Capital District Transportation Committee
Bicycle and Pedestrian Advisory Committee
September 8, 2020

Attendees: Jen Ceponis, CDTC; Jordan Solano-Reed, CDTC; Martin Daley, CDRPC; John Gillivan, V/O Colonie resident & Albany Bicycle Coalition; Valerie Deane, NYSDOT; John Mitchell, Halfmoon & Champlain Canal Trail; Lindsey Garney, CDTA; Nate Owens, Town of Bethlehem; Teresa Rodrigues, CMPAC; Rogerio Rodrigue, CMPAC; Austin Zhang, CPMAC; Zach Powell, City of Albany; Melissa Cherubino, Glenville; Janette Kaddo Marino, Bikeatoga; James Rath, City of Troy; Meg O'Leary, Saratoga County DOH; Linda von der Heide, Rensselaer County; Jennifer Hogan, NYSDOH

1.0 New Business

1.1 Welcome & Introductions

1.2 Presentation: Incorporating Green Infrastructure into Bike/Ped Projects: Examples from the Capital Region, Martin Daley, CDRPC

Martin Daley is the Director of Water Quality Programs at CDRPC, working with 6 CSO Hudson River communities: 604BWater Quality Grant Program to fund green infrastructure. Stormwater Phase II covers the permits required for stormwater management development to ensure state and federal compliance. Municipalities can incorporate stormwater management design and development into their design codes. Most communities have separated sewer systems, where waste is treated separately from runoff. Communities along the Hudson are often combined sewer systems which send everything through the treatment plant, which can be overwhelmed. Green infrastructure can help mitigate overwhelming treatment facilities.

Green infrastructure can include: porous pavement (utilized by various private and public partners around the region), infiltration trenches, infiltration chambers and drywells (utilized in Albany's Babe Ruth ball fields), bioretention areas, and other treatments. CDRPC offers a Green Infrastructure Toolkit that municipalities can use for their own projects and/or codes.

Examples of Green Infrastructure implementation in the Capital Region include:

- Elberon Place in Albany: Quail Street Green Infrastructure Project - 1 miles of linear improvements to add stormwater infiltration through tree pits and porous pavement
- Monument Square in Troy: Tree wells, porous pavement, and bioretention basins
- Route 32 in Watervliet

1.3 CDTC/NYSDOT Updates (see attachments): CDTC has resumed a slow reopening. For the foreseeable future, CDTC will continue with virtual meetings and public outreach.

1.3.1.1 New Visions 2050 has been adopted and the website has been revamped, including a New Visions learning series starting on September 22nd.NV2050 has completed virtual public meetings with good attendance for the four counties, stakeholders, and members of the public. CDTC will continue accepting public comments and making changes to the document

throughout 2020 and beyond, to facilitate adapting the document to changing needs and conditions.

1.3.1.2 Smart Communities solicitation open: $75,000 available for a "smart cities" proposal. The last project funded was the Saratoga Springs Smart Streetlights guidebook.

1.3.1.3 CDTC/CDRPC Technical Assistance Program – accepting requests on a rolling basis

1.3.1.4 Capital District Trails Plan Implementation: Feasibility Study Solicitation has received 5 applications.

1.3.1.5 Complete Streets Workshop Series: Accepting applications on a rolling basis.

1.3.1.6 ADA Transition Plan Assistance: Solicitation for ADA Self-Analysis and Transition Plans for municipalities. Accepting applications on a rolling basis.

1.3.1.7 TDM Commuter Survey available on CDTC's website

1.3.1.8 Linkage & TIP Project Status – see attached

1.3.1.9 Capital Coexist Updates – CDTC will be providing guidance for schools on getting students safely to schools through the pandemic.

1.3.1.10 Bus Lane Feasibility Study is gearing up!

1.4 Other Updates

1.4.1 CDPHP *Cycle*! has resumed operations around trails and key businesses throughout the region with 300 bikes active. Rigorous cleaning plan and hand sanitizer included with bikes! Ridership is matching last years for this time. UAlbany has joined CDPHP Cycle!

Albany Bike-Ped Master Plan: Public Comment period on-going.

https://vizcomm.wixsite.com/albanybikepedplan

Troy has a summer square program and is closing off certain areas for pedestrians and businesses.

Trail projects on-going or completed - Zim Smith to Mechanicville, Menands Connector – Broadway to Mohawk-Hudson Trail, Albany South End Connector

2.0 Upcoming Meetings

Meetings Open to the Public: The next meeting is scheduled for **October 13** at **9:00am**

Register in advance for this meeting:

https://us02web.zoom.us/meeting/register/tZIpfu-trjMsHdeXYlxzQv8Mw1MBoNnfpmVr

After registering, you will receive a confirmation email containing information about joining the meeting.

Incorporation of Green Infrastructure into Bike & Pedestrian Projects

Martin Daley

Capital District Regional Planning Commission

September 8, 2020

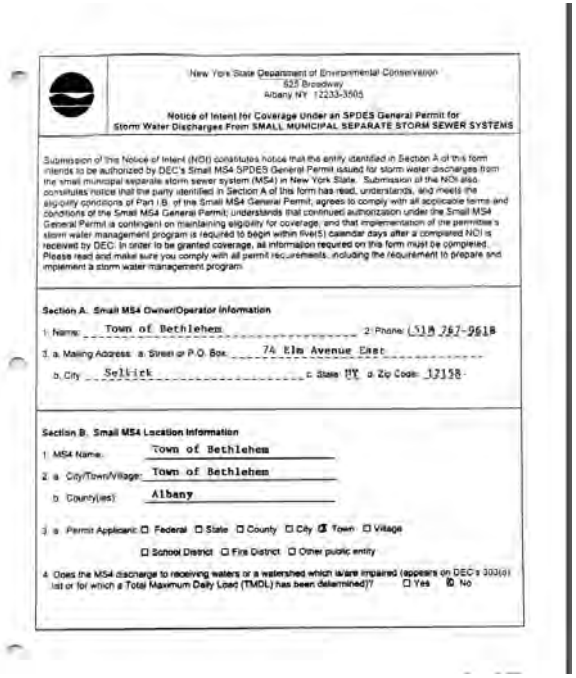
How is Stormwater Regulated on the Municipal Level?

A federal regulation, commonly known as **Stormwater Phase II**, requires permits for stormwater discharges from Municipal Separate Storm Sewer Systems (MS4s) in urbanized areas. Permittees are required to develop Stormwater Management Program (SWMP) and submit annual reports to the Department. Most of the unban and suburban communities in the Capital District have permit coverage.

Communities with permit coverage must implement what are called “Overview of the Minimum Control Measures (MCM). MCM 5 is “Post-construction Runoff Control” and it requires communities to

“Develop, implement and enforce a plan that addresses stormwater runoff from new development and redevelopment projects and incorporates enforceable mechanisms. Applicable controls could include preventative actions (e.g., protecting sensitive areas) or the use of **structural controls** (e.g., grassed swales or porous pavement).”

How is Stormwater Regulated on the Municipal Level?



New York State Department of Environmental Conservation
625 Broadway
Albany NY 12233-3505

Notice of Intent for Coverage Under an SPDES General Permit for Storm Water Discharges From SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS

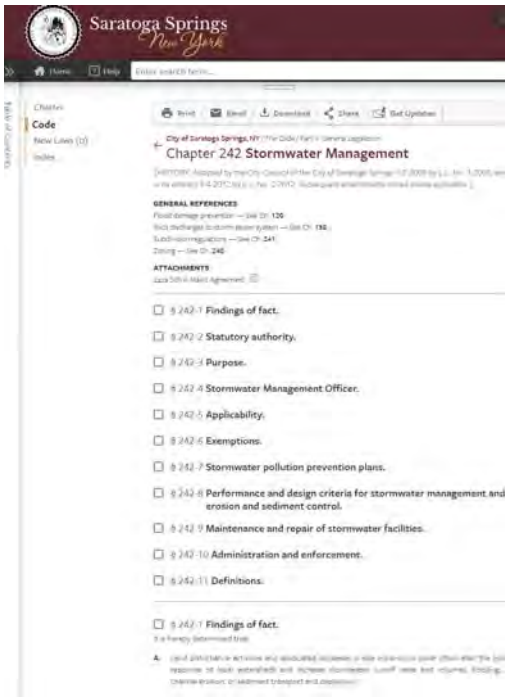
Submission of this Notice of Intent (NOI) constitutes notice that the entity identified in Section A of this form intends to be authorized by DEC's Small MS4 SPDES General Permit issued for storm water discharges from the small municipal separate storm sewer system (MS4) in New York State. Submission of the NOI also constitutes notice that the party identified in Section A of this form has read, understands, and meets the eligibility conditions of Part I.B. of the Small MS4 General Permit; agrees to comply with all applicable terms and conditions of the Small MS4 General Permit; understands that continued authorization under the Small MS4 General Permit is contingent on maintaining eligibility for coverage; and that implementation of the permittee's storm water management program is required to begin within five(5) calendar days after a completed NOI is received by DEC. In order to be granted coverage, all information required on this form must be completed. Please read and make sure you comply with all permit requirements, including the requirement to prepare and implement a storm water management program.

Section A. Small MS4 Owner/Operator Information

1. Name: Town of Bethlehem 2. Phone: (518 767-9618
3. a. Mailing Address: a. Street or P.O. Box: 74 Elm Avenue East
b. City: Selkirk c. State: NY d. Zip Code: 12158

Section B. Small MS4 Location Information

1. MS4 Name: Town of Bethlehem
2. a. City/Town/Village: Town of Bethlehem
b. County(ies): Albany
3. a. Permit Applicant: ☐ Federal ☐ State ☐ County ☐ City ☒ Town ☐ Village
☐ School District ☐ Fire District ☐ Other public entity
4. Does the MS4 discharge to receiving waters or a watershed which is/are impaired (appears on DEC's 303(d) list or for which a Total Maximum Daily Load (TMDL) has been determined)? ☐ Yes ☒ No



Saratoga Springs New York

Code

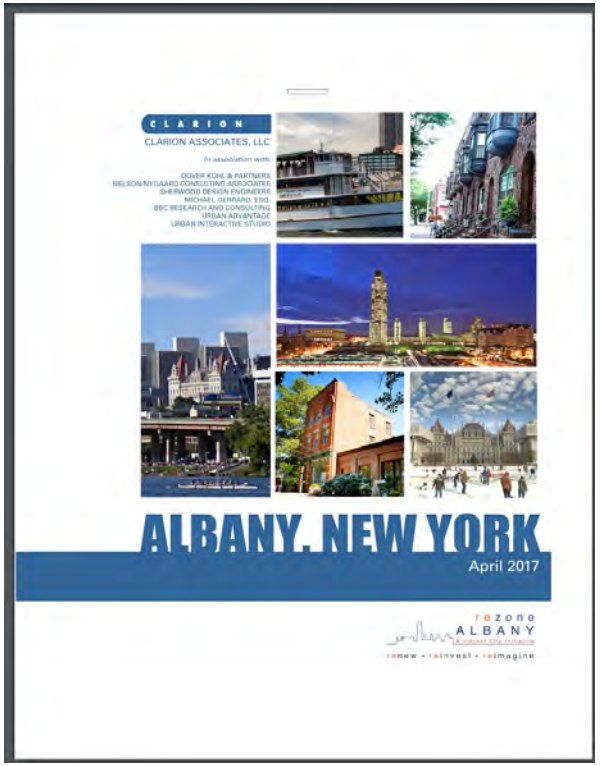
Chapter 242 Stormwater Management

GENERAL REFERENCES

ATTACHMENTS

- § 242-1 Findings of fact.
- § 242-2 Statutory authority.
- § 242-3 Purpose.
- § 242-4 Stormwater Management Officer.
- § 242-5 Applicability.
- § 242-6 Exemptions.
- § 242-7 Stormwater pollution prevention plans.
- § 242-8 Performance and design criteria for stormwater management and erosion and sediment control.
- § 242-9 Maintenance and repair of stormwater facilities.
- § 242-10 Administration and enforcement.
- § 242-11 Definitions.

