

CASTOR PROJECT

EPA RAIN WORKS GROUP M5

DESIGN GOALS

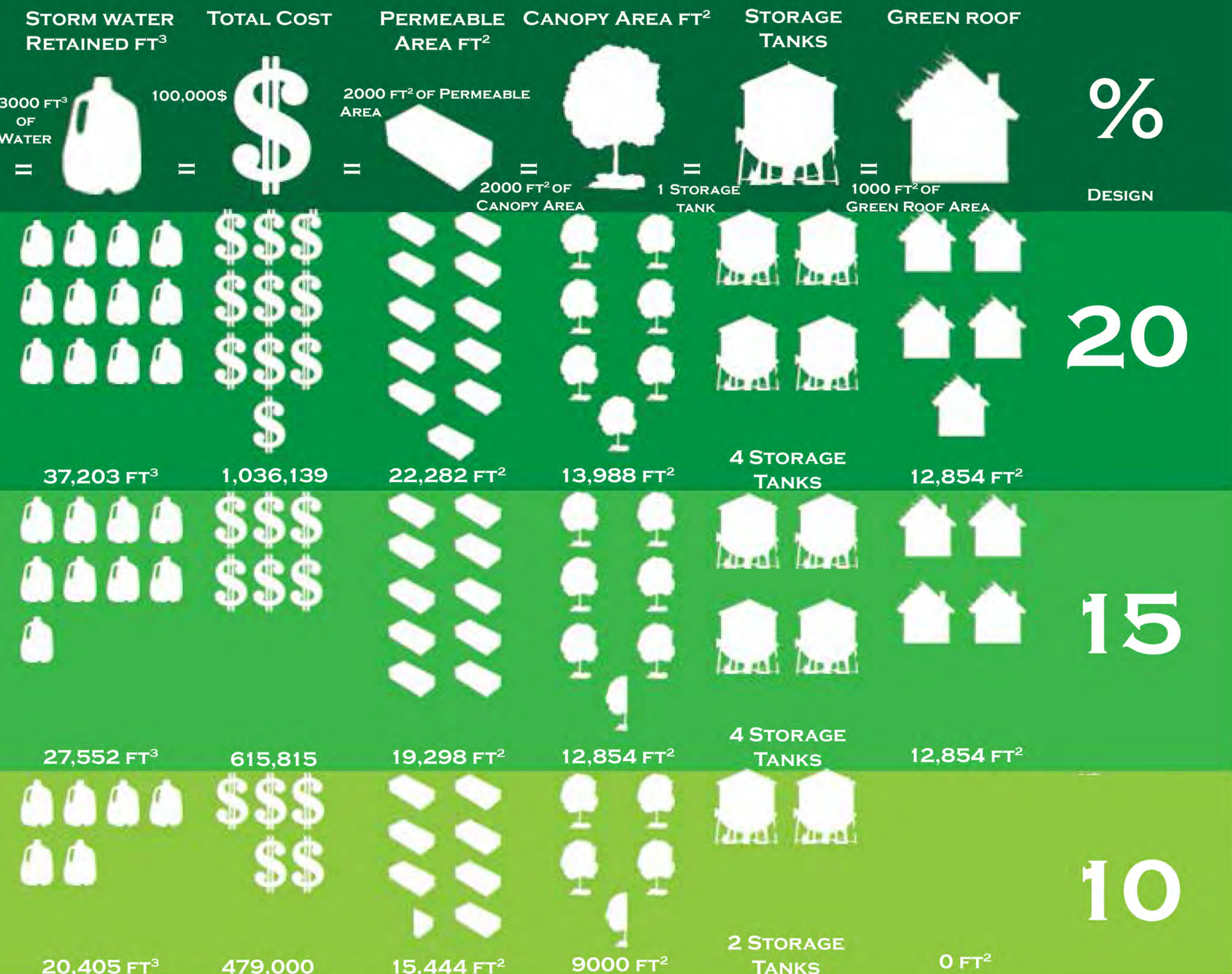
- REDUCE STORM WATER RUNOFF
- INCREASE CANOPY AREA AND PERMEABILITY
- COLLECT STORM WATER FOR LATER USE
- ADDRESS AREAS OF LOW INFILTRATION



