Report to the Town Council on the Development of an Asset Management Plan

Prepared by:

North Smithfield Asset Management Commission

February 2025

Introduction

Much has been said and written about the need for the Town of North Smithfield to better maintain assets to extend their life. This is no simple undertaking. If the goal is to embark on a sustainable Asset Management (AM) program, it requires a coordinated commitment from the Town Administrator and staff, the Town Council as well as the various boards advising the Town Council – it requires buy-in from all parties.

An AM program looks at all assets owned by the Town and defines the mechanisms on how to maintain and extend their useful life. While it is inevitable that assets need to be replaced, a well-run asset management program will provide the documentation to assist in the decision to on when to replace.

The Asset Management Commission (AMC; the Commission) was established in early 2019 as a result of several approved changes to the Town Charter. With regard to the Asset Management Commission, the Town Council adopted the following:

> Sec. 2-196. Asset Management Commission
>
> (a) Commission established. Pursuant to Article XV Sec. 11 of the Town Home Rule Charter, the Town Council hereby establishes the terms and membership of the Asset Management Commission.
>
> (b) Membership. The Asset Management Commission shall consist of five members, appointed by the Town Council from among the qualified voters of the Town, each to serve a term of five years, except that the terms shall be arranged so that the term of one member shall expire each year. In the event that a Commission member shall have missed three consecutive meetings without consent of the Commission Chair, then his or her membership shall expire forthwith. In the event of a vacancy on the Commission for any reason, the Town Council shall make an interim appointment for the remainder of the unexpired term. Members shall be eligible for reappointment. The qualifications of members shall include, but not be limited to, experience in construction and facilities management, architectural and civil engineering, real estate and finance
>
> (c) Organization. The Commission shall organize annually and, by election, shall select from its members a Chair, Vice Chair and Secretary and may adopt any rules of procedure deemed necessary for the proper discharge of its duties. The Commission shall hold its regular meetings on a monthly basis, and special meetings may be scheduled at the direction of the Chair. All meetings of the Commission shall be conducted in accordance with the Rhode Island Open Meetings Act. See G.L. § 42-46-1 et seq. (d) Quorum. Three members of the Commission shall constitute a quorum, and no vacancy

in the membership shall impair the right of a quorum to exercise all the rights and perform all the duties of the Commission.

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(e) Duties and purposes. The general duties and purposes of the Asset Management Commission are as follows:

1. Compile an inventory of all land, vehicles and buildings owned by the Town.

2. Assess the condition of all buildings and establish and prioritize the need for major repairs or renovations.

3. Prepare and present to the Town Council a list of Town-owned property that could be sold or transferred. The Commission shall identify and recommend sites to be acquired for projects identified on the priority list.

4. Prepare with input from all departments of Town government a list of projected capital expenditures for five and ten-year periods; prioritize the list and recommend sources of funding. The Commission shall annually report to the Town Administrator and Town Council its recommendations.

5. Conduct the initial review of any project for which a Town department seeks funding, including planning, cost estimates for the project, and future operating costs associated with the project. This initial review shall be done by the Commission with assistance of the department making the request. Any building committee designated to build the project shall include representatives from the Asset Management Commission. All building committees shall be appointed by the Town Council.

6. The Commission, on request of the Town Council, may perform other specified tasks. The Town Administrator shall provide necessary resources to the Commission to carry out its responsibilities. (Ord. of 1/28/2019)

This document is intended to explain the purpose of Asset Management, provide an example of a highly effective Asset Management Program developed and implemented at the Narragansett Bay Commission, review three AM program types performed for several Town entities, summarize the work that the Asset Management Commission has accomplished to date, outline some of the obstacles we have run into and finally, offer a potential solution to get the program developed and implemented.

To repeat, it cannot be emphasized enough that if the Town elects to proceed with an AM program it has to be all in – the Administration, staff, Town Council and the various boards must be committed to the program. This includes designating someone whose sole job should be to keep the asset management system sustained.

Equally important, for the program to succeed, everyone (taxpayers included) need to understand that implementation and sustainability of the program will cost money. Costs include hiring a firm to set up the program, paying for asset management software, retaining outside vendors to complete the more complex preventive and predictive maintenance and, of course, providing for a line item in the budget for upgrading and/or replacing equipment/building components.

In the long haul, a sustainable Asset Management Program can save the Town money. In Asset Management you have to spend money to save money.

What is an Asset Management Plan?

Asset management (AM) is the systematic process of developing, operating, maintaining, and disposing of assets in a cost-effective manner. It can apply to both tangible assets, such as infrastructure, real estate, and equipment, and intangible assets, including intellectual property and financial investments. The goal of asset management is to maximize the value and performance of these assets over their lifecycle while minimizing risks and costs. This discipline is widely used in industries such as finance, real estate, manufacturing, and public-sector infrastructure management.

The benefits of asset management are extensive. A well-structured asset management strategy ensures better financial decision-making, reduces unexpected costs, and enhances operational efficiency. By tracking asset conditions and planning for maintenance or replacement, organizations can avoid unnecessary expenditures and extend asset lifespans. Additionally, asset management improves risk management by identifying potential failures before they occur, ensuring compliance with regulations, and enhancing sustainability. Asset management is a key strategy in infrastructure planning, allowing budgeting and resource optimization for the necessary maintenance, rehabilitation, and replacement of assets on a predictable schedule.

Key principles of asset management include value realization, lifecycle approach, risk management, and continuous improvement. Value realization emphasizes aligning assets with organizational objectives to maximize benefits. The lifecycle approach ensures that decisions consider the entire lifespan of an asset, from acquisition to disposal. Risk management involves assessing and mitigating potential threats to asset performance and financial stability. Lastly, continuous improvement ensures that asset management practices evolve based on data-driven insights and technological advancements. By following these principles, organizations can enhance efficiency, reliability, and long-term sustainability in managing their assets.

The attached article entitled Why You Need a Utility Asset Management Plan (attachment 1) is one of many articles that can be found doing a simple google search. Also included are two guides: Developing an Asset Management Strategy (attachment 2) and Definitions and Benefits of Asset Management (attachment 3). Although these documents are geared for utilities, the same concepts apply to a municipality such as the Town of North Smithfield.

There are several key components to an effective AM program:

- Development of an asset management inventory
- Deciding what assets will be tracked
- Development of an effective tracking system which would generate work orders and provide reports (weekly, monthly, annually, etc.).
- Ensuring sustainability and continuity of the program
- Establishing an asset replacement fund that should be treated as a trust and not be tampered with
- One person should be designated as the asset manager to oversee the asset management program and the various department heads responsible for maintaining their building and equipment
- Most importantly, there has to be a complete buy-in from the town administration, town council and key boards such as the planning and budget committees (to name a few).

In 2017, the North Smithfield School Department contracted with the architectural/engineering firm SMMA to complete a Master Plan for the schools. Part of the Master Plan included a Facilities Assessment of the North Smithfield Elementary, Middle and High Schools. While not a complete AM plan, the Facilities Assessment includes detailed information associated with each building component, including overall condition of school assets and future asset replacement schedules. The facility condition assessment portion of the SMMA Master Plan for the Town of North Smithfield School Department is included (attachment 4).

The Town of North Smithfield Water and Sewer Department hired the engineering consulting firm Wright-Pierce to develop an asset management plan

in 2022 for their sewage pump and metering stations in (attachment 5). It really is an example of what we believe should be done town wide. The three-page introduction is especially informative.

Although it may not have started out as an asset management plan, the March 2014 North Smithfield Pavement Management Study includes many of the key components that need to be done in any asset management study: development of an inventory; incorporation of the inventory list into a computerized program (in this case the town's GIS); development of a condition assessment; and development of a prioritized repair/replacement plan (attachment 6).

These items are included in this report because it shows that the town has embarked on these studies in the past; however, a comprehensive town-wide asset management program has yet to be initiated.

Attachment 1

Why You Need a Utility Asset Management Plan

Why You Need a Utility Asset Management Plan

Utility asset management plans provide utility managers with information on assets and investments in order to effectively make decisions. Plans should include an inventory of assets, their condition and performance, and any future maintenance.

Having a utility asset management plan also ensures that there is enough money to pay for maintenance, repairs, and replacements so you can keep assets healthy and working properly.

What is a utility asset management plan

Utility asset management plans make for an effective asset management system. They outline the long-term strategy and steps necessary to properly and effectively manage assets over time. This includes the characteristics and condition of assets, their levels of service, planned maintenance, and more.

Keeping track of the assets of the company is an important task that can save companies money and time. With a wide range of assets that include fixed and liquid assets, it is important for a business to be able to manage all of its assets and use them to get the maximum possible returns.

Why you need a utility asset management plan

The ISO 55000 series of standards for asset management states that asset management plans provide the roadmap for achieving value from physical assets by optimizing cost, risk and performance across the asset lifecycle.

As critical resources to support a healthy community, water and wastewater companies must also tackle any and all water issues in order to be sustainable and successful. This all starts with your utility asset management plan.

Utility asset management is important because it helps a company monitor and manage their assets using a systemized approach. Utility asset management plans not only allow managers to track the overall performance of their assets, but they outline the entire lifecycle of an asset, ensuring they are managed effectively and efficiently. When managed effectively, there are a number of benefits.

4 benefits of a utility asset management plan

Utility asset management plans need to be supported by an asset management system, like asset management software, in order to be effective.

1. **Keep track of all assets.** Utility asset management plans tell you where the assets are located, what their service level is, how they are used, and when and what changes were made to them. Data from a utility asset management

software solution can ensure proper tracking, and that asset recovery will lead to better returns, improved reliability, and regular compliance.

2. **Greater efficiency when managing assets.** Plans are created for efficiency. Utility asset management plans allow everyone in the organization to understand the capabilities of its assets and how they are maintained. This includes a clear definition of service levels, and the ability to measure and monitor the life cycle of assets to ensure they are being used effectively.
3. **Promotes collaboration on assets.** Utility asset management plans require working across other business departments, locations and facilities for effective asset management. Not only that, but assets like vehicles, tools, equipment, processes, and workers can be managed efficiently from one central location using software for your management system. This type of collaboration across the organization improves efficiency and reduces costs.
4. **Reduce asset maintenance costs.** Like any tool or equipment, assets require maintenance, and maintenance is a business expense that's easy to overdo and can cut into the profits of the company. Make sure your utility asset management plan outlines when and how often to perform maintenance on certain assets to ensure you are not overspending.

In addition to these benefits, a utility asset management plan also requires you to plan for asset recovery and risk management so you can ensure your assets are properly managed and accounted for throughout their entire life cycle.

Asset recovery

Asset recovery should be in every utility asset management plan. In fact, they are automatically reflected in an asset management system. Asset recovery means that once assets are scrapped or sold, they will be completely removed from the records and books of the business. Related assets, such as consumables and

spare parts, are written off or sold to free storage space. A proper asset recovery process will ensure that the company maximizes the returns with no items lost.

Risk management

Utility asset management plans allow for the implementation of a risk management plan. This is especially important because managing assets also includes the management of the risks connected with the use of those assets. In order to manage assets properly, evaluating the assets can help identify any risks so you can come up with a solution on how to avoid them.

Including asset recovery and risk management in your utility asset management plan makes for a full, comprehensive asset management strategy. With a utility asset management plan, you can properly manage your assets and optimize your operations.

As you can see, it is important for a company to implement a utility asset management plan. With a long-term strategy and leadership engagement, your utility asset management plan will serve as a roadmap for your objectives so you can effectively manage your assets for utilities.

Find out what to consider when creating an asset management plan for water utilities.

Attachment 2

Developing an Asset Management Strategy for Your Utility

Developing an Asset Management Strategy For Your Utility

The development of an asset management strategy, like the development of a comprehensive plan or master plan for the utility system, requires a long-term view and the engagement of the leadership throughout the utility organization. At the outset clear goals must be defined and the elements of a systematic program should be outlined. Although the level of detail can vary widely, there are several elements common to any asset management program.

Overall Strategy

To develop an overall asset management strategy, a water or wastewater utility should begin with these key steps:

1. Develop appropriate asset management objectives and integrate them with other utility goals.
2. Organize a cross-functional asset management team to help guide development of the program.
3. Define targets and measurements to meet the identified objectives.

The strategy is not static and it needs to be reviewed periodically as part of a continuous improvement cycle. It is important to remember that asset management is not a plan as such; rather it is a program or process that relates to all the functions of utility operation.

Elements of an Asset Management Program

An asset management program can be described from the standpoint of the elements involved to create and implement the program. Typical elements include the following:

- **Developing a Strategy** (as described above).
- **Assessing Current Asset Management Practices.** All utilities have some level of systems and procedures in place that guide the functioning of the utility. They may include computerized maintenance, capital planning and standard operating procedures for operations and maintenance. This assessment step involves taking a holistic view of the utilities' existing systems and practices to define its strengths and weaknesses. These results can be compared to the goals set in the strategy to define the utility's "gap."
- **Developing an Implementation Plan.** Based on the assessment, the utility can then set priorities and actions to improve asset management practices. This plan would likely include short-term and long-term actions, specific schedules, assignments and the cost resources needed to implement the plan.
- **Inventorying Assets.** A key step in managing assets is to determine what assets are owned by the utility and the condition of these assets. The data to be collected during the inventory would typically include the following: size or capacity, construction materials, location, installation date, physical condition, and remaining useful life. Cost data to be compiled includes the original acquisition, maintenance, refurbishment and replacement costs. All of this information needs to be organized on an asset-by-asset basis.
- **Planning for Renewal and Replacement.** The physical and cost data developed in the inventory will provide a basis for utility managers to plan and carry out work that restores or replaces an existing asset toward its original size, condition or capacity. These decisions must be made on a life cycle basis so that the trade off between maintenance cost and replacement cost can be optimized.
- **Information Systems.** There usually are significant efficiency gains to be made by integrating various asset management tools into the program. The utility may have existing tools or systems related to maintenance, laboratory, finance, GIS, documents, procurement, etc. Often these databases and systems can be combined or linked to gain efficiency and improve decision making (see Chapter 4 for detailed information on asset management tools).
- **Internal and External Communications.** Implementing asset management practices will impact the culture of the organization, making good communications essential for success. Developing methods for outreach, change management and reporting to internal decision makers and external stakeholders are important for communicating asset condition, investment alternatives and potential risks if assets are not maintained.

These elements do not necessarily occur in sequence; many will take place in parallel. For example, inventorying can begin while the assessment is ongoing and communications need to begin immediately and be continuous.

This chapter of the Resource Guide compiles a list of references and other data sources as well as case examples related to developing an asset management strategy.

Resource List

Change Management / Communications

Attachment 3

Definitions and Benefits of Asset Management

Definitions and Benefits of Asset Management

To understand the benefits of Asset Management we must first be clear on its definitions. The International Infrastructure Management Manual (IIMM) defines Asset Management as:

"The combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost-effective manner." [1]

One might state that providing cost-effective services is exactly what New England communities have been doing all along. So what is different about asset management as promoted here compared to management practices already in place? To answer this question the IIMM provides two more definitions:

Core Asset Management Definition

"Asset Management that relies on the asset register, maintenance management systems, job/resource management, inventory control, condition assessment, simple risk assessment, and defined levels of service, in order to establish alternative treatment options and long term cashflow predictions. Priorities are usually established on the basis of financial return

gained by carrying out the work..." [1]

Advanced Asset Management Definition

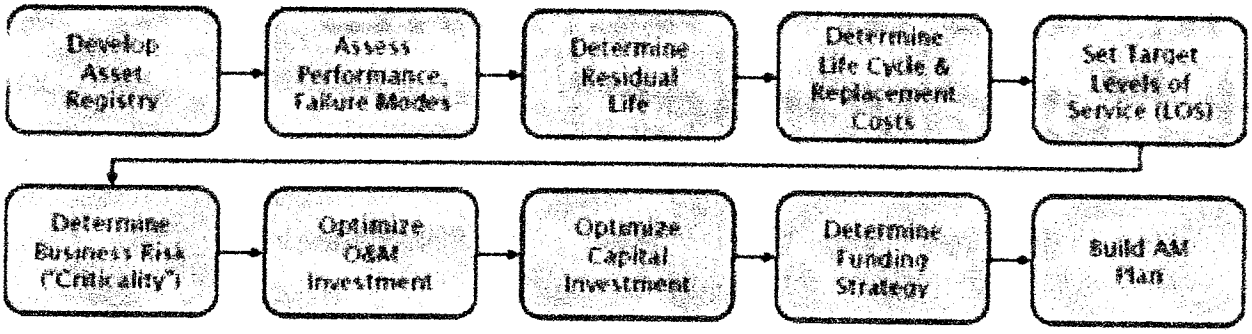
"Asset management which employs predictive modelling, risk management and optimized decision-making techniques to establish life-cycle treatment options and related long term cashflow predictions." [1]

Perhaps these last two definitions provide some insight on how older practices differ from the asset management practices promoted here. These definitions suggest that there exists a set of **best** management practices that must be in place in order to assure that communities truly are delivering *"the required level of service in the most cost-effective manner"*

The collection of best practices and tools are conceived in an asset management policy, specified and utilized in asset management plans, and form the backbone of the asset management system.

The EPA Fundamentals of Asset Management captures the best practices as a ten-step process. These steps can be portrayed as the framework for asset management policy:

Asset management policy framework [2]



The best practices identified in an asset management policy framework are what form the discipline of Asset Management as we know it today. However, many communities are still set in practices with no framework or have few resources to initiate asset management policy. In the meantime, the problems that communities must address are becoming more acute:

- Much of our infrastructure is at or past life expectancy, increasing the risk of failure
- Federal funding has been decreasing for decades, putting more pressure on local and state funding sources while agencies struggle to keep rates low
- Regulatory issues, such as SSOs, receive top priority while other issues within the network are often deferred due to limited funding

- Staffing has been affected by cuts and attrition leaving behind voids in organizational knowledge
- Problems are amplified in agencies that experienced a period of poor record keeping, making it difficult to address situations when basic asset attributes are not known

For many communities these problems have developed over a long period of time because old practices generally did not develop *"...long term cash flow predictions"* (as stated in both the Core and Advanced definitions). These communities are now finding that the old management practices have resulted in underinvestment and unacceptable degradation of their infrastructure. The 2017 ASCE report card estimates that Massachusetts alone needs to invest $1.2B in water infrastructure and $8.35B in wastewater infrastructure. It goes on to state, *"Delaying these investments only escalates the cost and risks of an aging infrastructure system, an option that the country, Massachusetts, and families can no longer afford"* [3].

The NEWEA Asset Management Committee believes that the concerns expressed in the ASCE Report Card are best addressed by first investing in asset management policies that will allow communities to manage investment needs in the most cost-effective manner. In other words, by implementing asset management best practices, communities will be better positioned to afford the investments required.

Perhaps the most important benefit of asset management is that it provides a structured framework for investment planning that delivers the most cost-effective solutions for delivering acceptable levels of service over the entire asset life-cycle at minimal risk.

With a structure asset management framework in place, organizations will realize these and other benefits:

- **Good Business Practice**. Asset management results in better decisions. Aligning management of infrastructure with strategic policies and direction will support the long-term success of the utility's mission, goals and objectives.
- **Improved Regulatory Compliance**. For wastewater utilities in particular, the proposed CMOM regulations will require improved asset management. Part of asset management involves the implementation of better O&M practices, which can significantly improve compliance.
- **Improved Reliability**. More structured day-to-day attention to system assets and their condition means that unexpected failures are less likely, thus minimizing emergency repairs, costly lawsuits and customer relations problems. Assessing the risk implications of asset failure helps focus resources on critical priorities and reduces overall risk to the utility.
- **Long Term System Integrity**. The concept of "sustainable infrastructure" is gaining increased visibility, probably due to the problems in many American cities and towns where sufficient reinvestment in infrastructure has not been made. By relating costs to asset condition and conducting long term planning for each asset, policy makers get the facts they need to help sustain the infrastructure.
- **Cost Savings**. There is evidence that asset management systems that maintain infrastructure in a sound and

Attachment 4

School Department
Facilities Assessment

SMMA

Master Plan

North Smithfield

North Smithfield School Department

North Smithfield, RI

October 13, 2017

Prepared by

SMMA
1000 Massachusetts Avenue
Cambridge, Massachusetts

North Smithfield Master Plan

North Smithfield School Department
North Smithfield, RI

Prepared by
SMMA

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Draft for review only

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SECTION 2

Facilities Assessment

Introduction and Process

Process

The SMMA assessment team of architects and engineers reviewed the condition of three North Smithfield School Department buildings totaling 317,934 gross square feet, in relation to the previously completed RIDE/Jacobs Facility Reports. This assessment consisted of three principal tasks: review of the existing conditions documents provided to us, discussions between North Smithfield School Department staff and SMMA's architects and engineers, and site visits to each building occurring on May 17, 2017. Site visits included non-destructive, visual-only reviews of the site, building and systems, and discussions of the various facilities. The efforts of our review, discussions and observations are contained in this report.

Based on our discussions with North Smithfield School Department staff, it is our understanding that the Halliwell Memorial School, built in 1957, will be removed from service. We visited the schools for the purpose of confirming the facility assessments. We have reviewed the RIDE/Jacobs Facility Report for the schools, and we agree with its findings.

The following North Smithfield School Department buildings were visited:

School	GSF	Year Built	Additions
North Smithfield Elementary	70,606	1989	2000
North Smithfield Middle	106,322	2008	None
North Smithfield High	141,006	1967	None

Inspection Team

For each North Smithfield facility, SMMA provided the following visual reviews:

- Building code conformance, building envelope, ADA compliance, and finishes conditions by an Architect
- Site features and conditions by a Civil Engineer
- Plumbing, fire protection, heating, ventilating, and air-conditioning (HVAC) systems by a Mechanical Engineer
- Electrical, Fire Alarm and lighting systems assessment by an Electrical Engineer

Building Systems Evaluated

At each North Smithfield Public Schools facility, the SMMA team evaluated the following building systems and attributes:

- Site Attributes
- Exterior Envelope
- Interior Finishes
- Plumbing System
- Automatic Fire Suppression System
- Heating & Ventilating Systems
- Electrical and Lighting Systems
- Security, Communications and Tel/Data Systems
- Fire Alarm Systems
- Life/Safety and Code compliance
- Provisions for Accessibility

RIDE/Jacobs Report Rating System

The Assessment Team used the 2016 RIDE/Jacobs Facilities Assessment Reports as a starting point for the building review and assessment. The SMMA team noted discrepancies and inaccuracies in the RIDE/Jacobs Reports or provided alternative opinions; compiled in a series of comparative spreadsheets, and also confirmed items and systems requiring repair. The comparative notes not only address the condition of materials and systems but also the priorities established by RIDE/Jacobs.

Cost Estimating

The previously issued RIDE/Jacobs Reports assigned estimated conceptual level costs for correcting the immediate deficiencies identified in each of the three buildings. These estimates generally address issues observed by the SMMA team and allow North Smithfield Public Schools to prioritize building repairs based on urgency, critical systems, and the need to maintain essential building services to the children and teachers of North Smithfield. SMMA believes the estimates of probable costs provided by RIDE/Jacobs are reasonable and within industry standards for the identified repair work and did not see a need for modifying them, as part of this exercise.

Please note that the estimates are in 2016 dollars and need to be updated to the time of proposed implementation. Also note, these are "construction costs", not project costs. When repair projects are planned, estimates should be increased to reflect typical "project costs" including: fees; design and construction contingencies; owners costs, etc.

Investment in Building Repair

Buildings are subject to extremes of climate and use and require constant investment in maintenance and repair to remain in good condition. While North Smithfield Schools are clean and well-maintained, every building component has a life expectancy: flat membrane roofs can be expected to last for twenty to twenty five years before they need to be replaced while boilers generally have a life expectancy of forty to fifty years. When viewed as a complete system,

most buildings have a life expectancy of forty to sixty years or, in other words, on average they need complete replacement every fifty years.

High Priority Projects

The SMMA assessment confirms the RIDE/Jacobs finding that considerable work and expenditure will be required to bring the High School Facility to a reasonable level of repair. However, due to funding and scheduling limitations, the Town will be obliged to prioritize the recommended building repairs. The logic in making these recommendations flows from the premise that, to fulfill their public function, buildings must first be made weather tight and safe to occupy and also, that the plumbing, mechanical, and electrical systems be operational and efficient.

Priorities and Asset Protection Costs

RIDE/Jacobs grouped all the identified building deficiencies into repair priorities that must be and should be done, within the immediate future. These priorities were reviewed, confirmed and/or modified by SMMA as part of the Facility Assessment exercise. The Jacobs Estimate categorizes repairs required within a 5-year period in a RIDE acceptable format, which includes breakdowns for: Acoustics, Barrier to Accessibility, Capital Renewal, Code Compliance, Educational Adequacy, Functional Deficiencies, Hazardous Materials, Technology, and Traffic.

Facility Deficiency Priority Levels (from the RIDE/Jacobs Report)

Deficiencies were ranked according to five priority levels, with Priority 1 items being the most critical to address:

Priority 1 - Mission Critical Concerns: Deficiencies or conditions that may directly affect the school's ability to remain open or deliver educational curriculum These deficiencies typically relate to building safety, code compliance, severely damaged or failing building components, and other items that require near-term correction. An example of a Priority 1 deficiency is a fire alarm system replacement.

Priority 2 - Indirect Impact to Educational Mission: Items that may progress to a Priority 1 item if not addressed in the near term. Examples of Priority 2 deficiencies include inadequate roofing that could cause deterioration of integral building systems, and conditions affecting building envelopes, such as roof and window replacements.

Priority 3 - Short-Term Conditions: Deficiencies that are necessary to the school's mission but may not require immediate attention. These items should be considered necessary improvements required to maximize facility efficiency and usefulness. Examples of Priority 3 items include site improvements and plumbing deficiencies.

Priority 4 - Long-Term Requirements: Items or systems that may be considered improvements to the instructional environment. The improvements may be aesthetic or provide greater functionality. Examples include cabinets, finishes, paving, removal of abandoned equipment, and educational accommodations associated with special programs.

Priority 5 - Enhancements: Deficiencies aesthetic in nature or considered enhancements. Typical deficiencies in this priority include repainting, re-carpeting, improved signage, or other improvements to the facility environment.

North Smithfield Elementary School

Site	**RIDE/Jacobs Report**						**SMMA Observations**	
Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
Asphalt Paving Requires Replacement	Capital Renewal	362 Cars	3	$ 860,995	1530	Cracking Paving	Agreed, but a lesser priority	4
Concrete *Walks Require Replacement*	Capital Renewal	5,200 SF	3	$ 105,570	1886	Cracking and Failing	Agreed, but a lesser priority	4
Fencing Requires Replacement	Capital Renewal	230 LF	3	$ 14,769	1543	Damaged and worn	Agreed, but a lesser priority	4
Install New Entrance	Traffic	15,900 SF	3	$ 330,314	4459	Add Second Entrance from Mowry Lane	Disagree that this is really required- Refer to our Traffic Observation Report	5
Asphalt Paving Requires Replacement	Capital Renewal	95 Car	4	$ 312,193	1531	Paved play areas splitting and cracking	Agreed	
Backstops Require Replacement	Educational Adequacy	1	4	$ 28,674	28526	Requires Replacement	Agreed	
Exterior Basketball Goals Required	Capital Renewal	2	4	$ 15,260	1542	Goals are damaged	Agreed	
Exterior Basketball Goals Required	Educational Adequacy	1	5	$ 5,878	28768	Goal missing	Agreed	4

North Smithfield Elementary School

Exterior	RIDE/Jacobs Report						SMMA Observations	
Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
Cafeteria Does Not Meet Standard Size	Educational Adequacy	757 SF	4	$ 506,478	53354	Does not meet size requirements	Size to be reviewed in Master Plan	5
Metal Doors Require Repainting	Capital Renewal	30 doors	3	$ 6,187	1550	Finish is chipped and faced	Agreed	
Wood Doors Require Repainting	Capital Renewal	8 doors	3	$ 1,650	1555	Finish is chipped and faced	Agreed	
EPDM Roofing Requires Replacement	Capital Renewal	5,000 SF	1	$ 62,796	1554	Original Roof	Roof appears to be is satisfactory condition. Some seams require patching	3
Shingle Roof Requires Replacement	Capital Renewal	70,000 SF	1	$1,983,020	1553	Original Roof	Shingle roof is relatively new and still under warranty- does not require replacement	5
Caulking Requires Replacement	Capital Renewal	1,200 LF		$ 18,252	4602	Sealant at some windows and CJ's	Was not included in Jacobs Report	2

North Smithfield Elementary School

Mechanical	RIDE/Jacobs Report						SMMA Observations	
Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
The Make Up Air Equipment Requires Replacement	Capital Renewal	2	3	$ 31,585	1477		The MAUs are the only source of heat in the gym. The OA introduced is excessive for the typical occupancy. New units should have RA capability and demand ventilation.	2
Existing Controls Are Inadequate and should be replaced with DDC Controls	Capital Renewal	75,000 SF	4	$503,191	1872	Pneumatics system is leaking	C Wing on Trane DDC controls. A & B have electric thermostats commanding the old pneumatic actuators. Pneumatic often do not work.	3
MDF Rm Cooling	Not Discussed						No cooling in the space & space is hot. Provide a 3 ton ductless split DX.	3
5 HP Pump	Not Discussed						N+1 pumps w/o drives which limit the effectiveness of the condensing boiler, etc. Replace motors with inverter duty and add VFD	3
10 HP Pump								3

North Smithfield Elementary School

Electrical	**Jacobs Report**						**SMMA Observations**	
Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
Pole Lighting Requires Replacement	Capital Replacement	17	3	$130,607	1522	Pole Units rusted	A few fixtures have been replaced with new fixtures utilizing LED lamps. Building personnel informed us many of the existing fixtures are not functioning.	2
Mounted Building Lighting Requires replacement	Capital Replacement	12	3	$17,791	1524	Units Broken or missing	New building mounted lights utilizing induction lamps have been installed. Some original building mounted lights have been abandoned in place.	N/A
Room Have Insufficient Electrical Outlets	Educational Adequacy	152	5	$75,837	Rollup	N/A	Agreed. Typical for a building of this age. Use of extension cords were observed in some classrooms.	5

Plumbing	**RIDE/Jacobs Report**						**SMMA Observations**	
Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
Gas Piping Requires Repair	Capital Renewal	100 LF	1	$189	1545	Piping and Main valves rusted and in need of paint.	Not likely to cause catastrophic failure	3
The Toilets plumbing fixtures require replacement	Educational Adequacy	1	3	$2,867	Roll up		ADA issue with most of facility	3
Room Lack Drinking Fountain	Educational Adequacy	19	5	$21,056	Roll up		Low Priority	5

Class Room Lav. Plumbing fixtures are missing and should be replaced	Educational Adequacy	1	5	$1,520	Roll up		Low Priority	5

Fire and Life Safety **RIDE/Jacobs Report** **SMMA Observations**

Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
Fire Alarm Is Missing or Inadequate	Code Compliance	75,000 SF	1	$218,345	1547	Sensors and pulls failing	A new fire alarm system has been recently installed.	N/A

Technology **RIDE/Jacobs Report** **SMMA Observations**

Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
Room Lacks interactive whiteboard	Educational Adequacy	5	3	$15,054	Rollup	N/A	Agreed	3
Campus lacks security electronic access control	Technology	2	3	$15,109	3919	Key scan access control system add access control with 2 doors	Agreed (consider intrusion detection in addition - door contact switches and motion sensors)	2
Classroom AV/Multimedia systems are in need of improvements	Technology	1	3	$9,443	3916	Refresh A/V system in Library	Agreed	3
Classroom AV/Multimedia systems are in adequate and/or end of useful life.	Technology	30	3	$564,906	3917	Add new classroom AV/Multimedia systems to support digital formats	Agreed	3

Gymnasium sound system is nonexistent, inadequate, or near of useful life	Technology	1	3	$9,065	3921	Refresh gym audio system	Agreed	3
Instructional space do not have local sound reinforcement	Technology	50	3	$236,074	3914	Add sound reinforcement found in instructions spaces	Agreed	3
Intermediate telecommunications room grounding system is inadequate or non-existent	Technology	1	3	$5,288	3911	IDF Admin needs grounding system improvements	Agreed	2
Intermediate telecommunications room is not dedicated. Room require partial walls and/or major improvements	Technology	1	3	$37,394	3910	IDF Admin needs to be rezoned, space isn't dedicated, hard to access, equipment on surge protector, room house 110 pa access control	Agreed	2
Intermediate telecommunications room UPS does not meet standard, is inadequate, or non-existent	Technology	1	3	$4,721	3913	IDF Amin: Add intermediate telecommunication room UPS	Agreed	2
Main telecommunications room ground system is inadequate or non-existent	Technology	1	3	$6,610	3908	MDF has no ground system	Agreed	2

Main telecommunications room is not dedicated and/or inadequate	Technology	1	3	$49,859	3906	Miff - storage UPS on floor, servers and KVM is on adjacent shelves. Dedicate/create new space	Agreed	2
Network cabling infrastructure is outdated (Cat 5 or less) and/or does not meet standards	Technology	114	3	$48,442	3909	MDF Existing category 5 cables serviced by this space	Agreed	2
Number of current, up to date, network switch ports are insufficient to support campus technology	Technology	144	3	$67,989	24961	Classrooms have 3 connections. Expand port Availability	Agreed	2
Security Cameras and recording system are inadequate and/or near end of useful life	Technology	25	3	$118,037	3920	Analog/Digital hybrid camera system with 5 analog cameras refresh and add 25 additional IP Cameras	Agreed	2
Special space AV/Multimedia system is inadequate	Technology	1	3	$53,825	3915	Add AV system in cafetorium	Agreed	3
Telecommunications room (large size room) needs dedicated cooling system improvements	Technology	1	3	$7,554	3907	MDF does not have dedicated AC unit, since it is MDF it is considered large size	Agreed	2

Telecommunications room (small size room) needs dedicated cooling system improvements	Technology	1	3	$4,721	3912	IDF Admin needs dedicated AC unit	Agreed	2
Telephone handsets are inadequate and sparsely deployed throughout the campus	Technology	30	3	$45,326	3923	Replace/add telephone handsets in classrooms and office spaces	Agreed	2
Telephone system is inadequate and/or non-existent	Technology	1	3	$7,177	3922	Phone system is aging Toshiba strata analog, replace	Agreed	2

North Smithfield Middle School

Site	RIDE/Jacobs Report						SMMA Observations	
Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
Asphalt Paving Requires Replacement	Capital Renewal	3 cars	4	$ 9,859	4599	Cracking Paving	Miscellaneous cracks require patching	4
Backstops Require Replacement	Educational Adequacy	1	4	$ 28,674	28523	Requires Replacement	Agreed	4

Exterior	RIDE/Jacobs Report						SMMA Observations	
Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
Cafeteria Does Not Meet Standard Size	Educational Adequacy	2,367 SF	4	$1,493,170	53353	Does not meet size requirements	Size to be reviewed in Master Plan	5
Media Center Does Not Meet Standard Size	Educational Adequacy	1,266 SF	4	$798,628	53240	Does not meet size requirements	Size to be reviewed in Master Plan	5
Roof Drains Require Cleaning	Capital Renewal	10	2	$396	4617	Drains are blocked	Maintenance: Drains appear to have been cleaned	5
Caulking Requires Replacement	Capital Renewal	300 LF	4	$4,563	4602	Sealant at some windows	Agreed	4

North Smithfield Middle School

Interior	**RIDE/Jacobs Report**						**SMMA Observations**	
Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
Door Hardware Requires Replacement	Capital Renewal	1	2	$3,137	4610	Lock missing in room 341	Agreed	2
Interior CMU Walls Require Repair	Capital Renewal	1,000 SF	3	$36,317	4611	Several cracks in hallways	Small stress cracks are visible in some areas	4
Room is Excessively Reverberant	Acoustics	3,000 SF	3	$67,384	27957	Gym	Gym appears to have sufficient acoustical panels (not there during a class)	4
Acoustical Ceiling Tiles Require Replacement	Capital Renewal	200 SF	3	$1,806	4603	Various Locations	Some minor stains were observed at a few different locations	4
Interior GWB Walls Require Repair	Capital Renewal	100 SF	4	$731	4618	At various window locations	Did not observe these locations	
Interior Toilet Partitions	Capital Renewal	1	4	$523	4609	3rd floor boys bathroom	Agreed	4
Interior Walls Require Repainting	Capital Renewal	64,270 SF	4	$424,654	4613	Throughout	Disagree- Did not observe any walls in need of repainting	5
Concrete Flooring Requires Replacement	Capital Renewal	30 SF	4	$391	4619	Cracks near expansion joints		
VCT Flooring Tile Requires Replacement	Capital Renewal	310 SF	4	$3,556	4606	Various cracks	Agreed	4
Classroom Door Requires Vision Panel	Educational Adequacy	1	5	$413		Not Identified	Not sure which room this refers to	

Room Lacks Appropriate Sound Control	Educational Adequacy	100 SF	5	$3,498		Not Identified	Not sure which room this refers to	

Mechanical **RIDE/Jacobs Report** **SMMA Observations**

Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
Building 1	No Comments							
The Window AC Unit compent requires replacement	Capital Renewal	1	2	$3,339	4622	Aged window unit is not operational	Individual Window units where they exist should be replaced as necessary	
Ductwork requires replacement (SF basis)	Capital Renewal	2400	3	$35,283	4624	Ductwork is no longer sealed at the joints and rust is beginning to appear.	Minimal resealing is required.	
The fin tube water radiant heater requires replacement	Capital Renewal	15	3	$25,127	4623	Baseboard heaters are old and damaged		
Existing Controls are inadequate and should be replaced with DDC controls	Capital Renewal	2400 SF	4	$4,521	4625	Non-functional thermostats	* Existing Trane DDC w/ Viessmann Boiler controls. *HW pump at 53 Hz, OAT>90°, Boiler maintaining 140°. No need for either the boiler or the pump to be running on such a hot day. *53 HZ with no load indicates there is not much variability in the	3

							pump speed. * Ongoing Communications issues * Any reprograming/service requires the Trane Rep. * Not Web based.	

Electrical **RIDE/Jacobs Report** **SMMA Observations**

Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
Room has insufficient electrical outlets	Educational Adequacy	40	5	$19,957	Rollup	N/A	Should be reviewed on a classroom by classroom bases.	5

North Smithfield Middle School

Plumbing	Jacobs Report						SMMA Observations	
Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
Building 1								
Booster Pump missing and needed	Functional Deficiency	1	2	$38,028	4615	The drinking fountains on the first floor do not have adequate pressure. A booster pump should be installed to provide adequate capacity to the drinking fountains.	Per the Facilities Director the filters need to be kept clean. If this is done there is adequate pressure.	5
The existing Lavatory/sink pipes are not insulated correctly	Barrier to accessibility	28	3	$1,331	4608	Sinks are missing pipe insulation.		
Room Lacks drinking fountain	Educational adequacy	5	5	$5,544	Roll up			
The classroom lavatories Plumbing Fixtures are missing and should be installed	Educational adequacy	12	5	$18,237	Roll up			
Building 2								
The toilets Plumbing fixtures require	Capital Renewal	1	3	$2,852	4621	Toilet is an old tank style unit with significant discoloration and		

replacement						staining in the bowl		
The restroom Lavatories Plumbing Fixtures require replacement	Capital Renewal	1	4	$3,181	4620	Sink is aged and stained.		
Improved Water Filtration and treatment.	Capital Renewal	Not discussed					Given the poor water quality and the issues with staining and drinking fountain pressure, etc. A thorough evaluation of the water quality should be made and recommendations for improved treatment at the well/storage tanks be made/implemented.	2

North Smithfield Middle School

Technology	RIDE/Jacobs Report						SMMA Observations	
Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
Room lacks interactive white board	Educational Adequacy	1	3	$3,011	Rollup	N/A	Agreed	3
Campus lacks security electronic access control	Technology	2	3	$15,211	3900	Keyscan access control system add 2 doors	Agreed (consider intrusion detection in addition - door contact switches and motion sensors)	2
Classroom AV/Multimedia systems are in need of improvements	Technology	1	3	$9,507	3897	Refresh AV system in Library	Agreed	3
Classroom AV/Multimedia systems are inadequate and/or near end of useful life	Technology	20	3	$399,293	3898	Add new classroom AV/Multimedia systems to support digital formats	Agreed	3
Gymnasium sound system is nonexistent, inadequate, or near end of useful life	Technology	1	3	$9,127	3903	Refresh gym audio system	Audio system appears adequate	N/A
Instructional spaces do not have local sound reinforcement	Technology	30	3	$142,605	3895	Add sound reinforcement in instructional spaces	Agreed	3

Intermediate telecommunications room grounding sys. is inadequate or non-existent	Technology	1	3	$5,324	3887	IDF 338 needs grounding system improvements	Agreed. Ground system should be installed	2
Intermediate telecommunications room grounding system is inadequate or non-existent	Technology	1	3	$5,324	3889	IDF 134 needs grounding system improvements	Agreed. Ground system should be installed	2
Intermediate telecommunications room grounding system is inadequate or non-existent	Technology	1	3	$5,324	3892	IDF 160A needs grounding system improvements	Agreed. Ground system should be installed	2
Intermediate telecommunications room is not dedicated room required partial walls and/or major improvements	Technology	1	3	$37,648	3888	IDF 134 needs to be rezoned. Room too small	Agreed	2
Intermediate telecommunications room is not dedicated. Room requires partial walls and/or major improvements	Technology	1	3	$37,648	3891	IDF 160A needs to be rezoned. Room too small.	Agreed	2
Main Telecommunications room ground system is inadequate or non-existent	Technology	1	3	$6,655	3886	MDF has no ground system	Agreed	2
Main telecommunications room needs minor improvements	Technology	1	3	$21,676	3885	MDF 238 Very minor improvements	Agreed	3

PA/Bell/Clock system is inadequate and/or near end of useful life.	Technology	10,000 SF	3	$17,113	3902	Add integration with phone system to PA/Bell/Clock system. Expand Coverage	Agreed	2
Security cameras and recording system are inadequate and/or near end of useful life	Technology	28	3	$133,098	3901	Digital camera system with 10 IP cameras refresh and add 18 additional IP cameras	Agreed	2
Special space A/V Multimedia system is inadequate	Technology	1	3	$54,190	3896	Add AV System in cafetorium	AV system is present, consisting of ceiling hung speakers and projector with projection screen	5
Special space AV/Multimedia systems are in need of minor improvements	Technology	2 Room	3	$38,028	3899	Improve special space AV/Multimedia system	Agreed	3
Telecommunication s room (small size room) needs dedicated cooling system improvements	Technology	1	3	$4,753	3890	IDF 134 needs dedicated AC units	Agreed	2
Telecommunication s room (small size room) needs dedicated cooling system improvements	Technology	1	3	$4,753	3893	IDF 160A needs dedicated AC unit	Agreed. Cooling system should be installed.	3
Telephone handsets are inadequate and sparsely deployed through the campus	Technology	30	3	$45,633	3905	Replace/add telephone handsets in classrooms and office spaces	Agreed	2

North Smithfield High School

Site	**RIDE/Jacobs Report**						**SMMA Observations**	
Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
Asphalt Paving Requires Replacement	Capital Renewal	150 Cars	4	$ 492,936	2557	Cracking Paving	Pavement does not require replacement; various cracks require sealing	
Backstops Require Replacement	Educational Adequacy	1	4	$ 28,674	28525	Requires Replacement	Agreed	

Exterior	**RIDE/Jacobs Report**						**SMMA Observations**	
Deficiency	Category	Quantity	Priority	Repair Cost	ID	Note	Description / Observation	Revised Priority
Media Center Does Not Meet Standard Size	Educational Adequacy	2,571 SF	4	$1,769,301	53242	Does not meet size requirements	Size to be reviewed and recommendations made in Master Plan	5
Aluminum Windows Require Replacement	Capital Renewal	5,859 SF	2	$984,807		Windows are original to the building	Agreed	
Wood Windows Require Replacement	Capital Renewal	1,944 SF	2	$368,674		Windows are original to the building	Agreed	
Metal Door Requires Repainting	Capital Renewal	24 Doors	3	$4,950	2610	Fading and chipped	Agreed	
Handrail Requires Repainting	Capital Renewal	150 LF	4	$1,558	2609	Worn	Agreed	

North Smithfield High School

Interior	RIDE/Jacobs Report						SMMA Observations	
Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
Paint	Hazardous Materials	50 Doors	2	$ 26,624		Doors and windows require repainting	Needed but of a lesser priority- generally good condition	3
Paint	Hazardous Materials	16,695 SF	2	$ 26,624		Walls have worn and damaged areas	Needed but of a lesser priority- generally good condition	3
Auditorium Ceiling	Hazardous Materials	9,750 SF	2	$ 92,069	6402	Auditorium popcorn ceiling	Agreed	
VCT Tiles Require Replacement	Hazardous Materials	50,750 SF	3	$1,437,689	2606	Miscellaneous Surfaces	Agreed	
Caulking	Hazardous Materials	17,360 SF	3	$ 345,219		Windows and walls	Agreed	
Door Hardware not ADA Compliant	Accessibility	175 Doors	3	$ 495,755	2603	At existing original wood doors	Agreed	
Carpeting Requires Replacement	Capital Renewal	7,250 SF	3	$ 156,670	2601	Areas are worn and faced	Agreed	
Ceramic Tile Requires Replacement	Capital Renewal	21,759 SF	3	$ 580,136	2596	Tiles are worn and some are missing	Agreed	
VCT Tiles Require Replacement	Capital Renewal	44,950 SF	3	$ 512,182	2598	Tiles show signs of wear and tear	Agreed	
Wall/Ceiling Materials	Hazardous Materials	4,000 SF	3	$ 37,772		Areas are damaged and require repair	Agreed	

Ceiling Grid Requires Replacement	Capital Renewal	122,525 SF	4	$1,443,422	2590	Ceiling grid is original and stained	Agreed, but seems more of an aesthetic need- priority has been revised	5
Ceramic Walls Require Repair	Capital Renewal	50,750 SF	4	$1,21,398	2593	Tiles are original, worn and often broken	Agreed	
Paint	Hazardous Materials	200 Doors	4	$ 56,658	6345	Doors and windows require repainting	Agreed	
Paint	Hazardous Materials	11 each	4	$ 3,116		Heat Unit Covers	Agreed	
Paint	Hazardous Materials	1,030 LF	4	$ 23,341		Various surfaces	Agreed	
Room Lighting is Inadequate or in Poor Condition	Educational Adequacy	590 SF	4	$22,601			Agreed	
Classroom Door Requires Vision Panel	Educational Adequacy	3 ea.	5	$1,239			Specific locations not identified	
Room Lacks Appropriate Sound Control	Educational Adequacy	200 SF	5	$6,996			Specific locations not identified	
Acoustical Ceiling Tiles Require Replacement	Capital Renewal	122,525 SF	5	$1,099,148	2604	Tiles are stained, bulging and torn	Agreed	

North Smithfield High School

Building 1	RIDE/Jacobs Report						SMMA Observations	
Mechanical								
Deficiency	*Category*	*Quantity*	*Priority*	*Repair Cost*	*ID*	*Note*	*Description / Observation*	*Revised Priority*
The Air Handler HVAC component requires replacement	Capital Renewal	4	2	$171,386	2529	Heating units located above ceiling		
The Air Handler HVAC component requires replacement	Capital Renewal	6	2	$603,456	2532	AHUs are original to the building and are visually deteriorating. Equipment is obsolete and Replacement parts are no longer available.		
The window AC Component requires replacement	Capital Renewal	10	2	$33,164	2517	The window units no longer function		
Ductwork Requires Replacement (SF basis)	Capital Renewal	145,000 SF	3	$2,117,314	2551	Ductwork original to the building		
Electric Unit Heater requires replacement	Capital Renewal	4	3	$16,125	2523	Electric unit heaters are original to the building and according to the occupants perform poorly.		
Steam/HW unit heater requires Replacement	Capital Renewal	26	3	$72,722	2496	Hallway and cabinet unit heaters are original to the building. Units are obsolete and replacement parts are no		

						longer available according to building occupants.		
Steam/HW unit heater requires Replacement	Capital Renewal	51	3	$142,647	2497	Most Cabinet unit heaters in classrooms have failed.		
The fin tube water radiant heater requires replacement	Capital Renewal	155	3	$257,896	2489	Finned wall radiators are original to the building and should be replaced. Casings are visually deteriorating throughout the building. Hot water system is very corrosive per the building manager.	The covers are in bad shape and controls upgrades are required. Total replacement is in order.	3
The mechanical /HVAC piping/system is beyond its useful life.	Capital Renewal	145000 SF	3	$1,110,161	2502	Heating hot water piping showing signs of corrosion and failure. Valves and other components are corroded due to poor water quality.	Before embarking on a million dollar job actual testing of the piping integrity should be made. Valves could be individually or systematically replaced. Improved water treatment is indicated.	3
Lab Lacks an appropriate fume hood	Educational Adequacy	4	4	$88,415	Roll up		See Chemistry	

Attachment 5

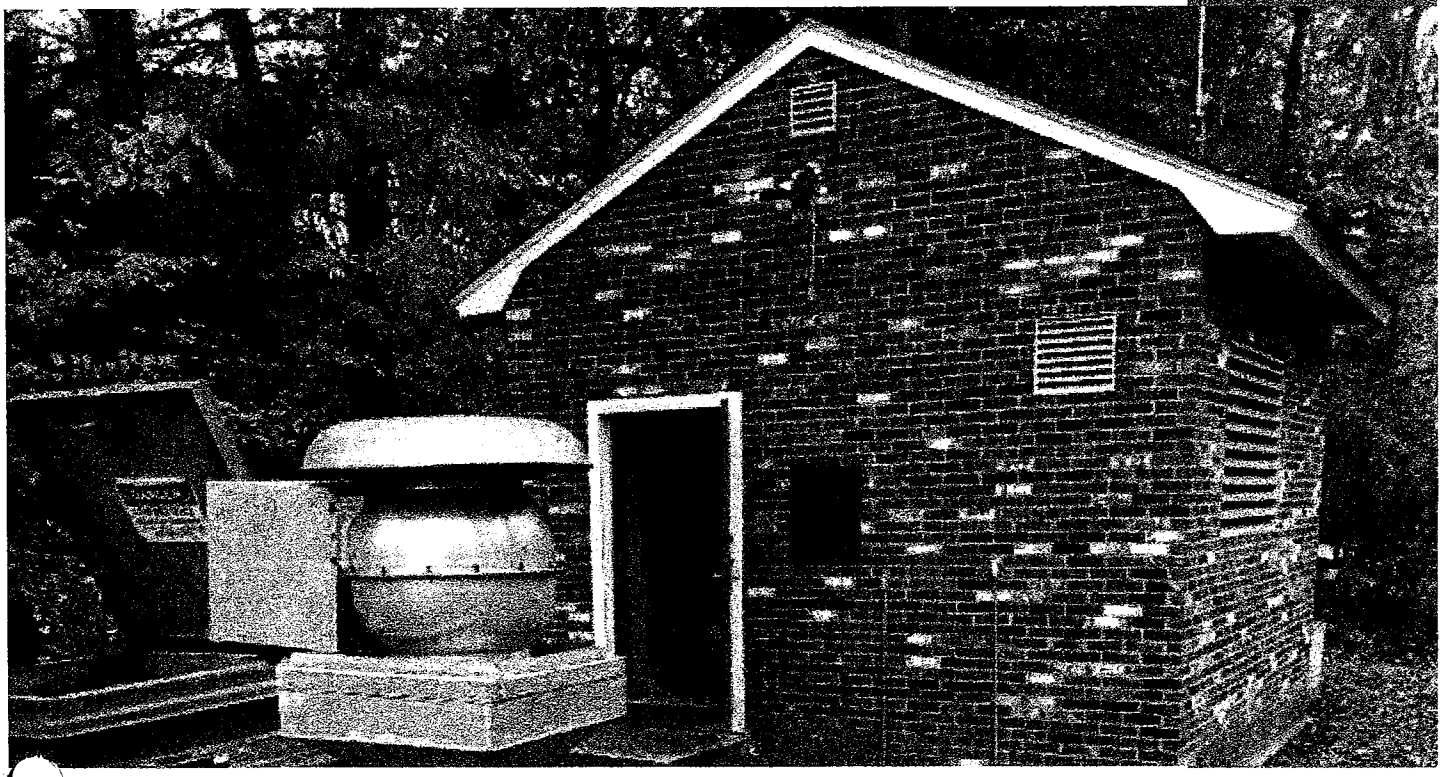
North Smithfield Sewer Department
Pump Station Asset Management Plan

TOWN OF NORTH SMITHFIELD, RI

Report

FEB 2022

Pump Station Asset Management Plan



WRIGHT-PIERCE
Engineering a Better Environment

Pump Station
Asset Management Plan
Town of North Smithfield, RI

February 2022

Prepared By:

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Section 1 Introduction

1.1 Goals and Objectives of Evaluation

This report summarizes the asset management work completed for the Town of North Smithfield's Pump Stations. The purpose of this evaluation is to meet the following objectives:

- Create an asset hierarchy for the Town's Pump Station assets.
- Conduct condition assessment of assets at the nine pump stations and two metering stations.
- Perform criticality/risk analysis of significant pump station assets.
- Identify best practices and management strategies for implementing the Town's asset management program.
- Develop a 5-year Capital Improvement Plan.
- Provide evaluation findings in a format that the Town can use to populate a Computerized Maintenance Management System (CMMS) in the future.

1.2 Asset Evaluation Procedures

Asset condition assessments are based on information provided by the Town, interviews with operations staff, and field observations by Wright-Pierce personnel. During the site visits:

- Basic testing was performed with commonly available tools. The results were used to identify assets performing outside the expected range.
- The Wright-Pierce team spoke with North Smithfield personnel to verify performance history and learn about the reliability of each asset.
- Data was collected by the Wright-Pierce team using Fulcrum, a cloud-based data collection software, on tablets and smartphones.
- The condition assessment was limited to readily accessible areas. No confined space entry was performed.
- No destructive testing of construction materials (concrete, paint, metal, insulation, etc.) was performed to determine the condition of assets.

Refer to the evaluation user guide in **Appendix A** for the methodology and details on which data was to be collected in the field. The detailed evaluation forms for each asset are in **Appendix B**.

1.3 Basis for Estimates of Probable Costs

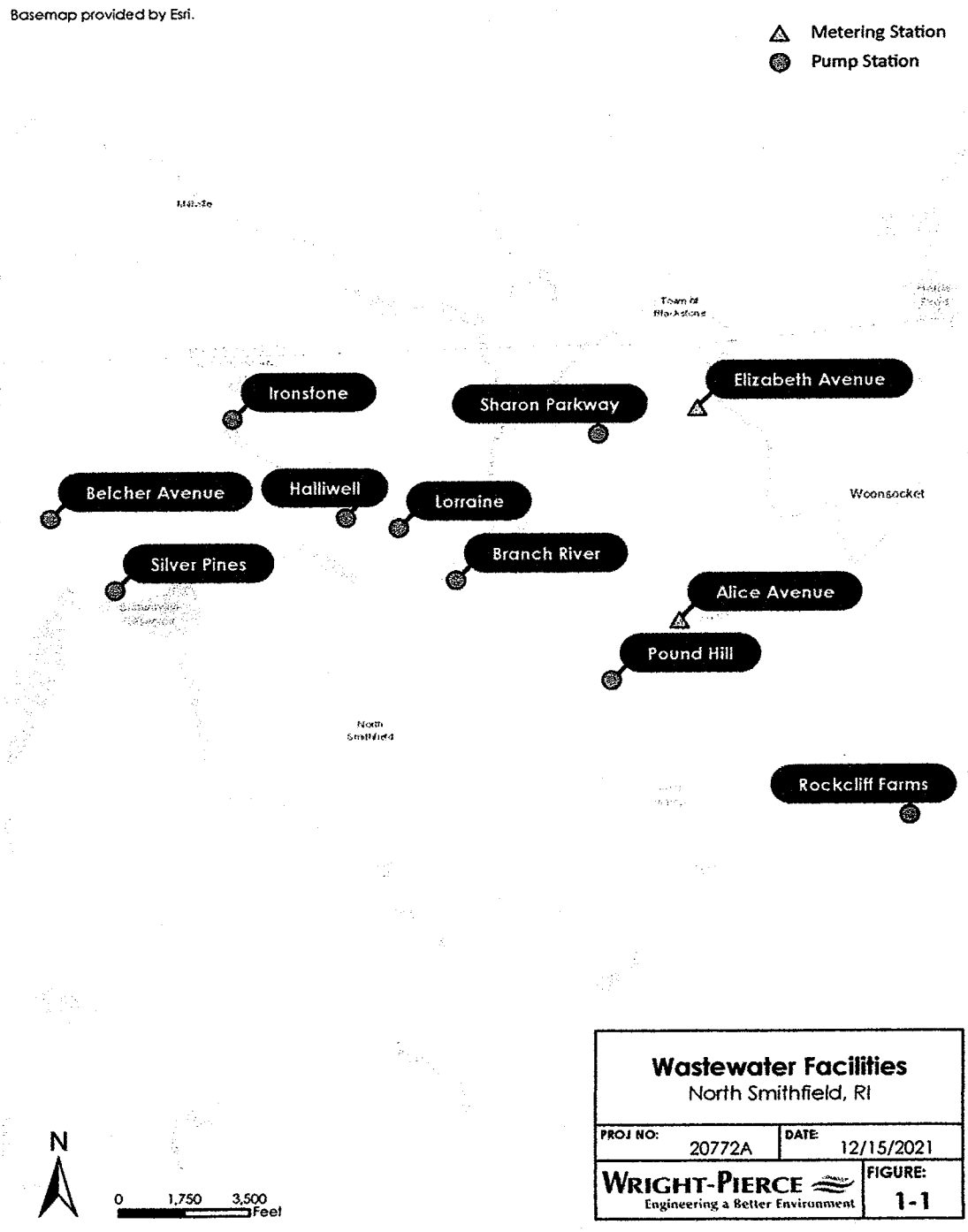
Planning-level costs have been estimated for recommended Pump Station improvements. These planning-level costs were estimated using standard cost estimating procedures consistent with industry standards utilizing unit cost information. Total capital cost estimates include an allowance of the estimated construction costs to account for construction contingency, design and construction phase, engineering, permitting, materials testing, as well as financing, administrative and legal expenses. The planning cost information presented herein is in current dollars and is based on an ENR Index of 12465 (10/11/2021).

These estimates were primarily developed for planning level budgeting and are generally reliable for determining the relative costs associated with equipment replacement. To group proposed improvements into biddable projects, additional factors not easily defined for this planning level report would need to be considered during preliminary and final design (e.g., foundation conditions, owner selected features and amenities, building code issues, bypass pumping, etc.). Contingency was included in the estimates to account for unknown design conditions. However, this contingency allowance may not be adequate in all circumstances.

1.4 Collection System Overview

The Town of North Smithfield's collection system consists of 13 miles of sewers, nine pumping stations, and two metering stations. This collection system discharges to the Woonsocket Regional Wastewater Collection System, where the combined wastewater is treated at the Woonsocket Regional Wastewater Treatment Facility. The Town of North Smithfield and the City of Woonsocket entered into the agreement in 1977. The agreement includes treatment, disposal, and operating costs. The two North Smithfield metering stations measure flow conveyed to Woonsocket, which provide a basis to divide up costs. An overview of the North Smithfield collection system is shown in Figure 1-1.

Figure 1-1 Collections System Overview



Section 2 Risk Analysis/Modeling and Management Strategies

2.1 Introduction

All assets are not equally important to a wastewater utility's operation. Some assets are critical to operations and others are not critical. Some assets can easily be repaired or replaced with minimal operational impact. Other assets are difficult to repair or replace and cause major service disruptions upon failure. A community must examine its own wastewater system assets to determine which assets are critical and why.

Analyzing existing wastewater system assets to determine the probability of failure (PoF) and the consequence of failure (CoF) provides valuable information about assets in the system. This risk analysis is the foundation for developing cost-effective asset management strategies. Risk-based asset management planning allows the Town to allocate money to best reduce risk and maintain service.

2.2 Asset Registry

An asset registry is a list of items identified as assets to be evaluated and maintained. The registry includes what is owned by the Town and where it is located. The asset registry identifies which items are considered assets to be evaluated. An asset is a maintenance managed item (MMI). A MMI is an asset that is maintained, parts are identified, decisions are made to repair, refurbish, or replace.

To develop the asset registry for the Pump Stations, the Town provided Wright-Pierce with the following data sources:

- As-built drawings
- Design drawings
- O&M Manuals
- Staff

2.3 Risk Analysis Model

2.3.1 Probability of Failure

The first step to determine risk is to find the Probability of Failure (PoF). PoF is the probability that an asset is subject to failing. To determine the PoF, a condition assessment is performed. An asset is more likely to fail if it is old, has a history of failure, has a known failure record in other locations, or has a poor condition rating. An asset is less likely to fail if it is newer, has little to no history of failure, and has a good to excellent condition assessment rating. The categories used in analyzing facility assets for the PoF condition assessment are physical condition, reliability, performance, and maintainability.

Physical Condition rating is based off several tests and questions including vibration, noise, temperature, coating condition, wear or corrosion, and leakage. The following are the possible condition ratings:

- 1-New or Excellent Condition
- 2-Very Good Condition
- 3-Minor Defects Only

- 4-Some Defects and Deterioration
- 5-Moderate Deterioration
- 6-Moderate to Significant Deterioration
- 7-Significant Deterioration
- 8-Significant Deterioration w/ Major Repairs Performed on Equipment
- 9-Virtually Unserviceable
- 10-Unserviceable

Reliability rating is based on the history of the asset. It relates the number of reported breakdowns or unplanned maintenance calls and potential downtime related to the availability of parts and service for the asset. The following are the possible reliability ratings:

- 1-Exceptional (No Problems)
- 2-Random Breakdown (Every 5 Years)
- 3-Occasional Breakdown (Every 2 Years)
- 4-Periodic Breakdown (Once per Year)
- 5-Continuous Breakdown (Multiple Times per Year)

Current Performance rating is based on efficiency, attention required, and the asset's ability to meet required demands. The following are the possible performance ratings:

- 1-Meets or Exceeds all Performance Targets
- 2-Minor Performance Deficiencies
- 3-Considerable Performance Deficiencies
- 4-Major Performance Deficiencies
- 5-Does not meet any Performance Targets

Maintainability rating is based on the level and frequency of maintenance and monitoring required to keep the asset operational. The following are the possible maintainability ratings:

- 1-Easily Maintained
- 2-Largely Preventative Maintenance
- 3-Periodic Corrective Maintenance
- 4-More Frequent Corrective Maintenance
- 5-Work Orders Well Above Average
- 6-Corrective Maintenance has become Routine

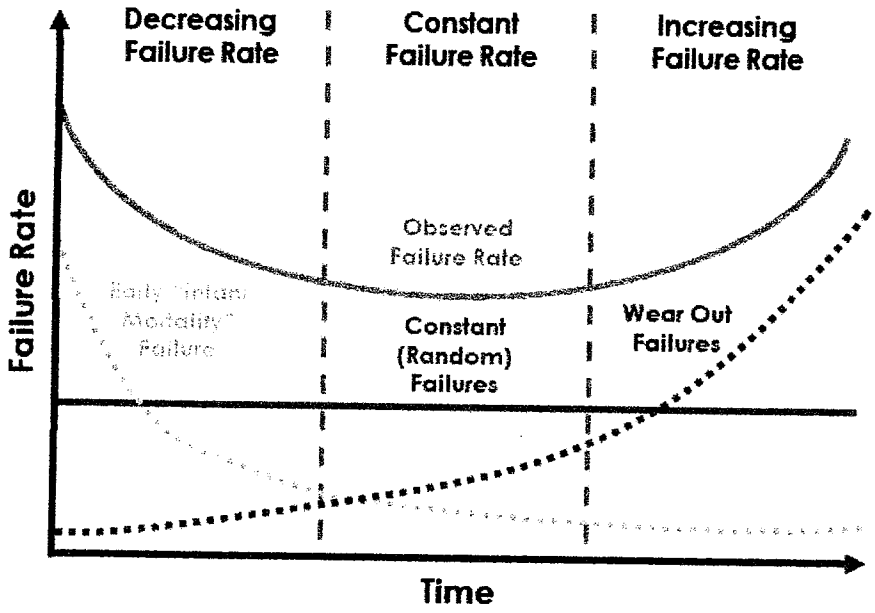
Once the condition assessment is complete, the PoF score is determined. Using the condition and reliability ratings, the remaining life of the asset is determined. The remaining life is used to perform a Weibull analysis and produce the probability of failure. The Weibull analysis is based off the bathtub curve Figure 2-1 below. The Weibull curve has three distinct zones:

- Decreasing Failure Rate – When an asset first starts, early Infant Mortality (defective equipment, poor installation, for example) is the primary mode of failure.
- Constant Failure Rate – Over time, random failures are the primary mode of failure.

- Increasing Failure Rate – As an asset ages and parts wears out, the failure rate increases.

A failure rate is found using the Weibull curve. The failure rate is adjusted based on the performance and maintainability ratings found during the inspection to determine a final PoF.

Figure 2-1 Bathtub Curve



2.3.2 Consequence of Failure

The second step to determine risk is to find the Consequence of Failure (CoF). PoF tells us how often a failure might occur. CoF considers the cost and impacts when a failure does occur. The cost of failure could include loss of fire protection, public health impacts, social costs, collateral damage caused by asset failure, legal costs related to damage caused by the failure, environmental cost. The CoF score is calculated using the triple bottom line concept. The triple bottom line approach considers social, economic, and environmental impacts of asset failure. Wright-Pierce also includes replacement time and redundancy when calculating the final CoF score.

The Social/Community factor gives weight to the social/community consequences that would occur if an asset fails. Potential consequences included in this factor are shown in Table 2-1.

The Economic/Financial Scoring factor gives weight to the economic and financial consequences that would occur if an asset fails. Potential consequences included in this factor are shown in Table 2-2.

The Environmental factor gives weight to the environmental consequences that would occur if an asset fails. Potential consequences included in this factor are shown in Table 2-3.

Table 2-1 Social/Community Scoring

Potential Consequences	Score					
	1	**3**	**5**	**7**	**9**	**10**
Loss of Service	Can be out of service indefinitely	Cannot be down a month	Cannot be down a week	Cannot be down a day	Cannot be down 8 hours	Cannot be down one hour
Safety	No impact	Minimal Impact	Minor injury	Moderate Impact on Public Safety	Significant Impact to Public Safety	Significant and Immediate Impact to Public Safety
Agency's Image	No media or no consequence	Neutral coverage	Adverse media	Widely adverse media	Continual; political opposition	Nationally adverse media

Table 2-2 Economic/Financial Scoring

Potential Consequences	Score					
	1	**3**	**5**	**7**	**9**	**10**
Economic Impact	Low cost	Moderate cost	High cost	High cost; diverts $	Painful change of priorities	Likely to trigger rate increase, staff changes
Financial Impact	Insignificant	<$10k	<$50k	<$100K	<$1 million	>$1 million

Table 2-3 Environmental Scoring

Potential Consequences	Score					
	1	3	5	7	9	10
Spill/ Flood	No Impact	Short duration, small quantity	Moderate flooding, some offsite spillage	Many inconvenienced; moderate health and habitat issues	Severe health and habitat issues; some mandatory vacation of premises	Large areas vacated and closed to public access; extensive specialized containment cleanup required
Permit Compliance	No consequence	Minor violation - reporting only	Regulatory sanction possible	Regulatory sanction likely; Damage reversible less than one year	Extensive regulatory sanction virtually assured; damage reversible in one to five years	Severe sanctions; damage reversible in five years or more

The CoF score is a sum of the factors listed below normalized to a 1-10 scale. The weighting factors were selected to appropriately reflect the potential risk for each factor in North Smithfield.

Table 2-4 Consequence of Failure Factor Weighting

Factor	Weighting
Social/Community	35%
Economic/Financial	30%
Environmental	35%

After the CoF is determined, replacement time and redundancy factors are incorporated into the calculation. These two factors increase or decrease the score based on the replacement time and level of redundancy for each asset.

2.3.3 Final Score

After final scores for PoF and CoF are determined, a management strategy can be assigned to each asset based on the risk matrix in Figure 2-2. Management strategies are selected to maximize cost-effective maintenance practices and reduce the risk associated with the asset.

Figure 2-2 Risk Matrix

Probability of Failure	Consequence of Failure									
	1	2	3	4	5	6	7	8	9	10
10	D	D	B	B	A	A	A	A	A	A
9	D	D	B	B	A	A	A	A	A	A
8	D	D	C	B	B	B	A	A	A	A
7	D	D	C	B	B	B	B	B	A	A
6	F	F	C	C	C	B	B	B	B	B
5	F	F	F	C	C	C	C	C	C	C
4	F	F	F	E	C	C	C	C	C	C
3	F	F	F	E	E	E	E	C	C	C
2	F	F	F	E	E	E	E	E	E	E
1	F	F	F	E	E	E	E	E	E	E

Management strategies include:

- **Group A** – Critical Renew & Replace (R&R) – (High PoF, High CoF). Asset has reached the end of its useful life or is near the end of its useful life but has high consequence of failure. Asset should be replaced within the year.
- **Group B** – Priority Renew & Replace (R&R) – (High PoF, High CoF). Asset is nearing the end of its useful life. Asset should be put on the 5-year CIP to be replaced.
- **Group C** – Add Predictive Maintenance Schedule – (Mid PoF, High CoF). Asset is about halfway through its useful life and parts will begin to wear out. A predictive maintenance schedule should be implemented.
- **Group D** – Opportunistic Renew & Replace – (High PoF, Low CoF). Asset has a low consequence of failure and is considered acceptable to fail. Replace as it fails.
- **Group E** – Routine Maintenance or Preventative Maintenance Schedule – (Low PoF, High CoF). Asset is new or early in its useful life. A routine or preventative maintenance schedule needs to be implemented.
- **Group F** – Run to Fail – (Low PoF, Low CoF). Asset has low consequence of failure and is considered acceptable to fail. No preventative or predictive maintenance should be scheduled for these assets.

Figure 2-3 shows a summary of management strategies for the North Smithfield Pump Station assets.

Figure 2-3 Summary of Assets by Strategy

Group	Strategy	Count	% Assets
A	Critical R&R	2	1%
B	Priority R&R	15	5%
C	Add PdM Schedule	39	13%
D	Opportunistic R&R	10	3%
E	Rt or PM Schedule	55	18%
F	Run to Fail	184	60%
G	(undefined)	0	0%
	Total	305	

Risk can be reduced by decreasing the PoF by repair, replacement, or refurbishment of an asset. Risk can also be reduced by decreasing the CoF through redundancy, relocation, insurance, or alarms. Typically, the most cost-effective means of reducing risk for aging assets is to reduce the PoF through infrastructure replacement projects. The assets with the greatest PoF and CoF are the assets with the greatest risk. These assets should be further evaluated to determine the best way to reduce the risk.

2.4 Asset Registry

The asset registry is the backbone of an effective CMMS program. If an asset is not in the asset registry, it cannot be managed or tracked very easily. The asset registry lists assets and important asset information. A well-developed asset registry will include the following (if applicable):

- Asset ID number
- Asset description
- Serial number
- Model number
- Equipment class
- Manufacturer
- Material
- Size and Capacity
- Installation Date
- Service life
- Replacement cost

- Criticality ranking
- Warranty begin and end date
- Equipment condition rating

The asset registry should be organized in a hierarchy that allows staff to report on the performance and cost impacts of assets quickly and effectively.

2.5 Asset Hierarchy

An asset hierarchy is the logical organization of assets that supports effective condition and cost analyses for groups of assets. The asset hierarchy is typically built upon a series of 'parent/child' relationships. Asset hierarchies are set up to support both high-level CMMS decision-making and more immediate maintenance management decision-making.

Wright-Pierce has developed an asset hierarchy that encompasses the Town's assets.

The purpose of the asset hierarchy is to:

- Support CMMS reporting.
- Support maintenance cost reporting.
- Support related CMMS functionality, such as the ability to assign assets to work orders.
- Capture all wastewater assets.
- Provide flexibility to add new assets in the future.

The asset numbering convention uses a series of codes that provide useful information about the asset. The asset number structure includes a facility number, a location number, a room number, an asset classification, and an identifying asset number. An example asset ID is 100-106-002-PP-01:

100 = Facility Number (Pump Stations)
106 = Location Number (Pound Hill Pump Station)
002 = Room Number (Pump Room)
PP = Asset Classification (Pump)
01 = Asset Number (Pump No. 1)

This example (100-106-002-PP-01) is the asset ID for Pump No. 1 located in the Pump Room at Pound Hill Pump Station.

The complete asset hierarchy for North Smithfield is in Appendix C.

Section 3 Capacity Analysis

3.1 Capacity Assessment Criteria

A core component of the pump station evaluation is assessing the stations capacity to pump wastewater. The capacity analysis of the pump stations was based on evaluating the three main components of the pump stations; Pumps, Wet Well, and Force Main, each of which has the ability to affect the overall capacity of the stations. The pump assessment analyzed the rated pump capacity and actual drawdown results to verify the station's ability to convey peak existing and future flows. The wet well assessment analyzed the stations wet well utilized volume to ensure the proper volume is available to avoid short-cycling the pumps (more than 6 starts/stops per hour/per pump). In some instances, stations may have pump capacities that are equal to or less than the peak flow, meaning the wet well level would never pump down. This is an over exaggeration as a lag pump would kick on or the wet well level would just stay steady for a short duration while the peak flow passes, and it returns to average flow.