- § 242-1 Findings of fact.



CLARION

CLARION ASSOCIATES, LLC

ALBANY, NEW YORK

April 2017

rezone ALBANY

renew • reinvest • reimagine

What is Green Infrastructure?

At the **city or county scale**, green infrastructure is a patchwork of natural areas that provides habitat, flood protection, cleaner air, and cleaner water.

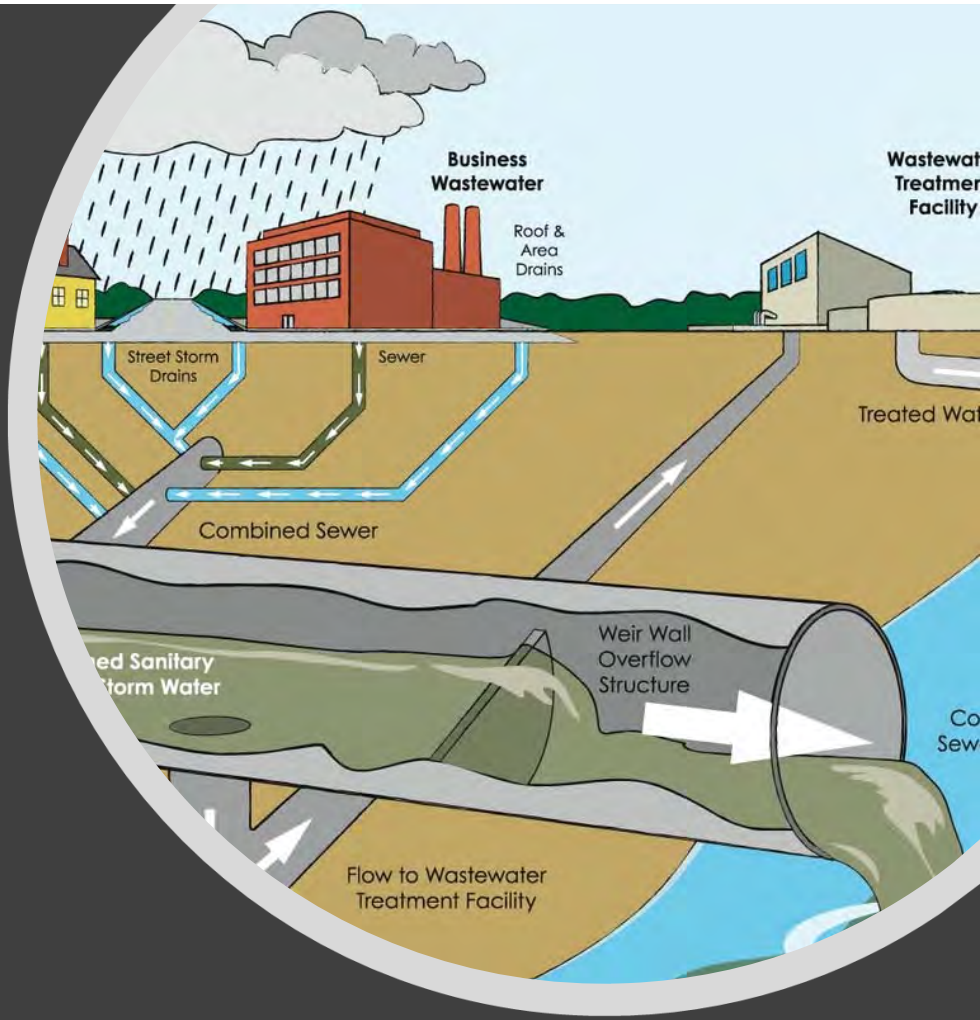
At the **neighborhood or site scale**, stormwater management systems that mimic nature soak up and store water.

Separated System Benefits

- For communities with separate sanitary and storm sewers (most suburban communities) GI can improve and protect water quality from Nonpoint source pollution
- Nonpoint Source Pollution generally results from land runoff, precipitation or atmospheric deposition. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters and ground waters.

Combined System Benefits

- For communities with combined sewers, in which stormwater mixes with sewage, GI is not as effective at reducing Nonpoint source pollution, however, the close relationship between stormwater volume and CSO discharge volume means GI can keep stormwater out of the combined system or detain flow to allow for preserved system capacity.
- Point source pollution as “any single identifiable source of pollution from which pollutants are discharged, such as a pipe, ditch, ship or factory smokestack. A combined sewer overflow is a common types of point source.



How Does Green Infrastructure Work?

- As land becomes developed and urbanized, the addition of roofs, streets and other impervious areas increase the volume and rate of stormwater runoff.
- Green Infrastructure (GI) practices are stormwater management features designed to reduce the volume of stormwater runoff (RRv) and reduce the pollutants in stormwater discharges from the site.
- GI may include stormwater practices that allow for reuse, infiltration into the ground, soaked up by plants, evaporation or in some cases detention

What are typical Green Infrastructure Practices?

- **Impervious Area Reduction Practices:**
  - Tree Planting
  - Disconnect Impervious Areas
  - Green Roofs
  - Porous Pavement
- **Infiltration Only Practices**
  - Infiltration Basin
  - Infiltration Trenches
  - Infiltration Chambers and Drywells
  - Shallow Soil System

Infiltration or Flow Through Practices

- Porous Pavement
- Vegetated Swale
- Bioretention Practices
  - Rain Gardens
  - Stormwater Planters
  - Bioretention Areas

- **Rainwater Harvesting**
  - Rain Barrels and Cisterns
- **Flow Through Only Practices**
  - Dry Swale

- **Vegetated Swale**

How to Select a Practice

1. Plan to reduce area of roofs, parking lots and other impervious surfaces.
   - Maintain grass areas, buffers, sensitive resources.
   - See Planning Tips.
2. Determine the Runoff Reduction Volume (RRv) for the site.
   - The RRv is the amount of stormwater to be collected and managed through green infrastructure practices to reduce pollution and downstream impacts.
3. Check Soils. If Hydraulic Soil Group (HSG) A or B then maximize use of infiltration practices.
   - HSG C or D soils may not be suitable for infiltration. See Soils and Infiltration Testing.
4. Apply other GI practices to manage the remaining RRv after applying infiltration practices have been utilized to the maximum extent feasible.

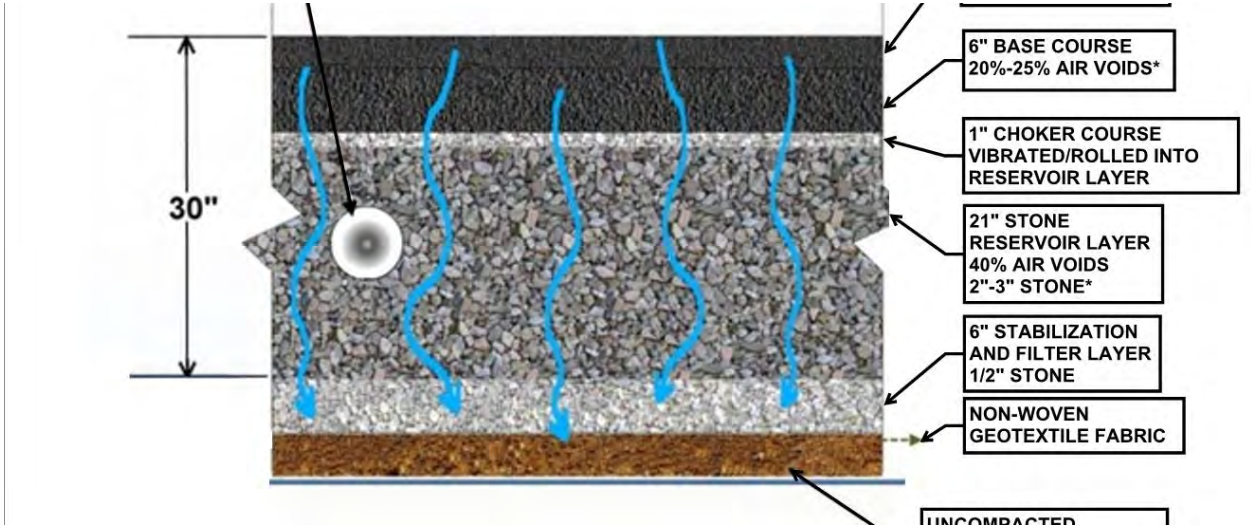
Options to Reduce Impervious Cover

Before continuing; check that you have looked at the Planning Tips and see that you have taken every opportunity to reduce the area of impervious cover/

There are several other GI practices that provide impervious area reduction:

Disconnected Impervious Areas:	Tree Plantings	Porous Pavement	Green Roof
• Rather than discharging directly to a stormwater system, runoff from impervious areas is discharged to pervious areas of the site.	• Up to 150 square feet per tree can be subtracted from the impervious area.	• Replace impervious asphalt pavement and concrete with porous alternatives.	• Replace impervious roofs with a green roof system.


Let’s look at some Green Infrastructure Practices!

