TOWN OF WEST HARTFORD

SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS

STORMWATER MANAGEMENT PLAN

2016 Annual Report
December 1, 2016

Background

The Town of West Hartford (Town) is pleased to submit its 2016 Annual Report for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4). Over the past year, the Town completed several components of its Stormwater Management Plan, which are identified individually by each of the six minimum control measures in this annual report.

In the next month, a consultant will be hired to produce a new Stormwater Management Plan for the upcoming Connecticut Department of Energy and Environmental Protection's MS4 permit. A copy of the Town's Request for Proposals is included in **Appendix A**. With the new plan in place, West Hartford will increase its efforts to improve stormwater quality.

Minimum Control Measure No. 1 - Public Education and Outreach

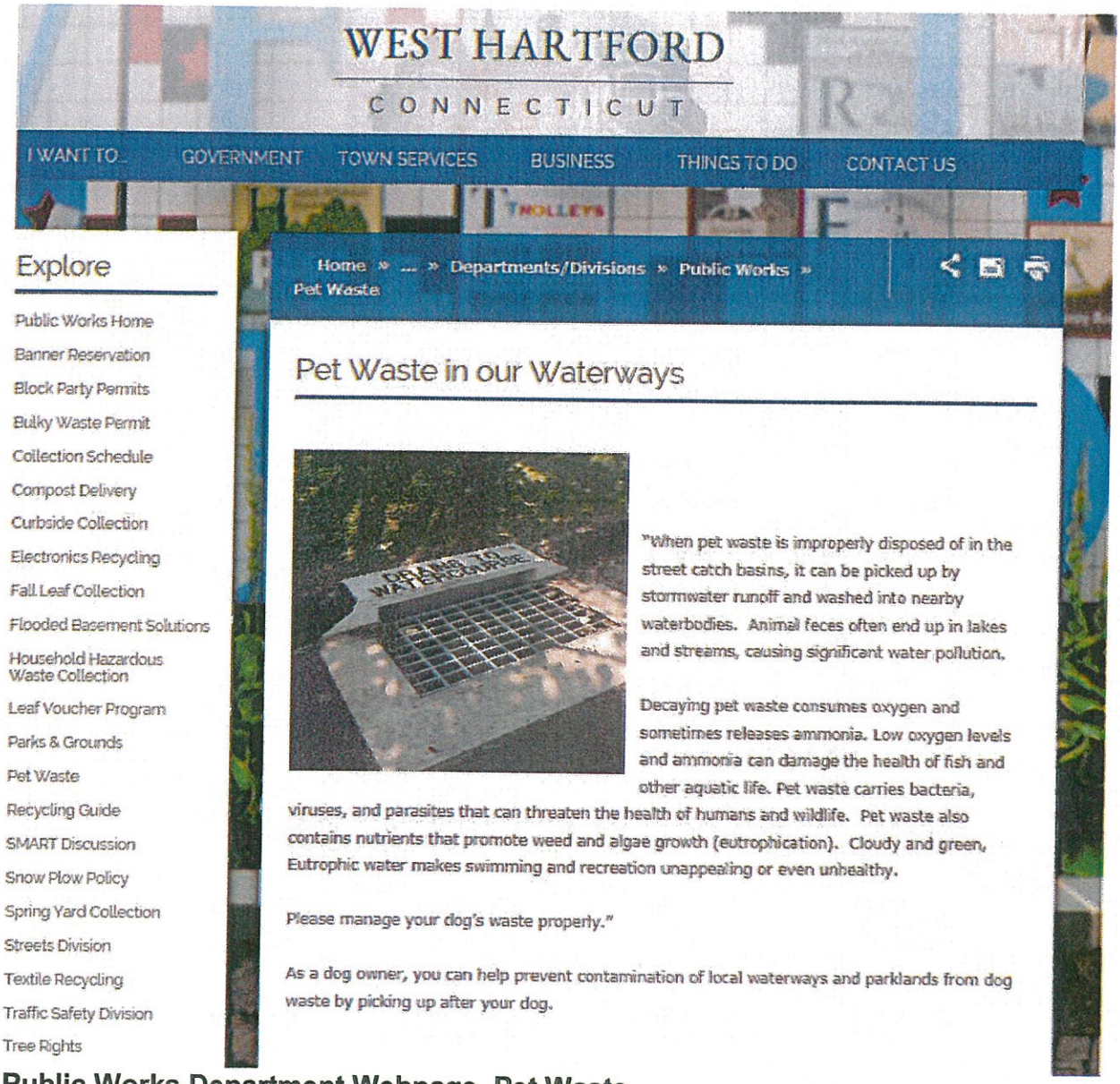
On occasion, a resident will contact Town staff to complain about a drainage issue, which is caused by debris dumping in a watercourse, or lack of maintenance of a watercourse. These issues are typically followed by a Town staff person discussing the complaint with the resident and visiting the location to better understand the issue.

On other occasions, the Town is already aware of these areas. To address these issues, Town staff sends a letter to critical property owners to pre-emptively inform and discourage watercourse debris dumping or, after an occurrence, require watercourse debris cleanup. Sometimes, the issue originates from lack of maintenance after leaves or other debris are unintentionally deposited in the watercourse. In more severe cases, debris is intentionally dumped within the watercourse.

The Town is separated into three geographic sections and letters are sent annually to one third of the Town's debris dumping prone property owners. In 2016, the Town sent letters to 284 property owners to inform them of their responsibility to remove watercourse obstructions. One such letter and associated map regarding watercourse debris and obstructions was sent to 103 property owners along Rockledge Brook. This letter and map are included in **Appendix B**.

Each year, the Town provides information to the public pertaining to the Town's leaf collection program, which is described in greater in detail in the Pollution Prevention/Good Housekeeping for Municipal Operations section. Outreach to the public is through the Town's Council Briefs, which is a digital, bi-weekly newsletter from the Town Manager. A copy of the Council Briefs pertaining to the Town's leaf collection is included in **Appendix B**.

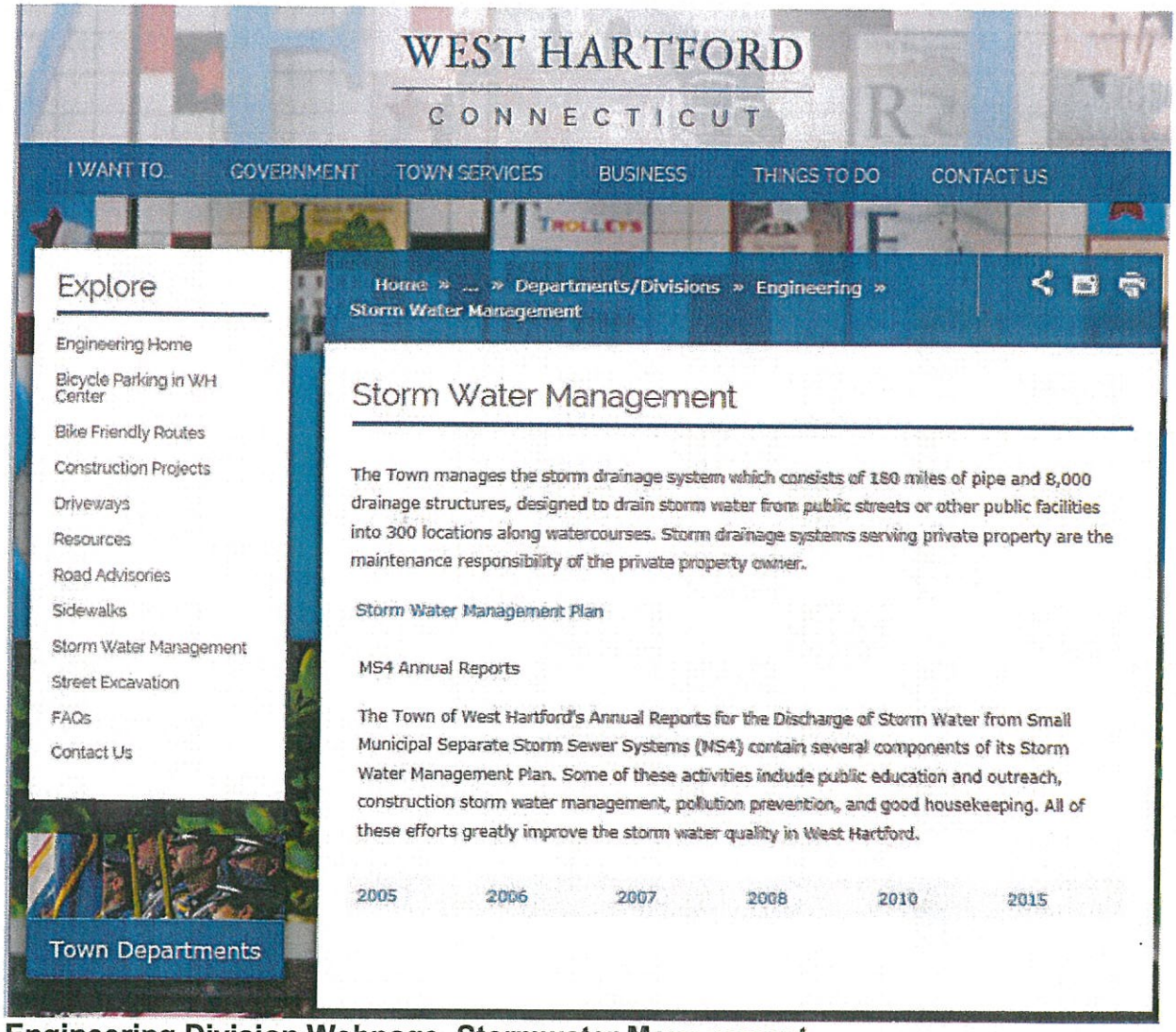
The Town has information for residents on its website pertaining to stormwater management. For example, the Public Work's webpage, as shown below, has information pertaining to pet waste and the issues caused when it is not property disposed by pet owners.



Public Works Department Webpage, Pet Waste

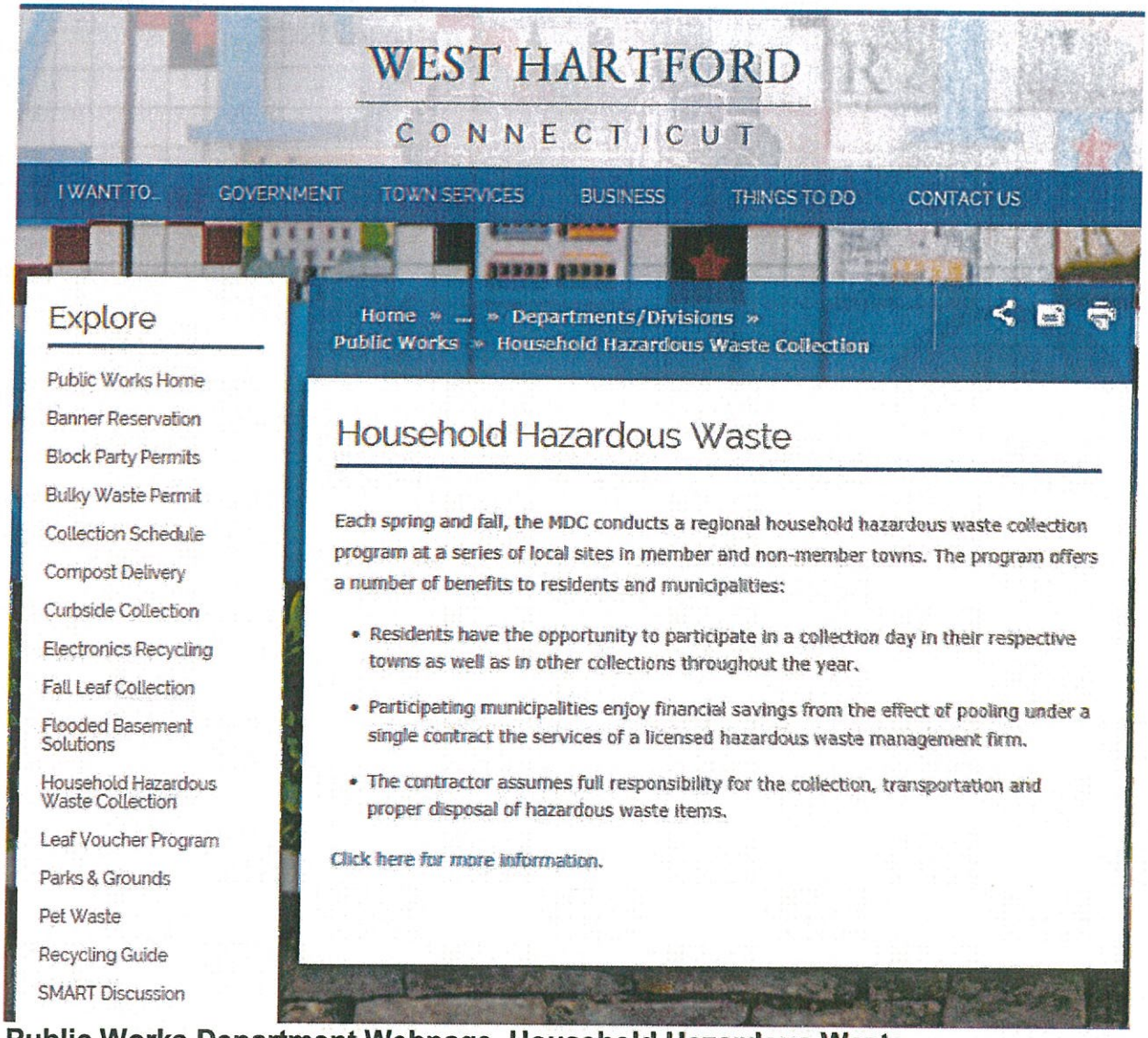
Minimum Control Measure No. 2 - Public Involvement/Participation

The Town has additional information for residents on its website pertaining to stormwater management. On the Engineering Division webpage, there are links to the Town's current Stormwater Management Plan and annual reports as displayed below.



Engineering Division Webpage, Stormwater Management

The Public Works webpage provides information, as shown below, to residents about the Metropolitan District Commission's (MDC) biannual Household Hazardous Waste collections, which occur each spring and fall.



Public Works Department Webpage, Household Hazardous Waste

Minimum Control Measure No. 3 – Illicit Discharge Detection and Elimination

The Town hired a consultant to update the Town's drainage inventory in its Geographic Information System (GIS) format. They are tasked with visiting all of the Town's outfalls and updating the drainage infrastructure to eliminate the errors and omissions, which are widespread in the current GIS drainage infrastructure layer. They will also calculate and identify the directly connected impervious surface areas around Town. A copy of the scope of services is included in **Appendix C**.

Minimum Control Measure No. 4 - Construction Site Stormwater Runoff Control

Over the past year, the Town reviewed several development and redevelopment proposals. As a standard practice, Town staff and the Town Planning and Zoning/Inland Wetlands and Watercourses Commission review applications with regard to stormwater impacts to the environment and abutting property owners. The following developments/redevelopments were approved with measures to address stormwater quality impact:

Site Address	Description	Storm Water Quality Improvements
1678 Asylum Avenue	St. Joseph's Lordes Hall Addition	Infiltration/rain garden feature
60 Woodlawn Street	Wiremold	Underground detention system
3 Arlington Road	Apartment Complex Development	Underground detention system
1344 New Britain Avenue	subdivision	Detention Basin, Swale
511 New Park Avenue	Chick-Fil-A	Recharging system
312 North Main Street	Office Building Construction	Recharging system

In addition, the Town's, Inland Wetland and Watercourses Commission requires applicants to provide weekly sediment and erosion control observation reports. The Town receives numerous reports for sites throughout the year. Two examples of these reports are included in **Appendix D**. One report is for the 243 Steele Road apartment development and the other report is for the Delamar Hotel development at 1 Memorial Road. Construction of these sites started in 2014. In both cases, the inspections and reports are generated by a third party engineering firm with photographs and recommendations to improve the erosion and sedimentation controls on the site.

