Green Infrastructure Planning Project: Code & Local Law Review

An in-depth look at the efforts of the Albany Pool Communities

City of Albany

City of Cohoes

City of Rensselaer

City of Troy

City of Watervliet

Village of Green Island

http://togethernorthjersey.com/wp-content/uploads/2014/04/Green-Infrastructure-Strategy-for-the-City-of-Hoboken.jpg

Stormwater Coalition of Albany County
Green Infrastructure Model Local Law Project

Summary Report:
Process, Findings, and Implementation

November 2013

Project Phases

- Phase 1: Scorecard completion & Consultant Team review of existing documentation
- Phase 2: Identify gaps
- Phase 3: Research other GI laws/guidelines
- Phase 4: Present model local law(s)
- Phase 5: Conduct follow-up survey

GI Local Laws – Project Team

- Barton & Loguidice, DPC
- Harris Beach, PLLC
- Ryan Biggs | Clark Davis Engineering & Surveying, P.C.
- O'Brien & Gere, Inc.

Phase I

GI Scorecard

Consultant Team Review

- B&L and Harris Beach researched existing codes, guidance, plans, and other documents (including those in progress) for each of the Pool Communities. Examples include:
  - Rensselaer:
    - Ch. 145 of Code: Stormwater Management
    - Ch. 179 of Code: Zoning
    - 2006 Comprehensive Plan and Short-Term Implementation Guide
    - 2011 Local Waterfront Revitalization Program Update
  - Troy:
    - Ch. 159 of Code: Erosion and Sediment Control and Stormwater Management
    - Ch. 285 of Code: Zoning
    - Ch. 286 of Code: Storm Sewers
    - Documents developed through Comprehensive Plan Update process

Local Law Survey - Scorecard

- Albany County Stormwater Coalition built scorecard
- Purpose was to evaluate existing municipal zoning ordinances, comprehensive plans, review procedures, and local laws against recognized green infrastructure practices
- Resulted in an overall "Green Score"
- In addition to overall scores, the total score was broken out into sub-categories for:
  - Reduction of Impervious Cover
  - Preservation of Natural Areas and Conservation Design
  - Design Elements for Stormwater Management
  - Promotion of Efficient, Compact Development Patterns and Infill

Scorecard Methodology

- Each community was provided with a scorecard and instructions
- Communities asked to identify all development rules that apply in municipality
- Also asked to identify the local, state, and federal authorities that administer or enforce development rules
- The scorecard was completed and scored by each MS4, giving the Consultant Team specific indications of the respective municipal needs and desired areas of code revisions to be pursued.

Category I: Reduction of Impervious Cover					
Street width and length	Yes	No	Score	Local Law ID reference: code name/section/page #	Clarification / notes
1. What is the minimum pavement width allowed for streets in low density residential developments that have less than 500 daily trips, average daily trips (ADT)? *If your answer is between 18-22 feet, give yourself 1 point.*					
2. At higher densities are parking lanes allowed to also serve as traffic lanes (i.e., queuing streets)? *If your answer is YES, give yourself 1 point.*					
3. Do street standards promote the most efficient street layouts that reduce overall street length? (e.g. a grid plan) *If your answer is YES, give yourself 1 point.*					
Right-of-Way Width					
4. What is the minimum right of way (ROW) width for a residential street? *If your answer is less than 55 feet, give yourself 1 point.*					
5. Does the code allow utilities to be placed under the paved section of the ROW? *If your answer is YES, give yourself 1 point.*					
Cul-de-Sacs					
6. What is the minimum radius allowed for cul-de-sacs? *If your answer is less than 35 feet, give yourself 1 point.* *If your answer is between 35 feet to 45 feet, give yourself .5 point.*					
7. Can a landscaped island be created within the cul-de-sac? *If your answer is YES, give yourself 1 point.*					
8. Are alternative turnarounds such as "hammerheads" allowed on short streets in low density residential developments? *If your answer is YES, give yourself 1 point.*					
Page 1 Subtotal					

