitary Sewer System Evaluation Survey (SSSES) Work Plan. An additional 610 manholes were inspected.
- Over 60 locations of direct and indirect stormwater connections were identified.

Manhole Defects Identified During SSSES

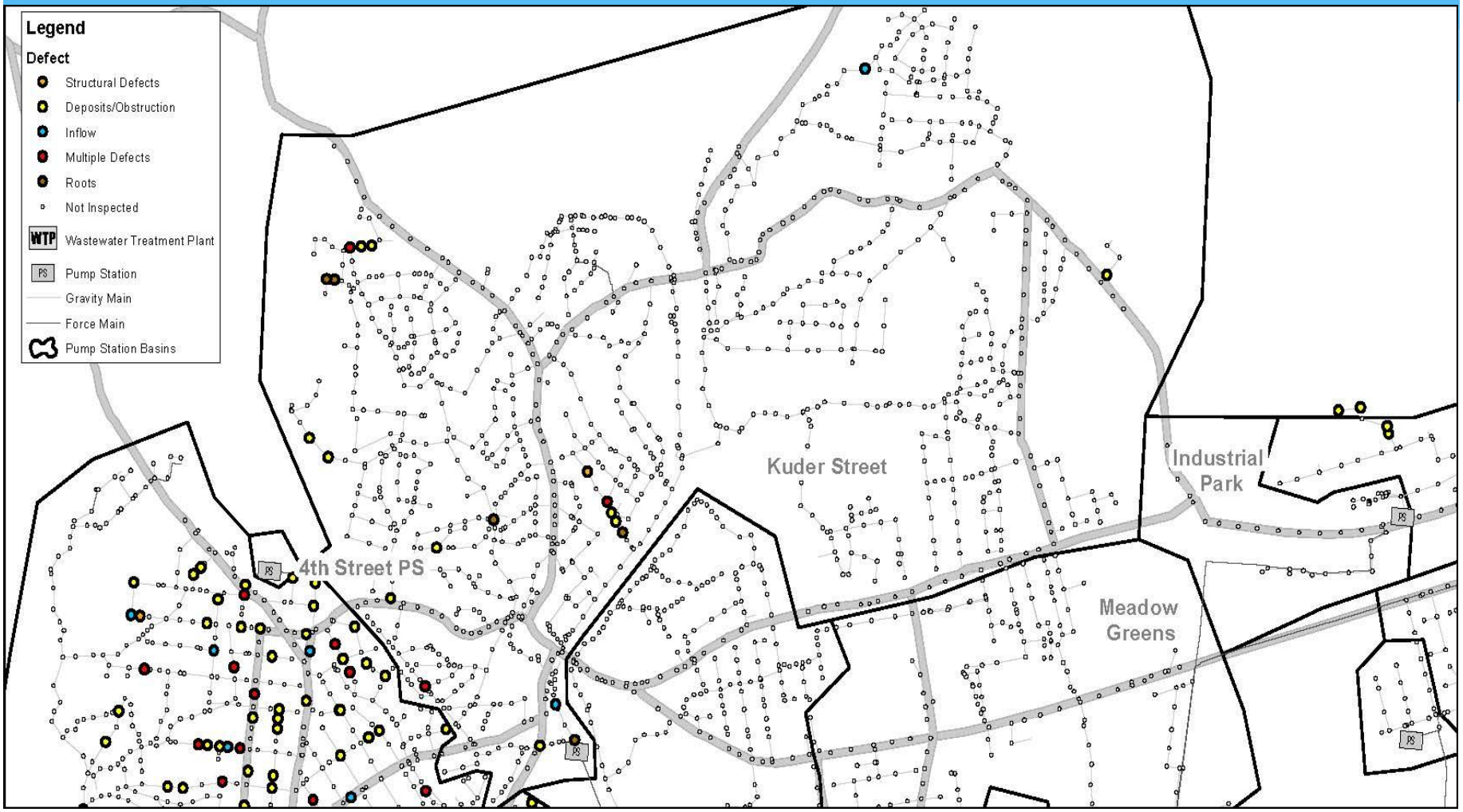


Defect Type	Number
Structural Defects	37
Deposits/Obstructions	223
Inflow	23
Multiple Defects	77
Roots	46