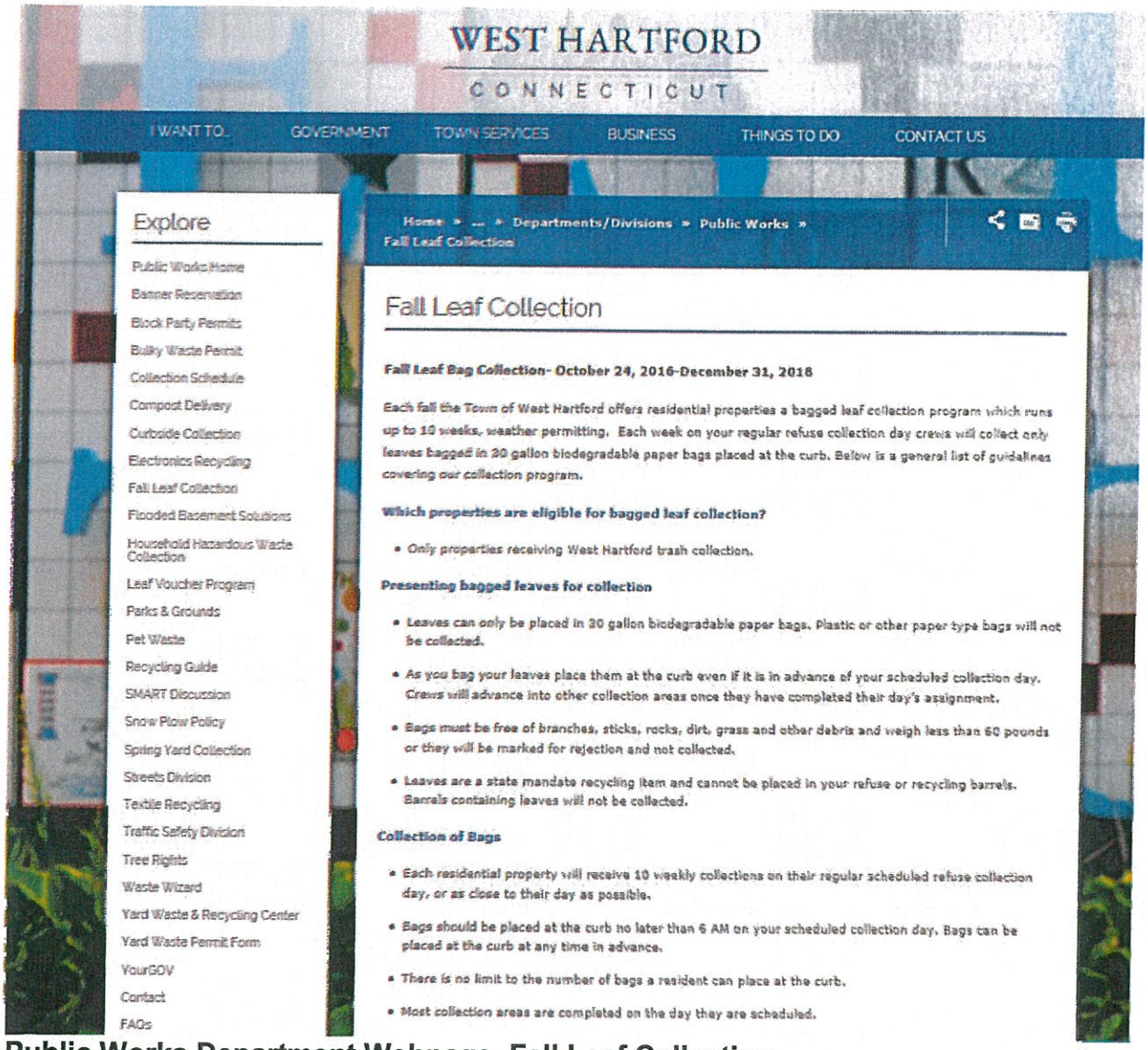
Minimum Control Measure No. 5 - Post Construction Stormwater Management in New Development/Redevelopment

The Town's Planning Division requires developers to provide annual maintenance plans for their property's stormwater quality units. An example of is included in **Appendix E**.

Minimum Control Measure No. 6 - Pollution Prevention/Good Housekeeping for Municipal Operations

The Town's Public Works Department annually completes several tasks that improve the stormwater quality to wetland areas, watercourses, and waterbodies. In particular, Public Works conducts Town-wide leaf collection, street sweeping, catch basin cleaning, and catch basin replacements.

The Town offers curb-side leaf collection of bagged leaves. The program runs for up to 10 weeks, weather permitting. Public Works staff collects leaf bags during regular refuse collection days. Information pertaining to the leaf collection program is available on the Town's Public Works webpage as shown below.



WEST HARTFORD
CONNECTICUT

I WANT TO... GOVERNMENT TOWN SERVICES BUSINESS THINGS TO DO CONTACT US

Explore

- Public Works Home
- Banner Reservation
- Block Party Permits
- Bulky Waste Permit
- Collection Schedule
- Compost Delivery
- Curbside Collection
- Electronics Recycling
- Fall Leaf Collection
- Flooded Basement Solutions
- Household Hazardous Waste Collection
- Leaf Voucher Program
- Parks & Grounds
- Pet Waste
- Recycling Guide
- SMART Discussion
- Snow Plow Policy
- Spring Yard Collection
- Streets Division
- Textile Recycling
- Traffic Safety Division
- Tree Rights
- Waste Wizard
- Yard Waste & Recycling Center
- Yard Waste Permit Form
- YourGOV
- Contact
- FAQs

Home » ... » Departments/Divisions » Public Works » Fall Leaf Collection

Fall Leaf Collection

Fall Leaf Bag Collection- October 24, 2016-December 31, 2016

Each fall the Town of West Hartford offers residential properties a bagged leaf collection program which runs up to 10 weeks, weather permitting. Each week on your regular refuse collection day crews will collect only leaves bagged in 30 gallon biodegradable paper bags placed at the curb. Below is a general list of guidelines covering our collection program.

Which properties are eligible for bagged leaf collection?

- Only properties receiving West Hartford trash collection.

Presenting bagged leaves for collection

- Leaves can only be placed in 30 gallon biodegradable paper bags. Plastic or other paper type bags will not be collected.
- As you bag your leaves place them at the curb even if it is in advance of your scheduled collection day. Crews will advance into other collection areas once they have completed their day's assignment.
- Bags must be free of branches, sticks, rocks, dirt, grass and other debris and weigh less than 60 pounds or they will be marked for rejection and not collected.
- Leaves are a state mandate recycling item and cannot be placed in your refuse or recycling barrels. Barrels containing leaves will not be collected.

Collection of Bags

- Each residential property will receive 10 weekly collections on their regular scheduled refuse collection day, or as close to their day as possible.
- Bags should be placed at the curb no later than 6 AM on your scheduled collection day. Bags can be placed at the curb at any time in advance.
- There is no limit to the number of bags a resident can place at the curb.
- Most collection areas are completed on the day they are scheduled.

Public Works Department Webpage, Fall Leaf Collection

Public Works has limited use of sand on its roadways. Instead, roadways are treated with "ClearLane", which is an enhanced deicing material. By not applying sand to its roadways as it had for decades, the Town's drainage system does not readily fill with sand, which could eventually discharge into wetlands, watercourses, and waterbodies.

The Town has 217 miles of municipally maintained roadways. Public Works sweeps its roadways as needed on an annual basis. A summary report and map are included in **Appendix F** that documents the volume of street sweeping across Town. The reports states that throughout 2016, Public Works swept over 5,495 miles of roadway edges and 9.4 miles of Town owner parking lots and paved areas on school grounds.

Public Works also cleaned approximately 110 of the 6,600 Town's catch basins so far this calendar year with more activity planned through December, weather permitting. A

summary table and individual daily catch basin cleaning reports are included in **Appendix F**.

Through the construction season, the Town replaced 187 catch basins during roadway reconstructions or roadway repaving projects, which in turn removed the accumulated debris from each of these catch basins. Summary tables of the replaced catch basins and the debris removed from them is included in **Appendix F**. From these catch basins, over 68 tons of accumulated debris were removed from the Town's storm drainage system.

All of the new catch basins that have a curb section include a message indicating, "Drains to Watercourse" on the top of the concrete curb section of the catch basin top. This message informs the public that whatever gets into the catch basin is not treated. Instead the material that enters the catch basin flows directly into a wetland, watercourse, or waterbody if it is not trapped in the catch basin sump.

The Public Works department was granted an increase in staff and equipment to address stormwater management. Specifically, two new full time equipment operators will be hired in January 2017. Public Works obtained a new street sweeper and vactor to increase the street sweeping and catch basin cleaning operation per the requirements of the upcoming MS4 permit. Sections of the budget pertaining to increased staff and equipment are included in **Appendix F**.

All of the Town's efforts documented in this annual report show the Town of West Hartford's commitment towards improving the environment through stormwater quality. Additional efforts are planned in the near future, particular in 2017, to improve the quality of the Town's wetlands, watercourses, and water bodies, which will in turn improve the quality of the region's and Long Island Sound's stormwater and water ecosystems.

APPENDIX A

CONSULTANT REQUEST FOR PROPOSALS
STORMWATER MANAGEMENT PLAN

REQUEST FOR PROPOSALS

FOR THE

TOWN OF WEST HARTFORD

2017 STORMWATER MANAGEMENT PLAN

TOWN OF WEST HARTFORD

1.05 PROJECT NARRATIVE

The Town of West Hartford, Engineering Division seeks a Consultant to produce a Stormwater Management Plan (Plan) in accordance with the Connecticut Department of Energy and Environmental Protection's General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4 Permit) (Issued January 20, 2016). A copy of the Permit is provided as part of this Request for Proposals.

A. Background

The Town of West Hartford created its own Plan in 2004 to be in compliance with the MS4 Permit issued on January 9, 2004. A copy of this Plan and all annual reports are provided as part of this Request for Proposals.

B. Scope of Work

The Consultant will meet with the Town's Stormwater Management Committee (Committee) up to four times for a kick off meeting, up to two progress meetings, and a final meeting to present the completed Plan to the Committee.

The Consultant shall also present the draft Plan at up to four additional meetings including one meeting with the Town's Conservation and Environmental Commission two meetings with the Town's Planning and Zoning/Inland Wetland and Watercourses Commission and one general public information meeting to obtain feedback, perform public outreach. After the meetings, the Consultant shall modify the Plan accordingly.

Specific items to be included in the Plan are as follows:

1. Provide sample educational materials targeted towards the Public Outreach and Educational component of the MS4 Permit,

2. Perform a review of the Town's current Zoning Ordinances and Subdivision Regulations for consistency with the MS4 Permit requirements,

3. Provide sample MS4 Permit compliant Zoning/Subdivision regulations,

4. Provide list of annual goals to address Plan components,

5. Provide recommended testing locations and procedures,

6. Provide Best Management Practices (BMP) for snow and ice control measures, and

7. Perform in-house training for Public Works staff pertaining to Good Housekeeping maintenance processes and other applicable Public Works operations toward BMP's.

C. Deliverables

The Consultant will produce 10, 3-ring binder hard copies and 2 electronic copies of the Plan. One of the electronic copies shall be in a Microsoft Word format and the other shall be in an indexed (searchable) Adobe PDF format with a live (automatic links) table of contents.

D. Work Schedule

The Consultant shall complete a draft of the Plan by March 1, 2017. The draft will be reviewed by the Committee. The final draft Plan incorporating the Committee's comments will be posted on the Town of West Hartford website no later than April 1, 2017 for public comment. The Consultant shall complete the Plan incorporating remaining comments by the Committee and public by June 1, 2017. The finalized Plan will be distributed to the Town in hardcopy and electronic formats for posting on the Town's website.

E. Fee Schedule

The Consultant shall provide an itemized breakdown and a total proposal cost to produce the Plan in conformance with the all of the MS4 Permit requirements that apply to the Town of West Hartford as described in this Request For Proposals. The Consultant shall also provide hourly rates for additional work beyond the creation of the Plan such as public meetings, additional modifications to the Plan, annual reporting, or completion of tasks within the Plan.

APPENDIX B

WATERCOURSE OBSTRUCTION LETTER AND MAP
LEAF COLLECTION PROGRAM OUTREACH

DEPARTMENT OF
COMMUNITY SERVICES

August 11, 2016

Notice to: Property Owners along Rockledge Brook

Subject: Watercourse Obstructions

The Town is conducting an annual outreach effort to property owners along Rockledge Brook regarding potential obstructions within the watercourse. Fallen trees and debris within and/or across the watercourse have the potential to obstruct the flow of water and increase the flood risk on your property, properties downstream and those located within the flood plain.

To decrease this flood risk, watercourses must be properly maintained. Maintenance of watercourses located on private property are the responsibility of individual property owners. Connecticut General Statutes section 7-146 specifically outlines that the owner(s) of a watercourse may be required to clear it of debris and that the Town may lien the properties in question for the cost of such clearing if the owner(s) fail to do so. Your cooperation in the removing of any trees/debris that may be obstructing the watercourse is greatly appreciated.

If you have questions about clearing obstructions from the watercourse or would like further clarification, please feel free to contact my office at the number listed below or by email to: todd.dumais@westhartfordct.gov.

Best Regards,

Todd Dumais
Town Planner / IWWA Administrative Officer
860.561.7556

Cc: Subject Street File

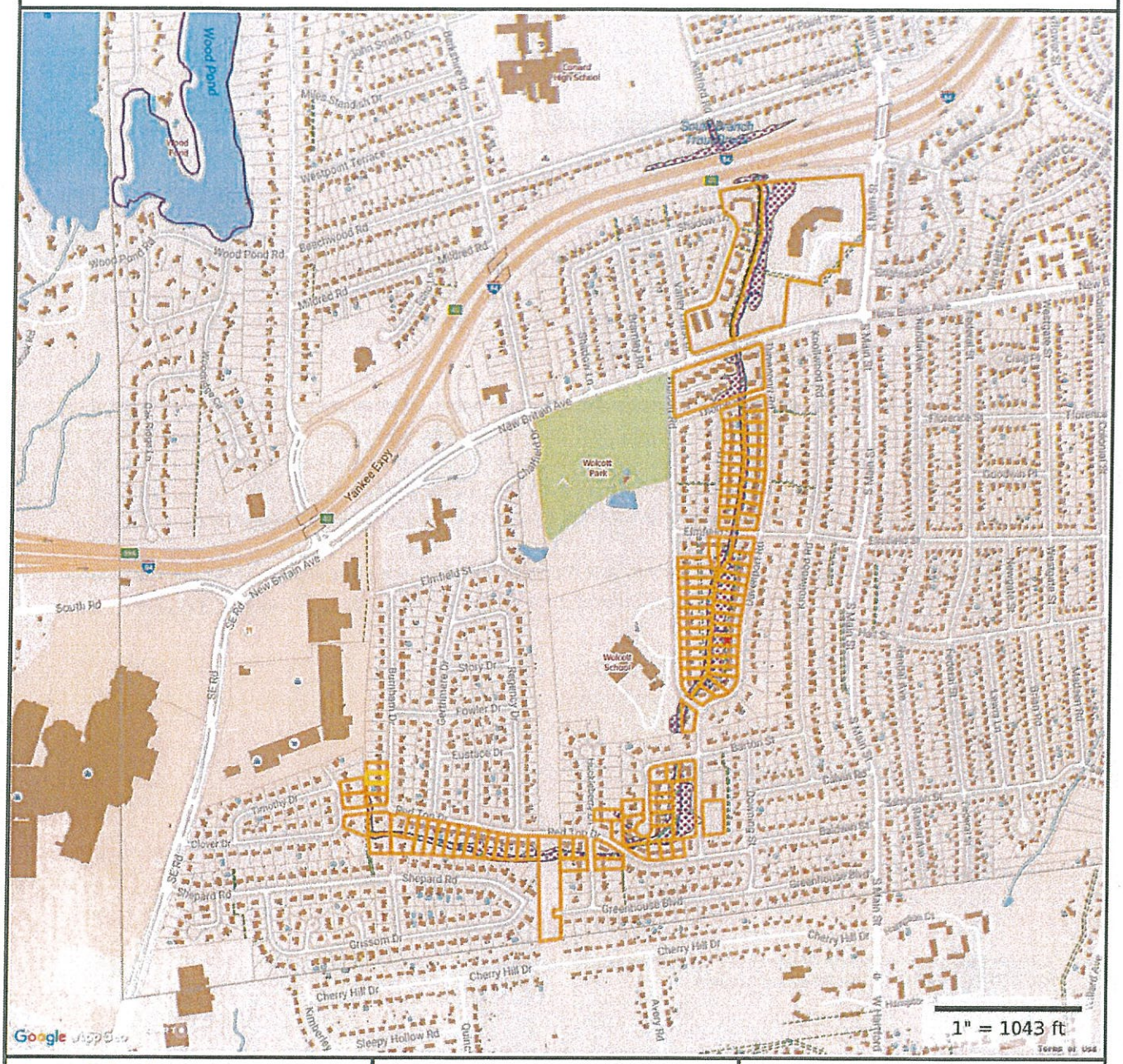
U:\Shared Documents\Federal Emergency Management Agency (FEMA)\2016\Activity 330\Obstructions in Watercourse Outreach\1. Rockledge\StreamObstructionLetter_Rockledge Brook_2016

TOWN OF WEST HARTFORD

TOWN OF WEST HARTFORD
50 SOUTH MAIN STREET
WEST HARTFORD, CONNECTICUT 06107-2431
(860) 561-7555 FAX: (860) 561-7504
www.west-hartford.com

An equal Opportunity/Affirmative Action Employer

Rockledge Brook (South of I-84) - Targeted Outreach



Property Information

Property ID	0821 1 51 0001
Location	51 BURNHAM DRIVE
Owner	PHAM DO X + NHUNG KATHY B VU

TOWN OF WEST HARTFORD

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of West Hartford, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Parcels updated 5/22/2015
Properties updated Daily

COUNCIL BRIEFS

November 4, 2016

2016-17 One Book, One Town focuses on family lineage: The community read known as "One Book, One Town" has selected *Of Beetles and Angels* by Mawi Asgedom, a boy's remarkable journey from a refugee camp to Harvard University. This year's book builds on the West Hartford Libraries' "Memories in Migration" project that captured stories of immigrants who have settled in West Hartford. Special events and book discussions will wrap around the central question, "What's your story?" One Book, One Town, now in its second year, is designed to bring the community together by reading a common book. Learn more at WestHartfordCT.gov/1book1town.

Remembering our Veterans: Help is needed to place American flags on the 1200+ military graves at Fairview Cemetery, located on Pleasant Street, on Saturday, November 5 at 8:30 AM. If you can help, simply come to Fairview Cemetery. Please bring a screwdriver or similar tool to aid in planting the flags because the ground may be hard.

