Project Name: **Rochester Institute of Technology Active Transportation Improvements**

Project Location: **Rochester, New York**

Project Purpose: "Active Transportation" includes walking, bicycling and other modes of human-powered mobility. The 2010 Active Transportation Improvements at the Rochester Institute of Technology (RIT) support a re-balancing of transportation modes on campus. This project is based on an integration of Active Transportation Planning with Green Infrastructure and sustainable site design. Key elements include construction of new multi-use pathways, establishment of bicycle parking facilities, and the re-configuration of the Gleason Transit Plaza to become a multi-modal gateway for the RIT campus.

Role of Landscape Architect:

In 2008, RIT completed a _Comprehensive Parking and Transportation Study._ Recommendations from the study included:
*Enhance bicycle connections and amenities
*Invest in sustainable transportation
*Correct missing pedestrian linkages
*Move quickly on "low hanging fruit"

On April 22, 2009 RIT President William W. Destler signed the _American College and University Presidents' Climate Commitment_. The Climate Commitment is a pledge by academic leaders to move their campuses toward more sustainable programs and practices.

The landscape architect was hired by RIT in the summer of 2009 as the lead consultant to plan, design, and oversee construction of a suite of Active Transportation Improvements that would address the goals of the Transportation Study and the Climate Commitment. The landscape architect was charged with harvesting the sustainability benefits of Active Transportation for the RIT community.

Construction of Phase I was substantially completed between June and November 2010.

Special Factors:

The project embraces several objectives that enhance the quality, safety and sustainability of the RIT campus environment:

Improve Safety:
• Reduce conflicts between transportation modes
• Provide adequate circulation space for peak pedestrian volumes
• Improve configuration and location of ADA parking spaces

Improve Bicycle Circulation and Bicycle Parking:
• Provide a safe, attractive and clearly delineated South Bicycle Pathway between the residence halls (eastern terminus) and Reynolds Drive (western terminus)
• Provide functional and attractive bicycle parking shelters in convenient locations

Improve Campus Aesthetics:
• Establish an Active Transportation System design vocabulary that improves campus image and reflects the innovation and sustainability goals of RIT
• Establish the Gleason Circle Transit Plaza as a primary gateway and campus public space

Strengthen connections between the built environment and natural resource base of RIT:
• Utilize bio-filtration basins as green spaces that can provide the functional and aesthetic benefits of indigenous wetland ecosystems (storm water infiltration, phytoremediation, habitat enhancements, biodiversity, heat island modification and year-round visual interest)
• Provide opportunities for integration of the campus natural resource base with green Infrastructure projects and RIT curricula
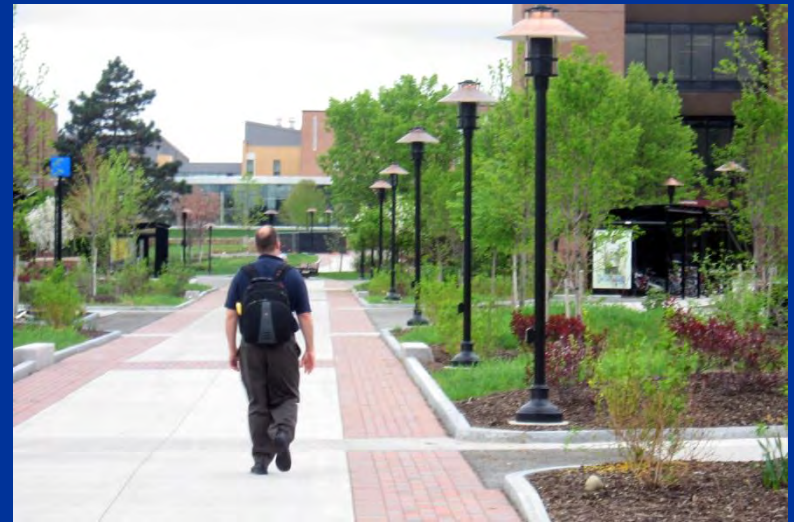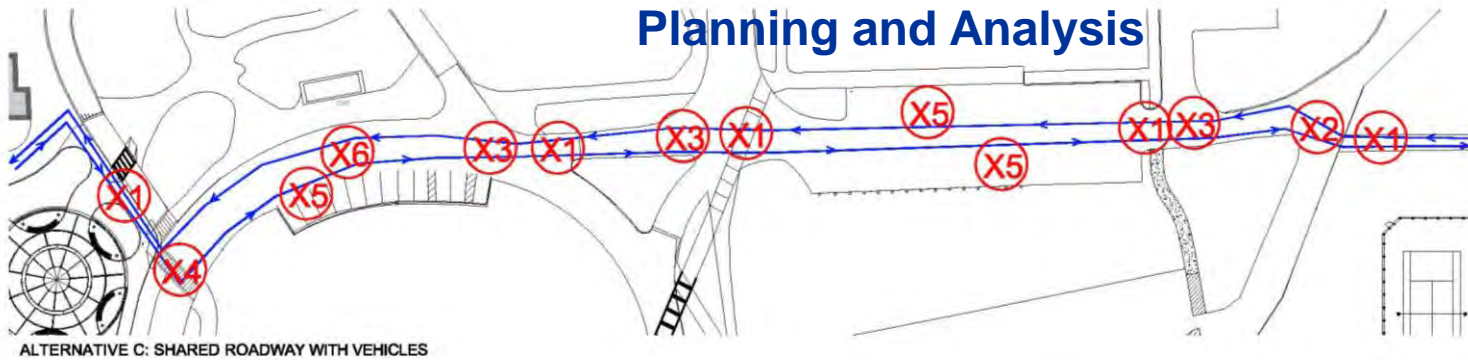

