



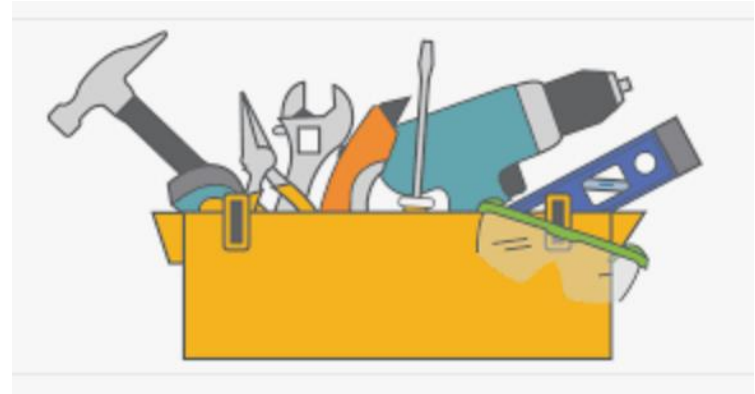
Legal Techniques to Implement **Green** Infrastructure

Thursday, March 7, 2019
10:15-11:45 AM

Dwight Merriam, FAICP
www.dwightmerriam.com

Legal Toolkit

- Planning Tools
- Regulatory Tools
- Incentive-Based Tools
- Government Operations



With special thanks to the **Georgetown Climate Center** for their most excellent report:
<https://www.georgetownclimate.org/adaptation/toolkits/green-infrastructure-toolkit/scaling-up-integrating-green-infrastructure-into-existing-processes.html>