A Veterans Day ceremony will be held at the Veterans Memorial on Friday, November 11 at 11 AM. Rain location: First Church of Christ Congregational, 12 South Main Street. Keynote speaker is Dr. Karen Daly, CAPT USN (ret).

#ThisIsHowIBridge: On November 1, the Bridge Family Center kicked off a month-long Instagram campaign #ThisIsHowIBridge featuring a daily photo of something it does to support the community (i.e, connecting with students, working with police to help at-risk youth, playing basketball at the teen center to create healthy connections, etc.).

The Bridge invites the public to follow them on Instagram@bridgefamilycenter and tag them when you post to #ThisIsHowIBridge. Parents and kids are invited to take their own photos showcasing their good work in the community. The Bridge will stay connected with its followers with supportive information.

Proper Leaf Disposal: The Department of Public Works offers a reminder to residents and contractors that West Hartford streets, catch basins and watercourses need to stay clear of leaves during the fall leaf collection season. Leaf bags and leaf piles that are placed in the road pose a traffic hazard, clog storm drains, cause street flooding and impede snow plowing operations. In addition, leaves should never be discarded into a waterway. If your property abuts a watercourse, please remove any fallen trees, branches and other debris as these things have the potential to obstruct the flow of water and increase the flood risk on your property and properties downstream.

The annual Leaf Bag Collection is underway and will continue through December 30th. Each week, on your trash collection day, 30-gallon paper leaf bags will be collected.

Entertainment Licensing Ordinance: A new Entertainment Licensing Ordinance was passed on October 25 that will require any business wishing to have live or pre-recorded amplified musical performances, and/or dancing to this type of music by patrons or performers for the benefit of an audience of two or more persons, will need to get a license from the West Hartford Police Department. (Background music is exempt.) The ordinance was publicly posted on November 3, 2016 and will go into effect 10 days later, or November 13, 2016.

All current businesses will have 30 days from November 13, 2016 to obtain a license. After December 13, 2016 businesses wishing to have entertainment, as defined in the ordinance, must have a license issued by the Chief of Police.

There is no fee for the license and there is no expiration date. Licenses are not transferable. Applications are available on-line.

Ronald F. Van Winkle
Town Manager

APPENDIX C

GIS STORM DRAINAGE INVENTORY UPDATE SCOPE OF SERVICES

Statement of Work

Town of West Hartford, CT

Stormwater Data Development

AppGeo Project # 2014-1006.00
GSA Contract # GS-35F-0001P
Submitted by:
Applied Geographics, Inc.
July 5, 2016

1 Overview

AppGeo is pleased to present this Scope of Work for GIS consulting services to the Town of West Hartford to support ongoing GIS operations and development by continuing their Stormwater data development. As part of an earlier effort that involved several iterations of AutoCAD to GIS conversions and data integrity improvements, AppGeo has converted the Town's Stormwater drainage system to GIS format and is hosting the mapping layers on the Town's GIS Website, MapGeo, as well as in ArcGIS Map Services that are consumed by DPW business systems. There are known data quality issues of errors and omissions in the current data that the Town wishes to resolve in order to comply with the State's MS4 Permit. This proposal serves to provide a scope of work tailored to fit the needs of the Town's unique data situation in order to get their Stormwater system inventoried with complete and reliable data for supporting the MS4 Permit. The end result of this project will be to provide the Town with a complete stormwater system network geodatabase, updated Engineering PDF Maps, and to update the current online Stormwater layer maps.

2 Scope of Services

This section presents a detailed description of how AppGeo will perform the scope of services for the Town and deliver high-quality products for each item outlined below.

2.1 Stormwater Data Development

2.1.1 Stormwater Geodatabase Migration

AppGeo will ETL (extract, transform and load) all existing stormwater features (currently includes manholes, catch basin, outfalls and pipes) to an Esri geodatabase model that will support stormwater infrastructure management functions and applications. This data model will be consistent with industry standards and are of a general design and nature

which can be supported and maintained by Town resources and consultant support if needed. This GIS database structure has some key aspects that are important for the long-term management and maintenance of the utility mapping data. One of the most critical components of developing the appropriate design for this or any utility automation project is to develop a design that is complete for all features and attributes that are to be collected as part of this project and planned for in the near future.

AppGeo has extensive experience working with Esri's storm, sanitary, and water distribution models that have been created and are available through their website. It has been our experience that these models are extremely comprehensive, but tend to be too complex to be effectively used and maintained by the casual user. They are an excellent starting point, but need to be refined to suit the intended use. AppGeo has used this design as a starting point and worked to refine a model that is complete, but not overly complex.

AppGeo has simplified geodatabase models that we have developed that have been designed to support GASB34, EPA NPDES Phase II, and other common applications. These models contain placeholders for all of the information that you should collect as well as other fields that we feel are crucial to some of these above mentioned initiatives or reporting requirements. For example:

- the geodatabases makes use of subtypes so that Active, Proposed, and Abandoned features can be maintained in the same feature class
- uses domain values so important attributes will have a pull-down list of valid entries such as pipe size and material
- a geometric network can be used so that drainage features are connected which enables network tracing functions such as upstream/downstream trace
- the geodatabase has feature-level metadata that keeps track of the lineage of every feature in the mapping layers – when was it input, by whom, from what source, and provides the ability to include a link to that source document

2.1.2 Outfall Database Development

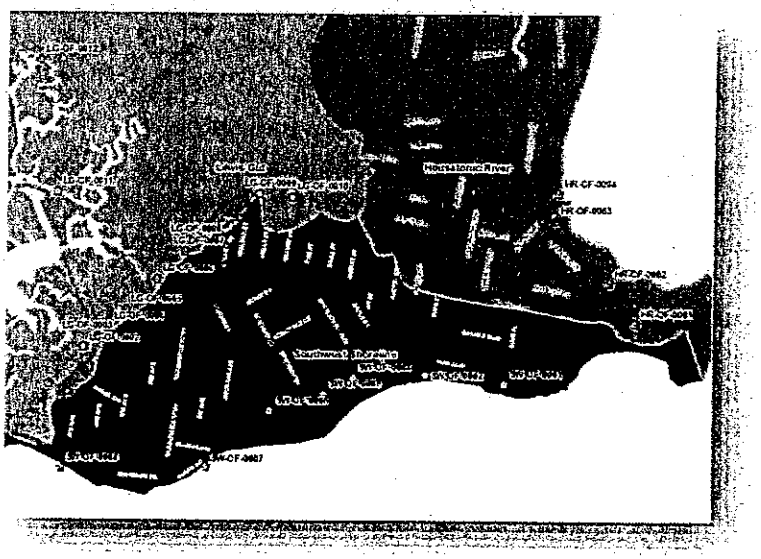
2.1.2.1 Database Set up and Input of Existing Data

The Town of West Hartford has an existing map layer of stormwater outfall locations that includes 477 points. This data needs to have an associated database of descriptive information as well as a table structure to support any conducted field inventory and inspection activities. This descriptive information should be maintained in the GIS database such as:

- Unique identifier
- Type
- Size

- Shape
- Material
- Latitude/Longitude
- Link to the most recent photo
- Link to the record plan that shows the outfall, if available
- Date of most recent inspection
- Physical condition and indicators of potential non-stormwater discharges (including presence or evidence of suspect flow and sensory observations such as odor, color, turbidity, floatables, or oil sheen) as of the most recent inspection
- Name, waterbody ID and Surface Water Quality Classification of the immediate surface waterbody or wetland to which the stormwater runoff discharges
    - If the outfall does not discharge directly to a named waterbody, the name and water body ID of the nearest named waterbody to which the outfall eventually discharges
- The name of the watershed, including the subregional drainage basin number in which the discharge is located

An important aspect to this database will be the unique identifier for the outfall which should follow a common-sense approach. The unique identifier for the outfall feature should include a regular pattern of information such as: the drainage basin identifier, a feature type, and a unique number. As shown in the image below as an example, the most southern outfall location in the Housatonic River sub basin would be identified as HR-OF-0001. This indicates the Housatonic River sub basin, an outfall feature type, and a four-digit unique number for this sub-basin. The inclusion of a feature type in the identifier is useful when there are other storm drainage features such as catch basins (CB), drain pipes (DP), drain manholes (DM), etc. All of these features would have a unique identifier (the asset id) including the type of feature which makes the record type instantly recognizable to a user.



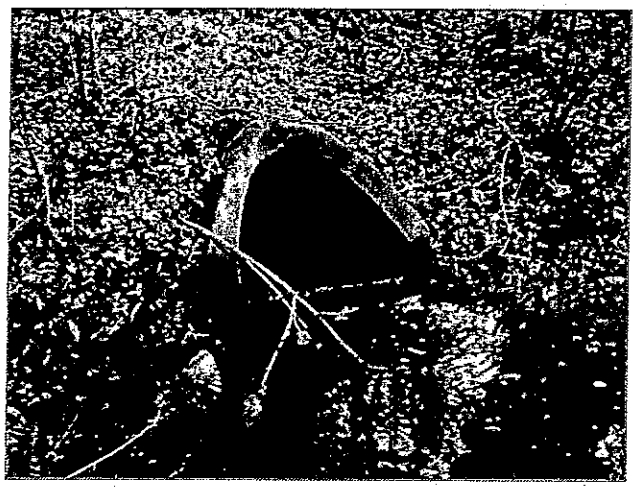
This task will be accomplished in the following steps:

- Set up of GIS database structure
- Import of existing outfall data
- Assignment of unique outfall identifier

2.1.2.2 Outfall Field Inventory

The initial field inventory includes physically locating each accessible outfall location and filling out feature attributes as well as taking a digital picture. This field inventory will include a mapping grade GPS unit which will provide a horizontal accuracy of 2-3 feet. The field inventory will only be conducted where existing identified outfall locations are indicated and where these locations are reasonably readily accessible. Access issues could include crossing private property with no Town easement, steep or unsafe slopes, gated areas, or thick brush. Town staff may be needed to access the outfall locations or provide required traffic control.

The GIS mapping feature for the outfall will be repositioned to the GPS location. In addition, the feature-level metadata for the outfall features will be updated in the GIS to indicate they were field verified. This will be important for noting the features that could not be field inventoried. Information and photos, such as that shown in the image below will be captured at each outfall location.



While the inventory is being conducted, in addition to the attributes listed in the above section, the field staff will note any critical maintenance action needed such as blocked or cracked pipes and note the presence of observable flow during what is deemed a dry period. This would potentially be an indicator of illicit connections to the drainage system.

This task will be accomplished in the following steps:

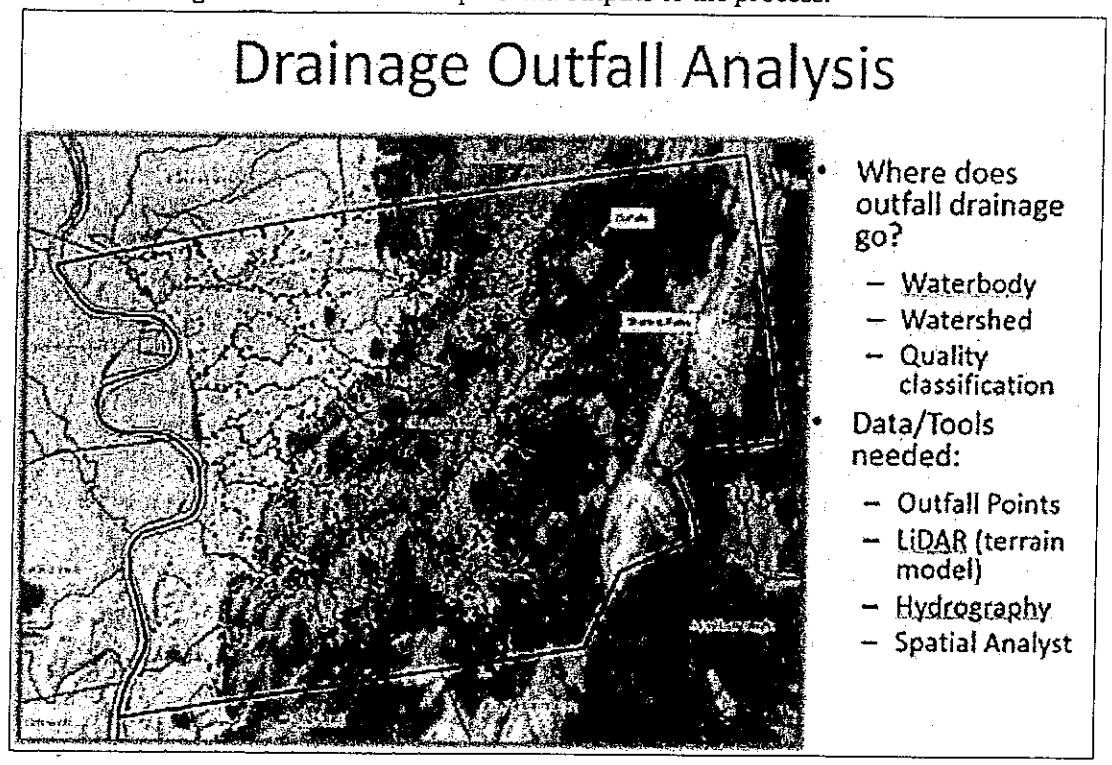
- Coordination with Town on schedule and location of field inventory activity
  - Police notification of field inventory work where deemed appropriate
- Outfall GPS data collection – expected to be over the course of up to 30 field days
  - Adjustment of outfall locations in the Stormwater GIS database to the GPS location
  - Identification of any critical maintenance action needed
  - Input of inventory attribute data into Outfall database
- Organization of photos into folder structure and to ensure hyperlinking
- Post processing of the GPS data points to apply differential correction, to get the best location possible for each collection day using CORS station geodetic data

2.1.2.3 Calculating water body and watershed identifiers

One of the MS4 mapping requirements is that each outfall should include the following information:

- Name, water body ID and Surface Water Quality Classification of the immediate surface waterbody or wetland to which the stormwater runoff discharges
    - If the outfall does not discharge directly to a named waterbody, the name and water body ID of the nearest named waterbody to which the outfall eventually discharges
- The name of the watershed, including the subregional drainage basin number in which the discharge is located

The ability to code each outfall with this information is made possible with the right GIS data and tools. An ArcGIS Desktop Advanced license, and both 3D and Spatial Analyst ArcGIS Extensions are needed. Also, data needed include a town boundary, hydro lines, water quality lines, terrain dataset/DEM, stormwater outlets, soils and drainage basins. AppGeo has performed the analysis required for generating this information in the past, and has developed supporting tools and documentation to help make the process repeatable. The below images demonstrate the inputs and outputs to the process.



output_waterbody	output_waterquality	on_wetland	SUBREGION	REGIONAL	MAJOR
Campanele Pond	A	No	Hubbard Brook	Connecticut Main Stem	Connecticut
Campanele Pond	A	No	Hubbard Brook	Connecticut Main Stem	Connecticut
Smith Brook	A	Yes	Hubbard Brook	Connecticut Main Stem	Connecticut
Campanele Pond	A	Yes	Hubbard Brook	Connecticut Main Stem	Connecticut
Campanele Pond	A	No	Hubbard Brook	Connecticut Main Stem	Connecticut
Campanele Pond	A	Yes	Hubbard Brook	Connecticut Main Stem	Connecticut
Campanele Pond	A	Yes	Hubbard Brook	Connecticut Main Stem	Connecticut
Wickham Brook	A	Yes	Hubbard Brook	Connecticut Main Stem	Connecticut
Wickham Brook	A	Yes	Hubbard Brook	Connecticut Main Stem	Connecticut
Wickham Brook	A	Yes	Hubbard Brook	Connecticut Main Stem	Connecticut
Wickham Brook	A	Yes	Hubbard Brook	Connecticut Main Stem	Connecticut
Smith Brook	A	Yes	Hubbard Brook	Connecticut Main Stem	Connecticut
Smith Brook	A	Yes	Hubbard Brook	Connecticut Main Stem	Connecticut
Smith Brook	A	No	Hubbard Brook	Connecticut Main Stem	Connecticut
Smith Brook	A	No	Hubbard Brook	Connecticut Main Stem	Connecticut
Wickham Brook	A	No	Hubbard Brook	Connecticut Main Stem	Connecticut
Wickham Brook	A	Yes	Hubbard Brook	Connecticut Main Stem	Connecticut
Smith Brook	A	No	Hubbard Brook	Connecticut Main Stem	Connecticut
Bonas Pond	A	Yes	Hubbard Brook	Connecticut Main Stem	Connecticut
Smith Brook	A	Yes	Hubbard Brook	Connecticut Main Stem	Connecticut

AppGeo will gather the required data and perform the analysis, resulting in the outfalls attribute table containing the fields populated with the MS4 required information.