The force main assessment analyzed both design and drawdown wastewater flow velocities for conformance with recommended range of velocities, per TR-16 guidelines. The velocity in a pipe should be between 3-8 ft/sec (Wright-Pierce preferred range is 3-6 ft/sec). The recommended velocity ranges are used to ensure wastewater flows are conveyed without solids buildup or excessive head loss. If velocities fall below 3 ft/sec, then you will see solids buildup in the pipeline. If velocities are above 8 ft/sec, then you will see excessive head loss and possible water hammer issues. Appendix D contains the capacity analysis calculation sheets and shows each station's force main velocities and peak flow rates.

The Wright-Pierce project team gathered specific detailed information for the pump stations based on information provided by the Town; field inspections; drawdown testing, and interviews with Town operations staff. The drawdown testing results are attached to the field report for each pump, and the field reports are located in Appendix B. Each pump station's capacity was assessed for its ability to handle existing and future flows. The peak existing and future flows used for the capacity analysis were obtained from the 2007 Facilities Plan prepared by James J. Geremia & Associates, Inc. It should be noted that in the Facilities Plan peak daily flow was used to determine if a pump station could meet existing and future flows. TR-16 recommends using peak hourly flow to determine a pump stations capacity so some stations that the Facilities Plan states has adequate capacity for future flows actually do not.

3.2 Belcher Avenue (100-101)

The estimated existing and future peak flows are 39.2GPM and 268.8GPM, respectively.

3.2.1 Pumps

The pumps at this station have a rated capacity of 200GPM. Drawdown testing results indicate the pumps are discharging an average of 258.64GPM. The drawdown tests confirm that the pumps are performing greater than the rated pump capacity and have the ability to meet the existing peak flow but not the future peak flow. New 270GPM pumps have to be installed to meet future flows. With all future flows tied in the new pumps would have 0% capacity remaining.

Slaters Village and Silver Pines Phase 2 are new proposed developments on top of the future flow from the facilities plan. These new flows will increase the future peak flow to 425.8GPM. In order to handle this flow, new 430GPM pumps will have to be installed. This leaves 1% capacity remaining in the pumps.

An alternate option is to remove the Victory Highway flows from the future flows, as there are no immediate current plans to develop that area. This will leave capacity for the two new proposed developments. This alternate option temporarily changes the future flow to 196.2GPM. With this option the current 200GPM pumps have capacity to handle the peak flows. This leaves 2% capacity remaining in the pumps.

3.2.2 Wet Well

The working wet well volume is 564 gallons. The recommended minimum wet well volume, to limit pump cycles to the recommended 6 starts/stops per hour, is 49 and 336 gallons for existing and future peak flows respectively. The wet well meets the minimum volume recommended for both existing and future peak flows with 40% capacity remaining after future flows are tied into the station.

With the additional flow from Slaters Village and Silver Pines Phase 2, the minimum wet well volume goes up to 532.25 gallons leaving 6% wet well capacity remaining after all future flows are tied in.

For the alternate option, the minimum wet well volume goes down to 245.25 gallons leaving 56% wet well capacity remaining after both developments are tied in.

3.2.3 Force Main

The force main velocity is 4.72 ft/sec at the rated pump capacity and 6.89 ft/sec at the new pumps rated capacity. These are both within the TR-16 recommended range and should be able to convey flows without solids buildup or excessive head loss.

The force main velocity at 430GPM in a 4-in force main would be 10.98 ft/sec. This is above the upper limit of the TR-16 recommended range (<8 fps) and likely will be able to convey flows without solids buildup. However, the higher velocities would place additional head on the pumps. It would be recommended to upsize the force main to 6-in to reduce the velocity to 4.88 ft/sec.

For the alternate option the velocity at 200GPM in a 4-in force main would be 5.11 ft/sec. This is within the TR-16 recommended range and should be able to convey flows without solids buildup or excessive head loss. For this option there would not be a need to replace the force main.

3.3 Branch River (100-102)

The estimated existing and future peak flows are 785GPM and 1990.8GPM, respectively.

3.3.1 Pumps

The pumps at this station have a rated capacity of 1900GPM. Drawdown testing results indicate the pumps are discharging an average of 2508.39GPM. The drawdown tests confirm that the pumps are performing greater than the pump rated capacity and have the ability to meet both the existing and future peak flows. However, at the design point, one pump running does not have the ability to meet the future peak flow. This station was designed as a lead, lag, standby station so the design point with two pumps running does have the ability to meet future peak flows. With two pumps running there is about 28% capacity in the pumps remaining after future flows are added.

3.3.2 Wet Well

The working wet well volume is 3575 gallons. The recommended minimum wet well volume to limit pump cycles to the recommended 6 starts/stops per hour is 981.25 and 2488.5 gallons for existing and future peak flows respectively. The wet well meets the minimum volume recommended for both existing and future peak flows with 30% capacity remaining after future flows are tied into the station.

3.3.3 Force Main

At the rated pump capacity of 1900 GPM, the force main velocity is 1.94 ft/sec. This is below the TR-16 recommended range (>3 fps) and may result in solids buildup. The force main appears to be oversized based on the velocity in the pipe. This is true for both one and two pumps running, with two pumps running the velocity is 2.82 ft/sec. The force main should be further evaluated to determine if it should be slip lined to reduce the inside diameter to 16-inches which will increase the velocity in the pipe to 3.03 ft/sec which is within the TR-16 recommended range.

3.4 Halliwell (100-103)

The estimated existing and future peak flows are 28GPM and 44.8GPM, respectively.

3.4.1 Pumps

The pumps at this station have a rated capacity of 43GPM. Drawdown testing results indicate Pump No. 1 is discharging 27GPM and Pump No. 2 is discharging 64GPM. The drawdown tests confirm that Pump No. 1 is performing less than the rated pump capacity and does not have the ability to meet either the existing or the future peak flow. Pump No. 2 is performing greater than the rated pump capacity and has the ability to handle both existing and future peak flows. New 60GPM pumps should be installed to replace the underperforming pump and allow the station to handle future flows leaving 25% capacity remaining.

3.4.2 Wet Well

The working wet well volume is 220 gallons. The recommended minimum wet well volume to limit pump cycles to the recommended 6 starts/stops per hour is 35 and 56 gallons for existing and future peak flows respectively. The wet well meets the minimum volume recommended for both existing and future peak flows with 75% capacity remaining after future flows are tied into the station.

3.4.3 Force Main

At the drawdown capacity of 27GPM for Pump No. 1, the force main velocity is 2.8 ft/sec. This is below the TR-16 recommended range (>3 fps) and may not be able to convey flows without solids buildup. At the current rated pump capacity and new recommended pump capacity, the velocity would be 4.39 ft/sec and 6.13 ft/sec respectively, which is within the accepted range.

3.5 Ironstone (100-104)

The estimated existing and future peak flows are 89.6GPM and 145.60GPM, respectively.

3.5.1 Pumps

The pumps at this station have a rated capacity of 110GPM. Drawdown testing results indicate the pumps are discharging an average of 160GPM. The drawdown tests confirm that the pumps are performing greater than the rated capacity and have the ability to meet both the existing and the future peak flow. Is it likely that when pumps where replaced larger pumps were installed so the current pumps are sized to handle existing and future flows. With all future flows tied in the pumps have 9% capacity remaining.

3.5.2 Wet Well

The working wet well volume is 451 gallons. The recommended minimum wet well volume to limit pump cycles to the recommended 6 starts/stops per hour is 112 and 182 gallons for existing and future peak flows respectively. The wet well meets the minimum volume recommended for both existing and future peak flows with 60% capacity remaining after future flows are tied into the station.

3.5.3 Force Main

At 110GPM in a 4-in force main the velocity is 2.81 ft/sec. This is below the TR-16 recommended range (>3 fps) and may not be able to convey flows without solids buildup. However, the drawdown results show the pumps pumping around 160GPM which brings the velocity to 4.09 ft/sec in the force main which is within the recommended range.

3.6 Lorraine (100-105)

The estimated existing and future peak flows are both 39.20GPM.

3.6.1 Pumps

The pumps at this station have a rated capacity of 40GPM. Drawdown testing results indicate the pumps are discharging an average of 30GPM. The drawdown tests confirm that the pumps are performing less than the rated pump capacity and do not have the ability to meet either the existing or the future peak flow. Pumps should be replaced or rebuilt to gain back lost capacity. When the pumps are replaced at the rated pump capacity of 40GPM there is 2% capacity remaining.

3.6.2 Wet Well

The working wet well volume is 220 gallons. The recommended minimum wet well volume to limit pump cycles to the recommended 6 starts/stops per hour is 49 gallons for both existing and future peak flows. The wet well meets the minimum volume recommended for both existing and future peak flows with 78% capacity remaining after future flows are tied into the station.

3.6.3 Force Main

The force main velocity is 3.15 ft/sec at drawdown capacity and 4.09 ft/sec at rated pump capacity. These are both within the TR-16 recommended range and should be able to convey flows without solids buildup or excessive head loss.

3.7 Pound Hill (100-106)

The estimated existing and future peak flows are 640GPM and 702GPM, respectively.

3.7.1 Pumps

The pumps at this station have a rated capacity of 1100GPM. Drawdown testing results indicate the pumps are discharging an average of 1230.94GPM. The drawdown tests confirm that the pumps are performing greater than the rated pump capacity and have the ability to meet both the existing and the future peak flow. With all future flows tied in the pumps have 36% capacity remaining.

3.7.2 Wet Well

The working wet well volume is 1616 gallons. The recommended minimum wet well volume to limit pump cycles to the recommended 6 starts/stops per hour is 800 and 877.5 gallons for existing and future peak flows respectively. The wet well meets the minimum volume recommended for both existing and future peak flows with 46% capacity remaining after future flows are tied into the station.

3.7.3 Force Main

At the rated pump capacity of 1100GPM, the force main velocity is 4.49 ft/sec. This is within the TR-16 recommended range and should be able to convey flows without solids buildup or excessive head loss.

3.8 Rockcliff Farms (100-107)

The estimated existing and future peak flows are 11.2GPM and 95.2GPM, respectively.

3.8.1 Pumps

The pumps at this station have a rated capacity of 183GPM. Drawdown testing results indicate the pumps are discharging an average of 181.84GPM. The drawdown tests confirm that the pumps are performing as intended and have the ability to meet both the existing and the future peak flow. With all future flows tied in the pumps have 48% capacity remaining.

3.8.2 Wet Well

The working wet well volume is 564 gallons. The recommended minimum wet well volume to limit pump cycles to the recommended 6 starts/stops per hour is 14 and 119 gallons for existing and future peak flows respectively. The wet well meets the minimum volume recommended for both existing and future peak flows with 79% capacity remaining after future flows are tied into the station.

3.8.3 Force Main

At the rated pump capacity of 183 GPM, the force main velocity is 4.67 ft/sec. This is within the TR-16 recommended range and should be able to convey flows without solids buildup or excessive head loss.

3.9 Sharon Parkway (100-108)

The estimated existing and future peak flows are both 28GPM.

3.9.1 Pumps

The pumps at this station have a rated capacity of 150GPM. Drawdown testing results indicate the pumps are discharging an average of 186.11GPM. The drawdown tests confirm that the pumps are performing greater than

the rated pump capacity and have the ability to meet both the existing and the future peak flow. With all future flows tied in the pumps have 81% capacity remaining.

3.9.2 Wet Well

The working wet well volume is 211 gallons. The recommended minimum wet well volume to limit pump cycles to the recommended 6 starts/stops per hour is 35 gallons for both existing and future peak flows. The wet well meets the minimum volume recommended for both existing and future peak flows with 83% capacity remaining after future flows are tied into the station.

3.9.3 Force Main

At the rated pump capacity of 150 GPM, the force main velocity is 3.83 ft/sec. This is within the TR-16 recommended range and should be able to convey flows without solids buildup or excessive head loss.

3.10 Silver Pines (100-109)

The estimated existing and future peak flows are 16.8GPM and 196GPM, respectively.

3.10.1 Pumps

The pumps at this station have a rated capacity of 200GPM. Drawdown testing results indicate the pumps are discharging an average of 124.28GPM. The drawdown tests confirm that the pumps are performing less than intended. Therefore, the pumps have the ability to meet existing peak flows currently but not future peak flows. The pumps should be replaced with the same size. With all future flows tied in the pumps will have 2% capacity remaining.

It was proposed that Silver Pines Phase 2 flows go to Belcher Avenue instead, which changes the estimated future peak flow to 139GPM. This adds 29% capacity to the pumps bringing the overall pump capacity remaining to 31% under future flows.

3.10.2 Wet Well

The working wet well volume is 564 gallons. The recommended minimum wet well volume to limit pump cycles to the recommended 6 starts/stops per hour is 21 and 245 gallons for existing and future peak flows respectively. The wet well meets the minimum volume recommended for both existing and future peak flows with 57% capacity remaining after future flows are tied into the station.

If Silver Pines Phase 2 is redirected to Belcher Avenue, then the recommended minimum wet well volume would be 173.75 gallons leaving 69% capacity remaining after future flows are tied into the station.

3.10.3 Force Main

The force main velocity is 3.17 ft/sec at drawdown capacity and 5.11 ft/sec at rated pump capacity. These are both within the TR-16 recommended range and should be able to convey flows without solids buildup or excessive head loss.

Section 4 Observations and Recommendations

4.1 Introduction

This section summarizes the condition assessment of North Smithfield's pump stations. Architectural, Electrical, I&C, Mechanical, Process, and Structural assets were included in the evaluation. The locations included in the condition assessment are:

- Belcher Avenue Pump Station (100-101)
- Branch River Pump Station (100-102)
- Halliwell Pump Station (100-103)
- Ironstone Pump Station (100-104)
- Lorraine Pump Station (100-105)
- Pound Hill Pump Station (100-106)
- Rockcliff Farms Pump Station (100-107)
- Sharon Parkway Pump Station (100-108)
- Silver Pines Pump Station (100-109)
- Alice Avenue Metering Station (200-201)
- Elizabeth Avenue Metering Station (200-202)

Asset condition assessments are based on information provided by the Town, interviews with Town operations staff, and field observations by Wright-Pierce personnel. Wright-Pierce conducted site visits from November 3, 2021 through November 10, 2021. During the site visits:

- Basic testing was performed with commonly available tools. The results were used to identify assets performing outside the expected range.
- The Wright-Pierce team spoke with Town personnel to verify performance history and learn about the reliability of each asset.
- The condition assessment was limited to readily accessible areas. No confined space entry was performed.
- No destructive testing of construction materials (concrete, paint, metal, insulation, etc.) was performed to determine the condition of assets.

4.2 Belcher Avenue (100-101)

The Belcher Avenue Pump Station was constructed in 1996. The station is located at the end of Belcher Avenue. It is a submersible style station with two pumps, a separate valve chamber, and an emergency generator in an exterior housing.

Table 4-1 Belcher Avenue Observations and Recommendations

Asset Description	Room/Area	Observation	Recommendation
Control Panel	-	No explosion proof fittings on conduit going to wet well.	Install explosion proof fittings.
Exhaust Fan	-	Fan was reported to be working recently but breaker was off. Checked and fan did not turn on when breaker put back on.	Replace fan.
Fence/Gate	-	One section of fence is too long and is sagging. Minor deterioration.	Replace fence with PVC/Composite type.
Flowmeter	-	Vault flooded during install so it was never wired in. They assumed flood ruined meter.	Confirm if meter is a full submergence or accidental submergence. If full connect wires and calibrate, if accidental then meter needs to be replaced.
Trash Basket	-	Works but never used, pumps have N impellers and there is no need for it anymore.	No recommendations at this time.
Trash Basket Manhole	-	Leaking from one joint section.	Reseal all joint sections to prevent groundwater intrusion.

4.3 Branch River (100-102)

The Branch River Pump Station was constructed in 1978. The station is located near the Route 146 crossing of the Branch River. It consists of a concrete building with brick facing and a separate concrete wetwell. The building houses three centrifugal pumps and emergency generator.

Table 4-2 Branch River Observations and Recommendations

Asset Description	Room/Area	Observation	Recommendation
Generator	Control Room	Generator is not connected to SCADA system. Can't see when generator is running during weekly cycles.	Link run status to SCADA so operators know when generator is running during weekly cycle.
Self-Contained Breathing Apparatus (SCBA)	Control Room	Has not been tested since 2008.	Remove SCBA not required or needed.
Flowmeter	Exterior	Manhole is flooded, flowmeter does not work.	Pump out meter vault and repair meter or replace if necessary.
Bar Rack Effluent Slide Gate	Grinder Pit	Gate missing.	Replace gate or if it is just located somewhere else it needs to be stored in the grinder pit with others for easy access in case on emergency.
Grinder	Grinder Pit	Cutters appear to be in good shape but the high flow screening drum needs to be cleaned of grease buildup.	Clean high flow screening drum. Replace coil drum with perforated screening drum.
Flow Transmitter	Motor Room	Small leak.	Repair leak.
Pump No. 1 Check Valve	Pump Room	Leaking at swing arm.	Replace seal on swing arm.
Pump No. 2 Check Valve	Pump Room	Leaks when pump is running.	Replace seal on swing arm.
Pump No. 2	Pump Room	Seal Leak.	Replace seal.

Asset Description	Room/Area	Observation	Recommendation
Exhaust Fan	Wet Well	Abandoned in place, belt snapped.	Remove from wet well so corroded pieces don't fall off and get stuck in pumps.
Building	-	Concrete slab is settling.	Monitor to see if setting continues.
Fence/Gate	-	Coatings peeling and fence fabric detached at multiple sections and posts are leaning.	Reset leaning posts and install new fence fabric.
Lighting System	-	Lighting in the wet well and grinder pit does not work.	Replace lighting in the wet well and grinder pit.
Motor Room	-	Wall coatings failed. Looks like original coating failed and then new coating was painted over it, not properly cleaned and prepped.	Clean, prep, and recoat walls.
Pump Room	-	1-inch of water on floor, does not slope towards the sump. Walls coatings failing similar to the motor room.	Pump out standing water. Grout floor to slope towards sump. Clean, prep, and recoat walls.
Wet Well	-	Coatings failed. Grease island buildup.	Clean, prep, and recoat wet well. Clear off grease islands.

4.4 Halliwell (100-103)

The Halliwell Pump Station was constructed in 1997. The station is located at the rear of the Halliwell Elementary School, which is no longer in operation. It is a submersible style station with two pumps, and a separate valve chamber.

Table 4-3 Halliwell Observations and Recommendations

Asset Description	Room/Area	Observation	Recommendation
Control Panel	-	No explosion proof seals.	Install explosion proof seals.
Wet Well	-	Significant infiltration around influent pipe.	Seal influent pipes.

4.5 Ironstone (100-104)

The Ironstone Pump Station was constructed in 1998. The station is located on Mechanic Street. It is a submersible style station with two pumps, a separate valve chamber, and an emergency generator in an exterior housing.

Table 4-4 Ironstone Observations and Recommendations

Asset Description	Location	Observation	Recommendation
Piping	-	Coatings failed.	Clean, prep, and recoat piping.

4.6 Lorraine (100-105)

The Lorraine Avenue Pump Station was constructed in 1992. The station is located at the end of Lorraine Avenue. It is a submersible style station with two grinder pumps, and a separate valve chamber.

Table 4-5 Lorraine Observations and Recommendations

Asset Description	Location	Observation	Recommendation
Control Panel	-	No explosion proof seals.	Install explosion proof seals.

4.7 Pound Hill (100-106)

The Pound Hill Pump Station was constructed in 1977. The station is located on Pound Hill Road, 300 feet west of Gilfillan Road. It consists of a concrete building with brick facing and a separate concrete wetwell. The building houses two centrifugal pumps and emergency generator.

Table 4-6 Pound Hill Observations and Recommendations

Asset Description	Room/Area	Observation	Recommendation
Hydraulic Power Pack	Control Room	Some leakage at tube connection.	Fix hydraulic leak, replace fitting if necessary.
Generator	Generator Room	Oil leaks. Generator is not connected to SCADA system. Can't see when generator is running during weekly cycles.	Determine source of oil leak and repair. Link run status to SCADA so operators know when generator is running during weekly cycle.
Bar Screen	Wet Well	Currently flow going through grinder, but rag buildup should be cleaned out.	Clean rags off bar rack.
Building	-	Some moss growth on roof shingles.	Clean moss of roof.
Control Room	-	No guards around pump hatch opening. OSHA regulations require that no opening can be unguarded.	Close hatches when not working on pumps.
Wet Well	-	Coatings failed.	Clean, prep, and recoat wet well.

4.8 Rockcliff Farms (100-107)

The Rockcliff Farm Pump Station was constructed in 2005. The station is located on Old Louisquisset Pike, approximately 300 feet south of the entrance to Rockcliff Farm. It is a submersible style station with two pumps, a separate valve chamber, and an emergency generator in an exterior housing.

Table 4-7 Safety/Code Issues and Recommendations

Asset Description	Room/Area	Observation	Recommendation
Generator	-	Mice inside enclosure. Need to be removed before they chew the wires.	Remove mice from enclosure.
Supply Fan	-	Limit switch connecting open hatch to fan power on is broken.	Bypass limit switch and use switch located next to wet well. Remove broken limit switch from wet well.

4.9 Sharon Parkway (100-108)

The Sharon Parkway Pump Station was constructed in 1990. The station is located on the cul-de-sac on Sharon Parkway. It is a submersible style station with two pumps and a gas-powered emergency generator.

Table 4-8 Sharon Parkway Observations and Recommendations

Asset Description	Room/Area	Observations	Recommendation
Fence/Gate	-	Growth on fence.	Power wash fence.
Generator	-	Oil Leaking. Generator is not connected to SCADA system. Can't see when generator is running during weekly cycles.	Determine source of oil leak and repair. Link run status to SCADA so operators know when generator is running during weekly cycle.
Pump No. 1	-	Operator heard rattling and removed pump to check it. Was determined check valve was source of noise and pump is being kept out of service until check valve can be replaced.	Reinstall pump once valves and piping are replaced.

Asset Description	Room/Area	Observations	Recommendation
Pump No. 1 Check Valve	-	Ball rattles inside valve.	Valve due for replacement. All valves should be moved out of wet well and installed in a new valve pit.
Wet Well	-	Concrete pad is spalling around edges.	Patch spalling edges to prevent further damage. Recoat wet well while on bypass.

4.10 Silver Pines (100-109)

The Silver Pines Pump Station was constructed in 2004. The station is located at the corner of Silver Pines Boulevard and Main Street. It is a submersible style station with two pumps, a separate valve chamber, and an emergency generator in an exterior housing.

Table 4-9 Silver Pines Observations and Recommendations

Asset Description	Room/Area	Observation	Recommendation
Flowmeter	-	Not in use. Reached the end of its useful life.	Replace flowmeter.
Piping	-	Coatings failed.	Clean, prep, and recoat piping.
Submersible Pressure Transducer	-	Junction box for pressure transducer is blocking hatch opening where pump is pulled out. This prevents the pump from being pulled.	Relocate junction box for pressure transducer out of wet well hatch area.
Valve Vault	-	Hand bar sticking up is a trip hazard. Gets covered in leaves in the fall and can't be seen.	Remove trip hazard hand bar and install extension on ladder rung.

4.11 Alice Avenue (200-201)

The Alice Avenue Metering Station was constructed in 1997. It is located along the train tracks near the end of Alice Avenue. It consists of a concrete building which holds the SCADA panel and electrical equipment, and a separate vault which contains the Parshall Flume.

Table 4-10 Alice Avenue Observations and Recommendations

Asset Description	Room/Area	Observation	Recommendation
Building	-	Graffiti but hidden in the woods so not worth removing. Door is corroded but still has useful life remaining.	No recommendations at this time.
Chart Recorder	-	Abandoned in place no longer used.	Decommission chart recorder, no longer needed trends can be tracked in SCADA.
Inline Electric Heater	-	Did not visually inspect but reported to not work.	Decommission unit heater.
Supply Fan	-	Could not inspect, reported nonfunctional. Fan no longer required as entries into the vault are not part of operations. If an emergency requires entry then a portable supply fan can be used.	Remove fan from meter vault.

4.12 Elizabeth Avenue (200-202)

The Elizabeth Avenue Metering Station was constructed in 2004. It is located at the corner of Scotia Street and 3rd Avenue. It consists of a fiberglass vault which holds the Parshall Flume and a stainless-steel enclosure which holds the electrical equipment.

No safety issues, code violations, or defects were noted during inspection of Elizabeth Avenue.

Section 5 Recommended Capital Improvement Plan

5.1 Evaluation Recommendations

The recommendations are divided into two categories, Priority Improvements and Minor Improvements. The Priority Improvements include safety or code issues that should be fixed right away, equipment that has reached the end of its useful life, requires immediate repair, or repair is anticipated within one year. The Minor Improvements include items that do not have an immediate impact on system performance, and equipment anticipated to reach the end of their useful life within two to five years.

Based upon the field evaluation, the following Priority Improvements (short term 1 year) and Minor Improvements (long term 2–5 years) are recommended to correct the deficiencies identified in Section 4.

5.2 Belcher Avenue (100-101)

Table 5-1 Recommended Improvements to Belcher Avenue

Asset ID	Improvement	Plan Year
Priority Asset Improvements		
100-101-CO-01	Install explosion proof fittings.	2022
100-101-CV-01	Replace Pump No. 1 Check Valve.	2022
100-101-EF-01	Replace Exhaust Fan.	2022
100-101-FM-01	Confirm if meter is a full submergence or accidental submergence. If full connect wires and calibrate, if accidental then meter needs to be replaced.	2022
100-101-MH-01	Reseal all joint sections to prevent groundwater intrusion.	2022
Minor Asset Improvements		
100-101-FC-01	Replace fence with PVC/Composite type.	2023
	Total Estimated Cost:	$131,900

5.3 Branch River (100-102)

Table 5-2 Recommended Improvements to Branch River

Asset ID	Improvement	Plan Year
Priority Asset Improvements		
100-102-101-GN-01	Link run status to SCADA so operators know when generator is running during weekly cycle.	2022
100-102-101-SA-01	Remove SCBA not required or needed.	2022
100-102-001-GR-01	Clean high flow screening drum. Replace coil drum with perforated screening drum.	2022
100-102-001-SG-02	Replace gate or if it is just located somewhere else it needs to be stored in the grinder pit with others for easy access in case on emergency.	2022
100-102-002-TM-01	Repair leak.	2022
100-102-003-CV-01	Replace seal on swing arm.	2022
100-102-003-CV-02	Replace seal on swing arm.	2022
100-102-003-PP-02	Replace seal.	2022
100-102-EXT-FM-01	Pump out meter vault to inspect and repair meter or replace if necessary.	2022
100-102-WW-004	Clean, prep, and recoat wet well. Clear off grease islands.	2022
Force Main	Assess the force main to determine if it should be slip lined to reduce the inside diameter to 16-inches.	2022
Minor Asset Improvements		
100-102-004-EF-01	Remove from wet well so corroded pieces don't fall off and get stuck in pumps.	2023
100-102-FC-01	Reset leaning posts and install new fence fabric.	2023
100-102-LI-01	Replace lighting in the wet well and grinder pit.	2023
100-102-101-AC-01	Replace Air Compressor	2024
100-102-101-BC-01	Replace Battery Charger	2024
100-102-101-CO-01	Replace Compressor Control Panel	2024
100-102-101-GN-01	Replace Generator	2024
100-102-101-TK-01	Replace Generator Day Tank	2024
100-102-002-DT-01	Replace Pump No. 1 Motor Disconnect	2024

Asset ID	Improvement	Plan Year
100-102-002-DT-02	Replace Pump No. 2 Motor Disconnect	2024
100-102-002-DT-03	Replace Pump No. 3 Motor Disconnect	2024
100-102-002-MO-01	Replace Pump No. 1 Motor	2024
100-102-002-MO-02	Replace Pump No. 2 Motor	2024
100-102-002-MO-03	Replace Pump No. 3 Motor	2024
100-102-002-TK-01	Replace Generator Bulk Tank	2024
100-102-003-CV-01	Replace Pump No. 1 Check Valve	2024
100-102-003-CV-02	Replace Pump No. 2 Check Valve	2024
100-102-003-CV-03	Replace Pump No. 3 Check Valve	2024
100-102-003-PP-01	Replace Pump No. 1	2024
100-102-003-PP-02	Replace Pump No. 2	2024
100-102-003-PP-03	Replace Pump No. 3	2024
100-102-003-PV-01	Replace Pump No. 1 Suction Valve	2024
100-102-003-PV-02	Replace Pump No. 2 Suction Valve	2024
100-102-003-PV-03	Replace Pump No. 3 Suction Valve	2024
100-102-003-PV-04	Replace Pump No. 1 Discharge Valve	2024
100-102-003-PV-05	Replace Pump No. 2 Discharge Valve	2024
100-102-003-PV-06	Replace Pump No. 3 Discharge Valve	2024
100-102-EXT-FM-01	Replace Flowmeter	2024
100-102-RM-002	Clean, prep, and recoat walls.	2024
100-102-RM-003	Pump out standing water. Grout floor to slope towards sump. Clean, prep, and recoat walls.	2024
	Total Estimated Cost:	**$2,209,500**

5.4 Halliwell (100-103)

Table 5-3 Recommended Improvements to Halliwell

Asset ID	Improvement	Plan Year
Priority Asset Improvements		
100-103-CO-01	Install explosion proof seals.	2022
100-103-PP-01	Replace Pump No. 1 with a new 60GPM pump.	2022
100-103-PP-02	Replace Pump No. 2 with a new 60GPM pump.	2022
100-103-WW-01	Underground injection grout around influent pipes to seal groundwater leak.	2022
Minor Asset Improvements		
-	None	-
	Total Estimated Cost:	**$76,900**

5.5 Ironstone (100-104)

Table 5-4 Recommended Improvements to Ironstone

Asset ID	Improvement	Plan Year
Priority Asset Improvements		
-	None.	-
Minor Asset Improvements		
100-104-FM-01	Replace Flowmeter	2023
100-104-PI-01	Clean, prep, and recoat piping.	2023
100-104-SF-01	Replace Supply Fan	2023
	Total Estimated Cost:	**$36,200**

5.6 Lorraine (100-105)

Table 5-5 Recommended Improvements to Lorraine

Asset ID	Improvement	Plan Year
Priority Asset Improvements		
100-105-CO-01	Install explosion proof seals.	2022
100-105-PP-01	Replace Pump No. 1	2022
100-105-PP-02	Replace Pump No. 2	2022
Minor Asset Improvements		
-	None	-
	Total Estimated Cost:	**$51,900**

5.7 Pound Hill (100-106)

Table 5-6 Recommended Improvements to Pound Hill

Asset ID	Improvement	Plan Year
Priority Asset Improvements		
100-106-101-GN-01	Determine source of oil leak and repair. Link run status to SCADA so operators know when generator is running during weekly cycle.	2022
100-106-001-HY-01	Fix hydraulic leak, replace fitting if necessary.	2022
100-106-003-BN-01	Clean rags off bar rack.	2022
100-106-BB-01	Clean moss off roof.	2022
100-106-RM-001	Close hatches when not working on pumps.	2022
100-106-WW-003	Clean, prep, and recoat wet well.	2022
Minor Asset Improvements		
100-106-101-UH-01	Replace Electric Unit Heater	2023
100-106-002-FT-01	Replace Dry Pit Float	2023
100-106-101-BC-01	Replace Battery Charger	2025
100-106-101-DT-02	Replace Pump No. 1 Disconnect	2025

Asset ID	Improvement	Plan Year
100-106-101-DT-03	Replace Pump No. 2 Disconnect	2025
100-106-101-GN-01	Replace Generator	2025
100-106-101-TK-01	Replace Generator Fuel Day Tank	2025
100-106-101-TS-01	Replace Automatic Transfer Switch	2025
100-106-001-AC-01	Replace Air Compressor	2025
100-106-002-EF-01	Replace Exhaust Fan	2025
100-106-002-PV-01	Replace Pump No. 1 Suction Valve	2025
100-106-002-PV-02	Replace Pump No. 2 Suction Valve	2025
100-106-002-PV-03	Replace Pump No. 1 Discharge Valve	2025
100-106-002-PV-04	Replace Pump No. 2 Discharge Valve	2025
100-106-EXT-SF-01	Replace Supply Fan	2025
100-106-EXT-TK-01	Replace Generator Fuel Tank	2025
	Total Estimated Cost:	**$922,700**

5.8 Rockcliff Farms (100-107)

Table 5-7 Recommended Improvements to Rockcliff Farms

Asset ID	Improvement	Plan Year
Priority Asset Improvements		
100-107-GN-01	Remove mice from enclosure.	2022
100-107-SF-01	Bypass limit switch and use switch located next to wet well. Remove broken limit switch from wet well.	2022
Minor Asset Improvements		
100-107-FM-01	Replace Flowmeter.	2026
100-107-SF-01	Replace Supply Fan.	2026
	Total Estimated Cost:	**$30,400**

5.9 Sharon Parkway (100-108)

Table 5-8 Recommended Improvements to Sharon Parkway

Asset ID	Improvement	Plan Year
Priority Asset Improvements		
100-108-CV-01 100-108-CV-02 100-108-PI-01 100-108-PV-01 100-108-PV-02	Cut in tee and valves for bypass on force main just outside station. Remove old valves and piping. Install new valve vault, valves, and piping.	2022
100-108-FC-01	Power wash fence.	2022
100-108-GN-01	Determine source of oil leak and repair. Link run status to SCADA so operators know when generator is running during weekly cycle.	2022
100-108-WW-01	Patch spalling edges to prevent further damage. Recoat wet well while on bypass and piping is removed.	2022
Minor Asset Improvements		
100-108-TS-01	Replace Automatic Transfer Switch.	2025
	Total Estimated Cost:	**$352,700**

5.10 Silver Pines (100-109)

Table 5-9 Recommended Improvements to Silver Pines

Asset ID	Improvement	Plan Year
Priority Asset Improvements		
100-109-TR-01	Relocate junction box for pressure transducer to allow pump to be pulled.	2022
Minor Asset Improvements		
100-109-FM-01	Replace Flowmeter	2023
100-109-PI-01	Clean, prep, and recoat piping.	2023
100-109-VP-01	Remove trip hazard hand bar and install extension on ladder rung.	2023
100-109-SF-01	Replace Supply Fan	2025
	Total Estimated Cost:	**$44,200**

5.11 Alice Avenue (200-201)

Table 5-10 Recommended Improvements to Alice Avenue

Asset ID	Improvement	Plan Year
Priority Asset Improvements		
-	None.	-
Minor Asset Improvements		
200-201-IC-02	Decommission chart recorder, no longer needed trends can be tracked in SCADA.	2023
200-201-SF-01	Remove fan from meter vault.	2023
200-201-UH-01	Decommission unit heater.	2023
	Total Estimated Cost:	**$4,000**

5.12 Elizabeth Avenue (200-202)

No priority or minor asset improvements were identified for the Elizabeth Avenue metering station.

5.13 Risk Assessment

In previous sections of this report, risk analyses were conducted to create weighting criteria to establish priority and objectives for each of the Town's pump stations and metering stations. The risk analyses were conducted on all assets and provides the foundation for the development of the most cost-effective Asset Management Plan allowing the Town to add risk reduction into capital planning.

5.14 Recommended Capital Improvement Plan

Specific recommendations for each pump station and metering station were summarized in this section. Estimated costs are provided, on a near-term (1 year) and long-term (2-5 years) basis, also known as Priority and Minor Asset Improvements, respectively.

The total estimated project cost for the Recommended Capital Improvement Plan (CIP) over the 5-year planning period is approximately $4 million. This is a planning level budgetary cost estimate and will need to be reviewed and updated annually or as needed by the Town over the course of the upgrade program. It is recommended that each proposed improvement project be reevaluated before beginning the design, as changes in scope can occur over the course of the five-year plan.

The timing of the improvements in the CIP is based on our review of the probability of failure, consequence of failure, and the risk matrix developed. This represents an appropriate process to prioritize the projects in the Plan. This CIP should be coordinated with other ongoing work. The proposed 5 Year Capital Improvement Plan is shown in Table 5-11.

Table 5-11 Five-Year Capital Improvement Plan

Location	Priority Costs (Yr 1)	Minor Costs (Yr 2-5)	Plan Year 2022	2023	2024	2025	2026	Total
Belcher Avenue (100-101)	$ 56,900	$ 75,000	$ 56,900	$ 75,000	$ -	$ -	$ -	$ 131,900
Branch River (100-102)	$ 594,800	$ 1,614,700	$ 594,800	$ 38,300	$ 1,576,400	$ -	$ -	$ 2,209,500
Halliwell (100-103)	$ 76,900	$ -	$ 76,900	$ -	$ -	$ -	$ -	$ 76,900
Ironstone (100-104)	$ -	$ 36,200	$ -	$ 36,200	$ -	$ -	$ -	$ 36,200
Lorraine (100-105)	$ 51,900	$ -	$ 51,900	$ -	$ -	$ -	$ -	$ 51,900
Pound Hill (100-106)	$ 173,700	$ 861,500	$ 173,700	$ 8,700	$ -	$ 740,300	$ -	$ 922,700
Rockcliff Farms (100-107)	$ 4,500	$ 25,900	$ 4,500	$ -	$ -	$ -	$ 25,900	$ 30,400
Sharon Parkway (100-108)	$ 319,500	$ 33,200	$ 319,500	$ -	$ -	$ 33,200	$ -	$ 352,700
Silver Pines (100-109)	$ 3,800	$ 40,400	$ 3,800	$ 33,200	$ -	$ 7,200	$ -	$ 44,200
Alice Avenue (200-201)	$ -	$ 4,000	$ -	$ 4,000	$ -	$ -	$ -	$ 4,000
Elizabeth Avenue (200-202)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
GRAND TOTAL	$ 1,282,000	$ 2,691,000	$ 1,282,000	$ 196,000	$ 1,577,000	$ 894,000	$ 26,000	$ 3,975,000

Note: All budgetary costs include a 3% per year escalation.

General OH&P	20%
Bond and Insurance	3%
Ancillary Equipment/Material Adder	25%
Project Contingency	50%
Engineering Design and Bidding Services	20%
Engineering Construction Services	15%
Material Testing	1%
Legal/Admin and Easements	0%
Wetlands & Con.Com	0%

Section 6 Asset Management Funding Plan

As presented in the previous sections there are significant capital expenditures which will need to be made over the next 5 years. This section identifies potential funding options that can be considered for implementation as necessary.

6.1 Funding Options

Most of the priority improvements and minor improvements may not be reflected within the Town's current rates. Based on the preliminary budgets presented within the previous sections it is likely that options for additional funding will need to be investigated. Some potential means of funding a CIP include the following:

- **Rate Increase** – Although not popular, a rate increase is a potential means of raising additional funds for capital improvements. For this, a detailed rate study should be performed that would take the increased budget into account. The scope of an in-depth rate study could include a review of alternative rate structures, increasing block rates, establishment or updating of a variety fees, etc.
- **Debt Service Charge** – This is a newer revenue stream that other wastewater departments are beginning to implement for the principal and interest of specific debt that can then be eliminated once the particular debt is retired. This set up is similar to a debt exclusion on a Town's property tax.
- **Bonding** – In general, bonding of improvements over a specified period of time will decrease the annual outlay so that more improvements can be completed annually. Bonding caps should be considered so that repayment is limited to the available budget (this would allow new debt to be taken on as older debt is paid off).
- **Loans** – Other available funding options for larger capital projects (e.g. $1.0 million or more) include the RIDEM Clean Water State Revolving Fund (CWSRF) and the RI Infrastructure Bank provide low-interest programs.
- **Discounts and Rebates** – National Grid has discount and rebate programs available for more energy and gas efficient equipment to be installed.

In general, there are many financing opportunities that should be taken into consideration. Ultimately, the Town of North Smithfield will need to review and adjust the Asset Management Plan as required to meet the Town's priorities and desired rate structure.

Attachment 6

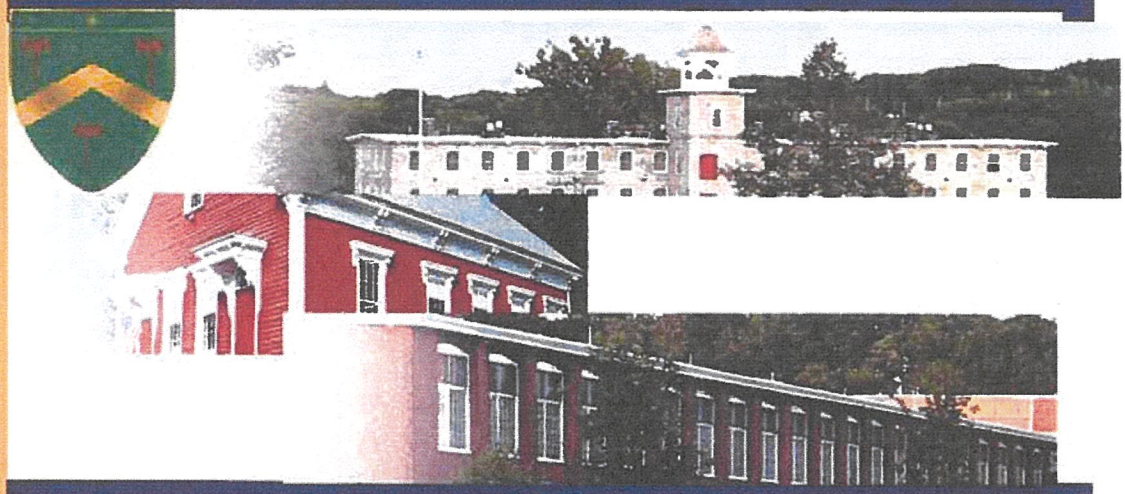
Pavement Management Study
for the
Town of North Smithfield
Joseph Casali Engineeering, Inc.

Submission Date
March 2014

Pavement Management Study

For

The Town of North Smithfield, RI
A Town-Wide Road & Drainage Analysis-Short Term Capital Improvement Plan



Prepared for:

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Submitted by:

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1 INTRODUCTION

Joe Casali Engineering (JCE) along with the Town of North Smithfield has conducted a town-wide Pavement Management Study and is pleased to present a Short Term Capital Improvement Plan to assist the Town by establishing an efficient approach to maintenance operations and use of construction funds. Due to the deteriorated state of the Town's pavement network, an assessment of the entire roadway network was needed to develop an efficient cost effective spending plan prioritized by the condition of each roadway.

The Pavement Management Study (study) summarizes the methods utilized to evaluate each roadway for both roadway condition and drainage infrastructure. In addition, the Study summarizes the analysis performed to generate a roadway hierarchy which helped identify improvement options, such as overlays, reconstructions or preventative maintenances. Within the Study, a Short Term Capital Improvement Plan (plan) was developed for the Town. The Plan aims to improve the overall condition of the Town's Pavement Network by establishing an efficient approach to maintenance operations and use of construction funds.

The Study focuses on the roadways within the Town of North Smithfield's Border that fall under the Town's jurisdiction. In conjunction with the Town of North Smithfield's Department of Public Works, a list of Town roads was developed for the study. It should be noted that private roads with the potential for becoming Town roads in the future where included in this report. Figure 1 depicts all the roads within the Town of North Smithfield.

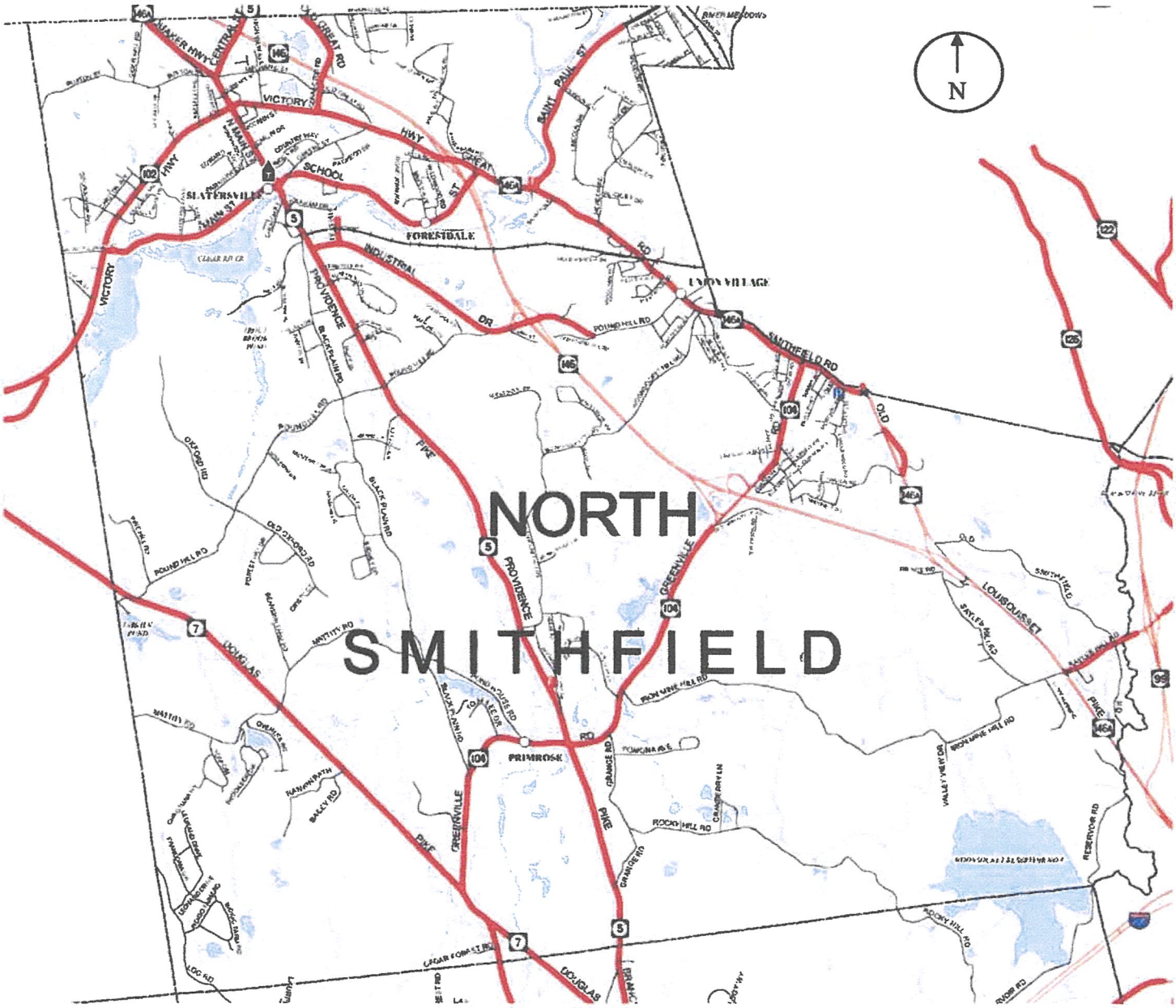


Figure 1: Map of North Smithfield

2 DATA COLLECTION

2.1 TOWN OF NORTH SMITHFIELD ROADWAY MAPPING

Based on the Town's Roadway Inventory List (list), JCE developed centerline mapping of the Town roads by configuring a statewide roadway file (provided by RIGIS) and overlaying the file onto Town aerial photography and Tax Assessor's Maps. The map was edited to depict individual roadway segments comprised of similar conditions and widths. This allowed an entire street to be made up of either one individual segment or multiple segments dictated by past construction performed. Roads in which the overall general condition changed significantly throughout were segmented and analyzed separately for this report. The product was a roadway base map that depicted accurate segment lengths and widths as well as roads under North Smithfield's jurisdiction. The base map is provided in Appendix A.

2.2 PAVEMENT MANAGEMENT SOFTWARE

JCE utilized the Transportation Asset Management Software, TAMS 3.0 Pavement Management Software, to coordinate the inputting and organization of roadway data. The software was developed at Utah State University by the Utah Local Technical Assistance Program Center and was used by the U.S. Department of Transportation Federal Highway Administration. The program aided the input of information of each roadway segment and provided a central location to store data.

The program contains input fields for each roadway segment for Road Name, Length, Width, Distress Type & Rating, and Drainage Type & Rating. The software takes into account the level of each distress and calculates a Remaining Service Life value. The Remaining Service Life value ranges from 0 to 20 years, corresponding to the average lifespan of a bituminous asphalt roadway. In addition, JCE rated all the roads in the study with an Overall General Condition value ranging from 0 to 9. A suggested treatment strategy was produced based primarily on the Overall General Condition assigned to each roadway segment by JCE.

2.3 PAVEMENT INVENTORY

JCE conducted a field survey of all Town roads to compile a pavement condition database. The survey was completed by way of visually inspecting and evaluating the conditions of the Town's entire pavement network.

Roads surveyed for pavement condition were inspected for the following:

1. **Pavement distresses including:**

   - *Alligator Cracking*
   - *Transverse Cracking*
   - *Longitudinal Cracking*
   - *Edge Cracking*
   - *Potholes*
   - *Utility Patches*

Also noted in the field inspection were the following:

2. **Roadway Material and any observed preventative maintenance performed on roadways (crack sealing and pot hole filling).**

3. **Curb material (asphalt, concrete, or granite).**

4. **Sidewalk material (asphalt or concrete).**

Pavement distress quantity and severity were estimated to determine a rating. The rating system evaluated the pavement distresses listed above by utilizing a scale range from 0 to 9. Each rating corresponds to a combination of the percentage of road afflicted and severity of each distress (i.e. the greater the rating correlates to a greater area and severity affected by said distress).

Pavement Rating System:

▪ NEW	0 correlates (0 to 10%)	**BRAND NEW**
▪ EXCELLENT	1 correlates (11 to 20%)	
▪ GREAT	2 correlates (21 to 30%)	
▪ GOOD	3 correlates (31 to 40%)	
▪ SATISFACTORY	4 correlates (41 to 50%)	
▪ FAIR	5 correlates (51 to 60%)	
▪ POOR	6 correlates (61 to 70%)	
▪ VERY POOR	7 correlates (71 to 80%)	
▪ SERIOUS	8 correlates (81 to 90%)	
▪ FAILED	9 correlates (91 to 100%)	**COMPLETELY FAILING**

Pavement distress quantities were recorded, assessed and then compiled to determine an overall condition rating for each Roadway Segment. The overall condition rating was used as the main determinant in distinguishing a relative comparison between roads and in determining the recommended treatment.

The pavement network was compiled, analyzed and is presented in tabular reports in the appendices sections at end of the report. The Roadway Conditional Report is presented in Appendix B and lists the entire pavement network ordered from worst conditioned roads to best. Each roadway segment is defined with a start and end point. The general condition is then listed, followed by the estimated Remaining Service Life (RSL) and each individual distress rating.

The Roadway Inventory Report ordered alphabetically by roadway follows and is presented in Appendix C. This report provides details of all the roadway segments including Width, Length, General Condition, Drainage Type, and Area (Sq. yd.) of each segment. Appendix D presents the same Inventory Report as Appendix C only ordered by the General Condition of each roadway segment from (9 ➔ Worst Roads) to (0 ➔ New Roads) instead of alphabetically.

General Condition 9

*Rutting and Alligator cracking on Carlton Avenue, North Smithfield, RI.

General Condition 8

*Patching, Edge, Alligator cracking on Merrimac Road, North Smithfield, RI.

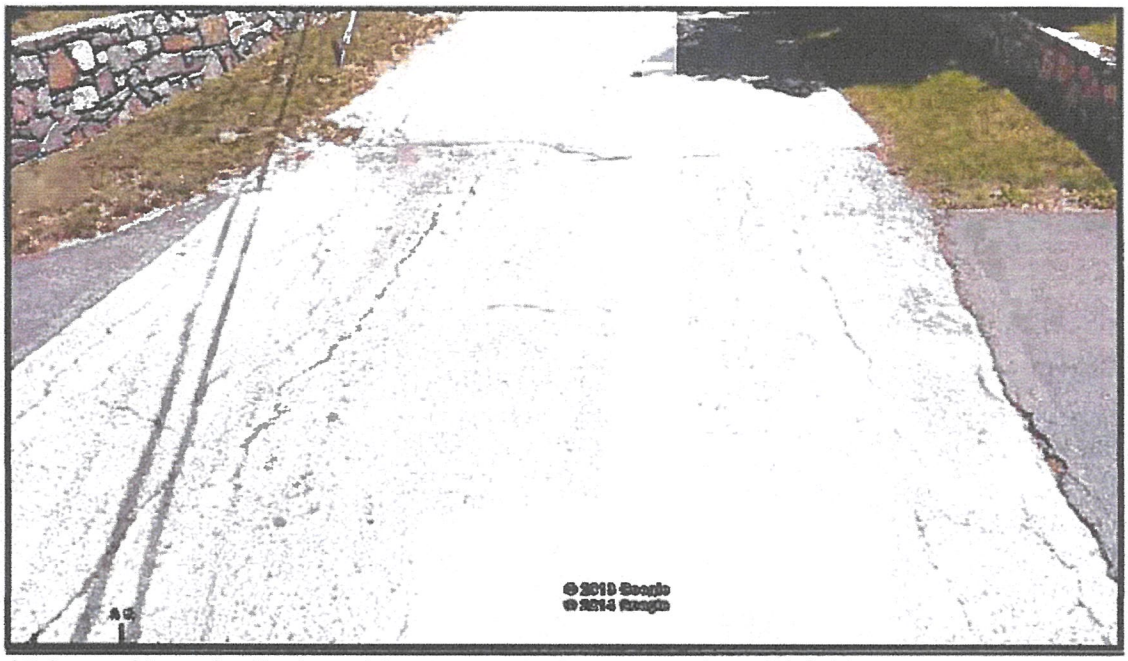
General Condition 7

*Patching, Alligator, Edge, Cracking on Lapre Road, North Smithfield, RI.

General Condition 6

*Alligator cracking on Brian Avenue, North Smithfield, RI.

General Condition 5



*Edge and Longitudinal cracking on Weeks Street, North Smithfield, RI.

General Condition 4

* Edge and Transverse cracking on Indigo Farm Road

General Condition 3

*Transverse cracking on Taylor Drive, North Smithfield, RI.

General Condition 2

*Minor Alligator and Longitudinal cracking on Julie Avenue, North Smithfield, RI.

General Condition 1

*Very minor Longitudinal Cracking on Bourget Court, North Smithfield, RI.

General Condition 0

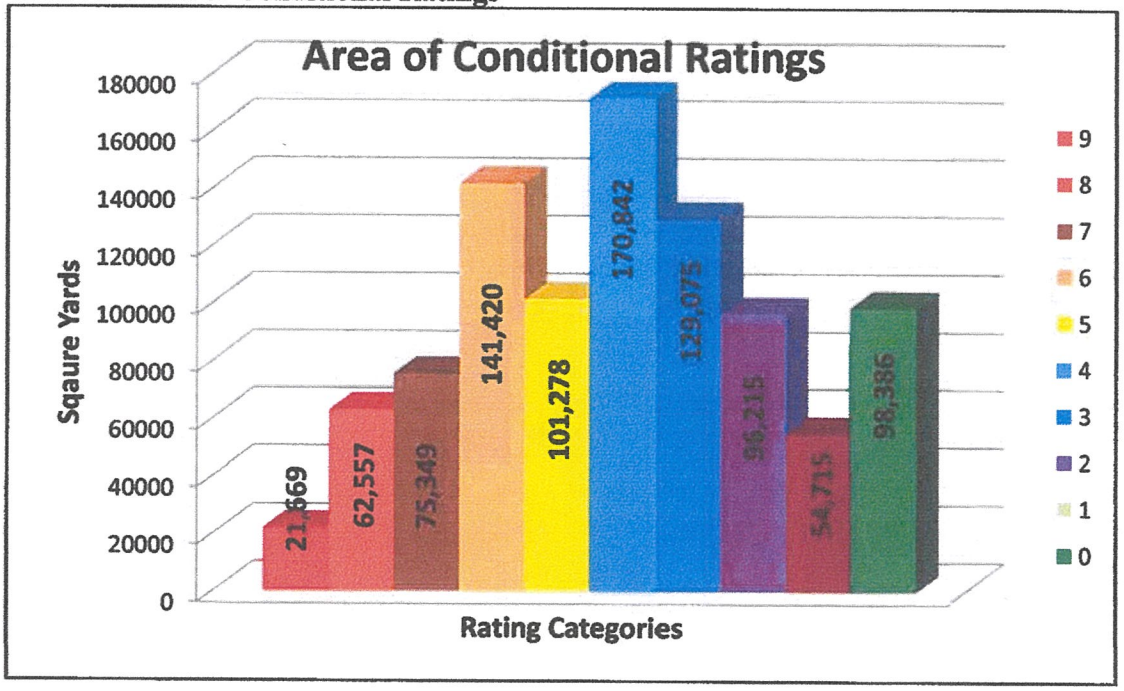
*New Pavement Condition on Log Road, North Smithfield, RI.

An analysis of the entire pavement network yielded the following areas of road under each conditional rating.

Table 1- Totals Measures of Roadway Conditions

Overall Condition Rating	# of Segments	Total Area (Sq. yd.)	Length (Miles)
9	6	21,669	1.47
8	12	62,557	4.86
7	18	75,349	5.22
6	40	141,420	10.14
5	34	101,278	7.11
4	41	170,842	11.36
3	36	129,075	9.02
2	31	96,215	6.74
1	13	54,715	3.66
0	32	98,386	6.99
TOTAL	**263**	**951,506**	**66.58**

Chart 1- Area of Conditional Ratings



A colored roadway map coordinating Table 1 & Chart 1 onto the North Smithfield base map is presented in Appendix A.

2.4 DRAINAGE INVENTORY

Drainage infrastructure was inventoried for the entire pavement network and conditions were visually inspected for each roadway segment. JCE specifically identified drainage issues that included areas of flooding/ high runoff, broken/ deteriorated drainage structures, and inadequate stormwater management.

Properly identifying areas with drainage concern was accomplished by performing field surveys during days with rain events. A meeting with Public Works personnel also assisted in identifying areas of historic drainage concerns within the Town.

For each roadway segment, type of system in place and the level of functioning of said system were identified. The main types of drainage systems identified in the survey included:

1. ***Curb & Catch Basin***
2. ***Runoff & Catch Basin***
3. ***Gravity Runoff***
4. ***Gravity Runoff to Paved Waterway***

Curb and Catch Basin is defined as a system which mitigates stormwater runoff entirely into stormwater drainage systems i.e. catch basins and stormwater management areas. Runoff & Catch Basin is defined as a system which mitigates stormwater runoff off the road without the use of curbing by way of gravity runoff to pervious areas. Areas at low elevation with high quantities of runoff are alleviated by catch basins that are not generally interconnected. These basins contain the stormwater and infiltrate the water back into the ground. Gravity Runoff is defined as a system which mitigates stormwater completely to pervious areas including shoulders, swales, dead ends and/or adjacent streets and there exist no drainage infrastructure. Gravity Runoff to Paved Waterway is the same as Gravity Runoff only it directs runoff by way of paved waterway in suitable discharge areas.

After identifying the existing type of drainage, each segment was rated in accordance with the following system based on level of performance of the said system.

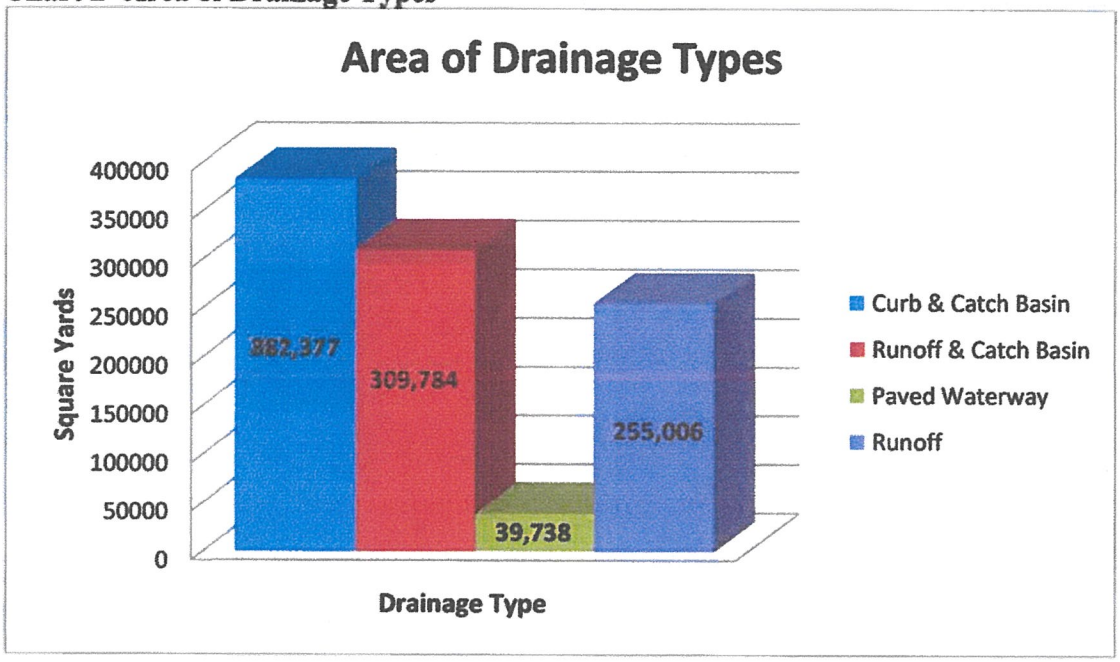
Drainage Rating System:

▪ GOOD	0	**EXCELLENT PERFORMANCE**
▪ FAIR	1	
▪ POOR	2	
▪ VERY POOR	3	**FAILING PERFORMANCE**

Table 2- Totals measures of Drainage Infrastructure

Drainage	# of Segments	Total Area (Sq. yd.)
Curb & Catch Basin	98	376,031
Runoff & Catch Basin	67	316,141
Paved Waterway	9	34,339
Runoff	89	224,993
TOTAL	**263**	**951,506**

Chart 2- Area of Drainage Types



3 PAVEMENT & DRAINAGE ANALYSIS

3.1 PAVEMENT ANALYSIS & REPAIR STRATEGY

Each roadway within the pavement network was analyzed based on the general condition and the Remaining Service Life (RSL). The general overall condition was the governing factor in deciding what roads were in a further deteriorated state compared to others. The RSL takes into account type and severity of each distress. Due to specific distresses having different effects on a roadways life, the software generated an estimated Remaining Service Life (RSL). After inputting all distresses the program determines a governing distress which is defined as a distress that is of most concern and primarily affecting the condition and life of roadway. Base related stresses such as potholes, rutting, transverse cracking and severe edge cracking produce a lower Remaining Service Life. Surface related distresses such alligator cracking, longitudinal crack and minor edge cracking produce a higher RSL.

Based upon the general condition, the RSL and the individual governing distresses, a repair strategy was implemented for each roadway segment. Recommended treatments are only the suggested treatment but may not be the repair approach the town ultimately chooses. It does however provide the town with a gauge of costs based on specific conditions and accurate sizes of each roadway segment.

The pavement repair treatments utilized for this report are listed below:

Pavement Repair Treatments

1. **No Maintenance**
   No suggested treatment.
   No Maintenance is recommended for roads that have been recently paved and have no governing distress.

2. **Crack Seal**
   Clean and hot crack fill surface cracking.
   Crack Seal is recommended for roads that have a surface related governing distress and no apparent base related stresses. These roads would have only surface cracking and no rutting or potholes.

3. **Thin Hot Overlay (2 in.)**
   Tack coat and overlay existing pavement with 2 inches of depth prior to rolling.
   Thin Hot Overlay (2 in.) is recommended for roads that allow being repaired for less cost by not repairing the base. Roads with no curbing are prime candidates for overlay without milling because these roads can be overlaid 2 inches without infringing on curb reveal for far less money. This strategy is appeasing when budget constraints are present because it frees up moneys for pavement repair in other areas. Overlay is recommended for roads in good to poor condition where the topcoat can be repaired without the base layer affecting new pavement.

4. **HMA (leveling) & Overlay (2 in.)**
   Apply a base leveling course to required areas of pavement; then tack coat and overlay existing pavement with 2 inches of depth prior to rolling.
   Hot Mix Asphalt (HMA) leveling & overlay is recommended for roads where minor base related distresses are apparent which don't warrant major base repairs.

5. **Rotomill & Overlay (2 in.)**
   Mill 2" of asphalt, tack coat and overlay with 2 inches of depth prior to rolling.
   Rotomill & Overlay (2 in.) is recommended for roads where surface distresses are severe and/or the road has curbing. This treatment is suggested for roads that have good base layers that don't warrant repair.

6. **Base Repair/ Pavement Replacement (2 in.)**
   Mill 2" of asphalt, apply base leveling where required, tack coat and overlay with 2 inches of depth prior to rolling.
   Base Repair/ Pavement Replacement (2 in.) is recommended for roads that have governing base level related distresses. These roads can be properly treated by repairing rather than replacing the base layer prior to applying a new topcoat.

7. **Base/Pavement Replacement (2 in. each)**
   Remove and dispose asphalt of entire roadway, grade and compact subsurface, install 2 inches of depth base course and 2 inches of depth top course prior to rolling.
   Base/Pavement Replacement is recommended for roads that are completely failing with severe pot holes, rutting, and severe edge cracking which present a failing base. Complete reconstruction is required for these roadways. Neglecting the repair of the subsurface layer and base would cause the new pavement to fail rapidly.

Recommended Treatments for all Town roads are presented in the Recommend Treatment Report in Appendix E.

3.2 DRAINAGE ANALYSIS & REPAIR STRATEGY

Existing drainage was assessed and a repair strategy was developed for each Roadway Segment included in the Short Term Capital Improvement Plan provided at end of report. Repair strategies are based upon existing drainage in place and level of functioning. Suggested repairs include upgrades to the existing drainage system with estimated prices based on size of segment and degree of upgrade to drainage system required. Drainage repair strategies for each existing system include but are not limited to:

Drainage Repair Strategies

- **Runoff**
  Improve off road conditions by loam and seeding areas of high runoff to increase efficiency of system. On roads with stormwater pooling, proper grading of new pavement will increase water runoff efficiency. In areas of high runoff, road improvements including paved waterways and catch basins to be installed.

- **Paved Waterways**
  Improve off road conditions by loam and seeding area of high runoff, cleaning and maintaining paved waterways. Proper grading of new pavement will increase water runoff efficiency.

- **Runoff & Catch Basins**
  Improve off road conditions by loam and seeding areas of high runoff. Proper grading of new pavement will increase water runoff efficiency to catchment areas. Clean out catch basins where improper sump level is maintained.

- **Curb & Catch Basins**
  Clean and flush out sumps and drainage system. Proper grading of new pavement will increase water runoff efficiency to catchment areas.

The drainage of all Town Roads is presented in the Roadway Inventory Report in Appendix C.

4 SHORT TERM CAPITAL IMPROVEMENT PLAN

After meeting with Town officials, JCE incorporated comments to best represent the Town's interest into a Short Term Capital Improvement Plan. The plan integrates budget and construction timelines to produce an improvement plan that will best suit the Town of North Smithfield. By surveying the Town's entire pavement network and rating roads based on condition, the Improvement Plan prioritizes roadway repairs to the roads in the greatest deteriorated state.

The plan coordinates feasible repair strategies to increase road quality and keep life cycle cost low. All roads in the pavement network were assessed individually and assigned an appropriate repair treatment that utilized the costs listed in Table 3 & 4 below.

Table 3- Pavement Repair Treatment Cost

TREATMENT	UNIT	COST*
NO MAINTENANCE	-	-
CRACK SEAL	SY	$2.00
THIN HOT OVERLAY (2 IN.)	SY	$11.50
HMA LEVELING & OVERLAY (2 IN.)	SY	$12.50
ROTOMILL & OVERLAY (2 IN.)	SY	$14.00
BASE REPAIR/ PAVEMENT REPLACEMENT	SY	$18.50
BASE/ PAVEMENT REPLACEMENT	SY	$30.00

*Cost based on RIDOT weighted average unit prices.

Table 4- Drainage Repair Cost

TREATMENT	UNIT	COST*
RESIDENTIAL SEEDING (TYPE 2)	SY	$1.50
LOAM BORROW (4 INCHES DEEP)	SY	$4.50
CLEANING AND FLUSHING PIPES ALL SIZES	lf	$2.50
CLEANING CATCH BASINS ALL TYPES & SIZES	EA	$85.00
3" PAVED WATERWAY	SY	$200.00
PRECAST CATCH BASIN 4' DIAMETER	EA	$2500.00

*Cost based on RIDOT weighted average unit prices.

JCE developed a Short Term Capital Improvement Plan presenting pavement and drainage repair cost for the 30 worst conditioned roads. The repair plan generates a budget in the range of 2 to 3 million dollars as shown in the Short Term Plan. The Short Term Capital Improvement Plan is a budget scenario that could repair the 30 roads over a desired period of time. The plan could be enacted between a 5 to 10 year timeline also taking into account cost for preventative maintenance.

The Short Term Plan tabular report presents first the Road Name and corresponding Segment Id for the road. Segment Id's define the segment of the roads from address to address and correspond to segments listed in Appendix D. Some roads require pavement improvements to only segments of road rather than the entire roadway. The Condition, Recommended Treatment, Length, Width, Area, and associated cost are then presented.

In order to understand the proposed recommended improvements and associated costs, JCE has taken the five worst rated roads and prepared a written description of the improvements with detailed plans. Below is an example of what could be expected in the first year of the plan if funding allows. It should be noted that these costs associated with the improvements are constructions costs and do not include cost for design, additional mobilization costs or material cost increase if not completed in year one of the Short Term Plan.

PAVEMENT REPAIR PLAN (TOP 5 WORST ROADS):

Carlton Avenue – Proposed improvements to Carlton Avenue include cold planing the existing 2" of pavement, applying a leveling course in areas of need to maintain a typical roadway cross section of 2% from the centerline to roadway edge. A 2" bituminous surface course overlay from Belcher Avenue to Sunnycrest Avenue is proposed. Currently drainage on Carlton Avenue sheet flows to grass areas at the edge of pavement. However, at the intersection with Rainville Avenue, a small low point at an existing driveway was noticed to pond during rain events. A paved waterway is proposed at the northwest corner of Carlton Avenue & Rainville Avenue to direct runoff into the wooded area to alleviate the ponding. Review the attached plan.

Total budget cost for improvements is $70,012.00.

Grange Road – Proposed improvements to Grange Road include cold planing the existing 2" of pavement, applying a leveling course in areas of need to maintain a typical roadway cross section of 2% from the centerline to roadway edge. A 2" bituminous surface course overlay from Rocky Hill Road to Providence Pike is proposed. Currently drainage on Grange Road sheet flows to grass areas at the edge of pavement. However, ponding was observed where Grange Road crosses over a stream near 450 Grange Road. A paved waterway is proposed at this location to direct runoff into the wooded area to alleviate the ponding.

Total budget cost for improvements is $72,713.00.