Phase II

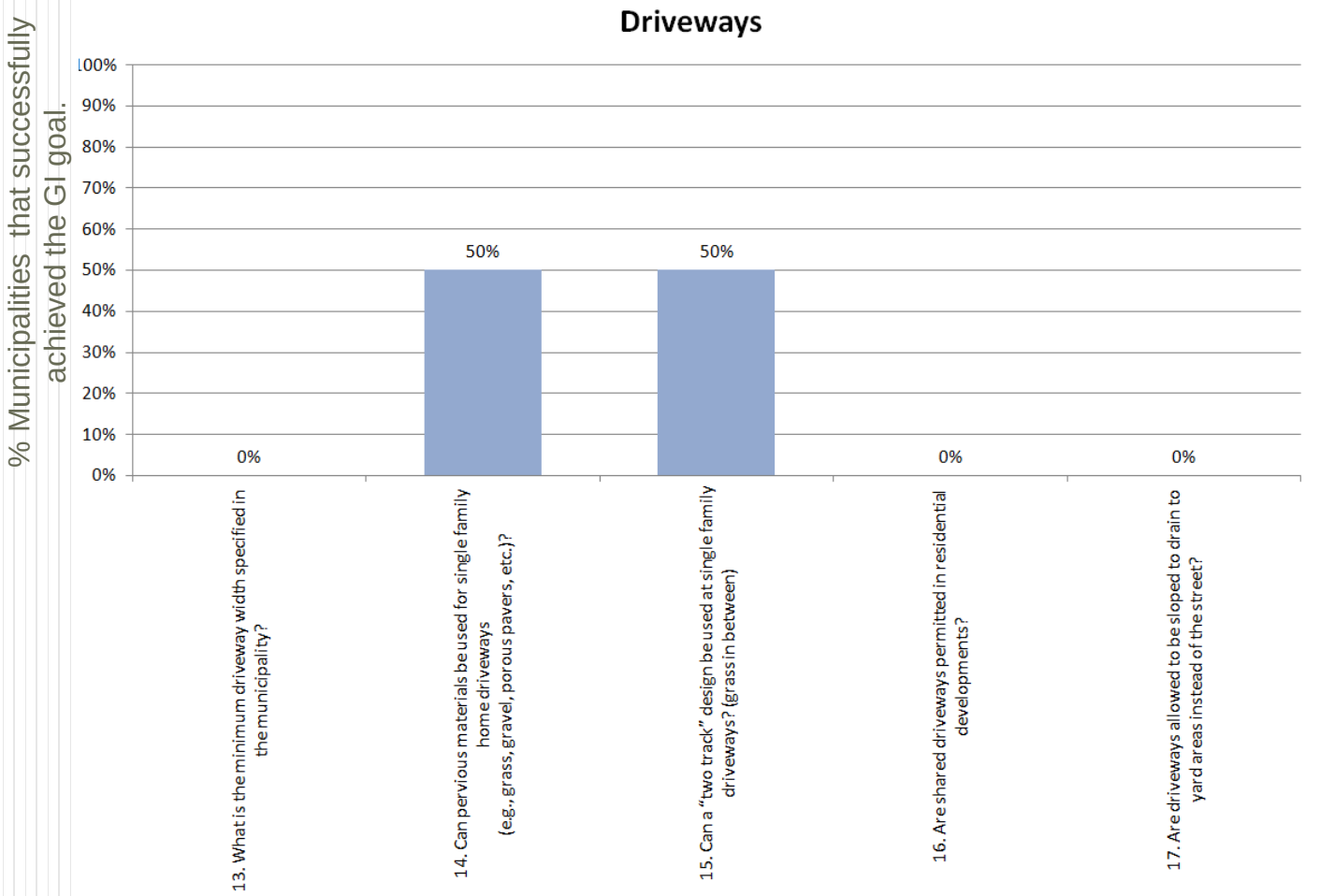
Gap Selection

Scorecard Analysis and Gap Selection

- Consultant Team checked, and corrected if necessary, the math on scorecard subtotals
- Consultant Team listed all scorecard questions that received a score of "0" from one or both municipalities, and grouped them according to similarity.
- Groupings were provided to the technical team for review and comment, leading to modifications in groupings.
- The groupings were provided to the communities for ranking, prioritization

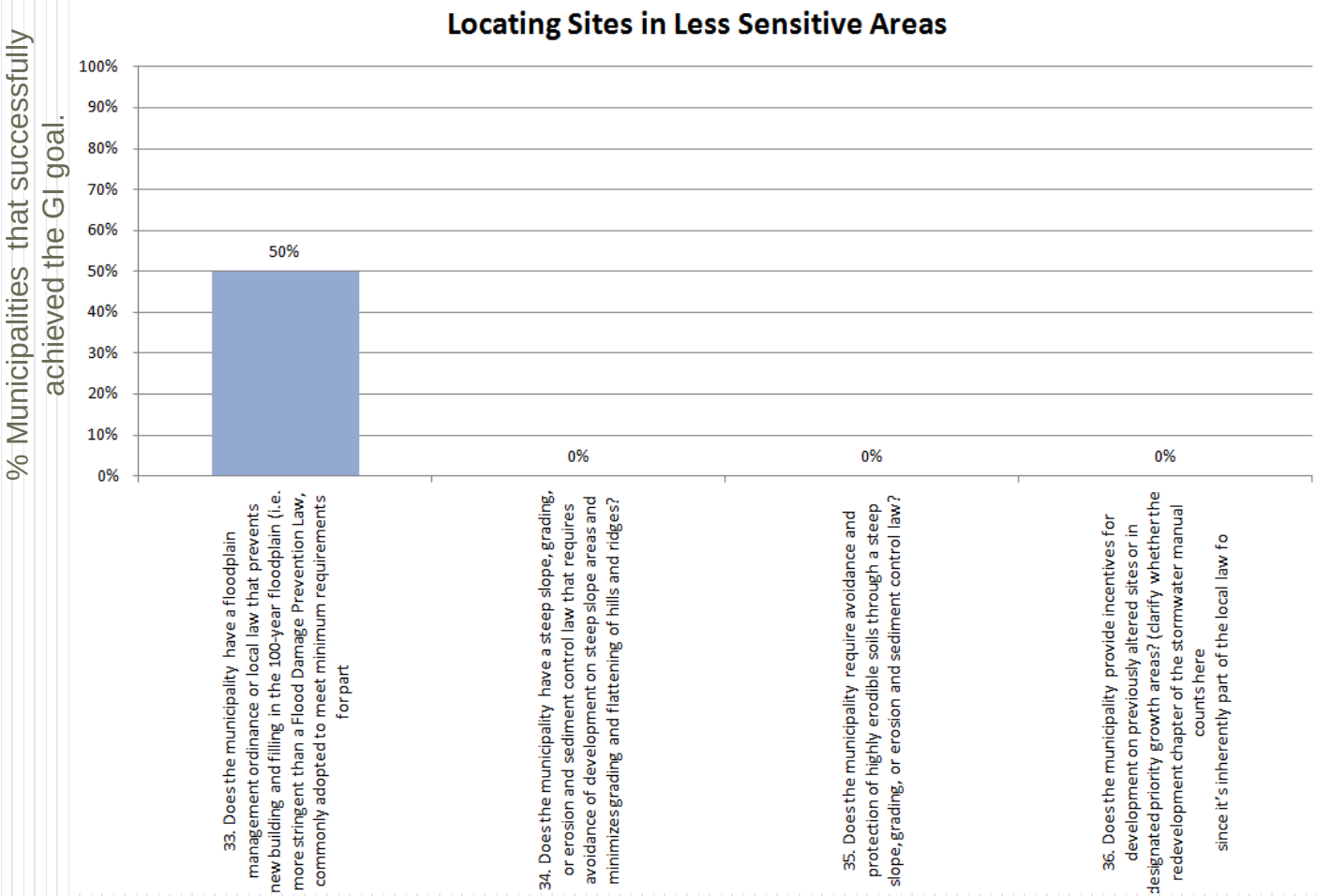
Sampling of Actual Results

(Troy & Rensselaer)