**What Are We Trying to
Accomplish?**

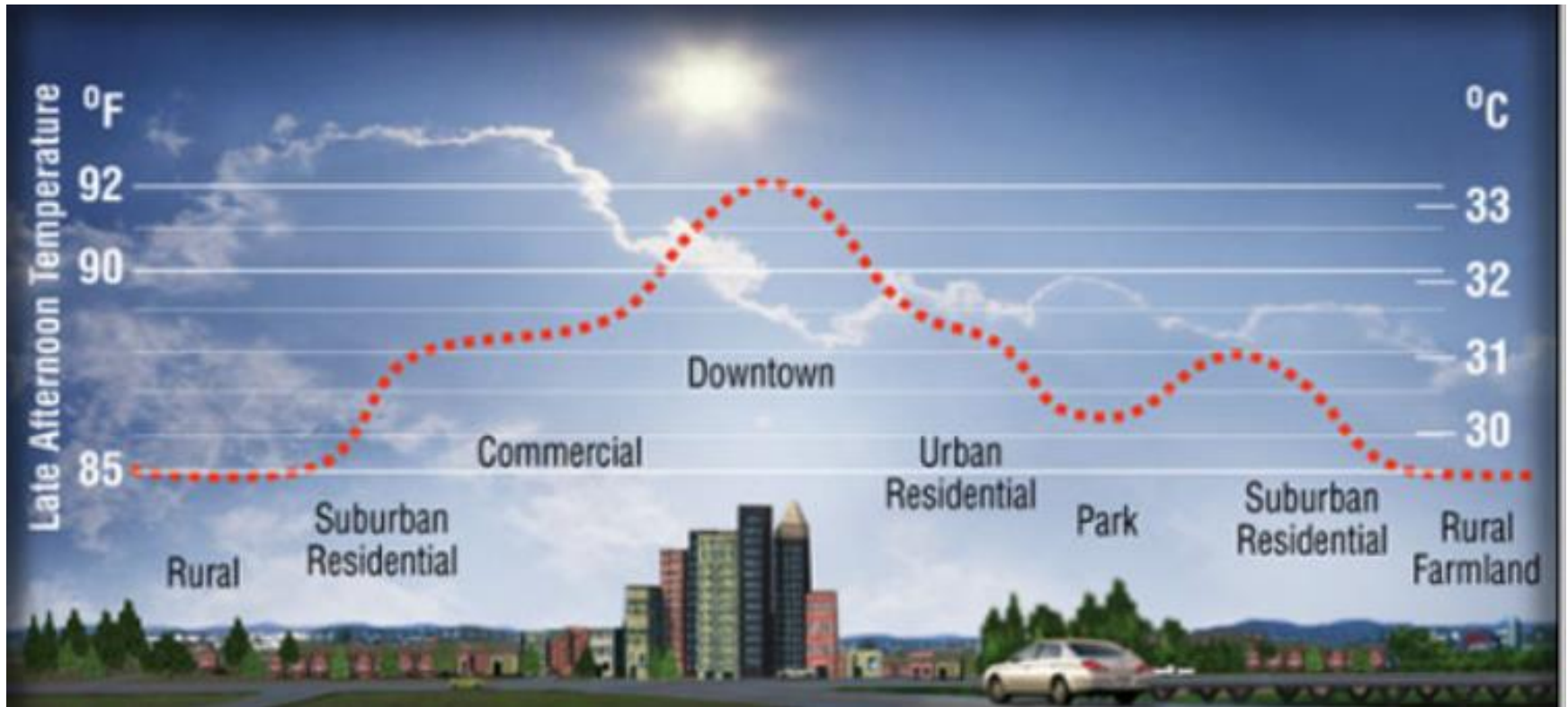
Stormwater



Air Quality



Urban Heat Island Effects



Economic Development

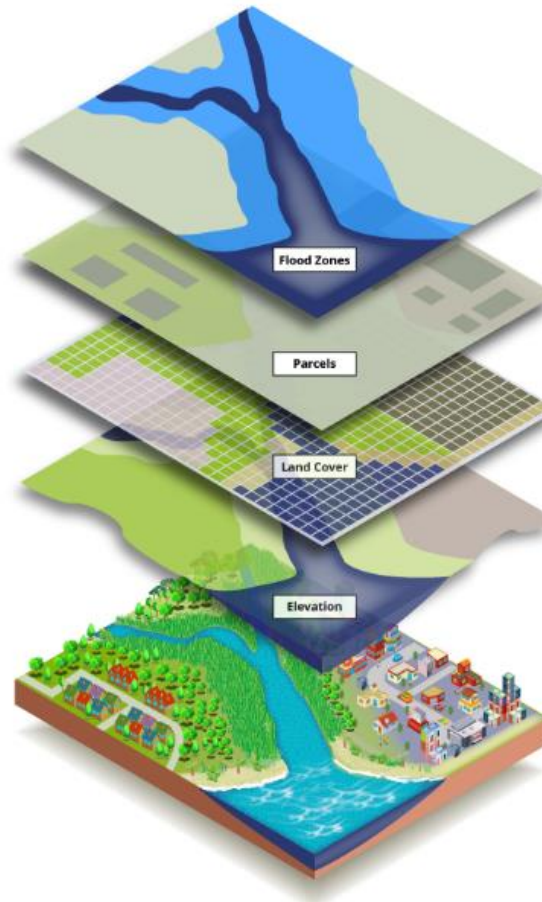




Planning Tools

- Green infrastructure-specific plans

<https://coast.noaa.gov/digitalcoast/training/gi-mapping.html>





In order to reduce flooding, a section of westbound Brambleton Avenue between Colley Avenue and the Brambleton Bridge has been widened and elevated. The increase in elevation has decreased the impact of flooding during high tide events which has improved access to the region's medical complex.