Martha Road – Proposed improvements to Martha include removing and disposing the existing flexible pavement and grading and compacting the subbase. A 2" bituminous base course and a 2" bituminous surface course from

PAVEMENT MANAGEMENT STUDY
NORTH SMITHFIELD, RI

SHORT TERM CAPITAL IMPROVEMENT PLAN

JCE
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Road Name	Segment Id	Cond.	Treatment	Length (ft)	Width (ft)	Area (Sq Yd)	Cost ($)	Drainage	Drainage Rating	Cost ($)	Total Cost ($)
Carlton Avenue	181	9	Base Repair\Pavement Replacement	1,407	24	3,752.00	$69,412.00	Runoff	2	$600.00	$70,012.00
Grange Road	26	9	Base Repair\Pavement Replacement	1,949	18	3,898.00	$72,113.00	Runoff	2	$600.00	$72,713.00
Martha Road	39	9	Base/Pavement Replacement	606	30	2,020.00	$60,600.00	Curb & Catch Basin	1	$600.00	$61,200.00
Mowry Avenue	19	9	Base/Pavement Replacement	335	24	893.33	$26,800.00	Runoff	1	$0.00	$26,800.00
Old Great Road	44	9	Base Repair\Pavement Replacement	2,616	30	8,720.00	$161,320.00	Curb & Catch Basin	0	$0.00	$161,320.00
Wilks Avenue	176	9	Base/Pavement Replacement	859	25	2,386.11	$71,583.33	Runoff	1	$5,000.00	$76,583.33
Arnold Avenue	195	8	Base Repair\Pavement Replacement	649	24	1,730.67	$32,017.33	Runoff & Catch Basin	2	$600.00	$32,617.33
Buckley Drive	302	8	Base/Pavement Replacement	1,000	24	2,666.67	$80,000.00	Runoff	2	$1,200.00	$81,200.00
E Harkness Road	42	8	Rotomill & Overlay (<2 in)	1,134	20	2,520.00	$35,280.00	Runoff	1	$0.00	$35,280.00
Glen Avenue	55	8	HMA (leveling) & Overlay (<2 in.)	349	28	1,085.78	$13,572.22	Runoff & Catch Basin	1	$685.00	$14,257.22
Iron Mine Hill Road	250	8	HMA (leveling) & Overlay (<2 in.)	15,259	21	35,604.33	$445,054.17	Runoff & Catch Basin	2	$1,790.00	$446,844.17
Lester Street	318	8	Base/Pavement Replacement	675	22	1,650.00	$49,500.00	Runoff	3	$2,500.00	$52,000.00
Merrimac Road	204	8	Base Repair\Pavement Replacement	815	28	2,535.56	$46,907.78	Runoff	2	$600.00	$47,507.78
Obeline Drive	309	8	Base/Pavement Replacement	667	25	1,852.78	$55,583.33	Runoff	2	$2,500.00	$58,083.33
Old Greenville Road	218	8	Base Repair\Pavement Replacement	1,312	20	2,915.56	$53,937.78	Paved Waterway	1	$0.00	$53,937.78
Overlea Road	245	8	HMA (leveling) & Overlay (<2 in.)	2,265	20	5,033.33	$62,916.67	Runoff & Catch Basin	2	$85.00	$63,001.67
Rainville Avenue	180	8	Base/Pavement Replacement	426	28	1,325.33	$39,760.00	Runoff	1	$0.00	$39,760.00
Tanglewood Road	322	8	Rotomill & Overlay (<2 in)	1,091	30	3,636.67	$50,913.33	Curb & Catch Basin	2	$0.00	$50,913.33
Antaya Drive	192	7	Thin Hot Mix Overlay (<2in.)	353	15	588.33	$6,765.83	Runoff	1	$600.00	$7,365.83
Circle Drive	281	7	Rotomill & Overlay (<2 in)	732	30	2,440.00	$34,160.00	Curb & Catch Basin	0	$0.00	$34,160.00
Great Road	41	7	Thin Hot Mix Overlay (<2in.)	1,473	28	4,582.67	$52,700.67	Runoff & Catch Basin	0	$0.00	$52,700.67
Lapre Road	292	7	Base Repair\Pavement Replacement	1,148	21	2,678.67	$49,555.33	Runoff & Catch Basin	2	$85.00	$49,640.33
Litzen & Lorraine Avenue	304	7	HMA (leveling) & Overlay (<2 in.)	1,341	26	3,874.00	$48,425.00	Runoff & Catch Basin	2	$470.00	$48,895.00
Morse Avenue	191	7	Base Repair\Pavement Replacement	865	24	2,306.67	$42,673.33	Curb & Catch Basin	1	$255.00	$42,928.33
Patricia Avenue	324	7	Base Repair\Pavement Replacement	940	30	3,133.33	$57,966.67	Runoff	0	$0.00	$57,966.67
Pound Hill Road	13	7	HMA (leveling) & Overlay (<2 in.)	2,953	26	8,530.89	$106,636.11	Runoff	2	$85.00	$106,721.11
Sayles Hill Road	224	7	HMA (leveling) & Overlay (<2 in.)	4,372	24	11,658.67	$145,733.33	Runoff & Catch Basin	3	$1,100.00	$146,833.33
Winchester Avenue	321	7	Rotomill & Overlay (<2 in)	2,457	30	8,190.00	$114,660.00	Curb & Catch Basin	1	$0.00	$114,660.00
Woodland Road	254	7	Thin Hot Mix Overlay (<2in.)	988	22	2,415.11	$27,773.78	Runoff	1	$0.00	$27,773.78
Woonsocket Hill Road	10	7	Base Repair\Pavement Replacement	1,600	25	4,444.44	$82,222.22	Paved Waterway	0	$0.00	$82,222.22
TOTAL							**$2,196,543.22**			**$19,355.00**	
											$2,215,898.22

Sorel Avenue to the cul-de-sac are proposed. Currently the drainage on Martha Road sheet flows along curb line to catch basins in the roadway. There is, however, a drainage concern at the cul-de-sac where there was observed ponding. A paved waterway is proposed in this area to better direct runoff into the wooded area to alleviate the ponding. Cleaning of catch basins and flushing of pipes for the existing drainage infrastructure along Martha Road is also proposed.

Total budget cost for improvements is $61,200.00.

Mowry Avenue - Proposed improvements to Mowry Avenue include removing and disposing the existing flexible pavement and grading and compacting the subbase. A 2" bituminous base course and a 2" bituminous surface course from 35 Mowry Road (i.e. where new pavement edge begins) to Arnold Avenue are proposed. Currently the drainage on Mowry Road sheet flows to grass areas at the edge of pavement. The road also slopes to the south away from Arnold Avenue and towards Mulberry Street where a catch basin collects excessive runoff. Since the current drainage system is functioning properly, proposed drainage improvements are not recommended for Mowry Avenue.

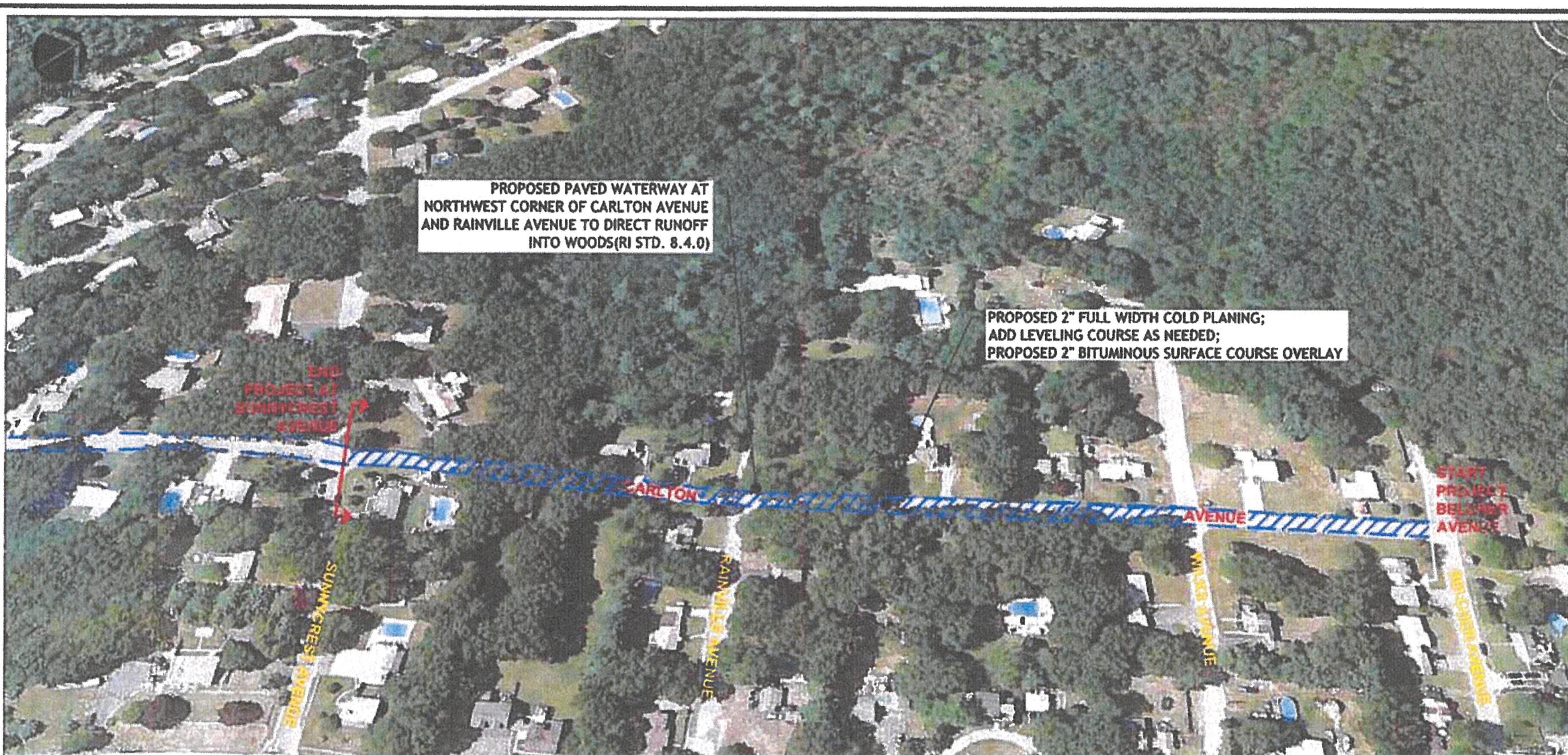
Total cost for improvements is $26,800.00.

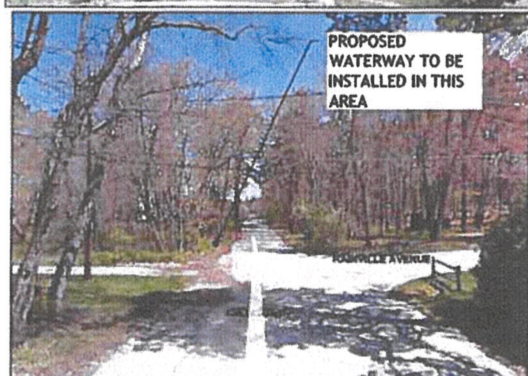
Old Great Road – Proposed improvements to Old Great Road include cold planing the existing 2" of pavement, applying a leveling course in areas of need to maintain a typical roadway cross section of 2% from the centerline to roadway edge. A 2" bituminous surface course overlay from Mechanic Street to West Harkness Road is proposed. Currently drainage on Old Great Road sheet flows to catch basins in the roadway. A paved waterway is proposed to replace and existing paved waterway just north of the 146 overpass. An additional paved waterway is proposed at 197 Old Great Road in order direct runoff into a wooded area. In addition, cleaning of catch basins and flushing of pipes are proposed for the existing drainage infrastructure.

Total cost for improvements is $161,320.00.

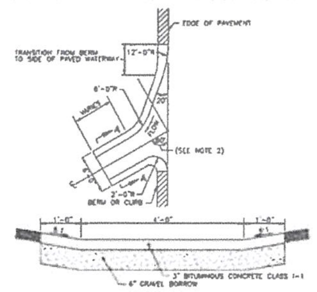
TOTAL COST FOR IMPROVEMENTS IS $392,045.

If funding is not available to include the above mentioned roads in the first year of the plan, JCE recommends crack filling on roadways where the crack filling treatment is recommended, beginning with the more deteriorated roads first. Crack filling will stretch the life of the roads providing a more cost effective approach to the pavement repair plan. For example, allocating leftover moneys each year of around $50,000.00 towards crack filling could repair all roads with recommended crack fill treatment in 10 years' time.





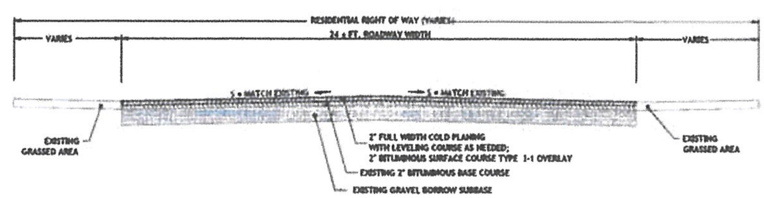
CARLTON AVENUE AT RAINVILLE AVENUE (LOOKING NORTH)



SECTION A-A

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 711 OF THE R.I. STANDARD SPECIFICATIONS.
2. WHEN PAVED WATERWAY IS USED AT A LOW POINT THIS ANGLE SHALL BE 90°

PAVED WATERWAY — R.I. STANDARD 8.4.0



CARLTON AVENUE- TYPICAL ROAD SECTION

NOT TO SCALE

TOTAL COST OF IMPROVEMENTS FOR CARLTON AVENUE: $70,012.00

JCE
JOE CASALI ENGINEERING, INC.

SHORT TERM
IMPROVEMENT PLAN
NORTH SMITHFIELD, RHODE ISLAND

REVISIONS

DESIGNED BY / DRAWN BY / CHECKED BY / DATE: MARCH 2014

PRELIMINARY. NOT FOR CONSTRUCTION

CARLTON AVENUE PLAN

SHEET 1 OF 1

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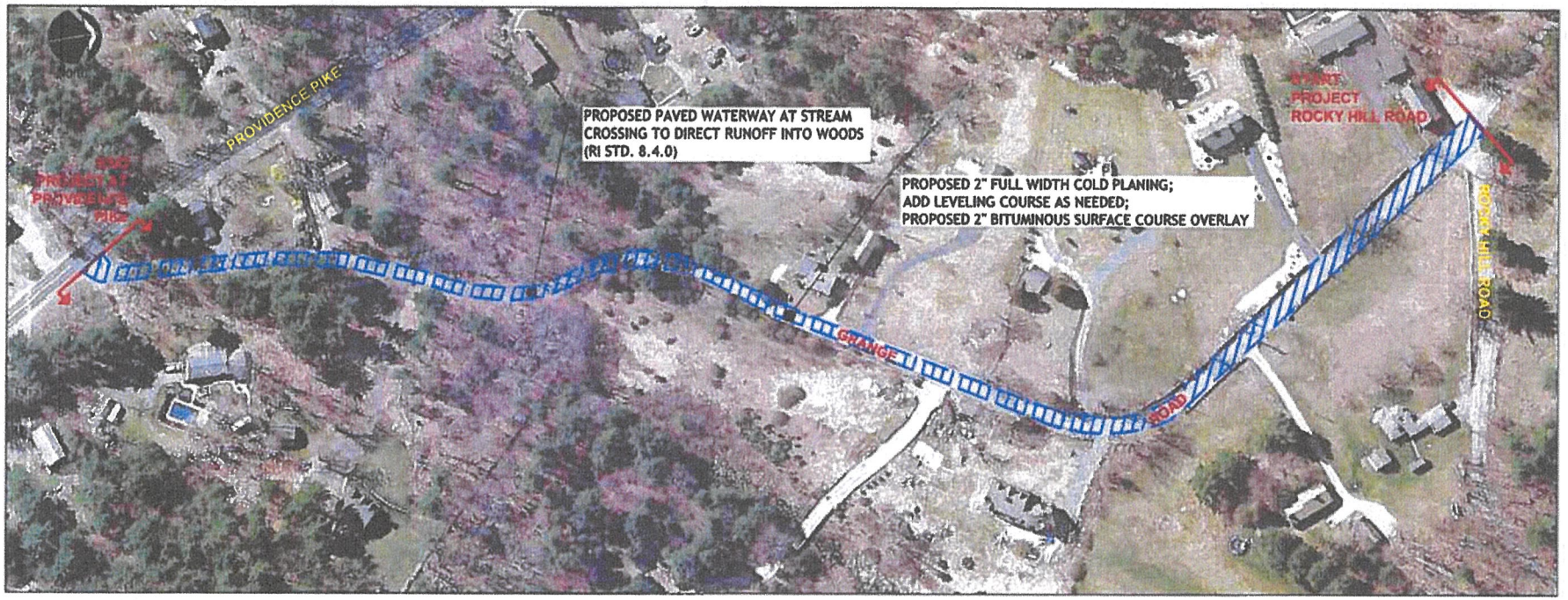
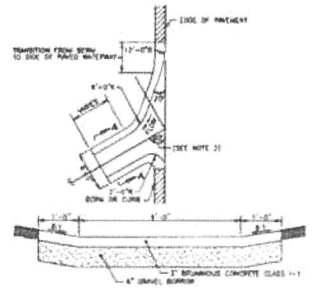
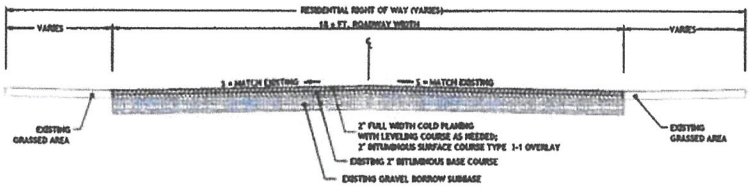


NORTH OF 450 GRANGE ROAD (LOOKING NORTH)





GRANGE ROAD- TYPICAL ROAD SECTION
NOT TO SCALE

TOTAL COST OF IMPROVEMENTS FOR GRANGE ROAD: $72,713.00

JCE
JOE CABALI ENGINEERING, Inc.

SHORT TERM IMPROVEMENT PLAN
NORTH SMITHFIELD, RHODE ISLAND

REVISIONS:
NO DATE DESCRIPTION

DESIGNED BY JC
DRAWN BY JC
CHECKED BY JC
DATE MARCH 2014
PROJECT NO 14-09

PRELIMINARY. NOT FOR CONSTRUCTION

GRANGE ROAD PLAN

SHEET 1 OF 1

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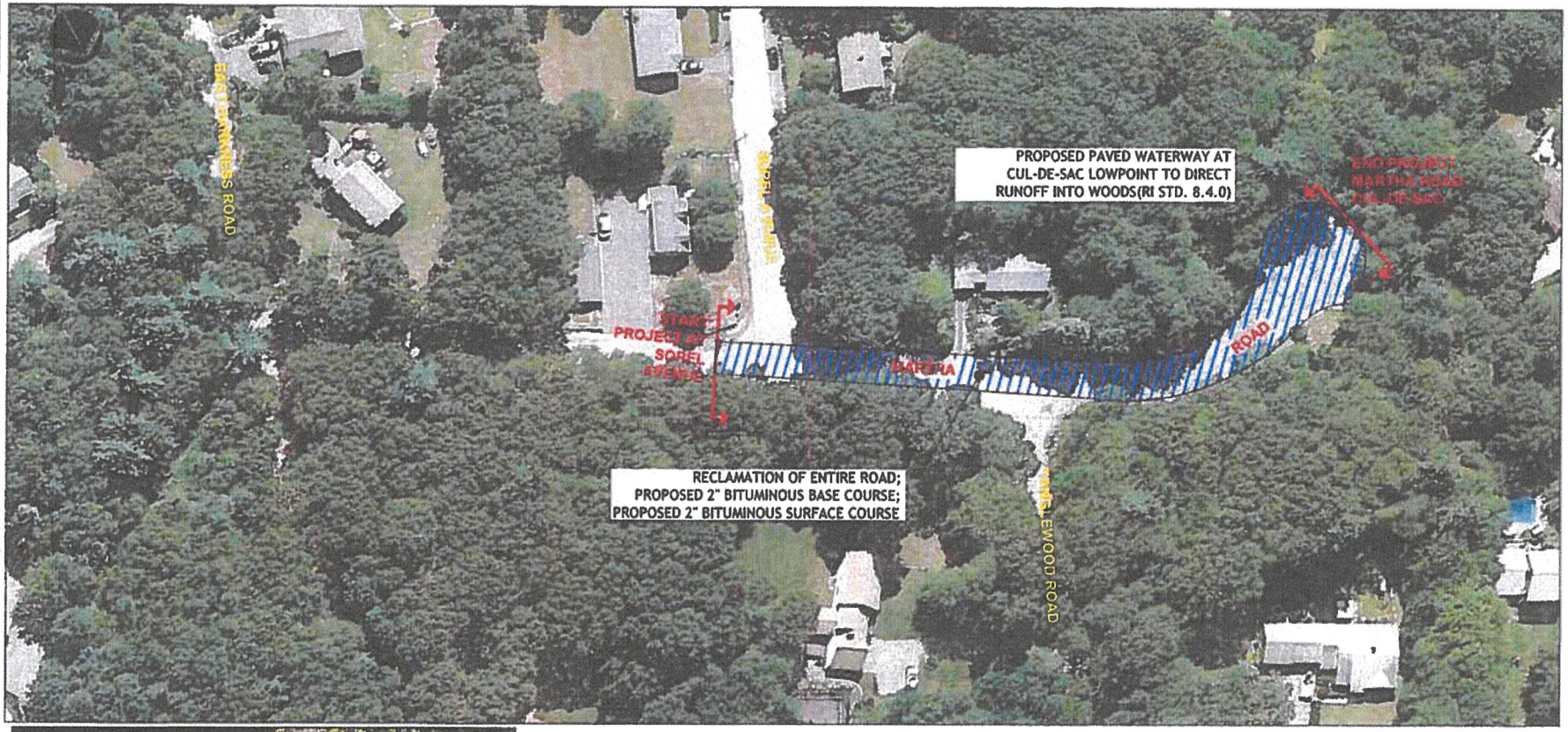
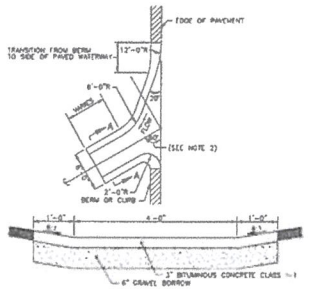


CUL-DE-SAC AT 8 MARTHA ROAD



SECTION A-A

NOTES:
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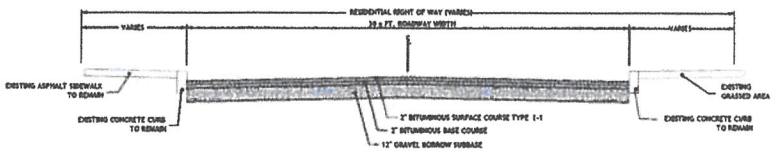
PAVED WATERWAY

R.I. STANDARD 8.4.0



MARTHA ROAD - TYPICAL ROAD SECTION
NOT TO SCALE

TOTAL COST OF IMPROVEMENTS FOR MARTHA ROAD: $61,200.00

JCE
JOE CABALI ENGINEERING, INC.
Civil, Site Development, Transportation
Drainage, Wetlands, ISDS, Traffic, Floodplain

SHORT TERM IMPROVEMENT PLAN
NORTH SMITHFIELD, RHODE ISLAND

REVISIONS:		
NO.	DATE	DESCRIPTION

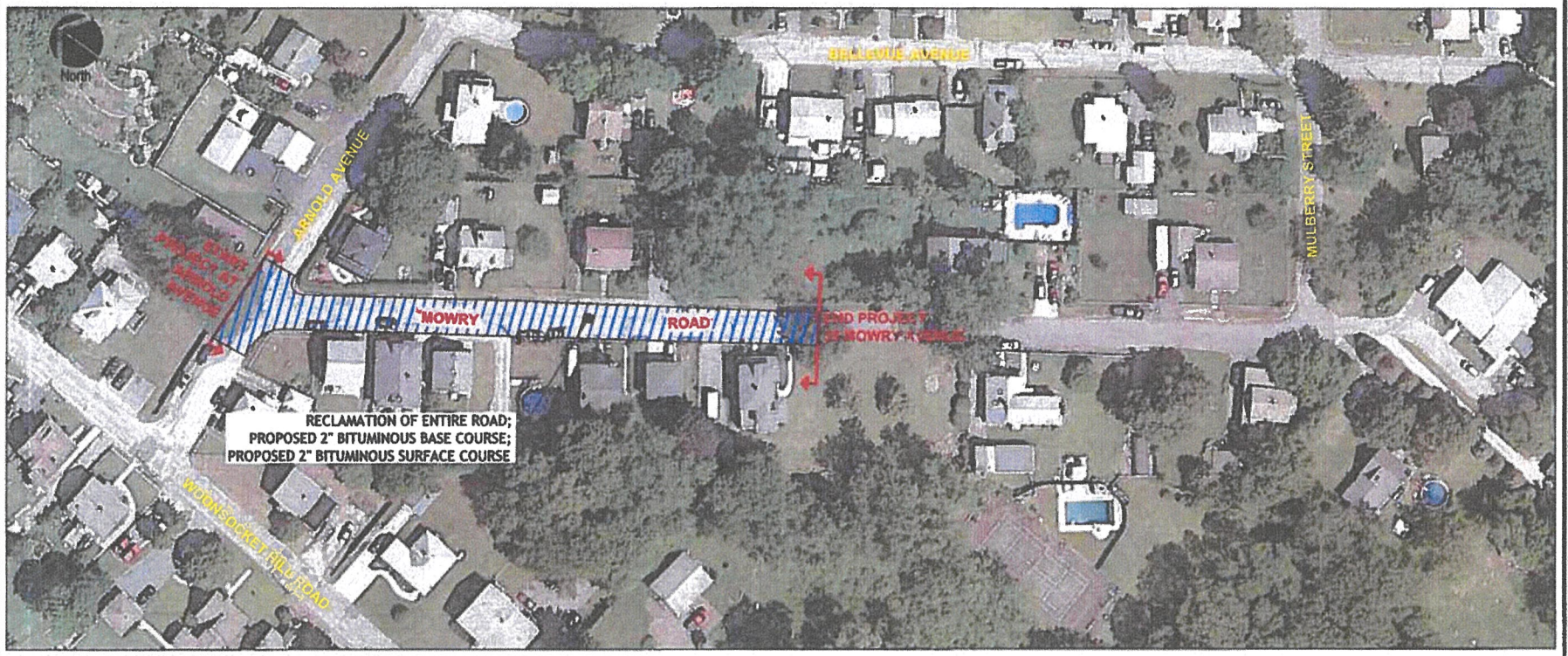
DESIGNED BY	JC
DRAWN BY	JC
CHECKED BY	JC
DATE	MARCH 2014
PROJECT NO.	08-49m

PRELIMINARY. NOT FOR CONSTRUCTION

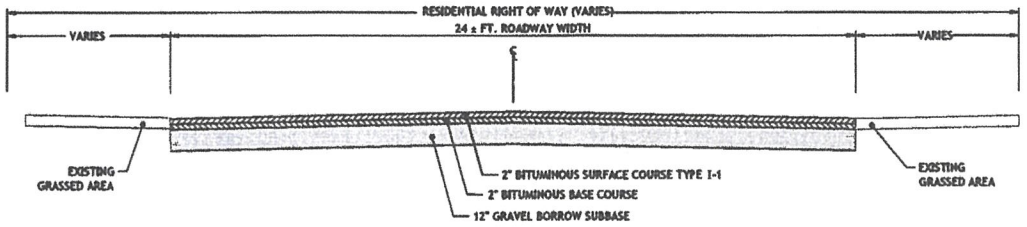
MARTHA ROAD PLAN

SHEET 1 OF 1

Q:\08-49 Town of North Smithf el\08-49m Pavement Management Carlo\Avenue-plan.dwg Mar. 11, 2014 4:56pm



*SEVERE PAVEMENT DISTRESS ON MOWRY ROAD



MOWRY AVENUE - TYPICAL ROAD SECTION

NOT TO SCALE

TOTAL COST OF IMPROVEMENTS FOR MOWRY AVENUE: $26,800.00

JCE

JOE CARALI ENGINEERING, INC.

SHORT TERM IMPROVEMENT PLAN

NORTH SMITHFIELD, RHODE ISLAND

REVISIONS:

NO.	DATE	DESCRIPTION

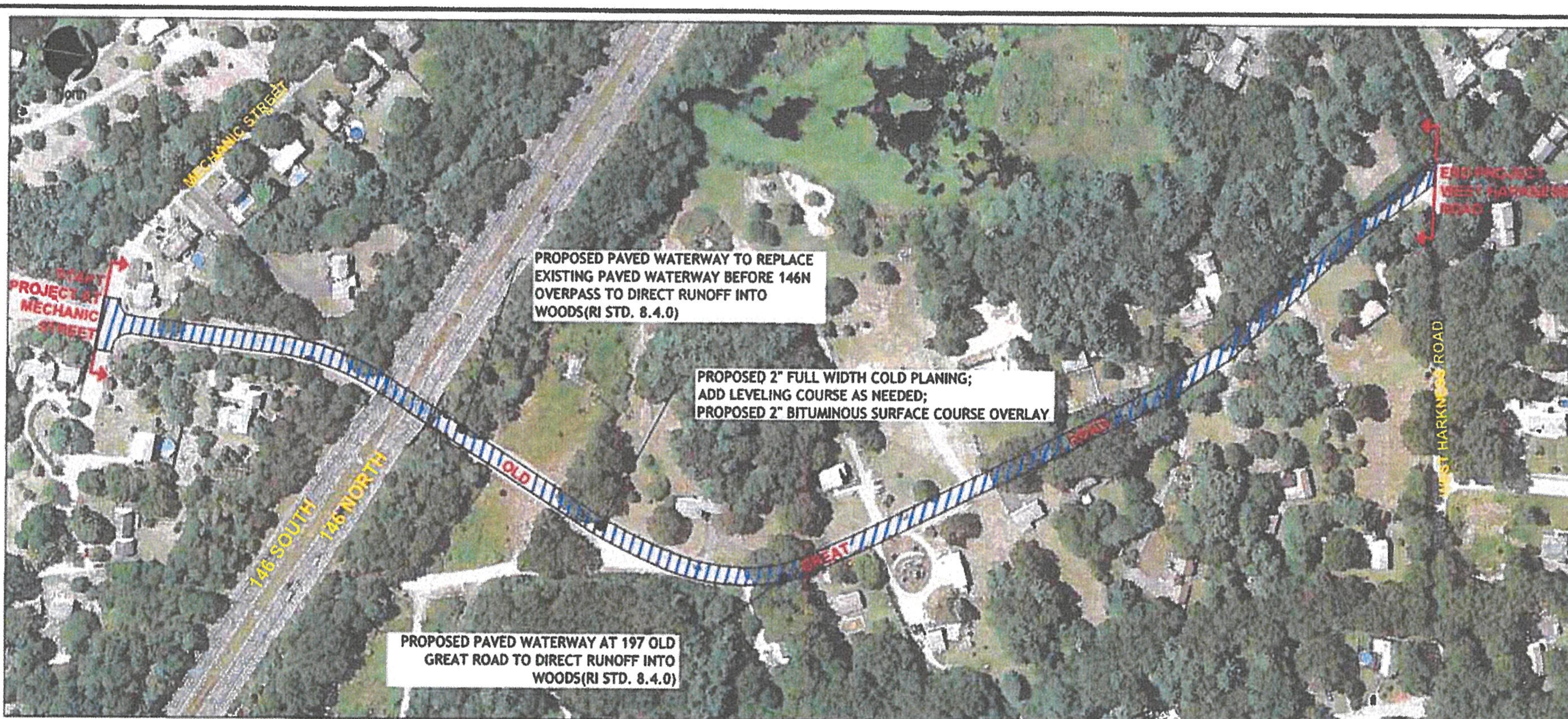
DESIGNED BY	JM
DRAWN BY	JM
CHECKED BY	JM
DATE	MARCH 2014
PROJECT NO	08-49m

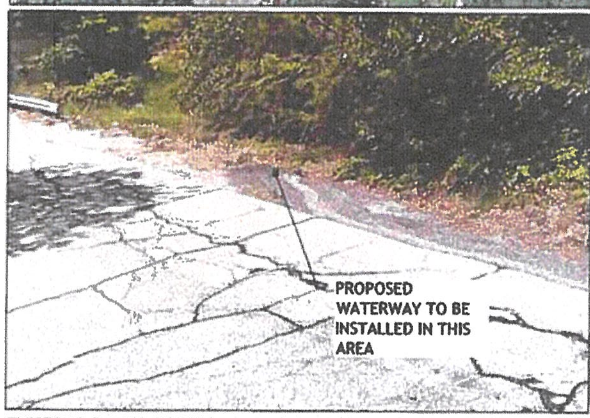
PRELIMINARY. NOT FOR CONSTRUCTION

MOWRY AVENUE PLAN

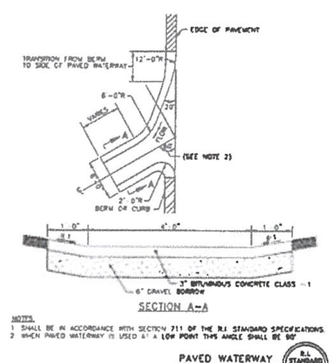
SHEET 1 OF 1

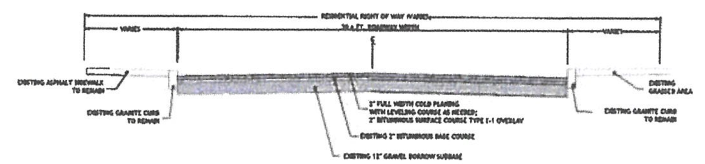
Q:\08-49 Town of North Smithfield\08-49m Pavement Management\Carlton Avenue-plan.dwg Mar. 11, 2014 4:52pm





EXISTING PAVED WATERWAY TO BE REPLACED; JUST BEFORE 146N OVERPASS





OLD GREAT ROAD - TYPICAL ROAD SECTION

NOT TO SCALE

TOTAL COST OF IMPROVEMENTS FOR OLD GREAT ROAD: $161,320.00

JCE

JOE CASALI ENGINEERING, INC.

SHORT TERM IMPROVEMENT PLAN

NORTH SMITHFIELD, RHODE ISLAND

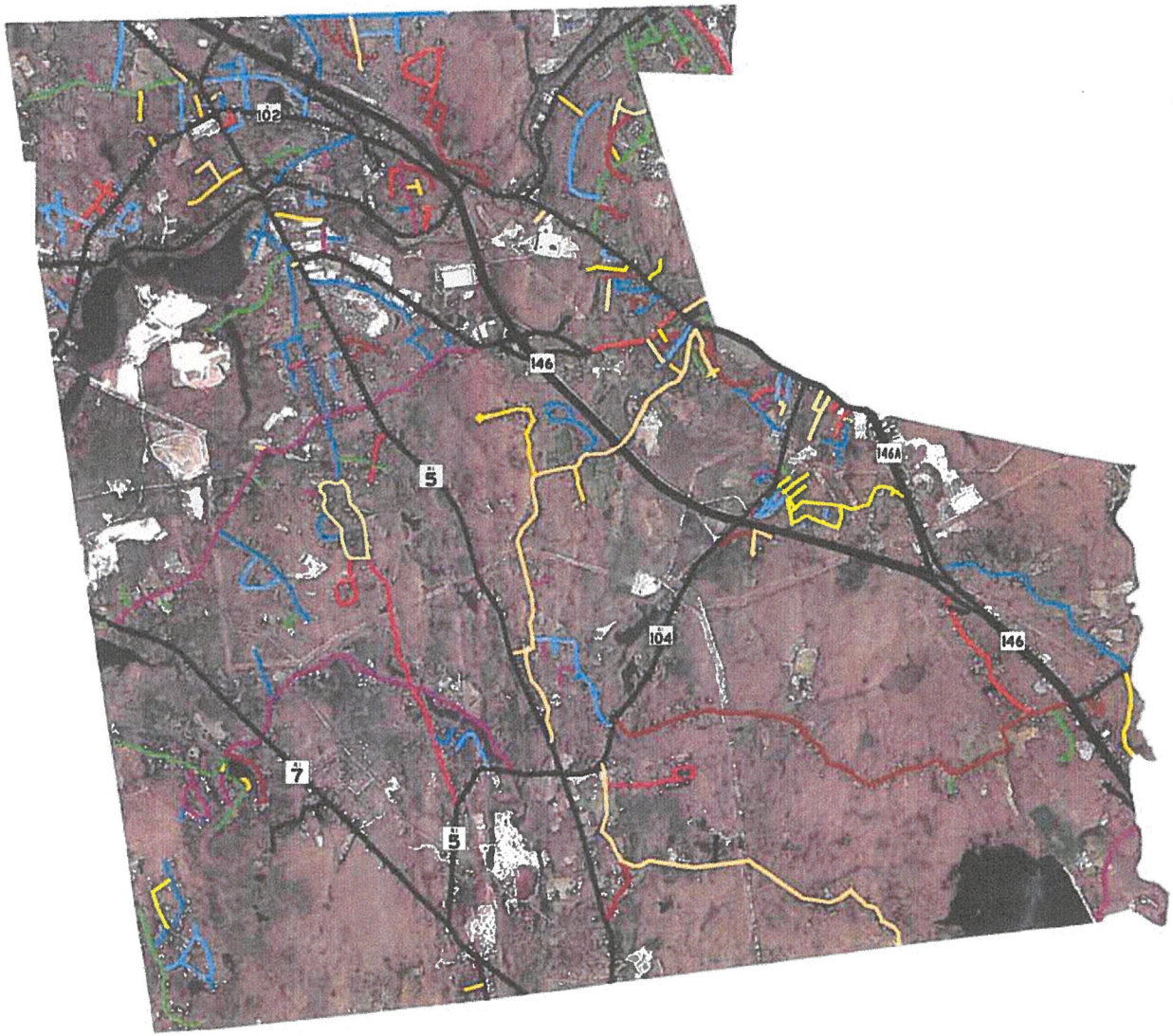
PRELIMINARY, NOT FOR CONSTRUCTION

OLD GREAT ROAD PLAN

SHEET 1 OF 1

Q: 08-49 Town of North Smithfield\08-49m Pavement Management Carlton Avenue-plan.dwg Mar. 11, 2014 5:03pm

APPENDIX A
Base Map
(Color Schemed by General Condition Rating)



LEGEND:

- ROAD CONDITION-0
- ROAD CONDITION-1
- ROAD CONDITION-2
- ROAD CONDITION-3
- ROAD CONDITION-4
- ROAD CONDITION-5
- ROAD CONDITION-6
- ROAD CONDITION-7
- ROAD CONDITION-8
- ROAD CONDITION-9

SCALE (FEET)
0 600 1200 2400 4800
1 INCH = 1200 FT

JCE
JOE CABALI ENGINEERING, INC.

PAVEMENT MANAGEMENT
NORTH SMITHFIELD, RHODE ISLAND

REVISIONS
NO. DATE DESCRIPTION

DESIGNED BY: JM
DRAWN BY: PEPR
CHECKED BY: JM
DATE: FEBRUARY 2011
PROJECT NO.: 10-078

PRELIMINARY, NOT FOR CONSTRUCTION

ROAD CONDITIONS MAP

SHEET 1 OF 1

APPENDIX B
Roadway Condition Report
(Ordered Numerically by General Condition Rating)

ROADWAY CONDITIONAL REPORT

(ORDER: General Condition)

JCE
JOE CASALI ENGINEERING, INC.
CIVIL · SITE DEVELOPMENT · TRANSPORTATION
DRAINAGE · WETLANDS · ISDS · TRAFFIC · FLOODPLAIN
300 POST ROAD, WARWICK, RI 02888

Segment Id	Road Name	From Address	To Address	General Condition	RSL	Transverse	Alligator	Patches/potholes	Longitudinal	Edge	Rutting	Roughness	Drainage	Survey Date
181	Carlton Avenue	Belcher Avenue	Sunnycrest Avenue	9	2	8	8	7	8	8	2	2	2	12/9/2013
26	Grange Road	Providence Pike	Rocky Hill Road	9	0	7	8	8	8	8	2	2	2	12/18/2013
39	Martha Road	Sorel Avenue	Dead End	9	0	8	8	4	7	8	2	3	1	11/25/2013
19	Mowry Avenue	35 Mowry Avenue	Arnold Avenue	9	0	8	9	7	8	8	2	2	1	12/18/2013
44	Old Great Road	Mechanic Street	West Harness Road	9	2	5	9	5	7	6	2	2	0	11/22/2013
176	Wilks Avenue	Victory Highway	Dead End	9	2	8	8	7	8	8	3	3	1	11/22/2013
195	Arnold Avenue	Woonsocket Hill Road	Milton Avenue	8	3	6	6	5	6	6	2	2	2	12/18/2013
302	Buckley Drive	Mendon Road	Dead End	8	0	9	9	9	9	9	3	3	2	12/18/2013
42	E Harkness Road	Martha Road	Great Road	8	3	7	6	5	0	5	2	2	1	11/25/2013
55	Glen Avenue	146a	Dead End	8	1	7	8	7	7	5	2	2	1	12/6/2013
250	Iron Mine Hill Road	Farnum Pike (104)	Sayles Hill Road	8	2	7	7	7	7	8	3	3	2	12/6/2013
318	Lester Street	Rt. 5	Victory Highway	8	1	7	8	6	6	8	2	2	3	11/22/2013
204	Merrimac Road	146a	Dead End	8	1	8	8	7	7	7	2	2	2	12/9/2013
309	Obeline Drive	Dead End	Mendon Road	8	0	9	9	9	9	9	3	3	2	12/18/2013
218	Old Greenville Road	Farnum Pike (104)	43 Old Greenville Road	8	3	7	7	6	7	7	2	2	1	12/9/2013
245	Overlea Road	Mattity Road	Dead End	8	3	7	8	7	8	7	3	3	2	12/3/2013
180	Rainville Avenue	Victory Highway	Dead End	8	2	8	8	7	7	8	3	3	1	11/22/2013
322	Tanglewood Road	Martha Road	Winchester Avenue	8	2	7	7	5	6	6	2	2	0	11/25/2013
192	Antaya Drive	Providence Pike (Rt. 5)	Dead End	7	5	6	6	5	6	6	2	2	1	12/18/2013
281	Circle Drive	Providence Pike	Highpoint Drive	7	3	7	6	5	6	4	2	2	0	12/18/2013
41	Great Road	Victory Highway	E Harkness Road	7	5	4	5	0	4	3	2	2	0	11/25/2013
105	Highpoint Drive	Providence Pike	Dead End	7	3	7	6	6	6	6	2	2	0	12/18/2013
292	Lapre Road	Great Road (146a)	Dead End	7	5	6	6	7	6	5	2	3	2	12/18/2013
304	Litzen & Lorraine Avenue	Maple Avenue	Dead End	7	0	8	8	8	8	6	3	3	2	12/18/2013
84	Milton Avenue	146a	Williams Street	7	3	6	6	0	6	6	2	2	3	12/18/2013
191	Morse Avenue	146a	Dead End	7	3	6	7	6	6	7	2	2	1	12/9/2013
288	Norwood Road	Westwood Road	Oakdale Road	7	6	5	4	6	5	5	3	3	0	12/9/2013
86	Odonnell Avenue	Bamford Street	Gilfilian Road	7	3	6	7	7	7	7	3	3	1	12/18/2013
324	Patricia Avenue	Harkness Road	Brian Avenue	7	3	7	8	3	7	7	3	3	2	11/22/2013
130	Pound Hill Road	Rt. 7	1620 Pound Hill	7	0	7	8	8	6	9	3	3	0	11/27/2013
14	Pound Hill Road	Rt. 5	Industrial Drive	7	2	5	7	6	5	8	3	3	3	11/27/2013
33	Raymond Street	146a	Dead End	7	3	6	7	7	6	6	1	2	3	12/18/2013

Segment Id	Road Name	From Address	To Address	General Condition	RSL	Transverse	Alligator	Patches/potholes	Longitudinal	Edge	Rutting	Roughness	Drainage	Survey Date
224	Sayles Hill Road	Iron Mine Hill Road	Dead End	7	2	8	8	7	8	7	3	3	1	12/6/2013
321	Winchester Avenue	Tanglewood Road	Dead End	7	3	7	8	5	0	0	2	2	1	11/25/2013
254	Woodland Road	Dead End	Sayles Hill Road	7	5	6	6	6	6	6	2	2	1	12/6/2013
10	Woonsocket Hill Road	126 Woonsocket Hill Road	146a	7	3	7	7	8	6	6	3	3	0	11/27/2013
284	Bellevue Avenue	Woonsocket Hill Road	Dead End	6	5	6	6	5	7	6	2	2	0	12/18/2013
37	Black Plain Road	Mattity Road	Taylor Drive	6	3	6	5	7	5	7	3	3	0	12/18/2013
182	Branch Avenue	Great Road	Dead End	6	3	5	4	6	6	7	0	0	0	12/18/2013
95	Brian Avenue	Harkness Road	Willerval Avenue	6	2	7	8	3	7	8	2	2	0	11/22/2013
62	Connector Road	146a	Old Great Road	6	7	4	6	3	5	4	1	2	0	11/22/2013
4	Cynthia Drive	Sharon Pkwy	Sharon Pkwy	6	5	5	6	5	6	5	0	0	0	12/18/2013
59	Cynthia Drive	Mendon Road	Sharon Pkwy	6	5	5	6	5	6	5	1	1	0	12/18/2013
308	Edward Avenue	Parkview Drive	Dead End	6	3	6	7	7	7	7	2	3	1	11/25/2013
317	Esmond Road	E Harkness Road	Sorel Avenue	6	5	6	5	4	0	5	1	1	0	11/25/2013
162	Florence Street	146a	Dead End	6	5	5	5	7	5	5	2	2	0	11/22/2013
222	George Lee Road	Rt. 5	Woonsocket Hill Road	6	5	5	7	2	5	3	0	0	1	12/3/2013
196	Gilfillian Road	Homestead Avenue	Pound Hill Road	6	2	6	7	3	3	8	1	1	0	12/18/2013
277	Golden Blvd.	Dead End	Greenwood Street	6	7	5	5	0	6	6	0	0	0	12/9/2013
240	Grange Road	Greenville Road	Rocky Hill Road	6	5	6	7	5	6	6	2	2	2	12/3/2013
70	Hill Street	Cross Road	E Old Greenville Road	6	4	6	5	6	5	5	3	3	0	11/27/2013
78	Indian Head Lane	Candlewood Road	Dead End	6	5	6	7	6	6	5	1	1	0	12/9/2013
157	Ironstone Street	Buxton Street	146a	6	3	6	6	5	5	7	2	2	1	11/22/2013
219	Jefferson Road	Old Greenville Road	Dead End	6	5	6	6	5	6	6	1	1	0	12/6/2013
5	Kirby Lane	Dead End	Dead End	6	1	6	5	7	6	7	2	2	0	12/18/2013
185	Kirby Lane	School Street	14 Kirby Lane	6	1	6	5	8	6	7	2	2	0	12/18/2013
301	Kirby Lane	14 Kirby Lane	23 Kirby Lane	6	1	6	5	7	6	7	2	2	0	12/18/2013
31	Mattity Road	Brookside Drive	Rt. 7	6	4	5	6	5	5	6	2	1	0	11/26/2013
287	Morse Avenue	146a	Town Line	6	3	6	7	6	6	7	1	1	0	12/9/2013
268	Old Greenville Road	43 Old Greenville Road	Dead End	6	5	6	6	5	6	6	1	1	1	12/6/2013
169	Parkview Drive	Rt. 5	18 Parkview Drive	6	5	6	7	2	6	6	1	1	0	11/25/2013
13	Pound Hill Road	Old Pound Road	146A	6	3	6	7	5	6	7	2	2	1	11/27/2013
323	Remington Circle	Brian Avenue	Dead End	6	5	7	8	1	6	6	2	1	0	11/22/2013
238	Rocky Hill Road	Grange Road	Town Line	6	7	5	5	5	5	5	2	2	0	12/6/2013
305	Roselawn Avenue	Dead End	Maple Avenue	6	2	8	8	8	8	8	3	3	1	12/18/2013
48	Shady Lane	Cross Road	Dead End	6	3	6	7	4	6	7	2	2	2	11/27/2013
3	Sharon Pkwy	Dead End	Cynthia Drive	6	2	6	7	7	7	8	1	2	1	12/18/2013
319	Sharon Pkwy	20 Sharon Pkwy	Mendon Road	6	2	6	7	7	7	8	1	2	1	12/18/2013
165	Sorel Avenue	Esmond Road	Martha Road	6	5	6	5	4	0	5	1	1	0	11/25/2013
278	Summit Avenue	146a	White Parkway	6	5	6	4	8	6	5	2	2	0	12/9/2013

Segment Id	Road Name	From Address	To Address	General Condition	RSL	Transverse	Alligator	Patches/potholes	Longitudinal	Edge	Rutting	Roughness	Drainage	Survey Date
289	Tifft Road	Black Plain Road	71 Tift Road	6	5	6	7	5	6	6	2	1	0	11/26/2013
205	Walsh Avenue	Merrimac Road	Dead End	6	6	5	5	6	5	4	1	1	0	12/9/2013
203	White Parkway	146a	Dead End	6	5	6	5	5	6	5	2	2	0	12/9/2013
151	Willerval Avenue	Remington Circle	Harkness Road	6	5	5	6	5	5	6	0	0	0	11/22/2013
286	Woodlawn Road	Lapre Road	Dead End	6	5	5	7	6	6	6	1	2	1	12/18/2013
11	Woonsocket Hill Road	Mara Lane	218 Woonsocket Hill Road	6	8	5	6	2	4	2	2	2	1	11/27/2013
247	Beachway Road	Brookside Drive	Brookside Drive	5	4	6	7	4	6	6	2	2	2	12/3/2013
36	Black Plain Road	Taylor Drive	Pound Hill Road	5	7	6	5	5	5	5	1	1	0	12/18/2013
273	Brentwood Drive	Woonsocket Hill Road	Dead End	5	7	5	5	3	5	5	1	1	0	12/4/2013
152	Brian Avenue	Willerval Avenue	Dead End	5	4	7	5	2	3	3	3	2	0	11/22/2013
248	Brookside Drive	Dead End	Mattity Road	5	4	6	7	0	6	6	2	2	2	12/3/2013
186	Carlton Avenue	Dead End	Sunnycrest Avenue	5	7	4	5	4	4	4	1	2	2	12/9/2013
230	Cedar Forest Road	Rt. 5	Dead End	5	4	6	2	3	4	5	3	3	0	12/9/2013
75	Cross Road	146A	E Old Greenville Road	5	4	7	8	5	7	6	3	2	2	11/27/2013
2	Deborah Avenue	Mendon Road	Cynthia Drive	5	7	5	3	4	3	5	1	1	0	12/18/2013
72	Deerfield Drive	E Old Greenville Road	Pheasant Run Road	5	8	7	5	4	6	3	0	2	0	11/27/2013
69	E Old Greenville Road	Dead End	Providence Street (104)	5	7	6	6	0	6	4	1	1	0	11/27/2013
211	Fairview Avenue	Hill Street	Dead End	5	7	6	4	4	4	3	1	2	0	11/27/2013
166	Ferrier Street	Victory Highway (Rt. 102)	Dead End	5	9	4	5	1	4	4	2	2	0	11/22/2013
164	Franklin Way	St. Paul Street	Lincoln Drive	5	5	5	6	5	6	6	0	0	0	12/18/2013
194	Getchell Street	Pound Hill Road	Odonnell Avenue	5	3	6	7	5	6	7	1	1	0	12/18/2013
101	Graham Drive	Dead End	Providence Pike	5	6	6	6	6	4	5	2	2	0	12/18/2013
89	Heroux Drive	Great Road (146a)	Dead End	5	6	6	4	6	6	5	1	1	0	12/18/2013
43	High View Ave	Mechanic Ave	Dead End	5	10	4	3	1	3	2	1	1	0	11/22/2013
34	Hillview Avenue	Great Road (146a)	49 Hillview Avenue	5	7	6	4	3	6	5	1	1	2	12/18/2013
122	Lumber Hill Road	Brookside Drive	Dead End	5	6	5	5	6	5	5	0	2	1	12/2/2013
83	Mara Lane	Dead End	Woonsocket Hill Road	5	7	6	6	0	6	5	0	1	0	11/26/2013
295	Meadowbrooke Drive	Great Road (146a)	Dead End	5	5	5	7	3	6	6	0	1	1	12/18/2013
197	Mulberry Street	Milton Avenue	Mowry Avenue	5	5	5	4	5	5	6	2	2	0	12/18/2013
232	Old Field Drive	Dead End	Buxton Street	5	7	5	4	5	3	5	1	1	0	11/22/2013
263	Old Smithfield Road	1105 Old Smithfield Road	146a	5	3	5	6	5	4	7	2	3	1	12/6/2013
132	Parkview Drive	18 Parkview Drive	Dead End	5	9	5	4	0	3	4	1	1	0	11/25/2013
198	Pine Court	Woonsocket Hill Road	Dead End	5	5	6	6	5	6	6	0	0	2	12/18/2013
27	Tifft Road	80 Tifft Road	end of road	5	7	4	4	4	4	4	1	1	0	11/26/2013
209	Urrico Avenue	E Old Greenville Road	Dead End	5	7	7	4	4	5	5	2	2	2	11/27/2013
210	Vincent Avenue	Cross Street	E Old Greenville Road	5	7	5	4	5	5	5	0	0	0	11/27/2013
21	Weeks Street	49 Weeks Street	Buell Avenue	5	7	5	5	5	5	5	1	1	0	12/9/2013
172	Wildwood Road	Dead End	Dead End	5	5	4	5	7	6	6	2	2	0	12/18/2013

Segment Id	Road Name	From Address	To Address	General Condition	RSL	Transverse	Alligator	Patches/potholes	Longitudinal	Edge	Rutting	Roughness	Drainage	Survey Date
173	Wildwood Road	Maple Avenue	6 Wildwood Road	5	7	4	5	2	4	3	2	2	0	12/18/2013
54	Williams Street	Milton Avenue	Dead End	5	7	5	4	5	5	5	2	2	2	12/18/2013
134	Belcher Avenue	Victory Highway	Dead End	4	9	4	3	0	4	3	1	1	3	11/22/2013
212	Birch Hill Avenue	Robert Street	E Old Greenville Road	4	9	5	4	4	4	3	1	1	0	11/27/2013
109	Bruce Drive	Providence Pike	Dead End	4	9	4	3	4	3	2	1	1	0	12/18/2013
279	Buell Avenue	146a	Greenwood Street	4	9	5	4	0	4	4	1	1	1	12/9/2013
274	Candlewood Road	Wedgewood Drive	Dead End	4	8	5	4	3	3	4	1	1	0	12/9/2013
233	Cider Mill Road	Buxton Street	Town Line	4	5	5	6	0	4	6	1	1	0	11/22/2013
96	Dorene Drive	Willerval Avenue	Duane Court	4	9	7	4	1	2	4	2	1	0	11/22/2013
150	Duane Court	Dead End	Harkness Road	4	9	7	4	1	2	4	2	1	0	11/22/2013
163	Flora Street	Ferrier Street	146a	4	9	5	4	1	5	4	2	1	0	11/22/2013
221	Follett Street	Woonsocket Hill Road	Farnum Pike	4	7	3	4	4	4	4	1	1	1	2/4/2014
124	Francis Farm Road	Indigo Farm Road	Dead End	4	6	5	4	4	4	6	1	1	0	12/2/2013
239	Franconia Drive	Leonard Drive	Leonard Drive	4	6	5	3	1	2	6	2	0	0	12/3/2013
178	Georgianna Avenue	Dead End	Dead End	4	9	4	3	0	4	4	2	1	0	11/22/2013
299	Greenwood Lane	Georgianna Avenue	Sunnycrest Avenue	4	8	7	4	3	5	4	0	1	0	11/22/2013
201	Greenwood Street	Buell Avenue	Crest Road	4	10	4	3	0	3	2	0	0	1	12/9/2013
177	Halliwell Blvd	School Street	School Street	4	8	4	3	3	4	3	1	2	0	12/18/2013
160	High View Avenue	Victory Hwy	Mechanic Street	4	10	1	1	0	0	0	1	1	0	12/18/2013
316	Homecrest Avenue	Buxton Street	Victory Highway	4	9	5	3	0	5	4	2	1	0	11/22/2013
87	Homestead Avenue	146a	Dead End	4	9	5	3	4	5	3	1	1	0	12/18/2013
123	Indigo Farm Road	Log Road	Indigo Farm Road	4	6	5	4	3	4	6	1	1	0	11/20/2013
213	Leo Street	Oak Hill Avenue	Providence Street (104)	4	9	5	4	0	5	2	1	2	0	12/3/2013
303	Lincoln Drive	Mendon Road	Dead End	4	5	5	8	4	5	6	0	1	1	12/18/2013
315	McCann Street	Rt. 5	Victory Highway	4	9	4	4	2	4	4	1	1	0	11/22/2013
71	Meadow Lane	Deerfield Drive	Dead End	4	8	7	5	4	6	3	0	2	0	11/27/2013
158	Mechanic Street	Rt. 5	Connector Road	4	8	3	2	3	3	3	0	0	0	11/22/2013
94	Mountain Road	Old Great Road	Dead End	4	5	5	5	4	0	6	0	0	0	12/18/2013
51	North Wood Lane	Parkview Drive	Dead End	4	5	6	6	6	6	6	2	2	2	11/25/2013
215	Oak Hill Avenue	Robert Street	E Old Greenville Road	4	4	4	3	3	4	3	2	2	1	11/27/2013
45	Old Great Road	Dead End	Mechanic Street	4	8	6	4	0	3	4	0	2	0	11/22/2013
242	Old Sayles Hill Road	Dead End	Dead End	4	7	5	5	4	4	4	0	0	0	12/18/2013
22	Old Smithfield Road	Sayles Hill Road	Town Line	4	9	4	3	2	3	4	1	1	0	12/6/2013
74	Pheasant Run Road	Deerfield Drive	Cross Street	4	8	7	5	4	6	3	0	2	0	11/27/2013
16	Pound Hill Road	1620 Pound Hill Road	1336 Pound Hill Road	4	9	5	5	2	4	4	1	0	1	11/27/2013
183	Rising Sun Trail	Morning Star Drive	Tall Timber Trail	4	10	3	2	1	2	3	1	1	0	1/21/2014
73	Robin Way	Deerfield Drive	Cross Road	4	8	7	5	4	6	3	0	2	0	11/27/2013
184	Sunnycrest Avenue	Victory Highway	Dead End	4	8	5	2	3	3	4	1	1	0	11/22/2013

Segment Id	Road Name	From Address	To Address	General Condition	RSL	Transverse	Alligator	Patches/potholes	Longitudinal	Edge	Rutting	Roughness	Drainage	Survey Date
300	Tall Timber Trail	Rising Sun Trail	Rising Sun Trail	4	7	5	5	2	5	5	1	1	2	11/22/2013
251	Tom Lee Drive	Farnum Pike	Dead End	4	8	5	3	3	4	3	1	1	0	12/18/2013
50	Wicks Street	Follett Street	Dead End	4	9	2	2	0	2	2	1	0	1	12/24/2013
252	Woonsocket Hill Road	Rt. 5	George Lee Road	4	8	4	6	2	4	2	0	1	0	12/3/2013
259	Woonsocket Hill Road	George Lee Road	Mara Lane	4	8	5	6	2	4	2	1	1	1	12/4/2013
76	Annette Avenue	Dead End	Girard Blvd	3	9	3	3	2	4	4	0	1	2	11/27/2013
85	Bamford Street	Odonnell Avenue	Homestead Avenue	3	7	1	4	0	1	5	1	1	0	12/18/2013
35	Black Plain Road	Pound Hill Road	Charon Drive	3	9	4	3	0	2	4	1	1	2	12/18/2013
46	Buxton Street	Buxton Street	Town Line	3	9	3	3	0	2	4	0	0	0	11/22/2013
320	Carpenter Street	Florence Street	Victory Highway	3	9	3	3	0	3	4	1	1	0	11/22/2013
297	Cherrybrook Avenue	Great Road (146a)	Great Road (146a)	3	8	4	2	3	3	3	0	0	0	12/9/2013
100	Christiansen Way	Dead End	Steele Street	3	9	3	3	4	3	4	0	0	0	12/18/2013
187	Church Street	Providence Pike	Dead End	3	10	2	2	4	3	2	1	1	0	12/18/2013
53	Comstock Road	Providence Pike	Dead End	3	10	4	3	2	4	3	1	1	0	12/18/2013
98	Comstock Road	Pound Hill Road	Dead End	3	9	3	2	0	3	4	1	1	0	12/18/2013
285	Eaton Street	Victory Highway (Rt. 102)	Dead End	3	11	4	1	1	2	2	1	1	1	12/18/2013
155	Filion Drive	Mechanic Street	Dead End	3	10	2	2	0	2	3	0	2	0	11/22/2013
118	Forest Hill Drive	Old Oxford Road	Old Oxford Road	3	9	4	4	0	4	4	0	1	0	12/2/2013
18	Freitas Lane	Maple Avenue	Dead End	3	10	3	2	2	2	3	1	1	1	12/18/2013
314	Greene Street	Victory Highway	School Street	3	10	3	2	2	3	2	0	0	0	12/18/2013
138	Harkness Road	Old Great Road	Dead End	3	7	4	5	3	4	5	1	2	0	11/22/2013
290	Hillview Avenue	49 Hillview Avenue	Lapre Road	3	8	3	3	3	3	3	0	0	1	12/18/2013
77	John Avenue	Dead End	Dead End	3	10	2	3	0	2	0	0	0	2	11/27/2013
231	Karen Marie Drive	Indigo Farm Road	Dead End	3	6	5	4	3	4	6	1	1	0	12/3/2013
275	Knollridge Drive	Woonsocket Hill Road	Dead End	3	10	3	4	1	2	3	1	1	1	12/4/2013
125	Leonard Drive	Dead End	Log Road	3	10	0	0	0	3	0	1	0	0	12/2/2013
32	Mattity Road	Town Line	Brookside Drive	3	12	0	0	0	2	0	2	1	0	11/26/2013
298	Morning Star Drive	Victory Highway	Rising Sun Trail	3	10	3	2	1	1	3	0	1	0	12/4/2013
103	Myrick Drive	Church Street	Dead End	3	10	3	2	1	3	3	1	1	0	12/18/2013
60	Oakdale Road	Norwood Road	Westwood Road	3	10	3	2	2	3	2	0	1	0	12/9/2013
120	Old Oxford Road	Pound Hill Road	Dead End	3	8	4	5	3	5	4	0	1	0	12/2/2013
23	Old Smithfield Road	Sayles Hill Road	1105 Old Smithfield Road	3	10	2	3	2	2	2	0	1	0	12/6/2013
156	Orchard Street	Dead End	Filion Drive	3	11	2	2	0	2	3	0	1	0	11/22/2013
63	Primose Lane	Black Plain Road	Dead End	3	8	3	3	3	2	3	1	1	0	12/18/2013
117	Rainbow Lane	Taylor Drive	Taylor Drive	3	9	4	5	2	4	4	0	0	1	12/2/2013
97	Taber Hill Road	Taber Hill Road	Dead End	3	8	5	3	3	4	3	1	1	0	12/18/2013
99	Taber Hill Road	Pound Hill Road	Dead End	3	8	5	3	3	4	3	1	1	0	12/18/2013
269	Taylor Drive	Black Plain Road	Black Plain Road	3	10	4	7	0	4	3	0	0	0	12/4/2013

Segment Id	Road Name	From Address	To Address	General Condition	RSL	Transverse	Alligator	Patches/potholes	Longitudinal	Edge	Rutting	Roughness	Drainage	Survey Date
80	Village Way	Dead End	Providence Street (104)	3	10	5	3	1	4	1	0	0	0	12/9/2013
79	Wedgewood Drive	Chester Street	Dead End	3	10	5	3	2	2	2	0	1	0	12/9/2013
88	Westwood Road	146a	Dead End	3	10	5	2	0	2	2	0	0	0	12/9/2013
174	Adams Circle	Lincoln Drive	Dead End	2	10	3	3	0	2	2	0	0	0	12/18/2013
127	Angela Way	Toni Circle	Dead End	2	9	5	3	0	4	4	1	1	0	12/2/2013
255	Bearskin Farm Road	Mattity Road	Dead End	2	8	2	4	3	2	4	0	1	1	12/3/2013
102	Charon Drive	Providence Pike	Church Street	2	12	2	2	0	2	2	0	0	0	12/18/2013
106	Chelsea	Dead End	Black Plain Road	2	10	3	3	2	1	2	1	1	0	12/9/2013
276	Chester Street	Walsh Avenue	Wedgewood Drive	2	10	3	2	2	2	2	0	0	0	12/9/2013
126	Christina Way	Toni Circle	Dead End	2	10	5	3	0	4	2	0	1	0	12/18/2013
207	Girard Blvd	Dead End	Providence Street (104)	2	10	4	3	0	4	3	2	1	2	11/27/2013
66	Hollow Road	Follett Street	Dead End	2	12	0	2	0	0	0	0	0	0	11/26/2013
107	Jennifer Lane	Dead End	Chelsea Drive	2	8	3	2	3	1	2	0	1	0	11/26/2013
190	Julie Avenue	Victory Highway (Rt. 102)	Dead End	2	12	2	1	0	1	1	1	1	1	12/18/2013
223	Keene Street	Follett Street	Dead End	2	10	1	1	2	1	1	0	0	0	12/3/2013
104	Laurel Lane	Black Plains Road	Laurel Lane	2	9	4	4	2	4	4	1	1	0	11/26/2013
188	Maple Avenue	School Street	Victory Highway	2	12	0	1	1	0	1	0	0	0	12/18/2013
7	Mendon Road	298 Mendon Road	St. Paul Street	2	17	0	0	0	0	0	1	1	0	11/27/2013
133	Mt. Pleasant Road	Victory Highway (Rt. 102)	Town Line	2	10	4	2	2	2	2	0	1	0	12/18/2013
121	Narragansett Drive	Brookside Drive	Brookside Drive	2	10	2	1	0	3	1	0	0	0	12/2/2013
291	Oaklawn Road	Lapre Road	Hillview Avenue	2	10	4	2	2	3	2	0	0	0	12/18/2013
312	Pacheco Drive	Dead End	Greene Street	2	14	1	0	0	0	0	1	1	0	11/25/2013
226	Pond House Road	Rt. 104	Black Plains Road	2	17	0	0	0	0	1	0	0	0	12/18/2013
15	Pound Hill Road	1336 Pound Hill Road	Rt. 5	2	2	6	7	9	6	7	3	3	0	11/27/2013
241	Reservior Road	146	Town Border	2	10	2	3	2	3	2	0	0	0	12/18/2013
271	Robert Street	Providence Street (104)	Oak Hill Avenue	2	8	1	2	3	1	0	0	0	0	11/28/2013
234	Scott Farm Road	Dead End	Buxton Street	2	14	1	0	0	1	1	0	0	0	11/22/2013
256	Sky View Road	Dead End	Follett Street	2	14	1	1	0	1	1	0	0	0	12/3/2013
189	Steel Street	Edgecomb road	Dead End	2	10	2	0	2	3	3	0	0	0	12/18/2013
49	Stone Ridge Drive	Woonsocket Hill Road	Dead End	2	12	1	2	0	2	1	0	0	0	11/26/2013
81	Thayer Court	Dead End	Village Way	2	10	4	1	0	3	1	0	0	0	12/9/2013
128	Toni Circle	Mattity Road	Toni Circle	2	10	5	3	0	4	2	2	2	0	12/3/2013
114	Trout Brook Lane	Taylor Drive	Dead End	2	10	3	2	0	3	3	0	0	0	12/18/2013
82	Weeks Street	Village Way	49 Weeks Street	2	10	4	1	0	3	1	0	1	0	12/6/2013
38	Black Plain Road	Farnum Pike	Mattity Road	1	17	0	0	0	0	1	0	0	0	12/18/2013
56	Bourget Court	Rt. 5	Dead End	1	12	2	2	0	1	0	0	1	0	11/26/2013
325	Canal Street	Town Line	Town Line	1	14	1	0	0	0	0	0	0	0	11/27/2013
108	Courtney Drive	Black Plain Road	Jennifer Lane	1	12	2	0	0	1	0	0	1	0	11/26/2013

Segment Id	Road Name	From Address	To Address	General Condition	RSL	Transverse	Alligator	Patches/potholes	Longitudinal	Edge	Rutting	Roughness	Drainage	Survey Date
200	Crest Road	146a	Greenwood Street	1	14	1	1	0	0	0	0	0	0	12/9/2013
179	Northgate Road	Tall Timber Trail	Victory Highway	1	14	1	0	0	0	1	0	1	0	11/22/2013
24	Old Sayles Hill Road	35 Old Sayles Hill Road	Chamberlain Court	1	14	0	0	0	1	0	0	0	0	12/6/2013
65	Pomona Street	Grange Road	Dead End	1	12	1	1	0	2	0	0	1	0	11/26/2013
170	Ridge Road	N Main Street	Greene Street	1	20	0	0	0	0	0	0	0	2	11/25/2013
154	Saranac Street	Dead End	Elizabeth Avenue	1	12	0	0	1	0	0	0	0	0	11/27/2013
115	Stoney Drive	Taylor Drive	Dead End	1	10	2	2	0	3	3	0	0	0	11/26/2013
193	Warren Avenue	146a	Dead End	1	12	1	1	1	1	1	0	0	0	12/18/2013
20	Weeks Street	Buell Avenue	Crest Road	1	12	2	1	0	1	1	0	0	0	12/9/2013
58	Briden Street	Elizabeth Avenue	Dead End	0	20	0	0	0	0	0	0	0	0	11/27/2013
47	Buxton Street	146a	Buxton Street	0	20	0	0	0	0	0	0	0	0	11/22/2013
67	Chamberlain Court	Old Sayles Hill Road	Dead End	0	17	0	0	0	1	0	0	0	0	12/9/2013
311	Country Way	Ridge Road	Greene Street	0	20	0	0	0	0	0	0	0	0	11/25/2013
119	Cristy Court	Old Oxford Road	Dead End	0	12	1	0	0	2	2	0	0	0	12/2/2013
208	Cross Street	Providence Street (104)	Dead End	0	11	0	0	0	0	0	0	0	0	11/27/2013
64	Denny Court	Rocky Hill Road	Dead End	0	20	0	0	0	0	0	0	0	0	12/6/2013
129	Doire Court	Unable To Locate Cross	Dead End	0	20	0	0	0	0	0	0	0	0	12/18/2013
0	Elizabeth Avenue	11 Elizabeth Avenue	Dead End	0	20	0	0	0	0	0	0	0	0	11/27/2013
139	Elizabeth Avenue	St. Paul Street	11 Elizabeth Avenue	0	20	0	0	0	0	0	0	0	0	11/27/2013
92	Fountain Street	Mendon Road	Graves Avenue	0	20	0	0	0	0	0	0	0	0	11/27/2013
112	Hart Pond Drive	3 Hart Pond Road	Pound Hill Road	0	14	0	0	0	1	0	0	1	0	11/26/2013
113	Hart Pond Drive	Dead End	3 Hart Pond Road	0	14	0	0	0	1	0	0	0	0	11/26/2013
110	Jeanne Court	Black Plain Road	Dead End	0	14	1	0	0	1	0	0	1	0	11/26/2013
29	Laurel Lane (*Lower Half*)	Laurel Lane	Dead End	0	12	2	2	0	2	2	0	0	0	11/26/2013
235	Log Road	Town Line	Town Line	0	20	0	0	0	0	0	0	0	0	12/3/2013
30	Mattity Road	Rt. 7	Black Plain Road	0	9	2	3	4	3	4	0	0	0	11/26/2013
8	Mendon Road	409 Mendon Road	298 Mendon Road	0	20	0	0	0	0	0	0	0	0	11/27/2013
9	Mendon Road	146a	409 Mendon Road	0	20	0	0	0	0	0	0	0	0	11/27/2013
149	Middle Street	St. Paul Street	Dead End	0	20	0	0	0	0	0	0	0	0	11/27/2013
143	Mill Street	Canal Street	Town Line	0	14	0	1	0	0	0	0	0	0	11/27/2013
280	Mowry Avenue	Dead End	35 Mowry Avenue	0	20	0	0	0	0	0	0	0	0	12/18/2013
261	Mowry Road	Town Line	Rt (7)	0	20	0	0	0	0	0	0	0	0	11/27/2013
283	Old Pound Hill Road	Dead End	Pound Hill Road	0	20	0	0	0	0	0	0	0	0	12/18/2013
225	Old Sayles Hill Road	Iron Mine Hill Road	35 Old Sayles Hill road	0	20	0	0	0	0	0	0	0	0	12/6/2013
61	Park Drive	Dead End	146a	0	20	0	0	0	0	0	0	0	0	12/18/2013
131	Pine Hill Road	Pound Hill Road	Dead End	0	20	0	0	0	0	0	0	0	0	12/18/2013
1	Rhodes Avenue	Mendon Road	Town Border	0	12	2	1	0	0	1	0	0	0	12/18/2013
93	Smith Street	Elizabeth Avenue	Dead End	0	20	0	0	0	0	0	0	0	0	11/27/2013

Segment Id	Road Name	From Address	To Address	General Condition	RSL	Transverse	Alligator	Patches/potholes	Longitudinal	Edge	Rutting	Roughness	Drainage	Survey Date
28	Tifft Road	71 Tift Road	80 Tift Road	0	20	0	0	0	0	0	0	0	0	11/26/2013
246	Valley View Drive	Dead End	Iron Mill Hill Road	0	20	0	0	0	0	0	0	0	1	12/6/2013
91	West Street	Fountain Street	Colerick Street	0	20	0	0	0	0	0	0	0	0	11/27/2013

APPENDIX C

Roadway Inventory Report
(Ordered Alphabetically by Road Name)

JCE
JOE CASALI ENGINEERING, INC.
CIVIL · SITE DEVELOPMENT · TRANSPORTATION
DRAINAGE · WETLANDS · ISDS · TRAFFIC · FLOODPLAIN
300 POST ROAD, WARWICK, RI 02888
(401) 944-1288 (401) 944-1313 FAX WWW.JOECASALI.COM

ROADWAY INVENTORY REPORT

(ORDERED: Roadname)

