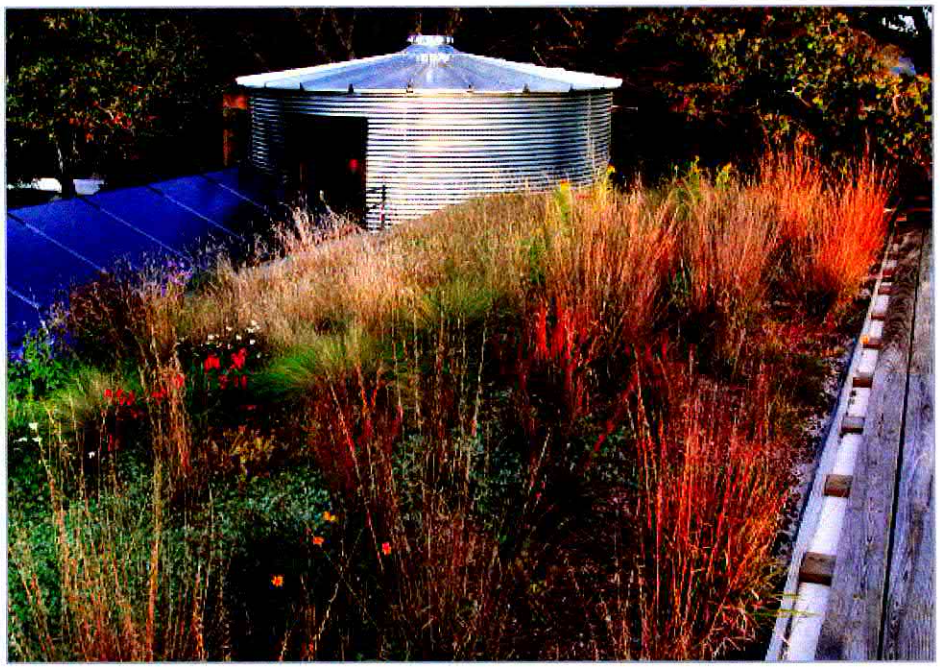
Stanley Studio

Location: Central East Austin

Project Type: Studio Office

Year Installed: 2009

Description: This extensive green roof covers a rectangular studio office space using a non-proprietary system designed for a 1:12 pitch shed roof.



Photos provided by Stanley Studio - Architects

Green roof area: 525 square feet

Green roof type: Extensive, monolithic, 4-5 inches of soil depth

Reason for green roof: Explore shallow depth limit for this region, insulation (thermal, sound), ambient cooling, educational/demo, aesthetic, wildlife habitat
Green roof components: Non-proprietary system of waterproof layer, aluminum edging, drainage/water retention layer, growth media, and plants

Vegetation: Native prairie grasses, wildflowers, ground covers (drought/heat tolerant)

Water Use: Intermittent light irrigation during periods of heat and drought; system for using harvested sources (rain and AC condensate) nearing completion

Amenities: Adjacent PV array acts as awning and rainwater catchment for irrigation

Lessons Learned: Settling of growth media over time reduces overall depth, mulching key component for moisture retention, prairie grasses prove hardy in extreme conditions, irrigation must occur within narrow dry/moist threshold

GREEN ROOFS FIVE-YEAR POLICY IMPLEMENTATION PLAN

(Key to acronyms follows.)

Year One (FY 2010-11)

Activity	*Lead*	*Discussion*
Outreach and Education		
• Green Roof Web page & support materials	AE	Develop; includes items below w/ asterisk (*)
• Green Roof program tracking & report*	AE/WPD/PDRD	Track GR initiatives/5-Year Plan progress
• Staff education and coordination*	Multiple	Done for each initiative; internal web page
• Urban Heat Island integration*	AE	Integrate GR into program
• Green Roof database*	AE/PDRD	Track projects in City maintained database
• City Hall educational model*	AE	Develop educational flyer and tours
• Outreach to focus areas	GRAG	Meet with professional organizations
Green Roof Design Considerations		
• Baseline Performance Criteria	GRAG/AE/	Define minimum standards for City
	WPD	incentivized projects; extend GRAG to accomplish task
Existing Development Options with Green Roofs		
• PUD Open space & landscaping*	PDRD	Show can meet requirements with GRs
• PUD Green Building requirements	AEGB	Show GRs can contribute to score
• PUD use of GR in Tier 2*	PDRD/AE	Show GRs can be "other creative or innovative [environmental] measures"
• Multifamily open space*	PDRD	Show can meet requirements with GRs
• Subsurface parking garage*	PDRD	Show GRs over subsurface garages do not count as impervious
• Parkland dedication using GRs*	PARD	Show can use privately owned and maintained GRs to meet requirements