- **Comprehensive plans**

CAPITAL IMPROVEMENT PLANNING GUIDE

DEVELOPING A COMPREHENSIVE COMMUNITY PROGRAM



D L S
DIVISION OF LOCAL SERVICES
MA DEPARTMENT OF REVENUE

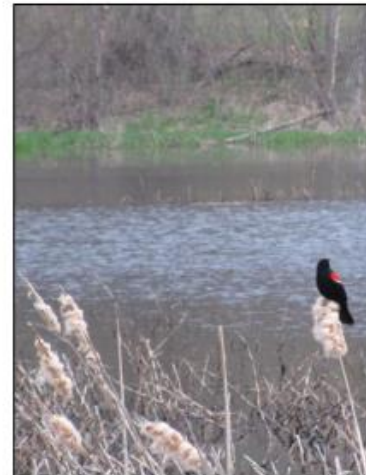
AUGUST 2016

https://www.mass.gov/files/documents/2016/08/ov/cipguidefinal.pdf?_ga=2.51194473.1986167605.1550345634-432718775.1550345634

Linn County Comprehensive Plan

A Smarter Course

Building on the Past, Embracing the Future of Rural Linn County



Volume 1

Overview

Plan Elements

Development Guidance

Land Use Map

Implementation

SECTION 1: INTRODUCTION TO “A SMARTER COURSE”	1
SECTION 2: ELEMENTS	7
INTRODUCTION	7
ALTERNATIVE AND RENEWABLE ENERGY	8
ECONOMIC DEVELOPMENT AND EMPLOYMENT OPPORTUNITIES	12
HAZARD PLANNING.....	18
LIVABLE COMMUNITIES	25
RESOURCE PROTECTION	32
SUSTAINABLE DEVELOPMENT.....	40
TRANSPORTATION	47
SECTION 3: DEVELOPMENT GUIDANCE	53
INTRODUCTION	53
SPECIFIC DEVELOPMENT GUIDANCE REQUIREMENTS	54
GENERAL DEVELOPMENT GUIDANCE – LAND USE MAP DESIGNATIONS	55
FRINGE AREA PLANS	65
SECTION 4: LAND USE MAP	69
SECTION 5: IMPLEMENTATION	71
INTRODUCTION	71
ALTERNATIVE AND RENEWABLE ENERGY	73
ECONOMIC DEVELOPMENT AND EMPLOYMENT OPPORTUNITIES	76
HAZARD PLANNING.....	80
LIVABLE COMMUNITIES	85
RESOURCE PROTECTION	91
SUSTAINABLE DEVELOPMENT.....	96
TRANSPORTATION	100

	Type of Development		Public vs. Private Property		Administrative	Legal
	New	Existing	Public	Private		
Green infrastructure-specific plans	+	+	+	+	~	~
Comprehensive plans	+	~	+	+	~	~

+ Advantageous: The strategy maximizes benefits and is feasible.

~ Neutral: The strategy may present mixed advantages and disadvantages.

- Disadvantageous: The strategy presents some disadvantages or may be infeasible.

Regulatory Tools

- Zoning Codes
 - Location of uses
 - Criteria for approval
 - Conditions on approval



Street Features

Green infrastructure approaches can be incorporated into street design with permeable pavements, bioswales, tree pits, green streets, green alleys, and green parking.



Building Features

Buildings can be “greened” with green roofs, downspout disconnections, and rain barrels.