2.1.3 Existing Stormwater System Data Clean-up

Once the existing data have been migrated into to the Stormwater System Network Geodatabase schema, the next step will be to review the quality of the data and make improvements. This will include the following steps:

2.1.3.1 Catch Basins data integration

- AppGeo previously worked with the Town to develop a unique identifier system, and then calculated the unique IDs and Lat/Long coordinates for all the existing Catch Basin points contained in the existing GIS database. The data was then exported from GIS and imported into the Town's CarteGraph OMS database. The DPW then had field inventoried approximately 44% (3382 of 7618 records) of the catch basins using their Trimble Juno GPS and CarteGraph mobile application. These data are now stored in the CarteGraph database as tabular data with Lat/Long values. AppGeo will collect a new export of the catch basins from DPW if any additional attribution or location data has been applied via the CarteGraph OMS system since the last export was received.
- Convert the catch basin .export file (.csv) to GIS point feature layer using the latitude/longitude attributes and conflate with the existing GIS Catch Basin layer. The improved point locations will essentially replace the old point locations, and the new inventory attributes will be imported into the Geodatabase catch basin attribute schema.
- Review and validate the Catch Basin ID values. Upon inspection for purposes of preparing this scope, we noticed a subset of records did not conform to the syntax developed and will need to be fixed. We will also review that the correct Street ID numbers were applied to any new features added by DPW. The Syntax uses the feature type (CB), with a Street Name Identifier – a four digit number used by other

town departments, for which a database domain has been set up, and ends with an ascending number. For example, CB-0001-001 is catch basin number 1 on Abbottsford Ave.

- The values for catch basin type entered by the Town will be reviewed and the GIS domain will be updated to conform to those values. For example, "Type C (with the curb on the top)" and "Double Type II (which is along the curb)"

2.1.3.2 Adjust storm features to orthophotography and correct errors

While AppGeo is willing and able to perform a complete field inventory of all catch basins and manholes, we are instead recommending a more economical approach by using high resolution ortho imagery and in-office work, in order to meet the minimum requirements of the MS4 Permit. This task will be accomplished in the following steps:

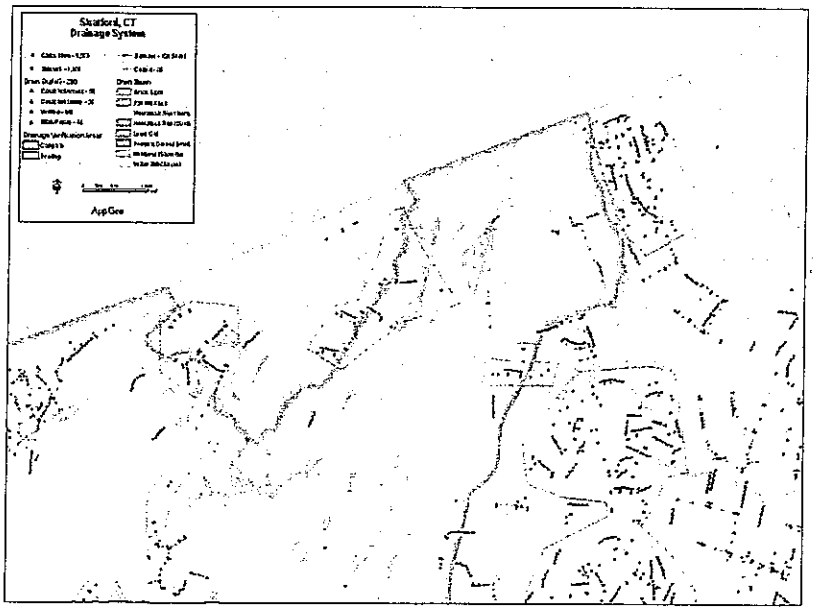
- AppGeo will coordinate and collect data from the Metropolitan District (MDC) from their spring 2015 flyover. Data expected to be received include 3" Pixel resolution true-orthophotography captured for 40-scale mapping accuracy, planimetric layers (buildings, pavement edges, sidewalks, etc.), and topography including 1' contours. At this time the MDC expects that the orthophotos will be available to the town immediately after they accept the final deliverable from the flight vendor, likely early this spring 2016. The planimetric and topography data will not be available until at least mid to late summer 2016.
- Compare the existing stormwater manhole and catch basin feature locations against the ortho imagery and adjust each point to be located more accurately per the visible evidence on the ortho. This includes approximately 2301 manholes and 4236 catch basins. This does not include adjusting the 3382 field verified catch basins, although based on a cursory review of their locations relative to the ortho imagery, AppGeo recommends these points also be adjusted to align with the visible catch basin location on the imagery. As such, an optional task and cost is presented in a subsequent section for including this additional catch basin location adjustment work.
- Pipes will be adjusted for position when a connected catch basin, manhole or outfall is adjusted per the improved locations.
- There are features in the storm pipes layer, such as culverts, that are drawn with the lines in a rectangle to show the size of the pipe, instead of a single line with a size attribute coded. These will be corrected during this process.
- There may also be some features mixed in the pipes layer that were were not separated out into their correct GIS layer during the original conversion because they were in various incorrect CAD layers. These will be corrected during this feature review process.
- While reviewing the data AppGeo will look for potential interconnections where the Town's system is near a state, private or adjacent town system. An example of this is at West Farms Mall and New Britain Ave. AppGeo will attempt to collect property plans, ROW plans from the State and if necessary plans or existing GIS Data from

adjacent towns. AppGeo may need to verify these areas in the field if the source documentation or data does not provide enough information. If the interconnections are shown on the sources, AppGeo will add structures where appropriate and attribute them as an Interconnection location.

- While reviewing data against the orthophotography AppGeo will look for, and if found, will update or digitize open channel conveyances (swales, ditches, etc.) and municipally-owned stormwater treatment structures (e.g. detention and retention basins, infiltration systems , bioretention areas, water quality swales, gross particle separators, oil/water separators, or other proprietary systems). AppGeo understands that there are two Vortechnics units tied into the Town Hall parking lot drainage systems and that there may be an oil water separator tied into the Public Works facility. If the Town has source maps, documentation or data identifying the locations of these types of features they should be provided at the onset of the project.
- AppGeo will also build a geometric network on the system so that it may support network flow tracing applications in the future. Building a network also allows for a Quality Control step to be performed to ensure all features in the network are properly connected.
- All features will be populated with a unique ID

2.1.3.3 Verification Areas requiring additional GPS work

Throughout the data clean up phase, there will be areas of the system identified where AppGeo feels that more information is needed in order to make accurate decisions or clarify oddities in the data. Examples include areas where pipe features are not digitized but there are other system features evident, and it is not clear how to draw or adjust the pipes to correctly connect the structures, as shown in the example below.



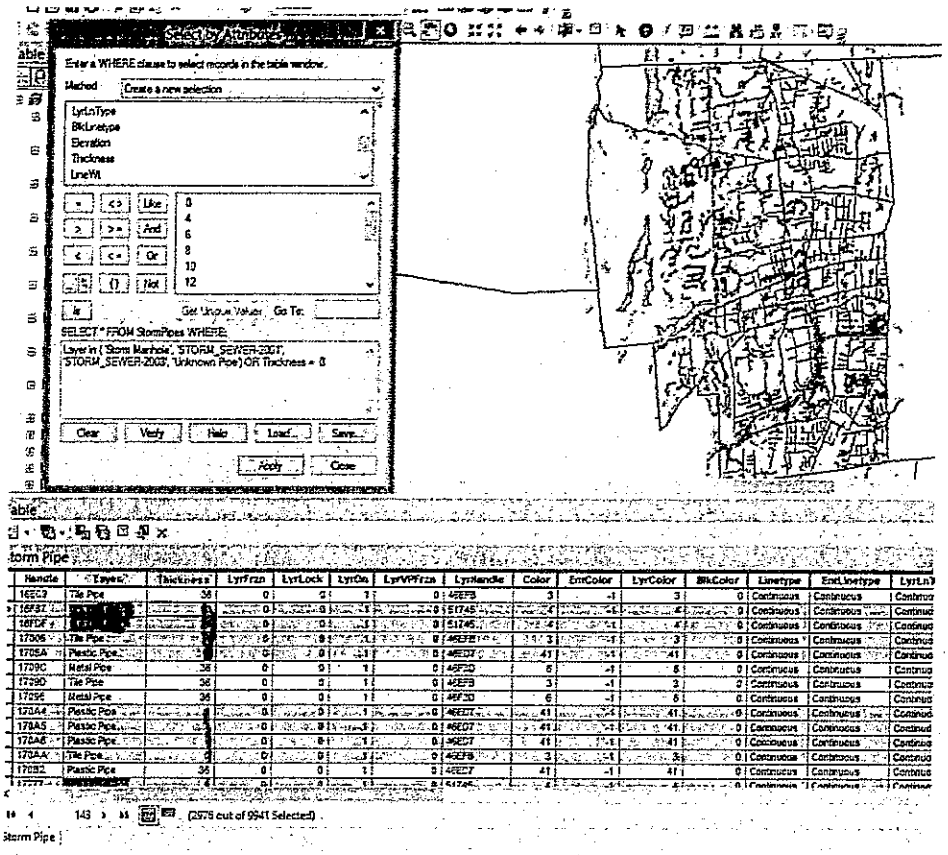
AppGeo tracks areas that require more information or field verification by digitizing "verification areas" polygons and attributing with questions. These are then used for planning for and performing further field work. It is assumed that there will be a need for additional field work verification for distinct areas of town where questions come up. This task does not serve as a field verification task for all catch basins and manholes but is based on an estimate of up to 5 verification days in the field.

2.1.4 Digitize Stormwater Source Material for new construction

The town's data had previously been updated in-house with pipe flow directions, material and size, from record plans as well as storm video assessment maps. Based on this understanding, only new source documents will be needed for digitizing and attributing new or reconstructed sections of the system from 2014 to the present, which includes 12 streets in Town.

RECONSTRUCTION STREET	FROM	TO
FARMINGTON AVENUE	ARDMORE	QUAKER LANE
LILLEY, WALKLEY & FREDERICK	ALL	
RIGGS AVENUE	BOULEVARD	SEDGWICK
ROCKLEDGE DRIVE	SOUTH MAIN	WEBSTER HILL
ERWIN STREET	ALL	
FARMINGTON AVENUE	QUAKER LANE	WHITING
FARNHAM & DORSET	ALL	
KING PHILIP	ALBANY	MOHAWK
RUMFORD STREET	ALL	
MILTON STREET	ALL	
LEMAY STREET	ALL	
KING PHILIP DRIVE	FULLER DRIVE	MOHAWK DRIVE

Upon initial analysis (see image below) we have found that approximately 30% of the existing pipe data is missing at least one of the pipe size and/or material attributes. While AppGeo is capable of reviewing all source documentation to verify these attributes, this task's scope includes a review of only the new 2014 to present sources that the town will provide. AppGeo is providing the complete verification task as an optional item in the scope should the town wish to have AppGeo complete that town-wide verification.



The Town will be responsible for providing source images depicting stormwater infrastructure location, as well as pipe flow direction, size, material, and type, if available. Based on our understanding, this will come in the PDF format of video assessment maps and road construction surveys.

Each of the source maps will be georeferenced to the available base mapping features. Georeferencing is the process by which features in the scanned image are selected and related to features on the base map (the Town's/MDC's digital orthophotos and planimetric data) to physically locate, rotate and scale the scanned image to its proper location. Once this is accomplished it is easy to see which utility features are located where, and then to transfer the information from the source documents into the GIS database.

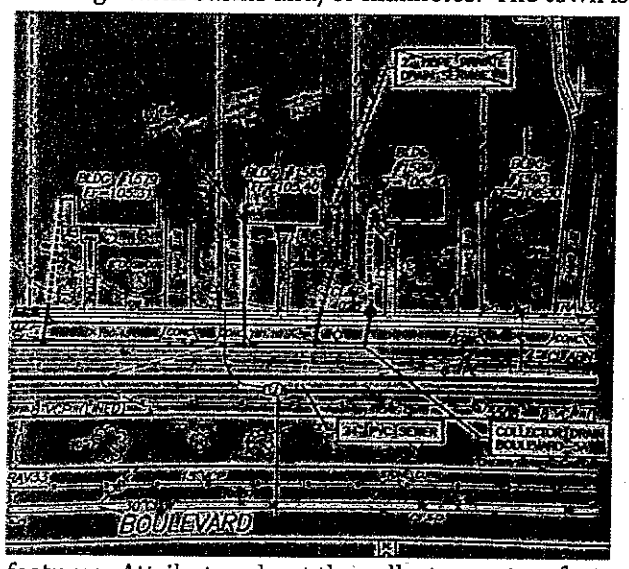
This step also consists of using the scanned record plans to attribute the mapped storm features with more detailed information about the feature. Stormwater lines will be segmented to match changes in pipe size or type, and each pipe segment will be coded by the pipe size and type, while connectivity will be maintained with each data layer. Both the pipe segments and structure features will be coded with the following information as appropriate and if available:

- Pipe Segments: Pipe Diameter, Type, Invert Elevation, material type, install date, and Plan ID, etc.
- Structures: type, size, material, install date, and Plan ID, etc.

Please note that this task is dependent upon the availability of this attribute information for each segment of pipe in the system from the drawings provided to AppGeo.

2.1.5 Collector Systems

The MDC has been working to disconnect all private sump pumps from their sanitary sewer systems and to instead connect them into the Town's drainage system. The private plumbing is being connected into Town collector drain pipes that connect into the town's drainage catch basins and/or manholes. The town is responsible for the sections of the collector system in their ROW and the clean outs at the end of each collector drain span.



The town and/or MDC will provide to AppGeo both the original Private Inflow Removal Plans in AutoCAD format, as well as the final marked-up as-built sketches as scanned image files. AppGeo will uses these sources to digitize the town's collector systems into the GIS stormwater system network database. The as-built source documents will be hyperlinked to the collector drain features. Attributes about the collector system features such as size and material, if available on the source documents, will be populated in the GIS data.

AppGeo anticipates two collector systems to be included in this aspect of the project. One, the "Four Mile Area" which has been completed by the MDC, involves 55 private connections. The second, the "Greenhurst Area", has not yet been completed by the MDC and it is anticipated to involve up to 70 house connections. All work performed by AppGeo on this task is contingent upon having the proper source documents from the Town/MDC in hand.

2.1.6 Catchment Areas delineation

AppGeo understands that the watershed areas have been digitized in AutoCAD by the Engineering department. The town will provide a copy of this data to AppGeo for review and possibly conversion into the Stormwater System Geodatabase. If the data is to be converted, it is assumed that the AutoCAD data meets minimum data integrity requirements in order to support conversion into GIS format. The AutoCAD data should include the following:

- All polylines that are intended to delineate a closed area, should be completely closed in order to convert to a GIS Polygon
- All features should exist within the proper AutoCAD Layer name group if the layers are intended to provide attributes, such as a catchment area name, unless Blocks are used and contain these attributes.

If upon initial review, AppGeo finds that the existing boundaries do not actually match the catchment areas as determined based on the stormwater system structures locations, hydrologic flow and topographic ridge lines, then AppGeo will delineate the catchment areas as a new geodatabase layer. We will do this by editing a copy of either the Town's or the State's GIS watershed boundary dataset to adjust the boundaries accordingly for catchment areas.

2.1.7 Directly Connected Impervious Surface Areas

"Directly Connected Impervious Area (DCIA)" means that impervious area from which stormwater runoff discharges directly to waters of the state or directly to a storm sewer system that discharges to waters of the state. Impervious areas that discharge through a system designed to retain the appropriate portion of the Water Quality Volume (pursuant to Section 6(a)(5)(b)(i) or (ii) of this general permit) are not considered DCIA. (From Section 2 (Page 4) – Definitions, of MS4 Permit document).

This task will be accomplished in the following steps:

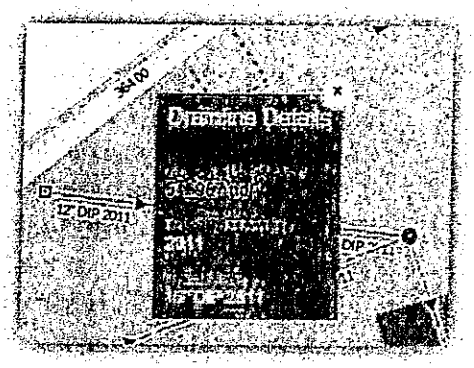
AppGeo will collect the aforementioned high resolution and accurate MDC 2015 planimetric and elevation data. The planimetric data will be a valuable source for identifying areas of impervious coverage (IC) in Town. We will extract the features that would be considered impervious to create a generalized impervious surface area GIS layer. With the high quality impervious surface and elevation data in hand, the catchment areas defined, as well as the final stormwater system network GIS data, the DCIA analysis can commence.

Each outfall's catchment area will then be individually reviewed for drainage connectivity to determine the extent of the directly connected impervious areas. Since deep stormwater system design knowledge and judgement calls will be required in order to accurately determine this, AppGeo plans to employ the services of a civil engineering subcontractor. AppGeo will work closely with the subcontractor to provide the require GIS Data inputs and maps to support the analysis, and to assist them by automating the IC % calculations in the GIS based on their determinations.

The final result would be a new field in the Outfall attribute table with the DCIA % value for each outfall. AppGeo will document all decisions, assumptions, data sources and methods for this aspect of the project. The documentation and updated outfall layer and spreadsheet export would be delivered to the town.

2.1.8 Town Review and MapGeo Update

Once the data development is completed, AppGeo will add the new Stormwater System data as an Overlay Theme to the Town's MapGeo website, behind the Town's login. It will include all of the Town's stormwater infrastructure features contained in the geodatabase, symbolized and labeled according to AppGeo's best practices. AppGeo will also configure the map so that when clicked, the storm features attributes will display in a small window as demonstrated in the image on the right.



