



Climate Adaptations & Futures Webinar Series

- First Wednesdays from 12pm 1pm
- Recordings & upcoming webinars are available here: www.coresiliency.com/webinars



• Charge Ahead Colorado Grants for EVs and EV Infrastructure (Deadline of 5pm on February 16, 2021):

https://cleanairfleets.org/programs/charge-ahead-colorado



Welcome

Please use the **chat** to communicate any questions or comments to all attendees.

Please use the Q&A to community any questions to the panelists only.

Your microphone is on mute; during the Q&A we can unmute you if you'd like to speak your questions/comments.

This webinar is being recorded and will be posted on the Colorado Resiliency Office's website: coresiliency.com/webinars

Agenda

- Introduction to climate smart land use planning
 - KC McFerson, Senior Planner at DOLA
 - Christy Wiseman, Land Use and Water Planner at DOLA
- Transportation resiliency
 - Aaron Willis, Transportation Planner at CDOT
 - Ivy Compton, Transit Manager at Town of Winter Park & Michael Koch,
 Former Transit Manager at Town of Winter Park, Principal/Owner of
 Compass Transit Consulting
- Green infrastructure
 - Jessica Thrasher, Colorado Stormwater Center at CSU
 - Shay Coburn, Town Planner at Town of Ridgway & Chase Jones, Public Works Services Administrator at Town of Ridgway
- Q&A







KC McFerson
Senior Planner
Community Development Office
DOLA



Christy Wiseman
Land Use and Water Planner
Community Development Office
DOLA



Climate Smart Land Use



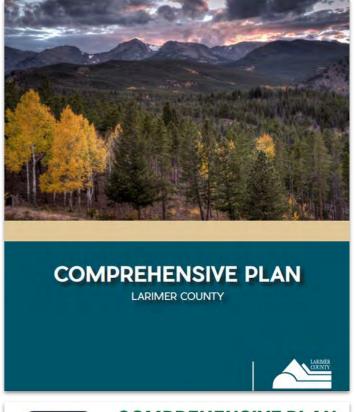
Build the Foundation: Comprehensive Planning

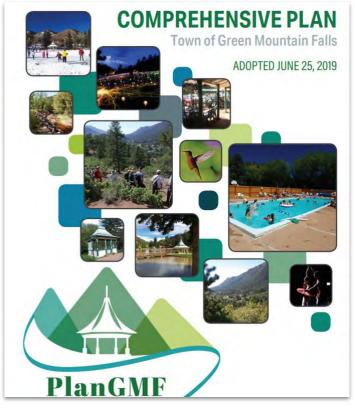
2019 Larimer County Comprehensive Plan

The Larimer County Comprehensive Plan was completed in two phases. The first phase "Mountain Resilience Plan" was tasked with improving land use resiliency for future hazard events, accommodating the expected population growth and associated development, and synthesizing and building upon recommendations from recent planning efforts that were spurred by these disaster events, in order to anticipate and mitigate the risks the County faces. This plan was awarded the Colorado APA Honor Award for Resiliency in 2020.

2019 Green Mountain Falls Comprehensive Plan

• Green Mountain Falls is a small mountainous community above Colorado Springs challenged by the recession, wildfires, small landslides, and flooding. Addressing resiliency, wildland urban interface, and land use was key for a location with so many natural hazards. To address those issues, plan's appendices are dedicated to specific fire and flood mitigation actions and funding sources.













1601 Interchange Approval Process Climate Smart Land Use Planning Webinar Colorado Department of Local Affairs

February 2021

Aaron Willis, Division of Transportation Development



What is Policy Directive (PD)1601?

- The 1601 policy and procedural directive outline the guiding principles and steps necessary to approve a new interchange or interchange modification on the interstate, freeway, or state highway system.
- Applies to CDOT and Local applicants applicants are responsible for interchange maintenance in perpetuity
- Each proposal is different based on the complexity of the project, thus a need for a consistent process



Interchange Improvement Types

- Type 1 New Interchanges on the Interstate and Freeway system
 - These are approved by the Transportation Commission
- Type 2 New interchanges on the remaining <u>state highway</u> <u>system</u> and modifications to interchanges
 - These are approved by the Chief Engineer
- Type 2a Minor modifications to interchanges, which do not require a system level analysis
 - These can be delegated by the Chief Engineer for approval to the Regional Transportation Director



Outreach to CDOT Planning Partners

- Staff at all 5 Metropolitan Planning Organizations
- Metro Area Transportation Management Associations/Organizations
- The cities of Aurora and Westminster
- Jefferson, El Paso, and Douglas Counties
- North Front Range, Pikes Peak, DRCOG and Pueblo MPO Technical Advisory Committees
- Upper Front Range Transportation Planning Region
- Consultants who are currently working on interchange projects



Why a TDM Requirement?