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
174	Adams Circle	Lincoln Drive	Dead End	Runoff	30	127	2	423.33
127	Angela Way	Toni Circle	Dead End	Curb & Catch Basin	28	182	2	566.22
76	Annette Avenue	Dead End	Girard Blvd	Runoff	22	310	3	757.78
192	Antaya Drive	Providence Pike (Rt. 5)	Dead End	Runoff	15	353	7	588.33
195	Arnold Avenue	Woonsocket Hill Road	Milton Avenue	Runoff & Catch Basin	24	649	8	1,730.67
85	Bamford Street	Odonnell Avenue	Homestead Avenue	Runoff	22	296	3	723.56
247	Beachway Road	Brookside Drive	Brookside Drive	Runoff	14	607	5	944.22
255	Bearskin Farm Road	Mattity Road	Dead End	Runoff	14	1,438	2	2,236.89
134	Belcher Avenue	Victory Highway	Dead End	Curb & Catch Basin	26	571	4	1,649.56
284	Bellevue Avenue	Woonsocket Hill Road	Dead End	Runoff & Catch Basin	24	1,480	6	3,946.67
212	Birch Hill Avenue	Robert Street	E Old Greenville Road	Runoff & Catch Basin	30	990	4	3,300.00
35	Black Plain Road	Pound Hill Road	Charon Drive	Runoff & Catch Basin	24	5,080	6	13,546.67
36	Black Plain Road	Taylor Drive	Pound Hill Road	Runoff	22	4,319	5	10,557.56
37	Black Plain Road	Mattity Road	Taylor Drive	Runoff & Catch Basin	20	3,996	3	8,880.00
38	Black Plain Road	Farnum Pike	Mattity Road	Runoff & Catch Basin	24	3,759	1	10,024.00
56	Bourget Court	Rt. 5	Dead End	Curb & Catch Basin	28	1,657	1	5,155.11
182	Branch Avenue	Great Road	Dead End	Runoff	38	528	6	2,229.33
273	Brentwood Drive	Woonsocket Hill Road	Dead End	Curb & Catch Basin	30	3,802	5	12,673.33
95	Brian Avenue	Harkness Road	Willerval Avenue	Runoff & Catch Basin	26	1,455	6	4,203.33
152	Brian Avenue	Willerval Avenue	Dead End	Curb & Catch Basin	24	509	5	1,357.33
58	Briden Street	Elizabeth Avenue	Dead End	Curb & Catch Basin	24	356	0	949.33
248	Brookside Drive	Dead End	Mattity Road	Runoff	18	2,675	5	5,350.00
109	Bruce Drive	Providence Pike	Dead End	Curb & Catch Basin	30	1,669	4	5,563.33
302	Buckley Drive	Mendon Road	Dead End	Runoff	24	1,000	8	2,666.67
279	Buell Avenue	146a	Greenwood Street	Runoff & Catch Basin	24	866	4	2,309.33
46	Buxton Street	Buxton Street	Town Line	Runoff & Catch Basin	22	2,113	3	5,165.11
47	Buxton Street	146a	Buxton Street	Runoff & Catch Basin	22	3,524	0	8,614.22
325	Canal Street	Town Line	Town Line	Runoff & Catch Basin	22	2,264	1	5,534.22
274	Candlewood Road	Wedgewood Drive	Dead End	Paved Waterway	26	626	4	1,808.44
181	Carlton Avenue	Belcher Avenue	Sunnycrest Avenue	Runoff	24	1,407	9	3,752.00
186	Carlton Avenue	Dead End	Sunnycrest Avenue	Curb & Catch Basin	24	335	5	893.33
320	Carpenter Street	Florence Street	Victory Highway	Runoff & Catch Basin	22	464	3	1,134.22
230	Cedar Forest Road	RT (5)	Dead End	Curb & Catch Basin	30	582	5	1,940.00

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
67	Chamberlain Court	Old Sayles Hill Road	Dead End	Curb & Catch Basin	30	611	0	2,036.67
102	Charon Drive	Providence Pike	Church Street	Runoff	30	1,054	2	3,513.33
106	Chelsea Drive	Dead End	Black Plan Road	Curb & Catch Basin	30	808	2	2,693.33
297	Cherrybrook Avenue	Great Road (146a)	Great Road (146a)	Runoff	25	830	3	2,305.56
276	Chester Street	Walsh Avenue	Wedgewood Drive	Runoff	22	858	2	2,097.33
100	Christiansen Way	Dead End	Steele Street	Curb & Catch Basin	30	638	3	2,126.67
126	Christina Way	Toni Circle	Dead End	Curb & Catch Basin	28	431	2	1,340.89
187	Church Street	Providence Pike	Dead End	Curb & Catch Basin	30	1,169	3	3,896.67
233	Cider Mill Road	Buxton Street	Town Line	Runoff	20	1,885	4	4,188.89
281	Circle Drive	Providence Pike	Highpoint Drive	Curb & Catch Basin	30	732	7	2,440.00
53	Comstock Road	Providence Pike	Dead End	Runoff	20	1,644	3	3,653.33
98	Comstock Road	Pound Hill Road	Dead End	Runoff	16	462	3	821.33
62	Connector Road	146a	Old Great Road	Curb & Catch Basin	30	612	6	2,040.00
311	Country Way	Ridge Road	Greene Street	Curb & Catch Basin	28	1,503	0	4,676.00
108	Courtney Drive	Black Plain Road	Jennifer Lane	Curb & Catch Basin	30	554	1	1,846.67
200	Crest Road	146a	Greenwood Street	Runoff	22	782	1	1,911.56
119	Cristy Court	Old Oxford Road	Dead End	Curb & Catch Basin	28	863	0	2,684.89
75	Cross Road	146A	E Old Greenville Road	Paved Waterway	24	2,247	5	5,992.00
208	Cross Street	Providence Street (104)	Dead End	Runoff & Catch Basin	20	1,083	0	2,406.67
4	Cynthia Drive	Sharon Pkwy	Sharon Pkwy	Runoff & Catch Basin	22	640	6	1,564.44
59	Cynthia Drive	Mendon Road	Sharon Pkwy	Runoff & Catch Basin	30	1,274	6	4,246.67
2	Deborah Avenue	Mendon Road	Cynthia Drive	Runoff & Catch Basin	30	524	5	1,746.67
72	Deerfield Drive	E Old Greenville Road	Pheasant Run Road	Curb & Catch Basin	30	1,435	5	4,783.33
64	Denny Court	Rocky Hill Road	Dead End	Curb & Catch Basin	26	854	0	2,467.11
129	Doire Court	Pound Hill Road	Dead End	Curb & Catch Basin	30	657	0	2,190.00
96	Dorene Drive	Willerval Avenue	Duane Court	Curb & Catch Basin	30	1,211	4	4,036.67
150	Duane Court	Dead End	Harkness Road	Curb & Catch Basin	30	1,010	4	3,366.67
42	E Harkness Road	Martha Road	Great Road	Runoff	20	1,134	8	2,520.00
69	E Old Greenville Road	Dead End	Providence Street (104)	Runoff & Catch Basin	24	1,335	5	3,560.00
285	Eaton Street	Victory Highway (Rt. 102)	Dead End	Runoff	26	997	3	2,880.22
308	Edward Avenue	Parkview Drive	Dead End	Runoff & Catch Basin	30	1,139	6	3,796.67
0	Elizabeth Avenue	11 Elizabeth Avenue	Dead End	Runoff & Catch Basin	22	1,141	0	2,789.11
139	Elizabeth Avenue	St. Paul Street	11 Elizabeth Avenue	Runoff & Catch Basin	20	962	0	2,137.78
317	Esmond Road	E Harkness Road	Sorel Avenue	Runoff	26	442	6	1,276.89
211	Fairview Avenue	Hill Street	Dead End	Runoff	24	636	5	1,696.00
166	Ferrier Street	Victory Highway (Rt. 102)	Dead End	Runoff	24	755	5	2,013.33
155	Filion Drive	Mechanic Street	Dead End	Curb & Catch Basin	24	491	3	1,309.33
163	Flora Street	Ferrier Street	146a	Runoff	20	335	4	744.44
162	Florence Street	146a	Dead End	Runoff	25	422	6	1,172.22

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
221	Follett Street	Woonsocket Hill Road	Farnum Pike	Curb & Catch Basin	24	3,900	4	10,400.00
118	Forest Hill Drive	Old Oxford Road	Old Oxford Road	Curb & Catch Basin	28	2,197	3	6,835.11
92	Fountain Street	Mendon Road	Graves Avenue	Curb & Catch Basin	20	927	0	2,060.00
124	Francis Farm Road	Indigo Farm Road	Dead End	Curb & Catch Basin	30	387	4	1,290.00
239	Franconia Drive	Leonard Drive	Leonard Drive	Curb & Catch Basin	30	1,768	4	5,893.33
164	Franklin Way	St. Paul Street	Lincoln Drive	Curb & Catch Basin	30	960	5	3,200.00
18	Freitas Lane	Maple Avenue	Dead End	Paved Waterway	20	513	3	1,140.00
222	George Lee Road	Rt. 5	Woonsocket Hill Road	Runoff	30	427	6	1,423.33
178	Georgianna Avenue	Dead End	Dead End	Curb & Catch Basin	30	1,544	4	5,146.67
194	Getchell Street	Pound Hill Road	Odonnell Avenue	Runoff	25	428	5	1,188.89
196	Gilfillan Road	Homestead Avenue	Pound Hill Road	Runoff & Catch Basin	22	828	6	2,024.00
207	Girard Blvd	Dead End	Providence Street (104)	Runoff	24	744	2	1,984.00
55	Glen Avenue	146a	Dead End	Runoff & Catch Basin	28	349	8	1,085.78
277	Golden Blvd.	Dead End	Greenwood Street	Runoff	24	546	6	1,456.00
101	Graham Drive	Dead End	Providence Pike	Runoff & Catch Basin	25	1,462	5	4,061.11
26	Grange road	Providence Pike	Rocky Hill Road	Runoff	18	1,949	9	3,898.00
240	Grange Road	Greenville Road	Rocky Hill Road	Runoff	20	3,050	6	6,777.78
41	Great Road	Victory Highway	E Harkness Road	Runoff & Catch Basin	28	1,473	7	4,582.67
314	Greene Street	Victory Highway	School Street	Curb & Catch Basin	22	2,785	3	6,807.78
299	Greenwood Lane	Georgianna Avenue	Sunnycrest Avenue	Runoff	30	863	4	2,876.67
201	Greenwood Street	Buell Avenue	Crest Road	Runoff & Catch Basin	24	313	4	834.67
177	Halliwell Blvd	School Street	School Street	Runoff & Catch Basin	24	1,070	4	2,853.33
138	Harkness Road	Old Great Road	Dead End	Runoff & Catch Basin	22	646	3	1,579.11
112	Hart Pond Drive	3 Hart Pond Drive	Pound Hill Road	Curb & Catch Basin	30	144	0	480.00
113	Hart Pond Drive	Dead End	3 Hart Pond Drive	Curb & Catch Basin	30	466	0	1,553.33
89	Heroux Drive	Great Road (146a)	Dead End	Runoff	18	813	5	1,626.00
43	High View Ave	Mechanic Ave	Dead End	Curb & Catch Basin	30	618	5	2,060.00
160	High View Avenue	Victory Hwy	Mechanic Street	Runoff & Catch Basin	24	1,038	4	2,768.00
105	Highpoint Drive	Providence Pike	Dead End	Curb & Catch Basin	30	1,339	7	4,463.33
70	Hill Street	Cross Road	E Old Greenville Road	Runoff	26	438	6	1,265.33
34	Hillview Avenue	Great Road (146a)	49 Hillview Avenue	Runoff	28	617	5	1,919.56
290	Hillview Avenue	49 Hillview Avenue	Lapre Road	Runoff	28	496	3	1,543.11
66	Hollow Road	Follett Street	Dead End	Runoff	20	322	2	715.56
316	Homecrest Avenue	Buxton Street	Victory Highway	Runoff	22	1,452	4	3,549.33
87	Homestead Avenue	146a	Dead End	Curb & Catch Basin	25	1,638	4	4,550.00
78	Indian Head Lane	Candlewood Road	Dead End	Runoff	26	145	6	418.89
123	Indigo Farm Road	Log Road	Indigo Farm Road	Curb & Catch Basin	30	3,728	4	12,426.67
250	Iron Mine Hill Road	Farnum Pike (104)	Sayles Hill Road	Runoff & Catch Basin	21	15,259	8	35,604.33
157	Ironstone Street	Buxton Street	146a	Runoff	22	735	6	1,796.67

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
110	Jeanne Court	Black Plain Road	Dead End	Curb & Catch Basin	26	1,650	0	4,766.67
219	Jefferson Road	Old Greenville Road	Dead End	Runoff & Catch Basin	30	868	6	2,893.33
107	Jennifer Lane	Dead End	Chelsea Drive	Curb & Catch Basin	30	1,301	2	4,336.67
77	John Avenue	Dead End	Dead End	Runoff	24	395	3	1,053.33
190	Julie Avenue	Victory Highway (Rt. 102)	Dead End	Runoff & Catch Basin	30	337	2	1,123.33
231	Karen Marie Drive	Indigo Farm Road	Dead End	Curb & Catch Basin	30	315	3	1,050.00
223	Keene Street	Follett Street	Dead End	Runoff	22	609	2	1,488.67
5	Kirby Lane	Dead End	Dead End	Runoff & Catch Basin	26	269	6	777.11
185	Kirby Lane	School Street	14 Kirby Lane	Runoff & Catch Basin	26	502	6	1,450.22
301	Kirby Lane	14 Kirby Lane	23 Kirby Lane	Runoff & Catch Basin	26	245	6	707.78
275	Knollridge Drive	Woonsocket Hill Road	Dead End	Curb & Catch Basin	26	3,580	3	10,342.22
292	Lapre Road	Great Road (146a)	Dead End	Runoff & Catch Basin	21	1,148	7	2,678.67
104	Laurel Lane	Black Plains Road	Laurel Lane	Curb & Catch Basin	20	281	2	624.44
29	Laurel Lane (Lower Half)	Laurel Lane	Dead End	Curb & Catch Basin	20	408	0	906.67
213	Leo Street	Oak Hill Avenue	Providence Street (104)	Runoff & Catch Basin	25	455	4	1,263.89
125	Leonard Drive	Dead End	Log Road	Curb & Catch Basin	30	2,902	3	9,673.33
318	Lester Street	Rt. 5	Victory Highway	Runoff	22	675	8	1,650.00
303	Lincoln Drive	Mendon Road	Dead End	Runoff & Catch Basin	30	3,651	4	12,170.00
304	Litzen & Lorraine Avenue	Maple Avenue	Dead End	Runoff & Catch Basin	26	1,341	7	3,874.00
235	Log Road	Town Line	Town Line	Runoff & Catch Basin	26	4,390	0	12,682.22
122	Lumber Hill Road	Brookside Drive	Dead End	Runoff	16	365	5	648.89
188	Maple Avenue	School Street	Victory Highway	Runoff & Catch Basin	28	2,391	2	7,438.67
83	Mara Lane	Dead End	Woonsocket Hill Road	Curb & Catch Basin	30	1,018	5	3,393.33
39	Martha Road	Sorel Avenue	Dead End	Curb & Catch Basin	30	606	9	2,020.00
30	Mattity Road	Rt. 7	Black Plain Road	Curb & Catch Basin	20	5,760	6	12,800.00
31	Mattity Road	Brookside Drive	Rt. 7	Curb & Catch Basin	24	1,454	3	3,877.33
32	Mattity Road	Town Line	Brookside Drive	Runoff & Catch Basin	22	3,655	0	8,934.44
315	McCann Street	Rt. 5	Victory Highway	Curb & Catch Basin	22	932	4	2,278.22
71	Meadow Lane	Deerfield Drive	Dead End	Curb & Catch Basin	30	266	4	886.67
295	Meadowbrooke Drive	Great Road (146a)	Dead End	Runoff	20	1,363	5	3,028.89
158	Mechanic Street	Rt. 5	Connector Road	Curb & Catch Basin	22	3,230	4	7,895.56
7	Mendon Road	298 Mendon Road	St. Paul Street	Curb & Catch Basin	24	2,694	2	7,184.00
8	Mendon Road	409 Mendon Road	298 Mendon Road	Curb & Catch Basin	24	1,145	0	3,053.33
9	Mendon Road	146a	409 Mendon Road	Curb & Catch Basin	28	2,832	0	8,810.67
204	Merrimac Road	146a	Dead End	Runoff	28	815	8	2,535.56
149	Middle Street	St. Paul Street	Dead End	Runoff & Catch Basin	24	794	0	2,117.33
143	Mill Street	Canal Street	Town Line	Runoff & Catch Basin	30	340	0	1,133.33
84	Milton Avenue	146a	Williams Street	Runoff & Catch Basin	22	1,690	7	4,131.11
298	Morning Star Drive	Victory Highway	Rising Sun Trail	Curb & Catch Basin	30	875	3	2,916.67

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
191	Morse Avenue	146a	Dead End	Curb & Catch Basin	25	1	7	2.78
287	Morse Avenue	146a	Town Line	Curb & Catch Basin	24	865	6	2,402.78
94	Mountain Road	Old Great Road	Dead End	Runoff	20	477	4	1,060.00
19	Mowry Avenue	35 Mowry Avenue	Arnold Avenue	Runoff	24	335	9	893.33
280	Mowry Avenue	Dead End	35 Mowry Avenue	Runoff	22	455	0	1,112.22
261	Mowry Road	Town Line	Rt (7)	Runoff & Catch Basin	18	416	0	832.00
133	Mt. Pleasant Road	Victory Highway (Rt. 102)	Town Line	Runoff	24	1,248	2	3,328.00
197	Mulberry Street	Milton Avenue	Mowry Avenue	Runoff	24	415	5	1,106.67
103	Myrick Drive	Church Street	Dead End	Runoff	26	515	3	1,487.78
121	Narragansett Drive	Brookside Drive	Brookside Drive	Curb & Catch Basin	30	1,129	2	3,763.33
51	North Wood Lane	Parkview Drive	Dead End	Runoff	26	207	4	598.00
179	Northgate Road	Tall Timber Trail	Victory Highway	Runoff	28	349	1	1,085.78
288	Norwood Road	Westwood Road	Oakdale Road	Curb & Catch Basin	26	512	7	1,479.11
215	Oak Hill Avenue	Robert Street	E Old Greenville Road	Runoff & Catch Basin	26	484	4	1,398.22
60	Oakdale Road	Norwood Road	Westwood Road	Runoff	26	324	3	936.00
291	Oaklawn Road	Lapre Road	Hillview Avenue	Runoff	28	855	2	2,660.00
309	Obeline Drive	Dead End	Mendon Road	Runoff	25	667	8	1,852.78
86	Odonnell Avenue	Bamford Street	Gilfilian Road	Runoff & Catch Basin	22	792	7	1,936.00
232	Old Field Drive	Dead End	Buxton Street	Runoff	28	860	5	2,675.56
44	Old Great Road	Mechanic Street	West Harness Road	Curb & Catch Basin	30	2,616	9	8,720.00
45	Old Great Road	Dead End	Mechanic Street	Runoff & Catch Basin	20	2,044	4	4,542.22
218	Old Greenville Road	Farnum Pike 104	43 Old Greenville Road	Paved Waterway	20	1,312	8	2,915.56
268	Old Greenville Road	43 Old Greenville Road	Dead End	Runoff	20	523	6	1,162.22
120	Old Oxford Road	Pound Hill Road	Dead End	Curb & Catch Basin	24	3,810	3	10,160.00
283	Old Pound Hill Road	Dead End	Pound Hill Road	Runoff	18	1,214	0	2,428.00
24	Old Sayles Hill Road	35 Old Sayles Hill Road	Chamberlain Court	Runoff & Catch Basin	18	219	4	438.00
225	Old Sayles Hill Road	Iron Mine Hill Road	35 Old Sayles Hill road	Runoff & Catch Basin	18	1,068	1	2,136.00
242	Old Sayles Hill Road	Dead End	Dead End	Runoff	14	1,075	0	1,672.22
22	Old Smithfield Road	Sayles Hill Road	Town Line	Paved Waterway	20	2,637	5	5,860.00
23	Old Smithfield Road	Sayles Hill Road	1105 Old Smithfield Road	Paved Waterway	20	1,977	4	4,393.33
263	Old Smithfield Road	1105 Old Smithfield Road	146a	Runoff	20	4,781	3	10,624.44
156	Orchard Street	Dead End	Fillion Drive	Curb & Catch Basin	22	387	3	946.00
245	Overlea Road	Mattity Road	Dead End	Runoff & Catch Basin	20	2,265	8	5,033.33
312	Pacheco Drive	Dead End	Greene Street	Curb & Catch Basin	28	743	2	2,311.56
61	Park Drive	Dead End	146a	Runoff	25	578	0	1,605.56
132	Parkview Drive	Parkview Drive	Dead End	Curb & Catch Basin	30	563	6	1,876.67
169	Parkview Drive	Rt. 5	Parkview Drive	Curb & Catch Basin	30	1,402	5	4,673.33
324	Patricia Avenue	Harkness Road	Brian Avenue	Runoff	30	940	7	3,133.33
74	Pheasant Run Road	Deerfield Drive	Cross Street	Runoff & Catch Basin	30	663	4	2,210.00

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
198	Pine Court	Woonsocket Hill Road	Dead End	Runoff & Catch Basin	22	460	5	1,124.44
131	Pine Hill Road	Pound Hill Road	Dead End	Runoff & Catch Basin	28	793	0	2,467.11
65	Pomona Street	Grange Road	Dead End	Curb & Catch Basin	26	3,622	1	10,463.56
226	Pond House Road	Rt. 104	Black Plains Road	Runoff & Catch Basin	20	4,083	2	9,073.33
13	Pound Hill Road	Old Pound Road	146A	Runoff	26	2,953	7	8,530.89
14	Pound Hill Road	Rt. 5	North Smithfield Industrial	Runoff	24	3,703	7	9,874.67
15	Pound Hill Road	1336 Pound Hill Road	Rt. 5	Runoff & Catch Basin	26	4,709	6	13,603.78
16	Pound Hill Road	1762 Pound Hill Road	1336 Pound Hill Road	Runoff & Catch Basin	24	2,733	4	7,288.00
130	Pound Hill Road	Rt. 7	1620 Pound Hill Road	Runoff & Catch Basin	20	2,987	2	6,637.78
63	Primose Lane	Black Plain Road	Dead End	Runoff	15	854	3	1,423.33
117	Rainbow Lane	Taylor Drive	Taylor Drive	Curb & Catch Basin	30	436	3	1,453.33
180	Rainville Avenue	Victory Highway	Dead End	Runoff	28	426	8	1,325.33
33	Raymond Street	146a	Dead End	Runoff	30	278	7	926.67
323	Remington Circle	Brian Avenue	Dead End	Curb & Catch Basin	30	443	6	1,476.67
241	Reservior Road	146	Town Border	Runoff	18	3,308	2	6,616.00
1	Rhodes Avenue	Mendon Road	Town Border	Runoff	24	413	0	1,101.33
170	Ridge Road	N Main Street	Greene Street	Runoff	28	980	1	3,048.89
183	Rising Sun Trail	Morning Star Drive	Tall Timber Trail	Curb & Catch Basin	28	408	4	1,269.33
271	Robert Street	Providence Street (104)	Oak Hill Avenue	Runoff	20	294	2	653.33
73	Robin Way	Deerfield Drive	Cross Road	Curb & Catch Basin	30	555	4	1,850.00
238	Rocky Hill Road	Grange Road	Town Line	Runoff & Catch Basin	20	9,336	6	20,746.67
305	Roselawn Avenue	Dead End	Maple Avenue	Runoff & Catch Basin	20	961	6	2,135.56
154	Saranac Street	Dead End	Elizabeth Avenue	Runoff	22	486	1	1,188.00
224	Sayles Hill Road	Iron Mine Hill Road	Dead End	Runoff & Catch Basin	24	4,372	7	11,658.67
234	Scott Farm Road	Dead End	Buxton Street	Curb & Catch Basin	30	611	2	2,036.67
48	Shady Lane	Cross Road	Dead End	Runoff	30	183	6	610.00
3	Sharon Pkwy	Dead End	Cynthia Drive	Runoff & Catch Basin	25	917	6	2,547.22
319	Sharon Pkwy	20 Sharon Pkwy	Mendon Road	Runoff & Catch Basin	22	842	6	2,058.22
256	Sky View Road	Dead End	Follett Street	Curb & Catch Basin	26	981	2	2,834.00
93	Smith Street	Elizabeth Avenue	Dead End	Curb & Catch Basin	24	385	0	1,026.67
165	Sorel Avenue	Esmond Road	Martha Road	Runoff	26	589	6	1,701.56
189	Steel Street	Edgecomb road	Dead End	Curb & Catch Basin	40	807	2	3,586.67
49	Stone Ridge Drive	Woonsocket Hill Road	Dead End	Curb & Catch Basin	28	734	2	2,283.56
115	Stoney Drive	Taylor Drive	Dead End	Curb & Catch Basin	30	2,707	1	9,023.33
278	Summit Avenue	146a	White Parkway	Curb & Catch Basin	26	896	6	2,588.44
184	Sunnycrest Avenue	Victory Highway	Dead End	Runoff & Catch Basin	30	1,771	4	5,903.33
97	Taber Hill Road	Taber Hill Road	Dead End	Curb & Catch Basin	30	209	3	696.67
99	Taber Hill Road	Pound Hill Road	Dead End	Curb & Catch Basin	30	1,496	3	4,986.67
300	Tall Timber Trail	Rising Sun Trail	Rising Sun Trail	Curb & Catch Basin	28	1,757	4	5,466.22

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
322	Tanglewood Road	Martha Road	Winchester Avenue	Curb & Catch Basin	30	1,091	8	3,636.67
269	Taylor Drive	Black Plain Road	Black Plain Road	Curb & Catch Basin	30	1,527	3	5,090.00
81	Thayer Court	Dead End	Village Way	Curb & Catch Basin	28	420	2	1,306.67
27	Tifft Road	Tifft Road	end of road	Curb & Catch Basin	24	371	6	989.33
28	Tifft Road	Tift Road	Tift Road	Curb & Catch Basin	24	1,069	5	2,850.67
289	Tifft Road	Black Plain Road	Black Plain Road	Curb & Catch Basin	24	2,243	0	5,981.33
251	Tom Lee Drive	Farnum Pike	Dead End	Curb & Catch Basin	30	1,324	4	4,413.33
128	Toni Circle	Mattity Road	Toni Circle	Curb & Catch Basin	26	3,032	2	8,759.11
114	Trout Brook Lane	Taylor Drive	Dead End	Curb & Catch Basin	30	633	2	2,110.00
209	Urrico Avenue	E Old Greenville Road	Dead End	Runoff	26	894	5	2,582.67
246	Valley View Drive	Dead End	Iron Mill Hill Road	Curb & Catch Basin	26	607	0	1,753.56
80	Village Way	Dead End	Providence Street (104)	Curb & Catch Basin	26	2,009	3	5,803.78
210	Vincent Avenue	Cross Street	E Old Greenville Road	Runoff & Catch Basin	20	441	5	980.00
205	Walsh Avenue	Merrimac Road	Dead End	Runoff	28	295	6	917.78
193	Warren Avenue	146a	Dead End	Runoff	25	381	1	1,058.33
79	Wedgewood Drive	Chester Street	Dead End	Paved Waterway	26	582	3	1,681.33
20	Weeks Street	Buell Avenue	Crest Road	Runoff	28	300	5	933.33
21	Weeks Street	49 Weeks Street	Buell Avenue	Runoff	28	157	2	488.44
82	Weeks Street	Village Way	49 Weeks Street	Curb & Catch Basin	28	720	1	2,240.00
91	West Street	Fountain Street	Colerick Street	Runoff & Catch Basin	20	430	0	955.56
88	Westwood Road	146a	Dead End	Curb & Catch Basin	26	1,147	3	3,313.56
203	White Parkway	146a	Dead End	Runoff	26	1,477	6	4,266.89
50	Wicks Street	Follett Street	Dead End	Runoff	12	495	4	660.00
172	Wildwood Road	Dead End	Dead End	Runoff & Catch Basin	20	464	5	1,031.11
173	Wildwood Road	Maple Avenue	6 Wildwood Road	Runoff	20	417	5	926.67
176	Wilks Avenue	Victory Highway	Dead End	Runoff	25	859	9	2,386.11
151	Willerval Avenue	Remington Circle	Harkness Road	Curb & Catch Basin	26	572	6	1,652.44
54	Williams Street	Milton Avenue	Dead End	Curb & Catch Basin	22	777	5	1,899.33
321	Winchester Avenue	Tanglewood Road	Dead End	Curb & Catch Basin	30	2,457	7	8,190.00
254	Woodland Road	Dead End	Sayles Hill Road	Runoff	22	988	7	2,415.11
286	Woodlawn Road	Lapre Road	Dead End	Runoff	25	996	6	2,766.67
10	Woonsocket Hill Road	126 Woonsocket Hill Road	146a	Paved Waterway	25	1,600	7	4,444.44
11	Woonsocket Hill Road	Mara Lane	218 Woonsocket Hill	Paved Waterway	26	2,113	6	6,104.22
252	Woonsocket Hill Road	Rt. 5	George Lee Road	Runoff	24	2,850	4	7,600.00
259	Woonsocket Hill Road	George Lee Road	Mara Lane	Runoff	24	6,638	4	17,701.33

APPENDIX D

Roadway Inventory Report
(Ordered Numerically by General Condition Rating)

JCE
JOE CASALI ENGINEERING, INC.
CIVIL · SITE DEVELOPMENT · TRANSPORTATION
DRAINAGE · WETLANDS · ISDS · TRAFFIC · FLOODPLAIN
300 POST ROAD, WARWICK, RI 02888

ROADWAY INVENTORY REPORT

(ORDERED: Condition)

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
181	Carlton Avenue	Belcher Avenue	Sunnycrest Avenue	Runoff	24	1,407	9	3,752.00
26	Grange road	Providence Pike	Rocky Hill Road	Runoff	18	1,949	9	3,898.00
39	Martha Road	Sorel Avenue	Dead End	Curb & Catch Basin	30	606	9	2,020.00
19	Mowry Avenue	35 Mowry Avenue	Arnold Avenue	Runoff	24	335	9	893.33
44	Old Great Road	Mechanic Street	West Harness Road	Curb & Catch Basin	30	2,616	9	8,720.00
176	Wilks Avenue	Victory Highway	Dead End	Runoff	25	859	9	2,386.11
195	Arnold Avenue	Woonsocket Hill Road	Milton Avenue	Runoff & Catch Basin	24	649	8	1,730.67
302	Buckley Drive	Mendon Road	Dead End	Runoff	24	1,000	8	2,666.67
42	E Harkness Road	Martha Road	Great Road	Runoff	20	1,134	8	2,520.00
55	Glen Avenue	146a	Dead End	Runoff & Catch Basin	28	349	8	1,085.78
250	Iron Mine Hill Road	Farnum Pike (104)	Sayles Hill Road	Runoff & Catch Basin	21	15,259	8	35,604.33
318	Lester Street	Rt. 5	Victory Highway	Runoff	22	675	8	1,650.00
204	Merrimac Road	146a	Dead End	Runoff	28	815	8	2,535.56
309	Obeline Drive	Dead End	Mendon Road	Runoff	25	667	8	1,852.78
218	Old Greenville Road	Farnum Pike 104	43 Old Greenville Road	Paved Waterway	20	1,312	8	2,915.56
245	Overlea Road	Mattity Road	Dead End	Runoff & Catch Basin	20	2,265	8	5,033.33
180	Rainville Avenue	Victory Highway	Dead End	Runoff	28	426	8	1,325.33
322	Tanglewood Road	Martha Road	Winchester Avenue	Curb & Catch Basin	30	1,091	8	3,636.67
192	Antaya Drive	Providence Pike (Rt. 5)	Dead End	Runoff	15	353	7	588.33
281	Circle Drive	Providence Pike	Highpoint Drive	Curb & Catch Basin	30	732	7	2,440.00
41	Great Road	Victory Highway	E Harkness Road	Runoff & Catch Basin	28	1,473	7	4,582.67
105	Highpoint Drive	Providence Pike	Dead End	Curb & Catch Basin	30	1,339	7	4,463.33
292	Lapre Road	Great Road (146a)	Dead End	Runoff & Catch Basin	21	1,148	7	2,678.67
304	Litzen & Lorraine Avenue	Maple Avenue	Dead End	Runoff & Catch Basin	26	1,341	7	3,874.00
84	Milton Avenue	146a	Williams Street	Runoff & Catch Basin	22	1,690	7	4,131.11
191	Morse Avenue	146a	Dead End	Curb & Catch Basin	24	865	7	2.78
288	Norwood Road	Westwood Road	Oakdale Road	Curb & Catch Basin	26	512	7	1,479.11
86	Odonnell Avenue	Bamford Street	Gilfillian Road	Runoff & Catch Basin	22	792	7	1,936.00
324	Patricia Avenue	Harkness Road	Brian Avenue	Runoff	30	940	7	3,133.33
13	Pound Hill Road	Old Pound Road	146A	Runoff	26	2,953	7	8,530.89
14	Pound Hill Road	Rt. 5	North Smithfield Industrial	Runoff	24	3,703	7	9,874.67
33	Raymond Street	146a	Dead End	Runoff	30	278	7	926.67
224	Sayles Hill Road	Iron Mine Hill Road	Dead End	Runoff & Catch Basin	24	4,372	7	11,658.67

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
321	Winchester Avenue	Tanglewood Road	Dead End	Curb & Catch Basin	30	2,457	7	8,190.00
254	Woodland Road	Dead End	Sayles Hill Road	Runoff	22	988	7	2,415.11
10	Woonsocket Hill Road	126 Woonsocket Hill Road	146a	Paved Waterway	25	1,600	7	4,444.44
284	Bellevue Avenue	Woonsocket Hill Road	Dead End	Runoff & Catch Basin	24	1,480	6	3,946.67
35	Black Plain Road	Pound Hill Road	Charon Drive	Runoff & Catch Basin	24	5,080	6	13,546.67
182	Branch Avenue	Great Road	Dead End	Runoff	38	528	6	2,229.33
95	Brian Avenue	Harkness Road	Willerval Avenue	Runoff & Catch Basin	26	1,455	6	4,203.33
62	Connector Road	146a	Old Great Road	Curb & Catch Basin	30	612	6	2,040.00
4	Cynthia Drive	Sharon Pkwy	Sharon Pkwy	Runoff & Catch Basin	22	640	6	1,564.44
59	Cynthia Drive	Mendon Road	Sharon Pkwy	Runoff & Catch Basin	30	1,274	6	4,246.67
308	Edward Avenue	Parkview Drive	Dead End	Runoff & Catch Basin	30	1,139	6	3,796.67
317	Esmond Road	E Harkness Road	Sorel Avenue	Runoff	26	442	6	1,276.89
162	Florence Street	146a	Dead End	Runoff	25	422	6	1,172.22
222	George Lee Road	Rt. 5	Woonsocket Hill Road	Runoff	30	427	6	1,423.33
196	Gilfillian Road	Homestead Avenue	Pound Hill Road	Runoff & Catch Basin	22	828	6	2,024.00
277	Golden Blvd.	Dead End	Greenwood Street	Runoff	24	546	6	1,456.00
240	Grange Road	Greenville Road	Rocky Hill Road	Runoff	20	3,050	6	6,777.78
70	Hill Street	Cross Road	E Old Greenville Road	Runoff	26	438	6	1,265.33
78	Indian Head Lane	Candlewood Road	Dead End	Runoff	26	145	6	418.89
157	Ironstone Street	Buxton Street	146a	Runoff	22	735	6	1,796.67
219	Jefferson Road	Old Greenville Road	Dead End	Runoff & Catch Basin	30	868	6	2,893.33
5	Kirby Lane	Dead End	Dead End	Runoff & Catch Basin	26	269	6	777.11
185	Kirby Lane	School Street	14 Kirby Lane	Runoff & Catch Basin	26	502	6	1,450.22
301	Kirby Lane	14 Kirby Lane	23 Kirby Lane	Runoff & Catch Basin	26	245	6	707.78
30	Mattity Road	Rt. 7	Black Plain Road	Curb & Catch Basin	20	5,760	6	12,800.00
287	Morse Avenue	146a	Town Line	Curb & Catch Basin	25	865	6	2,402.78
268	Old Greenville Road	43 Old Greenville Road	Dead End	Runoff	20	523	6	1,162.22
132	Parkview Drive	Parkview Drive	Dead End	Curb & Catch Basin	30	563	6	1,876.67
15	Pound Hill Road	1336 Pound Hill Road	Rt. 5	Runoff & Catch Basin	26	4,709	6	13,603.78
323	Remington Circle	Brian Avenue	Dead End	Curb & Catch Basin	30	443	6	1,476.67
238	Rocky Hill Road	Grange Road	Town Line	Runoff & Catch Basin	20	9,336	6	20,746.67
305	Roselawn Avenue	Dead End	Maple Avenue	Runoff & Catch Basin	20	961	6	2,135.56
48	Shady Lane	Cross Road	Dead End	Runoff	30	183	6	610.00
3	Sharon Pkwy	Dead End	Cynthia Drive	Runoff & Catch Basin	25	917	6	2,547.22
319	Sharon Pkwy	20 Sharon Pkwy	Mendon Road	Runoff & Catch Basin	22	842	6	2,058.22
165	Sorel Avenue	Esmond Road	Martha Road	Runoff	26	589	6	1,701.56
278	Summit Avenue	146a	White Parkway	Curb & Catch Basin	26	896	6	2,588.44
27	Tifft Road	Tifft Road	end of road	Curb & Catch Basin	24	371	6	989.33
205	Walsh Avenue	Merrimac Road	Dead End	Runoff	28	295	6	917.78

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
203	White Parkway	146a	Dead End	Runoff	26	1,477	6	4,266.89
151	Willerval Avenue	Remington Circle	Harkness Road	Curb & Catch Basin	26	572	6	1,652.44
286	Woodlawn Road	Lapre Road	Dead End	Runoff	25	996	6	2,766.67
11	Woonsocket Hill Road	Mara Lane	218 Woonsocket Hill	Paved Waterway	26	2,113	6	6,104.22
247	Beachway Road	Brookside Drive	Brookside Drive	Runoff	14	607	5	944.22
36	Black Plain Road	Taylor Drive	Pound Hill Road	Runoff	22	4,319	5	10,557.56
273	Brentwood Drive	Woonsocket Hill Road	Dead End	Curb & Catch Basin	30	3,802	5	12,673.33
152	Brian Avenue	Willerval Avenue	Dead End	Curb & Catch Basin	24	509	5	1,357.33
248	Brookside Drive	Dead End	Mattity Road	Runoff	18	2,675	5	5,350.00
186	Carlton Avenue	Dead End	Sunnycrest Avenue	Curb & Catch Basin	24	335	5	893.33
230	Cedar Forest Road	RT (5)	Dead End	Curb & Catch Basin	30	582	5	1,940.00
75	Cross Road	146A	E Old Greenville Road	Paved Waterway	24	2,247	5	5,992.00
2	Deborah Avenue	Mendon Road	Cynthia Drive	Runoff & Catch Basin	30	524	5	1,746.67
72	Deerfield Drive	E Old Greenville Road	Pheasant Run Road	Curb & Catch Basin	30	1,435	5	4,783.33
69	E Old Greenville Road	Dead End	Providence Street (104)	Runoff & Catch Basin	24	1,335	5	3,560.00
211	Fairview Avenue	Hill Street	Dead End	Runoff	24	636	5	1,696.00
166	Ferrier Street	Victory Highway (Rt. 102)	Dead End	Runoff	24	755	5	2,013.33
164	Franklin Way	St. Paul Street	Lincoln Drive	Curb & Catch Basin	30	960	5	3,200.00
194	Getchell Street	Pound Hill Road	Odonnell Avenue	Runoff	25	428	5	1,188.89
101	Graham Drive	Dead End	Providence Pike	Runoff & Catch Basin	25	1,462	5	4,061.11
89	Heroux Drive	Great Road (146a)	Dead End	Runoff	18	813	5	1,626.00
43	High View Ave	Mechanic Ave	Dead End	Curb & Catch Basin	30	618	5	2,060.00
34	Hillview Avenue	Great Road (146a)	49 Hillview Avenue	Runoff	28	617	5	1,919.56
122	Lumber Hill Road	Brookside Drive	Dead End	Runoff	16	365	5	648.89
83	Mara Lane	Dead End	Woonsocket Hill Road	Curb & Catch Basin	30	1,018	5	3,393.33
295	Meadowbrooke Drive	Great Road (146a)	Dead End	Runoff	20	1,363	5	3,028.89
197	Mulberry Street	Milton Avenue	Mowry Avenue	Runoff	24	415	5	1,106.67
232	Old Field Drive	Dead End	Buxton Street	Runoff	28	860	5	2,675.56
22	Old Smithfield Road	Sayles Hill Road	Town Line	Paved Waterway	20	2,637	5	5,860.00
169	Parkview Drive	Rt. 5	Parkview Drive	Curb & Catch Basin	30	1,402	5	4,673.33
198	Pine Court	Woonsocket Hill Road	Dead End	Runoff & Catch Basin	22	460	5	1,124.44
28	Tifft Road	Tift Road	Tift Road	Curb & Catch Basin	24	1,069	5	2,850.67
209	Urrico Avenue	E Old Greenville Road	Dead End	Runoff	26	894	5	2,582.67
210	Vincent Avenue	Cross Street	E Old Greenville Road	Runoff & Catch Basin	20	441	5	980.00
20	Weeks Street	Buell Avenue	Crest Road	Runoff	28	300	5	933.33
172	Wildwood Road	Dead End	Dead End	Runoff & Catch Basin	20	464	5	1,031.11
173	Wildwood Road	Maple Avenue	6 Wildwood Road	Runoff	20	417	5	926.67
54	Williams Street	Milton Avenue	Dead End	Curb & Catch Basin	22	777	5	1,899.33
134	Belcher Avenue	Victory Highway	Dead End	Curb & Catch Basin	26	571	4	1,649.56

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
212	Birch Hill Avenue	Robert Street	E Old Greenville Road	Runoff & Catch Basin	30	990	4	3,300.00
109	Bruce Drive	Providence Pike	Dead End	Curb & Catch Basin	30	1,669	4	5,563.33
279	Buell Avenue	146a	Greenwood Street	Runoff & Catch Basin	24	866	4	2,309.33
274	Candlewood Road	Wedgewood Drive	Dead End	Paved Waterway	26	626	4	1,808.44
233	Cider Mill Road	Buxton Street	Town Line	Runoff	20	1,885	4	4,188.89
96	Dorene Drive	Willerval Avenue	Duane Court	Curb & Catch Basin	30	1,211	4	4,036.67
150	Duane Court	Dead End	Harkness Road	Curb & Catch Basin	30	1,010	4	3,366.67
163	Flora Street	Ferrier Street	146a	Runoff	20	335	4	744.44
221	Follett Street	Woonsocket Hill Road	Farnum Pike	Curb & Catch Basin	24	3,900	4	10,400.00
124	Francis Farm Road	Indigo Farm Road	Dead End	Curb & Catch Basin	30	387	4	1,290.00
239	Franconia Drive	Leonard Drive	Leonard Drive	Curb & Catch Basin	30	1,768	4	5,893.33
178	Georgianna Avenue	Dead End	Dead End	Curb & Catch Basin	30	1,544	4	5,146.67
299	Greenwood Lane	Georgianna Avenue	Sunnycrest Avenue	Runoff	30	863	4	2,876.67
201	Greenwood Street	Buell Avenue	Crest Road	Runoff & Catch Basin	24	313	4	834.67
177	Halliwell Blvd	School Street	School Street	Runoff & Catch Basin	24	1,070	4	2,853.33
160	High View Avenue	Victory Hwy	Mechanic Street	Runoff & Catch Basin	24	1,038	4	2,768.00
316	Homecrest Avenue	Buxton Street	Victory Highway	Runoff	22	1,452	4	3,549.33
87	Homestead Avenue	146a	Dead End	Curb & Catch Basin	25	1,638	4	4,550.00
123	Indigo Farm Road	Log Road	Indigo Farm Road	Curb & Catch Basin	30	3,728	4	12,426.67
213	Leo Street	Oak Hill Avenue	Providence Street (104)	Runoff & Catch Basin	25	455	4	1,263.89
303	Lincoln Drive	Mendon Road	Dead End	Runoff & Catch Basin	30	3,651	4	12,170.00
315	McCann Street	Rt. 5	Victory Highway	Curb & Catch Basin	22	932	4	2,278.22
71	Meadow Lane	Deerfield Drive	Dead End	Curb & Catch Basin	30	266	4	886.67
158	Mechanic Street	Rt. 5	Connector Road	Curb & Catch Basin	22	3,230	4	7,895.56
94	Mountain Road	Old Great Road	Dead End	Runoff	20	477	4	1,060.00
51	North Wood Lane	Parkview Drive	Dead End	Runoff	26	207	4	598.00
215	Oak Hill Avenue	Robert Street	E Old Greenville Road	Runoff & Catch Basin	26	484	4	1,398.22
45	Old Great Road	Dead End	Mechanic Street	Runoff & Catch Basin	20	2,044	4	4,542.22
24	Old Sayles Hill Road	35 Old Sayles Hill Road	Chamberlain Court	Runoff & Catch Basin	18	219	4	438.00
23	Old Smithfield Road	Sayles Hill Road	1105 Old Smithfield Road	Paved Waterway	20	1,977	4	4,393.33
74	Pheasant Run Road	Deerfield Drive	Cross Street	Runoff & Catch Basin	30	663	4	2,210.00
16	Pound Hill Road	1762 Pound Hill Road	1336 Pound Hill Road	Runoff & Catch Basin	24	2,733	4	7,288.00
183	Rising Sun Trail	Morning Star Drive	Tall Timber Trail	Curb & Catch Basin	28	408	4	1,269.33
73	Robin Way	Deerfield Drive	Cross Road	Curb & Catch Basin	30	555	4	1,850.00
184	Sunnycrest Avenue	Victory Highway	Dead End	Runoff & Catch Basin	30	1,771	4	5,903.33
300	Tall Timber Trail	Rising Sun Trail	Rising Sun Trail	Curb & Catch Basin	28	1,757	4	5,466.22
251	Tom Lee Drive	Farnum Pike	Dead End	Curb & Catch Basin	30	1,324	4	4,413.33
50	Wicks Street	Follett Street	Dead End	Runoff	12	495	4	660.00
252	Woonsocket Hill Road	Rt. 5	George Lee Road	Runoff	24	2,850	4	7,600.00

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
259	Woonsocket Hill Road	George Lee Road	Mara Lane	Runoff	24	6,638	4	17,701.33
76	Annette Avenue	Dead End	Girard Blvd	Runoff	22	310	3	757.78
85	Bamford Street	Odonnell Avenue	Homestead Avenue	Runoff	22	296	3	723.56
37	Black Plain Road	Mattity Road	Taylor Drive	Runoff & Catch Basin	20	3,996	3	8,880.00
46	Buxton Street	Buxton Street	Town Line	Runoff & Catch Basin	22	2,113	3	5,165.11
320	Carpenter Street	Florence Street	Victory Highway	Runoff & Catch Basin	22	464	3	1,134.22
297	Cherrybrook Avenue	Great Road (146a)	Great Road (146a)	Runoff	25	830	3	2,305.56
100	Christiansen Way	Dead End	Steele Street	Curb & Catch Basin	30	638	3	2,126.67
187	Church Street	Providence Pike	Dead End	Curb & Catch Basin	30	1,169	3	3,896.67
53	Comstock Road	Providence Pike	Dead End	Runoff	20	1,644	3	3,653.33
98	Comstock Road	Pound Hill Road	Dead End	Runoff	16	462	3	821.33
285	Eaton Street	Victory Highway (Rt. 102)	Dead End	Runoff	26	997	3	2,880.22
155	Filion Drive	Mechanic Street	Dead End	Curb & Catch Basin	24	491	3	1,309.33
118	Forest Hill Drive	Old Oxford Road	Old Oxford Road	Curb & Catch Basin	28	2,197	3	6,835.11
18	Freitas Lane	Maple Avenue	Dead End	Paved Waterway	20	513	3	1,140.00
314	Greene Street	Victory Highway	School Street	Curb & Catch Basin	22	2,785	3	6,807.78
138	Harkness Road	Old Great Road	Dead End	Runoff & Catch Basin	22	646	3	1,579.11
290	Hillview Avenue	49 Hillview Avenue	Lapre Road	Runoff	28	496	3	1,543.11
77	John Avenue	Dead End	Dead End	Runoff	24	395	3	1,053.33
231	Karen Marie Drive	Indigo Farm Road	Dead End	Curb & Catch Basin	30	315	3	1,050.00
275	Knollridge Drive	Woonsocket Hill Road	Dead End	Curb & Catch Basin	26	3,580	3	10,342.22
125	Leonard Drive	Dead End	Log Road	Curb & Catch Basin	30	2,902	3	9,673.33
31	Mattity Road	Brookside Drive	Rt. 7	Curb & Catch Basin	24	1,454	3	3,877.33
298	Morning Star Drive	Victory Highway	Rising Sun Trail	Curb & Catch Basin	30	875	3	2,916.67
103	Myrick Drive	Church Street	Dead End	Runoff	26	515	3	1,487.78
60	Oakdale Road	Norwood Road	Westwood Road	Runoff	26	324	3	936.00
120	Old Oxford Road	Pound Hill Road	Dead End	Curb & Catch Basin	24	3,810	3	10,160.00
263	Old Smithfield Road	1105 Old Smithfield Road	146a	Runoff	20	4,781	3	10,624.44
156	Orchard Street	Dead End	Filion Drive	Curb & Catch Basin	22	387	3	946.00
63	Primose Lane	Black Plain Road	Dead End	Runoff	15	854	3	1,423.33
117	Rainbow Lane	Taylor Drive	Taylor Drive	Curb & Catch Basin	30	436	3	1,453.33
97	Taber Hill Road	Taber Hill Road	Dead End	Curb & Catch Basin	30	209	3	696.67
99	Taber Hill Road	Pound Hill Road	Dead End	Curb & Catch Basin	30	1,496	3	4,986.67
269	Taylor Drive	Black Plain Road	Black Plain Road	Curb & Catch Basin	30	1,527	3	5,090.00
80	Village Way	Dead End	Providence Street (104)	Curb & Catch Basin	26	2,009	3	5,803.78
79	Wedgewood Drive	Chester Street	Dead End	Paved Waterway	26	582	3	1,681.33
88	Westwood Road	146a	Dead End	Curb & Catch Basin	26	1,147	3	3,313.56
174	Adams Circle	Lincoln Drive	Dead End	Runoff	30	127	2	423.33
127	Angela Way	Toni Circle	Dead End	Curb & Catch Basin	28	182	2	566.22

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
255	Bearskin Farm Road	Mattity Road	Dead End	Runoff	14	1,438	2	2,236.89
102	Charon Drive	Providence Pike	Church Street	Runoff	30	1,054	2	3,513.33
106	Chelsea Drive	Dead End	Black Plan Road	Curb & Catch Basin	30	808	2	2,693.33
276	Chester Street	Walsh Avenue	Wedgewood Drive	Runoff	22	858	2	2,097.33
126	Christina Way	Toni Circle	Dead End	Curb & Catch Basin	28	431	2	1,340.89
207	Girard Blvd	Dead End	Providence Street (104)	Runoff	24	744	2	1,984.00
66	Hollow Road	Follett Street	Dead End	Runoff	20	322	2	715.56
107	Jennifer Lane	Dead End	Chelsea Drive	Curb & Catch Basin	30	1,301	2	4,336.67
190	Julie Avenue	Victory Highway (Rt. 102)	Dead End	Runoff & Catch Basin	30	337	2	1,123.33
223	Keene Street	Follett Street	Dead End	Runoff	22	609	2	1,488.67
104	Laurel Lane	Black Plains Road	Laurel Lane	Curb & Catch Basin	20	281	2	624.44
188	Maple Avenue	School Street	Victory Highway	Runoff & Catch Basin	28	2,391	2	7,438.67
7	Mendon Road	298 Mendon Road	St. Paul Street	Curb & Catch Basin	24	2,694	2	7,184.00
133	Mt. Pleasant Road	Victory Highway (Rt. 102)	Town Line	Runoff	24	1,248	2	3,328.00
121	Narragansett Drive	Brookside Drive	Brookside Drive	Curb & Catch Basin	30	1,129	2	3,763.33
291	Oaklawn Road	Lapre Road	Hillview Avenue	Runoff	28	855	2	2,660.00
312	Pacheco Drive	Dead End	Greene Street	Curb & Catch Basin	28	743	2	2,311.56
226	Pond House Road	Rt. 104	Black Plains Road	Runoff & Catch Basin	20	4,083	2	9,073.33
130	Pound Hill Road	Rt. 7	1620 Pound Hill Road	Runoff & Catch Basin	20	2,987	2	6,637.78
241	Reservior Road	146	Town Border	Runoff	18	3,308	2	6,616.00
271	Robert Street	Providence Street (104)	Oak Hill Avenue	Runoff	20	294	2	653.33
234	Scott Farm Road	Dead End	Buxton Street	Curb & Catch Basin	30	611	2	2,036.67
256	Sky View Road	Dead End	Follett Street	Curb & Catch Basin	26	981	2	2,834.00
189	Steel Street	Edgecomb road	Dead End	Curb & Catch Basin	40	807	2	3,586.67
49	Stone Ridge Drive	Woonsocket Hill Road	Dead End	Curb & Catch Basin	28	734	2	2,283.56
81	Thayer Court	Dead End	Village Way	Curb & Catch Basin	28	420	2	1,306.67
128	Toni Circle	Mattity Road	Toni Circle	Curb & Catch Basin	26	3,032	2	8,759.11
114	Trout Brook Lane	Taylor Drive	Dead End	Curb & Catch Basin	30	633	2	2,110.00
21	Weeks Street	49 Weeks Street	Buell Avenue	Runoff	28	157	2	488.44
38	Black Plain Road	Farnum Pike	Mattity Road	Runoff & Catch Basin	24	3,759	1	10,024.00
56	Bourget Court	Rt. 5	Dead End	Curb & Catch Basin	28	1,657	1	5,155.11
325	Canal Street	Town Line	Town Line	Runoff & Catch Basin	22	2,264	1	5,534.22
108	Courtney Drive	Black Plain Road	Jennifer Lane	Curb & Catch Basin	30	554	1	1,846.67
200	Crest Road	146a	Greenwood Street	Runoff	22	782	1	1,911.56
179	Northgate Road	Tall Timber Trail	Victory Highway	Runoff	28	349	1	1,085.78
225	Old Sayles Hill Road	Iron Mine Hill Road	35 Old Sayles Hill road	Runoff & Catch Basin	18	1,068	1	2,136.00
65	Pomona Street	Grange Road	Dead End	Curb & Catch Basin	26	3,622	1	10,463.56
170	Ridge Road	N Main Street	Greene Street	Runoff	28	980	1	3,048.89
154	Saranac Street	Dead End	Elizabeth Avenue	Runoff	22	486	1	1,188.00

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
115	Stoney Drive	Taylor Drive	Dead End	Curb & Catch Basin	30	2,707	1	9,023.33
193	Warren Avenue	146a	Dead End	Runoff	25	381	1	1,058.33
82	Weeks Street	Village Way	49 Weeks Street	Curb & Catch Basin	28	720	1	2,240.00
58	Briden Street	Elizabeth Avenue	Dead End	Curb & Catch Basin	24	356	0	949.33
47	Buxton Street	146a	Buxton Street	Runoff & Catch Basin	22	3,524	0	8,614.22
67	Chamberlain Court	Old Sayles Hill Road	Dead End	Curb & Catch Basin	30	611	0	2,036.67
311	Country Way	Ridge Road	Greene Street	Curb & Catch Basin	28	1,503	0	4,676.00
119	Cristy Court	Old Oxford Road	Dead End	Curb & Catch Basin	28	863	0	2,684.89
208	Cross Street	Providence Street (104)	Dead End	Runoff & Catch Basin	20	1,083	0	2,406.67
64	Denny Court	Rocky Hill Road	Dead End	Curb & Catch Basin	26	854	0	2,467.11
129	Doire Court	Pound Hill Road	Dead End	Curb & Catch Basin	30	657	0	2,190.00
0	Elizabeth Avenue	11 Elizabeth Avenue	Dead End	Runoff & Catch Basin	22	1,141	0	2,789.11
139	Elizabeth Avenue	St. Paul Street	11 Elizabeth Avenue	Runoff & Catch Basin	20	962	0	2,137.78
92	Fountain Street	Mendon Road	Graves Avenue	Curb & Catch Basin	20	927	0	2,060.00
112	Hart Pond Drive	3 Hart Pond Drive	Pound Hill Road	Curb & Catch Basin	30	144	0	480.00
113	Hart Pond Drive	Dead End	3 Hart Pond Drive	Curb & Catch Basin	30	466	0	1,553.33
110	Jeanne Court	Black Plain Road	Dead End	Curb & Catch Basin	26	1,650	0	4,766.67
29	Laurel Lane (Lower Half)	Laurel Lane	Dead End	Curb & Catch Basin	20	408	0	906.67
235	Log Road	Town Line	Town Line	Runoff & Catch Basin	26	4,390	0	12,682.22
32	Mattity Road	Town Line	Brookside Drive	Runoff & Catch Basin	22	3,655	0	8,934.44
8	Mendon Road	409 Mendon Road	298 Mendon Road	Curb & Catch Basin	24	1,145	0	3,053.33
9	Mendon Road	146a	409 Mendon Road	Curb & Catch Basin	28	2,832	0	8,810.67
149	Middle Street	St. Paul Street	Dead End	Runoff & Catch Basin	24	794	0	2,117.33
143	Mill Street	Canal Street	Town Line	Runoff & Catch Basin	30	340	0	1,133.33
280	Mowry Avenue	Dead End	35 Mowry Avenue	Runoff	22	455	0	1,112.22
261	Mowry Road	Town Line	Rt (7)	Runoff & Catch Basin	18	416	0	832.00
283	Old Pound Hill Road	Dead End	Pound Hill Road	Runoff	18	1,214	0	2,428.00
242	Old Sayles Hill Road	Dead End	Dead End	Runoff	14	1,075	0	1,672.22
61	Park Drive	Dead End	146a	Runoff	25	578	0	1,605.56
131	Pine Hill Road	Pound Hill Road	Dead End	Runoff & Catch Basin	28	793	0	2,467.11
1	Rhodes Avenue	Mendon Road	Town Border	Runoff	24	413	0	1,101.33
93	Smith Street	Elizabeth Avenue	Dead End	Curb & Catch Basin	24	385	0	1,026.67
289	Tifft Road	Black Plain Road	Black Plain Road	Curb & Catch Basin	24	2,243	0	5,981.33
246	Valley View Drive	Dead End	Iron Mill Hill Road	Curb & Catch Basin	26	607	0	1,753.56
91	West Street	Fountain Street	Colerick Street	Runoff & Catch Basin	20	430	0	955.56

APPENDIX E

Recommended Treatment & Cost Report
(Ordered Numerically by General Condition Rating)

RECOMMENDED TREATMENT

(ORDER: Condition)

JCE
JOE CASALI ENGINEERING, INC.
CIVIL · SITE DEVELOPMENT · TRANSPORTATION
DRAINAGE · WETLANDS · ISDS · TRAFFIC · FLOODPLAIN
300 POST ROAD, WARWICK, RI 02888

Segment Id	Road Name	From Address	To Address	Condition	Treatment	Area (Sq Yd)	Cost ($)
181	Carlton Avenue	Belcher Avenue	Sunnycrest Avenue	9	HMA (leveling) & Overlay (<2 in.)	3,752.00	46,900.00
26	Grange Road	Providence Pike	Rocky Hill Road	9	Base Repair\Pavement Replacement	3,898.00	72,113.00
39	Martha Road	Sorel Avenue	Dead End	9	Base/Pavement Replacement	2,020.00	60,600.00
19	Mowry Avenue	35 Mowry Avenue	Arnold Avenue	9	Base/Pavement Replacement	893.33	26,800.00
44	Old Great Road	Mechanic Street	West Harness Road	9	Base Repair\Pavement Replacement	8,720.00	161,320.00
176	Wilks Avenue	Victory Highway	Dead End	9	Base/Pavement Replacement	2,386.11	71,583.33
195	Arnold Avenue	Woonsocket Hill Road	Milton Avenue	8	Base Repair\Pavement Replacement	1,730.67	32,017.33
302	Buckley Drive	Mendon Road	Dead End	8	Base/Pavement Replacement	2,666.67	80,000.00
42	E Harkness Road	Martha Road	Great Road	8	Rotomill & Overlay (<2 in)	2,520.00	35,280.00
55	Glen Avenue	146a	Dead End	8	HMA (leveling) & Overlay (<2 in.)	1,085.78	13,572.22
250	Iron Mine Hill Road	Farnum Pike (104)	Sayles Hill Road	8	HMA (leveling) & Overlay (<2 in.)	35,604.33	445,054.17
318	Lester Street	Rt. 5	Victory Highway	8	Base/Pavement Replacement	1,650.00	49,500.00
204	Merrimac Road	146a	Dead End	8	Base Repair\Pavement Replacement	2,535.56	46,907.78
309	Obeline Drive	Dead End	Mendon Road	8	Base/Pavement Replacement	1,852.78	55,583.33
218	Old Greenville Road	Farnum Pike 104	43 Old Greenville Road	8	Base Repair\Pavement Replacement	2,915.56	53,937.78
245	Overlea Road	Mattity Road	Dead End	8	HMA (leveling) & Overlay (<2 in.)	5,033.33	62,916.67
180	Rainville Avenue	Victory Highway	Dead End	8	Base/Pavement Replacement	1,325.33	39,760.00
322	Tanglewood Road	Martha Road	Winchester Avenue	8	Rotomill & Overlay (<2 in)	3,636.67	50,913.33
192	Antaya Drive	Providence Pike (Rt. 5)	Dead End	7	Thin Hot Mix Overlay (<2 in)	588.33	6,765.83
281	Circle Drive	Providence Pike	Highpoint Drive	7	Rotomill & Overlay (<2 in)	2,440.00	34,160.00
41	Great Road	Victory Highway	E Harkness Road	7	Thin Hot Mix Overlay (<2 in)	4,582.67	52,700.67
105	Highpoint Drive	Providence Pike	Dead End	7	Base Repair\Pavement Replacement	4,463.33	82,571.67
292	Lapre Road	Great Road (146a)	Dead End	7	Base Repair\Pavement Replacement	2,678.67	49,555.33
304	Litzen & Lorraine Avenue	Maple Avenue	Dead End	7	HMA (leveling) & Overlay (<2 in.)	3,874.00	48,425.00
84	Milton Avenue	146a	Williams Street	7	Rotomill & Overlay (<2 in)	4,131.11	57,835.56
191	Morse Avenue	146a	Dead End	7	Base Repair\Pavement Replacement	2,306.67	42,673.40
288	Norwood Road	Westwood Road	Oakdale Road	7	Base Repair\Pavement Replacement	1,479.11	27,363.56
86	Odonnell Avenue	Bamford Street	Gilfillian Road	7	Rotomill & Overlay (<2 in)	1,936.00	27,104.00
324	Patricia Avenue	Harkness Road	Brian Avenue	7	Base Repair\Pavement Replacement	3,133.33	57,966.67
13	Pound Hill Road	Old Pound Road	146A	7	HMA (leveling) & Overlay (<2 in.)	8,530.89	106,636.11
14	Pound Hill Road	Rt. 5	North Smithfield	7	Rotomill & Overlay (<2 in)	9,874.67	138,245.33
33	Raymond Street	146a	Dead End	7	Thin Hot Mix Overlay (<2 in)	926.67	10,656.67
224	Sayles Hill Road	Iron Mine Hill Road	Dead End	7	HMA (leveling) & Overlay (<2 in.)	11,658.67	145,733.33
321	Winchester Avenue	Tanglewood Road	Dead End	7	Rotomill & Overlay (<2 in)	8,190.00	114,660.00
254	Woodland Road	Dead End	Sayles Hill Road	7	Thin Hot Mix Overlay (<2 in)	2,415.11	27,773.78

Segment Id	Road Name	From Address	To Address	Condition	Treatment	Area (Sq Yd)	Cost ($)
10	Woonsocket Hill Road	126 Woonsocket Hill	146a	7	Base Repair\Pavement Replacement	4,444.44	82,222.14
284	Bellevue Avenue	Woonsocket Hill Road	Dead End	6	Thin Hot Mix Overlay (<2 in)	3,946.67	45,386.67
35	Black Plain Road	Pound Hill Road	Charon Drive	6	HMA (leveling) & Overlay (<2 in.)	13,546.67	169,333.33
182	Black Plain Road	Great Road	Dead End	6	HMA (leveling) & Overlay (<2 in.)	2,229.33	27,866.67
95	Brian Avenue	Harkness Road	Willerval Avenue	6	Rotomill & Overlay (<2 in)	4,203.33	58,846.67
62	Connector Road	146a	Old Great Road	6	HMA (leveling) & Overlay (<2 in.)	2,040.00	25,500.00
59	Cynthia Drive	Mendon Road	Sharon Pkwy	6	HMA (leveling) & Overlay (<2 in.)	4,246.67	53,083.33
4	Cynthia Drive	Sharon Pkwy	Sharon Pkwy	6	Thin Hot Mix Overlay (<2 in)	1,564.44	17,991.11
308	Edward Avenue	Parkview Drive	Dead End	6	HMA (leveling) & Overlay (<2 in.)	3,796.67	47,458.33
317	Esmond Road	E Harkness Road	Sorel Avenue	6	Thin Hot Mix Overlay (<2 in)	1,276.89	14,684.22
162	Florence Street	146a	Dead End	6	HMA (leveling) & Overlay (<2 in.)	1,172.22	14,652.78
222	George Lee Road	Rt. 5	Woonsocket Hill Road	6	Thin Hot Mix Overlay (<2 in)	1,423.33	16,368.33
196	Gilfillan Road	Homestead Avenue	Pound Hill Road	6	Rotomill & Overlay (<2 in)	2,024.00	28,336.00
277	Golden Blvd.	Dead End	Greenwood Street	6	Thin Hot Mix Overlay (<2 in)	1,456.00	16,744.00
240	Grange Road	Greenville Road	Rocky Hill Road	6	Thin Hot Mix Overlay (<2 in)	6,777.78	77,944.44
70	Hill Street	Cross Road	E Old Greenville Road	6	Base Repair\Pavement Replacement	1,265.33	23,408.67
78	Indian Head Lane	Candlewood Road	Dead End	6	HMA (leveling) & Overlay (<2 in.)	418.89	5,236.11
157	Ironstone Street	Buxton Street	146a	6	HMA (leveling) & Overlay (<2 in.)	1,796.67	22,458.33
219	Jefferson Road	Old Greenville Road	Dead End	6	HMA (leveling) & Overlay (<2 in.)	2,893.33	36,166.67
5	Kirby Lane	Dead End	Dead End	6	HMA (leveling) & Overlay (<2 in.)	777.11	9,713.89
301	Kirby Lane	14 Kirby Lane	23 Kirby Lane	6	HMA (leveling) & Overlay (<2 in.)	707.78	8,847.22
185	Kirby Lane	School Street	14 Kirby Lane	6	Rotomill & Overlay (<2 in)	1,450.22	20,303.11
30	Mattity Road	Rt. 7	Black Plain Road	6	Crack Seal	12,800.00	25,600.00
287	Morse Avenue	146a	Town Line	6	HMA (leveling) & Overlay (<2 in.)	2,402.78	30,034.72
268	Old Greenville Road	43 Old Greenville Road	Dead End	6	HMA (leveling) & Overlay (<2 in.)	1,162.22	14,527.78
132	Parkview Drive	Parkview Drive	Dead End	6	Thin Hot Mix Overlay (<2 in)	1,876.67	21,581.67
15	Pound Hill Road	1336 Pound Hill Road	Rt. 5	6	Base/Pavement Replacement	13,603.78	408,113.33
323	Remington Circle	Brian Avenue	Dead End	6	Rotomill & Overlay (<2 in)	1,476.67	20,673.33
238	Rocky Hill Road	Grange Road	Town Line	6	Thin Hot Mix Overlay (<2 in)	20,746.67	238,586.67
305	Roselawn Avenue	Dead End	Maple Avenue	6	Base Repair\Pavement Replacement	2,135.56	39,507.78
48	Shady Lane	Cross Road	Dead End	6	Rotomill & Overlay (<2 in)	610.00	8,540.00
319	Sharon Pkwy	20 Sharon Pkwy	Mendon Road	6	HMA (leveling) & Overlay (<2 in.)	2,058.22	25,727.78
3	Sharon Pkwy	Dead End	Cynthia Drive	6	Rotomill & Overlay (<2 in)	2,547.22	35,661.11
165	Sorel Avenue	Esmond Road	Martha Road	6	Thin Hot Mix Overlay (<2 in)	1,701.56	19,567.89
278	Summit Avenue	146a	White Parkway	6	Thin Hot Mix Overlay (<2 in)	2,588.44	29,767.11
27	Tifft Road	Tifft Road	End of road	6	Thin Hot Mix Overlay (<2 in)	989.33	11,377.33
205	Walsh Avenue	Merrimac Road	Dead End	6	HMA (leveling) & Overlay (<2 in.)	917.78	11,472.22
203	White Parkway	146a	Dead End	6	Rotomill & Overlay (<2 in)	4,266.89	59,736.44
151	Willerval Avenue	Remington Circle	Harkness Road	6	Rotomill & Overlay (<2 in)	1,652.44	23,134.22
286	Woodlawn Road	Lapre Road	Dead End	6	Base Repair\Pavement Replacement	2,766.67	51,183.33
11	Woonsocket Hill Road	Mara Lane	218 Woonsocket Hill	6	Thin Hot Mix Overlay (<2 in)	6,104.22	70,198.56

Segment Id	Road Name	From Address	To Address	Condition	Treatment	Area (Sq Yd)	Cost ($)
247	Beachway Road	Brookside Drive	Brookside Drive	5	Thin Hot Mix Overlay (<2 in)	944.22	10,858.56
36	Black Plain Road	Taylor Drive	Pound Hill Road	5	Thin Hot Mix Overlay (<2 in)	10,557.56	121,411.89
273	Brentwood Drive	Woonsocket Hill Road	Dead End	5	Thin Hot Mix Overlay (<2 in)	12,673.33	145,743.33
152	Brian Avenue	Willerval Avenue	Dead End	5	Rotomill & Overlay (<2 in)	1,357.33	19,002.67
248	Brookside Drive	Dead End	Mattity Road	5	Thin Hot Mix Overlay (<2 in)	5,350.00	61,525.00
186	Carlton Avenue	Dead End	Sunnycrest Avenue	5	Thin Hot Mix Overlay (<2 in)	893.33	10,273.33
230	Cedar Forest Road	RT (5)	Dead End	5	Crack Seal	1,940.00	3,880.00
75	Cross Road	146A	E Old Greenville Road	5	Rotomill & Overlay (<2 in)	5,992.00	83,888.00
2	Deborah Avenue	Mendon Road	Cynthia Drive	5	HMA (leveling) & Overlay (<2 in.)	1,746.67	21,833.33
72	Deerfield Drive	E Old Greenville Road	Pheasant Run Road	5	Thin Hot Mix Overlay (<2 in)	4,783.33	55,008.33
69	E Old Greenville Road	Dead End	Providence Street (104)	5	Thin Hot Mix Overlay (<2 in)	3,560.00	40,940.00
211	Fairview Avenue	Hill Street	Dead End	5	Thin Hot Mix Overlay (<2 in)	1,696.00	19,504.00
166	Ferrier Street	Victory Highway (Rt. 102)	Dead End	5	Rotomill & Overlay (<2 in)	2,013.33	28,186.67
164	Franklin Way	St. Paul Street	Lincoln Drive	5	Rotomill & Overlay (<2 in)	3,200.00	44,800.00
194	Getchell Street	Pound Hill Road	Odonnell Avenue	5	Rotomill & Overlay (<2 in)	1,188.89	16,644.44
101	Graham Drive	Dead End	Providence Pike	5	Rotomill & Overlay (<2 in)	4,061.11	56,855.56
89	Heroux Drive	Great Road (146a)	Dead End	5	Thin Hot Mix Overlay (<2 in)	1,626.00	18,699.00
43	High View Ave	Mechanic Ave	Dead End	5	Crack Seal	2,060.00	4,120.00
34	Hillview Avenue	Great Road (146a)	49 Hillview Avenue	5	Thin Hot Mix Overlay (<2 in)	1,919.56	22,074.89
122	Lumber Hill Road	Brookside Drive	Dead End	5	Rotomill & Overlay (<2 in)	648.89	9,084.44
83	Mara Lane	Dead End	Woonsocket Hill Road	5	Thin Hot Mix Overlay (<2 in)	3,393.33	39,023.33
295	Meadowbrooke Drive	Great Road (146a)	Dead End	5	Thin Hot Mix Overlay (<2 in)	3,028.89	34,832.22
197	Mulberry Street	Milton Avenue	Mowry Avenue	5	Base Repair\Pavement Replacement	1,106.67	20,473.33
232	Old Field Drive	Dead End	Buxton Street	5	Rotomill & Overlay (<2 in)	2,675.56	37,457.78
22	Old Smithfield Road	Sayles Hill Road	Town Line	5	HMA (leveling) & Overlay (<2 in.)	5,860.00	73,250.00
169	Parkview Drive	Rt. 5	Parkview Drive	5	Thin Hot Mix Overlay (<2 in)	4,673.33	53,743.33
198	Pine Court	Woonsocket Hill Road	Dead End	5	Thin Hot Mix Overlay (<2 in)	1,124.44	12,931.11
28	Tifft Road	Tift Road	Tift Road	5	No Maintenance	2,850.67	0.00
209	Urrico Avenue	E Old Greenville Road	Dead End	5	Thin Hot Mix Overlay (<2 in)	2,582.67	29,700.67
210	Vincent Avenue	Cross Street	E Old Greenville Road	5	Thin Hot Mix Overlay (<2 in)	980.00	11,270.00
20	Weeks Street	Buell Avenue	Crest Road	5	Crack Seal	933.33	1,866.67
172	Wildwood Road	Dead End	Dead End	5	Thin Hot Mix Overlay (<2 in)	1,031.11	11,857.78
173	Wildwood Road	Maple Avenue	6 Wildwood Road	5	Thin Hot Mix Overlay (<2 in)	926.67	10,656.67
54	Williams Street	Milton Avenue	Dead End	5	Thin Hot Mix Overlay (<2 in)	1,899.33	21,842.33
134	Belcher Avenue	Victory Highway	Dead End	4	Thin Hot Mix Overlay (<2 in)	1,649.56	18,969.89
212	Birch Hill Avenue	Robert Street	E Old Greenville Road	4	Rotomill & Overlay (<2 in)	3,300.00	46,200.00
109	Bruce Drive	Providence Pike	Dead End	4	Thin Hot Mix Overlay (<2 in)	5,563.33	63,978.33
279	Buell Avenue	146a	Greenwood Street	4	Thin Hot Mix Overlay (<2 in)	2,309.33	26,557.33
274	Candlewood Road	Wedgewood Drive	Dead End	4	HMA (leveling) & Overlay (<2 in.)	1,808.44	22,605.56
233	Cider Mill Road	Buxton Street	Town Line	4	Thin Hot Mix Overlay (<2 in)	4,188.89	48,172.22
96	Dorene Drive	Willerval Avenue	Duane Court	4	Rotomill & Overlay (<2 in)	4,036.67	56,513.33