Manhole Defects Identified During SSSES – Bridge Street

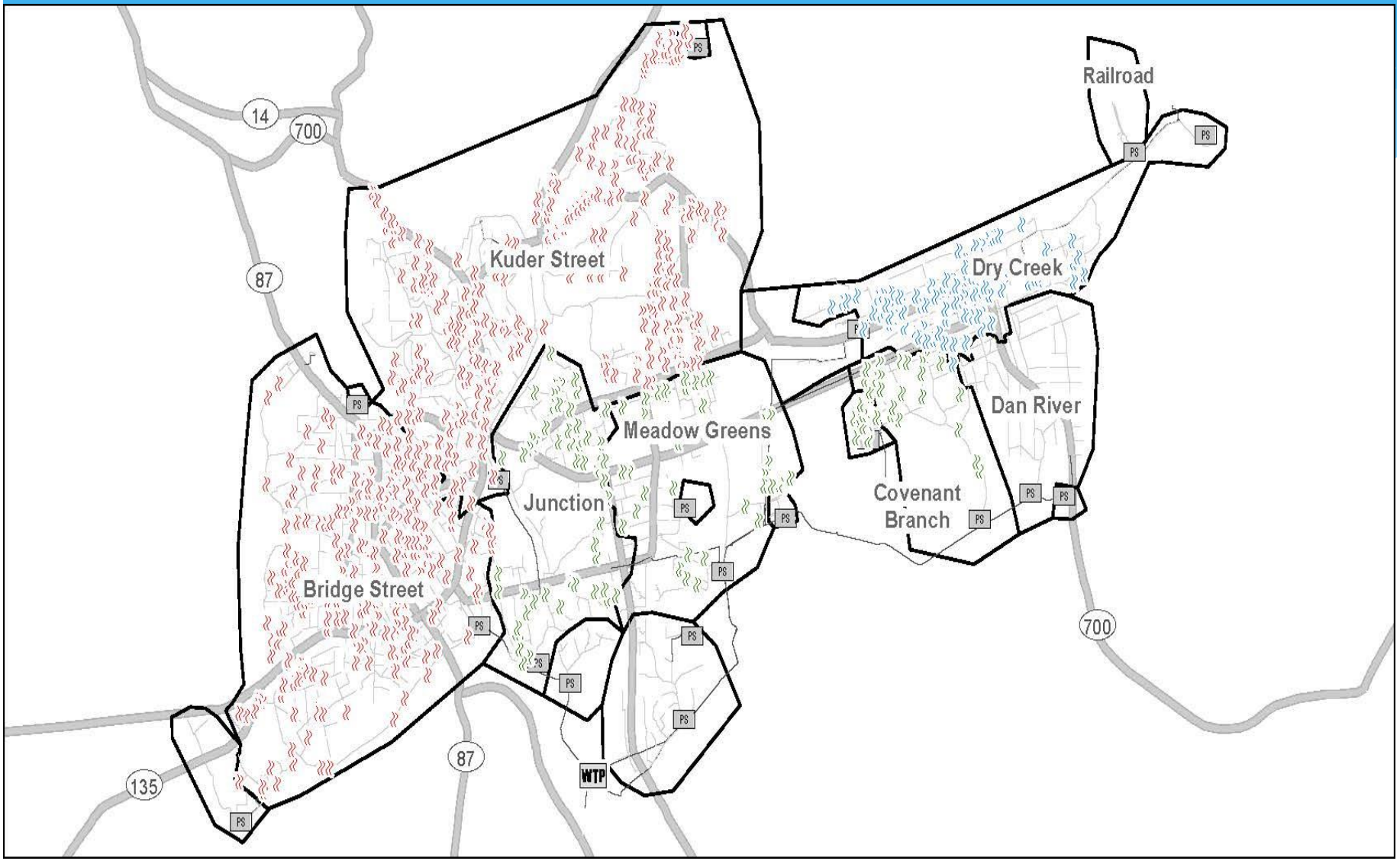


Manhole Defects Identified During SSSES – Kuder Street



Manhole Defects Identified During SSSES – Dry Creek

Defects Identified During Smoke Testing – Public & Private

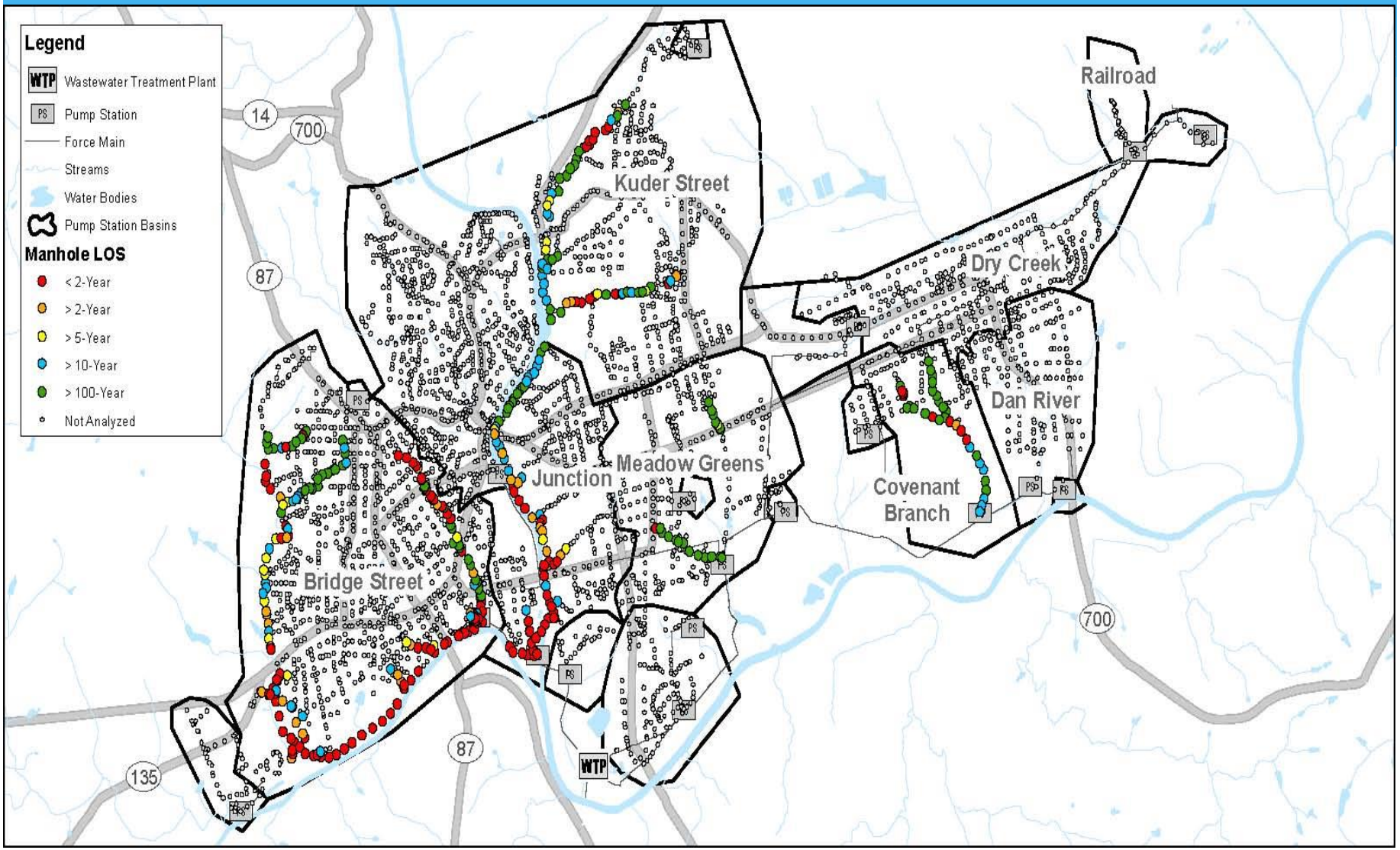


Manholes in Floodplain Analysis

Basin	Total Manholes	Below 100-Year Floodplain	Below 10-Year Floodplain	Below 5-Year Floodplain	Below 2-Year Floodplain
Bridge Street	174	141	119	107	87
Junction	81	69	49	46	36
Meadow Greens	23	2	2	1	1
Covenant Branch	35	16	9	9	8
Kuder Street	62	38	24	17	13
Total	**375**	**266**	**203**	**180**	**145**

Ideally, we would like all of our manholes to be above the 100 – Year Floodplain. The number of manholes below the 2 – Year Floodplain is very alarming since this has a very frequent re-occurrence interval.