- Department policies can help to preserve new infrastructure investment
- Policies can help make new infrastructure ready for TDM strategies
- CDOT should seek every opportunity to promote multimodal options
- Ensure CDOT policies are aligned with the Colorado Green House Gas Roadmap efforts
- Congestion reduction through the implementation of alternative modes of travel



Colorado Daily Commuter Participation 2015

Means of Getting to Work	Participants
Carpooling (2 to 4 Occupants)	233,000
Telecommuting/Working from Home	172,000
Transit (Local/Regional)	82,400
Walking	76,100
Bicycling	34,200
Vanpooling	9,700
Intercity Transit (long-distance)	300
Park-and-Ride Lots	Including above



TDM Section Progress Key Elements

TDM Section Overview:

- Preserve the overall functionality and operability of the state highway system
- Applicant will use a TDM scorecard to hit target goals and develop a TDM project specific plan to include in the SLS

TDM requirements apply to:

- Type 1: New interchange on the interstate
- Type 2: New interchange on the rest of the system
 - Requirements do not apply to Type 2a interchange modifications
- TDM commitments will be captured in the final IGA



- TDM strategies should result in:
 - a 3% or greater ADT reduction in MPO Areas
 - a 1% or greater ADT reduction outside MPO Areas
- The trip reduction goal applies to traffic volumes for the new interchange ramps as identified in the systems level study.
- The reduction threshold goal is calculated from the opening day of the new facility, or 5-years if the TDM strategies are implemented on a phased schedule



TDM Exemption

- It is the discretion of the Chief Engineer as to if TDM strategies are required for interchange applications based on factors such as changes in land use and future traffic volumes.
- That determination will be made based on the following factors:
 - Freight / Intermodal Facility
 - Existing TDM sufficient to address future demand
 - Rural areas considerations



TDM Improvement Scoring Range

Interchange Improvement Type	MPO Boundary Area / Rural Area	Scoring Range
Type 1 (New Interchange /Interstate System	MPO Boundary Area	100-80
Type 1 (New Interchange /Interstate System	Rural Area	80-60
Type 2 (New Interchange / State Highway System)	MPO Boundary Area	80-50
Type 2 (New Interchange / State Highway System)	Rural Area	60-40
Type 2 Modification (Interstate System)	MPO Boundary Area	70-50



TDM Strategy Scorecard (Sample Strategies)

TDM Strategies	Points	Time Commitment of Strategy
<u>Multimodal Hubs</u> - the multimodal hub will include two or more transit services/multimodal options available*	80	5 Years
<u>Shuttles, Feeders, and Paratransit - public or privately</u> operated	80	5 Years
<u>Vanpool Programs</u> – regional vanpools operated by MPOs or private vanpools	80	5 Years
Mixed-use Development - the new interchange is constructed at a high quality pedestrian environment improvements/transit-oriented development	80	Maintenance in perpetuity
<u>Intercity Transit - these improvements could be implemented on adjacent or parallel facilities</u>	80	5 Years
<u>Comprehensive ITS Solution</u> - ex. congestion-reducing adaptive signal optimization, connected vehicles, and transit signal priority, etc	80	Maintenance in perpetuity



TDM Strategy Scorecard (60-50 Points)

<u>Parking Management</u> -located at the new interchange at business parks, commercial retail locations, or residential communities	60	10 Years
Bus Only Lanes, Queue Jumps, Bus Slip Ramps -facilities can be either on-system or off-system and can be built on adjacent or parallel facilities	60	Maintenance in perpetuity
Local Transit- the expansion of local transit must serve any new development that will be located at the new interchange location	60	5 Years
Creation of a Transportation Management Association / Organization	50	3-5 Years



TDM Strategy Scorecard (40 Points)

<u>Bicycle and Pedestrian Facilities</u> - including infrastructures such as bike lanes, bike trails, multi-use trails, sidewalks, or a pedestrian overpass.	40	Maintenance in perpetuity
Regional Ridesharing Programs - including carpool matching	40	5 Years
Car-sharing – note that this strategy could be market driven	40	5 Years
<u>Micro-Mobility Sharing Programs - including bike-sharing,</u> scooter-sharing, and E-bikes (Some of these strategies are market driven.)	40	3 Years
<u>Transit Service Upgrades</u> - this may include operational improvements such as bus signal queue jumps, covered bus shelters, etc	40	Maintenance in perpetuity

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Project Specific TDM Plan

- The applicant is expected to put forth a good-faith effort in developing a project-specific TDM plan that includes the following elements:
 - Explanation of the strategies
 - How the strategies will function within the context of the proposed new interchange improvement
 - Implementation schedule
 - Ensure improvements do not detract or serve as a replacement from existing TDM strategies



Project Specific TDM Plan (2)

- Analysis of how the proposed TDM strategies will achieve the stated goal.
- An estimated cost for the proposed TDM strategies
- Marketing or promotion strategies for the proposed TDM improvements
- Discussion on TDM strategies during construction if appropriate
- Identification of responsible parties and partner organizations
- Project evaluation after one year



Questions?

Aaron Willis
Acting Statewide and Regional Planning Section Manager
aaron.willis@state.co.us





Ivy Compton
Transit Manager
Town of Winter Park



Michael Koch
Former Transit Manager, Town
of Winter Park
Owner/Principal, Compass
Transit Consulting





970.726.4163 | WWW.THELIFTWP.COM

BACKGROUND

- Winter Only Resort Service Pre 2016
- October 2015 Fraser Valley Strategic Economic Dev Plan
- Collaborative effort with Town of Fraser
 & Chamber of Commerce
- Identified transit as the top priority for the Upper Fraser Valley
- Good timing, economically, for the area to take action – measures past November 2015
- 5311 Admin & Operating
- State Grants (FASTER & SB228)







REGIONAL IMPACT

How The Lift has helped make the Fraser Valley community more resilient:

- Mud Season (103% Increase 1st year)
- 300% Increase in Paratransit Ridership
- Mobility to access medical, grocery, social, recreational opportunities
- 2nd Year Operation negotiate IGA's between Granby & Winter Park year round regional Transit System, expanded employment and housing opportunities for people residing in Fraser Valley (Bus Stop near ONLY food bank in East Grand County).