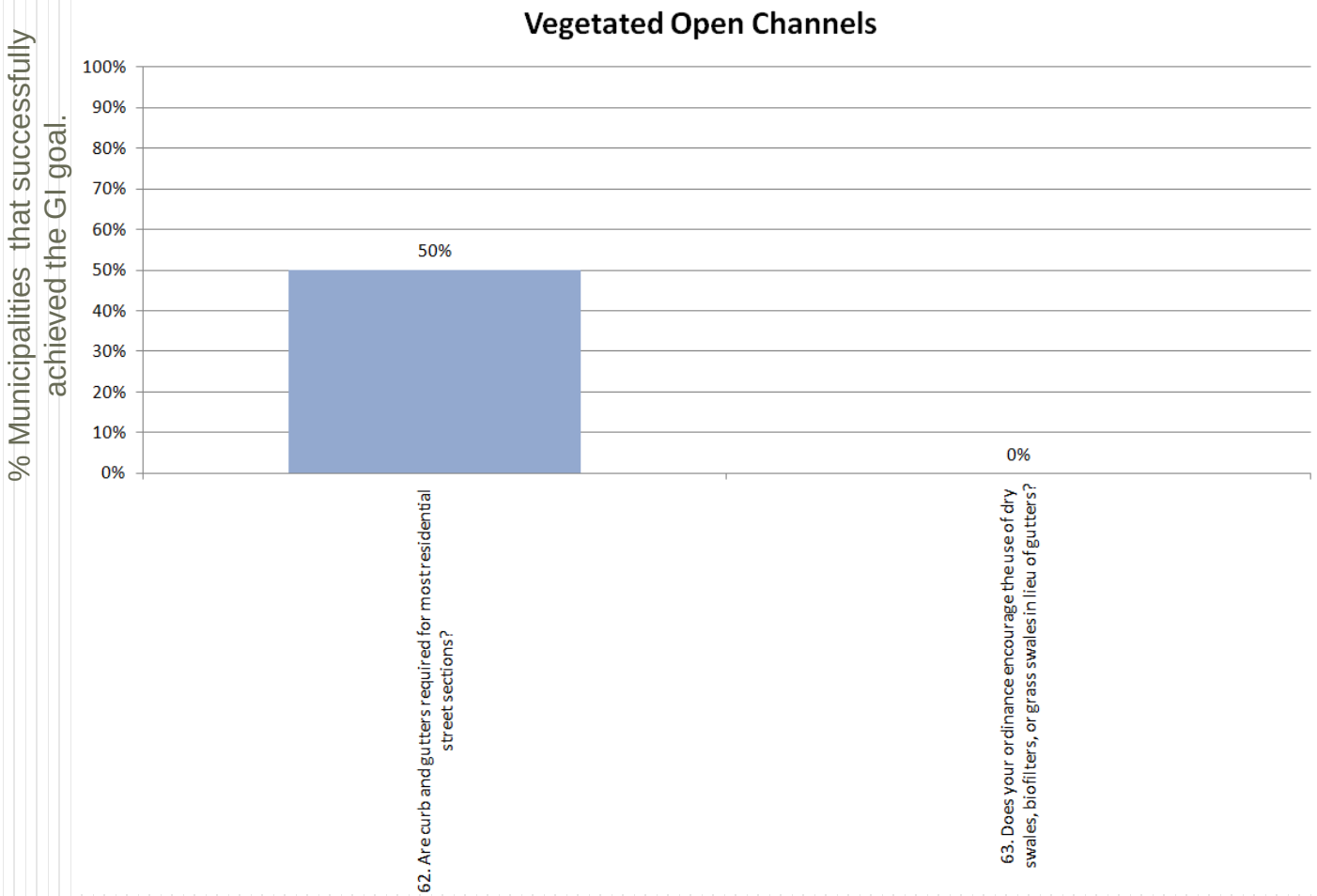
Sampling of Actual Results

(Troy & Rensselaer)