Manholes in Floodplain Analysis



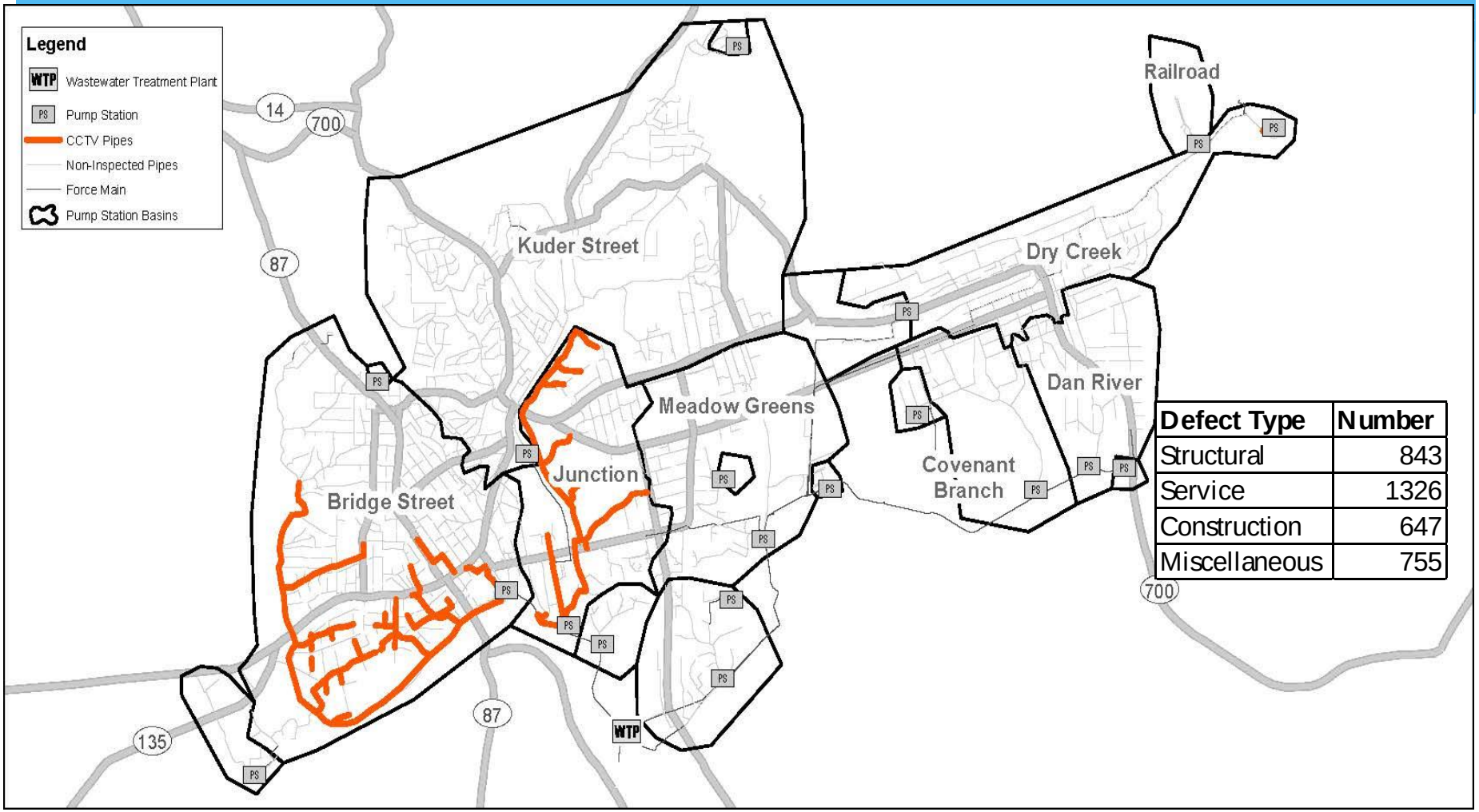
Pump Station Evaluation

- 5 pump stations selected for detailed inspection:
  - Bridge Street – *Large regional pump station*
  - Junction – *Large regional pump station*
  - Industrial – *Large regional pump station*
  - Railroad – *Large regional pump station*
  - Bear Slide – *Small pump station*
- Minor Rehabilitation – Industrial and Railroad.
- Replacement – Bear Slide, 4th Street and Dogwood.
- Major Rehabilitation – Junction and Bridge Street.

CCTV Inspections

- 43,700 linear feet or nearly 5 miles of sewer line inspected in Bridge Street basin and approximately 23,350 linear feet of sewer line in Junction Basin
- 7,390 linear feet required heavy cleaning in Bridge Street which has significantly improved operational performance of the Matrimony Creek Outfall. Removed heavy roots and in some cases large boulders.
- 3,571 defects found in Bridge Street.
- Several hundred defects were identified in Junction Basin.
- CCTV results were imported to GIS using InfoMaster.
- Additional work is continuing on the siphon and outfall upstream of the siphon due to significant blockage. The blockage appears to be the source of the chronic overflows and requires specialized equipment to remove it. Once it is removed, the sewer and siphon can then be inspected to determine the condition and need for any structural repairs and improvements. This could translate into additional $$$$$$$

CCTV Inspection – Pipes Inspected/Defects Found



Defect Type	Number
Structural	843
Service	1326
Construction	647
Miscellaneous	755

CCTV Inspection

- Since we do not have unlimited funding, the recommended prioritization of sewer main condition assessment involves a more balanced and phased approach that controls costs by focusing on the most critical pipe sections, regardless of project area, as defined by the Pipeline Assessment & Certification Program (PACP) Grade 4 and 5 severity ratings and the sections that require capacity upgrades to satisfy the Capacity Analysis Report.

- Grade 4 and 5 defects have the highest likelihood to fail or have failed and pose the highest risk of leading to SSOs.