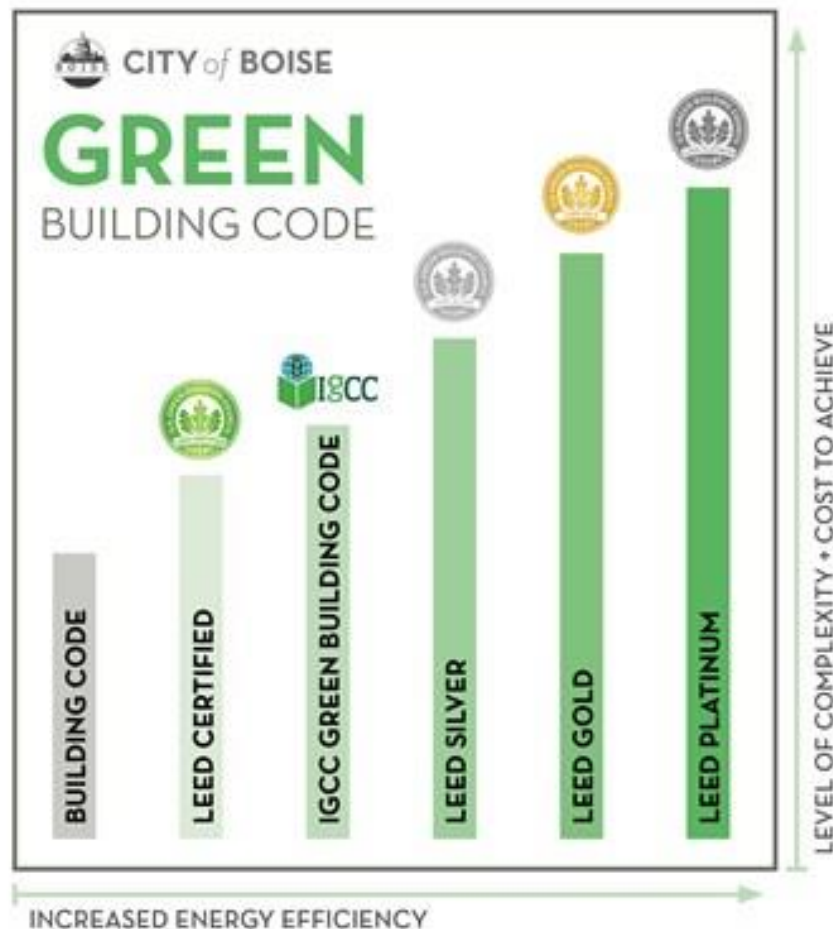
Landscape Features

Landscapes can be used to manage stormwater with rain gardens, urban tree canopy, land conservation, stream buffers, and stormwater parks.

- **Building Codes**

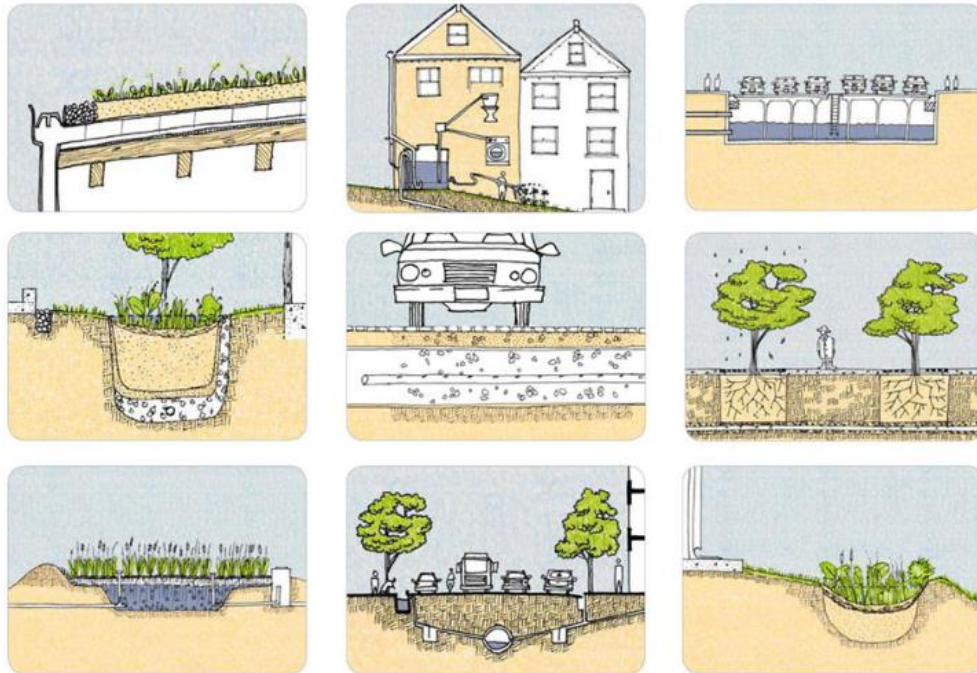
- **Boise City Green Construction Code**