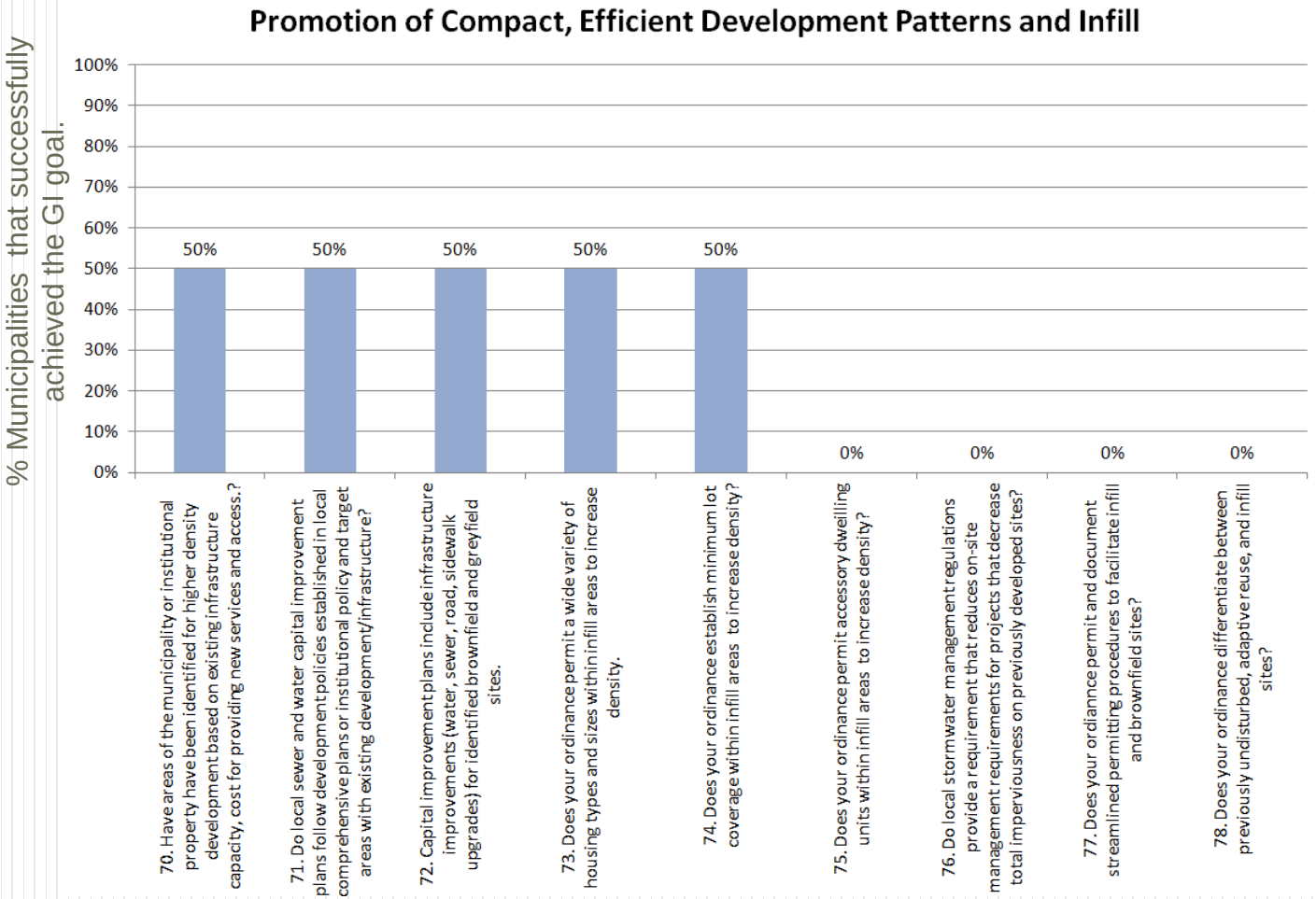
Sampling of Actual Results

(Troy & Rensselaer)



Sampling of Actual Results

(Troy & Rensselaer)



Ranking Spreadsheet

- For Troy and Rensselaer
  - The 4 scorecard categories contained multiple subcategories (topics)
  - Within topics, scorecard questions were grouped according to likeness
  - Groupings (gaps) were determined to be best addressed by law OR guideline
  - 12 gaps were identified, of which 8 were to be selected
  - Troy and Rensselaer were asked to rank gaps according to priority
  - Average ranking became final ranking

Ranking Spreadsheet

Scorecard Category	Topic	Gap ID	Format	Minimum Scorecard Items to Address	Ranking
Category 1: Reduction of Impervious Cover	Driveways	Gap 1	Code	13. What is the minimum driveway width specified in the municipality?	
				17. Are driveways allowed to be sloped to drain to yard areas instead of the street?	
		Gap 2	Guideline	14. Can pervious materials be used for single family home driveway (e.g., grass, gravel, porous pavers, etc.)?	
				15. Can a "two track" design be used at single family driveways? (grass in between)	
				16. Are shared driveways permitted in residential developments?	
	Shared Parking	Gap 3	Code	23. Are parking ratios reduced if shared parking arrangements are in place?	
				24. If mass transit is provided nearby, is the parking ratio reduced?	
		Gap 4	Guildeline	21. Is the use of shared parking arrangements permitted?	
				22. Are model shared parking agreements provided? (i.e. plowing and maintenance)	
	Parking Lot Design	Gap 5	Code	18. What is the minimum parking ratio for a professional office building (per 1,000 ft2 of gross floor area)?	
				19. What is the minimum required parking ratio for shopping centers (per 1,000 ft2 gross floor area)?	
				27. Are at least 30% of the spaces at larger commercial parking lots required to have smaller dimensions for compact	
		Gap 6	Guideline	28. Can pervious materials be used for spillover parking areas?	
				29. Is a minimum percentage of a parking lot required to be landscaped?	
				30. Is the use of bioretention areas and other stormwater practices within landscaped areas or setbacks allowed?	
Category 2: Preservation of natural features and conservation design	Locating Sites in Less Sensitive Areas	Gap 7	Code	34. Does the municipality have a steep slope, grading, or erosion and sediment control law that requires avoidance of development on steep slope areas and minimizes grading and flattening of hills and ridges?	
				35. Does the municipality require avoidance and protection of highly erodible soils through a steep slope, grading, or erosion and sediment control law?	
Category 3: Design Elements for Stormwater Management	Open Channels and Rooftop Runoff	Gap 8	Code	62. Are curb and gutters required for most residential street sections?	
		Gap 9	Guildeline	63. Does your ordinance encourage the use of dry swales, biofilters, or grass swales in lieu of gutters?	
				65. Do current grading or drainage requirements allow for temporary ponding of stormwater on front yards or rooftops?	
Category 4: Promotion of efficient, compact development patterns and infill	Density Incentives	Gap 10	Code	74. Does your ordinance establish minimum lot coverage within infill areas to increase density?	
		Gap 11	Guideline	75. Does your ordinance permit accessory dweilling units within infill areas to increase density?	
	Infill	Gap 12	Code	76. Do local stormwater management regulations provide a requirement that reduces on-site management requirements for projects that decrease total imperviousness on previously developed sites?	
				78. Does your ordinance differentiate between previously undisturbed, adaptive reuse, and infill sites?	