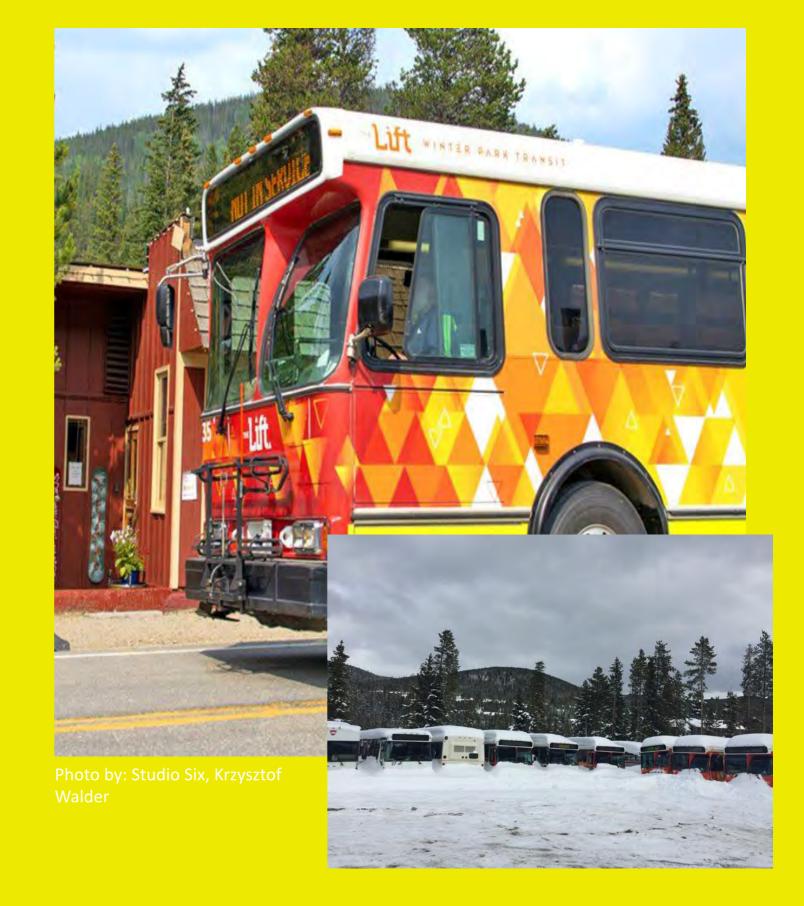
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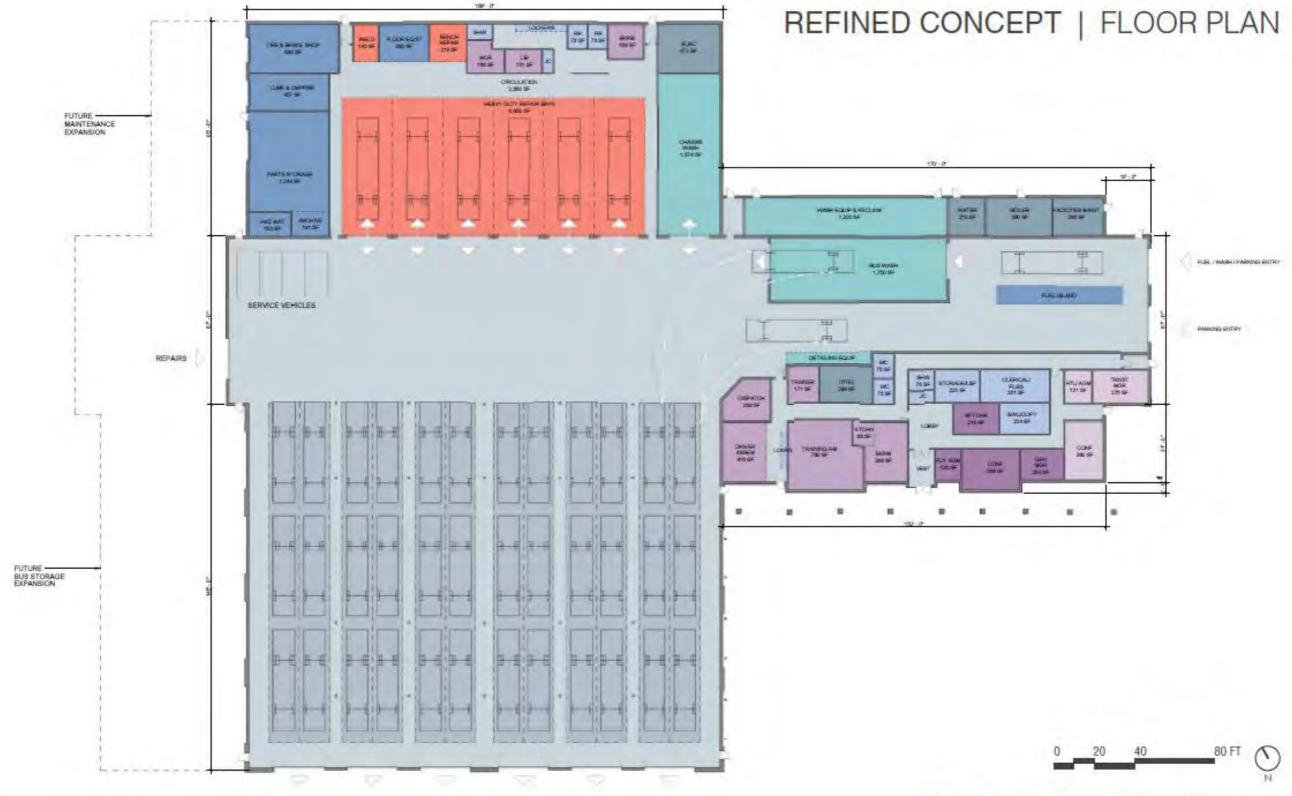
TRANSIT FACILITY