Potential Development Incentives (require code change & Council approval)		
• GR Density Bonus: Downtown	PDRD	Add green roofs to program
• Building cover increase with GR	PDRD	Allow more building cover if offset
Energy Impacts		
• Austin Energy rebates	AE	Evaluate energy impacts & potential rebate incentives
Innovative Stormwater Management		
GR hydrologic study	WPD/WFC	Research of detention & runoff control by LBJ Wildflower Center (WFC)
GR industry water quality control	Industry/WPD	Coordinate with staff to verify hydrologic model for WQ credit (option exists throughout 5-year period)
Green Roofs for New Buildings		
GR on City Buildings	PWD	Evaluate feasibility & funding of green roofs for all new City buildings per Council resolutions 20071129-045 & 20071129-046

Year Two (FY 2011-12)

Activity	*Lead*	*Discussion*
Outreach and Education		
• Green Roof Web page & support materials	AE	Continue funding allocation
• Green Roof program tracking & report	AE/WPD/PDRD	Track GR initiatives to show progress
• Green Roof project database*	AE	Track projects to show progress
Incentives for Green Roofs		
• Austin Energy rebates	AE	Implement rebate if warranted, pending evaluation results from Year 1
• North Burnet/Gateway GR density bonus	PDRD	Needs Council approval; follows Downtown density bonus

Innovative Stormwater Management		
• Water quality evaluation	WPD	Evaluate option to allow a limited number or pilot projects in DDZ Watersheds to receive partial WQ credit on condition of monitoring
• Plan for GR/LID design competition	WPD/GRAG	Follow City of Houston example
Planning for Green Roof for City Building		
• Collect, evaluate data on buildings	PWD	Create inventory of existing & proposed COA buildings/roofs, select subset for further GR consideration per Council resolutions 20071129-045 & 20071129-046
Green Roofs for New Buildings		
• GR on New Commercial Buildings	GRAG/PDRD	Evaluate feasibility of green roofs for all new buildings within the Central Business District

Year Three (FY 2012-13)

Activity	*Lead*	*Discussion*
Outreach and Education		
• Green Roof program tracking & report*	AE/WPD/PDRD	Track GR initiatives to show progress
• Green Roof project database*	AE	Track projects to show progress
Incentives for Green Roofs		
• Airport Blvd. Corridor GR density bonus	PDRD	Needs Council approval; follows Downtown & N. Burnet/Gateway density bonuses
Innovative Stormwater Management		
• Flood detention and/or WQ sizing credit	WPD	Pending Wildflower Center results & possible other follow-up studies
• Hold GR/LID design competition	WPD/GRAG	Follow City of Houston example

Year Four (FY 2013-14)

Activity	*Lead*	*Discussion*
Outreach and Education		
• Green Roof program tracking & report*	AE/WPD/PDRD	Track GR initiatives to show progress
• Green Roof project database*	AE	Track projects to show progress
Innovative Water Quality Controls		
• Green Roof as WQ control	WPD	Evaluate feasibility to add ECM Criteria for green roofs; pending Wildflower Center results & additional follow-up studies
Subsidies, Grants, Low-Interest Loans		
• Funding Allocation	EGRSO	Develop criteria pending staff review

Year Five (FY 2014-15)

Activity	*Lead*	*Discussion*
Outreach and Education		
• Green Roof program tracking & report*	AE/WPD/PDRD	Track GR initiatives to show progress
• Green Roof project database*	AE	Track projects to show progress
Development Process Incentives		
• Fee Rebates, Expedited Process & Design Support	PDRD	Develop Incentive Program

Key to Acronyms

AE	Austin Energy
COA	City of Austin
DDZ	Desired Development Zone (Urban & Suburban watersheds)
EGRSO	Economic Growth & Redevelopment Services Office
FY	Fiscal Year
GR	Green Roof
GRAG	Green Roof Advisory Group
LID	Low Impact Development (design strategy to limit environmental impact)
PDRD	Planning and Development Review Department
PWD	Public Works Department
WFC	Lady Bird Johnson Wildflower Center
WPD	Watershed Protection Department
WQ	Water Quality