Selected Gaps, in order of ranking

- Of the 12 options, the following 8 were ranked highest, by average, and renamed as listed below:
  - Gap 1: Infill (specifically requested that the language require small sites to adhere to GI principles)
  - Gap 2: Locating Sites in Less Sensitive Areas
  - Gap 3: Parking Lot Design (porous, landscaping, GI)
  - Gap 4: Density (Accessory Dwelling Units in infill areas)
  - Gap 5: Parking Lot Design (parking ratios and compact cars)
  - Gap 6: Open Channels and Rooftop Runoff (alternatives to gutters and grey infrastructure)
  - Gap 7: Parking Lot Design (shared parking)
  - Gap 8: Density (minimum lot coverage requirements)

Phase III

Research of GI local laws/documents

Gap Research

- The Consultant Team researched relevant guidance, laws, and design standards throughout the Country, as well as to document those learned or developed through industry experience

Research Resources

- Codes Developed through Albany County Stormwater Coalition GI project
- Follow-up survey results from APC communities who participated in the Albany County Stormwater Coalition GI project
- City of Chicago, IL "Green Alleys" and Stormwater/GI Code
- Maryland:
  - "Models and Guidelines for Infill Development":
- EPA:
  - "Smart Growth And Economic Success: Investing In Infill Development"
  - "Attracting Infill Development In Distressed Communities: 30 Strategies"
- Georgia (Department of Community Affairs): "Infill Development Program"
- Nashville, TN: Low Impact Development GI Design Sheets and Infill GI and Stormwater requirements
- City of Portland, OR: Accessory Dwelling Unit Standards
- Washington State Municipal Research and Services Center
  - Accessory Dwelling Unit guidance
- City of Seattle, WA: Accessory Dwelling Unit standards
- Pima County, AZ: Guest House Code
- Alexandra, VA: "Del Ray Parking Study" Sample Shared Parking Agreement
- Utica, NY: Long Term Control Plan
- New York, NY: GI Language (Construction Code, Zoning, GI Program)
- City of Philadelphia Stormwater Management Guidance Manual, Version 3.0, Dated July 2015
- Buffalo Sewer Authority Stormwater Program

Phase IV

Present model laws/guidelines

Code/Guideline Reviews

- B&L prepared draft language for each of the eight gaps
- Draft gap language was distributed to the CDRPC and the Project Team for review and comment
- Draft gap language was then distributed to Troy and Rensselaer for review and comment
- B&L met one-on-one with Troy and Rensselaer to discuss GI wishlist and expected project outcome
- Comments were addressed as appropriate by B&L

Drafting of Laws

- After addressing the comments, Consultant Team organized much of the language to ensure a flexible "tiered" approach
- Included separating the various requirements identified in each local law into one of three categories based on level of progressiveness in the industry and other local governments
  - Minimum Action Level
  - Best Management Action Level
  - Model Community Action Level

Drafting of Laws

- Several numbers (dimensions, ratios, percentages, etc) within the local law language are bolded
  - Indicates that the number represents a progressive standard
  - Can be modified to best suit Troy and Rensselaer
- Local law language represents a collection of codes that can be pulled from as deemed applicable, or used as a whole
- Sections can be relaxed or made more stringent, and not all sections are necessary to use if not pertinent
- Each section represents a stand-alone suggested practice/language, and Troy and Rensselaer can decide which to implement

Gap 1: Infill

- Requires infill site development and additions (thresholds noted in language) to address water quality and runoff reduction volumes by implementing GI
- Captures sites with less than 1 acre disturbance
- Encourages soil decompaction, avoiding development on pervious soils with infiltration rates equal to or above 0.5" or greater, disconnecting impervious surfaces, implementing green infrastructure, and more.

Gap 1: Infill

North Swan Street at Ten Broeck Place, Albany, NY, c. August 2007.