Grant/Award Amount: 14.6 million

What made the application so compelling?

- Grant Attachments: LOS, Winter Park Resort, Grand county, National Sports Center for the Disabled, Town of Fraser, Town of Granby, Mountain Family Centers, Colorado Northwest Transportation Planning Region, Congressman Neguse
- Resolution "Transit & Trails Sales Tax"
- IGA: Fraser & Granby
- Capital Improvement Plan (CIP) Budget (showing \$11,400,000 for capital investment for a transit facility)
- Pictures of: Ice on Undercarriage of Vehicles, busses sitting in snow in bus barn parking lot, buses parked in lot across the street on East Grand Water and Sanitation District property, interior of facility
- Lift Operations Center SUP Application
- Appraisal of Martin's property (6-acre property directly next door to project site to show approximate value of county owned 12 acre parcel where the facility will be built.







Mask Up Campaign: Lift Rider's wear masks to keep our community healthy and open! Photo by: Studio Six, Krzysztof Walder

SUSTAINABILTY

Maintenance, Storage, and Admin Facility:

- Solar/Heating/Bus Wash/Shared Fueling
- Estimated Usable Roof Size: 354'x32' = 11,328SF. Equating to 201kW. The roof could power about 25 homes...
- Partnership with Mountain Parks Electric

Electric Fleet by 2035:

- Proterra Route Demo
- 2021 Low No Grant: \$180 Million available for electric buses, chargers, and installation

Marketing:

- Instagram/Facebook/LinkedIn
 - Community Partners (Chamber, Jane Daze, Lion Head, Cooper Creek Square, etc.)
- App (No More Brochures)
- QR Codes

Bustang Outrider:

- Original plan was for Bustang to go through Kremmling to HWY 9 and connect in Frisco. The Lift Advocated in Statewide Meetings to connect East Grand
- 322 Riders during first 24 days of service

Connected Colorado

Let's Connect...

Ivy Compton

Transit Manager, Town of Winter Park

Website: www.theliftwp.com

Email: icompton@wpgov.com

LinkedIn: https://www.linkedin.com/in/ivy-comp

ton-70b2ba112/

Michael Koch

Principal, Compass Transit Consulting

Website: www.compasstc.net

Email: michael@compasstc.net

LinkedIn: https://www.linkedin.com/in/michael-

koch-98261031/







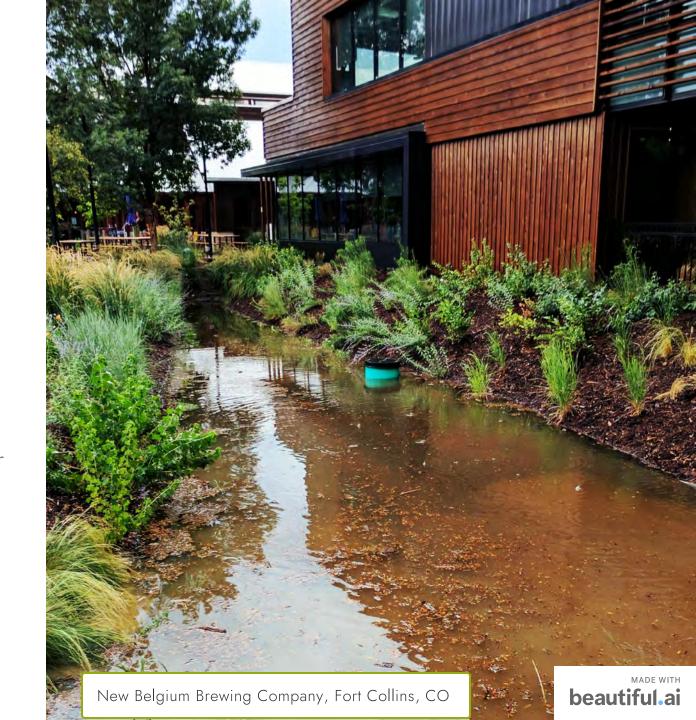
Jessica Thrasher
Education and Outreach Manager
Colorado Stormwater Center,
Colorado State University (CSU)





Green Infrastructure Introduction

Jessica Thrasher, Education and Outreach Manager
Colorado Stormwater Center
Colorado State University