CCTV Inspection-Bridge Street

- Approximately 26,000 linear feet of sewer which contain PACP 3 defects in the Bridge Street Basin should be monitored every five years. These improvements are recommended to be a long term goal as part of the City's 20-year CIP unless conditions with the pipe's severity worsen.
- Phase 1 (Grade 4 or 5 Defects) for the Lower Matrimony Creek and Dan River Outfall areas consist of approximately 13,500 linear feet of sewer main repairs utilizing open trench construction and cured in place pipe line (CIPPL) installation.

CCTV Inspection-Junction

- The Junction Basin had significantly less frequency of Grade 4 and 5 severity ratings but the condition assessment was inconclusive on two main sections of the outfall due primarily to inaccessible conditions of the sewer easement and severe surcharging and significant debris in these sections. These sections include the lower portion of the Smith River Outfall inclusive of the triple barrel siphon between Kings Highway and Valley Drive and the upper portion of the Smith River Outfall between Meadow Road and the terminus of the outfall.

CCTV Inspection-Junction

- The inaccessibility of the easement was a limiting factor in mobilizing a standard tandem axle combination vacuum/jet truck to clean the debris in both locations. Given these unforeseen challenges, completing the assessment of these two outfalls and the triple barrel siphon will require access improvements that the City's Collection and Distribution Division is undertaking and the assistance of a specialty pipe cleaning partner that has tracked equipment and custom reach hose and jet equipment.

CCTV Inspection-Junction

- The triple barrel siphon under Smith River is a critical asset and was evaluated to the extent practical. The debris in the lower portion of the Smith River Outfall between Manhole JN_MH_0296 and the siphon box inlet is likely from the lowest and second to lowest barrel under-performing. The siphon is comprised of three barrels with the two lowest barrels primarily responsible for dry weather flow. The lowest barrel is an 8-inch pipe while the second to lowest is a 10-inch pipe. The third barrel primarily is operational during wet weather flows and it is a 12-inch pipe. Based on visual observations, the primary and secondary dry weather barrels are restricted. Because of access issues, the cause(s) of the restriction could not be confirmed but likely is debris.

CCTV Inspection-Junction

- While difficult access prevented the ability to clean the outfall and the siphon to lower the surcharged conditions and allow CCTV inspection to be performed, sonar inspection was completed and indicated significant debris accumulation. The magnitude ranged from 40% to 75% of pipe area. These obstructions, blockage and severe corrosion along with restrictions in the siphon area are the causative issues of those re-occurring SSOs near or at Manhole JN_MH_0296. This finding correlates to the hydraulic model that predicts SSOs only emerge when downstream restrictions are in place.

CCTV Inspection-Junction

The following action items will be pursued to assess and address the chronic SSOs including:

- Perform specialized cleaning of the outfall from Manhole JN_MH_0296 to Manhole JN_MH0391 inclusive of the siphon.
- After the cleaning is completed, perform a complete CCTV inspection to understand additional defects and the extent of corrosion. The siphon will also be inspected.
- After 6 months of operation, perform sonar and CCTV inspection of the section between Manhole JN_MH_0296 and the siphon inlet to confirm that the siphon is not the primary function in sediment deposition upstream. If the sonar and CCTV inspection reveals reoccurrence of deposition, then siphon replacement may be a necessity or the COE may have to commit to a routine flushing and cleaning operation of this sewer that likely will entail contractual, specialized services on a frequency of every 6 months. The latter is likely a less expensive option to delay near term replacement.

CCTV Inspection-Junction

- Replacement of the sections between Manhole JN_MH_0296 and Manhole JN_MH_0276 as the surface corrosion warrants replacement. Additional downstream replacement may be warranted but that will be confirmed after the initial CCTV inspection is completed.
- Repair/rebuild the siphon boxes given the significant loss of concrete and visible reinforcement. The timing of this repair can coincide with the replacement and rehabilitation improvements that are warranted between the siphon inlet and Manhole JN_MH_0296 to avoid multiple disruptions to flow and additional bypass pumping costs.

CCTV Inspection-Junction

- The sewer which is located in Valley Drive between Manhole JN_MH_0273 and Manhole JN_MH_0286 requires two sections that contain significant crown corrosion and surface wear. This section is immediately downstream of the Kuder Street force main and not surprising is close to a previous repair that was made to replace a failed section of sewer.

- The Neil Street Outfall between Manhole JN_MH_0099 and Manhole JN_MH_0103 is in immediate need of relocation because of its high priority location and imminent risk of failure. A portion of this outfall is either perilously close to the adjacent stream bank or has been exposed by scouring within the stream. Smoke testing revealed one open joint within the exposed sewer in the stream.