Source: Google Street View

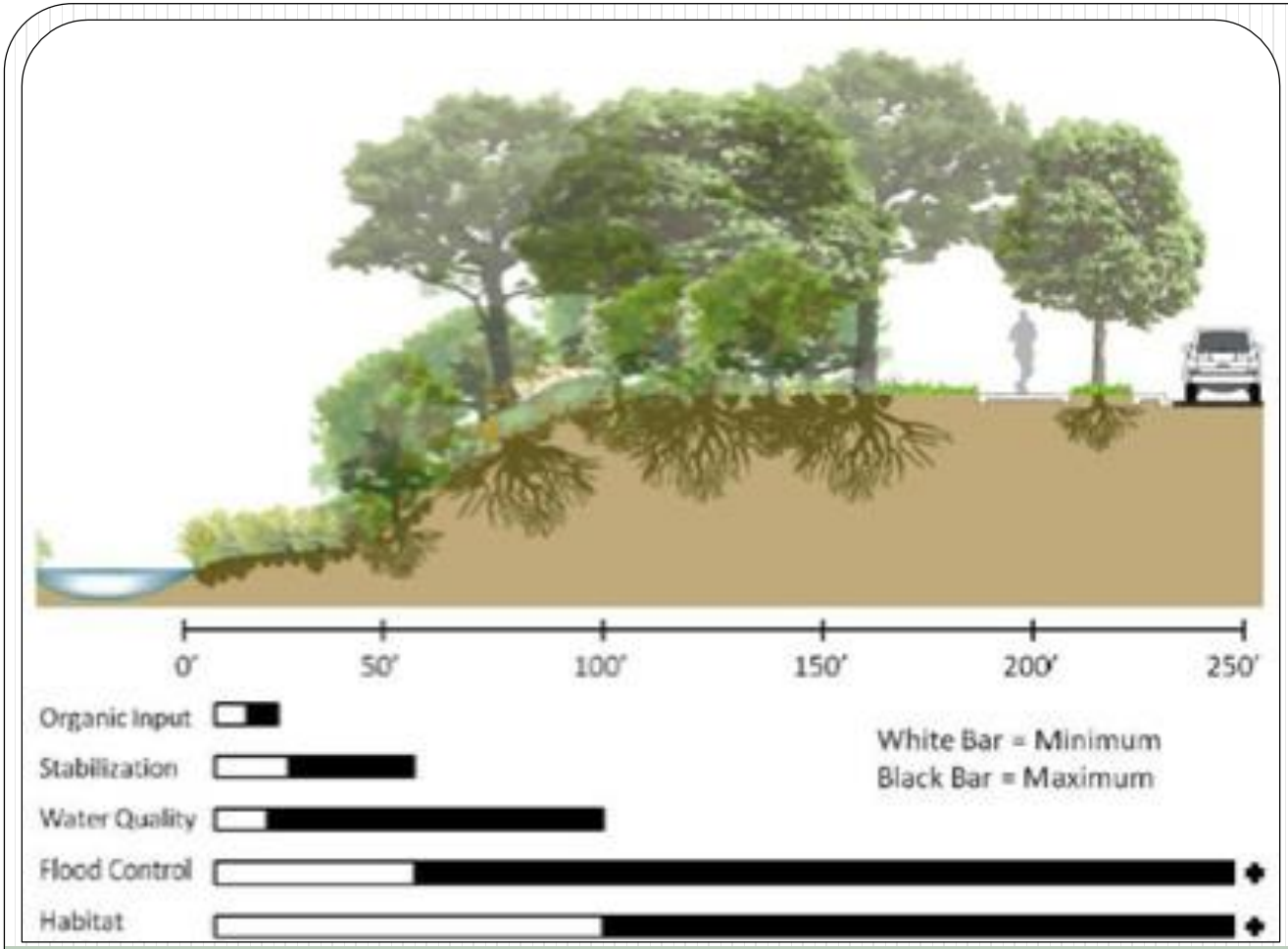
Gap 1: Infill

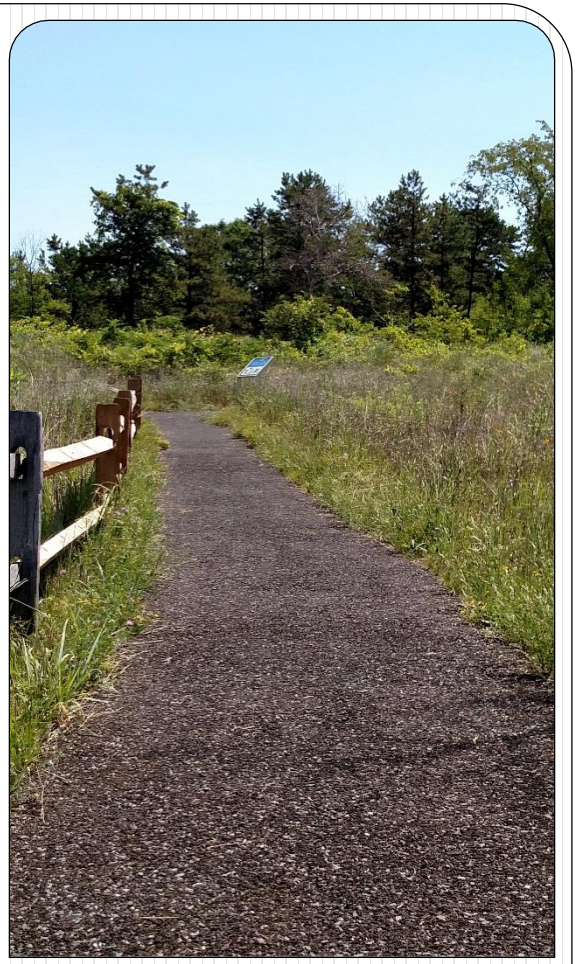
Infill Housing, North Swan Street at Ten Broeck Place, Albany, NY, September 24, 2015.

Source: Barton & Loguidice, D.P.C.

Gap 2: Locating Sites in Less Sensitive Areas

- Requires site plans to identify key environmental features such as 100 yr floodplain, slopes equal or greater than 15%, a tree conservation plan, wetlands, hydrologic soils groups, and more
- Identifies optional limits of disturbance as they relate to site features
- Option to require sites to implement porous surfaces where beneficial soils will be covered
- Calls out natural resource buffers and allowable uses within the buffer
- Provides tree protection language





Gap 2: Locating Sites in Less Sensitive Areas

On the left: Riparian Buffer Zones (Source: www.austintexas.gov/faq/riparian-zone-restoration)

On the right: Flexipave pathways at the Albany Pine Bush Preserve

Gap 3: Parking Lot Design

- Provides development standards for:
  - Impervious surfaces
  - Landscaping
  - Snow storage areas
  - Off-street parking space design
  - Tree planting and selection
  - Environmental standards for parking lots construction on greenspace
  - Pervious design requirements for parking lots constructed on soils with high infiltration rates

Gap 3: Parking Lot Design

On the left: Walkway and bioswale at the Adirondack Wild Center

On the right: Interlocking Concrete Permeable Pavers at the Albany Pine Bush Preserve

Gap 4: Density

- Specific to permitting Attached and Detached Accessory Dwelling Units on existing developed or infill lots
- Provides size and setback standards, as well as ownership requirements
- Optional language is provided to enhance community engagement, provide an appeals process for the applicant, and more.

Gap 4: Density

Detached Accessory Dwelling Unit "Carriage House"

Source: http://www.startribune.com/right-to-build-accessory-dwelling-heads-to-minneapolis-council/282303781/

Gap 5: Parking Lot Design (Ratios)

- Determines required off-street parking spaces for various uses
- Sets maximums, with a requirement for pervious surfaces if maximums must be exceeded (unless site conditions do not allow)
- Allows existing excess spaces to be converted into landscaped or bicycle spaces
- Encourages reduction in parking spaces based on proximity to mass transit
- Allows land-banked parking in anticipation of need (keep green/pervious until need is demonstrated or reached)
- Provides standards for inclusion and design of compact car/motorcycle/bicycle spots

Gap 5: Parking Lot Design

Compact car space in downtown Troy, adjacent to rooftop disconnect (HSBC parking lot on Broadway)

Source: B&L

Gap 5: Parking Lot Design (Ratios)

NOTES:

1. THE SUBSTANTIAL COMPLETION DATE FOR THE NORTH LOT IS NOVEMBER 20, 2015. THE PARKING LOT WILL BE CLOSED DURING CONSTRUCTION PHASE UNTIL COMPLETED.