Problem



Removal of green space
Decreased infiltration
Increased stormwater

runoff



Increased Flooding
Channelization
Property damage
Loss of life
Nuisance flooding



Channel Instability and Erosion

Water Quality Sedimentation

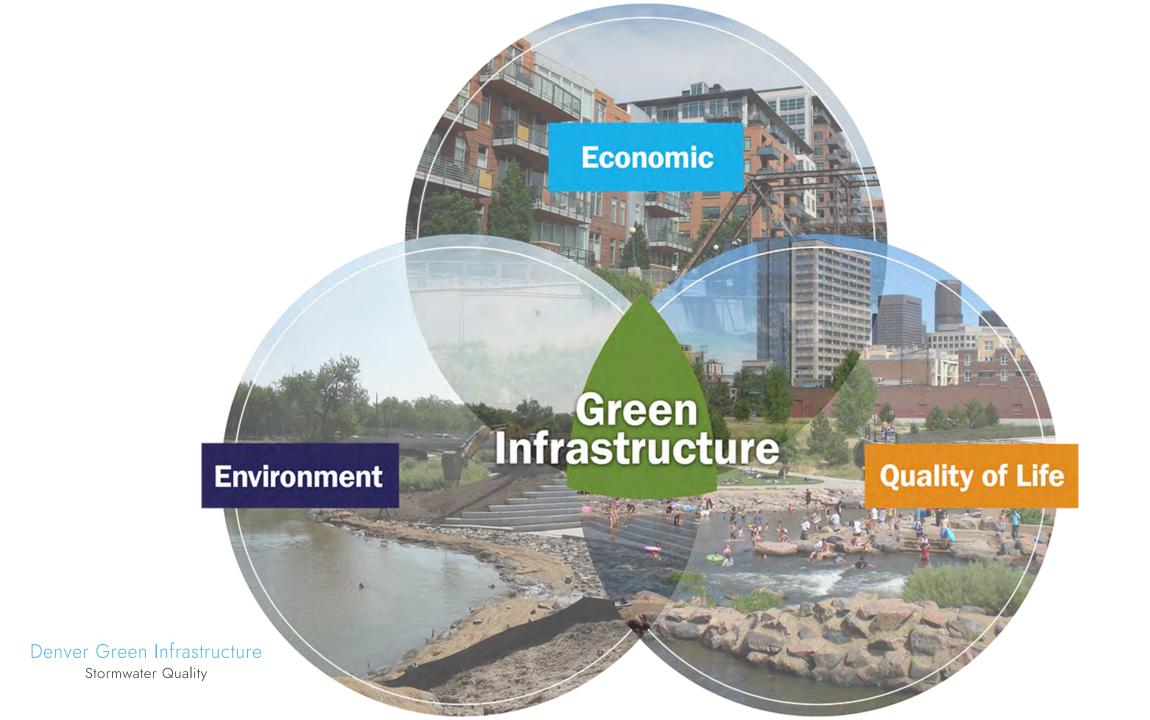


Heat Island Effect
Increased energy
consumption
Increased air pollution
Decreased human health



Water Quality Impacts

Algal Blooms E.coli Trash



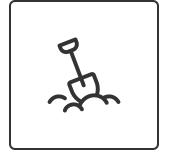


Terminology - Low Impact Development (LID)

Approach to land development (or re-development) that works with nature to manage stormwater as close to its sources as possible. LID principles include:



Preserving and re-creating natural landscape features



Decreasing Impervious
Surfaces

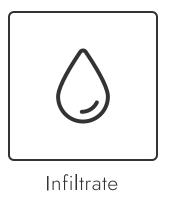


Treat stormwater as a resource rather than waste product



Terminology - Green Infrastructure

Green Infrastructure, as defined by the EPA, refers to systems and practices that use or mimic natural processes to:







Reuse stormwater runoff where it is generated

Green Infrastructure can be used at a wide range of landscape scales in place or or in addition to more traditional stormwater control elements

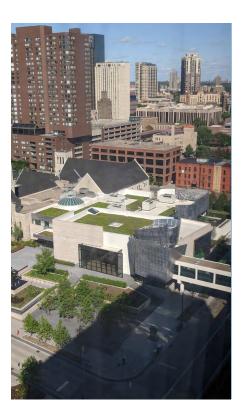
Green Infrastructure and Low Impact Development Approaches

Types of Green Infrastructure and Low Impact Development Approaches



Constructed Wetlands Permeable Pavement





Green Roofs



Vegetated Swales, Bioswales, Buffers



Rain Garden/ Bioretention/Planters



Constructed Wetlands

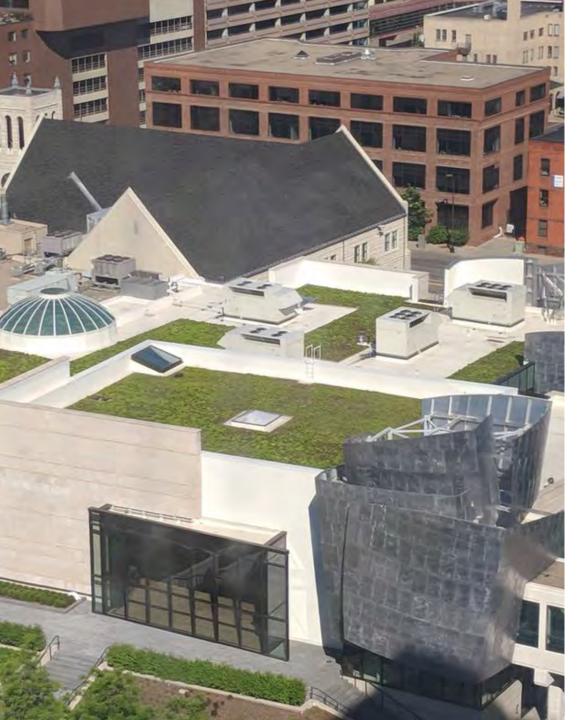
- 1 Benefits
 - Habitat
 - Open space
 - Lower costs
- ² Limitations
 - Water rights (In Colorado)
 - Debris and algal blooms
- 3 Colorado Wetland Information Center