The Town will then be able to review the data developed, via the MapGeo interface, and provide any feedback for these features to AppGeo. The town may opt to use the MapGeo markup tools as well as the printable map functionality for capturing their review feedback. AppGeo will update the data for which additional source material is provided. The Town may prefer to do their review in ArcGIS Desktop or AutoCAD. For either of these cases we can provide the Geodatabase and/or AutoCAD .dwg of the stormwater system.

Once the final review items are updated, AppGeo will update the overlay on the MapGeo site as well as the hosted ArcGIS Server map service used by the town's business systems (CarteGraph and KorrWeb).

2.1.9 Assumptions

- Flow direction is understood to have been input into the existing data already by the Town. Therefore AppGeo is not proactively reviewing or seeking out Flow direction information for any pipe features other than the new construction features digitized from the provided record plans, which should include flow direction.
- This estimate assumes that the amount of catch basins (4236 not field verified, 3382 field verified), manholes (2301) and outfalls (477) that actually exist in the ground is very close to the amount that we see in the existing GIS data. If during the course of this project we find there to be more, a reassessment and possible renegotiation of the scope and budget will be required.
- Town will provide police detail on major busy roads where necessary for the AppGeo staff safety
- AppGeo will be sending two Analysts when performing the above described outfall field inventory and system verification field work tasks. The Town may choose to send out a staff member with the AppGeo Analysts and AppGeo would recommend and prefer this if possible. This would be for ease of access (having an official town person makes it easier to deal with the public inquiries), safety

in numbers, and training of the town staff on methods. If a town employee can be made available for field work, then AppGeo may send only one Analyst. If no town employee is accompanying, then AppGeo will send two Analysts so that there is always at least two people doing the field work.

- All tasks that involve collecting data from a 3rd party source, for example, task 2.1.3 existing system data cleanup, task 2.1.5 collector systems and task 2.1.6 DCIA, are contingent upon receiving the 3rd party data needed in a timely manner. Because of this contingency, the overall project completion schedule is subject to change.
- All Town review feedback and additional source materials will be provided in one single iteration to AppGeo. One single round of feedback and edits made from that feedback will be completed under this scope. Additional data development or edits requested after this single iteration will need to be completed under a separate scope or change order.
- No paper maps are being proposed as a deliverable of this scope. All Town data review will be done via the MapGeo interface, or at the town's desktops via ArcGIS or AutoCAD, and the final data will be delivered to the town as a Geodatabase and AutoCAD file. If the Town requests hard copy maps produced, it will need to be completed under a separate scope or change order.

2.1.10 Final Deliverables

- Stormwater System Geodatabase
- Export of the Outfalls attribute table to Excel format
- AutoCAD DWG file converted from the Stormwater Geodatabase
- Updated Engineering Map PDFs
- Updated Ortho_Utility ArcGIS Map Service for CarteGraph and Korrweb applications
- Updated MapGeo overlay theme

2.1.11 Optional Tasks

2.1.11.1 Complete Catch Basin and Manhole field inventory

By following the approach laid out in the above scope, the resulting catch basins data will have several attributes populated for only those locations that were previously field inspected by the DPW staff. These include catch basin damage, debris, maintenance needed, material type, road type, sediment %, CB type and CB use Type. These are not mapping requirements of the MS4 permit, however they are useful for Town infrastructure management and maintenance.

If the Town wishes to have these attributes populated for all of the remaining catch basins, then they will need to be visited in the field. AppGeo would do this inventory to gather these attributes and verify the location with GPS, as well as verify Flow direction of the connected pipes while at each location. If AppGeo is to field verify all of the catch basins, then the manholes also should be verified while at each street. Manhole location, cover size,

type and any evident condition or maintenance issues would be noted. There would be approximately 2301 manholes and 4236 catch basins (6,537 total points) to be visited which would require an estimated 65 field days (assumes 1 analyst). This task includes the necessary pre-planning and prep work prior to each field day, as well as post processing and QC.

2.1.11.1.1 Assumptions for Complete Catch Basin and Manhole field inventory

- The estimate for this task assumes that the amount of catch basins (4236 not field verified) and manholes (2301) that actually exist in the ground is very close to the amount that we see in the existing GIS data. If during the course of the field inventory we find there to be more, a reassessment and possible renegotiation of the scope and budget will be required.
- Town will provide police detail on major busy roads where necessary for the AppGeo staff safety.
- AppGeo will be sending two Analysts when performing the above described catch basin and manhole field work tasks. The Town may choose to send out a staff member with the AppGeo Analysts and AppGeo would recommend and prefer this if possible. This would be for ease of access (having an official town person makes it easier to deal with the public inquiries), safety in numbers, and training of the town staff on methods. If a town employee can be made available for field work, then AppGeo may send only one Analyst. If no town employee is accompanying, then AppGeo will send two Analysts so that there is always at least two people doing the field work.

2.1.11.2 Verify/Populate Pipe Material& Size Town-wide from source documents

Upon initial analysis of the existing pipe data, we have found that approximately 30% of the existing pipe data is missing at least one of the pipe size and/or material attributes. The Town believes that all record plans and video assessment maps had previously been reviewed, and the pipe data had been updated for these attributes. This task serves as an optional item should the town wish to have AppGeo review these documents and verify that the missing attributes are all populated as completely as possible from the information provided on those source maps.

2.1.11.3 Improve Locations of Previously Field Verified Catch Basin

As previously mentioned, approximately 3382 catch basins had been previously field verified by the DPW to collect condition information. This inventory was performed using the GPS device on an iPad. These catch basin locations have been spot checked by AppGeo and determined that the locations are not as accurate as the overall project database would require. Therefore this optional task involves including the adjustment of these 3382 points to align with the visible evidence of the catch basins on the 2015 MDC high resolution and spatially accurate orthophoto imagery.

3 Schedule

This project will commence upon receipt of this signed Scope, and once all source information is in hand. AppGeo will then have 12 months to complete the initial data development (non-optional items). The Town will have 60 days to review any draft data provided, as well as the draft theme on MapGeo, and to provide additional source documentation with requested edits due to errors or omission by AppGeo on in-scope work. Once that documentation is received, AppGeo will complete all final edits, and provide the final deliverables within 60 days. Please note the assumption listed above regarding the schedule being contingent upon receipt of town and 3rd party data sources.

4 Fees

AppGeo proposes to perform the above-described scope of services for **Tasks 2.1.1 through 2.1.10** for an estimated fee of $195,600 per the below table:

Item #	Description	Fee
2.1.1	Stormwater Geodatabase Migration	$ 5,100
2.1.2	Outfall Database Development	$ 74,700
2.1.3	Existing Stormwater System Data Clean-up	$ 52,700
2.1.4	Digitize Stormwater Source Material for new construction	$ 4,900
2.1.5	Collector Systems	$ 3,500
2.1.6	Catchment Areas delineation	$ 1,200
2.1.7	Directly Connected Impervious Surface Areas	$ 15,700
2.1.8	Town Review and MapGeo Update	$ 12,300
	Project Management	$ 25,500

The **Optional Tasks from 2.1.11** are estimated per the below table:

Item #	Description	Fee
2.1.11.1	Complete Catch Basin and Manhole field verification	$ 125,200
2.1.11.2	Verify/Populate Pipe Material & Size Town-wide	$ 12,400
2.1.11.3	Improve Locations of Previously Field Verified Catch Basin	$ 4,800

Monthly invoices will be submitted to the Town based on time and material expenses for that month. These services will be provided on a time and material basis according to the current GSA Schedule Contract # GS-35F-0001P effective October 1, 2013 – September 29, 2018, as is currently done for ongoing GIS Program Maintenance and Support provided to the Town. Professional fees for each staff level are quoted as hourly rates per the GSA Pricing Schedule below.

Year 3, October 1, 2015 - September 29, 2016

GSA Labor Category Title GSA	Price
Program Director	$ 182.82
Program Manager	$ 166.20
Senior Information Technology Consultant	$ 182.82

Project Manager	$ 149.58
Information Technology Consultant	$ 149.58
Program Analyst	$ 127.42
Senior Computer Specialist	$ 110.80
Computer Specialist	$ 83.10

Year 4, October 1, 2016 - September 29, 2017

GSA Labor Category Title GSA	Price
Program Director	$ 186.11
Program Manager	$ 169.19
Senior Information Technology Consultant	$ 186.11
Project Manager	$ 152.27
Information Technology Consultant	$ 152.27
Program Analyst	$ 129.71
Senior Computer Specialist	$ 112.79
Computer Specialist	$ 84.60

Monthly invoices will be submitted based on actual hours incurred and all reimbursable expenses. The invoices will identify the AppGeo staff involved and the number of hours spent by task. Reimbursable travel includes expenses associated with transportation, living expenses, and long-distance communications associated with such travel. Mileage will be billed based on the current federal mileage reimbursement rate as of the day that the mileage was driven. Other reimbursable expenses include any out-of-pocket expenses generated as a result of the project, including shipping, plotting, or other measurable direct costs. These expenses shall be billed at actual cost plus a 15% administration and processing fee. Payment will be due within 30 days of receipt of an invoice.

5 Authorization

The Town of West Hartford, CT hereby authorizes AppGeo to proceed with the above described Scope of Services. The Town and AppGeo both agree that all GIS data and map files collected, edited or created during the course of, and in support of, this project are owned by the Town of West Hartford. AppGeo is granted full access to the data in order to perform project work and provide ongoing services.

Engineering Department
Town of West Hartford, CT
50 South Main Street
West Hartford, CT 06107

Applied Geographics, Inc.
24 School Street, Suite 500
Boston, MA 02108

By: _____

Dated: _____

By: _____

Dated: _____

APPENDIX D

WEEKLY SEDIMENT AND EROSION CONTROL OBSERVATION REPORTS

LANGAN

SOIL EROSION & SEDIMENT CONTROL REPORT

Project No.	140079201	Client:	Date:	August 8, 2016
Project	Delamar Hotel	The Delamar	Weather:	80°F Sunny
Location	West Hartford, CT		Time:	11:30 PM

Contractor & Equipment:	Present At Site:
JLG 1055 Telehandler Caterpillar 305E Compact Excavator JLG 800S Telescopic Boom Lift (2) Caterpillar Vibratory Roller John Deere 270C LC Excavator John Deere 310SG Backhoe Loader	David Gagnon – Langan Engineering Maurice Gawendo – Associated Construction Steel workers

Observations, Discussions, Test Results, Etc.

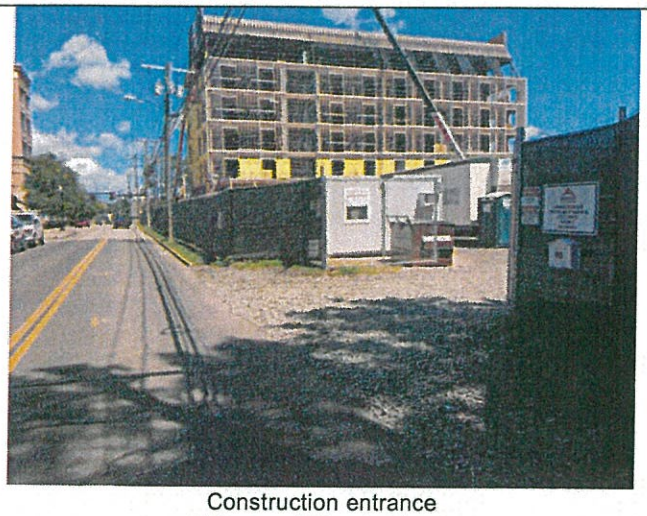
As required by the Town of West Hartford Inland Wetlands and Watercourses Agency approval dated June 12, 2014, Langan conducted a **Weekly** Erosion Control Inspection of the above referenced site.

The perimeter erosion control measures were installed per the plans and provided effective control of runoff. At the time of inspection, no earthwork operations were being performed.

Based on our observations while on-site, the installed Erosion & Sediment Control Measures are working effectively no further maintenance action need to be taken.

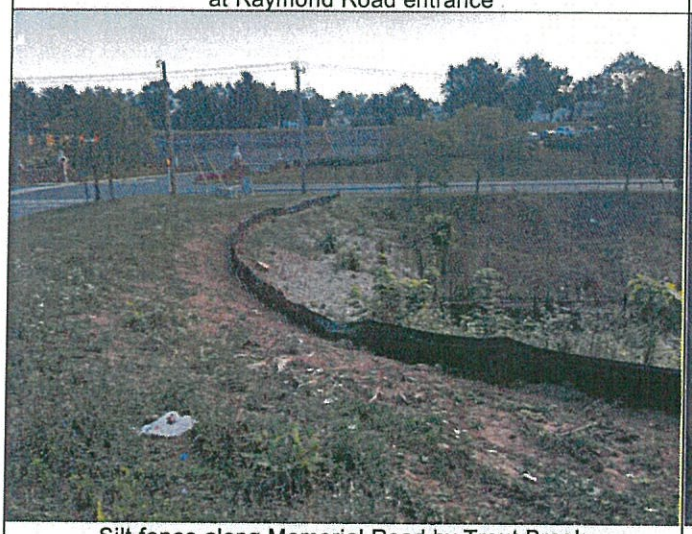
cc:	By: Langan CT, Inc
Todd Dumais- Town of West Hartford John Parker- The Delamar Charles Bonsner- Associated Construction Nate Kirschner – Langan Engineering	**David T Gagnon, P.E.**

Delamar Hotel West Hartford, CT Project No.: 140079201	**SESC REPORT**	SHEET 2 of 2 August 8, 2016

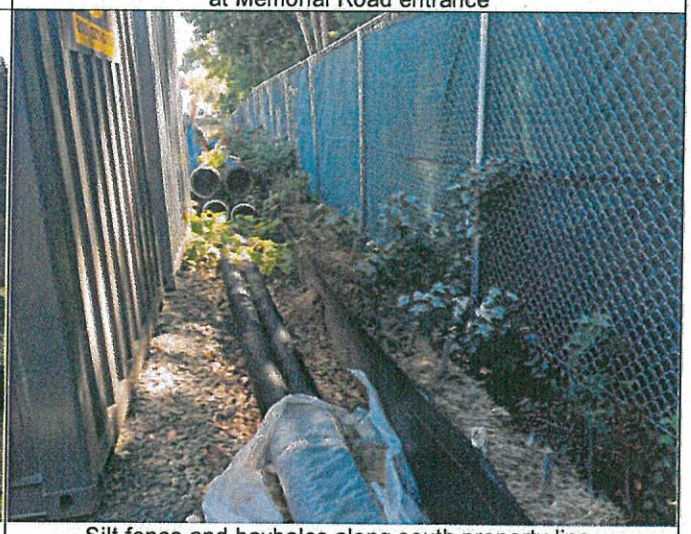


Construction entrance
at Raymond Road entrance

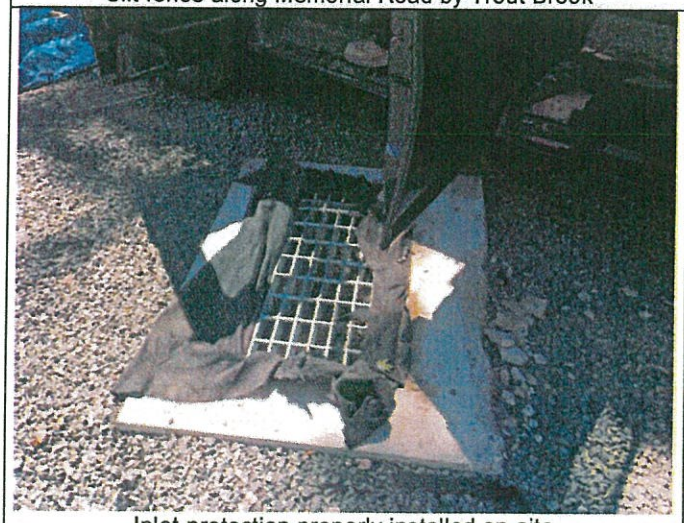
Construction entrance
at Memorial Road entrance



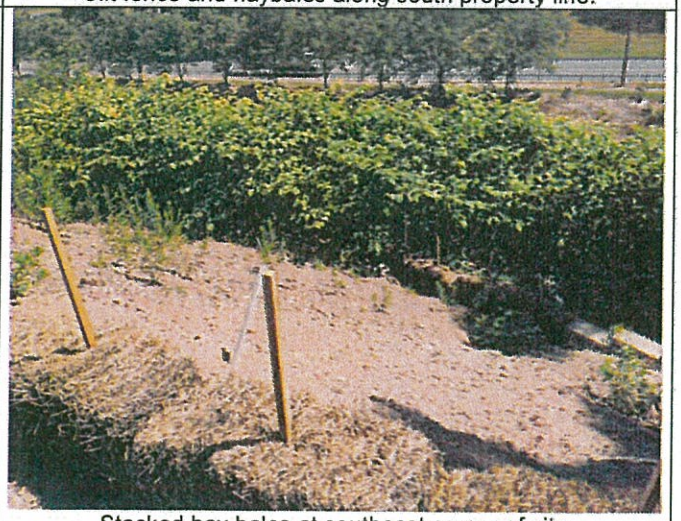
Silt fence along Memorial Road by Trout Brook



Silt fence and haybales along south property line.