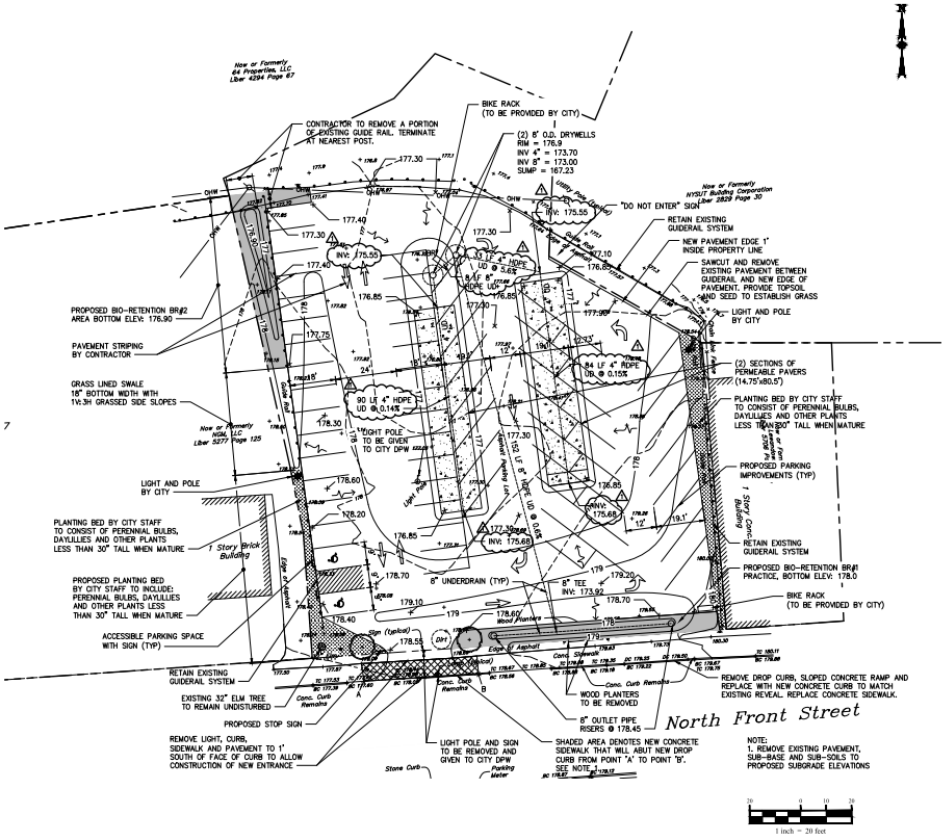
NOTE:
COORDINATE PLANTING PLAN WITH ENGINEER.

BIO-RETENTION BR#1 PLANTING SCHEDULE

QTY.	SYM	"BOTANICAL NAME COMMON NAME"	SIZE	ROOT	MIN. SPACING	REMARKS
TREES AND SHRUBS						
2	AC	"AMELANCHIER CANADENSIS SHADOWBUSH, SERVICEBERRY "	6' HT	B&B	36" O.C.	
1	CO	"CEPHALANTHUS OCCIDENTALIS BUTTONBUSH"	1 GAL	CONT.	24" O.C.	MOUNDED
3	MY	"MYRICA PENSYLVANICA BAYBERRY"	1 GAL	CONT.	36" O.C.	AT LEAST ONE MALE & ONE FEMALE REQ'D
1	VD	"VIBURNUM DENTATUM ARROWWOOD VIBURNUM "	36" HT	B&B	15' O.C.	
PERENNIALS AND ORNAMENTAL GRASSES						
6	AG	"AGROSTIS ALBA REDTOP"	1 GAL.	CONT.	48" O.C.	CLUMP FORM
10	AS	"ANDROPOGON SCOPARIUS LITTLE BLUESTEM"	1 GAL	CONT.	24" O.C.	CLUMP FORM
16	CL	"CHASMANTHIUM LATIFOLIUM NORTHERN SEA OATS"	1 QT	CONT.	12" O.C.	CLUMP FORM
8	CV	"CAREX VULPINOIDEA FOX SEDGE "	1 QT	CONT.	12" O.C.	CLUMP FORM
200 SF	LO	"LOTUS CORNICULATUS BIRDFOOT DEERVETCH"	SEED		0.2 lb/1000 SF	
10	PA	"PANICUM VIRGATUM SWITCHGRASS"	1 QT	CONT.	18" O.C.	CLUMP FORM
6	RF	"RUDBECKIA FULGIDA BLACK EYED SUSAN"	1 GAL	CONT.	12" O.C.	CLUMP FORM

BIO-RETENTION BR#2 PLANTING SCHEDULE

QTY.	SYM	"BOTANICAL NAME COMMON NAME"	SIZE	ROOT	MIN. SPACING	REMARKS
TREES AND SHRUBS						
1	AC	"AMELANCHIER CANADENSIS SHADOWBUSH, SERVICEBERRY "	6' HT	B&B	36" O.C.	
1	CO	"CEPHALANTHUS OCCIDENTALIS BUTTONBUSH"	1 GAL	CONT.	24" O.C.	MOUNDED
2	MY	"MYRICA PENSYLVANICA BAYBERRY"	1 GAL	CONT.	36" O.C.	AT LEAST ONE MALE & ONE FEMALE REQ'D
1	VD	"VIBURNUM DENTATUM ARROWWOOD VIBURNUM "	36" HT	B&B	15' O.C.	
PERENNIALS AND ORNAMENTAL GRASSES						
4	AG	"AGROSTIS ALBA REDTOP"	1 GAL.	CONT.	48" O.C.	CLUMP FORM
8	AS	"ANDROPOGON SCOPARIUS LITTLE BLUESTEM"	1 GAL	CONT.	24" O.C.	CLUMP FORM
10	CL	"CHASMANTHIUM LATIFOLIUM NORTHERN SEA OATS"	1 QT	CONT.	12" O.C.	CLUMP FORM
6	CV	"CAREX VULPINOIDEA FOX SEDGE "	1 QT	CONT.	12" O.C.	CLUMP FORM
200 SF	LO	"LOTUS CORNICULATUS BIRDFOOT DEERVETCH"	SEED		0.2 lb/1000 SF	
6	PA	"PANICUM VIRGATUM SWITCHGRASS"	1 QT	CONT.	18" O.C.	CLUMP FORM
6	RF	"RUDBECKIA FULGIDA BLACK EYED SUSAN"	1 GAL	CONT.	12" O.C.	CLUMP FORM



NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

COMPLETED CONSTRUCTION
Significant Construction Changes Are Shown
By RRW Date 03/03/16
Ck'd BDG Date 03/03/16