Potential Option	Type **	Description of Current Status/Concern	Potential Improvement	Anticipated Impacts		City Staff Recommendation
				Advantages	Disadvantages	
ZONING						
Planned Unit Development (PUD) Requirements: CHAPTER 25-2 Division 5						
§2.3.1.C Open Space Required (Tier 1)	A	Must be 10-20% of project area. Many designers are not aware this may be met using green roof.	Better educate potential development applicants that green roof may be used to meet 10-20% open space requirement.	Green roofs may contribute attractive, functional open spaces if designed correctly & accessible.	If green roof not accessible, then open space benefits will be lost.	Recommend staff assemble educational materials for the City's web site and other possible locations. Apply same cap on amount of open space that is not publicly accessible as 25-2-514.
§2.3.1.D PUD 2-Star Green Building Rating Required (Tier 1)	A	Projects with green roofs may contribute to up to 4 points on the rating scale. But many designers are not aware of this fact.	Better educate potential development applicants that green roof is means of achieving many points for one system.	Small effort to increase awareness might result in more green roof projects.	None.	Recommend staff assemble educational materials for the City's web site and other possible locations.
	B		Grant additional points to and/or create additional categories for green roofs.	Further incentivize green roofs for Green Building projects.	Green roofs already given multiple points. More would be disproportionate.	Re-write of Water Pt 3: "Stormwater Management" section to acknowledge green roof can be incorporated as part of innovative BMP water quality control system. Other changes not justified at this time.
§2.3.1.H Landscaping (Tier 1)	A	PUD must exceed standard landscaping requirements. Many designers are not aware this "over and above" landscaping may be met using green roof.	Better educate potential development applicants that green roof may be used to meet additional landscaping requirement.	Green roofs create landscapes in areas normally devoid of them.	Need to ensure that ground-level landscaping is provided per code.	Recommend staff allows green roof to count for landscaping exceeding code requirements. Standard code landscaping must be met at ground level.
§2.4 Tier 2 Options	B	Green roofs not explicitly part of the current tier 2 options, although they could already be counted under "other creative or innovative [environmental] measures."	Explicitly add green roof to Tier 2 list ("other creative or innovative [environmental] measures.").	Further incentivize green roofs in PUDs.	Not all green roofs will provide net environmental benefits. Need to ensure minimum standards for water quality & conservation met.	Recommend staff educate applicants about possibility of green roof as a Tier 2 option. Subject to meeting conditions ensuring environmental design is provided.
Zoning Impervious Cover Limits						
§ 25-2-492 Site Development Regulations: Building Cover	B	Green roofs are currently counted as "building cover" by code. Yet they act and perform as pervious for many social and environmental functions.	Allow increased building cover (BC) if a green roof of a minimum size were provided. Increase Floor-to-Area Ratio (FAR) proportionately.	Acknowledges that green roof provides aesthetic, open space & social benefits sought by the zoning BC limits. Would allow more site BC & encourage more green roofs.	Could result in heavy "massing" of buildings on site. Need to ensure that intent of requiring non-building areas respected.	Allow up to 10% extra BC (gross site) with an FAR increase if an equivalent green roof area twice as large is provided (i.e., 2:1 ratio of green roof to increased BC). Need minimum media depth, IPM plan & water conservation plan. Ensure public or private access.
§ 25-2-492 Site Development Regulations: Impervious Cover (IC)	C3	Green roofs are currently counted as "impervious" by code. Yet they act and perform as pervious for many social and environmental functions.	Allow increased zoning impervious cover (IC) if a green roof of a minimum size were provided.	Acknowledges that green roof provides aesthetic, open space & social benefits sought by zoning IC limits. Would allow more site IC & encourage more green roofs.	Could result in heavy "massing" of buildings and IC on site. Need to ensure that intent of requiring pervious/non-building areas respected.	Not recommended. Recommend experimenting with building cover incentives.