<https://cityclerk.cityofboise.org/media/223414/0407.pdf>



- **Stormwater Ordinances**
 - **San Francisco Stormwater Management Ordinance**

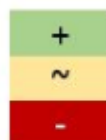
<http://www.greencitiescalifornia.org/water-1/san-francisco-stormwater-management-ordinance>



SAN FRANCISCO
stormwaterdesignguidelines

Image Credit: SFPUC

	Type of Development		Public vs. Private Property		Administrative	Legal
	New	Existing	Public	Private		
Zoning Codes	+	~	+	+	~	~
Building Codes	+	~	+	+	~	~
Stormwater Ordinances	+	~	+	+	~	~



+ Advantageous: The strategy maximizes benefits and is feasible.

~ Neutral: The strategy may present mixed advantages and disadvantages.

- Disadvantageous: The strategy presents some disadvantages or may be infeasible.

Incentive-Based Tools

- Financial Incentives



- **Development Incentives**



Table 4: Comparison of Incentive-Based Tools

	Type of Development		Public vs. Private Property		Administrative	Legal
	New	Existing	Public	Private		
Financial Incentives	+	+	~	+	~	~
Development Incentives	+	~	~	+	+	~



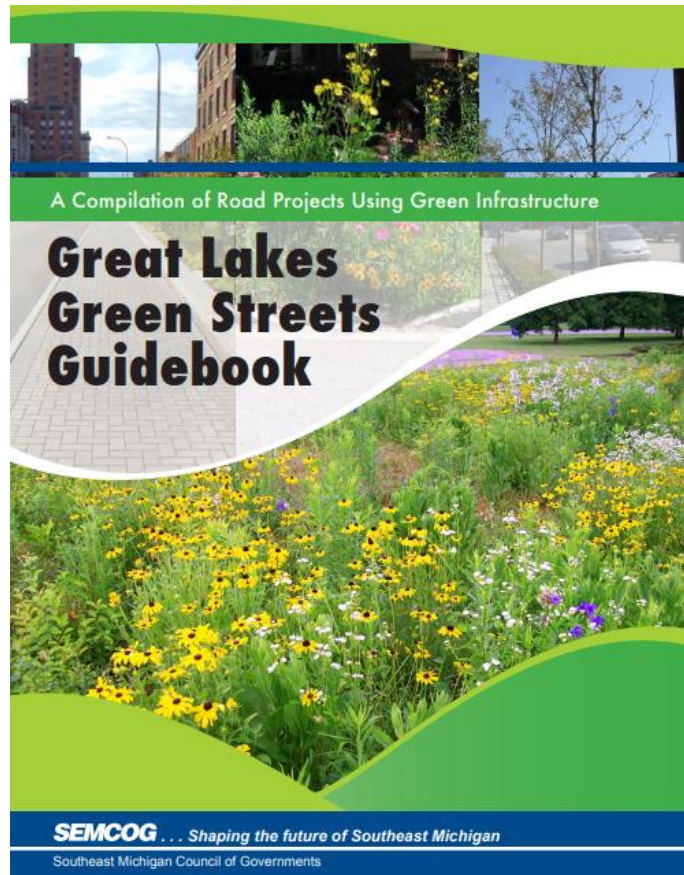
+ Advantageous: The strategy maximizes benefits and is feasible.

~ Neutral: The strategy may present mixed advantages and disadvantages.