Permeable Pavement

Pervious concrete, Porous asphalt and Permeable Interlocking Concrete Pavers

- 1 Benefits
 - Multiple functions
 - Alleviating Drainage Issues
 - Benefit nearby tree health
 - Less ice
 - LEED
- 2 Limitations
 - Clogging
 - Infiltration limitations next to buildings
 - Maintenance
 - Costly to replace
- 3 Examples
 - MHFD
 - Odell Brewing Company Fort Collins



Green Roof

Extensive (4-6inches) - Retrofits
Intensive (8+ inches) - New construction

- 1 Benefits
 - Reduces runoff
 - Reduces heat island effect / Energy savings
 - LEED
 - May extend roof lifespan
- ² Limitations
 - High installation costs (Lifecycle costs lower)
 - Supplemental irrigation requirements
 - Vegetation establishment costs
- 3 Dr. Jennifer Bousselot CSU
 - https://greenroofs.org/about-green-roofs
 - Growing Green Roofs in Denver, CO Presentation



Rain Garden, Bioretention

Slow, capture, and infiltrate stormwater runoff.

- 1 Benefits
 - Increased water quality/ removes pollutants
 - Stormwater treatment/Landscape requirements
 - Reduced irrigation needs
 - Reduction of stormwater runoff
 - Using stormwater as a resource
- [2] Limitations
 - Clogging
 - Proper construction needed
 - Infiltration limitations next to buildings
- 3 City of Fort Collins Example
 - Library Park



Vegetated Swale

Bioswales, Buffers

- ¹ Benefits
 - Removal of sediment
 - Increased infiltration
 - Reduced costs
 - Green space
- ² Limitations
 - Increased space requirements
 - Erosion concerns
 - Underdrains required for slopes under 2%

Sustainability GI/LID Benefits



Groundwater Recharge



Increased Land Values



Reduced Energy Consumption



Enhanced Aesthetics



Wildlife Habitat



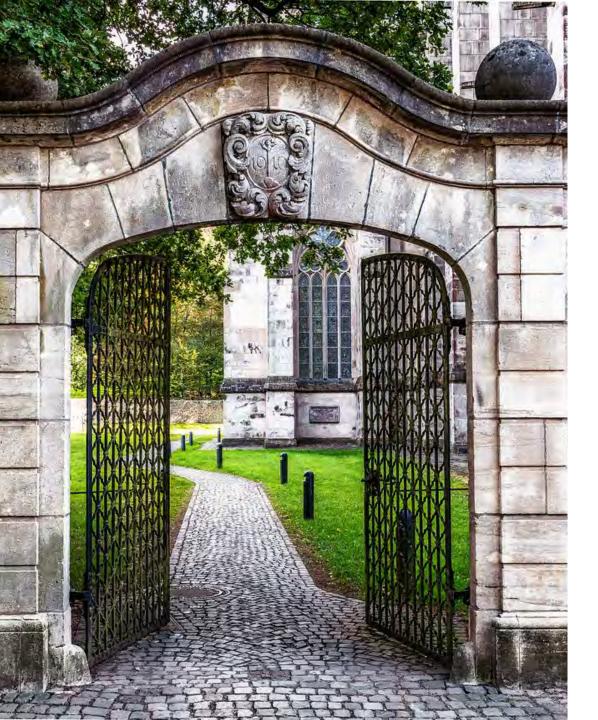
Reduced Heat Island Effects



Public Education in Stormwater Management



Increased Access to Nature



Overcoming Barriers

- Performance
- ² Costs
- ³ Maintenance
- 4 Codes and ordinances
- Overcoming Green Infrastructure
 Barriers (EPA)

Tools - Green Values Calculator

https://www.cnt.org/tools/green-values-calculator

The Green Values Calculator compares the performance, costs, and benefits of Green Infrastructure to conventional stormwater practices.

Green Values Calculator Webinar

February 4, 2021 at 3pm Central Time

Join us for a webinar presentation of CNT's new Green Values Calculator to learn how it helps planners, landscape architects, municipal staff and homeowners explore what green infrastructure investments return the most value in terms of flood prevention and real estate value.

Register here.



The Green Values® Stormwater Management
Calculator is designed to help plan green
infrastructure solutions to prevent flooding for
single buildings or larger neighborhood and
community scale efforts. The calculator is for
planners, landscape architects, municipal staff and
homeowners to explore value of green
infrastructure.