Potential Option	Type **	Description of Current Status/Concern	Potential Improvement	Anticipated Impacts		City Staff Recommendation
				Advantages	Disadvantages	
§25-1-23 Impervious Cover Measurement	A & C	Subsurface parking structures considered "pervious" if avg. soil depth is 4 feet & min. depth is 2 feet.	Soil and landscaping above a garage is a form of green roof. Explore reduction of 4-foot depth to make more technically & financially feasible.	Reduction in soil depth reduces cost & increases green roof project feasibility.	Must ensure pervious function of area maintained; groundwater problems and baseflow reduction possible.	Not recommended. Very limited application & need; downside outweighs positives.
Density Bonuses						
Downtown Density Bonus Program (under consideration)	B	Green roofs not explicitly part of the public benefit options, although they could already be counted under Green Building.	Explicitly add green roof to public benefit options. FAR bonuses are used in Portland.	Further incentivize green roofs downtown.	Too many options may hinder the effectiveness of the program.	Still under review.
North Burnet-Gateway NP & Airport Blvd. Corridor Density Bonus Programs	C1	Much of the N. Burnet-Gateway Neighborhood Plan & Airport Blvd. corridor areas contribute to significant downstream flooding areas.	Allow greater height and FAR if new development provides a green roof.	Green roofs on new development could help mitigate flood impacts downstream and boost aesthetics of a currently industrial area.	Ordinance for this area already passed by Council; would require new ordinance.	[Still under review.] Minimum size to have meaningful impact would be necessary. Green roof would be provided in addition to any previous water quality or detention requirement.
Open Space Requirements						
§25-2-514 Open Space Requirements for Multifamily	A	Private and, in some cases public, open space is required for many multifamily zoning categories. But it is not widely known that §25-1-21(70) defines open space to include roofs. Green roofs are rarely proposed to meet open space requirements.	Better educate potential development applicants that green roof is means of meeting open space requirements.	Small effort to increase awareness might result in more green roof projects.	If green roof not accessible, then open space benefits will be lost.	Recommend staff assemble educational materials for the City's web site and other possible locations. Ensure common access.
Comm. Design Stds §25-2 Subchpt. E, Sec. 2.7 Private Common Open Space & Pedestrian Amenities	A	Private open space with amenities required on min. 2% of site for all commercial projects over 5 acres. But it is not widely known that §25-1-21(70) defines open space to include roofs. Green roofs are rarely proposed to meet open space requirements.	Better educate potential development applicants that green roof is means of meeting open space requirements.	Small effort to increase awareness might result in more green roof projects.	If green roof not accessible, then open space benefits will be lost.	Recommend staff assemble educational materials for the City's web site and other possible locations. Ensure user access.

Potential Option	Type **	Description of Current Status/Concern	Potential Improvement	Anticipated Impacts		City Staff Recommendation
				Advantages	Disadvantages	
Parkland Dedication						
§25-1-603 Standards for Dedicated Parkland	B	The Parks director determines whether land offered for parkland dedication (PLD) complies with the standards for dedication. Green roofs have not been considered for PLD but could be, especially where other available public open space is limited.	Better educate potential development applicants that a green roof may potentially be used to meet privately-owned & maintained PLD requirements.	A green roof might be the only feasible means of providing parks in built-out areas with little or no existing parkland/open space. It could also increase the attraction of the development (example: amenity roof garden at Whole Foods at 5th & Lamar).	Some green roofs will have access and/or accessibility barriers that will make them unsuitable for use as parks. Some property owners will not want to offer public access.	Recommend consideration of green roofs for privately-owned & maintained parks. Acceptance subject to PARD approval. Green roof must be publicly accessible; provide proper signage & 3 traditional amenities per PLD ordinance. Green roof park would have to have private ownership and maintenance due to dedication and liability issues. (Note: private parks, including potential green roof parks, may receive a max. 50% PLD credit.)
Green Roof Requirement						
Mandatory Requirement	C5	Projects are not required to build a green roof.	Require green roofs for specific building types, geographic areas, or public projects. Some form of mandatory requirements used in Tokyo, Chicago (projects receiving public assistance), and Portland (city-owned facilities).	Ensure green roofs used in projects.	Green roofs not necessarily warranted or feasible for every project. Overly prescriptive.	Further demonstration of green roof effectiveness required before this major step should be considered.