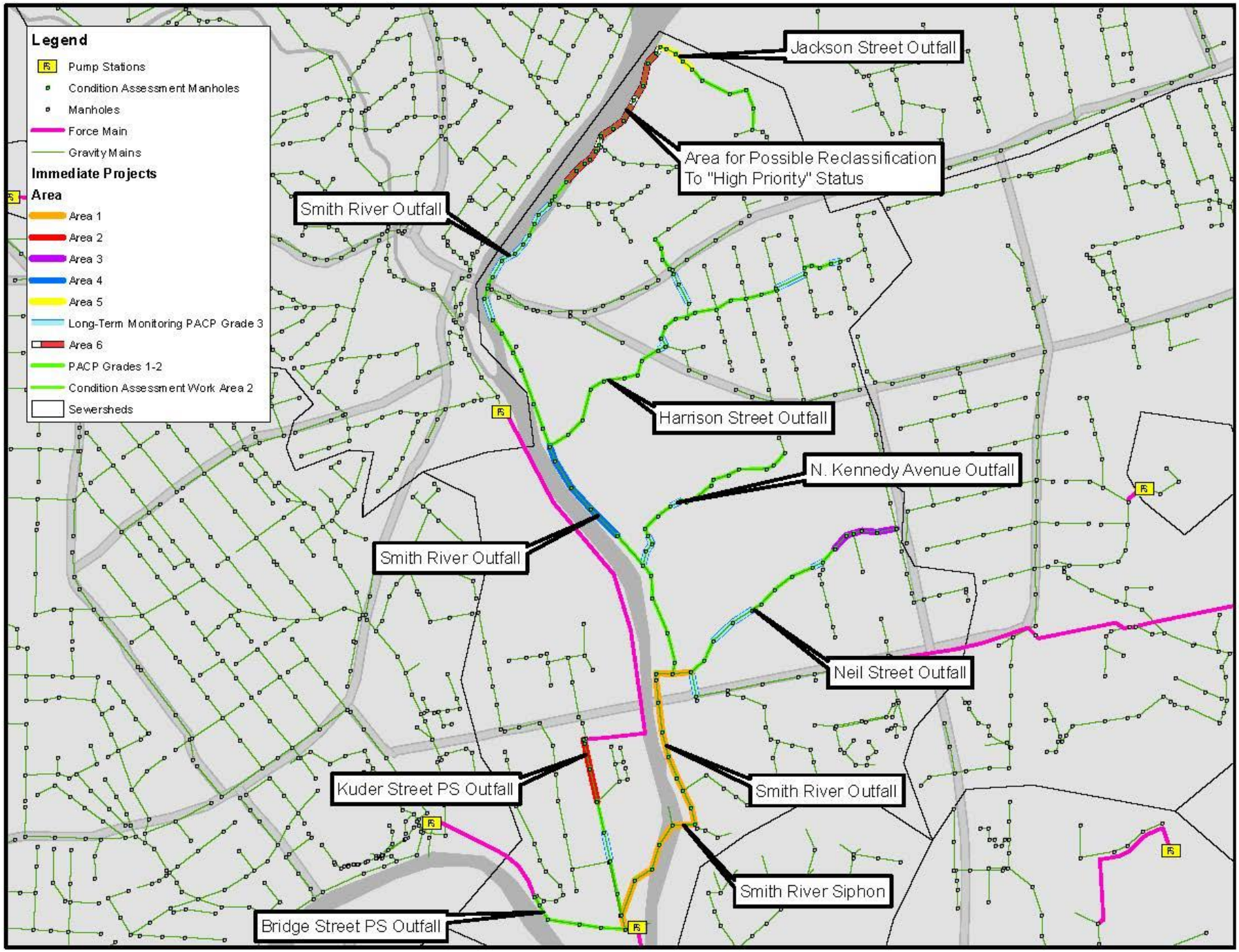
CCTV Inspection-Junction

- A section of the Smith River Outfall between Kings Highway and Meadow Road (Manholes JN_MH_0333 and JN_MH_0370) were initially revealed to have a severe negative slope that is causing surcharging of the upstream manholes. The negative slopes were confirmed by rim and invert surveys for data entry into the hydraulic model. The CCTV Inspection revealed this section of line contained debris accumulation and pipe sags, which are indicative of surcharging and the reverse slope of the pipe sections. Therefore, approximately 1,170 LF of this outfall and four sanitary sewer manholes must be replaced to provide positive slope.

CCTV Inspection-Junction

- Approximately 2,200 linear feet of sewer which contain PACP 3 defects in the Junction Basin should be monitored every five years. These improvements are recommended to be a long term goal as part of the COE's 20-year CIP unless conditions with the pipe's severity worsen.

- Phase 1 (Grade 4 or 5 Defects and other identified problematic sections) consist of approximately 2,380 linear feet of sewer main repairs utilizing open trench construction and cured in place pipe line (CIPPL) installation.