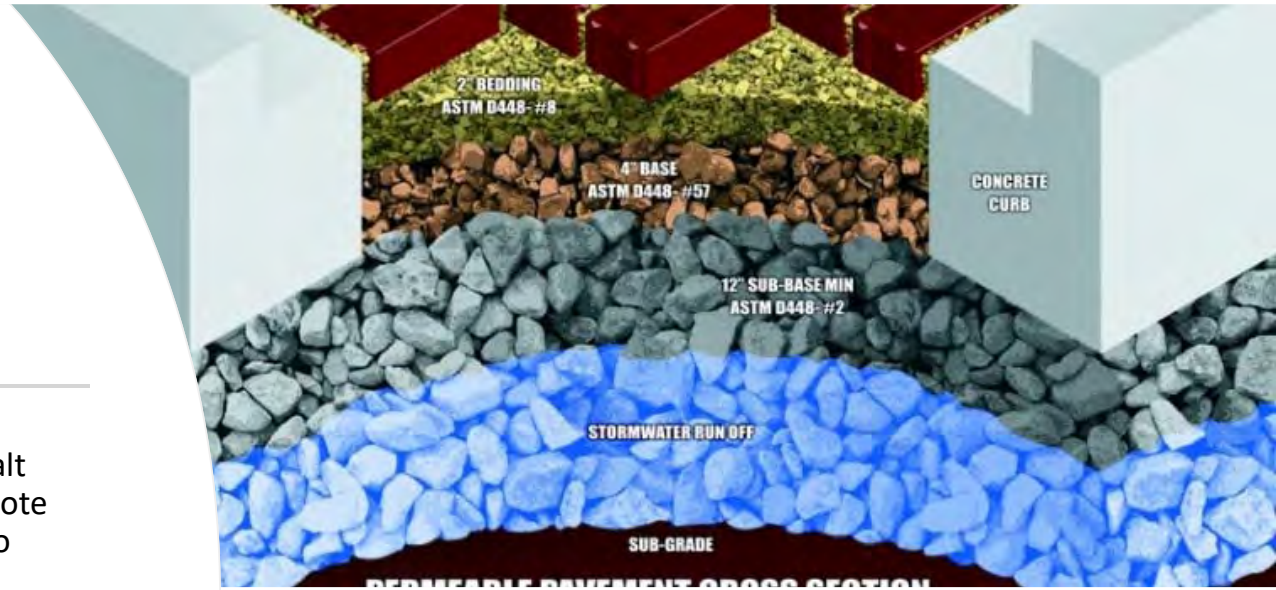


Porous Pavement

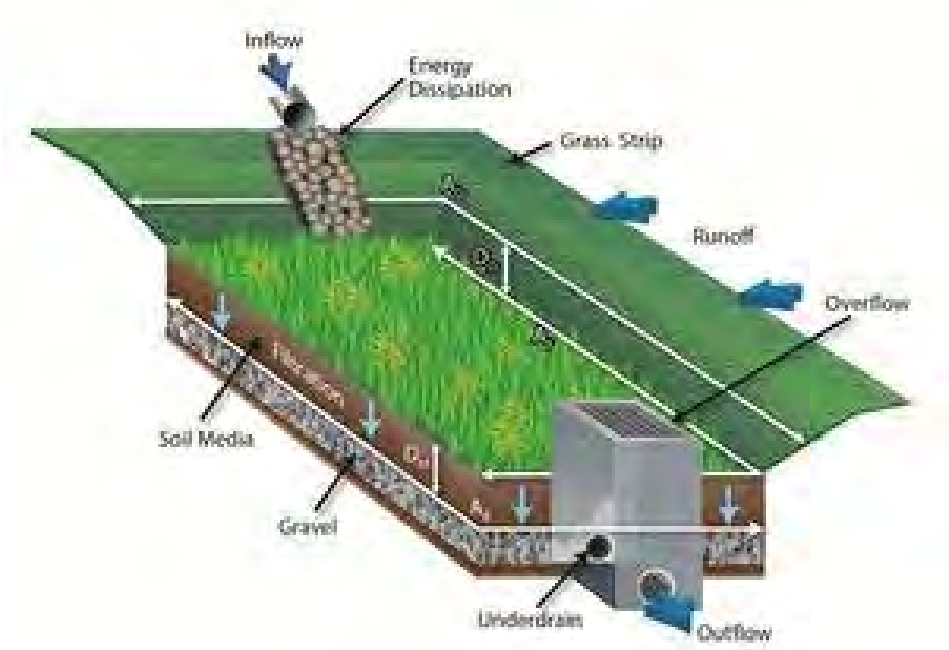
A special asphalt mix is used which allows water to seep through the surface.

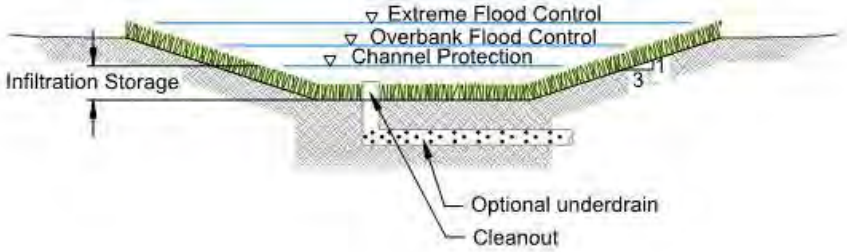
Porous Pavement

- For low traffic and non traffic areas, porous asphalt or porous concrete can be used as the surface. Note that the use of salt for deicing can be damaging to porous concrete.
- Alternatively, there are a wide number of manufactured products that can be used including:
  - Stormcrete[tm].
  - FILTERPAVE ®.
  - KBI Flexi®-Pave.
  - Pavers such as; Unilock ® Belgard ® and EP Henry.
  - Plastic turf or gravel systems such as;Truegrid ®, Invisible Structures, NDS ®.