Segment Id	Road Name	From Address	To Address	Condition	Treatment	Area (Sq Yd)	Cost ($)
150	Duane Court	Dead End	Harkness Road	4	Rotomill & Overlay (<2 in)	3,366.67	47,133.33
163	Flora Street	Ferrier Street	146a	4	Rotomill & Overlay (<2 in)	744.44	10,422.22
221	Follett Street	Woonsocket Hill Road	Farnum Pike	4	Thin Hot Mix Overlay (<2 in)	10,400.00	119,600.00
124	Francis Farm Road	Indigo Farm Road	Dead End	4	Thin Hot Mix Overlay (<2 in)	1,290.00	14,835.00
239	Franconia Drive	Leonard Drive	Leonard Drive	4	Crack Seal	5,893.33	11,786.67
178	Georgianna Avenue	Dead End	Dead End	4	Thin Hot Mix Overlay (<2 in)	5,146.67	59,186.67
299	Greenwood Lane	Georgianna Avenue	Sunnycrest Avenue	4	Thin Hot Mix Overlay (<2 in)	2,876.67	33,081.67
201	Greenwood Street	Buell Avenue	Crest Road	4	No Maintenance	834.67	0.00
177	Halliwell Blvd	School Street	School Street	4	Rotomill & Overlay (<2 in)	2,853.33	39,946.67
160	High View Avenue	Victory Hwy	Mechanic Street	4	No Maintenance	2,768.00	0.00
316	Homecrest Avenue	Buxton Street	Victory Highway	4	Thin Hot Mix Overlay (<2 in)	3,549.33	40,817.33
87	Homestead Avenue	146a	Dead End	4	Thin Hot Mix Overlay (<2 in)	4,550.00	52,325.00
123	Indigo Farm Road	Log Road	Indigo Farm Road	4	Thin Hot Mix Overlay (<2 in)	12,426.67	142,906.67
213	Leo Street	Oak Hill Avenue	Providence Street (104)	4	Rotomill & Overlay (<2 in)	1,263.89	17,694.44
303	Lincoln Drive	Mendon Road	Dead End	4	Rotomill & Overlay (<2 in)	12,170.00	170,380.00
315	McCann Street	Rt. 5	Victory Highway	4	Thin Hot Mix Overlay (<2 in)	2,278.22	26,199.56
71	Meadow Lane	Deerfield Drive	Dead End	4	Thin Hot Mix Overlay (<2 in)	886.67	10,196.67
158	Mechanic Street	Rt. 5	Connector Road	4	Rotomill & Overlay (<2 in)	7,895.56	110,537.78
94	Mountain Road	Old Great Road	Dead End	4	Thin Hot Mix Overlay (<2 in)	1,060.00	12,190.00
51	North Wood Lane	Parkview Drive	Dead End	4	Thin Hot Mix Overlay (<2 in)	598.00	6,877.00
215	Oak Hill Avenue	Robert Street	E Old Greenville Road	4	Rotomill & Overlay (<2 in)	1,398.22	19,575.11
45	Old Great Road	Dead End	Mechanic Street	4	Thin Hot Mix Overlay (<2 in)	4,542.22	52,235.56
24	Old Sayles Hill Road	35 Old Sayles Hill Road	Chamberlain Court	4	No Maintenance	438.00	0.00
23	Old Smithfield Road	Sayles Hill Road	1105 Old Smithfield Road	4	Thin Hot Mix Overlay (<2 in)	4,393.33	50,523.33
74	Pheasant Run Road	Deerfield Drive	Cross Street	4	Thin Hot Mix Overlay (<2 in)	2,210.00	25,415.00
16	Pound Hill Road	1762 Pound Hill Road	1336 Pound Hill Road	4	Crack Seal	7,288.00	14,576.00
183	Rising Sun Trail	Morning Star Drive	Tall Timber Trail	4	Crack Seal	1,269.33	2,538.67
73	Robin Way	Deerfield Drive	Cross Road	4	Thin Hot Mix Overlay (<2 in)	1,850.00	21,275.00
184	Sunnycrest Avenue	Victory Highway	Dead End	4	HMA (leveling) & Overlay (<2 in.)	5,903.33	73,791.67
300	Tall Timber Trail	Rising Sun Trail	Rising Sun Trail	4	Rotomill & Overlay (<2 in)	5,466.22	76,527.11
251	Tom Lee Drive	Farnum Pike	Dead End	4	Crack Seal	4,413.33	8,826.67
50	Wicks Street	Follett Street	Dead End	4	Thin Hot Mix Overlay (<2 in)	660.00	7,590.00
252	Woonsocket Hill Road	Rt. 5	George Lee Road	4	Thin Hot Mix Overlay (<2 in)	7,600.00	87,400.00
259	Woonsocket Hill Road	George Lee Road	Mara Lane	4	Thin Hot Mix Overlay (<2 in)	17,701.33	203,565.33
76	Annette Avenue	Dead End	Girard Blvd	3	HMA (leveling) & Overlay (<2 in.)	757.78	9,472.22
85	Bamford Street	Odonnell Avenue	Homestead Avenue	3	No Maintenance	723.56	0.00
37	Black Plain Road	Mattity Road	Taylor Drive	3	HMA (leveling) & Overlay (<2 in.)	8,880.00	111,000.00
46	Buxton Street	Buxton Street	Town Line	3	Rotomill & Overlay (<2 in)	5,165.11	72,311.56
320	Carpenter Street	Florence Street	Victory Highway	3	Thin Hot Mix Overlay (<2 in)	1,134.22	13,043.56
297	Cherrybrook Avenue	Great Road (146a)	Great Road (146a)	3	Crack Seal	2,305.56	4,611.11
100	Christiansen Way	Dead End	Steele Street	3	Rotomill & Overlay (<2 in)	2,126.67	29,773.33

Segment Id	Road Name	From Address	To Address	Condition	Treatment	Area (Sq Yd)	Cost ($)
187	Church Street	Providence Pike	Dead End	3	No Maintenance	3,896.67	0.00
53	Comstock Road	Providence Pike	Dead End	3	No Maintenance	3,653.33	0.00
98	Comstock Road	Pound Hill Road	Dead End	3	No Maintenance	821.33	0.00
285	Eaton Street	Victory Highway (Rt. 102)	Dead End	3	Crack Seal	2,880.22	5,760.44
155	Filion Drive	Mechanic Street	Dead End	3	Rotomill & Overlay (<2 in)	1,309.33	18,330.67
118	Forest Hill Drive	Old Oxford Road	Old Oxford Road	3	Crack Seal	6,835.11	13,670.22
18	Freitas Lane	Maple Avenue	Dead End	3	No Maintenance	1,140.00	0.00
314	Greene Street	Victory Highway	School Street	3	No Maintenance	6,807.78	0.00
138	Harkness Road	Old Great Road	Dead End	3	Rotomill & Overlay (<2 in)	1,579.11	22,107.56
290	Hillview Avenue	49 Hillview Avenue	Lapre Road	3	Crack Seal	1,543.11	3,086.22
77	John Avenue	Dead End	Dead End	3	Crack Seal	1,053.33	2,106.67
231	Karen Marie Drive	Indigo Farm Road	Dead End	3	Thin Hot Mix Overlay (<2 in)	1,050.00	12,075.00
275	Knollridge Drive	Woonsocket Hill Road	Dead End	3	Thin Hot Mix Overlay (<2 in)	10,342.22	118,935.56
125	Leonard Drive	Dead End	Log Road	3	Crack Seal	9,673.33	19,346.67
31	Mattity Road	Brookside Drive	Rt. 7	3	Rotomill & Overlay (<2 in)	3,877.33	54,282.67
298	Morning Star Drive	Victory Highway	Rising Sun Trail	3	Crack Seal	2,916.67	5,833.33
103	Myrick Drive	Church Street	Dead End	3	No Maintenance	1,487.78	0.00
60	Oakdale Road	Norwood Road	Westwood Road	3	No Maintenance	936.00	0.00
120	Old Oxford Road	Pound Hill Road	Dead End	3	Crack Seal	10,160.00	20,320.00
263	Old Smithfield Road	1105 Old Smithfield Road	146a	3	HMA (leveling) & Overlay (<2 in.)	10,624.44	132,805.56
156	Orchard Street	Dead End	Filion Drive	3	Crack Seal	946.00	1,892.00
63	Primose Lane	Black Plain Road	Dead End	3	Crack Seal	1,423.33	2,846.67
117	Rainbow Lane	Taylor Drive	Taylor Drive	3	HMA (leveling) & Overlay (<2 in.)	1,453.33	18,166.67
97	Taber Hill Road	Taber Hill Road	Dead End	3	Rotomill & Overlay (<2 in)	696.67	9,753.33
99	Taber Hill Road	Pound Hill Road	Dead End	3	Rotomill & Overlay (<2 in)	4,986.67	69,813.33
269	Taylor Drive	Black Plain Road	Black Plain Road	3	Rotomill & Overlay (<2 in)	5,090.00	71,260.00
80	Village Way	Dead End	Providence Street (104)	3	Crack Seal	5,803.78	11,607.56
79	Wedgewood Drive	Chester Street	Dead End	3	Crack Seal	1,681.33	3,362.67
88	Westwood Road	146a	Dead End	3	No Maintenance	3,313.56	0.00
174	Adams Circle	Lincoln Drive	Dead End	2	No Maintenance	423.33	0.00
127	Angela Way	Toni Circle	Dead End	2	Crack Seal	566.22	1,132.44
255	Bearskin Farm Road	Mattity Road	Dead End	2	Crack Seal	2,236.89	4,473.78
102	Charon Drive	Providence Pike	Church Street	2	Crack Seal	3,513.33	7,026.67
106	Chelsea Drive	Dead End	Black Plan Road	2	Crack Seal	2,693.33	5,386.67
276	Chester Street	Walsh Avenue	Wedgewood Drive	2	Crack Seal	2,097.33	4,194.67
126	Christina Way	Toni Circle	Dead End	2	Crack Seal	1,340.89	2,681.78
207	Girard Blvd	Dead End	Providence Street (104)	2	No Maintenance	1,984.00	0.00
66	Hollow Road	Follett Street	Dead End	2	Crack Seal	715.56	1,431.11
107	Jennifer Lane	Dead End	Chelsea Drive	2	Crack Seal	4,336.67	8,673.33
190	Julie Avenue	Victory Highway (Rt. 102)	Dead End	2	Crack Seal	1,123.33	2,246.67
223	Keene Street	Follett Street	Dead End	2	Crack Seal	1,488.67	2,977.33

Segment Id	Road Name	From Address	To Address	Condition	Treatment	Area (Sq Yd)	Cost ($)
104	Laurel Lane	Black Plains Road	Laurel Lane	2	Thin Hot Mix Overlay (<2 in)	624.44	7,181.11
188	Maple Avenue	School Street	Victory Highway	2	No Maintenance	7,438.67	0.00
7	Mendon Road	298 Mendon Road	St. Paul Street	2	No Maintenance	7,184.00	0.00
133	Mt. Pleasant Road	Victory Highway (Rt. 102)	Town Line	2	Crack Seal	3,328.00	6,656.00
121	Narragansett Drive	Brookside Drive	Brookside Drive	2	Crack Seal	3,763.33	7,526.67
291	Oaklawn Road	Lapre Road	Hillview Avenue	2	Crack Seal	2,660.00	5,320.00
312	Pacheco Drive	Dead End	Greene Street	2	Crack Seal	2,311.56	4,623.11
226	Pond House Road	Rt. 104	Black Plains Road	2	Crack Seal	9,073.33	18,146.67
130	Pound Hill Road	Rt. 7	1620 Pound Hill Road	2	Base Repair\Pavement Replacement	6,637.78	122,798.89
241	Reservior Road	146	Town Border	2	No Maintenance	6,616.00	0.00
271	Robert Street	Providence Street (104)	Oak Hill Avenue	2	No Maintenance	653.33	0.00
234	Scott Farm Road	Dead End	Buxton Street	2	Crack Seal	2,036.67	4,073.33
256	Sky View Road	Dead End	Follett Street	2	Crack Seal	2,834.00	5,668.00
189	Steel Street	Edgecomb road	Dead End	2	No Maintenance	3,586.67	0.00
49	Stone Ridge Drive	Woonsocket Hill Road	Dead End	2	Crack Seal	2,283.56	4,567.11
81	Thayer Court	Dead End	Village Way	2	Crack Seal	1,306.67	2,613.33
128	Toni Circle	Mattity Road	Toni Circle	2	Crack Seal	8,759.11	17,518.22
114	Trout Brook Lane	Taylor Drive	Dead End	2	Crack Seal	2,110.00	4,220.00
21	Weeks Street	49 Weeks Street	Buell Avenue	2	No Maintenance	488.44	0.00
38	Black Plain Road	Farnum Pike	Mattity Road	1	No Maintenance	10,024.00	0.00
56	Bourget Court	Rt. 5	Dead End	1	Crack Seal	5,155.11	10,310.22
325	Canal Street	Town Line	Town Line	1	Crack Seal	5,534.22	11,068.44
108	Courtney Drive	Black Plain Road	Jennifer Lane	1	Crack Seal	1,846.67	3,693.33
200	Crest Road	146a	Greenwood Street	1	No Maintenance	1,911.56	0.00
179	Northgate Road	Tall Timber Trail	Victory Highway	1	Crack Seal	1,085.78	2,171.56
225	Old Sayles Hill Road	Iron Mine Hill Road	35 Old Sayles Hill road	1	No Maintenance	2,136.00	0.00
65	Pomona Street	Grange Road	Dead End	1	Crack Seal	10,463.56	20,927.11
170	Ridge Road	N Main Street	Greene Street	1	No Maintenance	3,048.89	0.00
154	Saranac Street	Dead End	Elizabeth Avenue	1	Crack Seal	1,188.00	2,376.00
115	Stoney Drive	Taylor Drive	Dead End	1	No Maintenance	9,023.33	0.00
193	Warren Avenue	146a	Dead End	1	No Maintenance	1,058.33	0.00
82	Weeks Street	Village Way	49 Weeks Street	1	Crack Seal	2,240.00	4,480.00
58	Briden Street	Elizabeth Avenue	Dead End	0	No Maintenance	949.33	0.00
47	Buxton Street	146a	Buxton Street	0	No Maintenance	8,614.22	0.00
67	Chamberlain Court	Old Sayles Hill Road	Dead End	0	No Maintenance	2,036.67	0.00
311	Country Way	Ridge Road	Greene Street	0	No Maintenance	4,676.00	0.00
119	Cristy Court	Old Oxford Road	Dead End	0	Crack Seal	2,684.89	5,369.78
208	Cross Street	Providence Street (104)	Dead End	0	Crack Seal	2,406.67	4,813.33
64	Denny Court	Rocky Hill Road	Dead End	0	No Maintenance	2,467.11	0.00
129	Doire Court	Pound Hill Road	Dead End	0	No Maintenance	2,190.00	0.00
0	Elizabeth Avenue	11 Elizabeth Avenue	Dead End	0	No Maintenance	2,789.11	0.00

Segment Id	Road Name	From Address	To Address	Condition	Treatment	Area (Sq Yd)	Cost ($)
139	Elizabeth Avenue	St. Paul Street	11 Elizabeth Avenue	0	No Maintenance	2,137.78	0.00
92	Fountain Street	Mendon Road	Graves Avenue	0	No Maintenance	2,060.00	0.00
112	Hart Pond Drive	3 Hart Pond Drive	Pound Hill Road	0	Crack Seal	480.00	960.00
113	Hart Pond Drive	Dead End	3 Hart Pond Drive	0	Crack Seal	1,553.33	3,106.67
110	Jeanne Court	Black Plain Road	Dead End	0	Crack Seal	4,766.67	9,533.33
29	Laurel Lane (Lower Half)	Laurel Lane	Dead End	0	Crack Seal	906.67	1,813.33
235	Log Road	Town Line	Town Line	0	No Maintenance	12,682.22	0.00
32	Mattity Road	Town Line	Brookside Drive	0	No Maintenance	8,934.44	0.00
8	Mendon Road	409 Mendon Road	298 Mendon Road	0	No Maintenance	3,053.33	0.00
9	Mendon Road	146a	409 Mendon Road	0	No Maintenance	8,810.67	0.00
149	Middle Street	St. Paul Street	Dead End	0	No Maintenance	2,117.33	0.00
143	Mill Street	Canal Street	Town Line	0	Crack Seal	1,133.33	2,266.67
280	Mowry Avenue	Dead End	35 Mowry Avenue	0	No Maintenance	1,112.22	0.00
261	Mowry Road	Town Line	Rt (7)	0	No Maintenance	832.00	0.00
283	Old Pound Hill Road	Dead End	Pound Hill Road	0	No Maintenance	2,428.00	0.00
242	Old Sayles Hill Road	Dead End	Dead End	0	Crack Seal	1,672.22	3,344.44
61	Park Drive	Dead End	146a	0	No Maintenance	1,605.56	0.00
131	Pine Hill Road	Pound Hill Road	Dead End	0	No Maintenance	2,467.11	0.00
1	Rhodes Avenue	Mendon Road	Town Border	0	No Maintenance	1,101.33	0.00
93	Smith Street	Elizabeth Avenue	Dead End	0	No Maintenance	1,026.67	0.00
289	Tifft Road	Black Plain Road	Black Plain Road	0	No Maintenance	0.00	0.00
246	Valley View Drive	Dead End	Iron Mill Hill Road	0	No Maintenance	1,753.56	0.00
91	West Street	Fountain Street	Colerick Street	0	No Maintenance	955.56	0.00

PAVEMENT MANAGEMENT STUDY
NORTH SMITHFIELD, RI

SHORT TERM CAPITAL IMPROVEMENT PLAN

JCE
JOE CASALI ENGINEERING INC.

Road Name	Segment Id	Cond.	Treatment	Length (ft)	Width (ft)	Area (Sq Yd)	Cost ($)	Drainage	Drainage Rating	Cost ($)	Total Cost ($)
Carlton Avenue	181	9	Base Repair\Pavement Replacement	1,407	24	3,752.00	$69,412.00	Runoff	2	$600.00	$70,012.00
Grange Road	26	9	Base Repair\Pavement Replacement	1,949	18	3,898.00	$72,113.00	Runoff	2	$600.00	$72,713.00
Martha Road	39	9	Base/Pavement Replacement	606	30	2,020.00	$60,600.00	Curb & Catch Basin	1	$600.00	$61,200.00
Mowry Avenue	19	9	Base/Pavement Replacement	335	24	893.33	$26,800.00	Runoff	1	$0.00	$26,800.00
Old Great Road	44	9	Base Repair\Pavement Replacement	2,616	30	8,720.00	$161,320.00	Curb & Catch Basin	0	$0.00	$161,320.00
Wilks Avenue	176	9	Base/Pavement Replacement	859	25	2,386.11	$71,583.33	Runoff	1	$5,000.00	$76,583.33
Arnold Avenue	195	8	Base Repair\Pavement Replacement	649	24	1,730.67	$32,017.33	Runoff & Catch Basin	2	$600.00	$32,617.33
Buckley Drive	302	8	Base/Pavement Replacement	1,000	24	2,666.67	$80,000.00	Runoff	2	$1,200.00	$81,200.00
E Harkness Road	42	8	Rotomill & Overlay (<2 in)	1,134	20	2,520.00	$35,280.00	Runoff	1	$0.00	$35,280.00
Glen Avenue	55	8	HMA (leveling) & Overlay (<2 in.)	349	28	1,085.78	$13,572.22	Runoff & Catch Basin	1	$685.00	$14,257.22
Iron Mine Hill Road	250	8	HMA (leveling) & Overlay (<2 in.)	15,259	21	35,604.33	$445,054.17	Runoff & Catch Basin	2	$1,790.00	$446,844.17
Lester Street	318	8	Base/Pavement Replacement	675	22	1,650.00	$49,500.00	Runoff	3	$2,500.00	$52,000.00
Merrimac Road	204	8	Base Repair\Pavement Replacement	815	28	2,535.56	$46,907.78	Runoff	2	$600.00	$47,507.78
Obeline Drive	309	8	Base/Pavement Replacement	667	25	1,852.78	$55,583.33	Runoff	2	$2,500.00	$58,083.33
Old Greenville Road	218	8	Base Repair\Pavement Replacement	1,312	20	2,915.56	$53,937.78	Paved Waterway	1	$0.00	$53,937.78
Overlea Road	245	8	HMA (leveling) & Overlay (<2 in.)	2,265	20	5,033.33	$62,916.67	Runoff & Catch Basin	2	$85.00	$63,001.67
Rainville Avenue	180	8	Base/Pavement Replacement	426	28	1,325.33	$39,760.00	Runoff	1	$0.00	$39,760.00
Tanglewood Road	322	8	Rotomill & Overlay (<2 in)	1,091	30	3,636.67	$50,913.33	Curb & Catch Basin	2	$0.00	$50,913.33
Antaya Drive	192	7	Thin Hot Mix Overlay (<2in.)	353	15	588.33	$6,765.83	Runoff	1	$600.00	$7,365.83
Circle Drive	281	7	Rotomill & Overlay (<2 in)	732	30	2,440.00	$34,160.00	Curb & Catch Basin	0	$0.00	$34,160.00
Great Road	41	7	Thin Hot Mix Overlay (<2in.)	1,473	28	4,582.67	$52,700.67	Runoff & Catch Basin	0	$0.00	$52,700.67
Lapre Road	292	7	Base Repair\Pavement Replacement	1,148	21	2,678.67	$49,555.33	Runoff & Catch Basin	2	$85.00	$49,640.33
Litzen & Lorraine Avenue	304	7	HMA (leveling) & Overlay (<2 in.)	1,341	26	3,874.00	$48,425.00	Runoff & Catch Basin	2	$470.00	$48,895.00
Morse Avenue	191	7	Base Repair\Pavement Replacement	865	24	2,306.67	$42,673.33	Curb & Catch Basin	1	$255.00	$42,928.33
Patricia Avenue	324	7	Base Repair\Pavement Replacement	940	30	3,133.33	$57,966.67	Runoff	0	$0.00	$57,966.67
Pound Hill Road	13	7	HMA (leveling) & Overlay (<2 in.)	2,953	26	8,530.89	$106,636.11	Runoff	2	$85.00	$106,721.11
Sayles Hill Road	224	7	HMA (leveling) & Overlay (<2 in.)	4,372	24	11,658.67	$145,733.33	Runoff & Catch Basin	3	$1,100.00	$146,833.33
Winchester Avenue	321	7	Rotomill & Overlay (<2 in)	2,457	30	8,190.00	$114,660.00	Curb & Catch Basin	1	$0.00	$114,660.00
Woodland Road	254	7	Thin Hot Mix Overlay (<2in.)	988	22	2,415.11	$27,773.78	Runoff	1	$0.00	$27,773.78
Woonsocket Hill Road	10	7	Base Repair\Pavement Replacement	1,600	25	4,444.44	$82,222.22	Paved Waterway	0	$0.00	$82,222.22
TOTAL							**$2,196,543.22**			**$19,355.00**	
											$2,215,898.22

Sorel Avenue to the cul-de-sac are proposed. Currently the drainage on Martha Road sheet flows along curb line to catch basins in the roadway. There is, however, a drainage concern at the cul-de-sac where there was observed ponding. A paved waterway is proposed in this area to better direct runoff into the wooded area to alleviate the ponding. Cleaning of catch basins and flushing of pipes for the existing drainage infrastructure along Martha Road is also proposed.

Total budget cost for improvements is $61,200.00.

Mowry Avenue - Proposed improvements to Mowry Avenue include removing and disposing the existing flexible pavement and grading and compacting the subbase. A 2" bituminous base course and a 2" bituminous surface course from 35 Mowry Road (i.e. where new pavement edge begins) to Arnold Avenue are proposed. Currently the drainage on Mowry Road sheet flows to grass areas at the edge of pavement. The road also slopes to the south away from Arnold Avenue and towards Mulberry Street where a catch basin collects excessive runoff. Since the current drainage system is functioning properly, proposed drainage improvements are not recommended for Mowry Avenue.

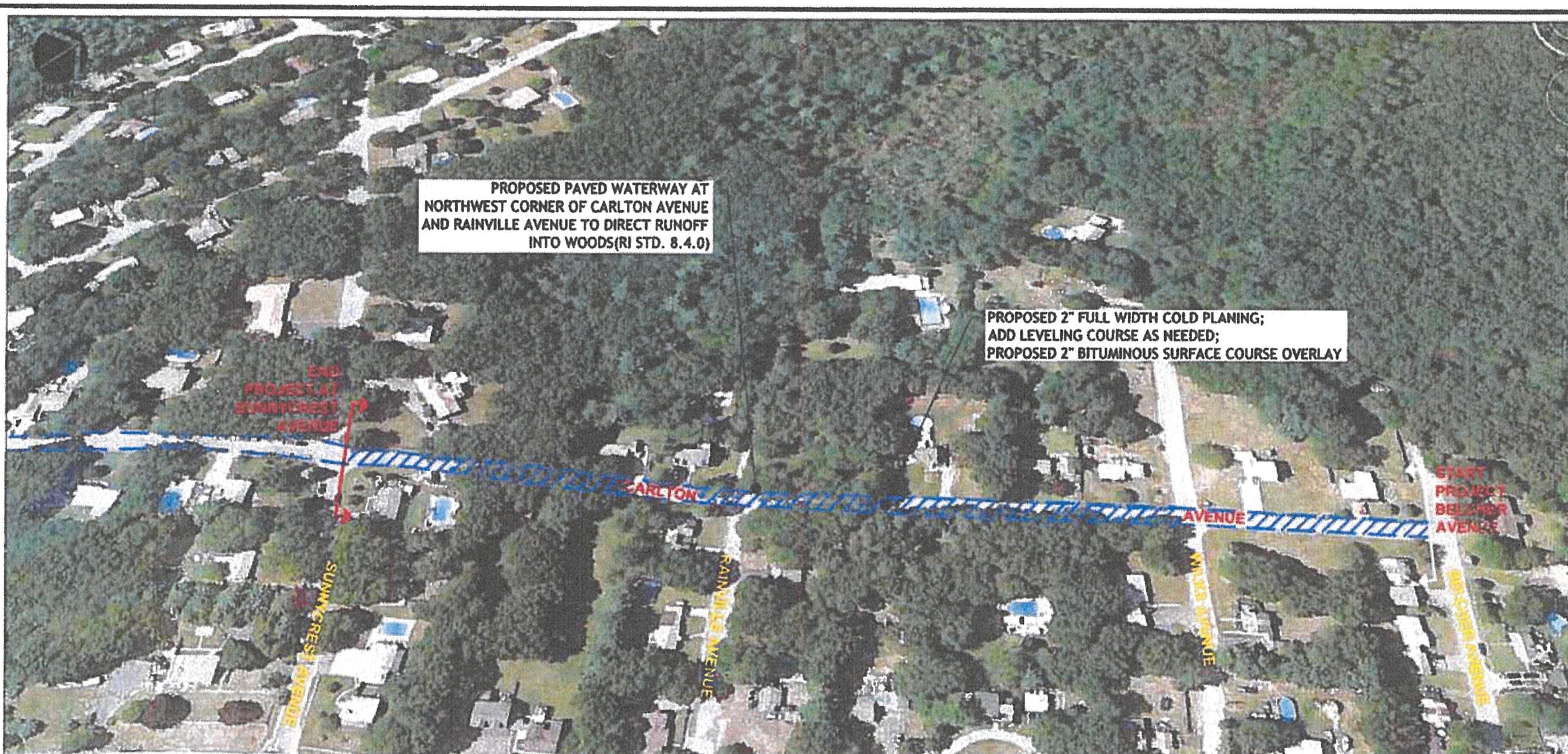
Total cost for improvements is $26,800.00.

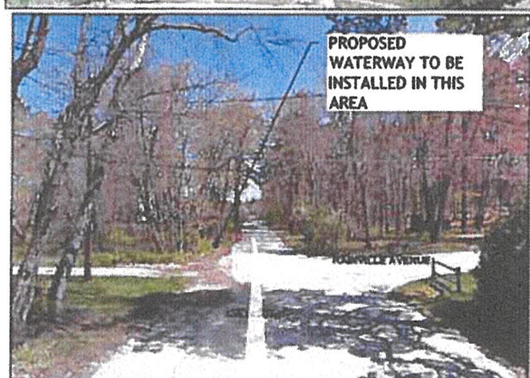
Old Great Road – Proposed improvements to Old Great Road include cold planing the existing 2" of pavement, applying a leveling course in areas of need to maintain a typical roadway cross section of 2% from the centerline to roadway edge. A 2" bituminous surface course overlay from Mechanic Street to West Harkness Road is proposed. Currently drainage on Old Great Road sheet flows to catch basins in the roadway. A paved waterway is proposed to replace and existing paved waterway just north of the 146 overpass. An additional paved waterway is proposed at 197 Old Great Road in order direct runoff into a wooded area. In addition, cleaning of catch basins and flushing of pipes are proposed for the existing drainage infrastructure.

Total cost for improvements is $161,320.00.

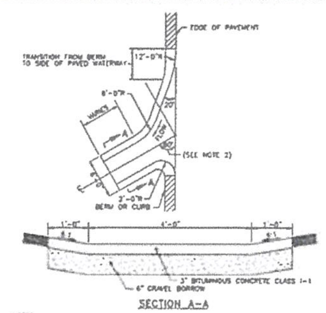
TOTAL COST FOR IMPROVEMENTS IS $392,045.

If funding is not available to include the above mentioned roads in the first year of the plan, JCE recommends crack filling on roadways where the crack filling treatment is recommended, beginning with the more deteriorated roads first. Crack filling will stretch the life of the roads providing a more cost effective approach to the pavement repair plan. For example, allocating leftover moneys each year of around $50,000.00 towards crack filling could repair all roads with recommended crack fill treatment in 10 years' time.



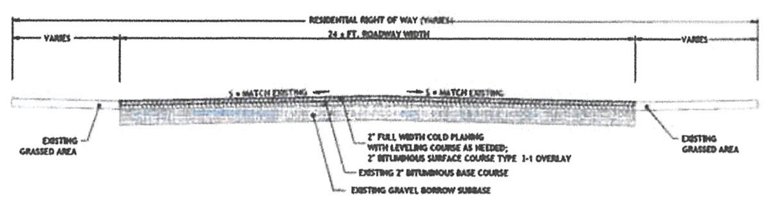


CARLTON AVENUE AT RAINVILLE AVENUE (LOOKING NORTH)



NOTES:
1 SHALL BE IN ACCORDANCE WITH SECTION 711 OF THE R.I. STANDARD SPECIFICATIONS.
2 WHEN PAVED WATERWAY IS USED AT A LOW POINT THIS ANGLE SHALL BE 90°

PAVED WATERWAY — R.I. STANDARD 8.4.0



CARLTON AVENUE- TYPICAL ROAD SECTION

NOT TO SCALE

TOTAL COST OF IMPROVEMENTS FOR CARLTON AVENUE: $70,012.00

JCE
JOE CASALI ENGINEERING, INC.

SHORT TERM IMPROVEMENT PLAN
NORTH SMITHFIELD, RHODE ISLAND

REVISIONS
NO. DATE DESCRIPTION

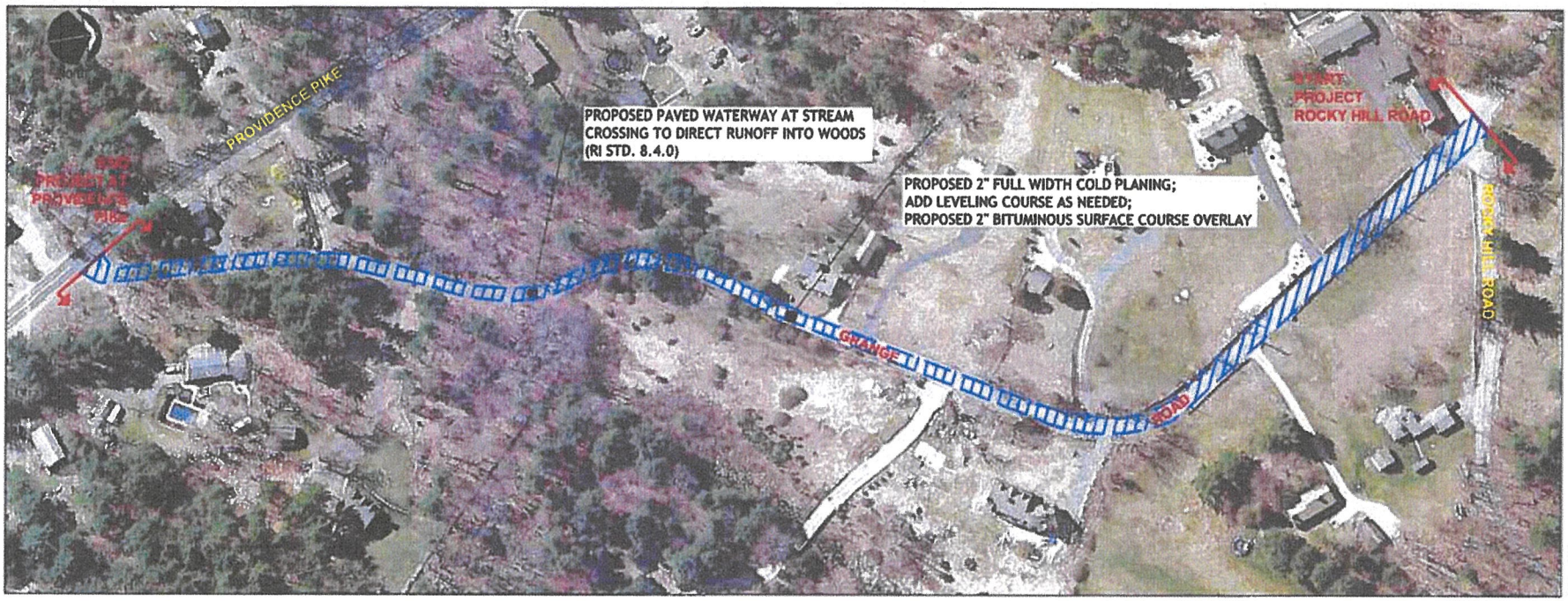
DESIGNED BY JM
DRAWN BY JM
CHECKED BY JC
DATE MARCH 2014
PROJECT NO. 08-49m

PRELIMINARY. NOT FOR CONSTRUCTION

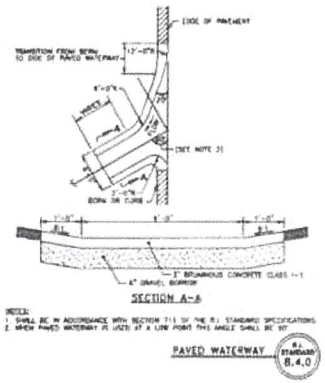
CARLTON AVENUE PLAN

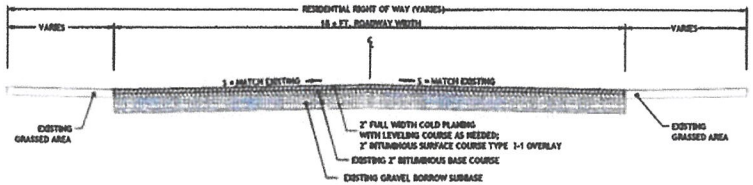
SHEET 1 OF 1

Q: 08-49 Town of North Smithfield\08-49m Pavement Management\Carlton Avenue-p-an.dwg Mar. 11, 2014 5:02pm



NORTH OF 450 GRANGE ROAD (LOOKING NORTH)





GRANGE ROAD- TYPICAL ROAD SECTION
NOT TO SCALE

TOTAL COST OF IMPROVEMENTS FOR GRANGE ROAD: $72,713.00

JCE
JOE CASALI ENGINEERING, INC.

SHORT TERM IMPROVEMENT PLAN
NORTH SMITHFIELD, RHODE ISLAND

REVISIONS:		
NO.	DATE	DESCRIPTION

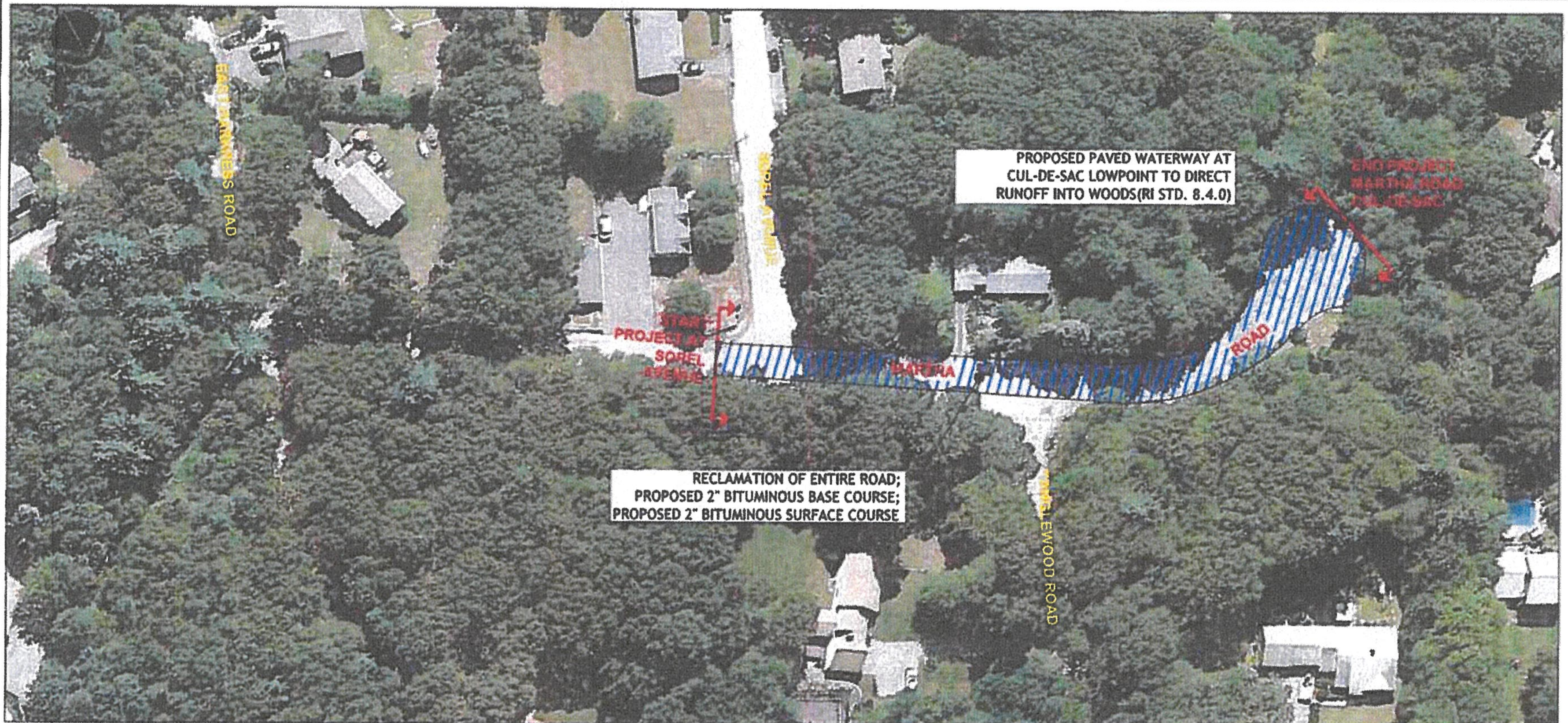
DESIGNED BY	JM
DRAWN BY	JM
CHECKED BY	JVC
DATE	MARCH 2014
PROJECT NO.	14-49m

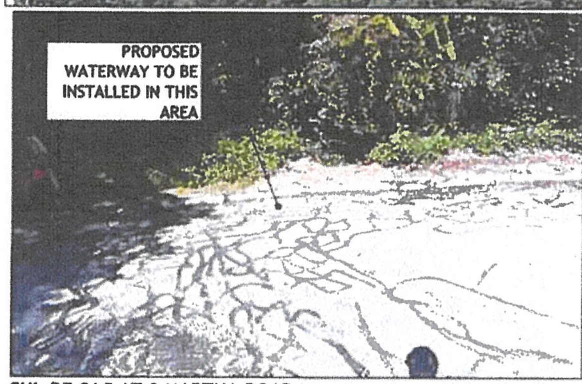
PRELIMINARY. NOT FOR CONSTRUCTION

GRANGE ROAD PLAN

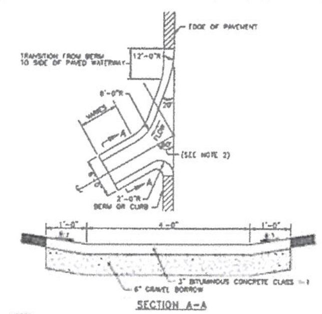
SHEET 1 OF 1

Q:\08-49 Town of North Smithfield\08-49m Pavement Management\Carlton Avenue-plan.dwg Mar. 11, 2014 4:59pm

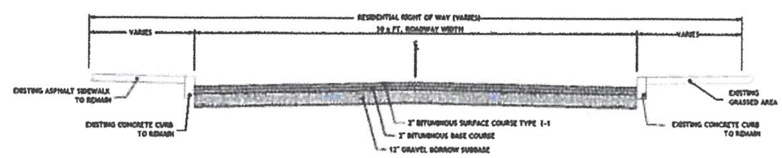




CUL-DE-SAC AT 8 MARTHA ROAD



PAVED WATERWAY



MARTHA ROAD - TYPICAL ROAD SECTION

NOT TO SCALE

TOTAL COST OF IMPROVEMENTS FOR MARTHA ROAD: $61,200.00

JCE
JOE CASALI ENGINEERING, INC.

SHORT TERM IMPROVEMENT PLAN
NORTH SMITHFIELD, RHODE ISLAND

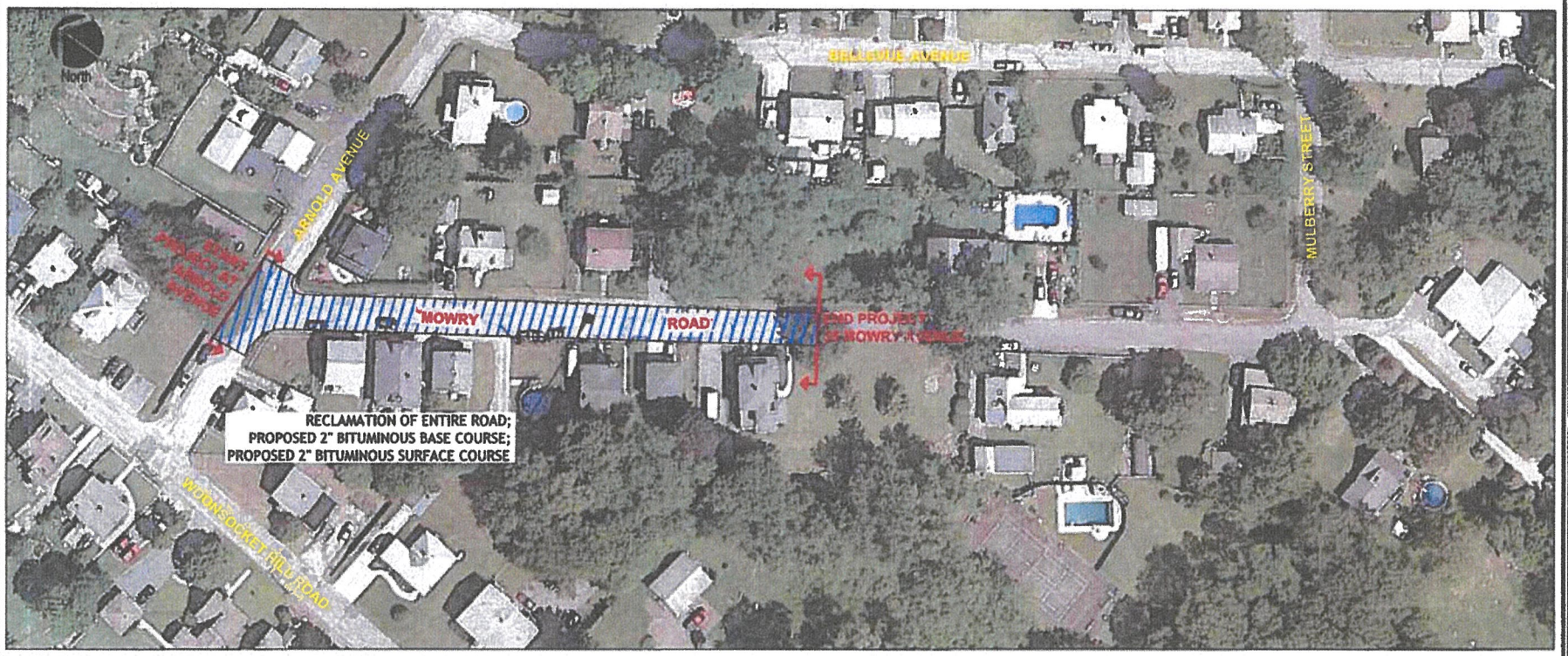
REVISIONS:

PRELIMINARY. NOT FOR CONSTRUCTION

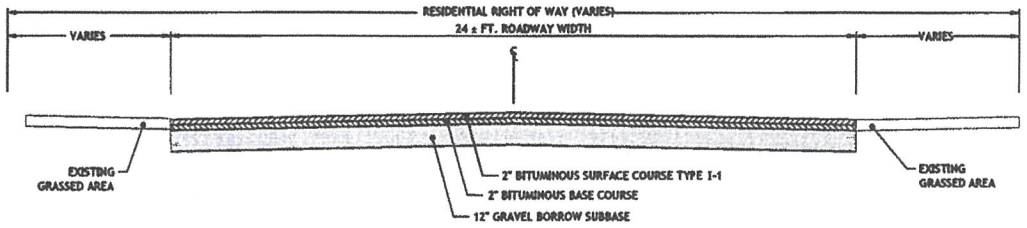
MARTHA ROAD PLAN

SHEET 1 OF 1

Q: 08-49 Town of North Smithfield\08-49m Pavement Management\Carlton Avenue-plan.dwg Mar. 11, 2014 4:56pm



*SEVERE PAVEMENT DISTRESS ON MOWRY ROAD



MOWRY AVENUE - TYPICAL ROAD SECTION

NOT TO SCALE

TOTAL COST OF IMPROVEMENTS FOR MOWRY AVENUE: $26,800.00

JCE

JOE CABALI ENGINEERING, INC.

SHORT TERM IMPROVEMENT PLAN

NORTH SMITHFIELD, RHODE ISLAND

REVISIONS:

NO.	DATE	DESCRIPTION

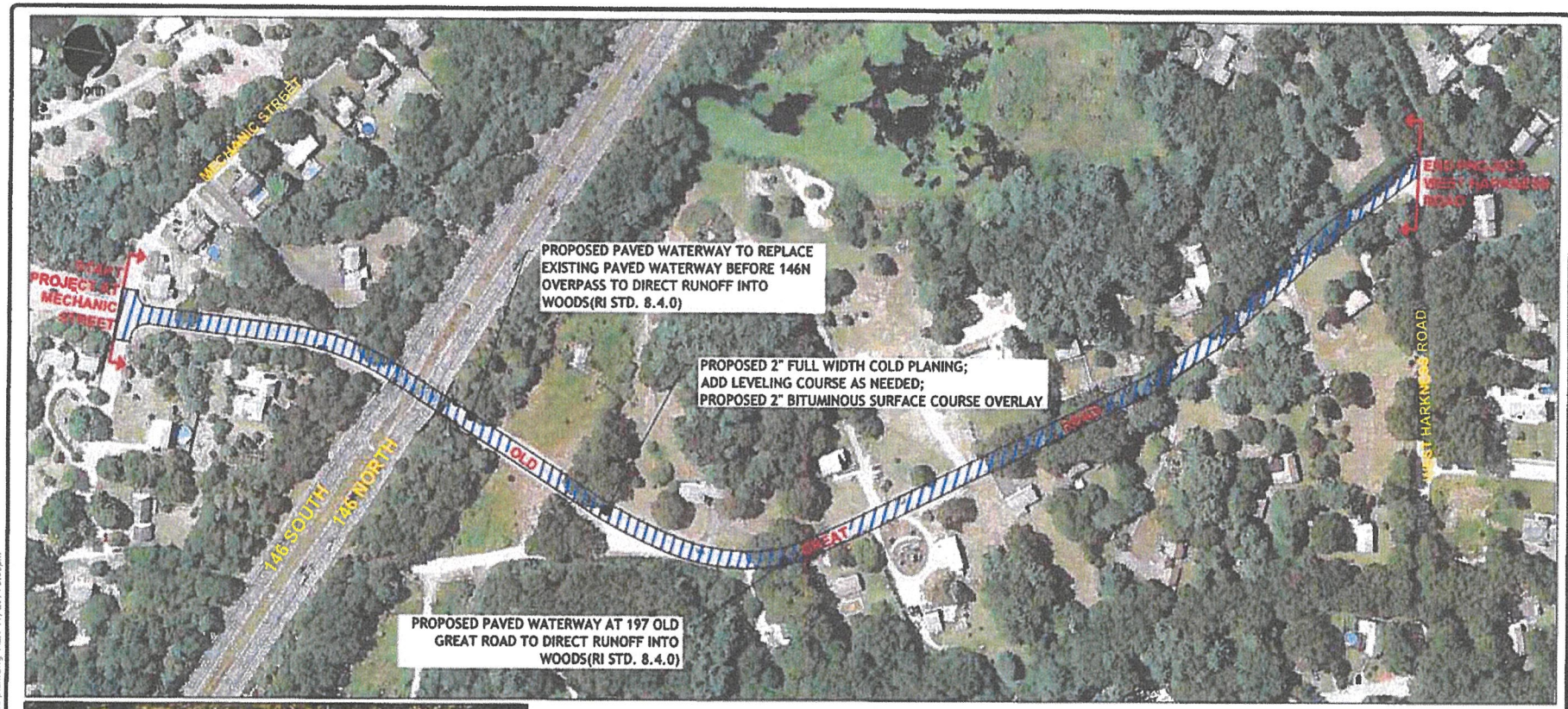
DESIGNED BY: JM
DRAWN BY: JM
CHECKED BY: JW
DATE: MARCH 2014
PROJECT NO:

PRELIMINARY. NOT FOR CONSTRUCTION

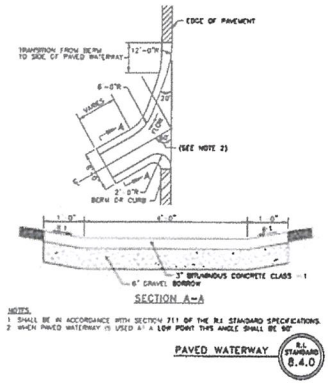
MOWRY AVENUE PLAN

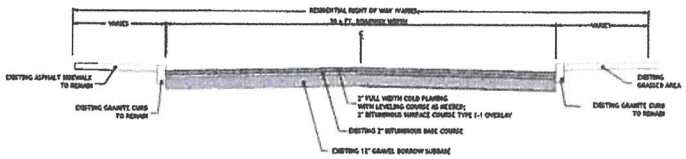
SHEET 1 OF 1

Q:\03-49 Town of North Smithfield\03-49m Pavement Management\Carlton Avenue-plan.dwg Mar. 11, 2014 4:52pm



EXISTING PAVED WATERWAY TO BE REPLACED; JUST BEFORE 146N OVERPASS





OLD GREAT ROAD - TYPICAL ROAD SECTION
NOT TO SCALE

TOTAL COST OF IMPROVEMENTS FOR OLD GREAT ROAD: $161,320.00

JCE
JOE CASALI ENGINEERING, INC.

SHORT TERM IMPROVEMENT PLAN
NORTH SMITHFIELD, RHODE ISLAND

REVISIONS:
NO. DATE DESCRIPTION

DESIGNED BY AJ
DRAWN BY AJ
CHECKED BY JAC
DATE MARCH 2014
PROJECT NO.

PRELIMINARY. NOT FOR CONSTRUCTION

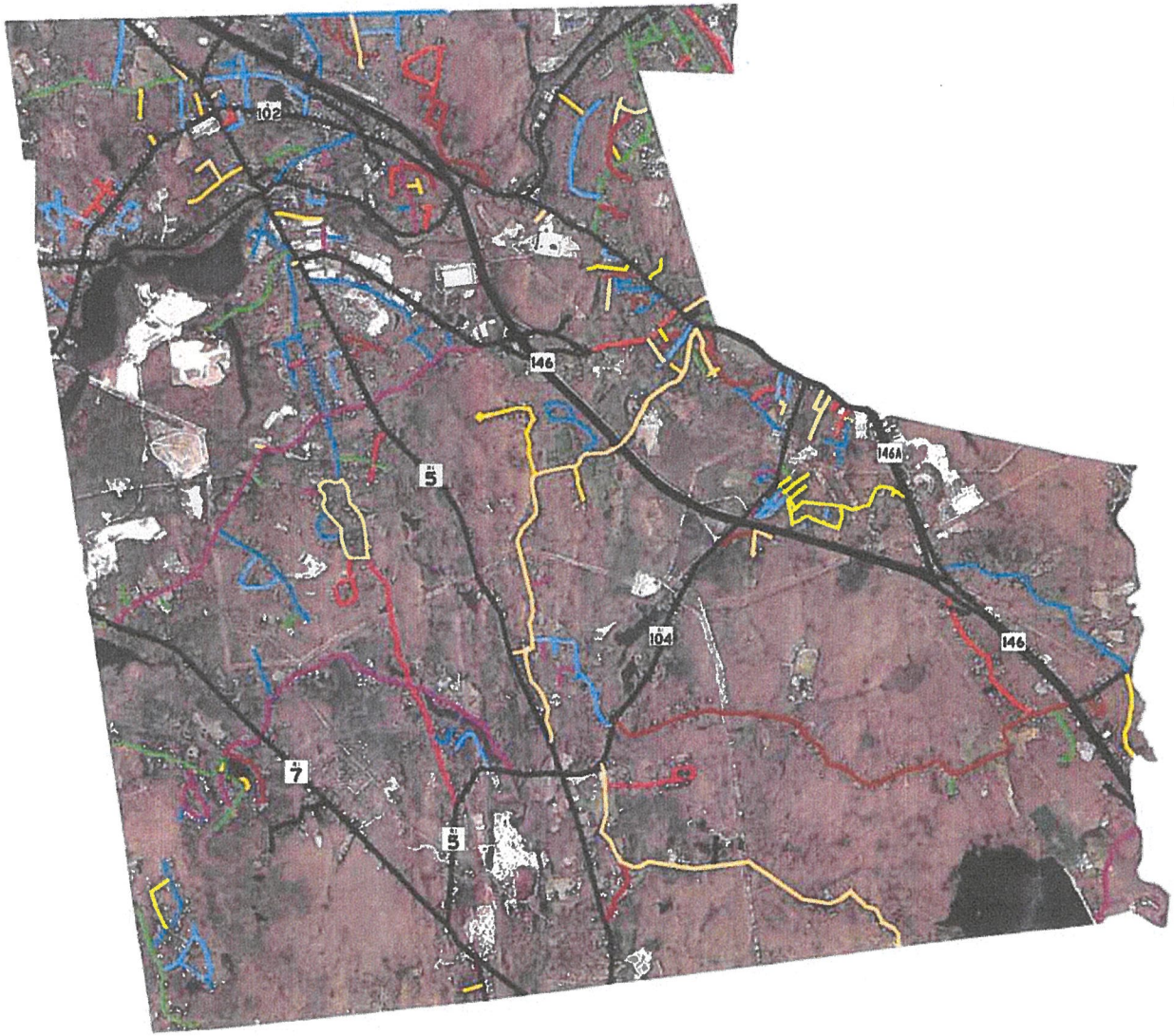
OLD GREAT ROAD PLAN

SHEET 1 OF 1

Q:\08-49 Town of North Smithf eld\08-49m Pavement Management Carlton Avenue-plan.dwg Mar. 11, 2014 5:03pm

APPENDIX A

Base Map
(Color Schemed by General Condition Rating)



LEGEND:

- ROAD CONDITION-0
- ROAD CONDITION-1
- ROAD CONDITION-2
- ROAD CONDITION-3
- ROAD CONDITION-4
- ROAD CONDITION-5
- ROAD CONDITION-6
- ROAD CONDITION-7
- ROAD CONDITION-8
- ROAD CONDITION-9

SCALE (FEET)
0 600 1200 2400 4800
1 INCH = 1200 FT

JCE

JOE CABALI ENGINEERING, INC.
Civil, Site Development, Transportation
333 Post Road, Warwick, RI 02888
(401) 941-7900 www.joecabali.com

PAVEMENT MANAGEMENT
NORTH SMITHFIELD, RHODE ISLAND

REVISIONS
NO. DATE DESCRIPTION

DESIGNED BY: JC
DRAWN BY: PP/JB
CHECKED BY: JC
DATE: FEBRUARY 2018
PROJECT NO.: [illegible]

PRELIMINARY, NOT FOR CONSTRUCTION

ROAD CONDITIONS MAP

SHEET 1 OF 1

APPENDIX B
Roadway Condition Report
(Ordered Numerically by General Condition Rating)

ROADWAY CONDITIONAL REPORT

(ORDER: General Condition)

JCE
JOE CASALI ENGINEERING, INC.
CIVIL · SITE DEVELOPMENT · TRANSPORTATION
DRAINAGE · WETLANDS · ISDS · TRAFFIC · FLOODPLAIN
300 POST ROAD, WARWICK, RI 02888

Segment Id	Road Name	From Address	To Address	General Condition	RSL	Transverse	Alligator	Patches/potholes	Longitudinal	Edge	Rutting	Roughness	Drainage	Survey Date
181	Carlton Avenue	Belcher Avenue	Sunnycrest Avenue	9	2	8	8	7	8	8	2	2	2	12/9/2013
26	Grange Road	Providence Pike	Rocky Hill Road	9	0	7	8	8	8	8	2	2	2	12/18/2013
39	Martha Road	Sorel Avenue	Dead End	9	0	8	8	4	7	8	2	3	1	11/25/2013
19	Mowry Avenue	35 Mowry Avenue	Arnold Avenue	9	0	8	9	7	8	8	2	2	1	12/18/2013
44	Old Great Road	Mechanic Street	West Harness Road	9	2	5	9	5	7	6	2	2	0	11/22/2013
176	Wilks Avenue	Victory Highway	Dead End	9	2	8	8	7	8	8	3	3	1	11/22/2013
195	Arnold Avenue	Woonsocket Hill Road	Milton Avenue	8	3	6	6	5	6	6	2	2	2	12/18/2013
302	Buckley Drive	Mendon Road	Dead End	8	0	9	9	9	9	9	3	3	2	12/18/2013
42	E Harkness Road	Martha Road	Great Road	8	3	7	6	5	0	5	2	2	1	11/25/2013
55	Glen Avenue	146a	Dead End	8	1	7	8	7	7	5	2	2	1	12/6/2013
250	Iron Mine Hill Road	Farnum Pike (104)	Sayles Hill Road	8	2	7	7	7	7	8	3	3	2	12/6/2013
318	Lester Street	Rt. 5	Victory Highway	8	1	7	8	6	6	8	2	2	3	11/22/2013
204	Merrimac Road	146a	Dead End	8	1	8	8	7	7	7	2	2	2	12/9/2013
309	Obeline Drive	Dead End	Mendon Road	8	0	9	9	9	9	9	3	3	2	12/18/2013
218	Old Greenville Road	Farnum Pike (104)	43 Old Greenville Road	8	3	7	7	6	7	7	2	2	1	12/9/2013
245	Overlea Road	Mattity Road	Dead End	8	3	7	8	7	8	7	3	3	2	12/3/2013
180	Rainville Avenue	Victory Highway	Dead End	8	2	8	8	7	7	8	3	3	1	11/22/2013
322	Tanglewood Road	Martha Road	Winchester Avenue	8	2	7	7	5	6	6	2	2	0	11/25/2013
192	Antaya Drive	Providence Pike (Rt. 5)	Dead End	7	5	6	6	5	6	6	2	2	1	12/18/2013
281	Circle Drive	Providence Pike	Highpoint Drive	7	3	7	6	5	6	4	2	2	0	12/18/2013
41	Great Road	Victory Highway	E Harkness Road	7	5	4	5	0	4	3	2	2	0	11/25/2013
105	Highpoint Drive	Providence Pike	Dead End	7	3	7	6	6	6	6	2	2	0	12/18/2013
292	Lapre Road	Great Road (146a)	Dead End	7	5	6	6	7	6	5	2	3	2	12/18/2013
304	Litzen & Lorraine Avenue	Maple Avenue	Dead End	7	0	8	8	8	8	6	3	3	2	12/18/2013
84	Milton Avenue	146a	Williams Street	7	3	6	6	0	6	6	2	2	3	12/18/2013
191	Morse Avenue	146a	Dead End	7	3	6	7	6	6	7	2	2	1	12/9/2013
288	Norwood Road	Westwood Road	Oakdale Road	7	6	5	4	6	5	5	3	3	0	12/9/2013
86	Odonnell Avenue	Bamford Street	Gilfilian Road	7	3	6	7	7	7	7	3	3	1	12/18/2013
324	Patricia Avenue	Harkness Road	Brian Avenue	7	3	7	8	3	7	7	3	3	2	11/22/2013
130	Pound Hill Road	Rt. 7	1620 Pound Hill	7	0	7	8	8	6	9	3	3	0	11/27/2013
14	Pound Hill Road	Rt. 5	Industrial Drive	7	2	5	7	6	5	8	3	3	3	11/27/2013
33	Raymond Street	146a	Dead End	7	3	6	7	7	6	6	1	2	3	12/18/2013

Segment Id	Road Name	From Address	To Address	General Condition	RSL	Transverse	Alligator	Patches/potholes	Longitudinal	Edge	Rutting	Roughness	Drainage	Survey Date
224	Sayles Hill Road	Iron Mine Hill Road	Dead End	7	2	8	8	7	8	7	3	3	1	12/6/2013
321	Winchester Avenue	Tanglewood Road	Dead End	7	3	7	8	5	0	0	2	2	1	11/25/2013
254	Woodland Road	Dead End	Sayles Hill Road	7	5	6	6	6	6	6	2	2	1	12/6/2013
10	Woonsocket Hill Road	126 Woonsocket Hill Road	146a	7	3	7	7	8	6	6	3	3	0	11/27/2013
284	Bellevue Avenue	Woonsocket Hill Road	Dead End	6	5	6	6	5	7	6	2	2	0	12/18/2013
37	Black Plain Road	Mattity Road	Taylor Drive	6	3	6	5	7	5	7	3	3	0	12/18/2013
182	Branch Avenue	Great Road	Dead End	6	3	5	4	6	6	7	0	0	0	12/18/2013
95	Brian Avenue	Harkness Road	Willerval Avenue	6	2	7	8	3	7	8	2	2	0	11/22/2013
62	Connector Road	146a	Old Great Road	6	7	4	6	3	5	4	1	2	0	11/22/2013
4	Cynthia Drive	Sharon Pkwy	Sharon Pkwy	6	5	5	6	5	6	5	0	0	0	12/18/2013
59	Cynthia Drive	Mendon Road	Sharon Pkwy	6	5	5	6	5	6	5	1	1	0	12/18/2013
308	Edward Avenue	Parkview Drive	Dead End	6	3	6	7	7	7	7	2	3	1	11/25/2013
317	Esmond Road	E Harkness Road	Sorel Avenue	6	5	6	5	4	0	5	1	1	0	11/25/2013
162	Florence Street	146a	Dead End	6	5	5	5	7	5	5	2	2	0	11/22/2013
222	George Lee Road	Rt. 5	Woonsocket Hill Road	6	5	5	7	2	5	3	0	0	1	12/3/2013
196	Gilfilian Road	Homestead Avenue	Pound Hill Road	6	2	6	7	3	3	8	1	1	0	12/18/2013
277	Golden Blvd.	Dead End	Greenwood Street	6	7	5	5	0	6	6	0	0	0	12/9/2013
240	Grange Road	Greenville Road	Rocky Hill Road	6	5	6	7	5	6	6	2	2	2	12/3/2013
70	Hill Street	Cross Road	E Old Greenville Road	6	4	6	5	6	5	5	3	3	0	11/27/2013
78	Indian Head Lane	Candlewood Road	Dead End	6	5	6	7	6	6	5	1	1	0	12/9/2013
157	Ironstone Street	Buxton Street	146a	6	3	6	6	5	5	7	2	2	1	11/22/2013
219	Jefferson Road	Old Greenville Road	Dead End	6	5	6	6	5	6	6	1	1	0	12/6/2013
5	Kirby Lane	Dead End	Dead End	6	1	6	5	7	6	7	2	2	0	12/18/2013
185	Kirby Lane	School Street	14 Kirby Lane	6	1	6	5	8	6	7	2	2	0	12/18/2013
301	Kirby Lane	14 Kirby Lane	23 Kirby Lane	6	1	6	5	7	6	7	2	2	0	12/18/2013
31	Mattity Road	Brookside Drive	Rt. 7	6	4	5	6	5	5	6	2	1	0	11/26/2013
287	Morse Avenue	146a	Town Line	6	3	6	7	6	6	7	1	1	0	12/9/2013
268	Old Greenville Road	43 Old Greenville Road	Dead End	6	5	6	6	5	6	6	1	1	1	12/6/2013
169	Parkview Drive	Rt. 5	18 Parkview Drive	6	5	6	7	2	6	6	1	1	0	11/25/2013
13	Pound Hill Road	Old Pound Road	146A	6	3	6	7	5	6	7	2	2	1	11/27/2013
323	Remington Circle	Brian Avenue	Dead End	6	5	7	8	1	6	6	2	1	0	11/22/2013
238	Rocky Hill Road	Grange Road	Town Line	6	7	5	5	5	5	5	2	2	0	12/6/2013
305	Roselawn Avenue	Dead End	Maple Avenue	6	2	8	8	8	8	8	3	3	1	12/18/2013
48	Shady Lane	Cross Road	Dead End	6	3	6	7	4	6	7	2	2	2	11/27/2013
3	Sharon Pkwy	Dead End	Cynthia Drive	6	2	6	7	7	7	8	1	2	1	12/18/2013
319	Sharon Pkwy	20 Sharon Pkwy	Mendon Road	6	2	6	7	7	7	8	1	2	1	12/18/2013
165	Sorel Avenue	Esmond Road	Martha Road	6	5	6	5	4	0	5	1	1	0	11/25/2013
278	Summit Avenue	146a	White Parkway	6	5	6	4	8	6	5	2	2	0	12/9/2013

Segment Id	Road Name	From Address	To Address	General Condition	RSL	Transverse	Alligator	Patches/potholes	Longitudinal	Edge	Rutting	Roughness	Drainage	Survey Date
289	Tifft Road	Black Plain Road	71 Tift Road	6	5	6	7	5	6	6	2	1	0	11/26/2013
205	Walsh Avenue	Merrimac Road	Dead End	6	6	5	5	6	5	4	1	1	0	12/9/2013
203	White Parkway	146a	Dead End	6	5	6	5	5	6	5	2	2	0	12/9/2013
151	Willerval Avenue	Remington Circle	Harkness Road	6	5	5	6	5	5	6	0	0	0	11/22/2013
286	Woodlawn Road	Lapre Road	Dead End	6	5	5	7	6	6	6	1	2	1	12/18/2013
11	Woonsocket Hill Road	Mara Lane	218 Woonsocket Hill Road	6	8	5	6	2	4	2	2	2	1	11/27/2013
247	Beachway Road	Brookside Drive	Brookside Drive	5	4	6	7	4	6	6	2	2	2	12/3/2013
36	Black Plain Road	Taylor Drive	Pound Hill Road	5	7	6	5	5	5	5	1	1	0	12/18/2013
273	Brentwood Drive	Woonsocket Hill Road	Dead End	5	7	5	5	3	5	5	1	1	0	12/4/2013
152	Brian Avenue	Willerval Avenue	Dead End	5	4	7	5	2	3	3	3	2	0	11/22/2013
248	Brookside Drive	Dead End	Mattity Road	5	4	6	7	0	6	6	2	2	2	12/3/2013
186	Carlton Avenue	Dead End	Sunnycrest Avenue	5	7	4	5	4	4	4	1	2	2	12/9/2013
230	Cedar Forest Road	Rt. 5	Dead End	5	4	6	2	3	4	5	3	3	0	12/9/2013
75	Cross Road	146A	E Old Greenville Road	5	4	7	8	5	7	6	3	2	2	11/27/2013
2	Deborah Avenue	Mendon Road	Cynthia Drive	5	7	5	3	4	3	5	1	1	0	12/18/2013
72	Deerfield Drive	E Old Greenville Road	Pheasant Run Road	5	8	7	5	4	6	3	0	2	0	11/27/2013
69	E Old Greenville Road	Dead End	Providence Street (104)	5	7	6	6	0	6	4	1	1	0	11/27/2013
211	Fairview Avenue	Hill Street	Dead End	5	7	6	4	4	4	3	1	2	0	11/27/2013
166	Ferrier Street	Victory Highway (Rt. 102)	Dead End	5	9	4	5	1	4	4	2	2	0	11/22/2013
164	Franklin Way	St. Paul Street	Lincoln Drive	5	5	5	6	5	6	6	0	0	0	12/18/2013
194	Getchell Street	Pound Hill Road	Odonnell Avenue	5	3	6	7	5	6	7	1	1	0	12/18/2013
101	Graham Drive	Dead End	Providence Pike	5	6	6	6	6	4	5	2	2	0	12/18/2013
89	Heroux Drive	Great Road (146a)	Dead End	5	6	6	4	6	6	5	1	1	0	12/18/2013
43	High View Ave	Mechanic Ave	Dead End	5	10	4	3	1	3	2	1	1	0	11/22/2013
34	Hillview Avenue	Great Road (146a)	49 Hillview Avenue	5	7	6	4	3	6	5	1	1	2	12/18/2013
122	Lumber Hill Road	Brookside Drive	Dead End	5	6	5	5	6	5	5	0	2	1	12/2/2013
83	Mara Lane	Dead End	Woonsocket Hill Road	5	7	6	6	0	6	5	0	1	0	11/26/2013
295	Meadowbrooke Drive	Great Road (146a)	Dead End	5	5	5	7	3	6	6	0	1	1	12/18/2013
197	Mulberry Street	Milton Avenue	Mowry Avenue	5	5	5	4	5	5	6	2	2	0	12/18/2013
232	Old Field Drive	Dead End	Buxton Street	5	7	5	4	5	3	5	1	1	0	11/22/2013
263	Old Smithfield Road	1105 Old Smithfield Road	146a	5	3	5	6	5	4	7	2	3	1	12/6/2013
132	Parkview Drive	18 Parkview Drive	Dead End	5	9	5	4	0	3	4	1	1	0	11/25/2013
198	Pine Court	Woonsocket Hill Road	Dead End	5	5	6	6	5	6	6	0	0	2	12/18/2013
27	Tifft Road	80 Tifft Road	end of road	5	7	4	4	4	4	4	1	1	0	11/26/2013
209	Urrico Avenue	E Old Greenville Road	Dead End	5	7	7	4	4	5	5	2	2	2	11/27/2013
210	Vincent Avenue	Cross Street	E Old Greenville Road	5	7	5	4	5	5	5	0	0	0	11/27/2013
21	Weeks Street	49 Weeks Street	Buell Avenue	5	7	5	5	5	5	5	1	1	0	12/9/2013
172	Wildwood Road	Dead End	Dead End	5	5	4	5	7	6	6	2	2	0	12/18/2013