Legend
Pump Stations
Condition Assessment Manholes
Manholes
Force Main
Gravity Mains
Immediate Projects
Area
Area 1
Area 2
Area 3
Area 4
Area 5
Long-Term Monitoring PACP Grade 3
Area 6
PACP Grades 1-2
Condition Assessment Work Area 2
Sewersheds
Jackson Street Outfall
Area for Possible Reclassification To "High Priority" Status
Smith River Outfall
Harrison Street Outfall
N. Kennedy Avenue Outfall
Smith River Outfall
Neil Street Outfall
Kuder Street PS Outfall
Smith River Outfall
Smith River Siphon
Bridge Street PS Outfall

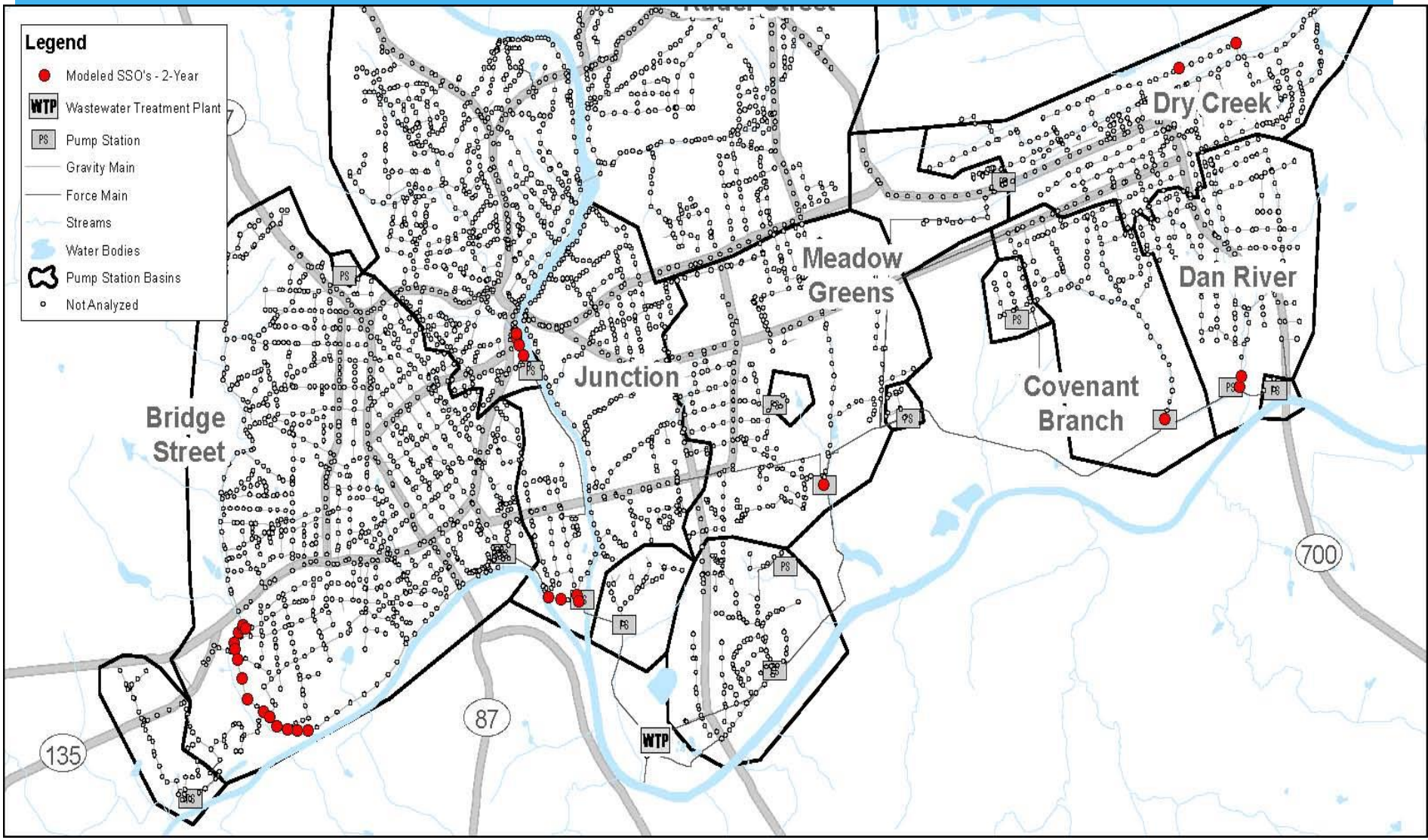
Wastewater Collection/Transmission System