Potential Option	Type **	Description of Current Status/Concern	Potential Improvement	Anticipated Impacts		City Staff Recommendation
				Advantages	Disadvantages	
ENERGY CONSERVATION, AIR QUALITY & CLIMATE PROTECTION						
Energy Code	A & B	Austin Energy Code requires a high reflectivity for flat roofs. Exception: vegetated roofs or rooftop pools.	Better define "green roof" to enable AE Credit for reflectivity.	Definition of what constitutes a vegetated roof will help plan reviewers assure high performance.	Difficult to strictly define.	Staff asks for GRAG input towards this definition
Austin Energy (AE) Rebates associated with Green Roofs	B & C	Existing Roof rebate: AE rebates $0.15/sq ft for applying reflective coating on an existing dark roof.	Provide the same $0.30/sq ft rebate for replacing a dark roof with a green roof.	Potential reduction in consumption & peak energy demand.	When replacing an existing roof, the new roof must meet energy code by providing a high reflectivity or green roof and AE can not justify paying a rebate for meeting and not exceeding code requirements. $0.15/sq ft is an insignificant incentive when considering the cost of green roofs.	Recommend providing $0.15/sq ft for replacing a dark roof with a green roof.
AEGB ratings associated with Green Roofs	A & B	All Austin Energy Green Building (AEGB) rating systems promote green roofs within the rating points: * BR3 Roofing to Reduce Heat Island * S6a Site Development Protect or Restore Open Areas * S6b Site Development Maximize Vegetated Open Area * S7b Additional Heat Island reduction - Roof	Grant additional points to and/or create additional categories for green roofs.	Further incentivize green roofs for Green Building projects.	Green roofs already effect multiple points. More would be disproportionate.	Re-write of Water Pt 3: "Stormwater Management" section to acknowledge green roof can be incorporated as part of innovative BMP water quality control system. Other changes not justified at this time. Green roofs affect one Basic Requirement & 4 points. This effort is underway and should be introduced in 2011 version of AEGB rating.
Air Quality, Climate Protection & Urban Heat Island Mitigation Program	B & C	Urban Heat Island Mitigation funds for tree planting; not yet available for green roofs; community not aware green roofs mitigate rising rising urban temperatures, air quality pollution, and a/c related energy use.	Create educational outreach campaign & monetary incentives/ rebates for green roofs for Urban Heat Island abatement.	Green roofs provide more urban heat island mitigation than other roof types, reduce energy use, & can remove particulate matter from the air. Increased cooling of surrounding environment benefits community & local ecosystem. Counters conventional dynamic of increased energy use & higher urban temperatures increase the production & incidence of ground level ozone formation & production of carbon.	Cost-benefit ratio for funding green roof may not merit expenditure for developers or owners who are only concerned with their site and not its impact on the larger community environment.	Create educational outreach campaign & monetary incentives/rebates for green roofs. Specifically recommended for application on lower-rise buildings in the CBD & urban core where there is a high percentage of impervious cover.

Potential Option	Type **	Description of Current Status/Concern	Potential Improvement	Anticipated Impacts		City Staff Recommendation
				Advantages	Disadvantages	
WATERSHED PROTECTION						
Flood Control						
DCM 8.3.4.J Parking Lot Detention	A	Flood detention requirements may be met on a site using "parking lot detention." This method may not be widely known to design professionals and could be employed on a roof.	Better educate potential development applicants that parking lot detention is an option and could be used in conjunction with a green roof.	Saves space on the site to combine the detention footprint on the roof rather than have a separate roof and flood detention pond.	Additional weight of stored water on roof likely to dissuade use of this practice. But may be helpful for parking garages with heavy-duty structural supports.	Recommend staff assemble educational materials for the City's web site to show the various flood control options, including parking lot detention.
DCM ____ Detention	C2	Green roofs may slow rate and quantity of stormwater runoff to help reduce flood impacts. No credit is currently given.	Assign prorated detention credit for green roof performance and/or assign green roof adjusted Curve Number.	Creates incentive to building green roofs; credit should be given if systems perform function. Could help with smaller (2-year) storm detention.	Not likely to be effective for larger (e.g., 10, 25, 100-year) storms. Needs study to demonstrate effectiveness. May require large green roof to have any impact.	Preliminary study being conducted by LBJ Wildflower Center. Follow-up study may also be required.
Water Quality (WQ) Structural Control Requirements						
ECM 1.6.7 Innovative Water Quality Controls	C3	Green roofs not considered an approved water quality control for use to meet on-site WQ requirements.	Develop criteria in ECM to allow use of green roof to meet WQ requirements.	Creates significant incentive to building green roofs: land and resources for separate WQ control reduced or not required.	Green roof technology not proven in Austin climate to perform as a stand-alone WQ management practice.	Further demonstration of green roof effectiveness required before this major step should be considered.
	C1		Industry demonstrates that green roof technology can meet water quality requirements.	Same as above. But also does not require City resources.	None to City of Austin. Requires research expenditure on part of green roof industry.	Recommend & encourage research of this type by green roof industry.
	A & B	Green roof could be used as area for re-irrigation of captured stormwater. Not widely known in design community.	Allow green roof systems to used for re-irrigation component of retention-irrigation systems.	Creates incentive to building green roofs: land and resources for separate WQ control reduced or not required. No further code or criteria modifications required. Re-irrigation systems help address water conservation concerns.	Potentially high export of nutrients and high use of potable water need to be prevented. Green roof area may not be large enough to accept all water, requiring supplemental irrigation area (e.g., other landscaping).	Recommend overflow be directed to vegetated area (e.g., rain garden, veg. filter strip, or other landscaping).
	A	Biofiltration or other water quality control could be integrated into green roof design. Not widely known in design community.	Incorporate a biofiltration or rain garden (or other approved) system into a green roof design.	Allows water quality requirements to be met in conjunction with green roof with no further code or criteria modifications.	May be more difficult to maintain and inspect a WQ control on a roof. Greater media depth may be structural or financial burden.	Recommend staff assemble educational materials for the City's web site to include the possible integration of a biofiltration system (or other WQ control) on a green roof.