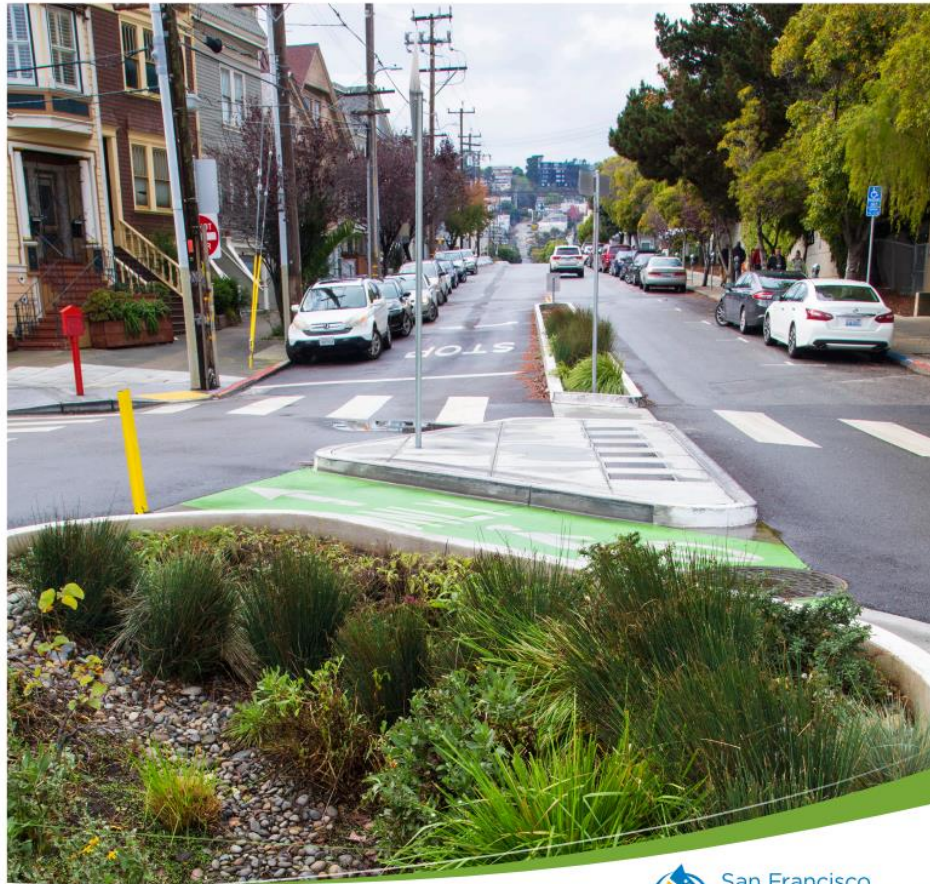
- Disadvantageous: The strategy presents some disadvantages or may be infeasible.

Government Operations

- Street Design Standards



- **Capital Planning Processes**



GREEN INFRASTRUCTURE

Stormwater Management Projects Overview



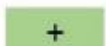
- **Facilities Management**



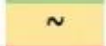
USCG Washington, DC

Table 5: Comparison of Government-Operations Tools

	Type of Development		Public vs. Private Property		Administrative	Legal
	New	Existing	Public	Private		
Street Design Standards	N/A	N/A	+	-	~	+
Capital Planning Processes	N/A	N/A	+	-	~	+
Facilities Management	N/A	N/A	+	-	~	+



+ Advantageous: The strategy maximizes benefits and is feasible.



~ Neutral: The strategy may present may present mixed advantages and disadvantages.



- Disadvantageous: The strategy presents some disadvantages or may be infeasible.

In Summary...

Table 1: Comparison of Tools for Integration into Existing Processes

	Type of Development		Public vs. Private Property		Administrative	Legal
	New	Existing	Public	Private		
Planning Tools	+	~	+	+	~	~
Regulatory Tools	+	~	+	+	~	~
Incentive-based Tools	+	+	+	+	~	+
Government Operations	+	+	+	~	~	+

- + Advantageous: The strategy maximizes benefits and is feasible.
- ~ Neutral: The strategy may present mixed advantages and disadvantages.
- Disadvantageous: The strategy presents some disadvantages or may be infeasible.

Fini...