Segment Id	Road Name	From Address	To Address	General Condition	RSL	Transverse	Alligator	Patches/potholes	Longitudinal	Edge	Rutting	Roughness	Drainage	Survey Date
173	Wildwood Road	Maple Avenue	6 Wildwood Road	5	7	4	5	2	4	3	2	2	0	12/18/2013
54	Williams Street	Milton Avenue	Dead End	5	7	5	4	5	5	5	2	2	2	12/18/2013
134	Belcher Avenue	Victory Highway	Dead End	4	9	4	3	0	4	3	1	1	3	11/22/2013
212	Birch Hill Avenue	Robert Street	E Old Greenville Road	4	9	5	4	4	4	3	1	1	0	11/27/2013
109	Bruce Drive	Providence Pike	Dead End	4	9	4	3	4	3	2	1	1	0	12/18/2013
279	Buell Avenue	146a	Greenwood Street	4	9	5	4	0	4	4	1	1	1	12/9/2013
274	Candlewood Road	Wedgewood Drive	Dead End	4	8	5	4	3	3	4	1	1	0	12/9/2013
233	Cider Mill Road	Buxton Street	Town Line	4	5	5	6	0	4	6	1	1	0	11/22/2013
96	Dorene Drive	Willerval Avenue	Duane Court	4	9	7	4	1	2	4	2	1	0	11/22/2013
150	Duane Court	Dead End	Harkness Road	4	9	7	4	1	2	4	2	1	0	11/22/2013
163	Flora Street	Ferrier Street	146a	4	9	5	4	1	5	4	2	1	0	11/22/2013
221	Follett Street	Woonsocket Hill Road	Farnum Pike	4	7	3	4	4	4	4	1	1	1	2/4/2014
124	Francis Farm Road	Indigo Farm Road	Dead End	4	6	5	4	4	4	6	1	1	0	12/2/2013
239	Franconia Drive	Leonard Drive	Leonard Drive	4	6	5	3	1	2	6	2	0	0	12/3/2013
178	Georgianna Avenue	Dead End	Dead End	4	9	4	3	0	4	4	2	1	0	11/22/2013
299	Greenwood Lane	Georgianna Avenue	Sunnycrest Avenue	4	8	7	4	3	5	4	0	1	0	11/22/2013
201	Greenwood Street	Buell Avenue	Crest Road	4	10	4	3	0	3	2	0	0	1	12/9/2013
177	Halliwell Blvd	School Street	School Street	4	8	4	3	3	4	3	1	2	0	12/18/2013
160	High View Avenue	Victory Hwy	Mechanic Street	4	10	1	1	0	0	0	1	1	0	12/18/2013
316	Homecrest Avenue	Buxton Street	Victory Highway	4	9	5	3	0	5	4	2	1	0	11/22/2013
87	Homestead Avenue	146a	Dead End	4	9	5	3	4	5	3	1	1	0	12/18/2013
123	Indigo Farm Road	Log Road	Indigo Farm Road	4	6	5	4	3	4	6	1	1	0	11/20/2013
213	Leo Street	Oak Hill Avenue	Providence Street (104)	4	9	5	4	0	5	2	1	2	0	12/3/2013
303	Lincoln Drive	Mendon Road	Dead End	4	5	5	8	4	5	6	0	1	1	12/18/2013
315	McCann Street	Rt. 5	Victory Highway	4	9	4	4	2	4	4	1	1	0	11/22/2013
71	Meadow Lane	Deerfield Drive	Dead End	4	8	7	5	4	6	3	0	2	0	11/27/2013
158	Mechanic Street	Rt. 5	Connector Road	4	8	3	2	3	3	3	0	0	0	11/22/2013
94	Mountain Road	Old Great Road	Dead End	4	5	5	5	4	0	6	0	0	0	12/18/2013
51	North Wood Lane	Parkview Drive	Dead End	4	5	6	6	6	6	6	2	2	2	11/25/2013
215	Oak Hill Avenue	Robert Street	E Old Greenville Road	4	4	4	3	3	4	3	2	2	1	11/27/2013
45	Old Great Road	Dead End	Mechanic Street	4	8	6	4	0	3	4	0	2	0	11/22/2013
242	Old Sayles Hill Road	Dead End	Dead End	4	7	5	5	4	4	4	0	0	0	12/18/2013
22	Old Smithfield Road	Sayles Hill Road	Town Line	4	9	4	3	2	3	4	1	1	0	12/6/2013
74	Pheasant Run Road	Deerfield Drive	Cross Street	4	8	7	5	4	6	3	0	2	0	11/27/2013
16	Pound Hill Road	1620 Pound Hill Road	1336 Pound Hill Road	4	9	5	5	2	4	4	1	0	1	11/27/2013
183	Rising Sun Trail	Morning Star Drive	Tall Timber Trail	4	10	3	2	1	2	3	1	1	0	1/21/2014
73	Robin Way	Deerfield Drive	Cross Road	4	8	7	5	4	6	3	0	2	0	11/27/2013
184	Sunnycrest Avenue	Victory Highway	Dead End	4	8	5	2	3	3	4	1	1	0	11/22/2013

Segment Id	Road Name	From Address	To Address	General Condition	RSL	Transverse	Alligator	Patches/potholes	Longitudinal	Edge	Rutting	Roughness	Drainage	Survey Date
300	Tall Timber Trail	Rising Sun Trail	Rising Sun Trail	4	7	5	5	2	5	5	1	1	2	11/22/2013
251	Tom Lee Drive	Farnum Pike	Dead End	4	8	5	3	3	4	3	1	1	0	12/18/2013
50	Wicks Street	Follett Street	Dead End	4	9	2	2	0	2	2	1	0	1	12/24/2013
252	Woonsocket Hill Road	Rt. 5	George Lee Road	4	8	4	6	2	4	2	0	1	0	12/3/2013
259	Woonsocket Hill Road	George Lee Road	Mara Lane	4	8	5	6	2	4	2	1	1	1	12/4/2013
76	Annette Avenue	Dead End	Girard Blvd	3	9	3	3	2	4	4	0	1	2	11/27/2013
85	Bamford Street	Odonnell Avenue	Homestead Avenue	3	7	1	4	0	1	5	1	1	0	12/18/2013
35	Black Plain Road	Pound Hill Road	Charon Drive	3	9	4	3	0	2	4	1	1	2	12/18/2013
46	Buxton Street	Buxton Street	Town Line	3	9	3	3	0	2	4	0	0	0	11/22/2013
320	Carpenter Street	Florence Street	Victory Highway	3	9	3	3	0	3	4	1	1	0	11/22/2013
297	Cherrybrook Avenue	Great Road (146a)	Great Road (146a)	3	8	4	2	3	3	3	0	0	0	12/9/2013
100	Christiansen Way	Dead End	Steele Street	3	9	3	3	4	3	4	0	0	0	12/18/2013
187	Church Street	Providence Pike	Dead End	3	10	2	2	4	3	2	1	1	0	12/18/2013
53	Comstock Road	Providence Pike	Dead End	3	10	4	3	2	4	3	1	1	0	12/18/2013
98	Comstock Road	Pound Hill Road	Dead End	3	9	3	2	0	3	4	1	1	0	12/18/2013
285	Eaton Street	Victory Highway (Rt. 102)	Dead End	3	11	4	1	1	2	2	1	1	1	12/18/2013
155	Filion Drive	Mechanic Street	Dead End	3	10	2	2	0	2	3	0	2	0	11/22/2013
118	Forest Hill Drive	Old Oxford Road	Old Oxford Road	3	9	4	4	0	4	4	0	1	0	12/2/2013
18	Freitas Lane	Maple Avenue	Dead End	3	10	3	2	2	2	3	1	1	1	12/18/2013
314	Greene Street	Victory Highway	School Street	3	10	3	2	2	3	2	0	0	0	12/18/2013
138	Harkness Road	Old Great Road	Dead End	3	7	4	5	3	4	5	1	2	0	11/22/2013
290	Hillview Avenue	49 Hillview Avenue	Lapre Road	3	8	3	3	3	3	3	0	0	1	12/18/2013
77	John Avenue	Dead End	Dead End	3	10	2	3	0	2	0	0	0	2	11/27/2013
231	Karen Marie Drive	Indigo Farm Road	Dead End	3	6	5	4	3	4	6	1	1	0	12/3/2013
275	Knollridge Drive	Woonsocket Hill Road	Dead End	3	10	3	4	1	2	3	1	1	1	12/4/2013
125	Leonard Drive	Dead End	Log Road	3	10	0	0	0	3	0	1	0	0	12/2/2013
32	Mattity Road	Town Line	Brookside Drive	3	12	0	0	0	2	0	2	1	0	11/26/2013
298	Morning Star Drive	Victory Highway	Rising Sun Trail	3	10	3	2	1	1	3	0	1	0	12/4/2013
103	Myrick Drive	Church Street	Dead End	3	10	3	2	1	3	3	1	1	0	12/18/2013
60	Oakdale Road	Norwood Road	Westwood Road	3	10	3	2	2	3	2	0	1	0	12/9/2013
120	Old Oxford Road	Pound Hill Road	Dead End	3	8	4	5	3	5	4	0	1	0	12/2/2013
23	Old Smithfield Road	Sayles Hill Road	1105 Old Smithfield Road	3	10	2	3	2	2	2	0	1	0	12/6/2013
156	Orchard Street	Dead End	Filion Drive	3	11	2	2	0	2	3	0	1	0	11/22/2013
63	Primose Lane	Black Plain Road	Dead End	3	8	3	3	3	2	3	1	1	0	12/18/2013
117	Rainbow Lane	Taylor Drive	Taylor Drive	3	9	4	5	2	4	4	0	0	1	12/2/2013
97	Taber Hill Road	Taber Hill Road	Dead End	3	8	5	3	3	4	3	1	1	0	12/18/2013
99	Taber Hill Road	Pound Hill Road	Dead End	3	8	5	3	3	4	3	1	1	0	12/18/2013
269	Taylor Drive	Black Plain Road	Black Plain Road	3	10	4	7	0	4	3	0	0	0	12/4/2013

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80	Village Way	Dead End	Providence Street (104)	3	10	5	3	1	4	1	0	0	0	12/9/2013
79	Wedgewood Drive	Chester Street	Dead End	3	10	5	3	2	2	2	0	1	0	12/9/2013
88	Westwood Road	146a	Dead End	3	10	5	2	0	2	2	0	0	0	12/9/2013
174	Adams Circle	Lincoln Drive	Dead End	2	10	3	3	0	2	2	0	0	0	12/18/2013
127	Angela Way	Toni Circle	Dead End	2	9	5	3	0	4	4	1	1	0	12/2/2013
255	Bearskin Farm Road	Mattity Road	Dead End	2	8	2	4	3	2	4	0	1	1	12/3/2013
102	Charon Drive	Providence Pike	Church Street	2	12	2	2	0	2	2	0	0	0	12/18/2013
106	Chelsea	Dead End	Black Plain Road	2	10	3	3	2	1	2	1	1	0	12/9/2013
276	Chester Street	Walsh Avenue	Wedgewood Drive	2	10	3	2	2	2	2	0	0	0	12/9/2013
126	Christina Way	Toni Circle	Dead End	2	10	5	3	0	4	2	0	1	0	12/18/2013
207	Girard Blvd	Dead End	Providence Street (104)	2	10	4	3	0	4	3	2	1	2	11/27/2013
66	Hollow Road	Follett Street	Dead End	2	12	0	2	0	0	0	0	0	0	11/26/2013
107	Jennifer Lane	Dead End	Chelsea Drive	2	8	3	2	3	1	2	0	1	0	11/26/2013
190	Julie Avenue	Victory Highway (Rt. 102)	Dead End	2	12	2	1	0	1	1	1	1	1	12/18/2013
223	Keene Street	Follett Street	Dead End	2	10	1	1	2	1	1	0	0	0	12/3/2013
104	Laurel Lane	Black Plains Road	Laurel Lane	2	9	4	4	2	4	4	1	1	0	11/26/2013
188	Maple Avenue	School Street	Victory Highway	2	12	0	1	1	0	1	0	0	0	12/18/2013
7	Mendon Road	298 Mendon Road	St. Paul Street	2	17	0	0	0	0	0	1	1	0	11/27/2013
133	Mt. Pleasant Road	Victory Highway (Rt. 102)	Town Line	2	10	4	2	2	2	2	0	1	0	12/18/2013
121	Narragansett Drive	Brookside Drive	Brookside Drive	2	10	2	1	0	3	1	0	0	0	12/2/2013
291	Oaklawn Road	Lapre Road	Hillview Avenue	2	10	4	2	2	3	2	0	0	0	12/18/2013
312	Pacheco Drive	Dead End	Greene Street	2	14	1	0	0	0	0	1	1	0	11/25/2013
226	Pond House Road	Rt. 104	Black Plains Road	2	17	0	0	0	0	1	0	0	0	12/18/2013
15	Pound Hill Road	1336 Pound Hill Road	Rt. 5	2	2	6	7	9	6	7	3	3	0	11/27/2013
241	Reservior Road	146	Town Border	2	10	2	3	2	3	2	0	0	0	12/18/2013
271	Robert Street	Providence Street (104)	Oak Hill Avenue	2	8	1	2	3	1	0	0	0	0	11/28/2013
234	Scott Farm Road	Dead End	Buxton Street	2	14	1	0	0	1	1	0	0	0	11/22/2013
256	Sky View Road	Dead End	Follett Street	2	14	1	1	0	1	1	0	0	0	12/3/2013
189	Steel Street	Edgecomb road	Dead End	2	10	2	0	2	3	3	0	0	0	12/18/2013
49	Stone Ridge Drive	Woonsocket Hill Road	Dead End	2	12	1	2	0	2	1	0	0	0	11/26/2013
81	Thayer Court	Dead End	Village Way	2	10	4	1	0	3	1	0	0	0	12/9/2013
128	Toni Circle	Mattity Road	Toni Circle	2	10	5	3	0	4	2	2	2	0	12/3/2013
114	Trout Brook Lane	Taylor Drive	Dead End	2	10	3	2	0	3	3	0	0	0	12/18/2013
82	Weeks Street	Village Way	49 Weeks Street	2	10	4	1	0	3	1	0	1	0	12/6/2013
38	Black Plain Road	Farnum Pike	Mattity Road	1	17	0	0	0	0	1	0	0	0	12/18/2013
56	Bourget Court	Rt. 5	Dead End	1	12	2	2	0	1	0	0	1	0	11/26/2013
325	Canal Street	Town Line	Town Line	1	14	1	0	0	0	0	0	0	0	11/27/2013
108	Courtney Drive	Black Plain Road	Jennifer Lane	1	12	2	0	0	1	0	0	1	0	11/26/2013

Segment Id	Road Name	From Address	To Address	General Condition	RSL	Transverse	Alligator	Patches/potholes	Longitudinal	Edge	Rutting	Roughness	Drainage	Survey Date
200	Crest Road	146a	Greenwood Street	1	14	1	1	0	0	0	0	0	0	12/9/2013
179	Northgate Road	Tall Timber Trail	Victory Highway	1	14	1	0	0	0	1	0	1	0	11/22/2013
24	Old Sayles Hill Road	35 Old Sayles Hill Road	Chamberlain Court	1	14	0	0	0	1	0	0	0	0	12/6/2013
65	Pomona Street	Grange Road	Dead End	1	12	1	1	0	2	0	0	1	0	11/26/2013
170	Ridge Road	N Main Street	Greene Street	1	20	0	0	0	0	0	0	0	2	11/25/2013
154	Saranac Street	Dead End	Elizabeth Avenue	1	12	0	0	1	0	0	0	0	0	11/27/2013
115	Stoney Drive	Taylor Drive	Dead End	1	10	2	2	0	3	3	0	0	0	11/26/2013
193	Warren Avenue	146a	Dead End	1	12	1	1	1	1	1	0	0	0	12/18/2013
20	Weeks Street	Buell Avenue	Crest Road	1	12	2	1	0	1	1	0	0	0	12/9/2013
58	Briden Street	Elizabeth Avenue	Dead End	0	20	0	0	0	0	0	0	0	0	11/27/2013
47	Buxton Street	146a	Buxton Street	0	20	0	0	0	0	0	0	0	0	11/22/2013
67	Chamberlain Court	Old Sayles Hill Road	Dead End	0	17	0	0	0	1	0	0	0	0	12/9/2013
311	Country Way	Ridge Road	Greene Street	0	20	0	0	0	0	0	0	0	0	11/25/2013
119	Cristy Court	Old Oxford Road	Dead End	0	12	1	0	0	2	2	0	0	0	12/2/2013
208	Cross Street	Providence Street (104)	Dead End	0	11	0	0	0	0	0	0	0	0	11/27/2013
64	Denny Court	Rocky Hill Road	Dead End	0	20	0	0	0	0	0	0	0	0	12/6/2013
129	Doire Court	Unable To Locate Cross	Dead End	0	20	0	0	0	0	0	0	0	0	12/18/2013
0	Elizabeth Avenue	11 Elizabeth Avenue	Dead End	0	20	0	0	0	0	0	0	0	0	11/27/2013
139	Elizabeth Avenue	St. Paul Street	11 Elizabeth Avenue	0	20	0	0	0	0	0	0	0	0	11/27/2013
92	Fountain Street	Mendon Road	Graves Avenue	0	20	0	0	0	0	0	0	0	0	11/27/2013
112	Hart Pond Drive	3 Hart Pond Road	Pound Hill Road	0	14	0	0	0	1	0	0	1	0	11/26/2013
113	Hart Pond Drive	Dead End	3 Hart Pond Road	0	14	0	0	0	1	0	0	0	0	11/26/2013
110	Jeanne Court	Black Plain Road	Dead End	0	14	1	0	0	1	0	0	1	0	11/26/2013
29	Laurel Lane (*Lower Half*)	Laurel Lane	Dead End	0	12	2	2	0	2	2	0	0	0	11/26/2013
235	Log Road	Town Line	Town Line	0	20	0	0	0	0	0	0	0	0	12/3/2013
30	Mattity Road	Rt. 7	Black Plain Road	0	9	2	3	4	3	4	0	0	0	11/26/2013
8	Mendon Road	409 Mendon Road	298 Mendon Road	0	20	0	0	0	0	0	0	0	0	11/27/2013
9	Mendon Road	146a	409 Mendon Road	0	20	0	0	0	0	0	0	0	0	11/27/2013
149	Middle Street	St. Paul Street	Dead End	0	20	0	0	0	0	0	0	0	0	11/27/2013
143	Mill Street	Canal Street	Town Line	0	14	0	1	0	0	0	0	0	0	11/27/2013
280	Mowry Avenue	Dead End	35 Mowry Avenue	0	20	0	0	0	0	0	0	0	0	12/18/2013
261	Mowry Road	Town Line	Rt (7)	0	20	0	0	0	0	0	0	0	0	11/27/2013
283	Old Pound Hill Road	Dead End	Pound Hill Road	0	20	0	0	0	0	0	0	0	0	12/18/2013
225	Old Sayles Hill Road	Iron Mine Hill Road	35 Old Sayles Hill road	0	20	0	0	0	0	0	0	0	0	12/6/2013
61	Park Drive	Dead End	146a	0	20	0	0	0	0	0	0	0	0	12/18/2013
131	Pine Hill Road	Pound Hill Road	Dead End	0	20	0	0	0	0	0	0	0	0	12/18/2013
1	Rhodes Avenue	Mendon Road	Town Border	0	12	2	1	0	0	1	0	0	0	12/18/2013
93	Smith Street	Elizabeth Avenue	Dead End	0	20	0	0	0	0	0	0	0	0	11/27/2013

Segment Id	Road Name	From Address	To Address	General Condition	RSL	Transverse	Alligator	Patches/potholes	Longitudinal	Edge	Rutting	Roughness	Drainage	Survey Date
28	Tifft Road	71 Tifft Road	80 Tifft Road	0	20	0	0	0	0	0	0	0	0	11/26/2013
246	Valley View Drive	Dead End	Iron Mill Hill Road	0	20	0	0	0	0	0	0	0	1	12/6/2013
91	West Street	Fountain Street	Colerick Street	0	20	0	0	0	0	0	0	0	0	11/27/2013

APPENDIX C
Roadway Inventory Report
(Ordered Alphabetically by Road Name)

JCE
JOE CASALI ENGINEERING, INC.
CIVIL · SITE DEVELOPMENT · TRANSPORTATION
DRAINAGE · WETLANDS · ISDS · TRAFFIC · FLOODPLAIN
300 POST ROAD, WARWICK, RI 02888
(401) 944-1300 (401) 944-1313 FAX WWW.JOECASALI.COM

ROADWAY INVENTORY REPORT

(ORDERED: Roadname)

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
174	Adams Circle	Lincoln Drive	Dead End	Runoff	30	127	2	423.33
127	Angela Way	Toni Circle	Dead End	Curb & Catch Basin	28	182	2	566.22
76	Annette Avenue	Dead End	Girard Blvd	Runoff	22	310	3	757.78
192	Antaya Drive	Providence Pike (Rt. 5)	Dead End	Runoff	15	353	7	588.33
195	Arnold Avenue	Woonsocket Hill Road	Milton Avenue	Runoff & Catch Basin	24	649	8	1,730.67
85	Bamford Street	Odonnell Avenue	Homestead Avenue	Runoff	22	296	3	723.56
247	Beachway Road	Brookside Drive	Brookside Drive	Runoff	14	607	5	944.22
255	Bearskin Farm Road	Mattity Road	Dead End	Runoff	14	1,438	2	2,236.89
134	Belcher Avenue	Victory Highway	Dead End	Curb & Catch Basin	26	571	4	1,649.56
284	Bellevue Avenue	Woonsocket Hill Road	Dead End	Runoff & Catch Basin	24	1,480	6	3,946.67
212	Birch Hill Avenue	Robert Street	E Old Greenville Road	Runoff & Catch Basin	30	990	4	3,300.00
35	Black Plain Road	Pound Hill Road	Charon Drive	Runoff & Catch Basin	24	5,080	6	13,546.67
36	Black Plain Road	Taylor Drive	Pound Hill Road	Runoff	22	4,319	5	10,557.56
37	Black Plain Road	Mattity Road	Taylor Drive	Runoff & Catch Basin	20	3,996	3	8,880.00
38	Black Plain Road	Farnum Pike	Mattity Road	Runoff & Catch Basin	24	3,759	1	10,024.00
56	Bourget Court	Rt. 5	Dead End	Curb & Catch Basin	28	1,657	1	5,155.11
182	Branch Avenue	Great Road	Dead End	Runoff	38	528	6	2,229.33
273	Brentwood Drive	Woonsocket Hill Road	Dead End	Curb & Catch Basin	30	3,802	5	12,673.33
95	Brian Avenue	Harkness Road	Willerval Avenue	Runoff & Catch Basin	26	1,455	6	4,203.33
152	Brian Avenue	Willerval Avenue	Dead End	Curb & Catch Basin	24	509	5	1,357.33
58	Briden Street	Elizabeth Avenue	Dead End	Curb & Catch Basin	24	356	0	949.33
248	Brookside Drive	Dead End	Mattity Road	Runoff	18	2,675	5	5,350.00
109	Bruce Drive	Providence Pike	Dead End	Curb & Catch Basin	30	1,669	4	5,563.33
302	Buckley Drive	Mendon Road	Dead End	Runoff	24	1,000	8	2,666.67
279	Buell Avenue	146a	Greenwood Street	Runoff & Catch Basin	24	866	4	2,309.33
46	Buxton Street	Buxton Street	Town Line	Runoff & Catch Basin	22	2,113	3	5,165.11
47	Buxton Street	146a	Buxton Street	Runoff & Catch Basin	22	3,524	0	8,614.22
325	Canal Street	Town Line	Town Line	Runoff & Catch Basin	22	2,264	1	5,534.22
274	Candlewood Road	Wedgewood Drive	Dead End	Paved Waterway	26	626	4	1,808.44
181	Carlton Avenue	Belcher Avenue	Sunnycrest Avenue	Runoff	24	1,407	9	3,752.00
186	Carlton Avenue	Dead End	Sunnycrest Avenue	Curb & Catch Basin	24	335	5	893.33
320	Carpenter Street	Florence Street	Victory Highway	Runoff & Catch Basin	22	464	3	1,134.22
230	Cedar Forest Road	RT (5)	Dead End	Curb & Catch Basin	30	582	5	1,940.00

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
67	Chamberlain Court	Old Sayles Hill Road	Dead End	Curb & Catch Basin	30	611	0	2,036.67
102	Charon Drive	Providence Pike	Church Street	Runoff	30	1,054	2	3,513.33
106	Chelsea Drive	Dead End	Black Plan Road	Curb & Catch Basin	30	808	2	2,693.33
297	Cherrybrook Avenue	Great Road (146a)	Great Road (146a)	Runoff	25	830	3	2,305.56
276	Chester Street	Walsh Avenue	Wedgewood Drive	Runoff	22	858	2	2,097.33
100	Christiansen Way	Dead End	Steele Street	Curb & Catch Basin	30	638	3	2,126.67
126	Christina Way	Toni Circle	Dead End	Curb & Catch Basin	28	431	2	1,340.89
187	Church Street	Providence Pike	Dead End	Curb & Catch Basin	30	1,169	3	3,896.67
233	Cider Mill Road	Buxton Street	Town Line	Runoff	20	1,885	4	4,188.89
281	Circle Drive	Providence Pike	Highpoint Drive	Curb & Catch Basin	30	732	7	2,440.00
53	Comstock Road	Providence Pike	Dead End	Runoff	20	1,644	3	3,653.33
98	Comstock Road	Pound Hill Road	Dead End	Runoff	16	462	3	821.33
62	Connector Road	146a	Old Great Road	Curb & Catch Basin	30	612	6	2,040.00
311	Country Way	Ridge Road	Greene Street	Curb & Catch Basin	28	1,503	0	4,676.00
108	Courtney Drive	Black Plain Road	Jennifer Lane	Curb & Catch Basin	30	554	1	1,846.67
200	Crest Road	146a	Greenwood Street	Runoff	22	782	1	1,911.56
119	Cristy Court	Old Oxford Road	Dead End	Curb & Catch Basin	28	863	0	2,684.89
75	Cross Road	146A	E Old Greenville Road	Paved Waterway	24	2,247	5	5,992.00
208	Cross Street	Providence Street (104)	Dead End	Runoff & Catch Basin	20	1,083	0	2,406.67
4	Cynthia Drive	Sharon Pkwy	Sharon Pkwy	Runoff & Catch Basin	22	640	6	1,564.44
59	Cynthia Drive	Mendon Road	Sharon Pkwy	Runoff & Catch Basin	30	1,274	6	4,246.67
2	Deborah Avenue	Mendon Road	Cynthia Drive	Runoff & Catch Basin	30	524	5	1,746.67
72	Deerfield Drive	E Old Greenville Road	Pheasant Run Road	Curb & Catch Basin	30	1,435	5	4,783.33
64	Denny Court	Rocky Hill Road	Dead End	Curb & Catch Basin	26	854	0	2,467.11
129	Doire Court	Pound Hill Road	Dead End	Curb & Catch Basin	30	657	0	2,190.00
96	Dorene Drive	Willerval Avenue	Duane Court	Curb & Catch Basin	30	1,211	4	4,036.67
150	Duane Court	Dead End	Harkness Road	Curb & Catch Basin	30	1,010	4	3,366.67
42	E Harkness Road	Martha Road	Great Road	Runoff	20	1,134	8	2,520.00
69	E Old Greenville Road	Dead End	Providence Street (104)	Runoff & Catch Basin	24	1,335	5	3,560.00
285	Eaton Street	Victory Highway (Rt. 102)	Dead End	Runoff	26	997	3	2,880.22
308	Edward Avenue	Parkview Drive	Dead End	Runoff & Catch Basin	30	1,139	6	3,796.67
0	Elizabeth Avenue	11 Elizabeth Avenue	Dead End	Runoff & Catch Basin	22	1,141	0	2,789.11
139	Elizabeth Avenue	St. Paul Street	11 Elizabeth Avenue	Runoff & Catch Basin	20	962	0	2,137.78
317	Esmond Road	E Harkness Road	Sorel Avenue	Runoff	26	442	6	1,276.89
211	Fairview Avenue	Hill Street	Dead End	Runoff	24	636	5	1,696.00
166	Ferrier Street	Victory Highway (Rt. 102)	Dead End	Runoff	24	755	5	2,013.33
155	Filion Drive	Mechanic Street	Dead End	Curb & Catch Basin	24	491	3	1,309.33
163	Flora Street	Ferrier Street	146a	Runoff	20	335	4	744.44
162	Florence Street	146a	Dead End	Runoff	25	422	6	1,172.22

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
221	Follett Street	Woonsocket Hill Road	Farnum Pike	Curb & Catch Basin	24	3,900	4	10,400.00
118	Forest Hill Drive	Old Oxford Road	Old Oxford Road	Curb & Catch Basin	28	2,197	3	6,835.11
92	Fountain Street	Mendon Road	Graves Avenue	Curb & Catch Basin	20	927	0	2,060.00
124	Francis Farm Road	Indigo Farm Road	Dead End	Curb & Catch Basin	30	387	4	1,290.00
239	Franconia Drive	Leonard Drive	Leonard Drive	Curb & Catch Basin	30	1,768	4	5,893.33
164	Franklin Way	St. Paul Street	Lincoln Drive	Curb & Catch Basin	30	960	5	3,200.00
18	Freitas Lane	Maple Avenue	Dead End	Paved Waterway	20	513	3	1,140.00
222	George Lee Road	Rt. 5	Woonsocket Hill Road	Runoff	30	427	6	1,423.33
178	Georgianna Avenue	Dead End	Dead End	Curb & Catch Basin	30	1,544	4	5,146.67
194	Getchell Street	Pound Hill Road	Odonnell Avenue	Runoff	25	428	5	1,188.89
196	Gilfilian Road	Homestead Avenue	Pound Hill Road	Runoff & Catch Basin	22	828	6	2,024.00
207	Girard Blvd	Dead End	Providence Street (104)	Runoff	24	744	2	1,984.00
55	Glen Avenue	146a	Dead End	Runoff & Catch Basin	28	349	8	1,085.78
277	Golden Blvd.	Dead End	Greenwood Street	Runoff	24	546	6	1,456.00
101	Graham Drive	Dead End	Providence Pike	Runoff & Catch Basin	25	1,462	5	4,061.11
26	Grange road	Providence Pike	Rocky Hill Road	Runoff	18	1,949	9	3,898.00
240	Grange Road	Greenville Road	Rocky Hill Road	Runoff	20	3,050	6	6,777.78
41	Great Road	Victory Highway	E Harkness Road	Runoff & Catch Basin	28	1,473	7	4,582.67
314	Greene Street	Victory Highway	School Street	Curb & Catch Basin	22	2,785	3	6,807.78
299	Greenwood Lane	Georgianna Avenue	Sunnycrest Avenue	Runoff	30	863	4	2,876.67
201	Greenwood Street	Buell Avenue	Crest Road	Runoff & Catch Basin	24	313	4	834.67
177	Halliwell Blvd	School Street	School Street	Runoff & Catch Basin	24	1,070	4	2,853.33
138	Harkness Road	Old Great Road	Dead End	Runoff & Catch Basin	22	646	3	1,579.11
112	Hart Pond Drive	3 Hart Pond Drive	Pound Hill Road	Curb & Catch Basin	30	144	0	480.00
113	Hart Pond Drive	Dead End	3 Hart Pond Drive	Curb & Catch Basin	30	466	0	1,553.33
89	Heroux Drive	Great Road (146a)	Dead End	Runoff	18	813	5	1,626.00
43	High View Ave	Mechanic Ave	Dead End	Curb & Catch Basin	30	618	5	2,060.00
160	High View Avenue	Victory Hwy	Mechanic Street	Runoff & Catch Basin	24	1,038	4	2,768.00
105	Highpoint Drive	Providence Pike	Dead End	Curb & Catch Basin	30	1,339	7	4,463.33
70	Hill Street	Cross Road	E Old Greenville Road	Runoff	26	438	6	1,265.33
34	Hillview Avenue	Great Road (146a)	49 Hillview Avenue	Runoff	28	617	5	1,919.56
290	Hillview Avenue	49 Hillview Avenue	Lapre Road	Runoff	28	496	3	1,543.11
66	Hollow Road	Follett Street	Dead End	Runoff	20	322	2	715.56
316	Homecrest Avenue	Buxton Street	Victory Highway	Runoff	22	1,452	4	3,549.33
87	Homestead Avenue	146a	Dead End	Curb & Catch Basin	25	1,638	4	4,550.00
78	Indian Head Lane	Candlewood Road	Dead End	Runoff	26	145	6	418.89
123	Indigo Farm Road	Log Road	Indigo Farm Road	Curb & Catch Basin	30	3,728	4	12,426.67
250	Iron Mine Hill Road	Farnum Pike (104)	Sayles Hill Road	Runoff & Catch Basin	21	15,259	8	35,604.33
157	Ironstone Street	Buxton Street	146a	Runoff	22	735	6	1,796.67

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
110	Jeanne Court	Black Plain Road	Dead End	Curb & Catch Basin	26	1,650	0	4,766.67
219	Jefferson Road	Old Greenville Road	Dead End	Runoff & Catch Basin	30	868	6	2,893.33
107	Jennifer Lane	Dead End	Chelsea Drive	Curb & Catch Basin	30	1,301	2	4,336.67
77	John Avenue	Dead End	Dead End	Runoff	24	395	3	1,053.33
190	Julie Avenue	Victory Highway (Rt. 102)	Dead End	Runoff & Catch Basin	30	337	2	1,123.33
231	Karen Marie Drive	Indigo Farm Road	Dead End	Curb & Catch Basin	30	315	3	1,050.00
223	Keene Street	Follett Street	Dead End	Runoff	22	609	2	1,488.67
5	Kirby Lane	Dead End	Dead End	Runoff & Catch Basin	26	269	6	777.11
185	Kirby Lane	School Street	14 Kirby Lane	Runoff & Catch Basin	26	502	6	1,450.22
301	Kirby Lane	14 Kirby Lane	23 Kirby Lane	Runoff & Catch Basin	26	245	6	707.78
275	Knollridge Drive	Woonsocket Hill Road	Dead End	Curb & Catch Basin	26	3,580	3	10,342.22
292	Lapre Road	Great Road (146a)	Dead End	Runoff & Catch Basin	21	1,148	7	2,678.67
104	Laurel Lane	Black Plains Road	Laurel Lane	Curb & Catch Basin	20	281	2	624.44
29	Laurel Lane (Lower Half)	Laurel Lane	Dead End	Curb & Catch Basin	20	408	0	906.67
213	Leo Street	Oak Hill Avenue	Providence Street (104)	Runoff & Catch Basin	25	455	4	1,263.89
125	Leonard Drive	Dead End	Log Road	Curb & Catch Basin	30	2,902	3	9,673.33
318	Lester Street	Rt. 5	Victory Highway	Runoff	22	675	8	1,650.00
303	Lincoln Drive	Mendon Road	Dead End	Runoff & Catch Basin	30	3,651	4	12,170.00
304	Litzen & Lorraine Avenue	Maple Avenue	Dead End	Runoff & Catch Basin	26	1,341	7	3,874.00
235	Log Road	Town Line	Town Line	Runoff & Catch Basin	26	4,390	0	12,682.22
122	Lumber Hill Road	Brookside Drive	Dead End	Runoff	16	365	5	648.89
188	Maple Avenue	School Street	Victory Highway	Runoff & Catch Basin	28	2,391	2	7,438.67
83	Mara Lane	Dead End	Woonsocket Hill Road	Curb & Catch Basin	30	1,018	5	3,393.33
39	Martha Road	Sorel Avenue	Dead End	Curb & Catch Basin	30	606	9	2,020.00
30	Mattity Road	Rt. 7	Black Plain Road	Curb & Catch Basin	20	5,760	6	12,800.00
31	Mattity Road	Brookside Drive	Rt. 7	Curb & Catch Basin	24	1,454	3	3,877.33
32	Mattity Road	Town Line	Brookside Drive	Runoff & Catch Basin	22	3,655	0	8,934.44
315	McCann Street	Rt. 5	Victory Highway	Curb & Catch Basin	22	932	4	2,278.22
71	Meadow Lane	Deerfield Drive	Dead End	Curb & Catch Basin	30	266	4	886.67
295	Meadowbrooke Drive	Great Road (146a)	Dead End	Runoff	20	1,363	5	3,028.89
158	Mechanic Street	Rt. 5	Connector Road	Curb & Catch Basin	22	3,230	4	7,895.56
7	Mendon Road	298 Mendon Road	St. Paul Street	Curb & Catch Basin	24	2,694	2	7,184.00
8	Mendon Road	409 Mendon Road	298 Mendon Road	Curb & Catch Basin	24	1,145	0	3,053.33
9	Mendon Road	146a	409 Mendon Road	Curb & Catch Basin	28	2,832	0	8,810.67
204	Merrimac Road	146a	Dead End	Runoff	28	815	8	2,535.56
149	Middle Street	St. Paul Street	Dead End	Runoff & Catch Basin	24	794	0	2,117.33
143	Mill Street	Canal Street	Town Line	Runoff & Catch Basin	30	340	0	1,133.33
84	Milton Avenue	146a	Williams Street	Runoff & Catch Basin	22	1,690	7	4,131.11
298	Morning Star Drive	Victory Highway	Rising Sun Trail	Curb & Catch Basin	30	875	3	2,916.67

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
191	Morse Avenue	146a	Dead End	Curb & Catch Basin	25	1	7	2.78
287	Morse Avenue	146a	Town Line	Curb & Catch Basin	24	865	6	2,402.78
94	Mountain Road	Old Great Road	Dead End	Runoff	20	477	4	1,060.00
19	Mowry Avenue	35 Mowry Avenue	Arnold Avenue	Runoff	24	335	9	893.33
280	Mowry Avenue	Dead End	35 Mowry Avenue	Runoff	22	455	0	1,112.22
261	Mowry Road	Town Line	Rt (7)	Runoff & Catch Basin	18	416	0	832.00
133	Mt. Pleasant Road	Victory Highway (Rt. 102)	Town Line	Runoff	24	1,248	2	3,328.00
197	Mulberry Street	Milton Avenue	Mowry Avenue	Runoff	24	415	5	1,106.67
103	Myrick Drive	Church Street	Dead End	Runoff	26	515	3	1,487.78
121	Narragansett Drive	Brookside Drive	Brookside Drive	Curb & Catch Basin	30	1,129	2	3,763.33
51	North Wood Lane	Parkview Drive	Dead End	Runoff	26	207	4	598.00
179	Northgate Road	Tall Timber Trail	Victory Highway	Runoff	28	349	1	1,085.78
288	Norwood Road	Westwood Road	Oakdale Road	Curb & Catch Basin	26	512	7	1,479.11
215	Oak Hill Avenue	Robert Street	E Old Greenville Road	Runoff & Catch Basin	26	484	4	1,398.22
60	Oakdale Road	Norwood Road	Westwood Road	Runoff	26	324	3	936.00
291	Oaklawn Road	Lapre Road	Hillview Avenue	Runoff	28	855	2	2,660.00
309	Obeline Drive	Dead End	Mendon Road	Runoff	25	667	8	1,852.78
86	Odonnell Avenue	Bamford Street	Gilfillan Road	Runoff & Catch Basin	22	792	7	1,936.00
232	Old Field Drive	Dead End	Buxton Street	Runoff	28	860	5	2,675.56
44	Old Great Road	Mechanic Street	West Harness Road	Curb & Catch Basin	30	2,616	9	8,720.00
45	Old Great Road	Dead End	Mechanic Street	Runoff & Catch Basin	20	2,044	4	4,542.22
218	Old Greenville Road	Farnum Pike 104	43 Old Greenville Road	Paved Waterway	20	1,312	8	2,915.56
268	Old Greenville Road	43 Old Greenville Road	Dead End	Runoff	20	523	6	1,162.22
120	Old Oxford Road	Pound Hill Road	Dead End	Curb & Catch Basin	24	3,810	3	10,160.00
283	Old Pound Hill Road	Dead End	Pound Hill Road	Runoff	18	1,214	0	2,428.00
24	Old Sayles Hill Road	35 Old Sayles Hill Road	Chamberlain Court	Runoff & Catch Basin	18	219	4	438.00
225	Old Sayles Hill Road	Iron Mine Hill Road	35 Old Sayles Hill road	Runoff & Catch Basin	18	1,068	1	2,136.00
242	Old Sayles Hill Road	Dead End	Dead End	Runoff	14	1,075	0	1,672.22
22	Old Smithfield Road	Sayles Hill Road	Town Line	Paved Waterway	20	2,637	5	5,860.00
23	Old Smithfield Road	Sayles Hill Road	1105 Old Smithfield Road	Paved Waterway	20	1,977	4	4,393.33
263	Old Smithfield Road	1105 Old Smithfield Road	146a	Runoff	20	4,781	3	10,624.44
156	Orchard Street	Dead End	Filion Drive	Curb & Catch Basin	22	387	3	946.00
245	Overlea Road	Mattity Road	Dead End	Runoff & Catch Basin	20	2,265	8	5,033.33
312	Pacheco Drive	Dead End	Greene Street	Curb & Catch Basin	28	743	2	2,311.56
61	Park Drive	Dead End	146a	Runoff	25	578	0	1,605.56
132	Parkview Drive	Parkview Drive	Dead End	Curb & Catch Basin	30	563	6	1,876.67
169	Parkview Drive	Rt. 5	Parkview Drive	Curb & Catch Basin	30	1,402	5	4,673.33
324	Patricia Avenue	Harkness Road	Brian Avenue	Runoff	30	940	7	3,133.33
74	Pheasant Run Road	Deerfield Drive	Cross Street	Runoff & Catch Basin	30	663	4	2,210.00

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
198	Pine Court	Woonsocket Hill Road	Dead End	Runoff & Catch Basin	22	460	5	1,124.44
131	Pine Hill Road	Pound Hill Road	Dead End	Runoff & Catch Basin	28	793	0	2,467.11
65	Pomona Street	Grange Road	Dead End	Curb & Catch Basin	26	3,622	1	10,463.56
226	Pond House Road	Rt. 104	Black Plains Road	Runoff & Catch Basin	20	4,083	2	9,073.33
13	Pound Hill Road	Old Pound Road	146A	Runoff	26	2,953	7	8,530.89
14	Pound Hill Road	Rt. 5	North Smithfield Industrial	Runoff	24	3,703	7	9,874.67
15	Pound Hill Road	1336 Pound Hill Road	Rt. 5	Runoff & Catch Basin	26	4,709	6	13,603.78
16	Pound Hill Road	1762 Pound Hill Road	1336 Pound Hill Road	Runoff & Catch Basin	24	2,733	4	7,288.00
130	Pound Hill Road	Rt. 7	1620 Pound Hill Road	Runoff & Catch Basin	20	2,987	2	6,637.78
63	Primose Lane	Black Plain Road	Dead End	Runoff	15	854	3	1,423.33
117	Rainbow Lane	Taylor Drive	Taylor Drive	Curb & Catch Basin	30	436	3	1,453.33
180	Rainville Avenue	Victory Highway	Dead End	Runoff	28	426	8	1,325.33
33	Raymond Street	146a	Dead End	Runoff	30	278	7	926.67
323	Remington Circle	Brian Avenue	Dead End	Curb & Catch Basin	30	443	6	1,476.67
241	Reservior Road	146	Town Border	Runoff	18	3,308	2	6,616.00
1	Rhodes Avenue	Mendon Road	Town Border	Runoff	24	413	0	1,101.33
170	Ridge Road	N Main Street	Greene Street	Runoff	28	980	1	3,048.89
183	Rising Sun Trail	Morning Star Drive	Tall Timber Trail	Curb & Catch Basin	28	408	4	1,269.33
271	Robert Street	Providence Street (104)	Oak Hill Avenue	Runoff	20	294	2	653.33
73	Robin Way	Deerfield Drive	Cross Road	Curb & Catch Basin	30	555	4	1,850.00
238	Rocky Hill Road	Grange Road	Town Line	Runoff & Catch Basin	20	9,336	6	20,746.67
305	Roselawn Avenue	Dead End	Maple Avenue	Runoff & Catch Basin	20	961	6	2,135.56
154	Saranac Street	Dead End	Elizabeth Avenue	Runoff	22	486	1	1,188.00
224	Sayles Hill Road	Iron Mine Hill Road	Dead End	Runoff & Catch Basin	24	4,372	7	11,658.67
234	Scott Farm Road	Dead End	Buxton Street	Curb & Catch Basin	30	611	2	2,036.67
48	Shady Lane	Cross Road	Dead End	Runoff	30	183	6	610.00
3	Sharon Pkwy	Dead End	Cynthia Drive	Runoff & Catch Basin	25	917	6	2,547.22
319	Sharon Pkwy	20 Sharon Pkwy	Mendon Road	Runoff & Catch Basin	22	842	6	2,058.22
256	Sky View Road	Dead End	Follett Street	Curb & Catch Basin	26	981	2	2,834.00
93	Smith Street	Elizabeth Avenue	Dead End	Curb & Catch Basin	24	385	0	1,026.67
165	Sorel Avenue	Esmond Road	Martha Road	Runoff	26	589	6	1,701.56
189	Steel Street	Edgecomb road	Dead End	Curb & Catch Basin	40	807	2	3,586.67
49	Stone Ridge Drive	Woonsocket Hill Road	Dead End	Curb & Catch Basin	28	734	2	2,283.56
115	Stoney Drive	Taylor Drive	Dead End	Curb & Catch Basin	30	2,707	1	9,023.33
278	Summit Avenue	146a	White Parkway	Curb & Catch Basin	26	896	6	2,588.44
184	Sunnycrest Avenue	Victory Highway	Dead End	Runoff & Catch Basin	30	1,771	4	5,903.33
97	Taber Hill Road	Taber Hill Road	Dead End	Curb & Catch Basin	30	209	3	696.67
99	Taber Hill Road	Pound Hill Road	Dead End	Curb & Catch Basin	30	1,496	3	4,986.67
300	Tall Timber Trail	Rising Sun Trail	Rising Sun Trail	Curb & Catch Basin	28	1,757	4	5,466.22

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
322	Tanglewood Road	Martha Road	Winchester Avenue	Curb & Catch Basin	30	1,091	8	3,636.67
269	Taylor Drive	Black Plain Road	Black Plain Road	Curb & Catch Basin	30	1,527	3	5,090.00
81	Thayer Court	Dead End	Village Way	Curb & Catch Basin	28	420	2	1,306.67
27	Tifft Road	Tifft Road	end of road	Curb & Catch Basin	24	371	6	989.33
28	Tifft Road	Tift Road	Tift Road	Curb & Catch Basin	24	1,069	5	2,850.67
289	Tifft Road	Black Plain Road	Black Plain Road	Curb & Catch Basin	24	2,243	0	5,981.33
251	Tom Lee Drive	Farnum Pike	Dead End	Curb & Catch Basin	30	1,324	4	4,413.33
128	Toni Circle	Mattity Road	Toni Circle	Curb & Catch Basin	26	3,032	2	8,759.11
114	Trout Brook Lane	Taylor Drive	Dead End	Curb & Catch Basin	30	633	2	2,110.00
209	Urrico Avenue	E Old Greenville Road	Dead End	Runoff	26	894	5	2,582.67
246	Valley View Drive	Dead End	Iron Mill Hill Road	Curb & Catch Basin	26	607	0	1,753.56
80	Village Way	Dead End	Providence Street (104)	Curb & Catch Basin	26	2,009	3	5,803.78
210	Vincent Avenue	Cross Street	E Old Greenville Road	Runoff & Catch Basin	20	441	5	980.00
205	Walsh Avenue	Merrimac Road	Dead End	Runoff	28	295	6	917.78
193	Warren Avenue	146a	Dead End	Runoff	25	381	1	1,058.33
79	Wedgewood Drive	Chester Street	Dead End	Paved Waterway	26	582	3	1,681.33
20	Weeks Street	Buell Avenue	Crest Road	Runoff	28	300	5	933.33
21	Weeks Street	49 Weeks Street	Buell Avenue	Runoff	28	157	2	488.44
82	Weeks Street	Village Way	49 Weeks Street	Curb & Catch Basin	28	720	1	2,240.00
91	West Street	Fountain Street	Colerick Street	Runoff & Catch Basin	20	430	0	955.56
88	Westwood Road	146a	Dead End	Curb & Catch Basin	26	1,147	3	3,313.56
203	White Parkway	146a	Dead End	Runoff	26	1,477	6	4,266.89
50	Wicks Street	Follett Street	Dead End	Runoff	12	495	4	660.00
172	Wildwood Road	Dead End	Dead End	Runoff & Catch Basin	20	464	5	1,031.11
173	Wildwood Road	Maple Avenue	6 Wildwood Road	Runoff	20	417	5	926.67
176	Wilks Avenue	Victory Highway	Dead End	Runoff	25	859	9	2,386.11
151	Willerval Avenue	Remington Circle	Harkness Road	Curb & Catch Basin	26	572	6	1,652.44
54	Williams Street	Milton Avenue	Dead End	Curb & Catch Basin	22	777	5	1,899.33
321	Winchester Avenue	Tanglewood Road	Dead End	Curb & Catch Basin	30	2,457	7	8,190.00
254	Woodland Road	Dead End	Sayles Hill Road	Runoff	22	988	7	2,415.11
286	Woodlawn Road	Lapre Road	Dead End	Runoff	25	996	6	2,766.67
10	Woonsocket Hill Road	126 Woonsocket Hill Road	146a	Paved Waterway	25	1,600	7	4,444.44
11	Woonsocket Hill Road	Mara Lane	218 Woonsocket Hill	Paved Waterway	26	2,113	6	6,104.22
252	Woonsocket Hill Road	Rt. 5	George Lee Road	Runoff	24	2,850	4	7,600.00
259	Woonsocket Hill Road	George Lee Road	Mara Lane	Runoff	24	6,638	4	17,701.33

APPENDIX D

Roadway Inventory Report
(Ordered Numerically by General Condition Rating)

JCE
JOE CASALI ENGINEERING, INC.
CIVIL · SITE DEVELOPMENT · TRANSPORTATION
DRAINAGE · WETLANDS · ISDS · TRAFFIC · FLOODPLAIN
300 POST ROAD, WARWICK, RI 02888

ROADWAY INVENTORY REPORT

(ORDERED: Condition)

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
181	Carlton Avenue	Belcher Avenue	Sunnycrest Avenue	Runoff	24	1,407	9	3,752.00
26	Grange road	Providence Pike	Rocky Hill Road	Runoff	18	1,949	9	3,898.00
39	Martha Road	Sorel Avenue	Dead End	Curb & Catch Basin	30	606	9	2,020.00
19	Mowry Avenue	35 Mowry Avenue	Arnold Avenue	Runoff	24	335	9	893.33
44	Old Great Road	Mechanic Street	West Harness Road	Curb & Catch Basin	30	2,616	9	8,720.00
176	Wilks Avenue	Victory Highway	Dead End	Runoff	25	859	9	2,386.11
195	Arnold Avenue	Woonsocket Hill Road	Milton Avenue	Runoff & Catch Basin	24	649	8	1,730.67
302	Buckley Drive	Mendon Road	Dead End	Runoff	24	1,000	8	2,666.67
42	E Harkness Road	Martha Road	Great Road	Runoff	20	1,134	8	2,520.00
55	Glen Avenue	146a	Dead End	Runoff & Catch Basin	28	349	8	1,085.78
250	Iron Mine Hill Road	Farnum Pike (104)	Sayles Hill Road	Runoff & Catch Basin	21	15,259	8	35,604.33
318	Lester Street	Rt. 5	Victory Highway	Runoff	22	675	8	1,650.00
204	Merrimac Road	146a	Dead End	Runoff	28	815	8	2,535.56
309	Obeline Drive	Dead End	Mendon Road	Runoff	25	667	8	1,852.78
218	Old Greenville Road	Farnum Pike 104	43 Old Greenville Road	Paved Waterway	20	1,312	8	2,915.56
245	Overlea Road	Mattity Road	Dead End	Runoff & Catch Basin	20	2,265	8	5,033.33
180	Rainville Avenue	Victory Highway	Dead End	Runoff	28	426	8	1,325.33
322	Tanglewood Road	Martha Road	Winchester Avenue	Curb & Catch Basin	30	1,091	8	3,636.67
192	Antaya Drive	Providence Pike (Rt. 5)	Dead End	Runoff	15	353	7	588.33
281	Circle Drive	Providence Pike	Highpoint Drive	Curb & Catch Basin	30	732	7	2,440.00
41	Great Road	Victory Highway	E Harkness Road	Runoff & Catch Basin	28	1,473	7	4,582.67
105	Highpoint Drive	Providence Pike	Dead End	Curb & Catch Basin	30	1,339	7	4,463.33
292	Lapre Road	Great Road (146a)	Dead End	Runoff & Catch Basin	21	1,148	7	2,678.67
304	Litzen & Lorraine Avenue	Maple Avenue	Dead End	Runoff & Catch Basin	26	1,341	7	3,874.00
84	Milton Avenue	146a	Williams Street	Runoff & Catch Basin	22	1,690	7	4,131.11
191	Morse Avenue	146a	Dead End	Curb & Catch Basin	24	865	7	2.78
288	Norwood Road	Westwood Road	Oakdale Road	Curb & Catch Basin	26	512	7	1,479.11
86	Odonnell Avenue	Bamford Street	Gilfillan Road	Runoff & Catch Basin	22	792	7	1,936.00
324	Patricia Avenue	Harkness Road	Brian Avenue	Runoff	30	940	7	3,133.33
13	Pound Hill Road	Old Pound Road	146A	Runoff	26	2,953	7	8,530.89
14	Pound Hill Road	Rt. 5	North Smithfield Industrial	Runoff	24	3,703	7	9,874.67
33	Raymond Street	146a	Dead End	Runoff	30	278	7	926.67
224	Sayles Hill Road	Iron Mine Hill Road	Dead End	Runoff & Catch Basin	24	4,372	7	11,658.67

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
321	Winchester Avenue	Tanglewood Road	Dead End	Curb & Catch Basin	30	2,457	7	8,190.00
254	Woodland Road	Dead End	Sayles Hill Road	Runoff	22	988	7	2,415.11
10	Woonsocket Hill Road	126 Woonsocket Hill Road	146a	Paved Waterway	25	1,600	7	4,444.44
284	Bellevue Avenue	Woonsocket Hill Road	Dead End	Runoff & Catch Basin	24	1,480	6	3,946.67
35	Black Plain Road	Pound Hill Road	Charon Drive	Runoff & Catch Basin	24	5,080	6	13,546.67
182	Branch Avenue	Great Road	Dead End	Runoff	38	528	6	2,229.33
95	Brian Avenue	Harkness Road	Willerval Avenue	Runoff & Catch Basin	26	1,455	6	4,203.33
62	Connector Road	146a	Old Great Road	Curb & Catch Basin	30	612	6	2,040.00
4	Cynthia Drive	Sharon Pkwy	Sharon Pkwy	Runoff & Catch Basin	22	640	6	1,564.44
59	Cynthia Drive	Mendon Road	Sharon Pkwy	Runoff & Catch Basin	30	1,274	6	4,246.67
308	Edward Avenue	Parkview Drive	Dead End	Runoff & Catch Basin	30	1,139	6	3,796.67
317	Esmond Road	E Harkness Road	Sorel Avenue	Runoff	26	442	6	1,276.89
162	Florence Street	146a	Dead End	Runoff	25	422	6	1,172.22
222	George Lee Road	Rt. 5	Woonsocket Hill Road	Runoff	30	427	6	1,423.33
196	Gilfilian Road	Homestead Avenue	Pound Hill Road	Runoff & Catch Basin	22	828	6	2,024.00
277	Golden Blvd.	Dead End	Greenwood Street	Runoff	24	546	6	1,456.00
240	Grange Road	Greenville Road	Rocky Hill Road	Runoff	20	3,050	6	6,777.78
70	Hill Street	Cross Road	E Old Greenville Road	Runoff	26	438	6	1,265.33
78	Indian Head Lane	Candlewood Road	Dead End	Runoff	26	145	6	418.89
157	Ironstone Street	Buxton Street	146a	Runoff	22	735	6	1,796.67
219	Jefferson Road	Old Greenville Road	Dead End	Runoff & Catch Basin	30	868	6	2,893.33
5	Kirby Lane	Dead End	Dead End	Runoff & Catch Basin	26	269	6	777.11
185	Kirby Lane	School Street	14 Kirby Lane	Runoff & Catch Basin	26	502	6	1,450.22
301	Kirby Lane	14 Kirby Lane	23 Kirby Lane	Runoff & Catch Basin	26	245	6	707.78
30	Mattity Road	Rt. 7	Black Plain Road	Curb & Catch Basin	20	5,760	6	12,800.00
287	Morse Avenue	146a	Town Line	Curb & Catch Basin	25	865	6	2,402.78
268	Old Greenville Road	43 Old Greenville Road	Dead End	Runoff	20	523	6	1,162.22
132	Parkview Drive	Parkview Drive	Dead End	Curb & Catch Basin	30	563	6	1,876.67
15	Pound Hill Road	1336 Pound Hill Road	Rt. 5	Runoff & Catch Basin	26	4,709	6	13,603.78
323	Remington Circle	Brian Avenue	Dead End	Curb & Catch Basin	30	443	6	1,476.67
238	Rocky Hill Road	Grange Road	Town Line	Runoff & Catch Basin	20	9,336	6	20,746.67
305	Roselawn Avenue	Dead End	Maple Avenue	Runoff & Catch Basin	20	961	6	2,135.56
48	Shady Lane	Cross Road	Dead End	Runoff	30	183	6	610.00
3	Sharon Pkwy	Dead End	Cynthia Drive	Runoff & Catch Basin	25	917	6	2,547.22
319	Sharon Pkwy	20 Sharon Pkwy	Mendon Road	Runoff & Catch Basin	22	842	6	2,058.22
165	Sorel Avenue	Esmond Road	Martha Road	Runoff	26	589	6	1,701.56
278	Summit Avenue	146a	White Parkway	Curb & Catch Basin	26	896	6	2,588.44
27	Tifft Road	Tifft Road	end of road	Curb & Catch Basin	24	371	6	989.33
205	Walsh Avenue	Merrimac Road	Dead End	Runoff	28	295	6	917.78

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
203	White Parkway	146a	Dead End	Runoff	26	1,477	6	4,266.89
151	Willerval Avenue	Remington Circle	Harkness Road	Curb & Catch Basin	26	572	6	1,652.44
286	Woodlawn Road	Lapre Road	Dead End	Runoff	25	996	6	2,766.67
11	Woonsocket Hill Road	Mara Lane	218 Woonsocket Hill	Paved Waterway	26	2,113	6	6,104.22
247	Beachway Road	Brookside Drive	Brookside Drive	Runoff	14	607	5	944.22
36	Black Plain Road	Taylor Drive	Pound Hill Road	Runoff	22	4,319	5	10,557.56
273	Brentwood Drive	Woonsocket Hill Road	Dead End	Curb & Catch Basin	30	3,802	5	12,673.33
152	Brian Avenue	Willerval Avenue	Dead End	Curb & Catch Basin	24	509	5	1,357.33
248	Brookside Drive	Dead End	Mattity Road	Runoff	18	2,675	5	5,350.00
186	Carlton Avenue	Dead End	Sunnycrest Avenue	Curb & Catch Basin	24	335	5	893.33
230	Cedar Forest Road	RT (5)	Dead End	Curb & Catch Basin	30	582	5	1,940.00
75	Cross Road	146A	E Old Greenville Road	Paved Waterway	24	2,247	5	5,992.00
2	Deborah Avenue	Mendon Road	Cynthia Drive	Runoff & Catch Basin	30	524	5	1,746.67
72	Deerfield Drive	E Old Greenville Road	Pheasant Run Road	Curb & Catch Basin	30	1,435	5	4,783.33
69	E Old Greenville Road	Dead End	Providence Street (104)	Runoff & Catch Basin	24	1,335	5	3,560.00
211	Fairview Avenue	Hill Street	Dead End	Runoff	24	636	5	1,696.00
166	Ferrier Street	Victory Highway (Rt. 102)	Dead End	Runoff	24	755	5	2,013.33
164	Franklin Way	St. Paul Street	Lincoln Drive	Curb & Catch Basin	30	960	5	3,200.00
194	Getchell Street	Pound Hill Road	Odonnell Avenue	Runoff	25	428	5	1,188.89
101	Graham Drive	Dead End	Providence Pike	Runoff & Catch Basin	25	1,462	5	4,061.11
89	Heroux Drive	Great Road (146a)	Dead End	Runoff	18	813	5	1,626.00
43	High View Ave	Mechanic Ave	Dead End	Curb & Catch Basin	30	618	5	2,060.00
34	Hillview Avenue	Great Road (146a)	49 Hillview Avenue	Runoff	28	617	5	1,919.56
122	Lumber Hill Road	Brookside Drive	Dead End	Runoff	16	365	5	648.89
83	Mara Lane	Dead End	Woonsocket Hill Road	Curb & Catch Basin	30	1,018	5	3,393.33
295	Meadowbrooke Drive	Great Road (146a)	Dead End	Runoff	20	1,363	5	3,028.89
197	Mulberry Street	Milton Avenue	Mowry Avenue	Runoff	24	415	5	1,106.67
232	Old Field Drive	Dead End	Buxton Street	Runoff	28	860	5	2,675.56
22	Old Smithfield Road	Sayles Hill Road	Town Line	Paved Waterway	20	2,637	5	5,860.00
169	Parkview Drive	Rt. 5	Parkview Drive	Curb & Catch Basin	30	1,402	5	4,673.33
198	Pine Court	Woonsocket Hill Road	Dead End	Runoff & Catch Basin	22	460	5	1,124.44
28	Tifft Road	Tift Road	Tift Road	Curb & Catch Basin	24	1,069	5	2,850.67
209	Urrico Avenue	E Old Greenville Road	Dead End	Runoff	26	894	5	2,582.67
210	Vincent Avenue	Cross Street	E Old Greenville Road	Runoff & Catch Basin	20	441	5	980.00
20	Weeks Street	Buell Avenue	Crest Road	Runoff	28	300	5	933.33
172	Wildwood Road	Dead End	Dead End	Runoff & Catch Basin	20	464	5	1,031.11
173	Wildwood Road	Maple Avenue	6 Wildwood Road	Runoff	20	417	5	926.67
54	Williams Street	Milton Avenue	Dead End	Curb & Catch Basin	22	777	5	1,899.33
134	Belcher Avenue	Victory Highway	Dead End	Curb & Catch Basin	26	571	4	1,649.56

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
212	Birch Hill Avenue	Robert Street	E Old Greenville Road	Runoff & Catch Basin	30	990	4	3,300.00
109	Bruce Drive	Providence Pike	Dead End	Curb & Catch Basin	30	1,669	4	5,563.33
279	Buell Avenue	146a	Greenwood Street	Runoff & Catch Basin	24	866	4	2,309.33
274	Candlewood Road	Wedgewood Drive	Dead End	Paved Waterway	26	626	4	1,808.44
233	Cider Mill Road	Buxton Street	Town Line	Runoff	20	1,885	4	4,188.89
96	Dorene Drive	Willerval Avenue	Duane Court	Curb & Catch Basin	30	1,211	4	4,036.67
150	Duane Court	Dead End	Harkness Road	Curb & Catch Basin	30	1,010	4	3,366.67
163	Flora Street	Ferrier Street	146a	Runoff	20	335	4	744.44
221	Follett Street	Woonsocket Hill Road	Farnum Pike	Curb & Catch Basin	24	3,900	4	10,400.00
124	Francis Farm Road	Indigo Farm Road	Dead End	Curb & Catch Basin	30	387	4	1,290.00
239	Franconia Drive	Leonard Drive	Leonard Drive	Curb & Catch Basin	30	1,768	4	5,893.33
178	Georgianna Avenue	Dead End	Dead End	Curb & Catch Basin	30	1,544	4	5,146.67
299	Greenwood Lane	Georgianna Avenue	Sunnycrest Avenue	Runoff	30	863	4	2,876.67
201	Greenwood Street	Buell Avenue	Crest Road	Runoff & Catch Basin	24	313	4	834.67
177	Halliwell Blvd	School Street	School Street	Runoff & Catch Basin	24	1,070	4	2,853.33
160	High View Avenue	Victory Hwy	Mechanic Street	Runoff & Catch Basin	24	1,038	4	2,768.00
316	Homecrest Avenue	Buxton Street	Victory Highway	Runoff	22	1,452	4	3,549.33
87	Homestead Avenue	146a	Dead End	Curb & Catch Basin	25	1,638	4	4,550.00
123	Indigo Farm Road	Log Road	Indigo Farm Road	Curb & Catch Basin	30	3,728	4	12,426.67
213	Leo Street	Oak Hill Avenue	Providence Street (104)	Runoff & Catch Basin	25	455	4	1,263.89
303	Lincoln Drive	Mendon Road	Dead End	Runoff & Catch Basin	30	3,651	4	12,170.00
315	McCann Street	Rt. 5	Victory Highway	Curb & Catch Basin	22	932	4	2,278.22
71	Meadow Lane	Deerfield Drive	Dead End	Curb & Catch Basin	30	266	4	886.67
158	Mechanic Street	Rt. 5	Connector Road	Curb & Catch Basin	22	3,230	4	7,895.56
94	Mountain Road	Old Great Road	Dead End	Runoff	20	477	4	1,060.00
51	North Wood Lane	Parkview Drive	Dead End	Runoff	26	207	4	598.00
215	Oak Hill Avenue	Robert Street	E Old Greenville Road	Runoff & Catch Basin	26	484	4	1,398.22
45	Old Great Road	Dead End	Mechanic Street	Runoff & Catch Basin	20	2,044	4	4,542.22
24	Old Sayles Hill Road	35 Old Sayles Hill Road	Chamberlain Court	Runoff & Catch Basin	18	219	4	438.00
23	Old Smithfield Road	Sayles Hill Road	1105 Old Smithfield Road	Paved Waterway	20	1,977	4	4,393.33
74	Pheasant Run Road	Deerfield Drive	Cross Street	Runoff & Catch Basin	30	663	4	2,210.00
16	Pound Hill Road	1762 Pound Hill Road	1336 Pound Hill Road	Runoff & Catch Basin	24	2,733	4	7,288.00
183	Rising Sun Trail	Morning Star Drive	Tall Timber Trail	Curb & Catch Basin	28	408	4	1,269.33
73	Robin Way	Deerfield Drive	Cross Road	Curb & Catch Basin	30	555	4	1,850.00
184	Sunnycrest Avenue	Victory Highway	Dead End	Runoff & Catch Basin	30	1,771	4	5,903.33
300	Tall Timber Trail	Rising Sun Trail	Rising Sun Trail	Curb & Catch Basin	28	1,757	4	5,466.22
251	Tom Lee Drive	Farnum Pike	Dead End	Curb & Catch Basin	30	1,324	4	4,413.33
50	Wicks Street	Follett Street	Dead End	Runoff	12	495	4	660.00
252	Woonsocket Hill Road	Rt. 5	George Lee Road	Runoff	24	2,850	4	7,600.00

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
259	Woonsocket Hill Road	George Lee Road	Mara Lane	Runoff	24	6,638	4	17,701.33
76	Annette Avenue	Dead End	Girard Blvd	Runoff	22	310	3	757.78
85	Bamford Street	Odonnell Avenue	Homestead Avenue	Runoff	22	296	3	723.56
37	Black Plain Road	Mattity Road	Taylor Drive	Runoff & Catch Basin	20	3,996	3	8,880.00
46	Buxton Street	Buxton Street	Town Line	Runoff & Catch Basin	22	2,113	3	5,165.11
320	Carpenter Street	Florence Street	Victory Highway	Runoff & Catch Basin	22	464	3	1,134.22
297	Cherrybrook Avenue	Great Road (146a)	Great Road (146a)	Runoff	25	830	3	2,305.56
100	Christiansen Way	Dead End	Steele Street	Curb & Catch Basin	30	638	3	2,126.67
187	Church Street	Providence Pike	Dead End	Curb & Catch Basin	30	1,169	3	3,896.67
53	Comstock Road	Providence Pike	Dead End	Runoff	20	1,644	3	3,653.33
98	Comstock Road	Pound Hill Road	Dead End	Runoff	16	462	3	821.33
285	Eaton Street	Victory Highway (Rt. 102)	Dead End	Runoff	26	997	3	2,880.22
155	Filion Drive	Mechanic Street	Dead End	Curb & Catch Basin	24	491	3	1,309.33
118	Forest Hill Drive	Old Oxford Road	Old Oxford Road	Curb & Catch Basin	28	2,197	3	6,835.11
18	Freitas Lane	Maple Avenue	Dead End	Paved Waterway	20	513	3	1,140.00
314	Greene Street	Victory Highway	School Street	Curb & Catch Basin	22	2,785	3	6,807.78
138	Harkness Road	Old Great Road	Dead End	Runoff & Catch Basin	22	646	3	1,579.11
290	Hillview Avenue	49 Hillview Avenue	Lapre Road	Runoff	28	496	3	1,543.11
77	John Avenue	Dead End	Dead End	Runoff	24	395	3	1,053.33
231	Karen Marie Drive	Indigo Farm Road	Dead End	Curb & Catch Basin	30	315	3	1,050.00
275	Knollridge Drive	Woonsocket Hill Road	Dead End	Curb & Catch Basin	26	3,580	3	10,342.22
125	Leonard Drive	Dead End	Log Road	Curb & Catch Basin	30	2,902	3	9,673.33
31	Mattity Road	Brookside Drive	Rt. 7	Curb & Catch Basin	24	1,454	3	3,877.33
298	Morning Star Drive	Victory Highway	Rising Sun Trail	Curb & Catch Basin	30	875	3	2,916.67
103	Myrick Drive	Church Street	Dead End	Runoff	26	515	3	1,487.78
60	Oakdale Road	Norwood Road	Westwood Road	Runoff	26	324	3	936.00
120	Old Oxford Road	Pound Hill Road	Dead End	Curb & Catch Basin	24	3,810	3	10,160.00
263	Old Smithfield Road	1105 Old Smithfield Road	146a	Runoff	20	4,781	3	10,624.44
156	Orchard Street	Dead End	Filion Drive	Curb & Catch Basin	22	387	3	946.00
63	Primose Lane	Black Plain Road	Dead End	Runoff	15	854	3	1,423.33
117	Rainbow Lane	Taylor Drive	Taylor Drive	Curb & Catch Basin	30	436	3	1,453.33
97	Taber Hill Road	Taber Hill Road	Dead End	Curb & Catch Basin	30	209	3	696.67
99	Taber Hill Road	Pound Hill Road	Dead End	Curb & Catch Basin	30	1,496	3	4,986.67
269	Taylor Drive	Black Plain Road	Black Plain Road	Curb & Catch Basin	30	1,527	3	5,090.00
80	Village Way	Dead End	Providence Street (104)	Curb & Catch Basin	26	2,009	3	5,803.78
79	Wedgewood Drive	Chester Street	Dead End	Paved Waterway	26	582	3	1,681.33
88	Westwood Road	146a	Dead End	Curb & Catch Basin	26	1,147	3	3,313.56
174	Adams Circle	Lincoln Drive	Dead End	Runoff	30	127	2	423.33
127	Angela Way	Toni Circle	Dead End	Curb & Catch Basin	28	182	2	566.22

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
255	Bearskin Farm Road	Mattity Road	Dead End	Runoff	14	1,438	2	2,236.89
102	Charon Drive	Providence Pike	Church Street	Runoff	30	1,054	2	3,513.33
106	Chelsea Drive	Dead End	Black Plan Road	Curb & Catch Basin	30	808	2	2,693.33
276	Chester Street	Walsh Avenue	Wedgewood Drive	Runoff	22	858	2	2,097.33
126	Christina Way	Toni Circle	Dead End	Curb & Catch Basin	28	431	2	1,340.89
207	Girard Blvd	Dead End	Providence Street (104)	Runoff	24	744	2	1,984.00
66	Hollow Road	Follett Street	Dead End	Runoff	20	322	2	715.56
107	Jennifer Lane	Dead End	Chelsea Drive	Curb & Catch Basin	30	1,301	2	4,336.67
190	Julie Avenue	Victory Highway (Rt. 102)	Dead End	Runoff & Catch Basin	30	337	2	1,123.33
223	Keene Street	Follett Street	Dead End	Runoff	22	609	2	1,488.67
104	Laurel Lane	Black Plains Road	Laurel Lane	Curb & Catch Basin	20	281	2	624.44
188	Maple Avenue	School Street	Victory Highway	Runoff & Catch Basin	28	2,391	2	7,438.67
7	Mendon Road	298 Mendon Road	St. Paul Street	Curb & Catch Basin	24	2,694	2	7,184.00
133	Mt. Pleasant Road	Victory Highway (Rt. 102)	Town Line	Runoff	24	1,248	2	3,328.00
121	Narragansett Drive	Brookside Drive	Brookside Drive	Curb & Catch Basin	30	1,129	2	3,763.33
291	Oaklawn Road	Lapre Road	Hillview Avenue	Runoff	28	855	2	2,660.00
312	Pacheco Drive	Dead End	Greene Street	Curb & Catch Basin	28	743	2	2,311.56
226	Pond House Road	Rt. 104	Black Plains Road	Runoff & Catch Basin	20	4,083	2	9,073.33
130	Pound Hill Road	Rt. 7	1620 Pound Hill Road	Runoff & Catch Basin	20	2,987	2	6,637.78
241	Reservior Road	146	Town Border	Runoff	18	3,308	2	6,616.00
271	Robert Street	Providence Street (104)	Oak Hill Avenue	Runoff	20	294	2	653.33
234	Scott Farm Road	Dead End	Buxton Street	Curb & Catch Basin	30	611	2	2,036.67
256	Sky View Road	Dead End	Follett Street	Curb & Catch Basin	26	981	2	2,834.00
189	Steel Street	Edgecomb road	Dead End	Curb & Catch Basin	40	807	2	3,586.67
49	Stone Ridge Drive	Woonsocket Hill Road	Dead End	Curb & Catch Basin	28	734	2	2,283.56
81	Thayer Court	Dead End	Village Way	Curb & Catch Basin	28	420	2	1,306.67
128	Toni Circle	Mattity Road	Toni Circle	Curb & Catch Basin	26	3,032	2	8,759.11
114	Trout Brook Lane	Taylor Drive	Dead End	Curb & Catch Basin	30	633	2	2,110.00
21	Weeks Street	49 Weeks Street	Buell Avenue	Runoff	28	157	2	488.44
38	Black Plain Road	Farnum Pike	Mattity Road	Runoff & Catch Basin	24	3,759	1	10,024.00
56	Bourget Court	Rt. 5	Dead End	Curb & Catch Basin	28	1,657	1	5,155.11
325	Canal Street	Town Line	Town Line	Runoff & Catch Basin	22	2,264	1	5,534.22
108	Courtney Drive	Black Plain Road	Jennifer Lane	Curb & Catch Basin	30	554	1	1,846.67
200	Crest Road	146a	Greenwood Street	Runoff	22	782	1	1,911.56
179	Northgate Road	Tall Timber Trail	Victory Highway	Runoff	28	349	1	1,085.78
225	Old Sayles Hill Road	Iron Mine Hill Road	35 Old Sayles Hill road	Runoff & Catch Basin	18	1,068	1	2,136.00
65	Pomona Street	Grange Road	Dead End	Curb & Catch Basin	26	3,622	1	10,463.56
170	Ridge Road	N Main Street	Greene Street	Runoff	28	980	1	3,048.89
154	Saranac Street	Dead End	Elizabeth Avenue	Runoff	22	486	1	1,188.00