Inlet protection properly installed on-site



Stacked hay bales at southeast corner of site

SEDIMENT AND EROSION CONTROL OBSERVATION REPORT

PROJECT: METRO REALTY
STEELE ROAD APARTMENTS
West Hartford, Connecticut
MMI #3571-10-7

INSPECTION REPORT NO. 27

DATE: August 10, 2016

INSPECTOR: Thomas J. Daly, P.E.
Senior Project Manager, Civil Engineering

WEATHER: 75°F

ON SITE FROM: 7:30 a.m. – 8:15 a.m.

SOIL CONDITIONS: Dry

RECENT PRECIPITATION: July 14, 2016 = 0.54"
July 18, 2016 = 0.50"
July 29, 2016 = 0.20"
July 30, 2016 = 0.12"
July 31, 2016 = 0.47"
August 1, 2016 = 0.15"
August 2, 2016 = 0.32"

CONSTRUCTION STATUS:

- Framing of buildings and the clubhouse is complete.
- Utility construction is generally complete.
- Binder pavement is down on approximately 40% of the site.
- Landscaping around the clubhouse is being installed.

CONDITION OF EROSION CONTROLS:

- Perimeter control and inlet protection are in place and generally in good condition.
- Construction entrance has been removed because the permanent entrance is open.

REPAIRS OR ADDITIONS TO EROSION CONTROLS REQUIRED:

- Dust is a concern. Regular sweeping on the site and along Steele Road is required. The contractor should consider installing a stone construction tracking pad south of Building 3 where the pavement ends.

cc: Eddie Majewski – Metro Realty
Wendy Paciotti – Metro Realty
Brian Pudlik – Town of West Hartford
Todd Dumais – Town of West Hartford
Christine Campasano – Town of West Hartford

3571-10-7-au1216-rpt

APPENDIX E

STORMWATER QUALITY UNIT ANNUAL MAINTENANCE PLAN

312 N. Main Street
West Hartford, CT

Maintenance Plan

(Established September 2016)

STORM SYSTEM MAINTENANCE PROGRAM

OVERALL SITE RUNOFF

Silt fence or hay bale barriers shall be installed around the Site, perpendicular to the direction of flow and slope (west, north and east), and maintained clean throughout the construction phase of the project.

An "Overall Site Runoff Maintenance Log" (see Appendix) shall be implemented monthly and after every significant rainfall. Any silt, sand, debris, etc., shall be removed from the barriers and stockpiled in a properly protected area or removed from the site to an acceptable dumping site as approved by the local authorities.

STORMWATER TREATMENT SYSTEM

The Stormwater Treatment system shall be the combination of catch basin insert filters in parking lot catch basins and the bottom of the underground Recharge Structure, the "Arrow Concrete Retain It" Chamber System.

STORM SYSTEM

Maintenance Program During Construction

All catch basins shall be cleaned and cleared of debris, sand or silt on a monthly basis. Debris shall be removed from the site along with other construction debris. Silt and sand may be spread in flat or level areas later to be top-soiled or graded. The Recharge Structure shall be protected after installation, to contain any silt or sediment within the pipes, before they enter the structure.

Silt fence or hay bale protection shall be repaired as needed and noted above. Accumulated silt shall be removed or spread per the Erosion Control Plan on the construction documents (see "Storm System Maintenance Log" in the Appendix).

Post Construction Stormwater Management

Maintenance of Catch Basins with Insert Filters

Catch Basin Insert Filters shall be serviced on a recurring basis. Ultimately, the frequency depends on the amount of runoff, pollutant loading and interference from debris (leaves, vegetation, cans, paper, etc.). However, it is recommended that each installation be serviced at least once a year, with a change of filter medium at least once a year.

Service Procedures:

1. The catch basin grate shall be removed and set to one side. The catch basin shall be visually inspected for defects and possible illegal dumping. If illegal dumping has occurred, the proper authorities and property owner representative shall be notified as soon as practicable.

2. Using an industrial vacuum, the collected material shall be removed from the liner.

3. When all the collected materials have been removed, the filter medium pouches shall be removed by unsnapping the tether from the D-string and set to one side. The filter liner, gaskets, stainless steel frame and mounting brackets, etc., shall be inspected for continued serviceability. Minor damage or defects found shall be corrected on-the-spot and a notation made on the Maintenance record. Major defects shall be noted and replacements installed.

4. The filter medium pouches shall be inspected for defects and continued serviceability and replaced as necessary.

5. The grate shall be replaced.

Replacement and disposal of exposed filter medium and collected debris

The filter medium pouch shall be changed at least once a year. During the appropriate service if so determined by the inspector, the filter medium pouches will be replaced with new pouches. Once the exposed pouches have been removed, they must be disposed of in accordance with local, state and federal agency requirements.

RECHARGE/DETENTION SYSTEM

The detention system may be installed, only during a dry spell in the weather. The contractor must schedule the work as to the predicted rainfall to avoid working during a rainstorm.

The storm system shall follow from the Recharge Structure to the catch basin on the east side of the parking lot. The filter basket system shall be installed in the catch basin right away to protect the Recharge Structure. The pipe from the Recharge Structure to the yard drain east of the back of the building shall be installed with hay bales or silt fence protection surrounding it. The pipe from the Recharge Structure to the front of the entrance driveway shall be installed last, after basic grading has been completed. The filter basket system shall be installed in the catch basin right away to protect the Recharge Structure.

After the Recharge Structure is installed, inspection and maintenance shall be as follows (see Appendix for maintenance log).

Inspection/Maintenance Frequency

The Recharge/Detention Systems must be cleaned and maintained. Underground systems may be maintained more cost effectively if these simple guidelines are followed. Inspection should be performed at a minimum of once per year. Cleaning should be done at the discretion of individuals responsible to maintain proper storage and flow. While maintenance can generally be performed year round, it should be scheduled during a relatively dry season.

Pre-inspection

A post-installation inspection should be performed to allow the Owner to measure the invert prior to accumulation of sediment. This survey will allow the monitoring of sediment build-up without requiring access to the detention system.

The following is the recommended procedure for pre-inspections:

1. Locate the riser section or cleanouts of the detention system. The riser will typically be 24 inches in diameter or larger and the cleanouts are usually 4, 6 or 8 inches in diameter.

2. Remove the lid of the riser or cleanouts.

3. Insert a measuring device into the opening and make note to a point of reference on the stick or string. (This is done so that sediment build-up can be determined in the future without having to enter the system.)

Inspection/Maintenance

The detention systems should be inspected at a minimum of one time a year or after major rain events if necessary.

The following is the recommended procedure to inspect system in service:

1. Locate the riser section of the retention/detention system. The riser will typically be 24 inches in diameter or larger.

2. Remove the lid from the riser.

3. Measure the sediment build up at each riser and cleanout location. Only certified confined space entry personnel having appropriate equipment should be permitted to enter the Recharge/Detention System.

4. Inspect each manifold, all laterals, and outlet pipes for sediment build up, obstructions, or other problems. Obstructions should be removed at this time.

5. If measured sediment build up is between 5% - 20% of the tank, cleaning should be considered; if sediment build up exceeds 20%, cleaning should be performed at the earliest opportunity. A thorough cleaning of the system shall be performed by the manufactures equipment and manual methods.

MAINTENANCE OF CATCH BASINS WITH INSERT FILTERS

INSPECTION & MAINTENANCE LOG

Catch Basin No.			Location:		
Date	Maintenance Personnel	Inspect CB[1] Clean/ Ok	Inspect Medium Pouch[2] Replace/Ok	Inspect Filter Liner Basket Stainless Stl. Frame, etc., Replace/Ok	Comments

1 The Basins should be cleaned out of trapped debris, etc.

2 Replace Medium Pouches if Required.

STORM SYSTEM MAINTENANCE LOG

Date	Maintenance Personnel	Structure No.	Conditions Comment	Recommended Work	Work Completed/Date

DETENTION SYSTEM MAINTENANCE LOG

Date	Maintenance Personnel	Riser No.	Sediment Build-up Depth	Manifold No./ Condition	Barrel No./ Condition	Recommended Work	Work Completed/Date

LANDSCAPE MAINTENANCE

Landscape management shall be held paramount to ensure that the integrity of this first class building and grounds is maintained. The detailed Planting Plan for this site shall formulate the basis for ground cover, ornamental features and screening (Drawing 5-6). Maintenance of the grounds shall be ensured by the owner through periodic inspections.

Repairs to landscape features, such as sign, fence, woody stock and ground cover shall be made as necessary to maintain the effect of the above referenced plan. Seasonal considerations shall be made to ensure the success of such repairs based upon schedule and weather conditions.

One specific screening type has been incorporated into this site. The 6' fence, transitioning to a 4' fence in front of the building line, serves as a Type C screen on the easterly and southerly border of the property. The desired effect is complete visual screening of parking and loading areas. The screening strip shall be at least five feet wide for said fence or wall and at least 10-feet for a hedge.

All trees, shrubs, perennials, ornamental grasses and lawns shall be maintained by the owner to provide for successful growth in accordance with the design intent of the approved plans. Yearly inspections of plant material survival and compliance with design intent will be conducted in mid-May of each year with replacements or adjustments made by the end of June. Beds shall remain edged and mulched with natural materials to conserve water and provide weed control. Mulch shall be kept clear from the trunks of trees, bases of shrubs, and crowns of perennials. Lawns shall be regularly mown and provided with adequate water and fertilizer to remain well established areas of grass. An integrated pest management program for lawn and plantings shall be provided by a licensed CT IPM contractor to ensure proper use of fertilizers and chemicals in a restrained manner and only as needed. Inspections for pest problems shall take place annually or as needed. Proper watering to ensure thriving lawns and plantings shall be provided. Pruning of trees and shrubs, for both shape and health, by a CT licensed arborist shall occur at least annually. Perennials and ornamental grasses shall be cut back, divided or thinned as needed.

See Planting Plan on Following Page.

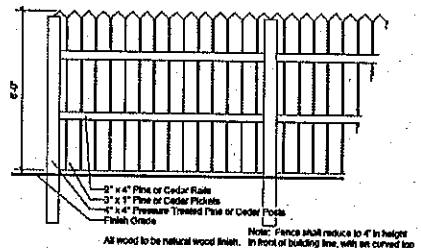
PLANT LIST				
ID	QTY	Botanical Name	Common Name	Scheduled Size
AABB_1	15	Aralia x arendsii 'Dressingham Beauty'	Dressingham Beauty Aralia	1 gal
AJPB_1	24	Aralia japonica 'Peach Blossom'	Peach Blossom False Spirea	1 gal
ASFF_2.5	1	Acer saccharum 'Fall Fiesta'	Fall Fiesta Sugar Maple	2.5-3" cal., B&B
BMGV_18	14	Buxus microphylla 'Green Velvet'	Green Velvet Boxwood	18-24" ht. B&B
CBF_2	6	Carpinus betulus 'Fastigiata'	Pyramidal European Hornbeam	2-2.5" cal.
CP_5	69	Ceratostigma plumbaginoides	Dwarf Plumbago	5 pt.
CR_1	11	Cimicifuga racemosa	Fairy Candles	1 gal
HAI_3	5	Hydrangea arborescens 'Incredicoil'	Incredicoil Hydrangea	#3 cont.
HMG_1	16	Helenium 'Mardi Gras'	Mardi Gras Helen's Flower	1 gal
HPB	4	Hydrangea paniculata 'Bobo'	Bobo Hydrangea	3 gal.
IVLH_3	5	Ilex verticillata 'Little Henry'	Little Henry Sweetspire	#3 cont.
LMV_1	44	Liriope muscari 'Variegata'	Variegated Lilyturf	1 gal
NFWL_2	19	Nepeta x faassenii 'Walker's Low'	Walker's Low Catmint	1 gal
RDKO_3	1	Rosa x 'Double Knock Out'	Double Knock Out Rose	3 gal.
RFEBG_1	22	Rudbeckia fulgida 'Early Bird Gold'	Early Bird Gold Black-Eyed Susan	1 gal
RY_5	10	Rhododendron yakusianum 'Prince'	Prince Dwarf Rhododendron	#5 cont.
SV_4	2	Syringa vulgaris	Common Lilac	4-5' ht. B&B
TOS_7	31	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	7-8' ht. B&B

Installation Notes:

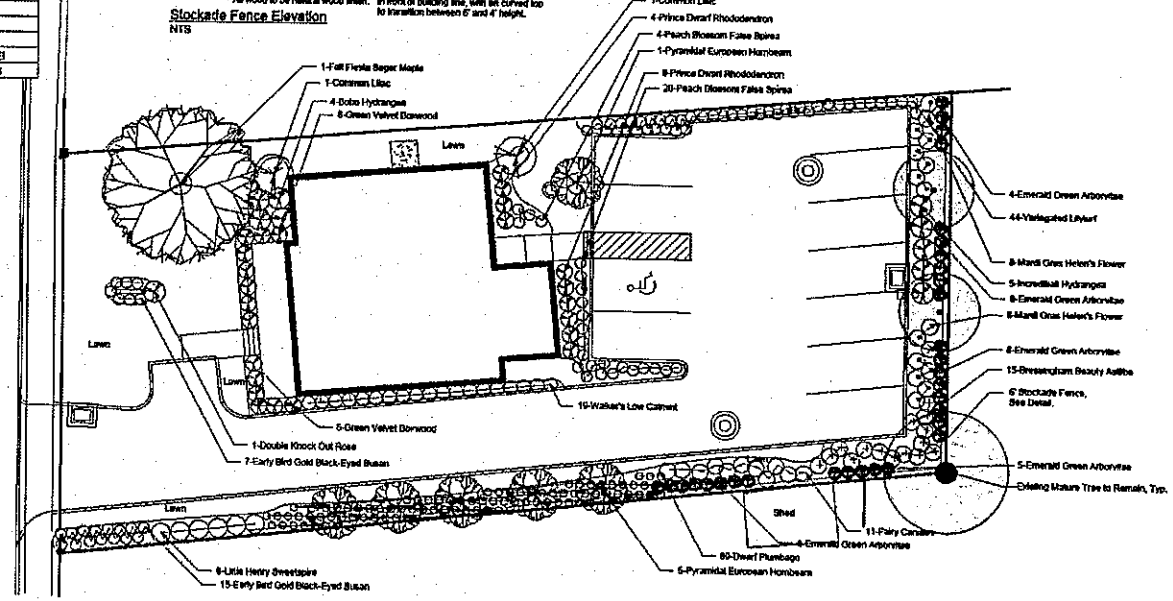
1. Landscape Architect and Town Staff shall approve any substitutions in plant material.
2. Plant material shall conform to the current American Nursery and Landscape Association Standards for Nursery Stock.
3. Planting shall conform to the current ANSI A300 Standards.
4. Mulch beds shall be not to exceed all plants. Double shredded natural pine bark mulch shall be used.

Maintenance Notes:

All Trees, shrubs, perennials, ornamental grasses and lawns shall be maintained by the owner to provide for successful growth in accordance with the design intent of the approved plans. Yearly inspections of plant material survival and compliance with design intent will be conducted in mid-May of each year with replacements or adjustments made by the end of June. Beds shall remain edged and mulched with natural materials to conserve water and provide weed control. Mulch shall be kept clear from the trunks of trees, leaves of shrubs, and crowns of perennials. Lawns shall be regularly mowed and provided with adequate water and fertilizer to remain well established areas of grass. Inspections for pest problems shall take place promptly or as needed. An integrated pest management program for lawn and plantings shall be provided by a licensed CT DPH applicator to ensure proper use of fertilizers and chemicals in a measured manner and only as needed. Proper watering to ensure thriving lawns and plantings shall be provided. Pruning of trees and shrubs, for both shape and health, by a licensed CT arborist, shall occur at least annually. Perennials and ornamental grasses shall be cut back, divided and/or thinned as needed.



Stockade Fence Elevation
NTS



N

Rev. 7.21.16, staff comments

0 10 20 30 40 50 FT

Scale: 1"=10'-0"

DIAN BARNES LANDSCAPE DESIGN
Dian Barnes Landscape Design, LLC
Farmington, CT

Title: Planting Plan		
Drawing Number: 5 of 6	Drawn By: DLB	Date: 5.13.16
CAD File Name: 312 North Main Street, West Hartford, CT		

GENERAL SITE SAFTY AND MAINTENANCE

The site shall be inspected for disrepair, damaged items, faulty facilities, etc., due to inclement weather or just time laps and use, to promote safety and provide maintenance. Items such as deteriorated pavement, curbing, walks, steps, ramps, etc., shall be inspected as needed and at least annually to alert the owner of required maintenance and shall be repaired as soon as possible for the safety of all persons using the site.

SNOW AND ICE REMOVAL AND MAINTENANCE

In Town Property

The snow or Ice removal in town property will be completed as soon as possible after the end of the storm, but no earlier than the allowable morning hour ordinance of snow removal operation directed by the Town of West Hartford. The work shall also not be performed after the allowable evening hour.

The removal of snow on the east side of North Main Street shall be pushed or deposited onto the property of 312 North Main Street (eastward) due to the fact that there is a minimal snow shelf on the east side of the road and the Town plowing department will already have occupied that space. No snow will be allowed to be deposited onto the pavement of North Main Street. The owner or snow removal contractor will be notified of these requirements.

The snow and ice shall be removed in a manner to provide safety for any pedestrian using the sidewalk.

In 312 N Main Street Property

The snow and ice removal in the site property will be completed as soon as possible after the end of the storm, but no earlier than the allowable morning hour ordinance of snow removal operation directed by the Town of West Hartford. The work shall also not be performed after the allowable evening hour.