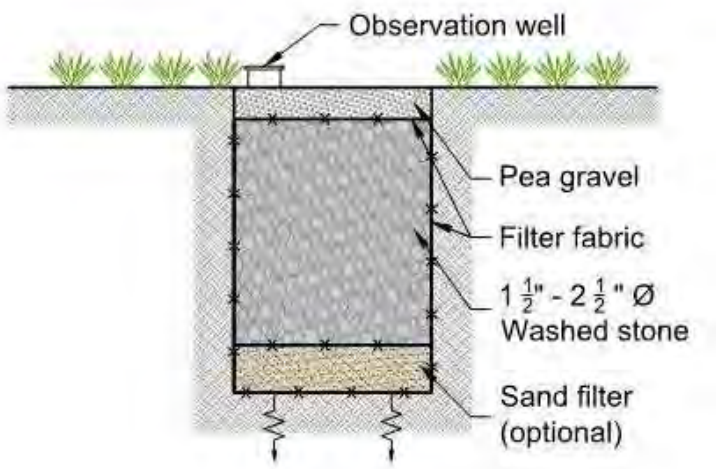


Infiltration Basin

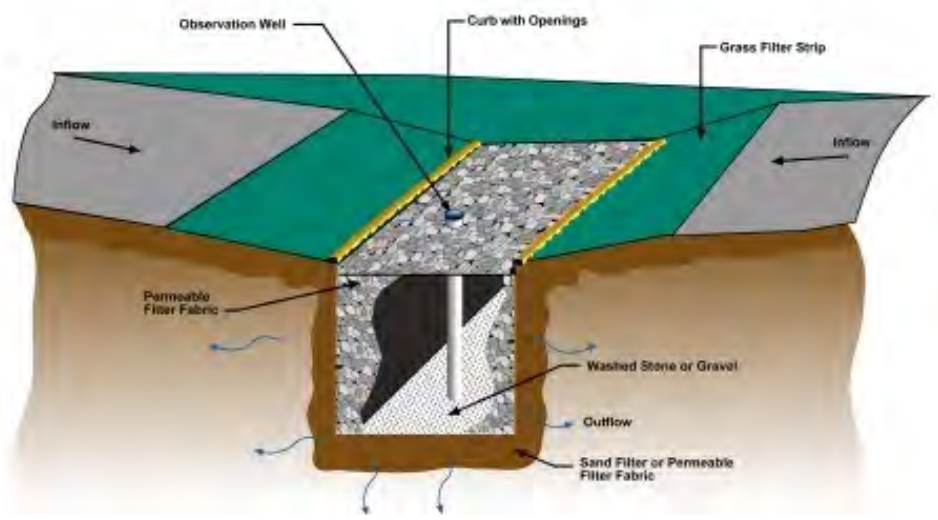


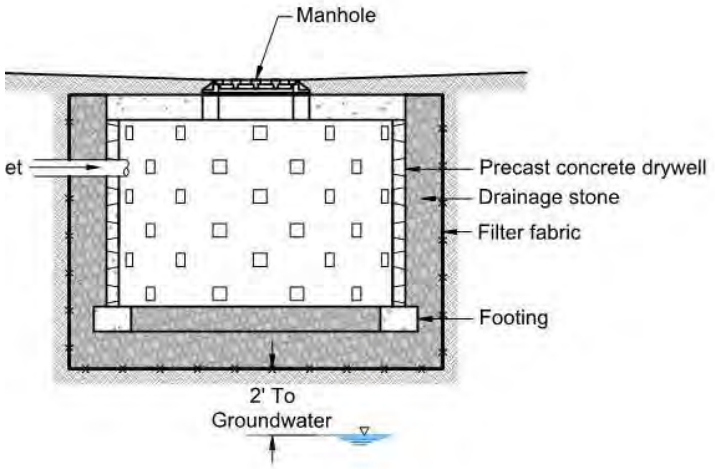


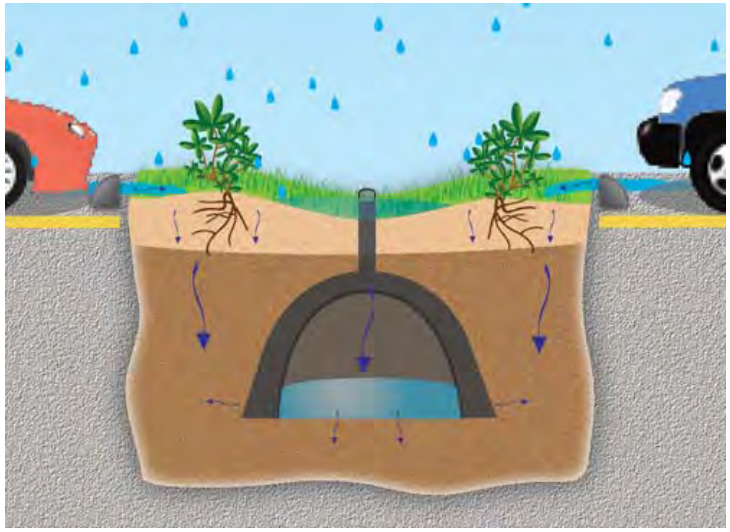
Infiltration Trench



Runoff through undisturbed subsoils with a min. rate of 0.2 in/hr

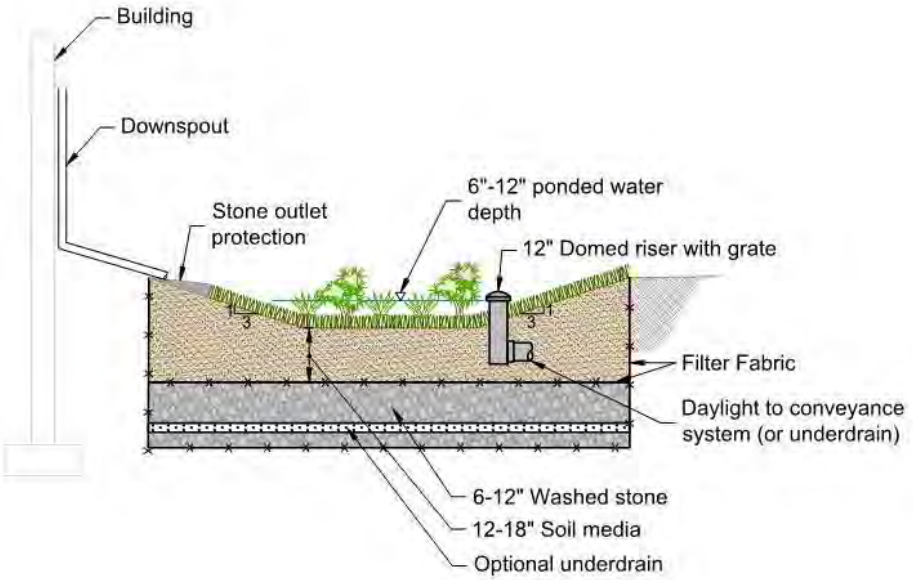


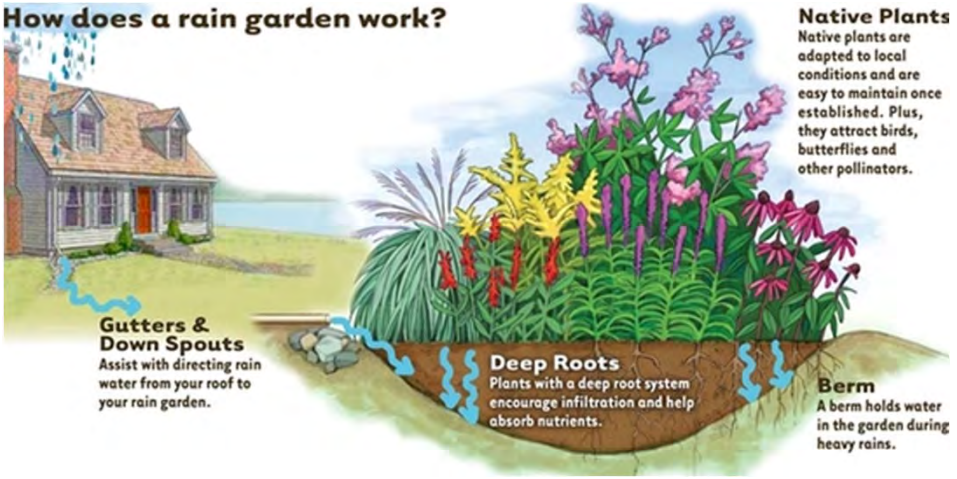


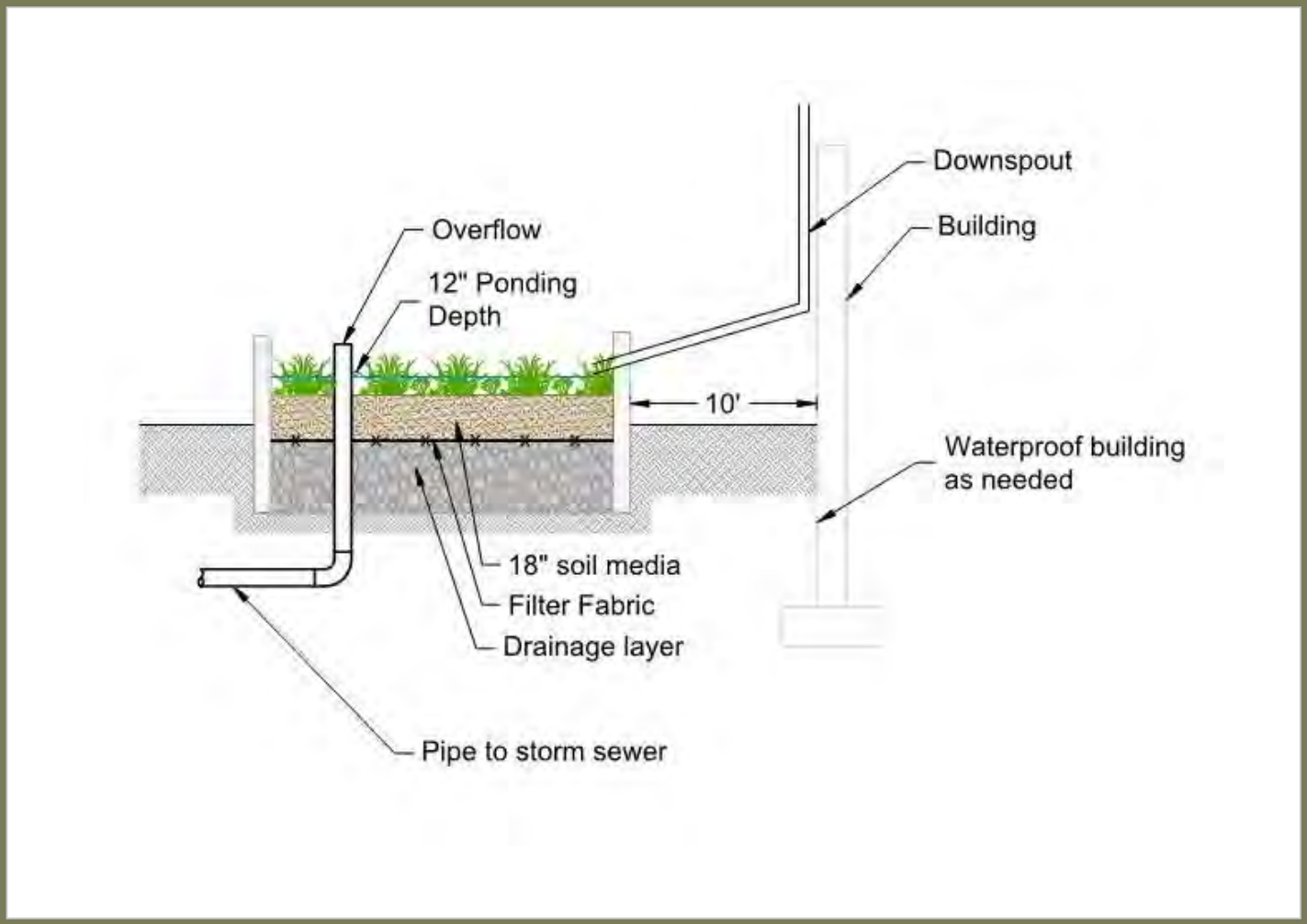


Infiltration Chambers & Drywells

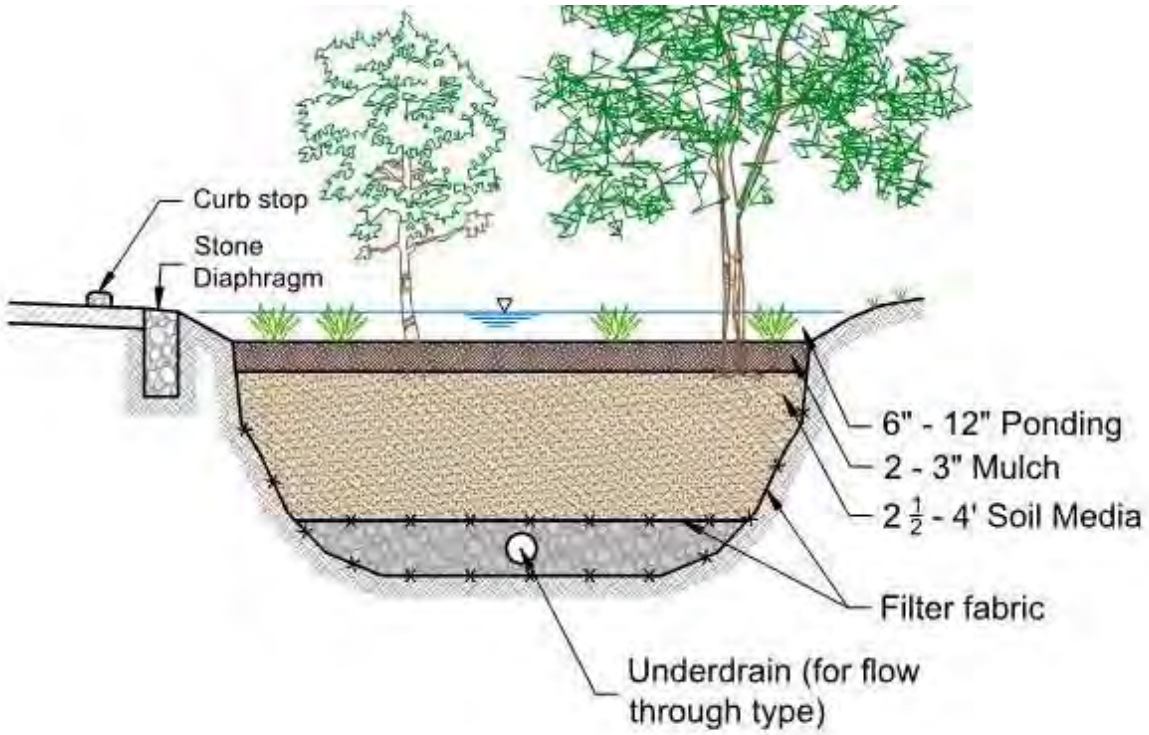
Rain Gardens







Stormwater Planter – Infiltration Type



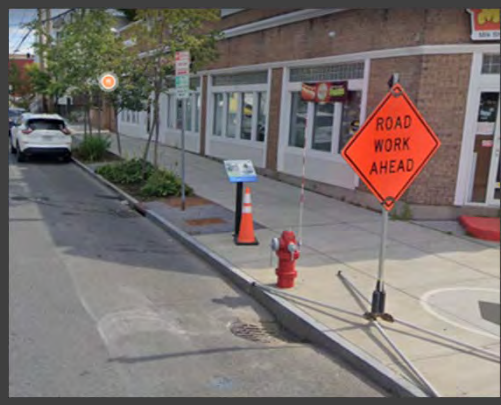
Bioretention Area

Green Infrastructure Toolkit

Developed by Barton and Loguidice for the Albany Pool Communities, the toolkit was developed to showcase Green Infrastructure practices and design considerations specifically areas served by combined systems where volume and detention was critical (as opposed to water quality)

www.cdrpc.org/programs/water-quality/green-infrastructure-toolkit

Green Infrastructure Demonstration Projects in the Capital District



Elberon Place, August 5, 2014

Quail Street Green Infrastructure Project

- Joint DGS and Water Dept Project
- Limited ROW to install Green Infrastructure Practices
- High Traffic area with dense residential and commercial land uses
- Core transit route for the city
- 2013 Feasibility Study identified GI practices for application to NYS Green Innovation Grant from the Clean Water State Revolving Fund (CWSRF) administered by the NYSEFC (NY “Infrastructure bank”)
- 3,850 linear feet
- Roadway 35 to 40 feet wide or 107,200 square feet
- Sidewalk 7 to 15 feet wide or 80,400 square feet
- Project total impervious area 186,700 square feet
- Several existing trees within sidewalk limits
- Poor soils for percolation

Figure G

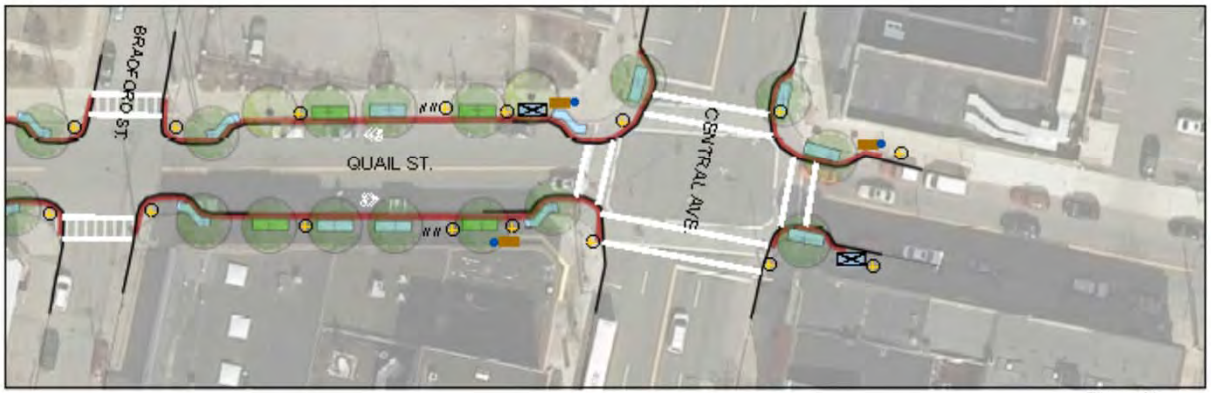


Figure H

Green Infrastructure
Conceptual Layout Plan

- Trash
- Street Light
- Flow Path
- Bike Racks
- Bus Stop
- Bench
- Proposed Trees
- Existing Trees
- Grates
- Plant Bed
- Existing Curb
- Bioretention Area
- Sidewalk Bumpout
- Pervious Paver