Segment Id	Road Name	From Address	To Address	Drainage Type	Width	Length	General Condition	Area(Sq yd)
115	Stoney Drive	Taylor Drive	Dead End	Curb & Catch Basin	30	2,707	1	9,023.33
193	Warren Avenue	146a	Dead End	Runoff	25	381	1	1,058.33
82	Weeks Street	Village Way	49 Weeks Street	Curb & Catch Basin	28	720	1	2,240.00
58	Briden Street	Elizabeth Avenue	Dead End	Curb & Catch Basin	24	356	0	949.33
47	Buxton Street	146a	Buxton Street	Runoff & Catch Basin	22	3,524	0	8,614.22
67	Chamberlain Court	Old Sayles Hill Road	Dead End	Curb & Catch Basin	30	611	0	2,036.67
311	Country Way	Ridge Road	Greene Street	Curb & Catch Basin	28	1,503	0	4,676.00
119	Cristy Court	Old Oxford Road	Dead End	Curb & Catch Basin	28	863	0	2,684.89
208	Cross Street	Providence Street (104)	Dead End	Runoff & Catch Basin	20	1,083	0	2,406.67
64	Denny Court	Rocky Hill Road	Dead End	Curb & Catch Basin	26	854	0	2,467.11
129	Doire Court	Pound Hill Road	Dead End	Curb & Catch Basin	30	657	0	2,190.00
0	Elizabeth Avenue	11 Elizabeth Avenue	Dead End	Runoff & Catch Basin	22	1,141	0	2,789.11
139	Elizabeth Avenue	St. Paul Street	11 Elizabeth Avenue	Runoff & Catch Basin	20	962	0	2,137.78
92	Fountain Street	Mendon Road	Graves Avenue	Curb & Catch Basin	20	927	0	2,060.00
112	Hart Pond Drive	3 Hart Pond Drive	Pound Hill Road	Curb & Catch Basin	30	144	0	480.00
113	Hart Pond Drive	Dead End	3 Hart Pond Drive	Curb & Catch Basin	30	466	0	1,553.33
110	Jeanne Court	Black Plain Road	Dead End	Curb & Catch Basin	26	1,650	0	4,766.67
29	Laurel Lane (Lower Half)	Laurel Lane	Dead End	Curb & Catch Basin	20	408	0	906.67
235	Log Road	Town Line	Town Line	Runoff & Catch Basin	26	4,390	0	12,682.22
32	Mattity Road	Town Line	Brookside Drive	Runoff & Catch Basin	22	3,655	0	8,934.44
8	Mendon Road	409 Mendon Road	298 Mendon Road	Curb & Catch Basin	24	1,145	0	3,053.33
9	Mendon Road	146a	409 Mendon Road	Curb & Catch Basin	28	2,832	0	8,810.67
149	Middle Street	St. Paul Street	Dead End	Runoff & Catch Basin	24	794	0	2,117.33
143	Mill Street	Canal Street	Town Line	Runoff & Catch Basin	30	340	0	1,133.33
280	Mowry Avenue	Dead End	35 Mowry Avenue	Runoff	22	455	0	1,112.22
261	Mowry Road	Town Line	Rt (7)	Runoff & Catch Basin	18	416	0	832.00
283	Old Pound Hill Road	Dead End	Pound Hill Road	Runoff	18	1,214	0	2,428.00
242	Old Sayles Hill Road	Dead End	Dead End	Runoff	14	1,075	0	1,672.22
61	Park Drive	Dead End	146a	Runoff	25	578	0	1,605.56
131	Pine Hill Road	Pound Hill Road	Dead End	Runoff & Catch Basin	28	793	0	2,467.11
1	Rhodes Avenue	Mendon Road	Town Border	Runoff	24	413	0	1,101.33
93	Smith Street	Elizabeth Avenue	Dead End	Curb & Catch Basin	24	385	0	1,026.67
289	Tifft Road	Black Plain Road	Black Plain Road	Curb & Catch Basin	24	2,243	0	5,981.33
246	Valley View Drive	Dead End	Iron Mill Hill Road	Curb & Catch Basin	26	607	0	1,753.56
91	West Street	Fountain Street	Colerick Street	Runoff & Catch Basin	20	430	0	955.56

APPENDIX E

Recommended Treatment & Cost Report
(Ordered Numerically by General Condition Rating)

RECOMMENDED TREATMENT

(ORDER: Condition)

JCE
JOE CASALI ENGINEERING, INC.
CIVIL · SITE DEVELOPMENT · TRANSPORTATION
DRAINAGE · WETLANDS · ISDS · TRAFFIC · FLOODPLAIN
300 POST ROAD, WARWICK, RI 02888

Segment Id	Road Name	From Address	To Address	Condition	Treatment	Area (Sq Yd)	Cost ($)
181	Carlton Avenue	Belcher Avenue	Sunnycrest Avenue	9	HMA (leveling) & Overlay (<2 in.)	3,752.00	46,900.00
26	Grange Road	Providence Pike	Rocky Hill Road	9	Base Repair\Pavement Replacement	3,898.00	72,113.00
39	Martha Road	Sorel Avenue	Dead End	9	Base/Pavement Replacement	2,020.00	60,600.00
19	Mowry Avenue	35 Mowry Avenue	Arnold Avenue	9	Base/Pavement Replacement	893.33	26,800.00
44	Old Great Road	Mechanic Street	West Harness Road	9	Base Repair\Pavement Replacement	8,720.00	161,320.00
176	Wilks Avenue	Victory Highway	Dead End	9	Base/Pavement Replacement	2,386.11	71,583.33
195	Arnold Avenue	Woonsocket Hill Road	Milton Avenue	8	Base Repair\Pavement Replacement	1,730.67	32,017.33
302	Buckley Drive	Mendon Road	Dead End	8	Base/Pavement Replacement	2,666.67	80,000.00
42	E Harkness Road	Martha Road	Great Road	8	Rotomill & Overlay (<2 in)	2,520.00	35,280.00
55	Glen Avenue	146a	Dead End	8	HMA (leveling) & Overlay (<2 in.)	1,085.78	13,572.22
250	Iron Mine Hill Road	Farnum Pike (104)	Sayles Hill Road	8	HMA (leveling) & Overlay (<2 in.)	35,604.33	445,054.17
318	Lester Street	Rt. 5	Victory Highway	8	Base/Pavement Replacement	1,650.00	49,500.00
204	Merrimac Road	146a	Dead End	8	Base Repair\Pavement Replacement	2,535.56	46,907.78
309	Obeline Drive	Dead End	Mendon Road	8	Base/Pavement Replacement	1,852.78	55,583.33
218	Old Greenville Road	Farnum Pike 104	43 Old Greenville Road	8	Base Repair\Pavement Replacement	2,915.56	53,937.78
245	Overlea Road	Mattity Road	Dead End	8	HMA (leveling) & Overlay (<2 in.)	5,033.33	62,916.67
180	Rainville Avenue	Victory Highway	Dead End	8	Base/Pavement Replacement	1,325.33	39,760.00
322	Tanglewood Road	Martha Road	Winchester Avenue	8	Rotomill & Overlay (<2 in)	3,636.67	50,913.33
192	Antaya Drive	Providence Pike (Rt. 5)	Dead End	7	Thin Hot Mix Overlay (<2 in)	588.33	6,765.83
281	Circle Drive	Providence Pike	Highpoint Drive	7	Rotomill & Overlay (<2 in)	2,440.00	34,160.00
41	Great Road	Victory Highway	E Harkness Road	7	Thin Hot Mix Overlay (<2 in)	4,582.67	52,700.67
105	Highpoint Drive	Providence Pike	Dead End	7	Base Repair\Pavement Replacement	4,463.33	82,571.67
292	Lapre Road	Great Road (146a)	Dead End	7	Base Repair\Pavement Replacement	2,678.67	49,555.33
304	Litzen & Lorraine Avenue	Maple Avenue	Dead End	7	HMA (leveling) & Overlay (<2 in.)	3,874.00	48,425.00
84	Milton Avenue	146a	Williams Street	7	Rotomill & Overlay (<2 in)	4,131.11	57,835.56
191	Morse Avenue	146a	Dead End	7	Base Repair\Pavement Replacement	2,306.67	42,673.40
288	Norwood Road	Westwood Road	Oakdale Road	7	Base Repair\Pavement Replacement	1,479.11	27,363.56
86	Odonnell Avenue	Bamford Street	Gilfilian Road	7	Rotomill & Overlay (<2 in)	1,936.00	27,104.00
324	Patricia Avenue	Harkness Road	Brian Avenue	7	Base Repair\Pavement Replacement	3,133.33	57,966.67
13	Pound Hill Road	Old Pound Road	146A	7	HMA (leveling) & Overlay (<2 in.)	8,530.89	106,636.11
14	Pound Hill Road	Rt. 5	North Smithfield	7	Rotomill & Overlay (<2 in)	9,874.67	138,245.33
33	Raymond Street	146a	Dead End	7	Thin Hot Mix Overlay (<2 in)	926.67	10,656.67
224	Sayles Hill Road	Iron Mine Hill Road	Dead End	7	HMA (leveling) & Overlay (<2 in.)	11,658.67	145,733.33
321	Winchester Avenue	Tanglewood Road	Dead End	7	Rotomill & Overlay (<2 in)	8,190.00	114,660.00
254	Woodland Road	Dead End	Sayles Hill Road	7	Thin Hot Mix Overlay (<2 in)	2,415.11	27,773.78

Segment Id	Road Name	From Address	To Address	Condition	Treatment	Area (Sq Yd)	Cost ($)
10	Woonsocket Hill Road	126 Woonsocket Hill	146a	7	Base Repair\Pavement Replacement	4,444.44	82,222.14
284	Bellevue Avenue	Woonsocket Hill Road	Dead End	6	Thin Hot Mix Overlay (<2 in)	3,946.67	45,386.67
35	Black Plain Road	Pound Hill Road	Charon Drive	6	HMA (leveling) & Overlay (<2 in.)	13,546.67	169,333.33
182	Black Plain Road	Great Road	Dead End	6	HMA (leveling) & Overlay (<2 in.)	2,229.33	27,866.67
95	Brian Avenue	Harkness Road	Willerval Avenue	6	Rotomill & Overlay (<2 in)	4,203.33	58,846.67
62	Connector Road	146a	Old Great Road	6	HMA (leveling) & Overlay (<2 in.)	2,040.00	25,500.00
59	Cynthia Drive	Mendon Road	Sharon Pkwy	6	HMA (leveling) & Overlay (<2 in.)	4,246.67	53,083.33
4	Cynthia Drive	Sharon Pkwy	Sharon Pkwy	6	Thin Hot Mix Overlay (<2 in)	1,564.44	17,991.11
308	Edward Avenue	Parkview Drive	Dead End	6	HMA (leveling) & Overlay (<2 in.)	3,796.67	47,458.33
317	Esmond Road	E Harkness Road	Sorel Avenue	6	Thin Hot Mix Overlay (<2 in)	1,276.89	14,684.22
162	Florence Street	146a	Dead End	6	HMA (leveling) & Overlay (<2 in.)	1,172.22	14,652.78
222	George Lee Road	Rt. 5	Woonsocket Hill Road	6	Thin Hot Mix Overlay (<2 in)	1,423.33	16,368.33
196	Gilfilian Road	Homestead Avenue	Pound Hill Road	6	Rotomill & Overlay (<2 in)	2,024.00	28,336.00
277	Golden Blvd.	Dead End	Greenwood Street	6	Thin Hot Mix Overlay (<2 in)	1,456.00	16,744.00
240	Grange Road	Greenville Road	Rocky Hill Road	6	Thin Hot Mix Overlay (<2 in)	6,777.78	77,944.44
70	Hill Street	Cross Road	E Old Greenville Road	6	Base Repair\Pavement Replacement	1,265.33	23,408.67
78	Indian Head Lane	Candlewood Road	Dead End	6	HMA (leveling) & Overlay (<2 in.)	418.89	5,236.11
157	Ironstone Street	Buxton Street	146a	6	HMA (leveling) & Overlay (<2 in.)	1,796.67	22,458.33
219	Jefferson Road	Old Greenville Road	Dead End	6	HMA (leveling) & Overlay (<2 in.)	2,893.33	36,166.67
5	Kirby Lane	Dead End	Dead End	6	HMA (leveling) & Overlay (<2 in.)	777.11	9,713.89
301	Kirby Lane	14 Kirby Lane	23 Kirby Lane	6	HMA (leveling) & Overlay (<2 in.)	707.78	8,847.22
185	Kirby Lane	School Street	14 Kirby Lane	6	Rotomill & Overlay (<2 in)	1,450.22	20,303.11
30	Mattity Road	Rt. 7	Black Plain Road	6	Crack Seal	12,800.00	25,600.00
287	Morse Avenue	146a	Town Line	6	HMA (leveling) & Overlay (<2 in.)	2,402.78	30,034.72
268	Old Greenville Road	43 Old Greenville Road	Dead End	6	HMA (leveling) & Overlay (<2 in.)	1,162.22	14,527.78
132	Parkview Drive	Parkview Drive	Dead End	6	Thin Hot Mix Overlay (<2 in)	1,876.67	21,581.67
15	Pound Hill Road	1336 Pound Hill Road	Rt. 5	6	Base/Pavement Replacement	13,603.78	408,113.33
323	Remington Circle	Brian Avenue	Dead End	6	Rotomill & Overlay (<2 in)	1,476.67	20,673.33
238	Rocky Hill Road	Grange Road	Town Line	6	Thin Hot Mix Overlay (<2 in)	20,746.67	238,586.67
305	Roselawn Avenue	Dead End	Maple Avenue	6	Base Repair\Pavement Replacement	2,135.56	39,507.78
48	Shady Lane	Cross Road	Dead End	6	Rotomill & Overlay (<2 in)	610.00	8,540.00
319	Sharon Pkwy	20 Sharon Pkwy	Mendon Road	6	HMA (leveling) & Overlay (<2 in.)	2,058.22	25,727.78
3	Sharon Pkwy	Dead End	Cynthia Drive	6	Rotomill & Overlay (<2 in)	2,547.22	35,661.11
165	Sorel Avenue	Esmond Road	Martha Road	6	Thin Hot Mix Overlay (<2 in)	1,701.56	19,567.89
278	Summit Avenue	146a	White Parkway	6	Thin Hot Mix Overlay (<2 in)	2,588.44	29,767.11
27	Tifft Road	Tifft Road	End of road	6	Thin Hot Mix Overlay (<2 in)	989.33	11,377.33
205	Walsh Avenue	Merrimac Road	Dead End	6	HMA (leveling) & Overlay (<2 in.)	917.78	11,472.22
203	White Parkway	146a	Dead End	6	Rotomill & Overlay (<2 in)	4,266.89	59,736.44
151	Willerval Avenue	Remington Circle	Harkness Road	6	Rotomill & Overlay (<2 in)	1,652.44	23,134.22
286	Woodlawn Road	Lapre Road	Dead End	6	Base Repair\Pavement Replacement	2,766.67	51,183.33
11	Woonsocket Hill Road	Mara Lane	218 Woonsocket Hill	6	Thin Hot Mix Overlay (<2 in)	6,104.22	70,198.56

Segment Id	Road Name	From Address	To Address	Condition	Treatment	Area (Sq Yd)	Cost ($)
247	Beachway Road	Brookside Drive	Brookside Drive	5	Thin Hot Mix Overlay (<2 in)	944.22	10,858.56
36	Black Plain Road	Taylor Drive	Pound Hill Road	5	Thin Hot Mix Overlay (<2 in)	10,557.56	121,411.89
273	Brentwood Drive	Woonsocket Hill Road	Dead End	5	Thin Hot Mix Overlay (<2 in)	12,673.33	145,743.33
152	Brian Avenue	Willerval Avenue	Dead End	5	Rotomill & Overlay (<2 in)	1,357.33	19,002.67
248	Brookside Drive	Dead End	Mattity Road	5	Thin Hot Mix Overlay (<2 in)	5,350.00	61,525.00
186	Carlton Avenue	Dead End	Sunnycrest Avenue	5	Thin Hot Mix Overlay (<2 in)	893.33	10,273.33
230	Cedar Forest Road	RT (5)	Dead End	5	Crack Seal	1,940.00	3,880.00
75	Cross Road	146A	E Old Greenville Road	5	Rotomill & Overlay (<2 in)	5,992.00	83,888.00
2	Deborah Avenue	Mendon Road	Cynthia Drive	5	HMA (leveling) & Overlay (<2 in.)	1,746.67	21,833.33
72	Deerfield Drive	E Old Greenville Road	Pheasant Run Road	5	Thin Hot Mix Overlay (<2 in)	4,783.33	55,008.33
69	E Old Greenville Road	Dead End	Providence Street (104)	5	Thin Hot Mix Overlay (<2 in)	3,560.00	40,940.00
211	Fairview Avenue	Hill Street	Dead End	5	Thin Hot Mix Overlay (<2 in)	1,696.00	19,504.00
166	Ferrier Street	Victory Highway (Rt. 102)	Dead End	5	Rotomill & Overlay (<2 in)	2,013.33	28,186.67
164	Franklin Way	St. Paul Street	Lincoln Drive	5	Rotomill & Overlay (<2 in)	3,200.00	44,800.00
194	Getchell Street	Pound Hill Road	Odonnell Avenue	5	Rotomill & Overlay (<2 in)	1,188.89	16,644.44
101	Graham Drive	Dead End	Providence Pike	5	Rotomill & Overlay (<2 in)	4,061.11	56,855.56
89	Heroux Drive	Great Road (146a)	Dead End	5	Thin Hot Mix Overlay (<2 in)	1,626.00	18,699.00
43	High View Ave	Mechanic Ave	Dead End	5	Crack Seal	2,060.00	4,120.00
34	Hillview Avenue	Great Road (146a)	49 Hillview Avenue	5	Thin Hot Mix Overlay (<2 in)	1,919.56	22,074.89
122	Lumber Hill Road	Brookside Drive	Dead End	5	Rotomill & Overlay (<2 in)	648.89	9,084.44
83	Mara Lane	Dead End	Woonsocket Hill Road	5	Thin Hot Mix Overlay (<2 in)	3,393.33	39,023.33
295	Meadowbrooke Drive	Great Road (146a)	Dead End	5	Thin Hot Mix Overlay (<2 in)	3,028.89	34,832.22
197	Mulberry Street	Milton Avenue	Mowry Avenue	5	Base Repair\Pavement Replacement	1,106.67	20,473.33
232	Old Field Drive	Dead End	Buxton Street	5	Rotomill & Overlay (<2 in)	2,675.56	37,457.78
22	Old Smithfield Road	Sayles Hill Road	Town Line	5	HMA (leveling) & Overlay (<2 in.)	5,860.00	73,250.00
169	Parkview Drive	Rt. 5	Parkview Drive	5	Thin Hot Mix Overlay (<2 in)	4,673.33	53,743.33
198	Pine Court	Woonsocket Hill Road	Dead End	5	Thin Hot Mix Overlay (<2 in)	1,124.44	12,931.11
28	Tifft Road	Tift Road	Tift Road	5	No Maintenance	2,850.67	0.00
209	Urrico Avenue	E Old Greenville Road	Dead End	5	Thin Hot Mix Overlay (<2 in)	2,582.67	29,700.67
210	Vincent Avenue	Cross Street	E Old Greenville Road	5	Thin Hot Mix Overlay (<2 in)	980.00	11,270.00
20	Weeks Street	Buell Avenue	Crest Road	5	Crack Seal	933.33	1,866.67
172	Wildwood Road	Dead End	Dead End	5	Thin Hot Mix Overlay (<2 in)	1,031.11	11,857.78
173	Wildwood Road	Maple Avenue	6 Wildwood Road	5	Thin Hot Mix Overlay (<2 in)	926.67	10,656.67
54	Williams Street	Milton Avenue	Dead End	5	Thin Hot Mix Overlay (<2 in)	1,899.33	21,842.33
134	Belcher Avenue	Victory Highway	Dead End	4	Thin Hot Mix Overlay (<2 in)	1,649.56	18,969.89
212	Birch Hill Avenue	Robert Street	E Old Greenville Road	4	Rotomill & Overlay (<2 in)	3,300.00	46,200.00
109	Bruce Drive	Providence Pike	Dead End	4	Thin Hot Mix Overlay (<2 in)	5,563.33	63,978.33
279	Buell Avenue	146a	Greenwood Street	4	Thin Hot Mix Overlay (<2 in)	2,309.33	26,557.33
274	Candlewood Road	Wedgewood Drive	Dead End	4	HMA (leveling) & Overlay (<2 in.)	1,808.44	22,605.56
233	Cider Mill Road	Buxton Street	Town Line	4	Thin Hot Mix Overlay (<2 in)	4,188.89	48,172.22
96	Dorene Drive	Willerval Avenue	Duane Court	4	Rotomill & Overlay (<2 in)	4,036.67	56,513.33

Segment Id	Road Name	From Address	To Address	Condition	Treatment	Area (Sq Yd)	Cost ($)
150	Duane Court	Dead End	Harkness Road	4	Rotomill & Overlay (<2 in)	3,366.67	47,133.33
163	Flora Street	Ferrier Street	146a	4	Rotomill & Overlay (<2 in)	744.44	10,422.22
221	Follett Street	Woonsocket Hill Road	Farnum Pike	4	Thin Hot Mix Overlay (<2 in)	10,400.00	119,600.00
124	Francis Farm Road	Indigo Farm Road	Dead End	4	Thin Hot Mix Overlay (<2 in)	1,290.00	14,835.00
239	Franconia Drive	Leonard Drive	Leonard Drive	4	Crack Seal	5,893.33	11,786.67
178	Georgianna Avenue	Dead End	Dead End	4	Thin Hot Mix Overlay (<2 in)	5,146.67	59,186.67
299	Greenwood Lane	Georgianna Avenue	Sunnycrest Avenue	4	Thin Hot Mix Overlay (<2 in)	2,876.67	33,081.67
201	Greenwood Street	Buell Avenue	Crest Road	4	No Maintenance	834.67	0.00
177	Halliwell Blvd	School Street	School Street	4	Rotomill & Overlay (<2 in)	2,853.33	39,946.67
160	High View Avenue	Victory Hwy	Mechanic Street	4	No Maintenance	2,768.00	0.00
316	Homecrest Avenue	Buxton Street	Victory Highway	4	Thin Hot Mix Overlay (<2 in)	3,549.33	40,817.33
87	Homestead Avenue	146a	Dead End	4	Thin Hot Mix Overlay (<2 in)	4,550.00	52,325.00
123	Indigo Farm Road	Log Road	Indigo Farm Road	4	Thin Hot Mix Overlay (<2 in)	12,426.67	142,906.67
213	Leo Street	Oak Hill Avenue	Providence Street (104)	4	Rotomill & Overlay (<2 in)	1,263.89	17,694.44
303	Lincoln Drive	Mendon Road	Dead End	4	Rotomill & Overlay (<2 in)	12,170.00	170,380.00
315	McCann Street	Rt. 5	Victory Highway	4	Thin Hot Mix Overlay (<2 in)	2,278.22	26,199.56
71	Meadow Lane	Deerfield Drive	Dead End	4	Thin Hot Mix Overlay (<2 in)	886.67	10,196.67
158	Mechanic Street	Rt. 5	Connector Road	4	Rotomill & Overlay (<2 in)	7,895.56	110,537.78
94	Mountain Road	Old Great Road	Dead End	4	Thin Hot Mix Overlay (<2 in)	1,060.00	12,190.00
51	North Wood Lane	Parkview Drive	Dead End	4	Thin Hot Mix Overlay (<2 in)	598.00	6,877.00
215	Oak Hill Avenue	Robert Street	E Old Greenville Road	4	Rotomill & Overlay (<2 in)	1,398.22	19,575.11
45	Old Great Road	Dead End	Mechanic Street	4	Thin Hot Mix Overlay (<2 in)	4,542.22	52,235.56
24	Old Sayles Hill Road	35 Old Sayles Hill Road	Chamberlain Court	4	No Maintenance	438.00	0.00
23	Old Smithfield Road	Sayles Hill Road	1105 Old Smithfield Road	4	Thin Hot Mix Overlay (<2 in)	4,393.33	50,523.33
74	Pheasant Run Road	Deerfield Drive	Cross Street	4	Thin Hot Mix Overlay (<2 in)	2,210.00	25,415.00
16	Pound Hill Road	1762 Pound Hill Road	1336 Pound Hill Road	4	Crack Seal	7,288.00	14,576.00
183	Rising Sun Trail	Morning Star Drive	Tall Timber Trail	4	Crack Seal	1,269.33	2,538.67
73	Robin Way	Deerfield Drive	Cross Road	4	Thin Hot Mix Overlay (<2 in)	1,850.00	21,275.00
184	Sunnycrest Avenue	Victory Highway	Dead End	4	HMA (leveling) & Overlay (<2 in.)	5,903.33	73,791.67
300	Tall Timber Trail	Rising Sun Trail	Rising Sun Trail	4	Rotomill & Overlay (<2 in)	5,466.22	76,527.11
251	Tom Lee Drive	Farnum Pike	Dead End	4	Crack Seal	4,413.33	8,826.67
50	Wicks Street	Follett Street	Dead End	4	Thin Hot Mix Overlay (<2 in)	660.00	7,590.00
252	Woonsocket Hill Road	Rt. 5	George Lee Road	4	Thin Hot Mix Overlay (<2 in)	7,600.00	87,400.00
259	Woonsocket Hill Road	George Lee Road	Mara Lane	4	Thin Hot Mix Overlay (<2 in)	17,701.33	203,565.33
76	Annette Avenue	Dead End	Girard Blvd	3	HMA (leveling) & Overlay (<2 in.)	757.78	9,472.22
85	Bamford Street	Odonnell Avenue	Homestead Avenue	3	No Maintenance	723.56	0.00
37	Black Plain Road	Mattity Road	Taylor Drive	3	HMA (leveling) & Overlay (<2 in.)	8,880.00	111,000.00
46	Buxton Street	Buxton Street	Town Line	3	Rotomill & Overlay (<2 in)	5,165.11	72,311.56
320	Carpenter Street	Florence Street	Victory Highway	3	Thin Hot Mix Overlay (<2 in)	1,134.22	13,043.56
297	Cherrybrook Avenue	Great Road (146a)	Great Road (146a)	3	Crack Seal	2,305.56	4,611.11
100	Christiansen Way	Dead End	Steele Street	3	Rotomill & Overlay (<2 in)	2,126.67	29,773.33

Segment Id	Road Name	From Address	To Address	Condition	Treatment	Area (Sq Yd)	Cost ($)
187	Church Street	Providence Pike	Dead End	3	No Maintenance	3,896.67	0.00
53	Comstock Road	Providence Pike	Dead End	3	No Maintenance	3,653.33	0.00
98	Comstock Road	Pound Hill Road	Dead End	3	No Maintenance	821.33	0.00
285	Eaton Street	Victory Highway (Rt. 102)	Dead End	3	Crack Seal	2,880.22	5,760.44
155	Filion Drive	Mechanic Street	Dead End	3	Rotomill & Overlay (<2 in)	1,309.33	18,330.67
118	Forest Hill Drive	Old Oxford Road	Old Oxford Road	3	Crack Seal	6,835.11	13,670.22
18	Freitas Lane	Maple Avenue	Dead End	3	No Maintenance	1,140.00	0.00
314	Greene Street	Victory Highway	School Street	3	No Maintenance	6,807.78	0.00
138	Harkness Road	Old Great Road	Dead End	3	Rotomill & Overlay (<2 in)	1,579.11	22,107.56
290	Hillview Avenue	49 Hillview Avenue	Lapre Road	3	Crack Seal	1,543.11	3,086.22
77	John Avenue	Dead End	Dead End	3	Crack Seal	1,053.33	2,106.67
231	Karen Marie Drive	Indigo Farm Road	Dead End	3	Thin Hot Mix Overlay (<2 in)	1,050.00	12,075.00
275	Knollridge Drive	Woonsocket Hill Road	Dead End	3	Thin Hot Mix Overlay (<2 in)	10,342.22	118,935.56
125	Leonard Drive	Dead End	Log Road	3	Crack Seal	9,673.33	19,346.67
31	Mattity Road	Brookside Drive	Rt. 7	3	Rotomill & Overlay (<2 in)	3,877.33	54,282.67
298	Morning Star Drive	Victory Highway	Rising Sun Trail	3	Crack Seal	2,916.67	5,833.33
103	Myrick Drive	Church Street	Dead End	3	No Maintenance	1,487.78	0.00
60	Oakdale Road	Norwood Road	Westwood Road	3	No Maintenance	936.00	0.00
120	Old Oxford Road	Pound Hill Road	Dead End	3	Crack Seal	10,160.00	20,320.00
263	Old Smithfield Road	1105 Old Smithfield Road	146a	3	HMA (leveling) & Overlay (<2 in.)	10,624.44	132,805.56
156	Orchard Street	Dead End	Filion Drive	3	Crack Seal	946.00	1,892.00
63	Primose Lane	Black Plain Road	Dead End	3	Crack Seal	1,423.33	2,846.67
117	Rainbow Lane	Taylor Drive	Taylor Drive	3	HMA (leveling) & Overlay (<2 in.)	1,453.33	18,166.67
97	Taber Hill Road	Taber Hill Road	Dead End	3	Rotomill & Overlay (<2 in)	696.67	9,753.33
99	Taber Hill Road	Pound Hill Road	Dead End	3	Rotomill & Overlay (<2 in)	4,986.67	69,813.33
269	Taylor Drive	Black Plain Road	Black Plain Road	3	Rotomill & Overlay (<2 in)	5,090.00	71,260.00
80	Village Way	Dead End	Providence Street (104)	3	Crack Seal	5,803.78	11,607.56
79	Wedgewood Drive	Chester Street	Dead End	3	Crack Seal	1,681.33	3,362.67
88	Westwood Road	146a	Dead End	3	No Maintenance	3,313.56	0.00
174	Adams Circle	Lincoln Drive	Dead End	2	No Maintenance	423.33	0.00
127	Angela Way	Toni Circle	Dead End	2	Crack Seal	566.22	1,132.44
255	Bearskin Farm Road	Mattity Road	Dead End	2	Crack Seal	2,236.89	4,473.78
102	Charon Drive	Providence Pike	Church Street	2	Crack Seal	3,513.33	7,026.67
106	Chelsea Drive	Dead End	Black Plan Road	2	Crack Seal	2,693.33	5,386.67
276	Chester Street	Walsh Avenue	Wedgewood Drive	2	Crack Seal	2,097.33	4,194.67
126	Christina Way	Toni Circle	Dead End	2	Crack Seal	1,340.89	2,681.78
207	Girard Blvd	Dead End	Providence Street (104)	2	No Maintenance	1,984.00	0.00
66	Hollow Road	Follett Street	Dead End	2	Crack Seal	715.56	1,431.11
107	Jennifer Lane	Dead End	Chelsea Drive	2	Crack Seal	4,336.67	8,673.33
190	Julie Avenue	Victory Highway (Rt. 102)	Dead End	2	Crack Seal	1,123.33	2,246.67
223	Keene Street	Follett Street	Dead End	2	Crack Seal	1,488.67	2,977.33

Segment Id	Road Name	From Address	To Address	Condition	Treatment	Area (Sq Yd)	Cost ($)
104	Laurel Lane	Black Plains Road	Laurel Lane	2	Thin Hot Mix Overlay (<2 in)	624.44	7,181.11
188	Maple Avenue	School Street	Victory Highway	2	No Maintenance	7,438.67	0.00
7	Mendon Road	298 Mendon Road	St. Paul Street	2	No Maintenance	7,184.00	0.00
133	Mt. Pleasant Road	Victory Highway (Rt. 102)	Town Line	2	Crack Seal	3,328.00	6,656.00
121	Narragansett Drive	Brookside Drive	Brookside Drive	2	Crack Seal	3,763.33	7,526.67
291	Oaklawn Road	Lapre Road	Hillview Avenue	2	Crack Seal	2,660.00	5,320.00
312	Pacheco Drive	Dead End	Greene Street	2	Crack Seal	2,311.56	4,623.11
226	Pond House Road	Rt. 104	Black Plains Road	2	Crack Seal	9,073.33	18,146.67
130	Pound Hill Road	Rt. 7	1620 Pound Hill Road	2	Base Repair\Pavement Replacement	6,637.78	122,798.89
241	Reservior Road	146	Town Border	2	No Maintenance	6,616.00	0.00
271	Robert Street	Providence Street (104)	Oak Hill Avenue	2	No Maintenance	653.33	0.00
234	Scott Farm Road	Dead End	Buxton Street	2	Crack Seal	2,036.67	4,073.33
256	Sky View Road	Dead End	Follett Street	2	Crack Seal	2,834.00	5,668.00
189	Steel Street	Edgecomb road	Dead End	2	No Maintenance	3,586.67	0.00
49	Stone Ridge Drive	Woonsocket Hill Road	Dead End	2	Crack Seal	2,283.56	4,567.11
81	Thayer Court	Dead End	Village Way	2	Crack Seal	1,306.67	2,613.33
128	Toni Circle	Mattity Road	Toni Circle	2	Crack Seal	8,759.11	17,518.22
114	Trout Brook Lane	Taylor Drive	Dead End	2	Crack Seal	2,110.00	4,220.00
21	Weeks Street	49 Weeks Street	Buell Avenue	2	No Maintenance	488.44	0.00
38	Black Plain Road	Farnum Pike	Mattity Road	1	No Maintenance	10,024.00	0.00
56	Bourget Court	Rt. 5	Dead End	1	Crack Seal	5,155.11	10,310.22
325	Canal Street	Town Line	Town Line	1	Crack Seal	5,534.22	11,068.44
108	Courtney Drive	Black Plain Road	Jennifer Lane	1	Crack Seal	1,846.67	3,693.33
200	Crest Road	146a	Greenwood Street	1	No Maintenance	1,911.56	0.00
179	Northgate Road	Tall Timber Trail	Victory Highway	1	Crack Seal	1,085.78	2,171.56
225	Old Sayles Hill Road	Iron Mine Hill Road	35 Old Sayles Hill road	1	No Maintenance	2,136.00	0.00
65	Pomona Street	Grange Road	Dead End	1	Crack Seal	10,463.56	20,927.11
170	Ridge Road	N Main Street	Greene Street	1	No Maintenance	3,048.89	0.00
154	Saranac Street	Dead End	Elizabeth Avenue	1	Crack Seal	1,188.00	2,376.00
115	Stoney Drive	Taylor Drive	Dead End	1	No Maintenance	9,023.33	0.00
193	Warren Avenue	146a	Dead End	1	No Maintenance	1,058.33	0.00
82	Weeks Street	Village Way	49 Weeks Street	1	Crack Seal	2,240.00	4,480.00
58	Briden Street	Elizabeth Avenue	Dead End	0	No Maintenance	949.33	0.00
47	Buxton Street	146a	Buxton Street	0	No Maintenance	8,614.22	0.00
67	Chamberlain Court	Old Sayles Hill Road	Dead End	0	No Maintenance	2,036.67	0.00
311	Country Way	Ridge Road	Greene Street	0	No Maintenance	4,676.00	0.00
119	Cristy Court	Old Oxford Road	Dead End	0	Crack Seal	2,684.89	5,369.78
208	Cross Street	Providence Street (104)	Dead End	0	Crack Seal	2,406.67	4,813.33
64	Denny Court	Rocky Hill Road	Dead End	0	No Maintenance	2,467.11	0.00
129	Doire Court	Pound Hill Road	Dead End	0	No Maintenance	2,190.00	0.00
0	Elizabeth Avenue	11 Elizabeth Avenue	Dead End	0	No Maintenance	2,789.11	0.00

Segment Id	Road Name	From Address	To Address	Condition	Treatment	Area (Sq Yd)	Cost ($)
139	Elizabeth Avenue	St. Paul Street	11 Elizabeth Avenue	0	No Maintenance	2,137.78	0.00
92	Fountain Street	Mendon Road	Graves Avenue	0	No Maintenance	2,060.00	0.00
112	Hart Pond Drive	3 Hart Pond Drive	Pound Hill Road	0	Crack Seal	480.00	960.00
113	Hart Pond Drive	Dead End	3 Hart Pond Drive	0	Crack Seal	1,553.33	3,106.67
110	Jeanne Court	Black Plain Road	Dead End	0	Crack Seal	4,766.67	9,533.33
29	Laurel Lane (Lower Half)	Laurel Lane	Dead End	0	Crack Seal	906.67	1,813.33
235	Log Road	Town Line	Town Line	0	No Maintenance	12,682.22	0.00
32	Mattity Road	Town Line	Brookside Drive	0	No Maintenance	8,934.44	0.00
8	Mendon Road	409 Mendon Road	298 Mendon Road	0	No Maintenance	3,053.33	0.00
9	Mendon Road	146a	409 Mendon Road	0	No Maintenance	8,810.67	0.00
149	Middle Street	St. Paul Street	Dead End	0	No Maintenance	2,117.33	0.00
143	Mill Street	Canal Street	Town Line	0	Crack Seal	1,133.33	2,266.67
280	Mowry Avenue	Dead End	35 Mowry Avenue	0	No Maintenance	1,112.22	0.00
261	Mowry Road	Town Line	Rt (7)	0	No Maintenance	832.00	0.00
283	Old Pound Hill Road	Dead End	Pound Hill Road	0	No Maintenance	2,428.00	0.00
242	Old Sayles Hill Road	Dead End	Dead End	0	Crack Seal	1,672.22	3,344.44
61	Park Drive	Dead End	146a	0	No Maintenance	1,605.56	0.00
131	Pine Hill Road	Pound Hill Road	Dead End	0	No Maintenance	2,467.11	0.00
1	Rhodes Avenue	Mendon Road	Town Border	0	No Maintenance	1,101.33	0.00
93	Smith Street	Elizabeth Avenue	Dead End	0	No Maintenance	1,026.67	0.00
289	Tifft Road	Black Plain Road	Black Plain Road	0	No Maintenance	0.00	0.00
246	Valley View Drive	Dead End	Iron Mill Hill Road	0	No Maintenance	1,753.56	0.00
91	West Street	Fountain Street	Colerick Street	0	No Maintenance	955.56	0.00

The Narragansett Bay Commission AM Program

The Narragansett Bay Commission (NBC) has a highly effective AM Program. Some of the bigger water and wastewater utilities in the country had already begun their programs when the NBC's program was initiated in the early 2000s.

The NBC has a nineteen-member Board of Directors, an Executive Director/Secretary to the Board who runs the day-to-day activities and employed about 250 people when the program was started.

The NBC is highly regulated by EPA and RIDEM. Rates fall under the purview of the RI Public Utility Commission.

The NBC program is far more complex and more expensive for what the town needs yet the components for the program are the same.

The NBC at the time had over 40 buildings, over a hundred miles of large diameter sewers, seven pump stations and tens of thousand pieces of equipment. In addition, Phase I of the combined sewer program was nearing completion – this project increased the number and complexity of assets that needed to be maintained. The timing of initiation of the program could not have come at a better time.

The firm of Camp Dresser & McKee (later name changed to CDM Smith) was selected to assist the NBC in developing the program. It was done in four phases over a five-year period at a cost of about $1 million/phase (don't be shocked by the magnitude, the NBC's system was far more complex than that of the town of North Smithfield).

The NBC already had a computerized maintenance management system (CMMS) in place when the program began; however, it was primarily used at the two wastewater treatment facilities to track work orders. What CDM Smith was able to do was to integrate the CMMS system as a critical component of the AM program.

Initially, it was determined that the NBC was not using the CMMS system to its full potential. While the NBC did a good job of tracking repairs, it was shown that staff needed to place a higher priority on other areas. There are three components of a CMMS system as follows:

Corrective Maintenance – this is where equipment/buildings are repaired when items need attention. This had been in place.

Preventive Maintenance – this component entails manufacturer's recommendations to keep equipment running properly

Predictive Maintenance – this component involves diagnostic testing on larger type equipment to anticipate if components were starting to wear down and is designed to correct deficiencies before failure occurs.

A good everyday example of these different components is to look at one's personal vehicles:

- Corrective maintenance would be replacement of tires, windshield wipers and similar items.

- Preventive maintenance would involve oil and filter changes, coolant checks, air pressure measurements, tire rotation, etc. In other words – work that keeps your vehicle from breaking down.

- Predictive maintenance would be the one thing that most car owners Tend to ignore – those 15,000-mile checkups where the mechanic runs the vehicle through diagnostics to make sure everything is in order and not showing premature wear and tear.

By shifting staff's attention to preventive and predictive maintenance, the NBC was able to drastically reduce breakdowns and head off problems by replacing key components before they broke down i.e., reducing emergency repairs and corrective work orders.

The NBC was then able to develop long term replacement schedules – although the annual budget documents only went out five years, NBC's AMP projected needs out fifteen years (see attachment 7). The attachment is only for one of the NBC's Field's Point Wastewater Treatment Facilities. Keep in mind that the NBC's assets far outnumber what would be expected from the town's AM plan. The attachment is only one page from a spreadsheet and is included only to show the type of information that can be generated from an Asset Management Program.

Incidentally, the RI PUC allowed the NBC to have a separate line item for what was called Operating Capital Program. It was in a restricted account set aside for items identified in the asset management plan. If the money was not fully spent in a fiscal year, it essentially went to escrow and was not allowed to be used to offset any other accounts. The second attachment entitled Operating Capital Program is from the FY 19 budget document and offers a detailed explanation of the program (see attachment 8).

Like the Town of North Smithfield, the NBC also had a Capital Improvement Program (CIP), the distinction being the NBC's CIP was for bonded projects (see attachment 9).

The NBC's AM program has now been utilized for over fifteen years. It has been presented at various regional and national conferences and seminars and has received numerous awards. The important thing for the town to realize is that the NBC's program took years to develop and had the backing of staff, the board, the PUC and the regulators.

The NBC's AM program fell under the Operations and Maintenance Division. One staff member worked on the program on a day-to-day basis and reported to the Director. Much of the success of the program was that the AM Coordinator served as the advocate for the program. See the attached job description for the position (attachment 10).

Finally, it has to be recognized that any AM program is always a work in progress. New assets will continue to be added and old assets deleted. It will always be a work in progress.

Attachment 7

NBC Field's Point
Capital Replacement Plan
FY 2020

NBC FIELD'S POINT CAPITAL REPLACEMENT PLAN FY 2020

ASSET CONDITION KEY: 1-EXCELLENT 2-GOOD 3-FAIR 4-POOR 5-INOPERABLE

Equipment Description	Orig. Cost (Each)	Year Install./Purch.	Life Exp. Years	Asset Condition	2020		2021		2022		2023		2024		2025		2026		2027		2028		2029	
					Budget	Capital	Budget	Capital	Budget	Capital	Budget	Capital	Budget	Capital	Budget	Capital	Budget	Capital	Budget	Capital	Budget	Capital	Budget	Capital
INFLUENT PUMPING																								
ARNEST ST. PUMP STATION	$18,201,010	11/30/89	40	2																				
SEWAGE PUMP 1, 40 MGD, LG. CARTRIDGE	$140,000	8/3/15	20	1								$165,000												
SEWAGE PUMP 1 MOTOR/CPL.300 HP	$36,000	10/1/89	20	1								$45,000												
SEWAGE PUMP 2, 20 MGD, SM.CARTRIDGE	$110,000	1/1/15	20	1																				
SEWAGE PUMP 2 MOTOR/CPL. 200 HP-9/1/12 RETROFIT $23,500. NEW MOTOR DUE 3/31/15	$103,000	1/1/15	15	1																				
SEWAGE PUMP 3, 40 MGD, LG.CARTRIDGE	$63,000	11/30/89	20	2										$165,000										
SEWAGE PUMP 3 MOTOR/CPL. 300 HP-9/1/12 RETROFIT, $30,000.	$30,000	9/1/12	10	1										$45,000										
SEWAGE PUMP 4, 40 MGD, LG.CARTRIDGE	$138,861	6/30/16	20	2																				
SEWAGE PUMP 4 MOTOR/CPL.300 HP	$180,571	6/1/12	20	2																				
SEWAGE PUMP 5, 20 MGD, SM.CARTRIDGE	$110,000	6/30/15	20	2																				
SEWAGE PUMP 5 MOTOR/CPL. 200 HP	$24,000	11/30/89	20	3												$35,000								
SEWAGE PUMP 6, 40 MGD, LG.CARTRIDGE	$63,000	11/30/89	20	2												$175,000								
SEWAGE PUMP 6 MOTOR/CPL. 300 HP-9/1/12 RETROFIT $36,000	$36,000	9/1/12	10	1												$45,000								
SEWAGE PUMP 7, 20 MGD, SM.CARTRIDGE	$30,000	11/30/89	20	2														$130,000						
SEWAGE PUMP 7 MOTOR/CPL. 200 HP	$24,000	11/30/89	20	2														$30,000						
SEWAGE PUMP 8, 40 MGD, LG.CARTRIDGE	$63,000	11/30/89	20	2										$165,000										
SEWAGE PUMP 8 MOTOR/CPL. 300 HP	$36,000	11/30/89	20	2										$45,000										
BAR RACK 1- REBUILD NOV., 2017	$82,000	11/30/17	4	2				$150,000								$152,000								
BAR RACK 2	$188,483	10/31/17	4	1						$150,000								$152,000						
BAR RACK 3	$125,000	3/1/15	4	1								$150,000								$155,000				
BAR RACK 4	$82,000	1/1/16	4	1		$147,000								$152,000								$155,000		
BAR RACK BRIDGE CRANE PROJECT 202.00	$119,000																							
SERP.CONVEY.GEARBOX, MOTOR & PARTS	$60,000	5/31/14	15	1																				$70,000
SERP.CONVEY.W/FRAME	$23,115	5/31/14	20	1																				
SERP.CONVEYOR PANS	$13,609	5/31/14	20	1																				
SUMP PUMP	$9,736	9/30/12	15	1																$12,000				
KNIFEGATES 1-8 PUMP SIDE	$6,300	11/30/89	20	3																				
ESPS INFLUENT CYLINDERS (WET WELL SIDE)		11/30/89	20	2																				
HYDRAULIC MANIFOLDS, SLUICE GATE CONTROLLER, CYLINDERS	$54,181	5/24/17	20	1		$40,000																		
REPLACE HYDRAULIC CONTROLS																								
ELECTRICAL EQUIPMENT:																								
VARIABLE FREQUENCY DRIVE (VFD) 200 HP #2 & #6	$125,000	8/10/10	20	1																				
VARIABLE FREQUENCY DRIVE (VFD) 300 HP #3 & #7	$129,000	8/10/10	20	1																				
FIRE ALARM SYSTEM	$27,000	6/30/17	20	1																				
MOTOR CONTROL CENTER / SWITCHGEAR	$500,000	11/30/89	30	2																				
GENERATOR ROOM LOUVERS		11/30/89	40	4		$30,000																		
HEAT, VENT, & AIR COND. EQUIPMENT																								
REBUILD AIR HAND.#1 LOW SCREEN AREA	$15,000	11/30/89	15	4																				
REBUILD AIR HAND.#2 UPPER SCREEN AREA	$15,000	11/30/89	15	4																				
COMPRESSOR CONDENSER CU3- 10 TON UNIT	$40,000	6/30/16	25	2																				
HYDROTHERM BOILER 1	$22,000	12/14/10	20	2																				
HYDROTHERM BOILER 2	$22,000	12/14/10	20	2																				

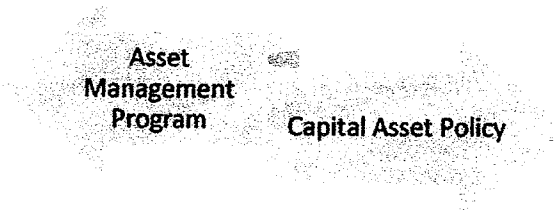
Attachment 8

The NBC FY 2019-2023
Operating Capital Program
(as determined by AM program)

Operating Capital Program

The Operating Capital Program

This is the first year that the Narragansett Bay Commission (NBC) is presenting the Operating Capital Program (OCP) as a separate document for review and approval by NBC's Board of Commissioners. NBC funds operating capital from the Restricted Account – Operating Capital in the Project Fund. In prior years, operating capital was included as an operating budget expense item and the associated funding was shown as a transfer from operating capital revenue item. Historically, NBC has funded asset purchases from the Operation and Maintenance Fund and subsequently sought reimbursement from the Project Fund through the Trustee. Beginning in FY 2019, NBC will instruct the Trustee to directly pay for assets from the Restricted Account in the Project Fund. This is the same process that NBC uses for the payment of pay-as-you-go capital projects identified in the CIP.



NBC's OCP identifies programmed asset purchases for the current budget year and subsequent four years. The OCP is based primarily on information from NBC's Asset Management Program (AMP) and includes new assets, asset replacements, asset renovations, and betterments. Examples of these assets include pumps, blowers, actuators, and bar racks. Additional operating capital items are identified through facility inspections and established programmatic priorities. Examples of these assets include fleet vehicles and laboratory equipment as well as computer hardware and software licensing. In accordance with NBC's Capital Asset Policy, all assets must have an acquisition cost greater than $5,000 and a useful life of three years or more.

Operating Capital Program Overview

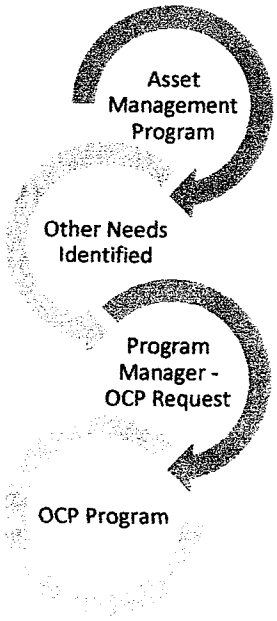
This year's OCP identifies 92 assets programmed for acquisition in FY 2019 at a total cost of approximately $4.8 million. NBC has also programmed asset purchases in FY 2020 through FY 2023 of approximately $10.4 million for a total of $15.2 million over the five year period reflected in the Program. As is shown in the following table, the majority of the asset purchases, $8.5 million or 56%, are for items required to support the wastewater treatment and collection functions in the Operations and Maintenance Division.

FY 2019 – 2023
Operating Capital Program

Division	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total
Executive Affairs	$ 1,450,000	$ 475,000	$ 200,000	$ 440,000	$ 200,000	$ 2,765,000
Construction & Engineering	30,000	230,000	30,000	68,000	30,000	388,000
Administration & Finance	756,000	285,000	70,000	130,000	65,000	1,306,000
Operations & Maintenance	2,001,000	1,938,500	1,945,000	1,576,000	1,015,000	8,475,500
Environmental Science & Compliance	515,000	327,000	427,000	439,000	471,000	2,179,000
	$ 4,752,000	$ 3,255,500	$ 2,672,000	$ 2,653,000	$ 1,781,000	$ 15,113,500

Operating Capital Program Development

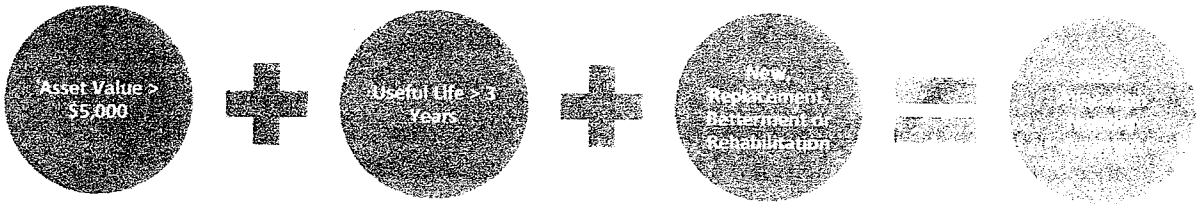
NBC is committed to making the investments needed to ensure continuous operation of its facilities, support services and core business functions. In order to achieve this goal, NBC adopted and implemented an Asset Management Program (AMP), which is the primary source used to identify operating capital needs. The AMP is a comprehensive and detailed document maintained by the Asset Management Administrator that identifies all of NBC's assets. This includes assets acquired as part of a capital improvement project as well as assets purchased through the annual budget process. Detailed asset information is captured in the asset management system including an asset's location, cost, and useful life. In addition, each asset is assigned a criticality factor that takes into consideration redundancy. NBC's computerized work order system is integrated into the AMP so that preventive and corrective maintenance activity is also captured for each asset. The information in the AMP enables NBC to produce a facilities and equipment condition analysis report that is used to identify and prioritize capital asset needs. The asset maintenance history and useful life information assists with the determination of whether an asset should be repaired or replaced.



In addition to the AMP, other new assets or asset replacements are identified through the operation and inspection of facilities. Investment in Information Technology (IT) assets are typically programmed in advance to address specific needs such as the implementation of new software applications, disaster recovery solutions, or network improvements. Laboratory and sampling equipment needs are often identified through the planning process to ensure compliance with new RIPDES permit or water quality sampling requirements.

Program managers use the information from the AMP and other sources as the basis for requesting funding for operating capital assets. The OCP includes requests for the upcoming budget year as well as the subsequent four years to arrive at a five-year program.

With respect to the upcoming budget year, as part of the annual budget process, each section submits detailed operating capital requests with supporting documentation for each asset. Each request is unique and includes the asset title, description, estimated cost, location, useful life, purchase justification and indicates if the asset is new, a replacement or a betterment. The requests are first reviewed by the Accounting staff to determine if the request meets the capital asset criteria. Once approved by Accounting, the requests are reviewed by Finance to ensure that the information is complete and that there is documentation to support the estimated cost. The information is compiled and included for funding in the OCP for the budget year. Each asset included in the budget is assigned a unique asset allocation number which is referenced when the asset is purchased to ensure that it was authorized.



The OCP also reflects planned asset purchases for the subsequent four years. Although detailed information is required for all requested operating capital assets in the budget year, less specific information is needed to program future purchases. Each section submits a five-year operating capital needs form as part of the annual budget process. The first year ties into the budget year and must be accompanied by the operating capital request form discussed previously. Assets in subsequent years must include the asset title, location, a brief explanation of how the asset will be used, and justification. These requests are reviewed by Finance and are incorporated into the OCP.

Operating Capital Program Guidelines

The development of the FY 2019 Operating Capital Program is governed by the following:

- The operating capital policy defines operating capital items as those with costs greater than $5,000 and a minimum useful life of three years.
- The Asset Management Policy requires the identification of short-term capital needs and the development of a long-term (five-year) asset replacement Program.
- The Accounting Manager must ensure that asset criteria is met and approve the capitalization of assets.

Operating Capital Program Calendar

Development of the Operating Capital Program is as follows:

DECEMBER 2017

- Budget Forms Available

JANUARY 2018

- FY 2019 – 2023 Operating Capital Submittals due to Finance on January 10th
- Review Operating Capital Submittals for Asset Criteria and GL account code on January 19th

FEBRUARY 2018

- Operating Capital Budget Change Requests due to Finance on February 23rd

MARCH 2018

- Incorporation of Operating Capital Submittals
- Operating Capital Narrative
- Addition of Enhancements to Operating Capital Program Document

APRIL 2018

- Final revisions and Operating Capital Program document preparation
- Finance Committee and Board Review and Approval of Operating Capital Program on April 10th

Operating Capital Program Amendment Procedures

During the fiscal year there may be a need to make changes to the operating capital budget to accommodate circumstances where the actual bids received for particular items are higher than budget amounts or where the installation of a new asset may require additional resources beyond what was anticipated. In addition, changes may be required to accommodate emergencies. In these cases, a Division Director may request a modification to the operating capital budget. If a modification to the operating capital budget is needed, it is preferred that an entire asset is reallocated to the new item. In some cases this is not possible and partial reallocations are accommodated. The Director of Administration and Finance may authorize changes in the operating capital budget as long as the total expenditures do not exceed the total amount approved for the fiscal year. Procedures for modifications to the operating capital budget during the year are as follows:

Non-Emergencies:

- Prior to Purchase, the Operating Capital Reallocation Request Form is completed, signed by the Division Director and accompanied by vendor quote for the estimated cost.
- The Form is reviewed by the Accounting and Finance Departments to determine if the item meets the criteria to be considered an asset in accordance with NBC's Capital Asset Policy.
- The Form is reviewed with the Director of Administration and Finance
- If approved, a new Asset Allocation number is assigned and operating capital funding is transferred.

Emergencies:

- Item is purchased in accordance with NBC's Purchasing Rules and Regulations for emergency purchases.
- The Operating Capital Reallocation Request Form is completed and signed by the Division Director and accompanied by a quote for the estimated cost.
- The Form is reviewed by the Accounting and Finance Departments to determine if the item meets the criteria to be considered an asset in accordance with NBC's Capital Asset Policy. Form is reviewed with the Director of Administration and Finance.
    - Capital Asset Criteria Met – funding is transferred in the operating capital budget and Asset Allocation number assigned.
    - Capital Asset Criteria Not Met – purchase will be expensed in the operating budget.

Operating Capital Program by Strategic Objective

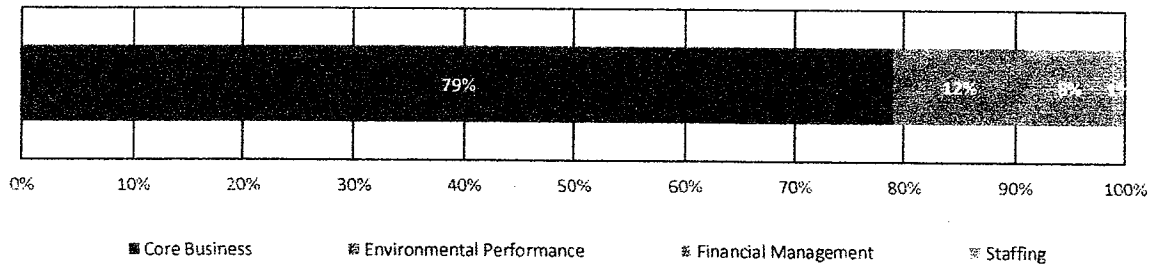
The Strategic Plan guides NBC operations and ensures facilities and infrastructure are maintained. As part of the OCP development, the budgeted capital assets have been categorized by the goal the asset will address. NBC's Strategic Plan Goals are listed below.

NBC'S Strategic Goals

CORE BUSINESS:	Operate, maintain and protect our collection and treatment systems to ensure that all State and Federal requirements are met or surpassed.
ENVIRONMENTAL PERFORMANCE:	Continuously evaluate NBC's environmental performance to identify, quantify and minimize NBC impacts to the environment in a cost effective manner.
FINANCIAL MANAGEMENT:	Manage NBC's finances through strong financial planning and controls such that sewer users charges are minimized.
STAFFING:	Attract, develop and retain highly qualified employees.

Of the ninety-two FY 2019 budgeted capital assets, $3.7 million or 79% are related to NBC's Core Business for infrastructure, applications and compliance. In addition, 12% relate to NBC's Environmental Performance Goal and represent sampling and laboratory analysis assets. The remaining assets are aligned with the Financial Management and Staffing goals. The following chart illustrates the percentage of budgeted assets by strategic goal.

Percentage of Capital Assets by Strategic Goal

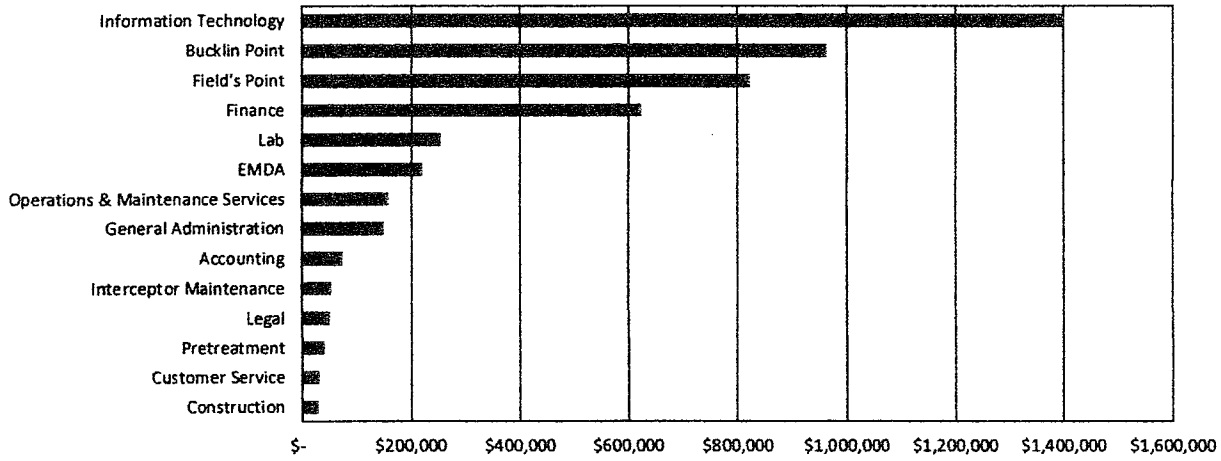


Operating Capital Program by Cost Center

The largest percentage of the FY 2019 operating capital is in the Information Technology (IT) section at $1.4 million or 29%. This includes several hardware and software updates as well as the implementation of the new customer service application. The two wastewater treatment facility sections represent 37% of the programmed operating capital with $964 thousand at Bucklin Point and $823 thousand at Field's Point. NBC has prioritized the replacement of numerous pumps, vehicles, grinders, bar rack rebuilds and other equipment required to operate the facilities and maintain infrastructure. Finance represents 13% or $625 thousand of the FY 2019 operating capital and the capital budget includes funding for a Wastewater System Cost Allocation and Recovery Study as well as the reconfiguration of the office space. The Laboratory and EMDA sections each represent 5% respectively for a total of $475 thousand. Budgeted laboratory and sampling equipment includes

replacement of nutrient analyzers, water purification systems, plant samplers and monitoring sondes, probes and meters. The FY 2019 operating capital by cost center is reflected in the following chart.

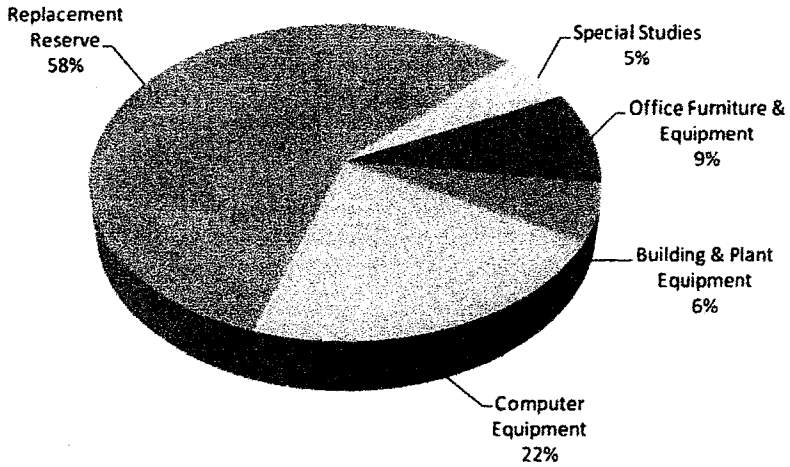
FY 2019 Operating Capital by Cost Center



Fiscal Year 2019 Operating Capital Program by Type

The FY 2019 OCP identifies asset purchases totaling approximately $4.8 million. The majority, or 58% of the assets are for Replacement Reserve items at $2.8 million. Followed by the next largest category for Computer Equipment, representing approximately $1.1 million or 22% of costs. Lastly, Office Furniture and Equipment, Building and Plant Equipment and Special Studies comprise 9%, 6% and 5% of the FY 2019 asset acquisitions.

FY 2019 Operating Capital by Type



NBC's strategic goal of maximizing technology and maintaining capability is exemplified with the programmed computer equipment purchases in FY 2019. The majority, or 47%, is related to the purchase and implementation of a new customer service application that will replace NBC's legacy system. The new system will employ technology to make NBC's business processes more efficient and enhance the customer experience

through expanded online capabilities. In addition, NBC has programmed an upgrade to Microsoft Office, the purchase of debt management software, and the installation of a redundant fiber connection.

Computer Equipment	Total	% of Total
Customer Service Application	$ 500,000	47%
Microsoft Office Upgrades	175,000	16%
Debt Management Application	110,000	10%
Computer Hardware and Software Upgrades	140,000	13%
Redundant Fiber Connection	55,000	5%
Other	100,000	9%
Total	**$1,080,000**	**100%**

The following table shows NBC's FY 2019 programmed Replacement Reserve investments that ensures protection of assets and continuous operation. The majority of the Replacement Reserve items are comprised of pumps and vehicles at 17% and 13% respectively. Other significant items include computer hardware, sampling and analysis equipment, items needed to operate the treatment plants, and other items.

Replacement Reserve	Total	% of Total
Pumps	$ 446,000	17%
Vehicles	369,000	13%
Network Core Replacement	150,000	5%
Board Room Refresh	150,000	5%
Bar Rack Rebuilds	147,000	5%
Fixed Site Sondes	130,000	5%
SAN Switch	120,000	4%
Grinders	100,000	4%
BOD Skalar Analyzer	93,000	3%
Fresh Water Nutrient Analyzer	85,000	3%
Equipment 009 - Yard Sweeper	85,000	3%
Disaster Recovery Servers and Infrastructure	75,000	3%
Conveyor	75,000	3%
Annual PC Refresh Program	75,000	3%
Grit Tank Components	70,000	2%
Flow Meter	70,000	2%
HVAC Components	50,000	2%
Other	513,000	18%
Total	**$2,803,000**	**100%**

With respect to the office furniture and equipment category, NBC has programmed $331,000 for office reconfigurations and updates to ensure the space is conducive to departmental operational requirements.

Office Furniture & Equipment	Total	% of Total
Office Reconfiguration	$ 331,000	100%
Total	**$ 331,000**	**100%**

NBC plans on purchasing new assets in the building and plant equipment category that will support operations and ensure core business goals are met. Dissolved oxygen sensors and probes to monitor wastewater as required by permit total $90,000 and represent 32% of the total for this category. Pumps represent 24% and antennas and repeaters 10% of programmed investments to support treatment operations at both WWTFs.

Building & Plant Equipment	Total	% of Total
Dissolved Oxygen Sensors and Probes	$ 90,000	32%
Pumps	70,000	24%
Antennas & Repeaters	30,000	10%
Other	98,000	34%
Total	**$ 288,000**	**100%**

Lastly, NBC has programmed $250,000 in the Special Studies category for a wastewater system cost allocation and recovery study. This study will examine NBC's cost of service and explore alternative rate designs as part of NBC's financial management goals. NBC plans to file for a rate adjustment in the fall, which will be based upon the results of the study.

Special Studies	Total	% of Total
WW System Cost Allocation and Recovery Study	$ 250,000	100%
Total	**$ 250,000**	**100%**

Operating Capital Program Funding

Operating Capital is funded from the Restricted Account – Operating Capital in the Project Fund. In accordance with the Trust Indenture, subsequent to fiscal year end, a calculation is made to determine the amount that can be transferred from the Stabilization Account in the Debt Service Fund to the Restricted Accounts in the Project Fund to support the Capital Budgets. This is also consistent with the Order from the Rhode Island Public Utilities Commission. An additional calculation is performed to further allocate the funds to the Operating Capital and Capital Improvement Program Restricted Accounts.

The following table shows that in FY 2019, NBC plans to fund the OCP with $4.8 million from the Restricted Account – Operating Capital in the Project Fund. NBC has also programmed funding of $5.0 million per year for FY 2020 through FY 2024 for the OCP from this same source.

Restricted Account-Operating Capital	$ 4,752	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 25,000
Total	**$ 4,752**	**$ 5,000**	**$ 5,000**	**$ 5,000**	**$ 5,000**	**$ 5,000**	**$ 25,000**

The FY 2019 programmed asset purchases total approximately $4.8 million. In FY 2020 through FY 2024, NBC has programmed the acquisition of the assets identified in the OCP as well as an additional placeholder amount so that total programmed uses are $5.0 million per year in the five year window.

Operating Capital Program	$ 4,752	$ 3,256	$ 2,672	$ 2,653	$ 1,781	$ -	$ 10,362
Operating Capital Placeholder	-	1,744	2,328	2,347	3,219	5,000	14,638
Total	**$ 4,752**	**$ 5,000**	**$ 5,000**	**$ 5,000**	**$ 5,000**	**$ 5,000**	**$ 25,000**

Operating Capital Summary by Fiscal Year

Asset Type	Asset Title	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total Cost
EXECUTIVE AFFAIRS							
Legal							
Betterment	Office Reconfiguration	$ 50,000	$ -	$ -	$ -	$ -	$ 50,000
	Subtotal Legal	50,000	-	-	-	-	50,000
Information Technology							
New	Customer Service Application	500,000	-	25,000	-	25,000	550,000
Replacement	Board Room Refresh	150,000	-	-	-	-	150,000
Replacement	Network Core	150,000	-	-	-	-	150,000
New	Microsoft Office Upgrade	125,000	-	-	-	-	125,000
Replacement	SAN Switch	120,000	-	-	-	-	120,000
Replacement	Disaster Recovery Servers and Infrastructure	75,000	75,000	75,000	75,000	75,000	375,000
Replacement	Annual PC Refresh Program	75,000	-	-	-	-	75,000
New	Redundant Fiber Connection	55,000	-	-	-	-	55,000
New	Microsoft Exchange Upgrade	50,000	-	-	-	-	50,000
New	Software Licensing Updates	40,000	40,000	40,000	40,000	40,000	200,000
New	Computer Room Enhancements	25,000	25,000	25,000	25,000	25,000	125,000
New	Conference Room Upgrades	25,000	25,000	25,000	25,000	25,000	125,000
New	Antivirus Updates	10,000	10,000	10,000	10,000	10,000	50,000
New	Bi-Annual Security Assessment	-	75,000	-	75,000	-	150,000
New	LIMS Enhancements	-	50,000	-	50,000	-	100,000
Replacement	Edge Switch Upgrades	-	50,000	-	50,000	-	100,000
New	Oracle ERP/Database Enhancements	-	40,000	-	40,000	-	80,000
Replacement	Large Form Scanner/Printer	-	35,000	-		-	35,000
New	Hansen Upgrades	-	25,000	-	25,000	-	50,000
New	Project Tracking Software	-	25,000	-	25,000	-	50,000
	Subtotal Information Technology	1,400,000	475,000	200,000	440,000	200,000	2,715,000
CONSTRUCTION & ENGINEERING							
Construction							
Replacement	Vehicle 427	30,000	-	-	-	-	30,000
Betterment	Office Reconfiguration	-	200,000	-	-	-	200,000
Replacement	Vehicle 400	-	30,000	-	-	-	30,000
Replacement	Vehicle 388	-	-	30,000	-	-	30,000
Replacement	Vehicle 357	-	-	-	30,000	-	30,000
Replacement	Vehicle 343	-	-	-	-	30,000	30,000
	Subtotal Construction Services	30,000	230,000	30,000	30,000	30,000	350,000
Engineering							
Replacement	GPS Rover	-	-	-	25,000	-	25,000
Replacement	Survey Equipment	-	-	-	13,000	-	13,000
	Subtotal Engineering	-	-	-	38,000	-	38,000
ADMINISTRATION & FINANCE							
Finance							
New	WW System Cost Allocation & Recovery Study	250,000	-	-	-	-	250,000
New	Debt Management Application	110,000	-	-	-	-	110,000
Betterment	Office Reconfiguration	100,000	-	-	-	-	100,000
New	Cash Management Application	40,000	-	-	-	-	40,000
New	Capital Budget Software	-	75,000	-	-	-	75,000
Replacement	Time & Attendance System	-	80,000	-	-	-	80,000
	Subtotal Finance	500,000	155,000	-	-	-	655,000
Accounting							
Betterment	Office Reconfiguration	75,000	-	-	-	-	75,000
	Subtotal Accounting	75,000	-	-	-	-	75,000
Customer Service							
Replacement	Vehicle 385	25,000	-	-	-	-	25,000
New	Office Reconfiguration	6,000	5,000	5,000	5,000	5,000	26,000
Replacement	Vehicle 377	-	25,000	-	-	-	25,000
Replacement	Vehicle 372	-	-	25,000	-	-	25,000
Replacement	Vehicle 339	-	-	-	25,000	-	25,000
Replacement	Vehicle 335	-	-	-	-	25,000	25,000
	Subtotal Customer Service	31,000	30,000	30,000	30,000	30,000	151,000

Asset Type	Asset Title	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total Cost
General Administration							
Betterment	Office Reconfiguration	100,000	-	-	-	-	100,000
Replacement	HVAC Components	50,000	-	-	-	-	50,000
Betterment	Office Reconfiguration	-	50,000	-	50,000	-	100,000
New	Phone System Upgrades	-	25,000	-	25,000	-	50,000
Replacement	Security - Camera	-	25,000	-	25,000	-	50,000
Replacement	Color Copier	-	-	40,000	-	-	40,000
Replacement	Water Heater	-	-	-	-	20,000	20,000
Replacement	Copier	-	-	-	-	15,000	15,000
	Subtotal General Administration	150,000	100,000	40,000	100,000	35,000	425,000
OPERATIONS AND MAINTENANCE							
Interceptor Maintenance							
Replacement	Equipment 007	37,000	-	-	-	-	37,000
Replacement	Pole Camera	17,000	-	-	-	-	17,000
Replacement	Vehicle 455	-	70,000	-	-	-	70,000
Replacement	HVAC Components	-	35,000	-	-	-	35,000
Replacement	Vehicle 355	-	-	35,000	-	-	35,000
Replacement	Vehicle 387	-	-	35,000	-	-	35,000
Replacement	Vehicle 367	-	-	25,000	-	-	25,000
Replacement	Vehicle 376	-	-	-	140,000	-	140,000
Replacement	Vehicle 398	-	-	-	5,000	-	5,000
Replacement	Vehicle 348	-	-	-	-	40,000	40,000
Replacement	Vehicle 347	-	-	-	-	38,000	38,000
Replacement	Vehicle 459	-	-	-	-	16,000	16,000
Replacement	Vehicle 354	-	-	-	-	15,000	15,000
	Subtotal Interceptor Maintenance	54,000	105,000	95,000	145,000	109,000	508,000
Operations & Maintenance Services							
New	Computer System Upgrade	84,000	20,000	-	-	-	104,000
Replacement	Vehicle 442	35,000	-	-	-	-	35,000
Replacement	Flow Meter	25,000	-	-	-	-	25,000
New	Software Licensing Updates	16,000	70,000	-	-	-	86,000
	Subtotal Interceptor Maintenance	160,000	90,000	-	-	-	250,000
Field's Point							
Replacement	Bar Rack	147,000	-	-	-	150,000	297,000
Replacement	Grinders	100,000	-	-	-	-	100,000
Replacement	Equipment 009	85,000	-	-	-	-	85,000
Replacement	Grit Tank Components	70,000	-	-	-	95,000	165,000
Replacement	Vehicle 447	45,000	-	-	-	-	45,000
Replacement	Flow Meter	45,000	-	-	-	-	45,000
Replacement	Vehicle 487	40,000	-	-	-	-	40,000
Replacement	Hydraulic Controls	40,000	-	-	-	-	40,000
Replacement	RAS & Dewatering Pump	35,000	-	-	-	-	35,000
New	Antennas & Repeaters	30,000	-	-	-	-	30,000
Replacement	Metering Pump	27,000	-	-	-	-	27,000
Replacement	Hypo Pump and Motor	25,000	-	-	-	-	25,000
Replacement	Equipment 0026	22,000	-	-	-	-	22,000
Replacement	Equipment 0028	22,000	-	-	-	-	22,000
Replacement	Screw Pump Motor	20,000	-	-	-	-	20,000
New	Nitrate Analyzer	17,000	-	-	-	-	17,000
New	Grit Aeration Blower	15,000	-	-	-	-	15,000
New	Underflow Valve Actuator	15,000	-	-	-	-	15,000
Replacement	Automatic Self Cleaning Strainer	13,000	-	-	-	-	13,000
Replacement	Compressor	10,000	-	-	-	-	10,000
Replacement	Bar Rack	-	147,000	-	-	-	147,000
Replacement	Butterfly Valve	-	90,000	-	-	-	90,000
Replacement	Grit Tank	-	85,000	-	-	-	85,000
Replacement	Tank Turntable Assembly	-	75,000	-	-	-	75,000
Replacement	Gravity Thickener Pump	-	50,000	-	-	-	50,000
Replacement	Vehicle 405	-	30,000	-	-	-	30,000
Replacement	Vehicle 495	-	30,000	-	-	-	30,000
Replacement	Return Sludge Pump	-	27,500	-	-	-	27,500
Replacement	Metering Pump	-	27,000	-	-	-	27,000
Replacement	Equipment 0040	-	22,000	-	-	-	22,000
Replacement	Equipment 0069	-	22,000	-	-	-	22,000
Replacement	Equipment 0070	-	22,000	-	-	-	22,000

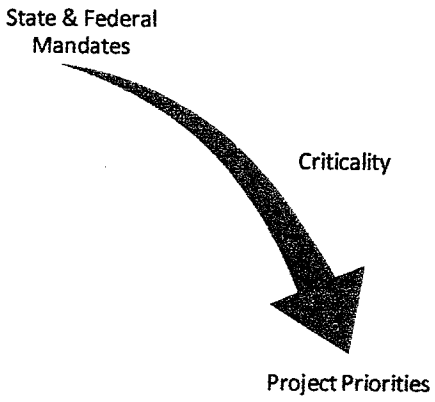
Attachment 9

The NBC FY 2019-2023
Capital Improvement Program
(Bonded Projects)

Capital Improvement Program Development

The CIP is updated annually as part of the budget cycle and takes into consideration the project's relationship to the strategic plan, program priorities, the permitting process, project readiness, scheduling and other factors. The CIP drives NBC's long-term financing requirements, and therefore the particulars of each project are an essential component of NBC's financial plan.