The sidewalks, steps and entrance ramps at the front and back of the building will be cleared of snow and ice in a manner to provide safety for any person entering or leaving the building. The snow and ice removed will be deposited to either side of the walk or steps, where applicable.

The snow and ice removed from the driveway shall be deposited along the south property line, in the 8' landscaped buffer and along the east property line in the 8' landscaped buffer. The snow and ice removal from the parking lot in the rear of the building, shall be deposited, along the east property line in the 8' landscaped buffer. Accumulated snow which is stored on site shall not encroach into parking spaces or vehicular travelways. If the storm is so great or there are sequential storms leaving too much snow which will not fit in these two buffers, the owner will have the snow removed from the site and deposited in an allowable area.

In all cases, all catch basins, yard drains and trench drains, shall be cleared of snow and ice to allow for runoff from melting snow or subsequent rainfall.

REFUSE, LITTER AND STORAGE MANAGEMENT

During Construction

Refuse management for the site during construction will be the responsibility of the contractor, to remove all material scraps, construction debris, excess materials, trash, etc., and place them in an acceptable container to be removed from the site as required. None of these items will be allowed to be displaced or blown into Town Property or abutters and if so will be collected and placed back in the acceptable container for removal from the site.

After Construction

When in operation, the office use proposed for this site will generate primarily office work refuse and will be managed by use of roll out curb receptacles which will be collected by the Town Refuse Collection System on the weekly schedule for this part of town.

Litter

At all times during and after construction, the site shall be inspected frequently for litter that may have originated from within or outside the property. Regardless of the origin, any litter discovered on the property will be disposed of promptly.

Storage

At no time will anything be stored on the porch or outside the building unless it is being stored in connection with its imminent use. Any deliveries for items to be used inside the building shall be taken indoors promptly.

LIGHTING MAINTENANCE

The exterior light fixtures shall be inspected on a regular basis for damage and LED bulb function. If any LED bulb has expired or is not working properly, it shall be repaired or replaced promptly. The light pole and fixture, the wall pack fixture and the signage fixtures shall be promptly repaired if damaged or not properly secured to avoid any harm to persons or damage to property. In the event the aim of any light fixture has been changed from its intended position, it will be corrected promptly.

BUILDING EXTERIOR MAINTENANCE

The building exterior shall be inspected frequently to ensure that the roofing, siding, trim, porch and shutters are in good repair. The James Hardie ColorPlus siding should not require painting for 15 years.

Notwithstanding, the siding shall be inspected from time to time for the need for painting and will be so painted if required. The siding will also be inspected for any loose boards and will be repaired or replaced in the event any loose boards are discovered. The roof shingles will come with a lifetime limited warranty. Notwithstanding, the roofing shall be inspected from time to time for the need for repairs or replacement. The roofing will also be inspected for any loose shingles and will be repaired or replaced in the event any loose shingles are discovered. The PVC trim will be inspected from time to time for any loose or damaged boards and will be repaired or replaced in the event any loose or damaged boards are found. The vinyl shutters will be inspected from time to time for any loose or damaged panels and will be repaired or replaced in the event any loose or damaged panels are found. The building will be hosed or powerwashed after construction and every two years thereafter in order to maintain a clean appearance.

SIGNAGE MAINTENANCE

Site signage structure and signage panel shall be cleaned annually. The signage structure and signage panel shall be inspected from time to time for the need for painting, repair and replacement and will be painted, repaired or replaced in the event it is required. The signage lighting will be monitored to ascertain it is in good working order and that is properly secured. The signage lighting will also be inspected to ensure that the fixture is properly aimed at the signage to avoid unwanted light trespass.

APPENDIX F

STREET SWEEPING REPORT
CATCH BASIN CLEAINING REPORT
CATCH BASIN REPLACEMENT REPORT
BUDGET ADDITIONS

Town of West Hartford- MS 4 Sweeping Map
January 1, 2016 through November 1, 2016

January 1, 2016 through November 1, 2016
Main Roads- 249.36 Miles

Street Name	Curb Miles	Curb Miles Mains Swept 3X
ARNOLDALE RD	1.01	3.02
ASYLUM AV	4.64	13.92
BOULEVARD	5.55	16.66
FARMINGTON AV	7.43	22.28
FERN ST	5.07	15.21
FLATBUSH AV	1.55	4.65
KANE ST	0.72	2.16
MOUNTAIN RD	8.55	25.64
NEW PARK AV	2.29	6.87
NORTH MAIN ST	6.24	18.72
NORTH QUAKER LA	1.94	5.81
OAKWOOD AV	2.98	8.95
PARK RD	3.12	9.37
PROSPECT AV	5.91	17.72
RIDGEWOOD RD	4.04	12.12
SEDGWICK RD	2.17	6.52
SOUTH MAIN ST	6.20	18.59
SOUTH QUAKER LA	4.48	13.44
SOUTH ST	1.09	3.28
TALCOTT RD	0.92	2.75
TROUT BROOK DR	7.23	21.69
		249.36

All mains were swept 3 times complete.

January 1, 2016 through November 1, 2016
Center Business Sweep 83.30 Miles

Street Name	Curb_Miles	Curb miles Swept 27 X	Notes
ELLSWORTH RD	0.18	4.82	LASALLE TO MAIN
FARMINGTON AV	1.14	30.79	TROUT BROOK TO BOULEVARD
ISHAM RD	0.20	5.28	ISHAM RD
LASALLE RD	0.40	10.83	FARMINGTON TO ELLSWORTH
MEMORIAL RD	0.52	14.13	MEMORIAL
NEW ST	0.14	3.67	NEW ST
NORTH MAIN ST	0.20	5.32	LOOMIS TO BOUVEVARD
PARK RD	1.86	50.28	PROSPECT TO JESSAMINE
RAYMOND RD	0.36	9.79	MEMORIAL TO FARMINGTON
SOUTH MAIN ST	1.17	31.69	LOOMIS TO BOUVEVARD
		166.59	

The center sweep was done on Mondays and Fridays mid May until late October
The center sweep was completed 27 times.

January 1, 2016 through November 1, 2016
Business Sweep One 41.61 miles

Street Name	Curb Miles	Curb miles Swept 7 X
CODY STREET	0.27	1.87
CUSTER STREET	0.53	3.71
HURLBUT STREET	0.45	3.14
NEW BRITAIN AVEI	2.22	15.52
SHERMAN STREET	0.18	1.29
SHIELD STREET	1.20	8.41
SOUTH STREET	1.09	7.66
		41.61

Business sweep one was done every third week. This was completed seven times.

January 1, 2016 through November 1, 2016

Business Sweep Two 26.14 Miles

Street Name	Curb Miles	Curb miles Swept 6 X
ALBANY AVENUE	0.49	2.93
BOULEVARD	0.29	1.75
FARMINGTON AVENUE	2.30	13.82
NORTH MAIN STREET	0.74	4.43
STARKEL ROAD	0.53	3.20
		26.14

Business sweep two was done every third week. This was completed six times.

January 1, 2016 through November 1, 2016
Business Sweep Three 42.68 Miles

Street Name	Curb Miles	Curb miles Swept 7 X
FLATBUSH AVENUE	0.54	3.75
I-84 RAMP CROSSING	0.02	0.12
I-84 RAMP CROSSING	0.00	0.02
KANE STREET	0.72	5.05
NEW PARK AVENUE	2.29	16.03
PROSPECT AVENUE	1.61	11.30
TALCOTT ROAD	0.92	6.41
		42.68

Business sweep three was done every third week. This was completed seven times.

January 1, 2016 through November 1, 2016
Residential Roads- 211.01 Miles

Street Name	Curb Miles Swept	Street Name	Curb Miles Swept	Street Name	Curb Miles Swept
ABBOTSFORD	1.06	CHELSEA	0.24	FLAGG	1.84
ACADIA	0.32	CHELTON	0.57	FLORENCE	0.93
AHERN	0.20	CHERRYFIELD	0.86	FOLEY	0.36
ALMEDA	0.13	CHESTNUT	0.17	FOOT PATH	0.23
ARAPAHOE	0.32	CLIFFORD	0.88	FOREST	0.27
ARDMORE	0.77	CLIFFORD	0.88	FOUR MILE	1.05
ARGYLE	0.67	CLIFFORD	0.88	FOUR MILE	1.05
ARLINGTON	0.58	CLIFTON	0.88	FOWLER	0.33
ARNOLDALE	1.01	COLONIAL	0.88	FOX MEADOW	0.64
ARUNDEL	0.90	COLTON	0.22	FOXCROFT	1.23
ASHFORD	0.38	CONARD	0.39	FOXRIDGE	0.88
AUBURN	1.98	CONCORD	0.72	FREDERICK	0.38
AUBURN	1.98	CONCORD	0.72	GARDEN	0.21
AVALON	0.20	CORNELL	0.35	GARFIELD	0.89
BAINBRIDGE	1.52	CORNERSTONE	0.81	GARFIELD	0.89
BAINBRIDGE	1.52	COURT	0.27	GARLAND	0.25
BALDWIN	0.34	CRAIG	0.12	GERTHMERE	0.65
BALLARD	1.30	CRAIG	0.12	GILLETTE	0.36
BARTON	0.43	CRAIGMOOR	0.93	GLENBROOK	0.82
BEECHWOOD	1.65	CRESCENT	0.30	GLENN	0.15
BELCREST	0.53	CROSBY	0.28	GLOUCESTER	0.73
BERKSHIRE	1.17	CUMBERLAND	1.26	GOODSELL	0.33
BEVERLY	1.04	DARCY	0.28	GOODWIN	0.22
BIRCH	0.44	DAVENPORT	1.32	GRASSMERE	0.52
BISHOP	0.58	DEXTER	0.35	GREEN HOUSE	0.87
BOULANGER	0.63	DORSET	0.27	GREENHURST	0.83
BRACE	1.05	DOVER	0.81	GREENSVIEW	0.30
BRAEBURN	0.58	DOWNING	0.39	GRENNAN	0.63
BRATTLE	0.15	DOWNING	0.39	GRISSOM	0.86
BRETTON	0.44	DUFFIELD	0.26	GRISWOLD	1.29
BRIAN	0.41	DUFFIELD	0.26	GROVE	0.78
BROOKLINE	0.50	EASTVIEW	0.26	HALL	0.83
BRUNSWICK	0.88	ELLSWORTH	0.96	HAMILTON	0.68
BURNHAM	0.74	ELLSWORTH	0.96	HAMMICK	0.39
BURR	0.46	ELMFIELD	1.86	HATHEWAY	0.32
CADWELL	0.13	ERWIN	0.20	HAWTHORNE	0.17
CALVIN	0.34	EUSTACE	0.21	HEDWIG	0.09
CAMBRIDGE	0.61	FAIRFAX	0.27	HEDWIG	0.09
CANAL	3.77	FAIRFAX	0.27	HEMLOCK	0.11
CASTLEWOOD	0.56	FAIRLEE	0.54	HICKORY	0.46
CAYA	0.66	FAIRVIEW	0.27	HIGH	0.11
CHAFFEE	0.14	FAIRWOOD FARMS	0.76	HIGH POINT	0.26
CHAMBERLIN	0.34	FARNHAM	0.51	HIGHLAND	0.71
CHAPMAN	0.61	FEDERAL	1.53	HIGHLAND	0.71
CHATFIELD	0.44	FENNWAY	0.39	HILLCREST	1.00

January 1, 2016 through November 1, 2016
Residential Roads- 211.01 Miles

Street Name	Curb Miles Swept	Street Name	Curb Miles Swept	Street Name	Curb Miles Swept
HILLCREST	1.00	NORTHFIELD	0.35	SOMERSET	1.34
HOLLYWOOD	0.91	OAK RIDGE	0.56	SOUTH HIGHLAND	1.14
HOLLYWOOD	0.91	ORCHARD	2.15	SPRING	1.18
HUCKLEBERRY	0.42	OUTLOOK	0.57	ST CHARLES	0.78
JEFFERSON	0.33	OVERBROOK	1.72	ST JAMES	0.76
JOHN SMITH	0.40	OVERBROOK	1.72	STAMFORD	0.19
KIMBERLY	0.38	OWINGS	0.25	STANLEY	0.22
KING	0.33	OXFORD	0.22	STANWOOD	0.10
KINGSTON	0.20	PAGE	0.46	STEELE	2.22
KINGSWOOD	0.70	PAXTON	0.41	STEELE	2.22
LANCASTER	0.58	PEBBLE BROOK	0.16	STEEP HOLLOW	0.39
LASALLE	0.56	PELHAM	0.36	STEVEN	0.13
LAUREL	0.33	PELHAM	0.36	STEVEN	0.13
LAYTON	0.62	PENN	1.28	STORY	0.18
LEDGEWOOD	0.89	PHEASANT HILL	0.92	SULGRAVE	0.63
LEMAY	0.97	PINE BROOK	0.34	SUNRISE HILL	0.67
LEWIS	0.41	PLYMOUTH	0.25	SUNSET	0.43
LEXINGTON	0.76	PRESCOTT	0.29	SYLVAN	0.61
LILLEY	0.28	PRICE	1.36	THOMAS	0.74
LINBROOK	0.76	PRINCETON	0.39	THOMAS	0.74
LINNARD	0.72	PROSPECT	6.07	THORNE	0.28
LINWOLD	0.43	RAILROAD	0.31	TIMOTHY	0.35
LOOMIS	0.93	RANDAL	1.53	TOLLES	0.26
LYNN	0.07	RAYMOND	1.17	TUNXIS	3.97
MADSEN	0.38	RAYMOND	1.17	VAN BUREN	0.84
MALLARD VIEW	0.21	RED TOP	1.00	VAN BUREN	0.84
MAPLEWOOD	0.85	REED	0.43	VANDERBILT	0.71
MARION	0.10	REGENCY	0.73	VANDERBILT	0.71
MARION	0.10	RICHARD	0.74	VINCENT	0.18
MEADOWBROOK	0.61	RIDGEBROOK	0.60	WALBRIDGE	1.40
MELVEN	0.18	RIDGEWOOD	4.04	WALBRIDGE	1.40
MERILINE	0.59	RIGGS	1.02	WALDEN	1.08
MERILINE	0.59	RIGGS	1.02	WALKER	0.33
MIDDLEBROOK	1.17	RINGGOLD	0.41	WALKLEY	0.28
MIDDLEFIELD	0.48	ROBERTS	0.24	WALTON	0.62
MILDRED	0.57	ROBIN	0.83	WARDWELL	0.99
MILES STANDISH	0.46	SAMPSON	0.77	WARDWELL	0.99
MILTON	1.01	SANDHURST	0.32	WARE	0.18
MITCHELL	0.12	SANDHURST	0.32	WARRENTON	0.36
MONTCLAIR	1.54	SCARSDALE	0.29	WARWICK	0.42
MOZART	0.37	SELLDAN	0.21	WASHINGTON	0.84
NESBIT	0.36	SEYMOUR	0.75	WATERSIDE	1.28
NEWGATE	0.24	SHEPARD	0.98	WEBSTER HILL	1.99
NEWPORT	1.04	SHIELD	1.20	WEBSTER HILL	1.99
NEWPORT	1.04	SHORT	0.12	WESTBROOK	0.51

January 1, 2016 through November 1, 2016
Residential Roads- 211.01 Miles

Street Name	Curb Miles Swept
WESTFIELD	0.46
WESTGATE	0.88
WESTLAND	0.99
WESTLAND	0.99
WESTMINSTER	1.55
WESTPHAL	0.66
WESTPOINT	0.99
WESTPOINT	0.99
WHITING	1.44
WHITING	1.44
WHITING	1.44
WHITMAN	1.97
WILLOWBROOK	0.45
WOLCOTT	0.93
WOOD POND	0.90
WOODLAWN	0.76
WOODRIDGE	0.56
WOODROW	0.92
WOODROW	0.92
WOODRUFF	0.25
YALE	0.38
YOUNG	0.07
Total	**211.01**

January 1, 2016 through November 1, 2016
Town Owned Parking Lots 2.16 Miles

Facility Name	
Elmwood Community Center	
Town Hall (2X)	
North Library	
Faxton Library	
Wolcott Park	
Kennedy Park	
Eisenhower Park	
Total	**2.16 miles**

January 1, 2016 through November 1, 2016
Schools Swept 7.23 Miles

School Facilities	
Aiken	
Norfeldt	
Hall High School	
King Philip Middle School	
Bugbee	
Sedgwick Middle School	
Smith	
Duffy	
Webster Hill	
Charter Oak	
Conard High School	
Wolcott	
Bristow	
Total	**7.23 Miles**