0 20 40 60 80 Feet

Green Infrastructure Project
Feasibilty Study
Quail Street
Albany, NY

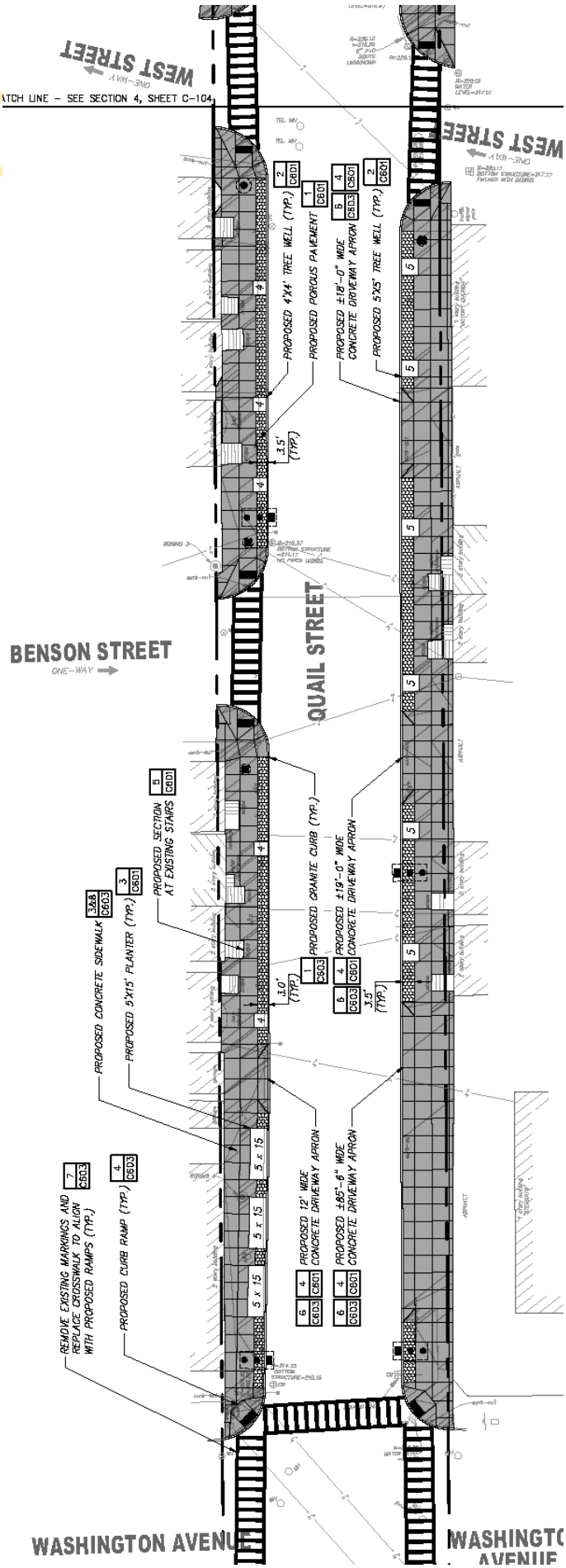
Sheet 4

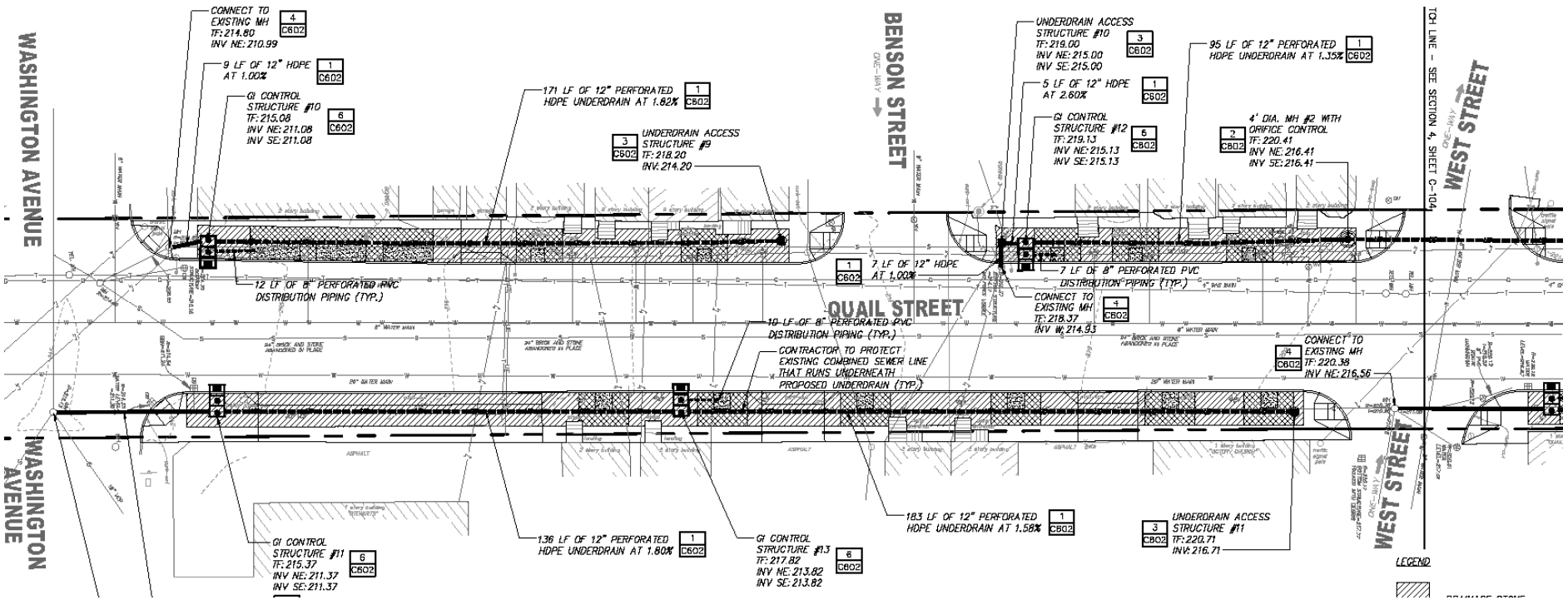
TABLE 2 – Project Concept - Summary Cost Estiamte
Green Infrastructure Project – Quail Street

	COST	SUBTOTAL
CONSTRUCTION		
Construction Cost	$1,900,000.00	$1,900,000.00
ENGINEERING		
Survey (Existing and As-Built)	$65,000.00	
Preliminary Plan Preparation	$45,000.00	
Design Plans and Final Construction Plans	$115,000.00	
Construction Support	$52,000.00	
		$277,000.00
CONTINGENCY		
Contingency	20%	$435,400.00
TOTAL PROJECT ESTIMATED COST		$2,612,400.00

Summary of Water Quality Treatment		
Total Drainage Area	186,740	Square Feet
Water Quality Volume	13,700	Cubic Feet
Total Treatment Volume	14,000	Cubic Feet

Estimated Treatment Volumes by Practice		
Bioretention Areas	7,200	Cubic Feet
Permeable Pavement	6,800	Cubic Feet
Total Treatment Volume	**14,000**	**Cubic Feet**


WEST STREET
ONE-WAY
MATCH LINE - SEE SECTION 4, SHEET C-104
BENSON STREET
ONE-WAY
QUAIL STREET
WASHINGTON AVENUE
PROPOSED 4'X4' TREE WELL (TYP.)
PROPOSED POROUS PAVEMENT
PROPOSED ±18'-0" WIDE CONCRETE DRIVEWAY APRON
PROPOSED 5'X5' TREE WELL (TYP.)
3.5' (TYP.)
PROPOSED SECTION AT EXISTING STAIRS
PROPOSED CONCRETE SIDEWALK
PROPOSED 5'X15' PLANTER (TYP.)
PROPOSED GRANITE CURB (TYP.)
PROPOSED ±19'-0" WIDE CONCRETE DRIVEWAY APRON
1.0' (TYP.)
3.5' (TYP.)
PROPOSED 12' WIDE CONCRETE DRIVEWAY APRON
PROPOSED ±85'-6" WIDE CONCRETE DRIVEWAY APRON
REMOVE EXISTING MARKINGS AND REPLACE CROSSWALK TO ALIGN WITH PROPOSED RAMPS (TYP.)
PROPOSED CURB RAMP (TYP.)
5 x 15
5 x 15
5 x 15


WASHINGTON AVENUE
WASHINGTON AVENUE
BENSON STREET
QUAIL STREET
WEST STREET
WEST STREET
TCH LINE - SEE SECTION 4, SHEET C-104
CONNECT TO EXISTING MH TF: 214.80 INV NE: 210.99
4 C602
9 LF OF 12" HDPE AT 1.00%
1 C602
GI CONTROL STRUCTURE #10 TF: 215.08 INV NE: 211.08 INV SE: 211.08
6 C602
171 LF OF 12" PERFORATED HDPE UNDERDRAIN AT 1.82%
1 C602
3 C602 UNDERDRAIN ACCESS STRUCTURE #9 TF: 218.20 INV: 214.20
12 LF OF 8" PERFORATED PVC DISTRIBUTION PIPING (TYP.)
1 C602 7 LF OF 12" HDPE AT 1.00%
10 LF OF 8" PERFORATED PVC DISTRIBUTION PIPING (TYP.)
CONTRACTOR TO PROTECT EXISTING COMBINED SEWER LINE THAT RUNS UNDERNEATH PROPOSED UNDERDRAIN (TYP.)
UNDERDRAIN ACCESS STRUCTURE #10 TF: 219.00 INV NE: 215.00 INV SE: 215.00
3 C602
95 LF OF 12" PERFORATED HDPE UNDERDRAIN AT 1.35%
1 C602
5 LF OF 12" HDPE AT 2.60%
1 C602
GI CONTROL STRUCTURE #12 TF: 219.13 INV NE: 215.13 INV SE: 215.13
6 C602
4' DIA. MH #2 WITH ORIFICE CONTROL TF: 220.41 INV NE: 216.41 INV SE: 216.41
2 C602
7 LF OF 8" PERFORATED PVC DISTRIBUTION PIPING (TYP.)
CONNECT TO EXISTING MH TF: 218.37 INV W: 214.93
4 C602
CONNECT TO EXISTING MH TF: 220.38 INV NE: 216.56
24 C602
GI CONTROL STRUCTURE #11 TF: 215.37 INV NE: 211.37 INV SE: 211.37
6 C602
136 LF OF 12" PERFORATED HDPE UNDERDRAIN AT 1.80%
1 C602
GI CONTROL STRUCTURE #13 TF: 217.82 INV NE: 213.82 INV SE: 213.82
6 C602
183 LF OF 12" PERFORATED HDPE UNDERDRAIN AT 1.58%
1 C602
3 C602 UNDERDRAIN ACCESS STRUCTURE #11 TF: 220.71 INV: 216.71
LEGEND

QUAIL STREET
GREEN INFRASTRUCTURE PROJECT

This project is being sponsored by the New York State Environmental Facilities Corporation, the City of Albany, and the Albany Water Board

Green infrastructure practices are designed to promote natural interception and infiltration of stormwater.