NBC's Project Managers begin the annual CIP process with the development of detailed justifications for each capital project including project scope, basis for the cost estimate and key factors impacting costs and schedules. The Project Managers also explain modifications from the prior year's CIP and provide the overall project schedule. A timeline with all of the detailed project schedules can be found in the Appendix.



The CIP Review Committee reviews the proposed capital projects including the assignment of priorities and schedules. Projects approved for inclusion in the CIP are subsequently analyzed to assess major program changes, overall capital funding needs and the strength of the project's connection to the objectives in NBC's Strategic Plan, as well as financing and operating cost impacts.

Capital Improvement Program Guidelines

The costs and schedules included in this year's CIP reflect NBC's best estimates and are based on a number of assumptions as follows:

- Costs and cash flows are based on planning or design estimates and/or bids once available.
- The majority of construction projects include a 10% contingency based on the original construction cost estimate, which reflects recent industry experience. The contingency may be modified based upon the bids. Cost estimates for new design and construction projects include a 7% allowance for NBC staff salary and fringe associated with project management, based on historical experience.
- Financing costs and debt service associated with the CIP are not included in the CIP expenditures or the project cash flows. Financing costs are capitalized and amortized over the length of the debt payment schedule and debt service is included as an expense in the annual budget.
- The CIP does not include the acquisition or replacement of certain assets that are identified in NBC's annual budget and are outlined in the five-year Operating Capital Program.

Capital Improvement Program Calendar

The development of the CIP begins in the fall and is completed in the spring. The FY 2020-2024 CIP calendar is as follows:

NOVEMBER 2017

- Project Overview, Cash Flow and Schedule Details Forms Available on November 6th
- Project Form Submittals Due November 22nd

DECEMBER 2017

- Conduct CIP Budget Impact Review on December 5th
- Conduct CIP Review Committee Meeting on December 18th
- New Projects and/or Project Form Changes Due on December 30th

JANUARY 2018

- Incorporation of Capital Project Submittals
- Development of CIP Budget Impact Analysis

FEBRUARY 2018

- Capital Improvement Program Narrative
- Development of additional CIP supporting information

MARCH 2018

- Presentation of the FY 2020-2024 CIP to the Long-Range Planning Committee and Board for Review and Approval on March 6th

Capital Project Authorization and Amendment Procedures

Initial Capital Project Authorization

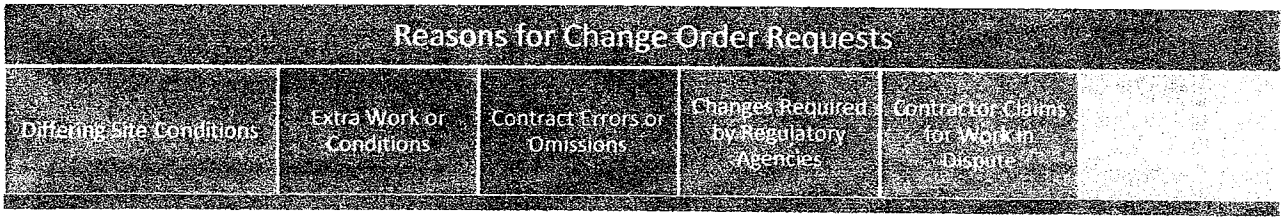
The Executive Director is authorized to expend funds for preliminary planning, staff time and other services in order to assess project need, scope and feasibility. Once it is determined that a project should move forward, an authorizing resolution that includes the contract and ancillary costs is presented to the Board for review and approval.

Engineering Contract Amendments

The Executive Director is authorized to approve engineering contract amendments up to a maximum of 5% of the original contact amount or $20,000 whichever is greater, without further Board approval. All other contract amendments require Board approval.

Construction Contract Change Order Requests

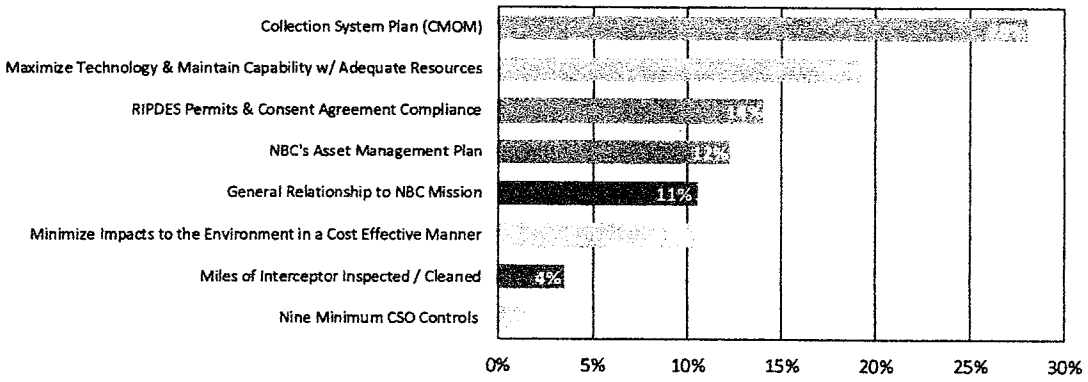
As a construction project proceeds, additional funds may be required to accommodate a Change Order Request (COR). There are a number of reasons for COR as is shown in the following chart.



The Executive Director may authorize CORs up to a maximum of 5% of the contract amount. Any changes above the 5%, for reasons other than emergency or safety work, require approval by the Board prior to execution. If there is an emergency or safety issue, the Executive Director may exceed the 5% limit without Board approval and inform the Board thereafter.

Capital Projects by Strategic Objective

NBC's Strategic Plan ensures NBC's ability to meet water quality objectives set forth by regulatory requirements through achieving short-term and long-term objectives at a reasonable cost. As part of the CIP development process, Project Managers identify the one or more strategic goals that a project will address. The following chart illustrates the percentage of capital projects in this year's CIP aligned with each Strategic Objective.

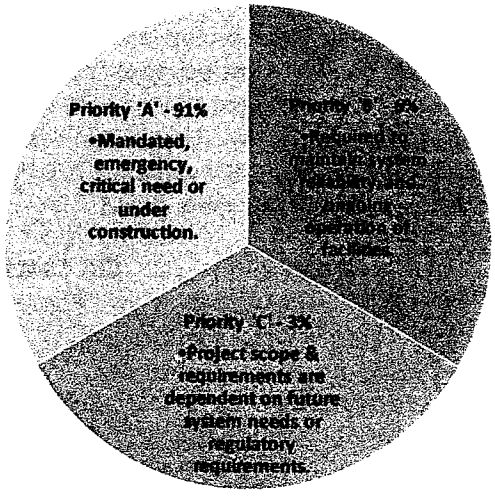


Of the 36 CIP projects, 28% are related to NBC's Collection System Plan Strategic Objective. These include interceptor restoration and construction projects. In addition, 19% of the projects in the CIP are aligned with the Maximize Technology & Maintain Capability with Adequate Resources strategic objective and 14% of the projects are aligned with the RIPDES Permit/RIDEM Consent Agreement strategic objective. The remaining projects are aligned with NBC's Asset Management Plan and General Relationship to NBC Mission objectives.

Project Priorities

As part of the CIP program development, the criticality of each project is assessed and a priority ranking is assigned based on that assessment. Projects with a ranking of "A", represent a critical need and are either mandated, an emergency or currently under construction. Approximately 91% of the projects identified in the window are prioritized with an "A" ranking for a total of $323.6 million.

In addition, 6% of projects are identified with a "B" ranking for a total of $20.5 million. This includes projects that are required to maintain system reliability and ongoing operations of NBC's facilities. The remaining 3% or $12.8 million are identified with a rank of "C" and are dependent on future system needs or regulatory requirements.



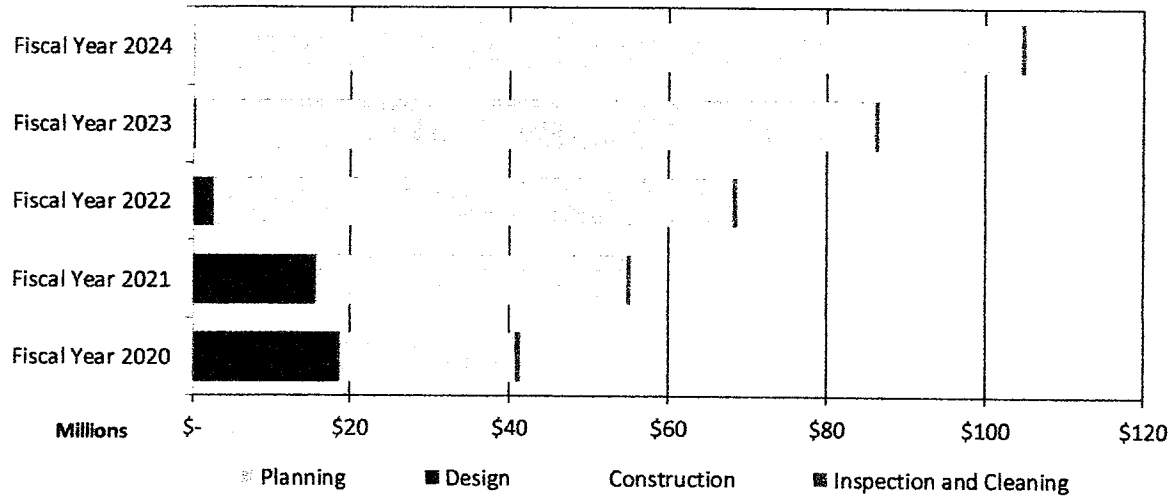
*Percentage calculated on project cost

Capital Expenditure by Phase

NBC's construction projects are generally comprised of three phases including planning, design, and construction. Planning consists of tasks such as feasibility studies and determination of the technology to be implemented. The design phase includes the development of plans and specifications and the acquisition of easements and permits. During the construction phase, facility improvements and infrastructure are constructed. The CIP also includes some programmed capital projects which are not broken down into phases,

such as the inspection, cleaning and repair of NBC's interceptors, or other one-time special studies. As is evident in the chart below the majority or 89% of the programmed expenditures during the five-year CIP window relate to the construction phase at $317.3 million.

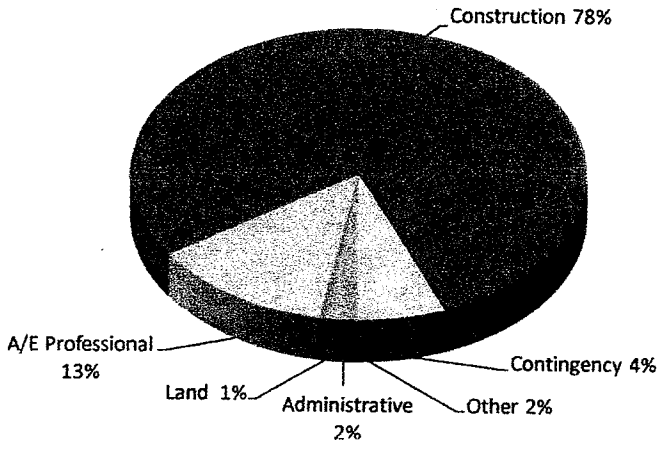
Capital Expenditure by Phase



Capital Expenditure by Cost Category

For planning purposes, the project costs are shown by categories including the Administrative category, which includes NBC's project management costs as well as police, legal and advertising expense. The Land category includes costs for easements, as well as land acquisition. The Architectural/Engineering (A/E) Professional cost category includes costs for professional planning or design services. The Construction cost category reflects contractor and outside construction management costs. Lastly, the Contingency cost category includes an allowance for construction cost increases based upon industry experience related to construction cost factors. As shown in the chart below, construction costs represent $278.9 million, or approximately 78% of the total costs within the FY 2020-2024 window. A/E Professional services represent approximately $46.2 million or 13% of the costs during this same period.

CIP Costs by Type of Activity



Capital Expenditures by Functional Area

For planning purposes, NBC also groups capital projects into functional areas, according to the scope and tasks involved with the capital project. The functional areas are described below.

Functional Area	Project Examples
Wastewater Treatment Facility (WWTF)	Blower Improvements, Biogas Reuse, UV Disinfection and WWTF Improvements
Infrastructure Management (IM)	RIPDES Compliance Improvements
CSO Phase III Facilities	CSO Phase III A ,B, C, and D
Sewer System Improvements	Easement Restoration, Sewer System and Pump Station Improvements
Interceptor Inspection and Cleaning (IIC)	Remote Television Inspection and Grit/Debris Removal and Disposal
Interceptor Restoration and Construction (IRC)	Interceptor Expansion, Improvements, Lining and Manhole Rehabilitation

The following table shows how the CIP costs have shifted by functional area on a year-to-year basis. The most significant change is the $214.0 million increase in the CSO Phase III A Facilities compared to last year's CIP. This is primarily the result of an earlier construction start and the shift in the CIP window to include FY 2024. The most significant increase in percentage terms is the 100% increase in a new Sewer System Improvement cost category as these projects were previously included as part of Infrastructure Management. Finally, costs programmed in the Interceptor Restoration and Construction functional area decreased 41% from the prior year as several projects are scheduled for completion in FY 2019. Overall, programmed expenditures are $200.8 million or 129% more in the current CIP window compared to last year.

Functional Area (In thousands)	Prior Year CIP (FY 2019-2023)	Current Year CIP (FY 2020-2024)	% Change
Wastewater Treatment Facility	$ 28,890	$ 20,582	(29%)
Infrastructure Management	2,087	2,191	5%
CSO Phase III A Facilities	100,994	314,972	212%
Sewer System Improvements	-	3,863	100%
Interceptor Inspection and Cleaning	2,500	2,500	0%
Interceptor Restoration and Construction	21,648	12,791	(41%)
Total	$ 156,119	$ 356,899	129%

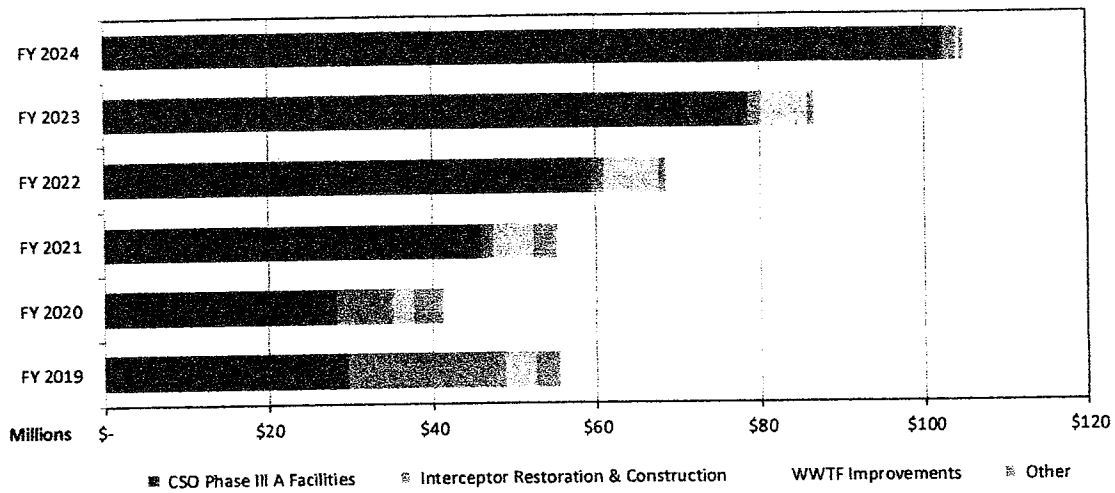
Significant Capital Improvement Projects

The CSO Phase III A Facilities is the most significant project included in this year's CIP and accounts for $315.0 million or 88% of the CIP's programmed costs. Expenditures on this project are projected to increase significantly when construction begins in FY 2021. Other projects account for the remaining 12% of the CIP programmed costs. The following table and graph show the programmed expenditures for the CSO Phase III A Facilities and other projects included in the current CIP window.

Expenditures by Major Project

Project (in Thousands)	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total Costs FY 2020 - 2024	% of Five Year Window
CSO Phase III A Facilities	$ 29,692	$ 28,328	$ 45,955	$ 59,551	$ 78,579	$ 102,560	$ 314,972	88%
WWTF Improvements	3,749	2,579	4,985	6,668	5,850	500	20,582	6%
Interceptor Restoration & Construction	19,169	6,791	1,500	1,500	1,500	1,500	12,791	4%
Other	2,894	3,628	2,812	857	730	528	8,554	2%
Total	$ 55,503	$ 41,325	$ 55,252	$ 68,576	$ 86,659	$ 105,087	$ 356,899	100%

Expenditures by Major Project



Projects related to WWTF Improvements at Field's Point include Phase II of the Blower Improvements at $9.3 million; Maintenance Facilities at $6.5 million, and the IM Facilities at $6.4 million. Improvements at Bucklin Point include Ultraviolet (UV) Disinfection Improvements at $5.7 million. In addition, NBC has allocated $500 thousand annually for improvements to the wastewater treatment facilities to ensure funding is available to support required investments at the facilities as they are identified through asset management and inspection.

NBC's CIP includes funding for various NBC's Interceptor Restoration and Construction Projects. Two larger projects include, the Johnston Sewer Improvements/Greenville at a cost of $8.9 million and Johnston Sewer Improvements/Hartford at a cost of $2.8 million. These projects will extend NBC's interceptors in the NBC's district to locations that are not presently served. NBC has also programmed improvements to the Moshassuck Valley Interceptor at $6.5 million, the Louisquisset Pike Interceptor at $4.6 million and the Providence River Siphon at $6.5 million.

Programmed expense for Sewer System Improvements includes the Lincoln Septage Station replacement at a cost of $2.8 million and the Omega Pump Station Upgrade at $912 thousand. Additionally, this year's CIP reflects the reallocation of easement restoration projects of $1.1 million into the Sewer System Improvements classification.

Overall, the total programmed expenditures for non-CSO projects has increased by $10.1 million compared to the prior year's CIP, as shown in the table below.

Year-over-Year Difference in the Capital Improvement Program by Major Project						
	FY 2019	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Total**
WWTF Improvements	$ (958)	$ (8,167)	$ (2,692)	$ 3,802	$ 2,956	$ (5,059)
Interceptor Restoration & Construction	5,777	3,035	-	-	-	8,812
Other	1,061	2,603	2,082	357	230	6,333
Total Change Non-CSO Projects	$ 5,880	$ (2,529)	$ (611)	$ 4,159	$ 3,186	$ 10,085
Percent Change in Non-CSO Projects	**29%**	**-16%**	**-6%**	**85%**	**65%**	**18%**

Attachment 10

NBC Asset Manager Administrator

Job Specification

Deadline: 9/3/2021 12:00:00 AM
Position Reference Number: EN015
Salary Range: Grade 6A $51,414.77 - $84,834.37
Division-Section-Unit: Operations & Maintenance
Shift: Monday – Friday 7:00 AM. to 3:30 PM
Location: Providence
Assignment(s) Comments:
Limitations: None
Position Covered By Collective Bargaining Union Agreement: No
Name of Bargaining Unit Union:

DUTIES/RESPONSIBILITIES

In accordance with the Narragansett Bay Commission (NBC) Asset Management Program and applicable Narragansett Bay Commission (NBC) guidelines, the position provides administrative and technical support services relative to the Asset Management Plan (AMP) and Hansen Computerized Maintenance Management System (CMMS). Responsible for tracking and preparing reports on all purchases, repairs and expiration/disposal of capital and/or critical assets in compliance with the AMP. Provides selected support services to other Divisions as needed. Leads and coordinates all asset management activities within the NBC. Responsible for ensuring asset database is current and asset hierarchy is followed within the asset database system. Manages the AMP and the Hansen CMMS system to ensure all records accurately reflect asset information as detailed in the AMP. Performs periodic reviews and updates to the AMP and Hansen CMMS system as needed. Provides guidance and training to NBC staff in following the AMP. Occasionally provides Procurement support to Departments with bid specifications support. Assists with the maintenance and updates of O&M manuals as needed. Some minor travel in the state is required. Performs other related duties as assigned within skill and experience capabilities.

EDUCATION-EXPERIENCE

Graduation from a 2-year business or technical college, or at least five (5) years' previous WWTF maintenance experience, CMMS experience, financial accounting / inventory experience required. Experience advising and supporting non-direct reports. Requires a high proficiency with computers, standard office programs and database programs to enter / extract data for report preparations. SPECIAL REQUIREMENTS: A valid driver's license in good standing is required at time of hire. NBC is imposing a mandatory COVID-19 vaccination requirement company-wide for all employees, subject to applicable religious and medical exemptions. Unvaccinated employees will have until October 1, 2021 to meet the requirement.

AMERICANS WITH DISABILITIES ACT (ADA) PROVISIONS:

Reasonable Accommodations:
If an applicant is unable to perform any essential job functions because of his/her disability, but can achieve the required results by means of a REASONABLE ACCOMMODATION, then the individual shall not be considered unqualified for the position.

Medical Information:

Successful completion of a pre-placement physical examination and drug screen will be required after a conditional offer of employment has been made. Apply within the application period as shown. The NBC does not assume responsibility for applications sent through the mail. NOTE: The Narragansett Bay Commission union contracts allow a 3 day grace period for its members only.

SEND RESUME TO:

The Narragansett Bay Commission
Human Resources Office
One Service Road
Providence, RI 02905
Fax (401) 461-2242

E-mail hr@narrabay.com. E-mailed resumes must be received in MS Word Format.

OR CLICK HERE TO APPLY ONLINE

Asset Management Commission Progress

The first meeting of the North Smithfield Asset Management Committee (AMC) was held on June 11th, 2019. The five members included:

Jim Deslandes, owner of Deslandes Construction

John O'Hearne, Registered Architect and owner of O'Hearne and Associates, Architects

Ed Yazbak, CPA, former town council president and owner of Yazbak & Co.

Paul Nordstrom, Registered Professional Engineer and retired Director of Operations and Maintenance at the Narragansett Bay Commission.

Roark Maynard, Analytics Manager – BCBSRI Finance Department

The town administrator, Gary Ezovski, was also present at the meeting.

Based on his experience managing the development and implementation of the Narraganset Bay Commission's Asset Management Program, Paul Nordstrom was elected chair.

TA Ezovski offered his support and offered Town Planner Tom Kravitz, Finance Director Cynthia DeJesus and his administrative assistant to assist the committee.

Shortly after the kickoff meeting, all AMC members received numerous financial documents, insurance listings and department breakdowns of assets. Throughout 2019, the AM Commission started to parse through all the information. Ultimately, we decided that the fixed asset listing provided in the annual audit was not particularly helpful in developing an AM plan.

Instead, the group decided to concentrate on organizing the public safety department since their asset listing had been completed on an annual basis. The chair met periodically with finance director and town planner. The town planner also attended the AMC meetings.

In early 2020, the AMC received the CIP for the fiscal year 2021 from the town planner. Since we had started on the police department assets, our recommendation was that four vehicles be purchased the coming fiscal year and that three be purchased each year thereafter.

Due to restrictions associated with COVID, the group could only meet via zoom for much of 2020. This proved to be a difficult obstacle since most of our meetings involved perusing excel spread sheets and other financial data. By the end of the year, two members had resigned leaving only three of the original members.

Nonetheless, the group reviewed and commented on the FY 2022 CIP in March 2021. Former town councilman Douglas Osier, Jr. was appointed to the AMC in mid 2021.

The AMC immediately began to work on the Public Works Department's assets. This proved to be a difficult task. While the department produced monthly vehicle use records, some of the information conflicted with the Town Fixed Asset Listing. Upon further review, the group determined that Public Works records were of more use in developing and Asset Management program than the Town's Fixed Asset Listing.

The group then began to look at the Town's Public Safety Division – specifically the Police Department. Once again, the AMC found the Police Department's own vehicle and equipment annual inventory to contain much more useful information that the Town's Fixed Asset Listing.

Late in the year, the town planner had left and a new administration was taking over. In December 2021, we met with TA Zwolenski, the new Planning Director and Finance Director DeJesus. We discussed the AM program goals but showed them the attached spreadsheet of assets and all the gaps in information that we couldn't find (see attachment 11). The finance director promised she'd start working on getting additional information once the auditors left.

Mr. Osier was re-elected to the town council and resigned from the AMC; however, before he left, the committee made the conscious decision to hold off

meeting until the gaps could be filled by town staff. Shortly thereafter, the finance director left. By late 2022, Jim Deslandes resigned due to his becoming president of the RI Builders Association, leaving only two members. According to Sec. 2-196. Asset Management Commission item (d) Quorum:

> Three members of the Commission shall constitute a quorum, and no vacancy in the membership shall impair the right of a quorum to exercise all the rights and perform all the duties of the Commission.

Since there were only two appointed members still on the AMC and thus no quorom, no meetings were held until a third member was appointed.

In December 2023, Joshua Wowk, a Computer Systems Administrator was appointed and remains a member.

In October 2024, Louis Maccerone a Project Manager at the RIDOT was appointed as a member bringing the total to four members. We remain one member short.

Assessment of Town's ability to have a successful Asset Management Program (AMP)

The Asset Management Commission has assessed the readiness of the town to initiate on an asset management program. Based on our review and/or understanding, we note the following:

- Town's fixed asset list – As previously noted, the fixed asset list included with the annual audit is not set up to align with the needs of an asset management plan. Audits depreciate assets over time so that after a predetermined date, the value is net zero even if the asset continues to function. With an AMP, the original cost of an asset is not depreciated since you are trying to establish a replacement value i.e. if you pay for $5,000 for an air conditioner in June of 2022 and it has a useful life of ten (years), what will it cost to replace it in 2032.

  Furthermore, the town's fixed asset list lacks sufficient details that need to be tracked, North Smithfield Equipment Asset List with information gaps", shows just some of the details that are missing (attachment 11).

  The other problem uncovered in the town's asset list is that projects are not broken down by items that need to be tracked in an AMP. For instance, the recently completed improvements to Kendall Dean (town hall) seem to be listed as three line items: town building bond CIP ($382,934); town building bond CIP and retainage ($1,073,476.78); and, town building bond CIP and retainage ($2,792,208.92). There is no breakdown of the different components within the building such as electrical equipment, HVAC equipment, etc. that need to be tracked so they can be maintained and replaced after reaching their useful life.

- Lack of a computerized information system for assets

  As years have passed and asset management has become a key strategic part of a town or utility's financial stability, many firms have developed cloud-based asset management software for municipalities.

Asset management software is a tool that helps a municipality track and manage their assets throughout the entire asset life cycle, from acquisition to disposal/replacement. The town could use asset management software to track asset costs, manage maintenance and track repairs. Use of asset management software is an efficient and effective part of an asset management plan. The article Municipal Asset Management Sooftware – It's Not Just for Large Municipalities (attachment 12), notes the development of software programs for smaller communities.

- Establish a position in town government to oversee the AMP

  Based on the experience of the Narraganset Bay Commission and others who have embarked on implementation of an AMP, it is important to have one person to oversee the asset management program.

  Some of the duties would be ensuring that assets are entered into the system with the proper information so it can be tracked, overseeing the work order system for all department who participate, setting up a library where as-build construction plans and manufacturer's manuals can be stored and producing reports as needed.

Attachment 11

North Smithfield Equipment Asset List
with information gaps

North Smithfield [illegible]oment Asset List

ASSET CONDITION KEY: 1-EXC[illegible]GOOD 3-FAIR 4-POOR 5-INOPERABLE

Ver: 10/25/2021

Division	Department	Asset Number	Description	Manufacturer	model nm	serial nm	Quant	Capital Lease	Function	Useful Life	Acquisition Date	Original Cost	Asset Condition	removed
Education	School	000073	SYSTEM,FIRE CONTROL	SIMPLEX	4002		1		E	10	June-88	$38,982		
Education	School	091111180079	TANK,FUEL STORAGE	10000 GALLON			1		E	15	June-92	$58,981		
Education	School	000032	PANEL,LIGHTING CONTROL				1		E	10	June-95	$5,819		
Education	School	091111210011	SYSTEM,ROLLING ALUMINUM STAGING	20FT-3 SECTION			1		E	20	June-95	$6,499		
Education	School	091111180010	SYSTEM,PA				1		E	10	June-95	$7,733		
Education	School	000026	PHOTOCOPIER	RISOGRAPH	2950	136636	1		E	10	June-95	$13,821		
Education	School	000033	PIANO,GRAND	STEINWAY/SONS			1		E	10	June-95	$15,953		
Education	School	091111180009	SYSTEM,FIRE CONTROL				1		E	10	June-95	$27,838		
Education	School	091111190008	SYSTEM,IRRAGTION	15000 GALLON TANK/30 GPM PUMP			1		E	15	June-97	$38,466		
Education	School	000066	PHOTOCOPIER	RISO	2235	970417	1		E	10	June-98	$7,404		
Education	School	000057	PROJECTOR, LCD	EPSON	7350	BQQ0170047A	1		E	5	June-98	$8,020		
Education	School	091111190082	GROUP OF NETWORK WIRING				1		E	5	June-98	$240,606		
Education	School	000053	MACHINE, FLOOR	ADVANTAGE	HR2800	1567968	1		E	15	June-00	$5,154		
Education	School	000078	SYSTEM,FIRE CONTROL	SIMPLEX	2001		1		E	10	June-00	$13,022		
Education	School	000075	FILE SERVER	IBM	AS 400		1		E	5	June-00	$21,771		
Education	School	12302003007	GROUP OF NETWORK WIRING				1		E	5	June-00	$54,429		
Education	School	091112010086	UPGRADE,SOFTWARE/HARDWARE				1		E	5	June-00	$135,000		
Education	School	091111190134	GROUP OF NETWORK WIRING				1		E	5	June-01	$67,492		
Education	School	12082003006	WASHER,FLOOR	ZAMBONI	N/A	N/A	1		E	15	June-02	$15,000		
Education	School		FURNACE						E	10	October-04	$21,726		
Education	School		DESKS						E	20	December-04	$8,018		
Education	School		Fire Alarm System						E	20	January-05	$289,864		
Education	School		GYM EQUIPMENT						E	20	April-05	$23,854		
Education	School		Dell Wall Display & Cart	Halliwell Computer Lab					E	5	March-07	$10,712		
Education	School		32 Dell Laptop Computers+printer	Halliwell Computer Lab					E	5	March-07	$42,583		
Education	School		Network Switches	Halliwell					E	10	August-07	$14,312		
Education	School		58 Dell Computers	District Wide					E	5	September-07	$51,329		
Education	School		Student Information System						E	10	February-08	$40,477		
Education	School		SCHOOL-DESKTOPS & EQUIPMENT						E	5	October-08	$135,396		
Education	School		SCHOOL-DESKTOPS & EQUIP 06/07 CAPITAL						E	5	December-08	$13,059		
Education	School		Computers						E	5	September-09	$254,474		
Education	School		Computer equipment						E	5	November-09	$48,236		
Education	School		Computer equipment						E	5	November-09	$87,729		
Education	School		Computer equipment						E	5	December-09	$45,101		
Education	School		Computer equipment						E	5	January-10	$42,214		
Education	School		Computer equipment						E	5	January-10	$48,408		
Education	School		9 PROMETHEAN LCD PROJECTORS						E	5	February-10	$42,589		
Education	School		9 PROMETHEAN BOARDS						E	5	March-10	$8,950		
Education	School		Vacuum						E	3	June-10	$8,070		
Education	School		Dell Computers				3		E	5	June-10	$10,273		
Education	School		Dell Computers				14		E	5	June-10	$14,621		
Education	School		Pressure cooker				10		E	5	June-10	$15,778		
Education	School		Latitude 2100 Computers				1		E	5	June-10	$23,326		
Education	School		Telephone upgrade				55		E	10	June-10	$61,541		
Education	School	20134821018	Windows NSES						E	20	August-12	$39,700		
Education	School	20134821038	Signature Server, Work Table Halliwell School				15		E	5	November-12	$7,430		
Education	School	20134821036	(2) Z-Brackets for Promethean boards Audio Visual				1		E	5	June-13	$7,475		
Education	School	20134821035	300 Pro Range 87" ActivBoard with Adj stand and DLP				1		E	5	June-13	$52,061		
Education	School	20134821039	NSHS Flooring Refurbishment with Logo				1		E	20	June-13	$14,256		
Education	School	20134821040	Backboards, rims, wall padding, HS & MS gymnasiums				1		E	10	June-13	$21,300		
Education	School	2015482102	(45) Motorola XPR3500 Portable Radios				45		E	5	October-14	$22,100		
Education	School	2015482116	Chromebooks				420		E	5	January-15	$91,841		
Education	School		Wireless Classroom Initiative						E	5	June-15	$187,883		
Education	School		Convection Steamer						E	10	December-15	$16,750		
Education	School		40 Gallon Kettle						E	10	December-15	$11,790		
Education	School		School Desk Replacements						E	20	April-16	$14,700		
Education	School		Stage Curtain - High School						E	20	June-16	$8,900		
Education	School		Eagle Storage Container						E	10	June-16	$6,349		
Education	School		Orbital floor scrubber						E	15	January-17	$5,189		
Education	School		46" Class LCD flat panel display with touch screent				1		E	5	June-17	$35,994		
Education	School		Orbital floor scrubber				6		E	15	June-17	$11,080		
Education	School		School Oven				2		E	10	June-19	$8,374		
Education	School		School Computer Storage Area Network				1		E	10	September-19	$28,733		
Education	School		copier				1		E	5	September-19	$11,493		
Education	School		School Networking Hardware Equipment				1		E	10	December-19	$37,409		
Education	School		Freezer				1		E	5	March-20	$7,312		
Education	School		servers				2		E	5	July-20	$15,416		
General Govt	4191	000188	GENERATOR	KOHLER	35 KVA		1		GG	10	June-95	$20,201		
General Govt	4191	12302003004	SYSTEM,FIRE CONTROL				1		GG	10	June-95	$5,155		
General Govt	4191	12302003006	GROUP OF NETWORK WIRING				1		GG	5	June-00	$9,071		
General Govt	4198	091111200043	ANTENNA	60 FT			1		GG	10	June-90	$7,329		
General Govt	4198	091111200041	TANK,FUEL STORAGE				1		GG	15	June-94	$6,082		
General Govt	4198	091111200042	GENERATOR	SUPERIOR			1		GG	10	June-98	$14,559		
General Govt	4198	12302003008	GROUP OF NETWORK WIRING				1		GG	5	June-00	$9,676		
General Govt	Finance	2015415514	MDT Printers				1		GG	5	April-15	$8,217		
General Govt	Finance	2015415515	Carbide Blades				1		GG	5	May-15	$7,947		
General Govt	Finance		server				2		GG	10	January-18	$23,113		
General Govt	P & R	20134312015	Generator				1		GG	20	December-12	$7,350		
General Govt	Town		Northeast Tax Assessor software upgrade						GG	5	September-18	$15,000		
General Govt	Town Clerk	20144134003	Savin C6003 Color Multifunction system				1 CL		GG	10	September-13	$10,858		
General Govt	Town Hall	20124155021	Software for new server				1		GG	5	October-11	$12,452		
General Govt	Town Hall	20124155023	server				1 CL		GG	10	January-12	$22,840		
General Govt	Town Hall	20124155036	Microsoft license & software						GG	5	June-12	$18,093		
General Govt			Digital Recorder						GG	7	January-06	$9,430		
General Govt			TELEPHONE SYSTEM	TOSHIBA CIX100					GG	10	June-07	$21,817		
General Govt			Konica B&W - Planning						GG	5	January-08	$7,416		
General Govt			Town Copiers						GG	10	August-15	$15,806		

General Govt			Canon Printer/Scanner								
Public Safety	Civil Defe		3 PORTABLE RADIOS-EMA								
Public Safety	Court	20114130001	Court Case Management System								
Public Safety	EMS		PORTABLE RADIOS-EMS					1	PS	5	January-10 $12,1
Public Safety	EMS	20145800033	Defibrillators	Physio-Control, Inc.				1	PS	5	September-10 $11,95
Public Safety	Fire Department	000119	RECORDER,VOICE	BILLS COMPANY					PS	5	December-08 $68,181
Public Safety	Fire Department	000121	SYSTEM,DISPATCH	ZETRON	4010			2	PS	10	September-13 $57,462
Public Safety	Fire Department	000101	JAWS OF LIFE	HURST				1	PS	10	June-70 $6,212
Public Safety	Fire Department	000122	RECORDER,VOICE	ASC MARATHON COMPACT		00621		1	PS	10	June-90 $7,329
Public Safety	Fire Department	000118	GENERATOR	OLYMPIAN	37.5 KVA	2030572		1	PS	10	June-94 $12,807
Public Safety	Fire Department	000103	SYSTEM,EXHAUST	PLYMOVENT	5 DROPS/OS1			1	PS	10	June-95 $15,486
Public Safety	Fire Department	091111200005	UPGRADED,JAWS OF LIFE					1	PS	10	June-97 $22,996
Public Safety	Fire Department	20134221026	Rebuild Fire Pump					1	PS	10	June-98 $51,468
Public Safety	Fire Department	20144221032	Gas Power Unit for Jaws of Life	Fire Matic				1	PS	10	June-00 $7,287
Public Safety	Fire Department	2015415511	2 Power Stretchers					1	PS	5	September-12 $5,050
Public Safety	Fire Department		3 set protective gear (coats and pants)					1	PS	10	April-14 $10,990
Public Safety	Fire Department		SCBA Equipment					3	PS	10	June-15 $25,438
Public Safety	Fire Department		2 Fire mobile radios						PS	10	November-19 $7,976
Public Safety	Fire Department		10 Fire mobile radios					2	PS	15	December-19 $56,828
Public Safety	Fire Department		2 Digital Vehicle repeaters					10	PS	7	December-19 $6,600
Public Safety	Police Department	000142	PROCESSOR,FILM	KODAK	EKTUMATIC			2	PS	7	December-19 $71,287
Public Safety	Police Department	000141	ENLARGER	OMEGA	PRO-LAB	4X5		1	PS	10	April-20 $30,008
Public Safety	Police Department	000133	RECORDER,VOICE	THALES	SERIES 2			1	PS	10	June-90 $6,706
Public Safety	Police Department	000128	DISPATCH	COMMAND	PLUS			1	PS	10	June-90 $12,192
Public Safety	Police Department	000129	SYSTEM,RADIO	MOTOROLA	4X2	CAEZN20085		1	PS	10	June-95 $15,486
Public Safety	Police Department		4 PORTABLE RADIOS-POLICE					1	PS	10	June-95 $36,087
Public Safety	Police Department	20114211007	Portable Radio						PS	10	June-02 $5,000
Public Safety	Police Department	20114211006	Intox Breath Machine					2	PS	5	January-10 $21,054
Public Safety	Police Department	20124211001-032	Voice Recorder					1	PS	5	December-10 $5,636
Public Safety	Police Department	20134211024	Police Yard door					1	PS	5	February-11 $5,700
Public Safety	Police Department	20134211008	police station upgrades					1	PS	5	August-11 $8,608
Public Safety	Police Department	20144211004	Savin C9125 Color Multifunction system					1	PS	20	July-12 $5,200
Public Safety	Police Department	2.01442E+11	Digital Notification Sign					1 CL	PS	50	May-13 $45,000
Public Safety	Police Department	2015421103	Landline telephone system/audio communications recorder					1 CL	PS	10	September-13 $5,995
Public Safety	Police Department		Police Server					1	PS	5	September-13 $5,263
Public Safety	Police Department		Police Phone System Upgrade					1	PS	5	September-14 $8,158
Public Safety	Police Department		10 GETAC Rugged Tablets Police						PS	10	August-15 $14,184
Public Safety	Police Department		Police Radios						PS	10	October-15 $10,894
Public Safety	Police Department		6 HP computer stations						PS	5	January-16 $37,590
Public Safety	Police Department		11 Police radios					2	PS	7	January-20 $6,727
Public Safety	Police Department		2 Police radios					1	PS	5	June-20 $8,085
Public Works	0497	091111190083	SYSTEM,EXHAUST					11	PS	7	June-20 $51,519
Public Works	0497	091111190011	SYSTEM,IRRIGATION					2	PS	7	June-20 $9,265
Public Works	Fire Department	000105	GENERATOR					1	PW	15	June-90 $9,568
Public Works	Fire Department	000117	SYSTEM,EXHAUST	OLYMPIAN	30 KVA	2030563		1	PW	15	June-97 $38,466
Public Works	Fire Department	000111	SYSTEM,FIRE CONTROL	PLYMOVENT	5 DROPS			1	PS	10	June-96 $17,830
Public Works	Fire Department	000115	DEFIBRILLATOR		1500			1	PS	10	June-98 $51,468
Public Works	Highway	091111190029	GROUP OF SIGNS	MEDTRONIC	LIFEPAK 12			1	PS	10	June-98 $9,523
Public Works	Highway	091111190018	TANK,FUEL STORAGE					1	PS	10	June-00 $24,291
Public Works	Highway	091111190019	TANK,FUEL STORAGE	CON VAULT	8000 GALLON			1	PW	15	June-90 $19,934
Public Works	Highway	091112010046	COMPRESSOR,PORTABLE	CON VAULT	8000 GALLON			1	PW	15	June-90 $43,854
Public Works	Highway	000015	SYSTEM,SECURITY					1	PW	15	June-90 $43,854
Public Works	Highway	091112010045	SYSTEM,PLOW UNIT	SAMSUNG	4 CAMERAS			1	PW	15	December-97 $14,035
Public Works	Highway	091111190023	SYSTEM,OIL RECYCLING	WOOD CO MACHINERY				1	PW	10	June-98 $5,820
Public Works	Highway		HYDRAULIC LIFT	CLEAN BURN	CB 2800			1	PW	15	February-99 $7,042
Public Works	Highway	20134311007	guardrails					1	PW	15	June-00 $7,316
Public Works	Highway	20144311007	Fuelmaster Gas System						PW	10	March-10 $101,628
Public Works	Highway	20144311013	10' One Way Plow					1 CL	PW	20	December-12 $7,350
Public Works	Highway	2.01443E+11	Waste Oil Furnace					1	PW	10	July-13 $13,338
Public Works	Highway	20144311030	Motorola radios and bases					1	PW	20	September-13 $6,914
Public Works	Highway		Transmission for Back hoe					1	PW	20	November-13 $9,545
Public Works	Highway		Brine Machine					1 CL	PW	5	April-14 $57,150
Public Works	Highway		Engine for the Loader					1	PW	8	December-17 $19,641
Public Works	Highway-recycle	20124312017	Security system-Highway					1	PW	10	January-18 $16,735
Public Works	Parks & Rec	091111190009	SYSTEM,IRRIGATION					1	PW	8	April-18 $22,706
Public Works	Parks & Rec	091111190010	SYSTEM,IRRIGATION					1	PW	10	November-11 $5,984
Public Works	Parks & Rec	000018	ATTACHMENT,AERATOR					1	PW	15	June-97 $38,466
Public Works	Parks & Rec	091111180027	PLAYSET	AERA-VATER	AE-60	2317		1	PW	15	June-97 $38,466
Public Works	Parks & Rec	091111180039	PLAYSET					1	PW	15	June-98 $7,129
Public Works	Parks & Rec	091111180047	PLAYSET					1	PW	20	June-98 $8,296
Public Works	Parks & Rec	091111180035	PLAYSET					1	PW	20	June-98 $6,296
Public Works	Parks & Rec	091111190066	PLAYSET					1	PW	20	June-98 $7,265
Public Works	Parks & Rec		Play Ground Equipment					1	PW	20	June-98 $16,952
Public Works	Parks & Rec	20144312020	Pacheco Park Little League Lighting						PW	20	June-00 $22,013
Public Works	???		Vehicle Lift					1 CL	PW	20	September-07 $44,413
Public Works	???		Kelly Woodhouse Loader						PW	20	November-13 $89,500
Public Works	???		Hasqvarna Lawnmower						PW	10	January-04 $6,370
Public Works	???		Hasqvarna Lawnmower						PW	8	February-04 $5,900
Public Works	???		Navigator Mower						PW	10	March-04 $7,659
									PW	10	March-04 $7,819
								1	PW	10	August-16 $12,990

North Smithfield Vehicle Asset List

Ver: 10/25/2021

ASSET CONDITION KEY: 1-EXCELLENT 2-GOOD 3-FAIR 4-POOR 5-INOPERABLE

Division	Department	Last Update	Vehicle #	PLATE #	Driver	Vehicle Year	Vehicle Make	Vehicle Model	Vehicle Type	Vehicle Attachments	VIN # or Serial #	Year Install/Purchase	Original Cost	Life Expectancy (Years)	Asset Condition	Asset Number	Insurance	Insp-Exp	Reg. Exp.	Use Measure Units	Use Measure	Comments
Education	School	6/30/20					KUBOTA	TRACTOR,LAWN	Specialty Equipment			June-90	$6,090	15		000002						From NS Audit List
Education	School	6/30/20						Trailer 12x15	Specialty Equipment			June-90	$7,026	15		091111180080						From NS Audit List
Education	School	6/30/20					HUSQVARNA	MOWER,LAWN	Specialty Equipment			June-95	$11,908	15		000201						From NS Audit List
Education	School	6/30/20					Ford	F-250	Pickup Truck		1FTNF21L02EB20187	Jun-02	$24,799	8		12082003003						From NS Audit List
Education	School	6/30/20					Ford	F-250	Pickup Truck		1FTNF21L32EB43717	Jun-02	$24,799	8		12082003004						From NS Audit List
Education	School	6/30/20					Ford	F-350	Pickup Truck	w/Plow		May-08	$24,900	5								From NS Audit List
Education	School	6/30/20				2015	Ford	F-350	Pickup Truck	w/Plow	1FTWF3B67FEC46552	May-08	$24,900	5		2015461408						From NS Audit List
Education	School	6/30/20					Kubota	Tractor/Mower	Specialty Equipment			Jun-10	$23,285	15								
Education	School	6/30/20						Vacuum	Specialty Equipment			Jun-10	$8,070	3								
Education	School	6/30/20					Belmont	BS1018-10 Power Tlt Skid Steer Trailer	Specialty Equipment			Oct-12	$6,933	10								9990 CVW
Education	School	6/30/20					Kubota	ZG227L-60 Tractor 60"	Specialty Equipment			May-13	$7,800	10		20134821037						From NS Audit List
Education	School	6/30/20					Isuzu		Box Truck			Jul-13	$44,289	10		20144821001						
Education	School	6/30/20					Kubota	Zero Turn Mower	Specialty Equipment			May-16	$9,891	10								
General Govt	Town	6/30/20					Ford	Taurus	Car		1FAFP53UX3G161606	Jun-03	$27,500	8		12082003011						From NS Audit List
General Govt	Town	6/30/20					Ford	Crown Vic	Car			Mar-07	$27,579	10								From NS Audit List
General Govt	Town	7/19/21	5	6595	Assessor	2014	Ford	Focus	Car		1FADP3F20EL295801	May-14	$15,985	5	2) Good	20144131027	Y	November-21	November-21	32,503	Miles	
General Govt	Town	7/19/21	3	5131	Building Inspector	2018	Ford	Escape SE	Car		1FMCU9GD0JUA25389	Dec-17	$22,108	5	1) Excellent		Y	March-22	December-21	18,591	Miles	
Public Safety	Animal Control	7/19/21	67	4143	Animal Control Officer	2008	Ford	E-150 Van	Specialty Equipment		1FTNE14W18DB44625	Sep-08	$15,550	8	3) Fair		Y	March-22	December-21	157,223	Miles	
Public Safety	Civil Defense	6/30/20						Trailer	Specialty Equipment			Apr-11	$9,724	8		20114211008						From NS Audit List
Public Safety	Civil Defense	6/30/20						Trailer	Specialty Equipment			Sep-11	$698	8		20124213009						
Public Safety	Fire Department	6/30/20						Attack	Fire Truck			Jun-90	$85,000	6		12082003083						
Public Safety	Fire Department	6/30/20						Ladder	Fire Truck			Jun-98	$275,000	8		12082003060						
Public Safety	Fire Department	6/30/20						Engine	Fire Truck			Jun-00	$185,000	8		12082003059						
Public Safety	Fire Department	6/30/20						Pumper	Fire Truck			Apr-04	$263,808	8								
Public Safety	Fire Department	6/30/20						Rescue	Fire Rescue			Jan-06	$183,445	8								
Public Safety	Fire Department	6/30/20						Rescue	Fire Rescue			Apr-08	$182,917	8								
Public Safety	Fire Department	6/30/20						Rescue	Fire Rescue		1FDU5HT1FEB98310	May-15	$227,997	10		2015580017						
Public Safety	Fire Department	6/30/20						Rescue	Fire Rescue			Jan-18	$266,545	10								
Public Safety	Fire Department	6/30/20						Pumper	Fire Truck			Sep-18	$494,347	15								
Public Safety	Fire Department	6/30/20				2000		Pumper (USED)	Fire Truck			Jun-19	$26,000	3								
Public Safety	Police	6/30/20					Ford	Crown Vic	Car		2FAFP71W11X150693	Jun-01	$26,500	8								From NS Audit List
Public Safety	Police	6/30/20		2784		2006		Radar Trailer	Specialty Equipment		1B9BR10186H659040	Mar-07	$7,995	8								
Public Safety	Police	6/30/20		847		2012	Ford	Taurus	Car		1FAHP2HW8CG111348	Oct-11	$28,539	5		20124211012						
Public Safety	Police	6/30/20		204		2011	Ford	Crown Vic	Car		2FABP7BV0BX172495	Dec-12	$31,904	5		20134211003						
Public Safety	Police	6/30/20		234		2011	Ford	Crown Vic	Car		2FABP7BV4BX172497	Dec-12	$33,944	5		20134211004						
Public Safety	Police	6/30/20		208		2013	Ford	Explorer	SUV		1FM5K8B83DGB16013	Dec-12	$33,775	5		20134211005						
Public Safety	Police	6/30/20		206		2013	Chrysler	Dodge Charger	Car		2C3CDXAG2DH642795	Feb-13	$28,767	5		20134211006						
Public Safety	Police	6/30/20		5170		2013	Ford	Sedan	Car		1FAHP2M86DG184732	Jun-13	$31,280	5		20134211011						
Public Safety	Police	6/30/20				2014	Ford	Taurus	Car		1FAHP2MK6EG145443	Mar-14	$33,168	5		20144211023						
Public Safety	Police	6/30/20				2014	Ford	Taurus	Car		1FAHP2MK8EG145442	Mar-14	$30,978	5		20144211025						
Public Safety	Police	6/30/20				2014	Ford	Taurus	Car		1FAHP2MK8EG145441	Mar-14	$30,976	5		20144211024						
Public Safety	Police	6/30/20		2022		2014	Ford	Focus (unmarked)	Car		1FADP3F22EL282757	May-14	$18,048	6		20144211026						
Public Safety	Police	6/30/20				2014	Ford	Focus	Car		1FADP3F26EL295804	Dec-14	$19,490	5		2015421110						
Public Safety	Police	6/30/20		948		2014	Ford	Focus	Car		1FADP3F26EL295800	Dec-14	$18,990	5		2015421109						
Public Safety	Police	6/30/20				2015	Ford	Interceptor	SUV		1FAHP2MKXFG142657	Mar-15	$33,400	5		2015421113						
Public Safety	Police	6/30/20				2015	Ford	Interceptor	SUV		1FAHP2MKXFG142858	Mar-15	$33,400	5		2015421112						
Public Safety	Police	6/30/20				2015	Polaris	ATV	Specialty Equipment		4XASEA328FA239660	Nov-15	$5,795	10								
Public Safety	Police	6/30/20				2016	Ford	Explorer	SUV		1FM5K8AR1GGC91990	Jul-16	$39,899	6								
Public Safety	Police	6/30/20		5118		2018	Ford	Interceptor SUV	SUV		1FM5K8ARXJGA28816	Jan-18	$41,515	5								
Public Safety	Police	6/30/20		3702		2018	Ford	Interceptor SUV	SUV		1FAHP2MX8JG104318	Jan-18	$37,223	5								
Public Safety	Police	6/30/20		561		2018	Ford	Taurus	Car		1FAHP2H82JG104316	Feb-18	$29,605	5								
Public Safety	Police	6/30/20		3700		2018	Ford	Fusion	Car		3FA6P0T99KR107248	Oct-18	$29,746	5								
Public Safety	Police	6/30/20		200		2019	Ford	Interceptor SUV	SUV		1FM5K8AR5KGA79564	Mar-19	$45,506	5								
Public Safety	Police	6/30/20		3193		2019	Ford	Interceptor SUV	SUV		1FM5K8AR5KGA79563	Mar-19	$45,001	5								
Public Safety	Police	6/30/20				2020	Ford	Explorer SUV	SUV			Jun-20	$49,710	6								
Public Safety	Police	6/30/20		2633		2006	Blizzard	Trailer	Specialty Equipment		5PBFL061988000980											
Public Safety	Police	6/30/20				2006	Kawasaki	ATV	Specialty Equipment		JKBVFHA186B552777											
Public Safety	Police	6/30/20		260		2010	ATS	Variable Msg & Radar Trailer	Specialty Equipment		1B9AF5110AP825295											
Public Works	Highway	7/19/21	64	1820	Chipper	2004	Woodchuck	Chipper	Specialty Equipment		1W9RH15184G200236	Jan-04	$19,960	15	2) Good		Y	N/A	December-22	931	Miles	
Public Works	Highway	6/30/20						Dump Truck	Dump Truck			January-04	$70,910	15								From NS Audit List
Public Works	Highway	6/30/20						Dump Truck	Dump Truck			January-04	$70,910	15								From NS Audit List
Public Works	Highway	7/19/21	50	1719	Highway	2005	Volvo	Backhoe	Heavy Equipment		BL704CAE	May-05	$52,998	8	3) Fair		Y	N/A	December-22	6,971	Miles	
Public Works	Highway	6/30/20						Dump Truck	Dump Truck			May-05	$31,994	15								From NS Audit List
Public Works	Highway	6/30/20						PLOW	Snow Plow			May-05	$74,347	20								From NS Audit List
Public Works	Highway	7/19/21	60	835	Sweeper	2006	Elgin	Pelican Sweeper	Specialty Equipment		59387D	Sep-06	$106,000	8	3) Fair		Y	N/A	December-21	10,349	Miles	
Public Works	Highway	6/30/20						SNOW PLOW	Snow Plow			February-07	$8,184	15								From NS Audit List
Public Works	Highway	7/19/21	66	4275	Flail	2006	John Deere	Tractor/Mower	Specialty Equipment		60415D504402	Sep-07	$97,225	15	2) Good		Y	N/A	December-22	3,799	Miles	
Public Works	Highway	6/30/20						Mower - Kubota Zero Turn	Specialty Equipment			December-07	$9,000	16								From NS Audit List
Public Works	Highway	6/30/20						Kubota Tractor	Specialty Equipment			December-07	$11,150	16								From NS Audit List
Public Works	Highway	7/19/21	63		Mower	2011	Toro	Groundmaster 4010 Mower	Specialty Equipment			Oct-11	$64,225	15	2) Good	20124311011	Y	N/A	N/A	100	Miles	
Public Works	Highway	7/19/21	37	932	Highway	2015	Peterbilt	Truck	Dump Truck	w/Plow	2NP3HJ8X5FM297420	Nov-14	$159,950	10	2) Good	2015431107	Y	November-21	December-21	19,389	Miles	
Public Works	Highway	7/19/21	39	4543	Highway	2017	Hino	Truck	Dump Truck	w/Catch Basin Lift	5PVNV8JJ8H4S50361	Nov-15	$167,020	10	1) Excellent		Y	September-21	December-21	4,887	Miles	
Public Works	Highway	7/19/21	38	5563	Highway	2016	Peterbilt	Truck	Dump Truck	w/Plow	2NP3HJ9X1GM360695	Jul-16	$170,900	10	1) Excellent		Y	September-21	December-21	16,561	Miles	
Public Works	Highway	7/19/21	40	4386	Highway	2017	International	Truck	Dump Truck	w/Plow	3HAWCSTR2HL520783	Jan-17	$168,950	10	1) Excellent		Y	September-21	December-22	12,626	Miles	
Public Works	Highway	7/19/21	41	4126	Highway	2017	International	Truck	Dump Truck	w/Plow	3HAWCSTR4HL520784	Feb-17	$168,950	10	1) Excellent		Y	September-21	December-22	15,388	Miles	
Public Works	Highway	7/19/21	42	133	Highway	2018	International	Truck	Dump Truck	w/Plow	3HAWCSTR5JL345029	Feb-18	$340,926	10	1) Excellent		Y	September-21	December-21	8,662	Miles	
Public Works	Highway	6/30/20			Highway			Spreader (for Chevy)	Specialty Equipment			Nov-18	$5,665	5								
Public Works	Highway	7/19/21	43	4967	Highway	2018	International	Truck	Dump Truck	w/Plow	3HAWCSTR3JL345028	Mar-19	$171,728	10	1) Excellent		Y	September-21	December-21	7,421	Miles	
Public Works	Highway	7/19/21	11	5698	Highway	2019	Ford	F-250	Pickup Truck		1FTBF2B64KEF56692	Jul-19	$31,183	5	1) Excellent		Y	March-22	December-22	12,084	Miles	
Public Works	Highway	7/19/21	44	4384	Highway	2019	International	Truck	Dump Truck	w/Plow	1HTWCTAR6KH318101	May-20	$175,767	10	1) Excellent		Y	September-21	December-21	4,936	Miles	
Public Works	Highway	7/19/21	1	6127	Director	2018	Ford	Escape	Car		1FMCU9GD7JUA25387				1) Excellent		Y	March-22	December-21	20,149	Miles	
Public Works	Highway	7/19/21	2	5597	Highway	2014	Ford	Interceptor	SUV		1FAHP2MK4EG145441				3) Fair		Y	March-23	December-22	98,647	Miles	
Public Works	Highway	7/19/21	4	400000	TA	2013	Ford	Explorer	SUV		1FM5K8B83DG16013				2) Good		Y	March-22	December-22	82,542	Miles	
Public Works	Highway	7/19/21	6		Spare	2014	Ford	Focus	Car		1FADP3F29EL295800				3) Fair		Y	January-23		69,920	Miles	
Public Works	Highway	7/19/21	9	688	Highway	2012	Chevy	Silverado 2500	Pickup Truck	w/Plow	1GC0KVCG3CZ180428				2) Good		Y	March-22	December-21	60,849	Miles	
Public Works	Highway	7/19/21	12	678	W/S	2012	Chevy	Silverado 35	Pickup Truck		1GB3KZCG8CF132059				2) Good		Y	March-22	December-21	39,006	Miles	
Public Works	Highway	7/19/21	13	4220	W/S	2014	Ford	F-350	Pickup Truck	w/Plow	1FDRF3H60EEB27363				2) Good		Y	March-22	December-21	63,995	Miles	
Public Works	Highway	7/19/21	20	4874	Highway	2012	Chevy	3500	1 Ton Dump Truck	w/Plow	1GB3KZCG1CF141993				2) Good		Y	March-22	December-21	53,183	Miles	
Public Works	Highway	7/19/21	21	4157	Highway	2008	Ford	F-350	1 Ton Dump Truck	w/Plow	1FDWF37518ED93768				3) Fair		Y	April-22	December-21	77,247	Miles	
Public Works	Highway	7/19/21	22	322	Highway	2020	Chrysler	Ram 550	1 Ton Dump Truck	w/Plow	3C7WRNALXLG102351				1) Excellent			November-21		9,456	Miles	
Public Works	Highway	7/19/21	24	4362	Highway	2016	Chrysler	Ram 550	1 Ton Dump Truck	w/Plow	3C7WRNAL6GG253646				1) Excellent		Y	October-21	December-21	25,006	Miles	
Public Works	Highway	7/19/21	26	124	Highway	2018	Chrysler	Ram 550	1 Ton Dump Truck	w/Plow	3C7WRNAL4JG205570				1) Excellent		Y	October-21	December-21	18,450	Miles	
Public Works	Highway	7/19/21	31	4392	Highway	2005	GMC	Truck	Dump Truck	w/Plow	1GDP8C13S5F518252				4) Poor		Y	December-21	December-21	31,718	Miles	
Public Works	Highway	7/19/21	34	4722	Highway	2001	Freightliner	Truck	Dump Truck	w/Plow	1FVABXAK41HBJ12767				4) Poor		Y	March-21	December-21	47,810	Miles	
Public Works	Highway	7/19/21	45	5379	Highway	2020	International	Truck	Dump Truck	w/Plow	3HAEJTAR0LL391509				1) Excellent		Y	April-22	December-21	5,426	Miles	
Public Works	Highway	7/19/21	51	1472	Highway	1997	L90C	Front End Loader	Heavy Equipment		L90CV62761				3) Fair		Y	N/A	December-22	22,446	Miles	
Public Works	Highway	7/19/21	61	1343	Mower	1996	Ford	New Holland Mower	Specialty Equipment		S/N 040003B				2) Good		Y	N/A	December-21	27	Miles	
Public Works	Highway	7/19/21	62	4419	Bucket	1998	International	Bucket Truck	Specialty Equipment		1HTLCCEN3JH520682				3) Fair		Y	April-22	December-21	51,773	Miles	
Public Works	Highway	7/19/21	65	874	Compressor	1998	LeRoi	Compressor	Specialty Equipment		3272X2338				3) Fair		Y	N/A	December-22	697	Hours	
Public Works	Highway	7/19/21	69	4395	Highway			Large Water Buffalo (Yellow)	Specialty Equipment		22222-1549				4) Poor		Y	N/A	December-21	Unknown	N/A	
Public Works	Highway	7/19/21	71	4494	Highway	1997	Eager Beaver	Low Bed Trailer	Specialty Equipment		112HTN308VL048275				3) Fair		Y	June-21	December-21	Unknown	N/A	
Public Works	Parks & Rec	7/19/21	8	4358	Parks/Rec	2013	Ford	F-250	Pickup Truck	w/Plow	1FT7W2B68DEB80598	Aug-13	$34,059	5	2) Good	20144312005	Y	March-22	December-22	73,427	Miles	
Public Works	Parks & Rec	7/19/21	23	4351	Parks/Rec	2016	Chrysler	Ram 550	1 Ton Dump Truck	w/Plow	3C7WRNAL7GG253640				1) Excellent		Y	September-21	December-21	28,650	Miles	
Public Works	Parks & Rec	7/19/21	68	586	Parks/Rec	2000	Superior	Flatbed Trailer	Specialty Equipment		4M8FS1621YD000318				3) Fair		Y	June-21	December-22	Unknown	N/A	
Public Works	Parks & Rec	7/19/21	70	4158	Parks/Rec	2008		Utility Trailer	Specialty Equipment		4KPBF15158N0012435				2) Good		Y	June-21	December-21	Unknown	N/A	
Public Works	Parks & Rec	7/19/21	72	1938	Parks/Rec	2012	Ng1	Utility Trailer	Specialty Equipment		4KPBF2829CN008295				2) Good		Y	June-21	December-21	Unknown	N/A	

Attachment 12

Municipal. Asset Management Software
It's Not Just for Large Municipalities

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Municipal Asset Management Software – It's Not Just For Large Municipalities

Share with Others

Large and small municipalities alike share common citizen issues. Providing services, ensuring safety, and promoting sound communication is essential to a healthy public works operation. But keeping up with municipal work orders can be challenging for small and mid-size cities that may have the same management issues but not the same budget as larger cities. Fortunately, Municipal Asset Management Software such as the ShareNet Municipal

Categories

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› Disaster Recovery

› Asset Management

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› Facility Management Software

Operations Management system can be provided as a Cloud-based solution. This makes it possible for small and mid-size municipalities to access software applications formerly available to large organizations with enterprise budgets.

A Cloud platform allows software to be housed in the vendor's data center, so little to no IT involvement is required. This also means that you do not need expensive in-house computing infrastructure. Cloud subscriptions are typically priced per user,

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greatly reduces costs for smaller communities but allows the same application to scale as large cities. For the ShareNet Municipal Operations Management system, both user-based and unlimited user, population-based pricing models are available.

Cloud-based Municipal Asset Management Systems can deliver big cost and time-saving benefits!

Here are just a few:

- **Improve Productivity for both Office and Field Work:** Create, access, and update assets and work orders from your office or in the field with a mobile device. This cuts down input time because the work orders are updated in real-time by field staff.
- **Automate Everyday Processes:** Work Flow technology in work order software can automatically route work orders to a department or user and even send email alerts to track progress. Automated workflows provide better

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transparency for government processes by automatically notifying citizens as each step is completed. Municipalities save time and money with automated communications.

- **Geotag Assets & Work Orders:** Map the exact location of Assets or Work Orders throughout your municipality. With multiple people handling hundreds to thousands of assets across departments, simple mapped based GIS Asset Management Software can transform asset and work order tracking.
- **Adapt as Needs Change:** Some software, such as the ShareNet Municipal Operations Management system, has built-in designers & wizards that allow you to add custom fields and customize forms, record lists, email templates, workflows, and reports.
- **Capture Inventory/Labor Costs:** Associate inventory items to Work Orders and add labor and equipment hours for full cost tracking (i.e., for FEMA Reimbursements).
- **Access Maintenance History from Anywhere:** Make repairs faster by reviewing an assets maintenance history on your phone. This means it will be easier to assess and make decisions based on current, accurate information. Communication bottlenecks are reduced, and departmental collaboration is improved.

Municipal Asset Management Increases Infrastructure Reliability and Visibility.

This is how:

- **Increase Infrastructure Reliability with Preventative Maintenance**: As a result of preventative maintenance schedules and reminders, Public Works can reduce or prevent costly and disruptive emergency repairs.
- **Automated reporting Increases Visibility**: There is improved decision making with real-time data charts and

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graphs. When you understand an asset's value, it helps you make better decisions about the best way to operate, maintain, and plan for replacements.

Municipal Asset Management Software provides a collaboration between Public Works and all other departments. Over time historical asset records will support decision making and sustainability. You don't have to rely on stacks of paper and spreadsheets to manage small city assets anymore. Request a demo of the Novo ShareNet Municipal Software today!

By Anne Sych | Asset Management, Government Software | Comments Off

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Recommendations

The Asset Management Commission has reached an impasse. If the town wants to proceed with an Asset Management Program, outside assistance is needed. A firm with Asset Management experience should be hired to set up the program for the Town. The Commission envisions this happening in the form of a Request for Qualifications to solicit firms who specialize in the development of AM programs. It is suggested the work be done in two phases. Although the following will certainly need to be reviewed and finalized by the selected firm ultimately chosen to develop the AM program, the Commission recommends the following conceptual approach:

Phase 1 Asset management recommendations

1. Generation of a list of recommended assets that will be tracked. By separate document, the FY 2020 Fixed Asset List is included. This contains many assets that may not need to be included in the program but also does not include a breakdown of all manageable assets owned by the Town. For example, it has been previously noted that the asset list tends to bundle projects with no breakdown of the assets within the project. The assets which were procured as part of these projects need to be listed as such for tracking and maintenance. The firm will need to review the asset list, tour facilities and catalogue the potential assets: During this process, the firm should recommend assets to be tracked and set up rules for those assets that do not need to be tracked. For instance:

    a. Are easements, roads and sidewalks trackable assets?
    b. Should items with a useful life of less than three years be included in the AMP?
    c. Should there be a cost for trackable assets?

2. Review of existing Town organization structure and recommendation(s) for improvement to establish and sustain an AM program

3. Review and recommend at least three asset management software programs that meet the needs of the Town. There are many cloud-based software packages available. Key considerations for the software package is what program best meets the needs of the town and what will the capital and operating expenses of the software package will be.

4. Review and recommendations on how to ensure program is funded and sustained.

5. Review Town documentation policies for information such manufacturer's manuals, as-built construction plans and specifications, and other documents are related to the management and maintenance of Town assets. These items are critical to establishing what assets are included in each project and how their useful life can be maximized.

Once a report is issued and recommendations are offered, the Town Council can determine how what type of Asset Management program will meet the needs of the Town at an acceptable cost. Upon making the requisite decisions and procuring the software, the Town could proceed with the next phase. The Commission recommends the following in Phase II:

1. Development and completion of a condition assessment for each recommended asset needs to be done. This would best be done with Town staff, since staff will be the entity that will continue to review asset condition annually.

2. Implementation of staff training. Over the long haul, it will be staff that needs to enter data and workorders, issue reports, etc. The firm would develop and manual and train designated staff on how to maintain the program.

The Asset Management looks forward to discussing these recommendations with the Town Council and Administration. The Commission remains open to requested adjustments before the final RFQ is issued.

In closing, it has been noted on recent Town Council agendas, the subject of funding a Facilities Director has been up for discussion. The Commission supports this action. If a person is hired for this role, it is logical that the person would be responsible for leading the Asset management program. Hiring this position before the Town proceeds with an RFQ would be most beneficial for the success of the program.

If the timing of establishing this position is problematic, the AMC recommends that a person/firm familiar with development of an Asset Management program be hired to assist the town. The AMC has begun working on an RFQ to start this process.