INTERACTIVE TOOLS

Urban Opportunity Agenda Tool

Green Values Calculator

eTOD Social Impact Calculator

AllTransit

Housing + Transportation Affordability Ind

My RainReady Home Assessment Tool

Park Right DC

Right Size Parking Calculator

GreenTRIP Connect

GreenTRIP Parking Database

STEW-MAP

Location Affordability Index

Total Driving Costs

TOD Database

PROJECTS

RainReady

RainReady Calumet Corridor

RainReady Wilmette

RainReady Oak Park

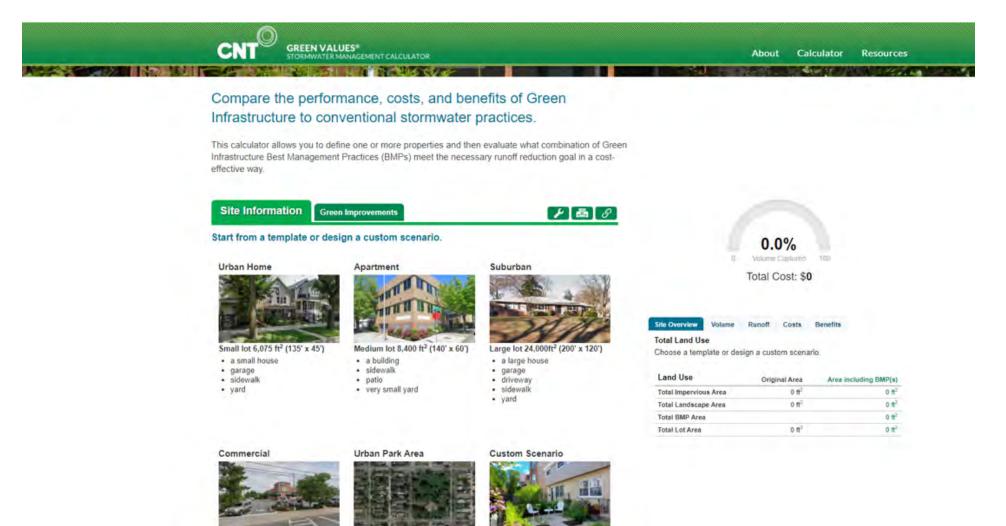
RainReady Avalon Park

Equity Express

beautiful.ai

Tools - Green Values Calculator

https://greenvalues.cnt.org/

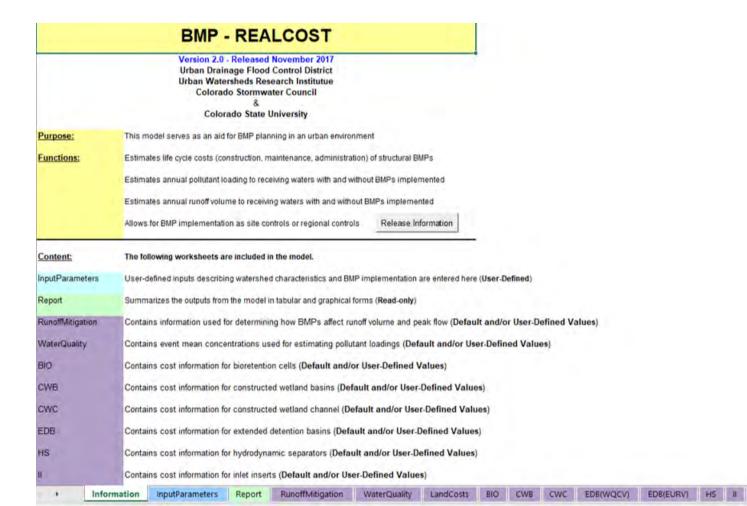


Tools - BMP Real Costs

Mile High Flood District

https://mhfd.org/resources/software/

BMP Sizing - Bottom of the page



Resources

- Cost Analysis Tools/Resources
 - National Green Values Calculator
 - MHFD BMP Real Cost
 - EPA Green Infrastructure Cost-Benefit Resources
- Funding
 - EPA Grants
 - List of potential funding sources
- More EPA Resources
 - Green Infrastructure Webcasts
 - Green Infrastructure Research
 - Performance of Green Infrastructure
 - Overcoming Barriers to GI
 - Green Infrastructure in Semi-Arid West

- Colorado Stormwater Center
 - Stormwater Control Measure Field Guide
 - Training Opportunities
 - Green Infrastructure BMP Overview
- Jessica Thrasher

Education and Outreach Manager Colorado Stormwater Center jessica.thrasher@colostate.edu (970) 491-8015





Shay Coburn Town Planner Town of Ridgway



Chase Jones Public Works Services Administrator Town of Ridgway





Chase Jones, Public Works Supervisor Shay Coburn, Principal Planner





- Swales and Raingardens
- Water Wasting and Restrictions
- River Overlay District
- Potable Water System Interconnection
- Town Master Plan





Swales and Raingardens

 Installed with larger RAMP project (mostly CDOT funded) Town wanted to do more green infrastructure but items were cut for cost, design and other reasons