REVISIONS

	DEC COMMENTS
1	

CITY OF KINGSTON
KINGSTON UPTOWN PARKING LOTS REHABILITATION PROJECT
NORTH PARKING LOT
ULSTER COUNTY, NEW YORK
CITY OF KINGSTON

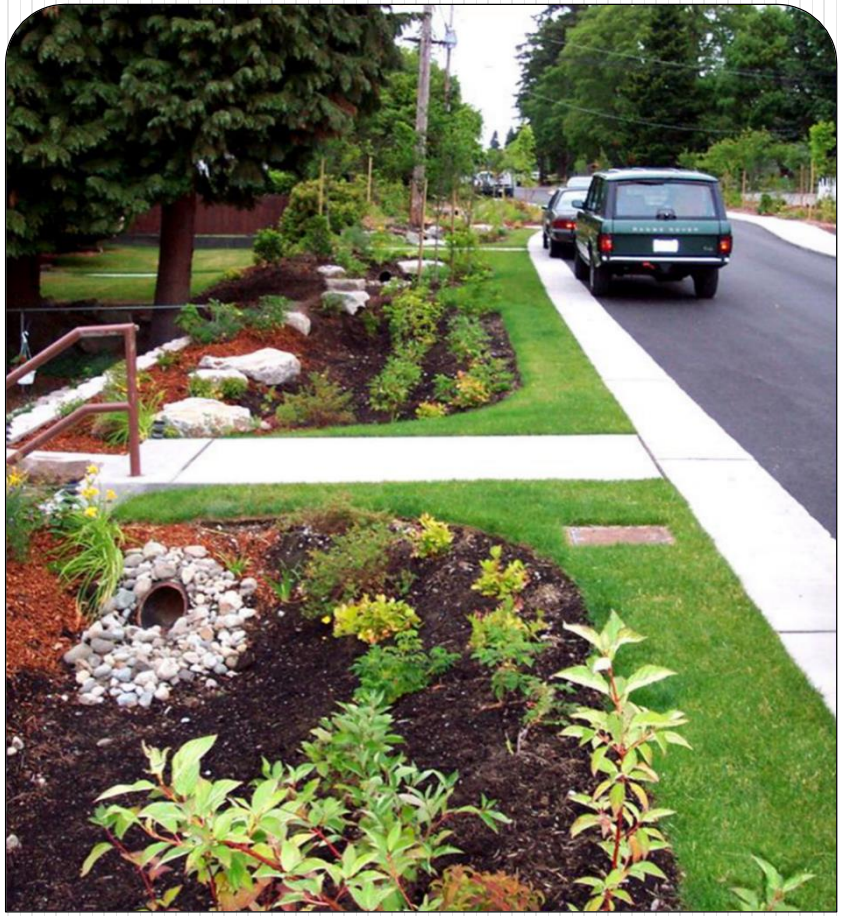
Barton & Loguidice, D.P.C.

Date AUGUST 2015
Scale 1"=20'
Sheet Number G 1.1
Project Number 1696.001.F3

File Name: Z:\BL-Vault\02\1517A02-1C71-4623-B527-98D5C4D5414F\0\78100D-78199\78136\\L\1696001-01_Design (10 78136D).dwg.dwg Project No.: 1696.001.001 Project Name: ----
Checked by: BDG Drawn by: BBB Designed by: BLK In Charge of: BDG Last Saved: 4/24/2016

Gap 6: Open Channels and Rooftop Runoff

- Encourages directing rooftop runoff away from storm sewers where development is proposed on hydrologic soil groups A and B
  - Must not encroach property line
  - Must not exacerbate existing environmental issues
- Provides incentives for developments that include blue or green roofs that provide a reduction in off-site stormwater flow for a 24-hr 1-inch rainfall event



Gap 6: Open Channels and Rooftop Runoff

On the Left: Urban Residential Open Channel "Bioswale" (www.neavestormwater.com/sustainable-features/bioswales)

On the Right: Rain barrel at the Albany Pine Bush Preserve

Gap 6: Open Channels and Rooftop Runoff

Urban Residential Open Channel "Bioswale" with contributing Rooftop Disconnects

Source: http://www.greenergood.com/index.php/train/item/599-what-is-a-bioswale

Gap 7: Shared Parking

- Encourages shared parking facilities/surface lots where peak use times are complementary
- Requires binding agreements and necessary access easements
- Requires proof of adequate parking capacity to determine whether new spots still must be provided
- Provides a model shared parking agreement

Gap 7: Shared Parking

KeyBank parking lot in Troy, 4th St., across from The Shop, Rare Form, Superior Merch, and Forage+Sundry becomes municipal parking after 5 pm. Signage present in the lot to indicate hours.

Source: Google Street View

Gap 8: Density

- Assumes GI will be required by use of other gap language, and as such sets a minimum lot coverage to encourage density and infill.
  - "Minimum lot coverage on infill sites shall be 50% of the maximum lot coverage requirements as prescribed in [insert municipal name] Zoning Code. Lot coverage for infill sites shall adhere to the definition provided herein, which includes green structures and amenities designed for public use as well as green infrastructure measures designed for stormwater management."

Implementation

- Troy and Rensselaer are encouraged to take the language back to their governing boards for review and consideration
- A decision matrix will be provided to Troy and Rensselaer to solicit feedback as to whether they intend to adopt the local law/guidance language

This presentation was prepared with funds provided by the New York Department of State under the Local Government Efficiency Grant Program.

COMMENTS OR QUESTIONS?

Martin Daley
Capital District Regional Planning Commission
One Park Place, Suite 102
Albany, NY 12205
(518) 453-0850
mdaley@cdprc.org
www.cdrpc.org

Nadine R. Medina, P.E., CPESC, LEED AP
Sr. Project Engineer
Barton & Loguidice, D.P.C.
10 Airline Drive, Suite 200
Albany, NY 12205 (518) 218-1801 Ext. 2044
nmedina@bartonandloguidice.com
www.bartonandloguidice.com