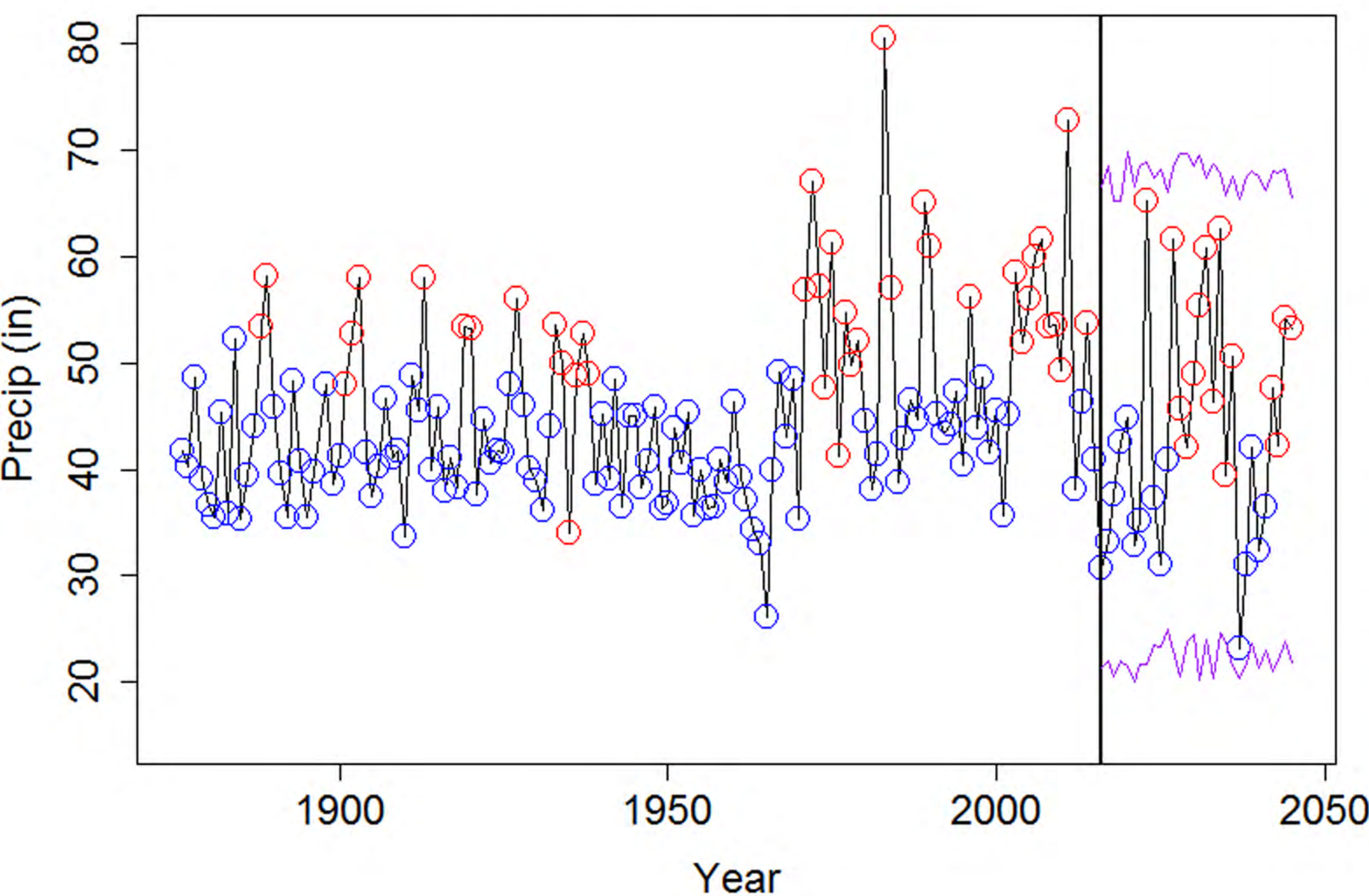
Castor canadensis

Castor canadensis, the beaver is the most influential animal on the landscape after humans. Beavers, being the school mascot, are not only an icon of The City College of New York, but also encompass the ideas of constructive water management by slowing down the flow of surface water and promoting healthy and diverse ecosystems.