Stormwater collected from the sidewalk will pass through the porous surface where it will be stored in the system's structural soil and some reused.

Additionally, runoff from Quail Street will be collected into catch basins and then pre-treated to remove floatable and heavy sediment before entering the green infrastructure system.

This process will significantly reduce the impact on the city's combined sewer system—reducing demands during heavy rainfall and subsequent combined sewer overflows to the Hudson River.

The project will serve as a demonstration project, illustrating how green infrastructure works in a typical Albany neighborhood.

FOR MORE INFORMATION PLEASE VISIT:

http://www.albanyny.gov/qualitystreet

OR CONTACT:

Mr. Niall O'Connor, PE, LEED AP
City of Albany Department of Water and Water Supply

Phone: 434-5216
Email: noconnor@albanyny.gov


CAT
SIDEWALK
CLOSED


CAT

FOR MORE INFORMATION PLEASE VISIT:

http://www.albanyny.gov/quailst.aspx

OR CONTACT:

Mr. Matt O'Connor, PE, LEED AP
City of Albany
Department of Water and Water Supply

Phone: 434-5336
Email: moconnor@albanyny.gov

This project is being sponsored by the New York State Environmental Facilities Corporation, the City of Albany, and the Albany Water Board

QUAIL STREET

GREEN INFRASTRUCTURE PROJECT

CONSTRUCTION NOTICE

Where:

Starting Date:

Duration:

COMING SOON TO YOUR BLOCK!

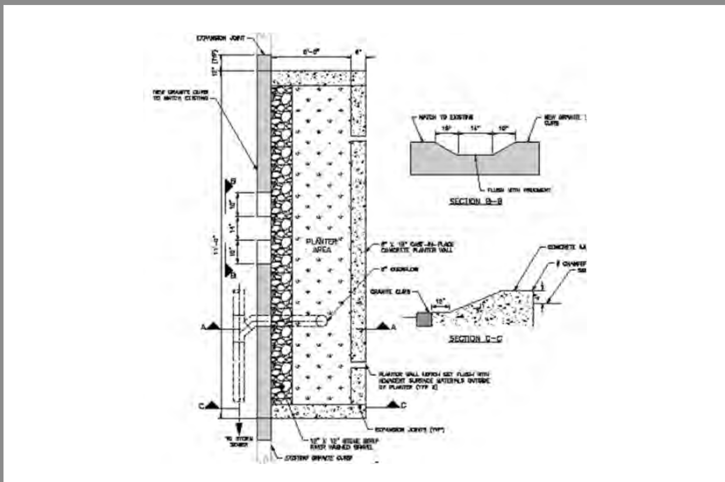
Total Project Cost	**$1,800,435**
Total Cost (minus Grant and in-kind)	$719,185
Owned By	City of Albany
CSO Outfall No.	A-16
Grant Funding or other sources	NYSDEC/EFC GIGP and WQIP Grant programs ($1.8m)
Annual Volume Captured (Mgal)	8.867

Lessons Learned

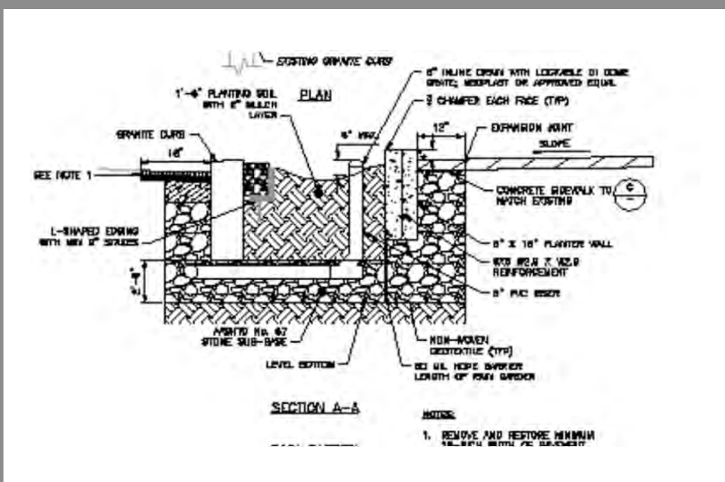
- Coupled with a stormwater separation project that diverted stormwater to Washington Park lake, this project significant reduced incidents of on street flooding
- Maintaining plants, selected for stormwater benefit, is challenging. Some are trampled, cut down or replaced with mulch
- Adjacent resident and business “adoption” of practices isn’t taking place
- This is a high traffic commercial corridor, and trash continues to be an issue
- Plantings need to be redone every year
- So far, the porous pavement is holding up. It may need to be vacuumed to clear void space and maintain its ability to percolate stormwater

Monument Square Green Infrastructure Project

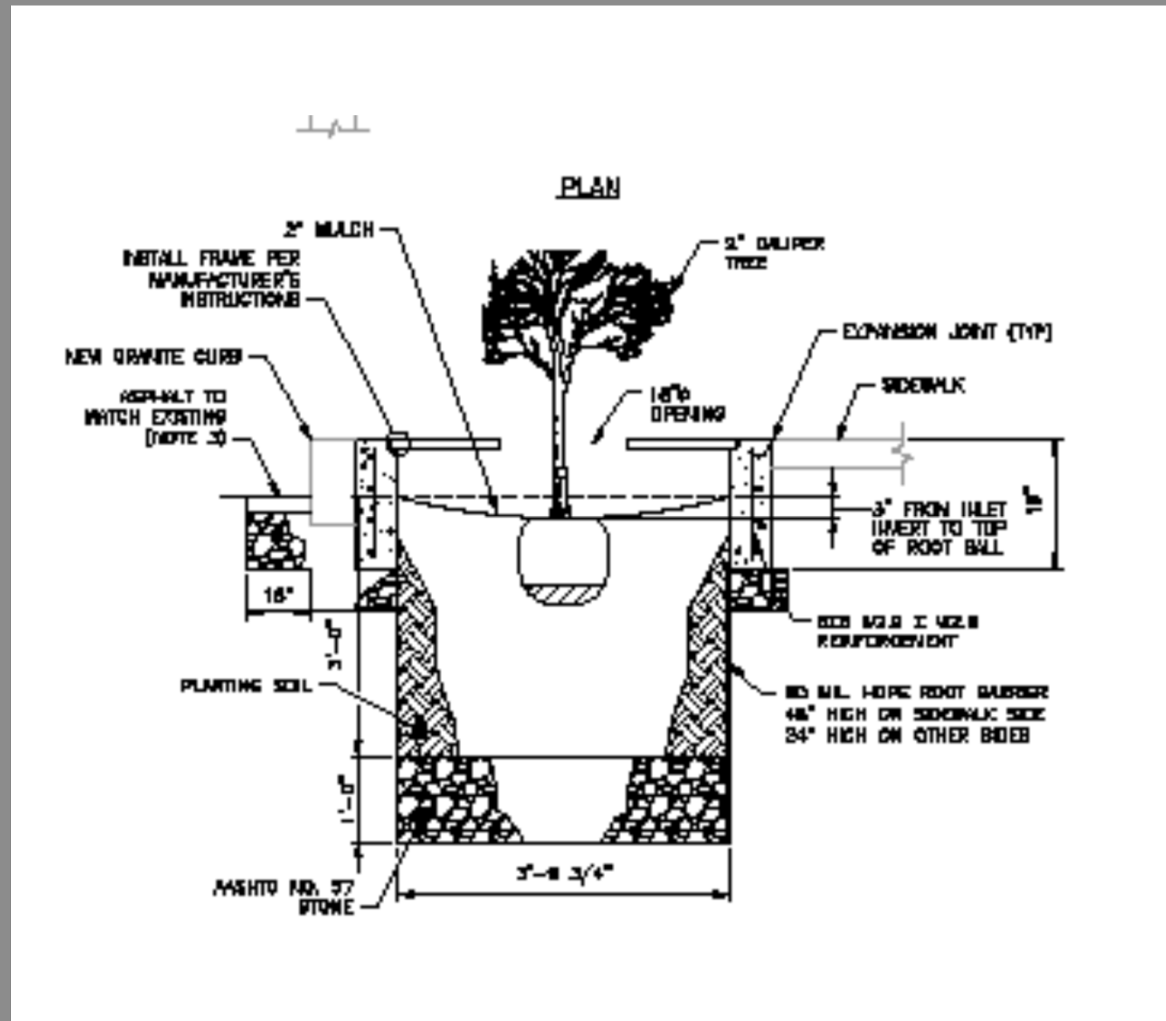
- City of Troy Public Utilities Project
- Limited ROW to install Green Infrastructure Practices
- High Traffic area with dense commercial land uses
- The entire area, including street drains and roof drains empty into the Combined Sewer System
- Planning stated in 2012 with concept to
  - Resurface of the sidewalks and parking lanes with permeable pavement
  - Install subsurface storm line for future stormwater roof drain separation directing flows to the Hudson, bypassing the combined system
- Porous surfaces designed to collect and infiltrate 1” of rainfall, which corresponds to the 90th
- rainfall event. = 90% capture of the average annual stormwater runoff volume, approximately 760,000 gallons or stormwater on an annual basis, effectively reducing the volume of flow conveyed to the combined sewer system by this volume.