Potential Option	Type **	Description of Current Status/Concern	Potential Improvement	Anticipated Impacts		City Staff Recommendation
				Advantages	Disadvantages	
Watershed Impervious Cover (IC)						
§ 25-8-63 Impervious Cover Calculations: IC Amount	C5	Green roofs are considered "impervious" just like conventional roofs, despite their ability to absorb and retain rainfall.	Change code to make green roofs (with a minimum media depth) to be considered "pervious."	Creates significant incentive to building green roofs: increases functional level of impervious cover allowed.	Green roof technology not proven in Austin climate to perform as natural pervious soils. Issues: (1) typical Green roof soil depths result in more runoff than natural soil profiles; (2) irrigation leads to saturation & thus runoff more like a conventional roof; (3) fertilizers & other landscape products used to care for the Green roof may lead to increased pollutant loads; and (4) lack of connectivity with ground-level soils prevents contributions to groundwater & creek baseflow.	Further demonstration of green roof effectiveness required before this major step should be considered.
§ 25-8-63 Impervious Cover Calculations: IC Amount with GR mitigation	C4		Allow increased impervious cover (IC) if a green roof of a certain size were provided, e.g., allow 5% additional IC if a green roof with 10% of the site area were provided. Possibly require retention-irrigation for site WQ control.			
§ 25-8-63 Impervious Cover Calculations: Pct IC for WQ Control Calcs	C1	Green roofs considered "impervious" just like conventional roofs; resulting calculations for water quality control sizing may overstate the amount of runoff and control size required.	Change code to discount a portion of the green roof area for purposes of sizing WQ & flood controls depending on the soil depth and system storage capabilities.	Resulting water quality controls will be smaller and less expensive and will reflect the reality of the site's hydrology.	Increases complexity of oversight to permit. May require monitoring and modeling to confirm assumptions granting discount are justified.	Recommend with time period to evaluate success and accuracy of approach. Use approved model to determine discount.
Drainage Utility Fee						
Stormwater Drainage Fee Reduction	C5	Green roofs are considered "impervious" for purposes of calculating the Drainage Utility Fee.	Discount a portion of the green roof area for purposes of calculating the Drainage Utility Fee. Portland, Minneapolis, Seattle & Munster (Germany) use some form of stormwater drainage fee credit.	Further incentivize green roofs. City already provides a discount for proper maintenance of approved water quality controls.	Provides less funds for Drainage Utility. Green roofs need further design improvement to qualify as water quality components (see Innovative WQ Controls above).	Green roofs are already eligible for drainage fee discounts to the extent that they contribute to approved water quality controls. Additional fee incentives not warranted.