January 1, 2016 through November 1, 2016
Catch Basin Rebuilds, Vac All Sweeping

Streets	Catch Basin Rebuilds	Vac All	Est. Tons	Sweeping Distance X2 (ft.)	Est. lbs.
Goodwin Pl.	1	1	0.25	1100	825
Douglas Cir	3	3	0.75	628	471
Brook St	2	2	0.5	1276	957
Hall St	18	18	4.5	4372	3279
Elmfield St	21	21	5.25	5550	4162
Thomson Rd	2	2	0.5	3266	2450
Ballard Dr	11	11	2.75	6890	5168
Maiden Lane	2	4	1	1954	1466
Drury Lane	0	0	0	1974	1481
Winterset Lane	2	2	0.5	1950	1463
Timberwood	12	14	3.5	5466	4100
Willow Lane	3	3	0.75	700	525
Hatheway Dr	6	6	1.5	1702	1277
Highpoint Lane	0	0	0	1396	1047
Hickory Lane	3	3	0.75	2472	1854
Oakwood Ave	0	0	0	2726	2045
South Main St	8	0	0	6106	4580
Ridgewood Rd	13	13	3.25	3830	2873
Westminster Dr	26	26	6.5	7256	5442
King Rd	1	0	0	1786	1340
Short Rd	2	2	0.5	564	423
Vere St.	5	5	1.25	3704	2778
Jessamine St	1	1	0.25	1832	1374
Woodpond Rd.		6	1.5		
Woodridge Cir.		3	0.75		
Oakridge La.		3	0.75		
Mallard View Dr.		3	0		
Park Rd.		7	1.75		
Brixton St.		2	2		
Schools					
Conard	1				
Morley	2	2	0.5		
Smith	1	1	0.25		
Duffy	2	3	0.75		
	Total Rebuilds	**Total Vac**	**Est. Tons**	**Distance (Feet)**	**Est. lbs.**
Totals	148	167	42.5	68500	51375
				Distance (Miles	**Est. Tons**
				12.97348	25.69

2016 Catch Basin Cleaning Report

Date	Day	Veh Id	Operator	Curb Hrs	Basins	Loads	Street Name
2/3/2016	Wednesday	50	#59 and #63				Finger Lane
2/3/2016	Wednesday	50	#59 and #63				Cornerstone Drive
				Total-not listed	Total-not listed		
2/4/2016	Thursday	50	#59 and #63		38		Brookmoor Road
2/4/2016	Thursday	50	#59 and #63				Terrace Road
2/4/2016	Thursday	50	#59 and #63				Finger Lane
2/4/2016	Thursday	50	#59 and #63				Cornerstone Drive
				Total-5		Total-3	
completed these roads and when					11		Tanglewood
					4		Proctor Drive
					4		Kaneh Road
				Total-not listed	Total-not listed		
4/28/2016	Thursday	50	#51 and #63		11		Davenport
				Total-not listed	Total-not listed		
3/17/2016	Thursday	50	#51 and #59		1		Wolcott
3/17/2016	Thursday	50	#51 and #59		2		Thorne Road
3/17/2016	Thursday	50	#51 and #59		3		Laurel Drive
3/17/2016	Thursday	50	#51 and #59		2		Elmfield
				Total-not listed	Total-not listed		
3/16/2016	Wednesday	50	#51 and #59		4		Clover
3/16/2016	Wednesday	50	#51 and #59		10		Wolcott
				Total-not listed	Total-not listed		
5/15/2016	Tuesday		#63 and #57		9		Grissom Rd
5/15/2016	Tuesday		#63 and #57		2		Young Lane
5/15/2016	Tuesday		#63 and #57		3		Chaffee Road
5/15/2016	Tuesday		#63 and #57		1		Shepard Road
				Total-5		Total-2	
3/11/2016	Friday	50	#51 and #63		3		Glendale Road
3/11/2016	Friday	50	#51 and #63		16		Shepard Road
				Total-not listed		Total-1	

2016 Catch Basin Cleaning Report

Date	Day	Veh Id	Operator	Curb Hrs	Basins	Loads	Street Name
10/1/2016	Thursday	50	#66 and #65		11		Tanglewood Road
10/1/2016	Thursday	50	#66 and #65		4		Proctor Drive
10/1/2016	Thursday	50	#66 and #65		12		Kareh Road
10/1/2016	Thursday	50	#66 and #65		5		Brightview Drive
				Total not listed		Total 51	
9/10/2016	Thursday	50	#62 and #66		20		Bainbridge/Walbridge/Birch area
				Total not listed	Total not listed		
8/27/2016	Thursday		#62		2		Brixton Street
				Total not listed	Total not listed		
TOTALS					423		

CATCH BASIN CLEANING REPORT

West Hartford DPW		Vehicle Number:	60
Street Division			
DATE:	2/3/16		
DAY:			
OPERATORS NAMES & ID #'S:	59 + 63		
TIME *START* AT CURB:	7:30		LOADS
TIME *END* START AT CURB:			
TOTAL CURB HRS.			

	LOCATION or STREET NAME	STREET #	# BASINS CLEANED	PROBLEMS ENCOUNTERED
1	Brookmoor			#12 too deep
2				22 TOO DEEP
3				34 DONE
4	Terrace			54 DONE
5				56 DEEP
6				70 DONE
7	Finger			82 DONE
8				94 DONE
9				104 DONE North
10	Cornerstone			112 DONE
11				120 DONE Bound
12				128 DONE
13				142 DONE
14				133 DONE South
15				129 DONE
16				117 DONE Bound
17				121 DONE
18				109 DONE
19				111
20				
21				
22				
23				
24				
25				

COMMENTS (Downtime, Basin repair problems, etc.)

CATCH BASIN CLEANING REPORT

West Hartford DPW		Vehicle Number:	50
Street Division			
DATE:	2/4/16		
DAY:			
OPERATORS NAMES & ID #'S:	59+63		
TIME *START* AT CURB:	7:45		LOADS
TIME *END* START AT CURB:	12:40		3 yds
TOTAL CURB HRS.			

	LOCATION or STREET NAME	STREET #	# BASINS CLEANED	PROBLEMS ENCOUNTERED
1	Brookmoor ⟷	Corner	of Terrace	South Both Sides
2		69	Brookmoor	Bound
3		65	Brookmore	
4		43	Maebrook & Brookmore	
5		42		
6	Terrace - 3 done	35	Broome	
7	gravel 3 done		Corner Tux Brook	
8	Sumps			
9		Finglen		
10		9	Finglen	
11	Finger	3	Finger	
12				
13				
14		Terrace - 16		
15				
16	Cornerstone			
17				
18				
19				
20				
21				
22				
23				
24				
25				

COMMENTS (Downtime, Basin repair problems, etc.)

3/11/16

CATCH BASIN CLEANING REPORT

West Hartford DPW
Street Division

Vehicle Number: 50

DATE: 3-11-16
DAY: Friday
OPERATORS NAMES & ID #'S: 51 Dave Garewski
63 mik Bonfiglio

TIME *START* AT CURB:
TIME *END* START AT CURB:
TOTAL CURB HRS.

LOADS: 1

	LOCATION or STREET NAME	STREET #	# BASINS CLEANED	PROBLEMS ENCOUNTERED
1	Glenndale	3	1	
2	Glenndale	10	1	
3	Glenndale	11	1	
4	Shepard	29	1	
5	Shepard	47	1	alot of Debris in Basin
6	Shepard	59	1	
7	Shepard	88	1	
8	Shepard	84	1	
9	Shepard	96	1	
10	Shepard	91	1	
11	Shepard	93	1	
12	Shepard	97	1	
13	Shepard	100	1	
14	Shepard	66	1	
15	Shepard	60	1	
16	Shepard	50	1	
17	Shepard	26	1	
18	Shepard	20	1	
19	Shepard	12	1	
20				
21				
22				
23				
24				
25				

COMMENTS (Downtime, Basin repair problems, etc.)

CATCH BASIN CLEANING REPORT

West Hartford DPW	Vehicle Number: 50
Street Division	
DATE: March 16-2016	
DAY: WEN	
OPERATORS NAMES & ID #'S:	51 DAVE Garcuski
	59 Chris Jackson
TIME *START* AT CURB:	905 AM
TIME *END* START AT CURB:	
TOTAL CURB HRS.	

	LOCATION or STREET NAME	STREET #	# BASINS CLEANED	PROBLEMS ENCOUNTERED
1	Had to work on VAC-All 1ST thing this mourning APP			
2	2hrs			
3	Clover	13		
4	Clover	27		
5	Clover	41		
6	Clover	38	CAN'T clean	because of A tree
7	that needs to be cut			
8	Clover	26		
9	Wolcott	17	Double basin	PARK SIDE
10	Back to yard to Dump	Full of mostly water		
11	Wolcott	35	PARK SIDE	
12	wolcott AT Elmfield	North of crosswalk		
13	wolcott AT Elmfield	South of crosswalk		
14	wolcott	90	Truck parked in way	
15	Wolcott	62		
16	wolcott AT Elmfield	East side of wolcott	South of Elmfield	
17	wolcott	34		
18	wolcott	30		
19	Wolcott	20		
20				
21				
22				
23				
24		15 total		
25				

COMMENTS (Downtime, Basin repair problems, etc.)

CATCH BASIN CLEANING REPORT

West Hartford DPW		Vehicle Number:	50
Street Division			
DATE:	3/17/16		
DAY:			
OPERATORS NAMES & ID #'S:	Dave	GALENSKI	51
	CHRIS	JACKSON	59
TIME ***START*** AT CURB:			**LOADS**
TIME ***END*** START AT CURB:			
TOTAL CURB HRS.			

	LOCATION or STREET NAME	STREET #	# BASINS CLEANED	PROBLEMS ENCOUNTERED
1	WOLCOTT @ THORNE N.E.		✓	
2	21 THORNE		✓	
* 3	25 LAUREL DR		✓	CROSS/ELMFIELD MARKED FOR BASIN FAILURE CBYD
4	216 ELMFIELD CORNER LAUREL		✓	
5	208 ELMFIELD CORNER LAUREL		✓	
6	24 LAUREL DR		✓	CROSS ELMFIELD MARKED BASIN FAILURE FOR CBYD
7	2 LAUREL DR CORNER THORNE		✓	
8	THORNE RD APT. SIDE		✓	
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

COMMENTS (Downtime, Basin repair problems, etc.)

These Roads were Done but no records of who & when

CATCH BASIN CLEANING REPORT

West Hartford DPW

Street Division

Vehicle Number:

DATE:

DAY:

OPERATORS NAMES & ID #'S:

TIME ***START*** AT CURB:

TIME ***END*** START AT CURB:

TOTAL CURB HRS.

LOADS

	LOCATION or STREET NAME	STREET #	# BASINS CLEANED	PROBLEMS ENCOUNTERED
1	Tanglewood		11	
2	Prosper		4	
3	Karen		4	
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

COMMENTS (Downtime, Basin repair problems, etc.)

CATCH BASIN CLEANING REPORT

West Hartford DPW
Street Division

Vehicle Number: 50

DATE: 4/28/16
DAY: Thursday
OPERATORS NAMES & ID #'S:
Dave 51 Mike 63
TIME ***START*** AT CURB: 10:45
TIME ***END*** START AT CURB:
TOTAL CURB HRS.

LOADS

	LOCATION or STREET NAME	STREET #	# BASINS CLEANED	PROBLEMS ENCOUNTERED
1	29 Davenport	1		
2	[redacted] Davenport 77	1		
3	103 Davenport	1		
4	107 Davenport	1		
5	110 Davenport	1		
6	115 Davenport	1		
7	129 Davenport	1		
8	104 Davenport	1		
9	76 Davenport	1		
10	58 Davenport	1		Needs complete Rebuild
11				marked out for cybd
12				Nearest Intersecting Street
13				em field
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

COMMENTS (Downtime, Basin repair problems, etc.)

CATCH BASIN CLEANING REPORT

West Hartford DPW		Vehicle Number:	
Street Division			
DATE: 5/15/16			
DAY: Tuesday			
OPERATORS NAMES & ID #'S:	63	Mike Bonfiglio	
	57	Mark Richards	
TIME *START* AT CURB:	7:45		**LOADS**
TIME *END* START AT CURB:	12:45		2
TOTAL CURB HRS.	5		

	LOCATION or STREET NAME	STREET #	# BASINS CLEANED	PROBLEMS ENCOUNTERED
1	grissom	89	1	
2	grissom	74	1	
3	grissom	64	1	
4	grissom	45	1	
5	Young Ln	8	1	
6	Young Ln	4	1	
7	grissom	3	1	
8	Chaffee	1	1	
9	Chaffee	9	1	
10	Chaffee + grissom	west side	1	
11	grissom	16	1	
12	Shepard	25	0	Too Deep
13	grissom	11	0	too Deep
14	grissom	17	1	
15	grissom	23	1	
16	grissom	41	1	
17	grissom	51	0	too Deep
18	grissom	67	1	
19	grisson	75	1	gravel Bottom
20				
21				
22				
23				
24				
25				

COMMENTS (Downtime, Basin repair problems, etc.)

2016 Catch Basin Reconstructions (by Street)**

Street Name	Number of Reconstructed Basins per Street
Ballard Drive	13
Brook Street	2
Canal Road *(Hunter to Westmont)*	1
Douglas Circle	3
Drury Lane	0
Elmfield Street *(Newington to S. Main*	20
Goodwin Place	1
Hall Street	14
Hatheway Drive	6
Hickory Lane	3
High Point Lane	0
Jessamine Street	4
King Road	2
Lemay Street	10

Street Name	Number of Reconstructed Basins per Street
Maiden Lane	4
Main Street *(Loomis to Ellsworth)*	15
Milton Stret	21
Oakwood Avenue	0
Ridgewood Road *(I-84 to Westpoint)*	13
Rumford Street *(Web Hill to S. Main)*	1
Short Road	2
Thomson Road	2
Timberwood Road	11
Vera Street	8
Westminster Drive *(Sedwick to Chapma*	26
Willow Lane	3
Winterset Lane	2
TOTAL	187

** This list was generated from the Engineering Division's 2016 scheudled for roadway reconstruction /resurfacing. The final streets and totals may change depending on schedule, weather and budget.

Source: Town of West Hartford, Connecticut
Program for Capital Improvements
2017-2028
Adopted Capital Budget

Town of West Hartford Capital Improvement Program

Project Title	Public Works Rolling Stock		
Department	Public Works	**Funding Schedule** Program Year:	$780,000
Category	Miscellaneous	Prior Year(s):	-
Fiscal Year	2016-2017	Total Cost:	$780,000
Project Duration	Recurring	**Funding Source(s)**	Bonds

Description & Justification

The Department of Public Works utilizes a variety of rolling stock to perform a diverse array of community maintenance services. Equipment in good repair is critical to the productive use of the department's resources. The Town has developed a multi-year plan to replace rolling stock based upon the condition of existing inventory and expected useful life. Timely replacement of rolling stock contributes to the efficiency and effectiveness of community maintenance services provided by the staff of the Department of Public Works.

Also included in this appropriation is $620,000 for equipment that will be needed to comply with Connecticut Department of Energy and Environmental Protections' Municipal Separate Storm Sewer System (MS4) permit requirements. It is anticipated that the Town will need to purchase a street sweeper ($220,000) and a vactor ($400,000) in order to perform necessary services. The remainder of the funding will be used for the replacement of other existing rolling stock.

STREET MAINTENANCE DIVISION - BUDGET AND PROGRAM HIGHLIGHTS

Regular Payroll: The Street Maintenance operation will be staffed with 15.5 full-time positions in fiscal year 2017. In fiscal year 2016, as part of a reorganization of responsibilities, 0.5 of a Public Works Manager has been reallocated from the Contractual Services Division, and 1 Equipment Operator position was moved in from the Traffic Safety Control Division to meet workflow needs. This position will return to Traffic Safety Control in fiscal year 2017 as two additional Equipment Operators are funded, effective January 1, 2017. These Equipment Operators will assist with the new Municipal Separate Storm Sewer System (MS4) requirements mandated. The appropriation reflects steps and merit increases, and estimated cost-of-living adjustments. Payroll is allocated among four Street Maintenance programs as follows for non-managers: Street Maintenance and Repair (50%); Snow and Ice Control (25%); Street Sweeping (15%) and Storm Sewer Repair and Maintenance (10%).

Temporary Payroll: This appropriation is for labor to perform pothole patching and for summer help. This account is reduced in tandem with additional full-time staffing and, in tandem with regular payroll increases.

Overtime: This appropriation is used for emergency and planned road maintenance, snow fighting and storm sewer work after normal working hours. It is increased consistent with additional need for special events, snow and ice control and street sweeping and in tandem with regular payroll increases.

Meals: This is an unbudgeted line. Union contracts provide for meal allowances to employees. This account reflects those payments.

Contractual Services: This appropriation funds the services of snow removal contractors used to plow snow from Town streets. DPW utilizes up to fifteen contractors during a plowing operation. This account is reduced in tandem with additional full-time staffing.

Minor Equipment: This appropriation represents minor equipment purchases for the street maintenance program, such as mark out paint, cones, caution tape, work zone safety equipment, pumps, compaction equipment, and small engine equipment.

Uniforms & Laundry: This appropriation represents the costs for safety equipment used in the Streets operations including ear plugs, safety glasses, goggles, hard hats, safety vests and gloves used by the full-time and part-time staff in the field.

Building Maintenance: This budget funds the annual purchase of ice melt used at Town facilities.

Vehicles & Equipment Expense: Funds were expended for vehicle parts in fiscal year 2015. The budget assumes similar purchases will be required in the 2016 and 2017 fiscal year budgets.

Maintenance & Repairs: This line item reflects costs for snowplow damage repairs (seed and topsoil), tools, and replacement saw blades.

Snow Removal Supplies: The appropriation reflects the estimated cost for treatment operations for 15 snow events annually, utilizing the Clearlane product. Clearlane is a superior pre-treatment product and saves the department significant labor and equipment costs in time spent street sweeping, cleaning catch basins and in the cleaning of storm water lines, ponds and streams where sand normally collects.