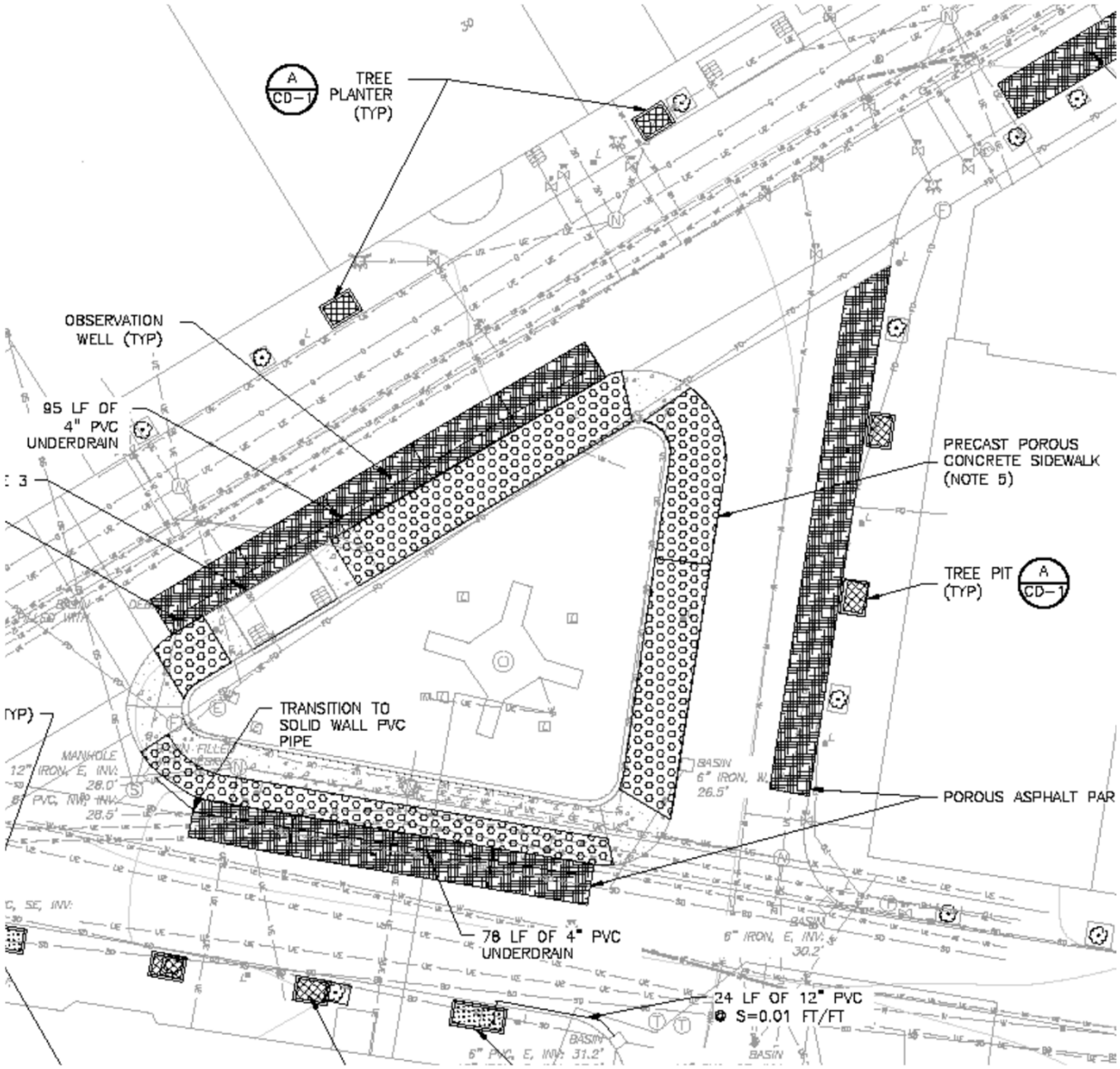
SECTION B-B
SECTION C-C



EXISTING GRANITE CURB
PLAN
1'-4" PLANTING SOIL WITH 2" MULCH LAYER
GRANITE CURB
16"
SEE NOTE 1
L-SHAPED EDGING WITH MIN 9" STAKES
6" MAX.
12"
EXPANSION JOINT
SLOPE
3/4 CHAMFER EACH FACE (TYP)
CONCRETE SIDEWALK TO MATCH EXISTING
8" X 16" PLANTER WALL
8" PVC RISER
AASHTO No. 57 STONE SUB-BASE
LEVEL BOTTOM
NON-WOVEN GEOTEXTILE (TYP)
60 MIL HDPE BARRIER LENGTH OF RAIN GARDEN
SECTION A-A
NOTES:
1. REMOVE AND RESTORE MINIMUM



PLAN
2" MULCH
2" CALIPER TREE
INSTALL FRAME PER MANUFACTURER'S INSTRUCTIONS
EXPANSION JOINT (TYP)
NEW GRANITE CURB
SIDEWALK
ASPHALT TO MATCH EXISTING (NOTE 3)
18" Ø OPENING
3" FROM INLET INVERT TO TOP OF ROOT BALL
16"
REINFORCEMENT
PLANTING SOIL
60 MIL HDPE ROOT BARRIER 48" HIGH ON SIDEWALK SIDE 24" HIGH ON OTHER SIDES
AASHTO NO. 57 STONE
3'-8 3/4"


A
CD-1
TREE
PLANTER
(TYP)
OBSERVATION
WELL (TYP)
95 LF OF
4" PVC
UNDERDRAIN
PRECAST POROUS
CONCRETE SIDEWALK
(NOTE 5)
TREE PIT
(TYP)
A
CD-1
TRANSITION TO
SOLID WALL PVC
PIPE
POROUS ASPHALT PAR
78 LF OF 4" PVC
UNDERDRAIN
24 LF OF 12" PVC
@ S=0.01 FT/FT

Lessons Learned

- Some post project stormwater seepage into adjacent busines' basements required City attention
- Maintaining planters is less challenging, perhaps because businesses and BID have adopted these planters as an attractive streetscape feature
- So far, the porous pavement is holding up. It may need to be vacuumed to clear void space and maintain its ability to percolate stormwater

Total Project Cost	$493,257
Owned By	City of Troy
CSO Outfall	T-30
Grant Funding or other sources	DEC WQIP (75%) $348,342.75
Total Cost (minus Grant and in-kind)	$144,914.25
Annual Volume Captured (Mg)	.760

Route 32 Green Infrastructure Project

- City of Watervliet Project
- Mostly residential area, with space for a wider variety of practices
- Highly visible central corridor for the City
- 2013 Feasibility Study identified GI practices for several grant opportunities. Original scope of project was it was to be part of a complete road reconstruction
-

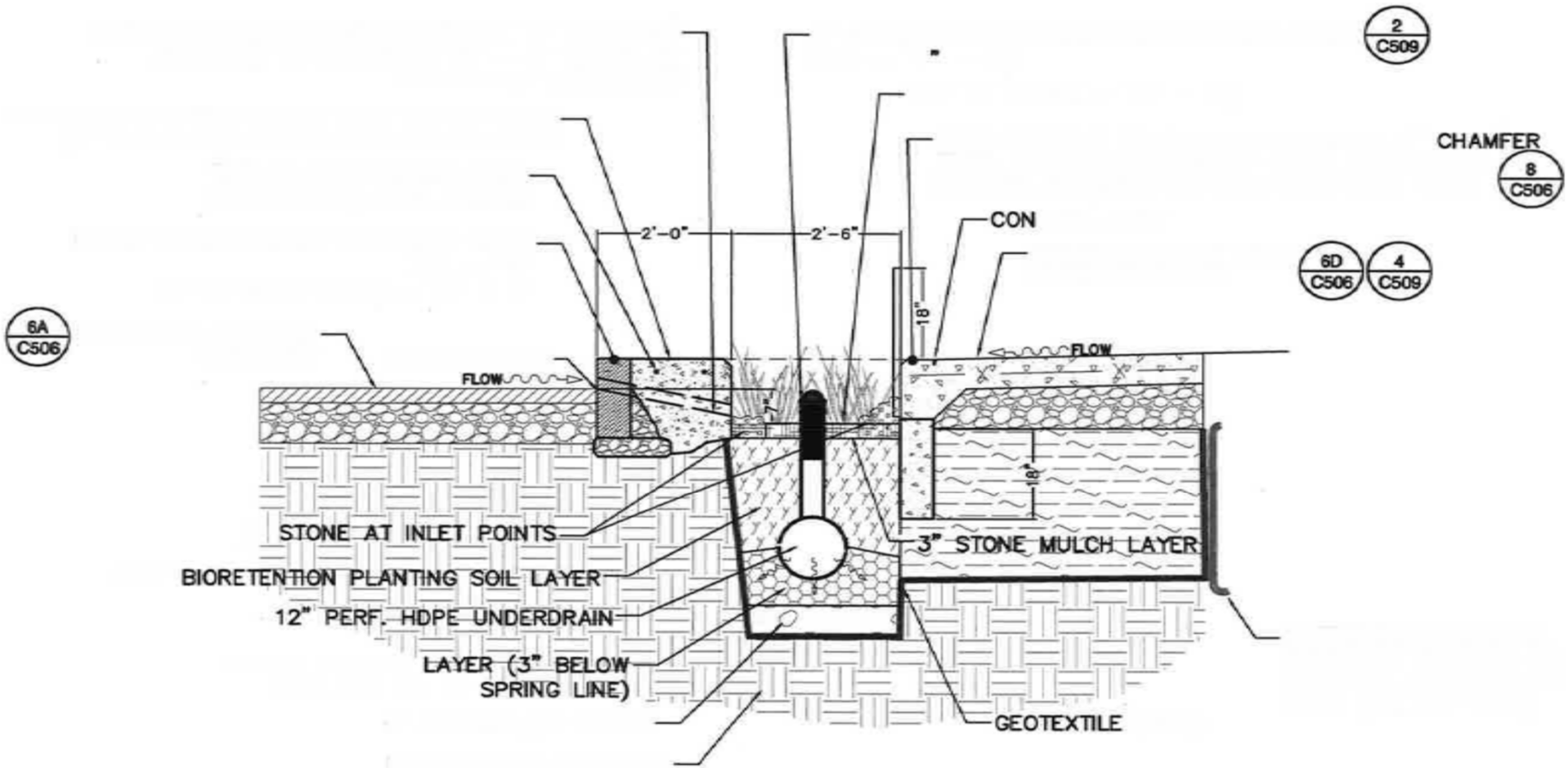
NY Route 32

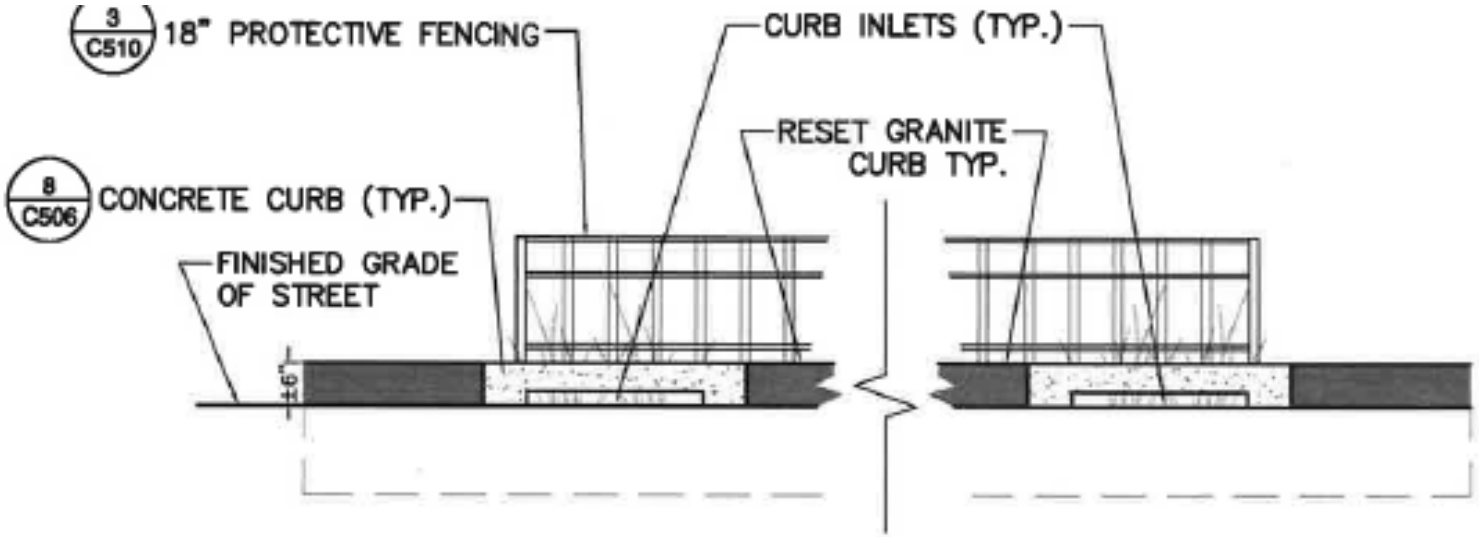
City of Watervliet (Menands City Line to Broadway)