ELEMENTS OF DESIGN



TRENDS IN RAINFALL



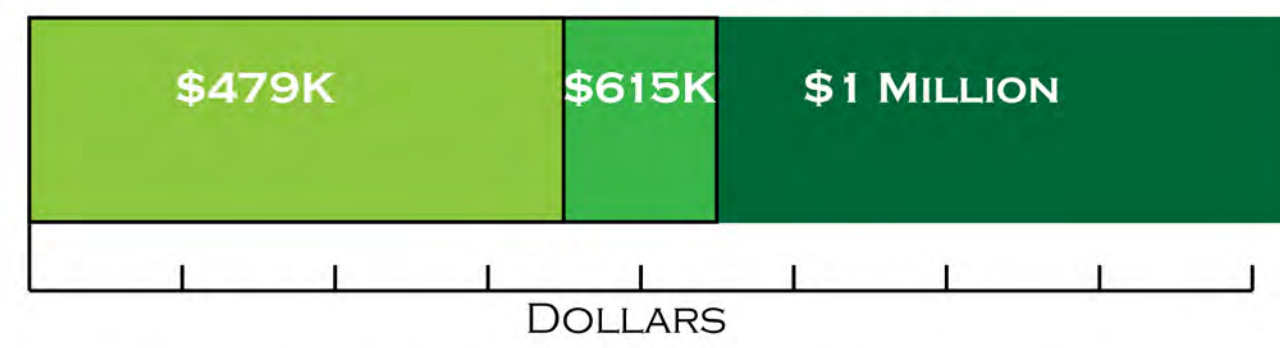
THE PRECIPITATION MODEL

An upward trend in the inches of precipitation campus will receive is projected. New infrastructure is required in order to limit the amount of storm water campus contributes to New York City's combined sewage overflow, an issue estimated to cost the city millions annually.