Potential Option	Type **	Description of Current Status/Concern	Potential Improvement	Anticipated Impacts		City Staff Recommendation
				Advantages	Disadvantages	
FINANCIAL INCENTIVES						
Subsidies, Grants, Low-Interest Loans	C3	City does not provide any funding for green roofs.	Provide funding (e.g., subsidies, grants, low-interest loans) for green roofs. Chicago, Montreal, Toronto, & cities in Germany & Switzerland provide some form of funding for green roofs. Portland provides up to $5 per sq ft for green roofs that provide stormwater management as part of their Grey to Green initiative.	Further incentivize green roofs.	Economy in recession: funds not likely available at present. Need to justify why money to be spent on green roofs and not other options.	Review if potential funding becomes available. Will need to weigh advantages of green roofs against those of other worthy environmental & cultural solutions not receiving such a subsidy.
Development Process Incentives (Fee Rebates, Expedited Process, Design Support)	C3	City does not provide development process incentives for green roofs.	Provide development process incentives (fee rebates, expedited process, design support) for green roofs. Chicago & Washington D.C. offer expedited review & permit process. Chicago also provides a dedicated review team and fee waiver.	Further incentivize green roofs.	More complicated for Development Review while receiving less money through fees.	Limited design support from City staff may be available, especially for pilot projects. Fee waivers and expedited process not recommended.
Local Improvement Credits	C5	City does not provide local improvement credits (municipality offers loans for upfront improvement costs and is reimbursed through property taxes over time) for green roofs.	Provide local improvement credits for green roofs. Similar to City of Austin program currently proposed for solar panels.	Further incentivize green roofs. Shifts cost of green roof off of developer and onto owner (who is receiving long-term benefits - e.g., energy savings).	Economy in recession: funds not likely available at present. Need to justify why money to be spent on green roofs and not other options.	Review if potential funding becomes available. Will need to weigh advantages of green roofs against those of other worthy environmental & cultural solutions not receiving such a subsidy.
Property Tax Credit	C5	City does not provide property tax credits for green roofs.	Provide property tax credits for green roofs. New York City offers a one-year property tax credit of up to $100,000.	Further incentivize green roofs.	City receives less property tax revenue. May be difficult to justify in time of economic recession. Need to justify why money to be spent on green roofs and not other options.	Review if budgetary climate supports. Will need to weigh advantages of green roofs against those of other worthy environmental & cultural solutions not receiving such a subsidy.
OVERALL CONSIDERATIONS						
In order to receive credits for the above (open space, zoning impervious cover, water quality, etc.), the following considerations must be adequately addressed: * Water Conservation/Potable Water Use * Integrated Pest Management (IPM) * Minimum soil depth * Minimum green roof size (building coverage) * Suitable plant species * Maintenance/assurance green roof continues to exist in adequate condition						

** Key to "Type" Codes:
A = Already Implemented (but may need clarification, publicity, etc.);
B = Near-Term Action Desired;
C = Longer-Term Item (needs further study, validation, etc.; C2, C3, C4, C5 = 2nd, 3rd, etc. year of work plan)

GREEN ROOF ADVISORY GROUP
Final Report

September 2010

Council Resolution

RESOLUTION NO. 20090827-057

WHEREAS, green roofs, as a component of green infrastructure, can conserve energy, mitigate stormwater runoff volume, provide wildlife habitat, and reduce the urban heat island effect; **NOW, THEREFORE,**

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF AUSTIN:

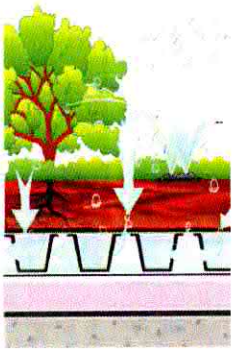
The City Manager is directed to convene and work with a green roofs stakeholder group to explore the feasibility of offering energy and stormwater credits and other incentives, based on performance, to encourage the creation of green roofs in the City.

Charge and Process

Green Roof Types

Photo courtesy of Atelier Wong

AMENITY DECK
Sterling House



GREEN ROOF
Diagram

Photo courtesy of Kathy Zaidy

RESIDENTIAL TERRACE
Hill Country Residence

Case for Green Roofs

Public Benefits & Considerations

- Urban Heat Island Mitigation
- Stormwater Detention
- Air Quality
- Carbon Dioxide Impact
- Water Conservation / Use
- Water Quality
- Well-being
- Wildlife Habitat

Case for Green Roofs

Case for Green Roofs

Private Benefits

- Energy Use
- Open Space
- Uses and Activities
- Real Estate Value
- Extended Roof Life
- Sound Attenuation

Case Studies

Austin City Hall

Location:
Downtown Austin

Project Type:
Institutional

Year Installed:
2005

Green Roof Area:
13,625 sq. ft.

Photos courtesy of Mitchell Knox, Rick Manning, Ed Jaggers, and Atelier Wong