Swales and Raingardens

Pros

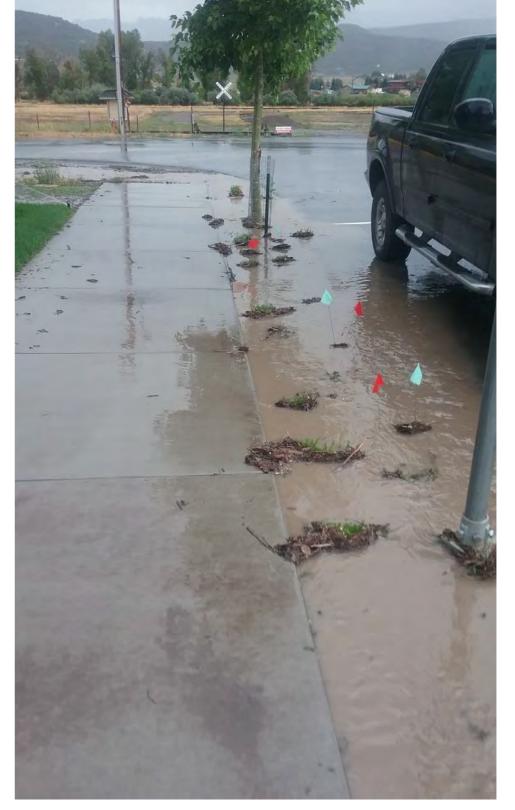
- Provides water treatment
- Allow for some degree of infiltration
- Reduces irrigation need
- Aesthetically pleasing
- Barrier between pedestrians and traffic





Cons

- Higher maintenance than curb and gutter
- Wash out
- More variables and considerations need to be accounted for in the design





Water Wasting Ordinance and Restrictions



Ordinance No. 18-05

AN EMERGENCY ORDINANCE OF THE TOWN OF RIDGWAY, COLORADO AMENDING THE RIDGWAY MUNICIPAL CODE TO PROVIDE A NEW SECTION TO CHAPTER 9-1 ADDING A DEFINITION FOR WATER WASTING, CREATING WATER WASTING REGULATIONS ASSOCIATED WITH MANDATORY WATER RESTRICTIONS AND AUGMENTING ENFORCEMENT PROVISIONS FOR WATER WASTING

WHEREAS, The Town of Ridgway (the "Town") is a legally created, established, organized and existing Colorado municipal corporation under the provisions of Article XX of the Constitution of the State of Colorado and the home rule charter of the Town (the "Charter"); and

WHEREAS, The Town is governed by its Home Rule Charter ("Charter") as authorized by Article XX § 6 of the Colorado Constitution; and

WHEREAS, The Town Council has the authority, pursuant to Article III, Section 3-8 of the Charter, to enact emergency ordinances for the preservation of the public peace, safety, or welfare upon the affirmative vote of six members of the Town Council; and

WHEREAS, the water supply for the Town of Ridgway is a precious, valuable and critical resource for the Ridgway community; and

WHEREAS, the Town of Ridgway, State of Colorado and the United States have seen periods of drought that significantly impact the local water supply, threatening the health, safety and welfare of our communities; and

WHEREAS, the Town Council desires to be proactive in communicating with the Ridgway community and water users of town-supplied water regarding the water conservation efforts that will be employed and the timing of such water restrictions; and

WHEREAS, the Town Council desires to conserve water in times of need to insure effective and safe delivery of water to the Ridgway community during all times, including in times of restricted or limited water supply and drought; and

WHEREAS, the Town Council desires to expeditiously enforce water wasting when water leaks are detected; and

- Growing community
- Time of drought
- Trying to fill recently expanded Town reservoir
- In coordination with new water restrictions

Water Wasting Ordinance and Restrictions



Pros

- Defined water wasting
- Gave Town ability to enforce
- Designated trigger points

Cons

- Not sure it cut down water use (people watered more on allowed days)
- Difficult to fully and regularly enforce



Uncompangre River Overlay District (UROD)



- The Town's Master Plan called for this
- Includes:
 - Setbacks
 - Design guidelines
 - Access for public
 - Protections for valuable ecological resources



Uncompangre River Overlay District (UROD)

RIDGWAY Colorado THINK OUTSIDE

Pros

- Protected river and buffer area prior to development
- Secured river as an amenity to the public

Cons

 12 somewhat painful public meetings





Water System Interconnection

- Was on the Town's list for a while as it was vital to get redundancy on east side of town
- DOLA funding







Water System Interconnection

Pros

- 2nd water source for most vulnerable part of town
- A lot of up front work but when it is done there's not much maintenance required

Cons

- Took longer to negotiate with neighboring water provider than we thought
- Installation issues per typical
- Parts were difficult to acquire (COVID-19)



Master Plan

- Includes goals, policies, and actions related to land use and climate change, but not a specific section
- Completed CIPs concurrently to best inform our annual strategic plans
- Will continue to chip away at this as we can







Pros

- Critical to have this topic addressed in your master plan
- Gave our community a chance to be heard for their desires related to resiliency

Cons

- It takes time and money to do it well
- Our community almost wants more than we can keep up with



Questions?

Chase Jones: cjones@town.ridgway.co.us

Shay Coburn: scoburn@town.ridgway.co.us



Aaron Willis



Ivy Compton



Michael Koch



Jessica Thrasher



Shay Coburn



Chase Jones

Q&A

Please leave your questions in the Q&A or chat

Upcoming Webinars

Planning and Support for Transportation Electrification

Wednesday, March 3

12 P.M. - 1 P.M.

Sign up at: www.coresiliency.com/webinars

EV Funding: https://cleanairfleets.org/programs/charge-ahead-colorado
(February 16th 5pm deadline)







COLORADO

Resiliency Office

Department of Local Affairs