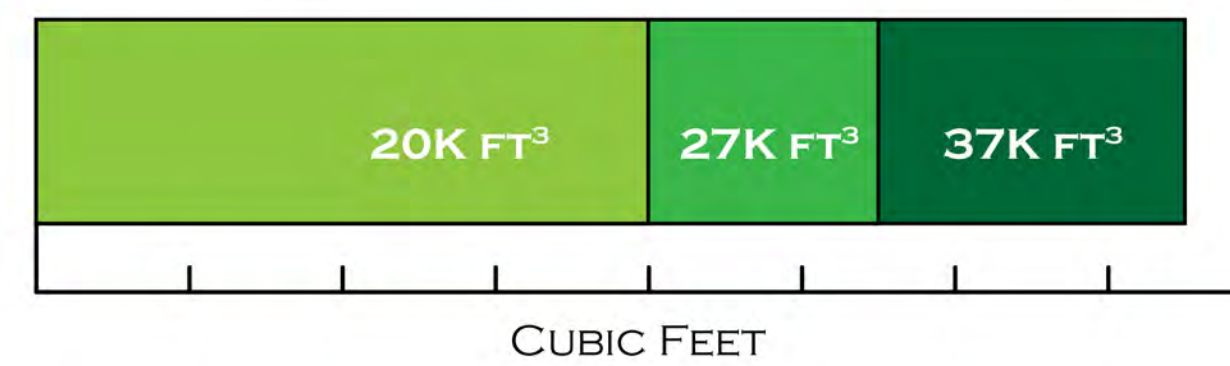
RUNOFF REDUCTION DESIGN GOAL



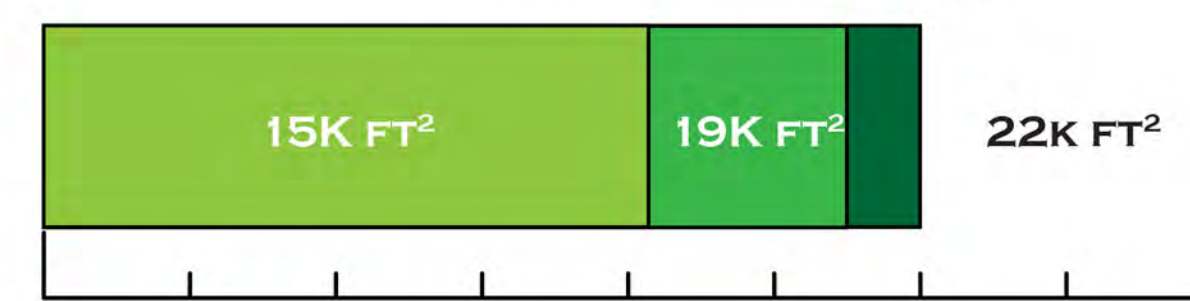
TOTAL COST



VOLUME OF STORMWATER RETAINED



PERMEABLE AREA



POLLINATOR AND BIRD RELATIONSHIPS



ASCLEPIAS TUBEROSA KNOWN AS BUTTERFLY MILKWEED IS THE SOLE DIET OF MONARCHS CAUSING THEM BE TOXIC DETERRING PREDATORS.



ADDING A DIVERSE PLANTING PROVIDES A VARIETY OF FOOD AND SHELTER THROUGHOUT THE YEAR FOR BIRDS. CITY COLLEGE IS LESS THAN A MILE AWAY FROM CENTRAL PARK AN IMPORTANT BIRD AREA CLASSIFIED BY THE AUDUBON SOCIETY



HELIANTHUS DIVARICATUS HOSTS A VARIETY OF POLLINATORS, INCLUDING 6 SPECIALTY BEES. BEES AND POLLINATORS IN GENERAL HAS BEEN AFFECTED BY AGRICULTURAL CHEMICALS. PROVIDING ADDITIONAL HABITAT WILL HELP MITIAGE THOSE EFFECTS



LINDERA BENZOIN IS THE SOLE HOST TO THE **EASTERN SPICEBUSH BUTTERFLY** CRUCIAL TO ITS LIFE-CYCLE. SPICEBUSH PROVIDE EARLY SPRING INTEREST BEING ONE OF THE FIRST PLANTS TO FLOWER.



CONVENT AVENUE
LARGE EXPANSIONS OF SIDEWALK CAN BE IMPROVED WITH SILVA CELLS TO INCREASE STORM WATER RETENTION.



NORTH ACADEMIC BUILDING
THIS WALKWAY IS THE STEEPEST AREA ON CAMPUS WITH NO PERMEABILITY



CONVENT AVENUE
PUDDLES OFTEN ARE EVIDENCE OF POOR DRAINAGE.



CONVENT AVENUE
THESE ROUTINE PUDDLES HAVE ERODED THE SIDEWALK AWAY AFTER YEARS OF FREEZE AND THAW CAUSING TRIPPING HAZARDS.