Conventional Pavement Design

OPINION OF PROBABLE COST

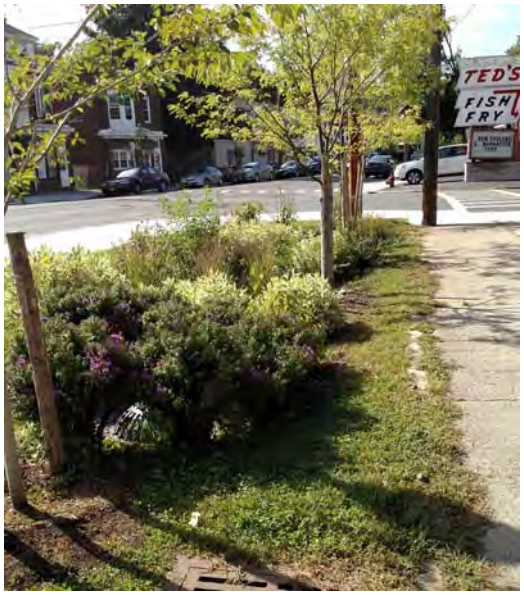
ITEM *(materials, equipment, labor)*	QUANTITY	UNIT	COST/UNIT	COST
Asphalt	8000	TON	$90.00	$720,000
Earthwork	17000	CY	$28.00	$476,000
Subbase	6000	CY	$35.00	$210,000
Sidewalks	600	CY	$550.00	$330,000
Lighting and Landscape	1	Lump Sum	$100,000.00	$100,000
Drainage Structures	60	EA	$4,500.00	$270,000
Drainage Pipe, Underdrains	10000	LF	$75.00	$750,000
Route 32 Mainline Subtotal:				$2,856,000
Rain Gardens	300	SF	$80.00	$24,000
Hydrodynamic Separators	12	EA	$35,000.00	$420,000
Tree Wells	32	EA	$1,800.00	$57,600
Unit SUBTOTAL				$3,357,600
Survey, Engineering (15%)				$503,640
Mobilization (4%)				$134,304
Legal (1%)				$33,576
Administrative Force Account (1%)				$33,576
Technical Force Account (2%)				$67,152
Field Change Payments (5%)				$167,880
Contingency (15%)				$503,640
PROJECT TOTAL				**$4,801,368**


2
C509
CHAMFER
8
C506
6D
C506
4
C509
6A
C506
CON
2'-0"
2'-6"
18"
FLOW
FLOW
7"
18"
STONE AT INLET POINTS
BIORETENTION PLANTING SOIL LAYER
12" PERF. HDPE UNDERDRAIN
LAYER (3" BELOW
SPRING LINE)
3" STONE MULCH LAYER
GEOTEXTILE


3
C510
18" PROTECTIVE FENCING
CURB INLETS (TYP.)
RESET GRANITE
CURB TYP.
8
C506
CONCRETE CURB (TYP.)
FINISHED GRADE
OF STREET
±6"

SECTION B

LTCP Projected Project Cost	**$1,000,000**
Total Construction Cost (minus in-kind)	$1,202,983
Owned By	City of Watervliet
CSO Outfall	W-001 to 004
Grant Funding or other sources	None
Annual Volume Captured (Mgal)	1.33MG



Lessons Learned

- City submitted project for several grant programs including the Transportation Improvement Program and the NYSEFS Green Innovation Grant Program but was unsuccessful
- Project was ambitious and needed to be scaled back after bids came back much higher than budgeted. It went 20% over budget and bidding alternatives of by per unit may have helped
- The community loved the project so much that they communicated to the city they wished the project limits were much larger
- Project demonstrated that GI may be more costly than traditional “Grey” infrastructure, but multiple community benefits are obvious

Local Green Infrastructure Lessons and Best Practices

- Design to the site (no “one size fits all”)
- GI can be expensive, and successful projects have included practices into significant redevelopment initiatives
- The maintenance and management of GI can prove challenging for public sector
- GI can be incorporated into private development projects, but robust enforcement mechanisms needed to ensure it is maintained and functioning
- Benefits of GI go beyond stormwater, and include aesthetic appeal, reducing urban heat island effects and spurring investment
- Fr practices like porous pavement and bioretention, it’s critical that material be correct specification and installed properly to prevent failure

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THANK YOU!

For more information, including access to CDRPC's Green Infrastructure Toolbox, visit

cdrpc.org/programs/water-quality/604b-water-quality-program

CDRPC

STATUS OF CDTC PLANNING INITIATIVES AS OF SEPTEMBER 1, 2020

NAME AND LOCAL SPONSOR	SPONSOR, CONSULTANT OR STAFF, PROJECT COST, CDTC CONTACT	FUNDING APPROVAL DATE	STATUS	COMPLETION DATE (EST.) AND TIME TO COMPLETE THE PROJECT (FUNDING DATE TO ESTIMATED COMPLETION DATE)	PROJECT WEBSITE LINK
LINKAGE PROGRAM					
1. Albany Bicycle and Pedestrian Master Plan City of Albany	Nelson\Nygaard $90,000 Carrie Ward	Policy Board Approved 3/7/19	Demonstration site locations are selected and demonstrations will take place mid-September 2020.	January 2021 22 Months	https://vizcomm.wixsite.com/albanybikepedplan
2. Ballston Spa Pedestrian and Bicycle Master Plan Village of Ballston Spa	TBD $60,000 Jacob Beeman	Policy Board Approved 3/5/20	Request for Expressions of Interest (REI) was released for advertisement on August 7th. Consultant proposals are due by Wednesday September 9th.	November 2021 20 Months	TBD
3. Hoosick Hillside Study City of Troy	Creighton Manning $92,500 Rima Shamieh	Policy Board Approved 3/1/18	SAC met in August to review the draft alternatives and discuss the final public engagement piece. A postcard mailing, fliers and posters to notify the public of the draft report and invite feedback are in development and will be mailed/posted in late August or early September. Multiple ways to engage virtually with the project will be offered, including a survey and an email address to submit comments once stakeholders have watched a pre-recorded public presentation about the draft. Comments will be excepted until Sept 21.	October 2020 31 Months	https://www.hoosick-hillside-study.com/
4. Land Use Regulations Update Village of Menands	TBD $80,000 Rima Shamieh	Policy Board Approved 3/5/20	The Request for Expressions of Interest is in development and is being reviewed by the Village and agency partners.	November 2021 20 Months	TBD
5. Scotia Downtown Connections Plan Village of Scotia	TBD $60,000 Andrew Tracy	Policy Board Approved 3/5/20	Draft scope of work has been shared with the Village and other stakeholders for review.	November 2021 20 Months	TBD
COMMUNITY PLANNNING TECHNICAL ASSISTANCE PROGRAM					
1. Comprehensive Plan & Zoning Code Analysis - NYS Route 50 Town of Glenville	CDTC, CDRPC and Town Staff $12,000 Andrew Tracy	Included in the 2020-2022 UPWP	Kick off meeting was held on August 6th. Draft Transportation Assessment memo has been shared with the Town. CDRPC data analysis underway and Code Review Committee presentation of recommendations slated for October.	TBD	N/A
2. Comprehensive Plan Committee Assistance Town of Westerlo	CDTC, CDRPC and Town Staff $10,800 Sandy Misiewicz	Included in the 2020-2022 UPWP	CDRPC has completed the Survey Analysis Summary Report and Maps. Existing Conditions Report being finalized and will be delivered to Town by the beginning of September.	TBD	N/A
3. Gilligan Road Complete Streets Enhancements Town of East Greenbush	CDTC, CDRPC and Town Staff $13,900 Andrew Tracy	Included in the 2020-2022 UPWP	Schedule has been finalized with the Town. Status meeting held on August 21st. Draft Existing Conditions memo has been developed. Target date for completion of deliverables is December.	December 2020	N/A

NAME AND LOCAL SPONSOR	SPONSOR, CONSULTANT OR STAFF, PROJECT COST, CDTC CONTACT	FUNDING APPROVAL DATE	STATUS	COMPLETION DATE (EST.) AND TIME TO COMPLETE THE PROJECT (FUNDING DATE TO ESTIMATED COMPLETION DATE)	PROJECT WEBSITE LINK
COMMUNITY PLANNNING TECHNICAL ASSISTANCE PROGRAM (Continued)					
4. Western Clifton Park Development & Conservation Trends Analysis Town of Clifton Park	CDTC, CDRPC and Town Staff $18,000 Chris Bauer	Included in the 2020-2022 UPWP	CDRPC completed the data inventory and analysis. CDTC has completed a draft transportation trends analysis, and anticipates all of the deliverables will be substantially complete within the next month. Consultation with Town on public process and recommendations are pending.	October 2020	N/A
OTHER CDTC PLANNING INITIATIVES					
1. New Visions 2050 CDTC - Regional	CDTC Staff $100,000 Jen Ceponis	Included in the 2018-2020 UPWP	CDTC released the Draft New Visions 2050 Plan in early March for public comment. The Plan includes 14 draft white papers and a draft summary document. In response to NYS on Pause and compliance with social distancing measures, CDTC has canceled public and in-person meetings. CDTC conducted a virtual public involvement series and developed several tools to engage the public and collect feedback. The draft plan with a summary of public comments was presented to Planning Committee on August 5th, where it was approved. CDTC anticipates Policy Board approval on September 3rd.	September 2020	https://www.cdtcmpo.org/nv2050
2. Bus Lane Feasibility Study CDTA and CDTC - Regional	TBD $200,000 Sandy Misiewicz	Included in the 2020-2022 UPWP	CDTA and CDTC have initiated development of the Request for Proposals.	December 2021	TBD
3. Local Bridge Preservation Report CDTC - Regional	TBD $105,000 Andrew Tracy	Included in the 2020-2022 UPWP	Request for Qualifications issued Wednesday, July 8th, 2020. Four proposals were received on Wednesday, August 12th, 2020 and shared with consultant selection committee. Notice to proceed is anticipated to be issued in September.	May 2021	TBD
4. NY 7 Freight & Land Use Study CDTC, Towns of Rotterdam and Princetown	TBD $145,000 Chris Bauer	Included in the 2020-2022 UPWP	The draft Request for Expressions of Interest, including the scope of work, was completed, and is currently being reviewed by the Town of Rotterdam and the Town of Princetown.	December 2021	TBD
5. NY 378 PEL Bridge Study NYSDOT	TBD $TBD Susan Olsen, NYSDOT Sandy Misiewicz	TIP Project A605/R344: NY 378 Troy Menands Bridge Study	RFP Issued by NYSDOT on August 14, 2020 with a September 11, 2020 submission deadline.	TBD	TBD
6. ADA Self-Evaluation and Transition Plan for Pedestrian Infrastructure	City of Saratoga Springs TBD Carrie Ward	Included in the 2020-2022 UPWP	Kick-off meeting with advisory group held mid-August 2020.	TBD	TBD
7. ADA Self-Evaluation and Transition Plan for Pedestrian Infrastructure	Town of Glenville TBD Carrie Ward	Included in the 2020-2022 UPWP	Kick-off meeting with advisory group held mid-August 2020.	December 2020 8 months	TBD