Level of Service

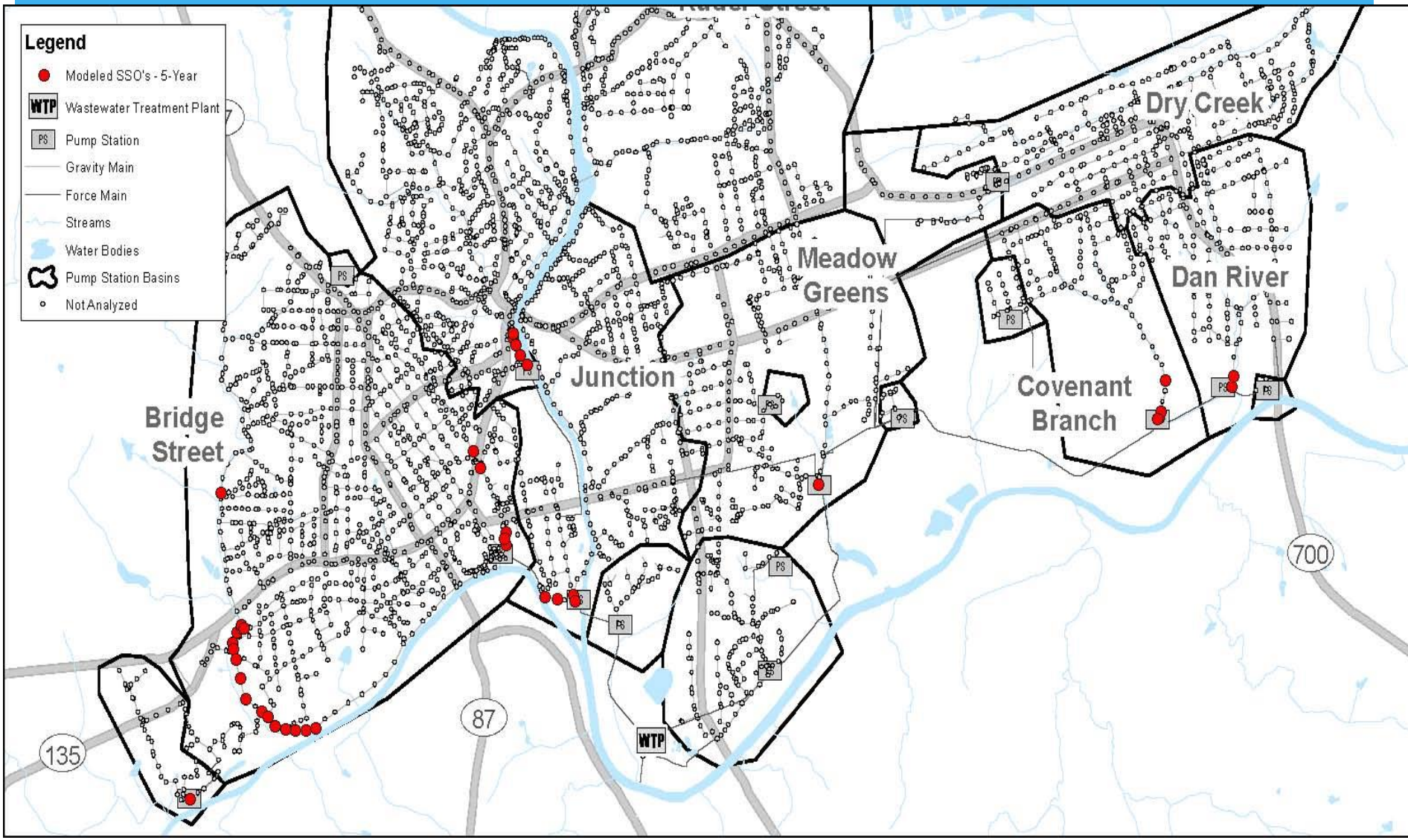
Pump Station Basin	Existing Level Of Service
Bridge Street	< 2-Year
Junction	< 2-Year
Meadow Greens	< 2-Year
Covenant Branch	< 2-Year
Dan River	< 2-Year
Kuder Street	< 2-Year
Bear Slide	10-Year
Indian Hills	2-Year
Railroad	< 2-Year
Industrial Park	10-Year
Oaks	2-Year
Village	10-Year
New Street	10-Year
Friendly	10-Year
Highway 700	10-Year

Ideally our critical basins should not have overflows during wet weather. However, minimum design performance standards indicate that each basin can function effectively if improved enough to meet a 2 year 24-hour storm event. Subsequent modeling concluded that Dry Creek, Dan River and Kuder Street fall below this level of service.

2-Year 24-Hour Design Storm – Predicted SSOs



5-Year 24-Hour Design Storm – Predicted SSOs



10-Year 24-Hour Design Storm – Predicted SSOs