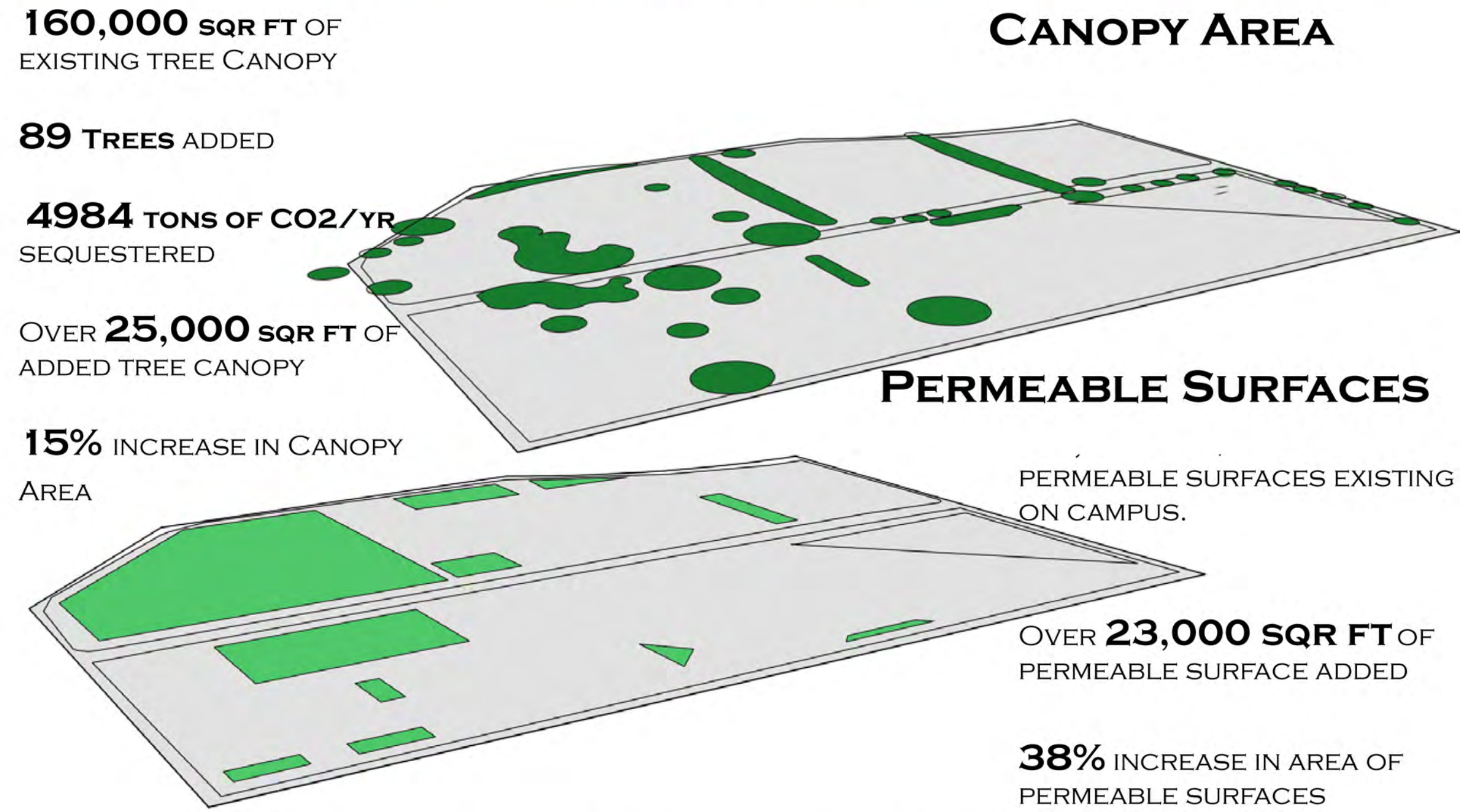
160,000 SQR FT OF EXISTING TREE CANOPY

89 TREES ADDED

4984 TONS OF CO₂/YR SEQUESTERED

OVER **25,000** SQR FT OF ADDED TREE CANOPY

15% INCREASE IN CANOPY AREA



CANOPY AREA

PERMEABLE SURFACES

PERMEABLE SURFACES EXISTING ON CAMPUS.

OVER **23,000** SQR FT OF PERMEABLE SURFACE ADDED

38% INCREASE IN AREA OF PERMEABLE SURFACES

SURFACE WATER FLOW

WATER FLOWS TOWARDS **CONVENT AVENUE**, MAKING IT AN IDEAL LOCATION FOR **BIOSWALES**

UNDERSTANDING THE FLOW OF SURFACE WATER ON CAMPUS AND ANTICIPATING THE AMOUNT OF RAIN ON CAMPUS WAS CRITICAL TO THE DESIGN

25 CATCHMENT BASINS ON CAMPUS

Surface Water Directional Flow

- East
- South East
- South
- South West
- West
- North West
- North
- North East