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Planning and Analysis

ALTERNATIVE C: SHARED ROADWAY WITH VEHICLES

ALT. C BICYCLE ROUTE EVALUATION SCORE

NO.	WEIGHT
1	0
2	15
3	6
4	5
5	5
6	10
7	0
8	0
TOTAL	41

LEGEND

X1	PEDESTRIAN CONFLICTS	X4	VEHICULAR, BUS, AND PEDESTRIAN CONFLICTS
X2	PEDESTRIAN AND VEHICULAR CONFLICTS	X5	VEHICULAR PARKING AREA CONFLICTS
X3	VEHICULAR AND/OR BUS CONFLICTS	X6	BUS DROP OFF CONFLICTS

BIKE ROUTE EVALUATION CRITERIA

NO.	MEASURE	WEIGHT*	NO.	MEASURE	WEIGHT*
1	CONFLICTS	20	6	SECURITY	10
2	CONVENIENCE (TIME)	25	7	NUMBER OF ACCESS POINTS/CROSSINGS	10
3	SEPARATION	10	8	TRAFFIC	10
4	WIDTH	10	TOTAL		100
5	GRADE	5			

*SCORE OF ZERO EQUALS WORST CONDITIONS. SCORE WITH FULL WEIGHT AMOUNT EQUALS BEST CONDITIONS.

20' 80' 0 40' NORTH
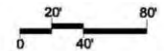
Enhancing safety and reduction of conflicts between travel modes were primary objectives for RIT. The landscape architect worked with a national transportation planning expert to develop a set of assessment criteria and evaluate pathway alignment alternatives.
Six different types of conflicts between transportation modes were identified.
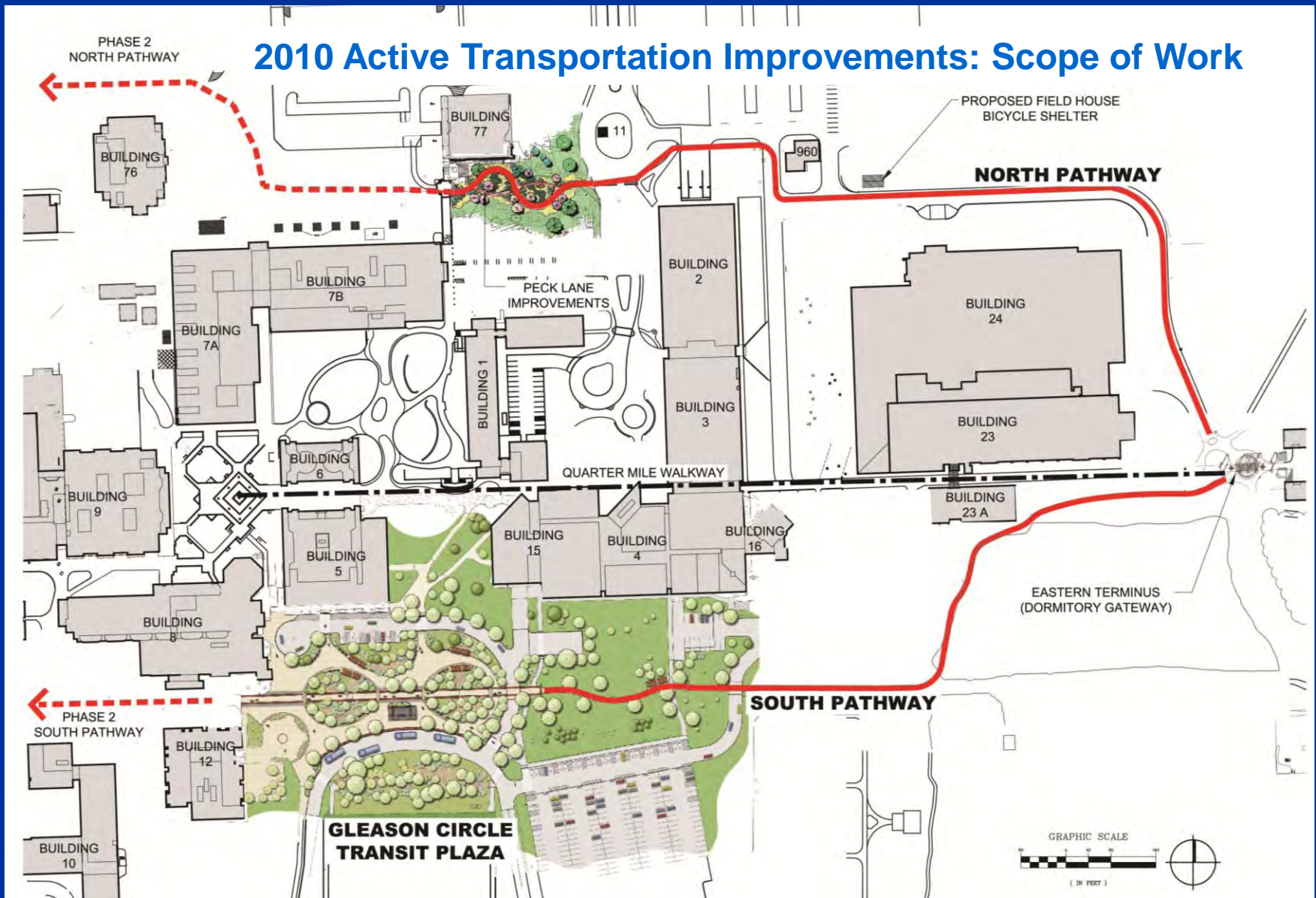
2010 Active Transportation Improvements: Scope of Work
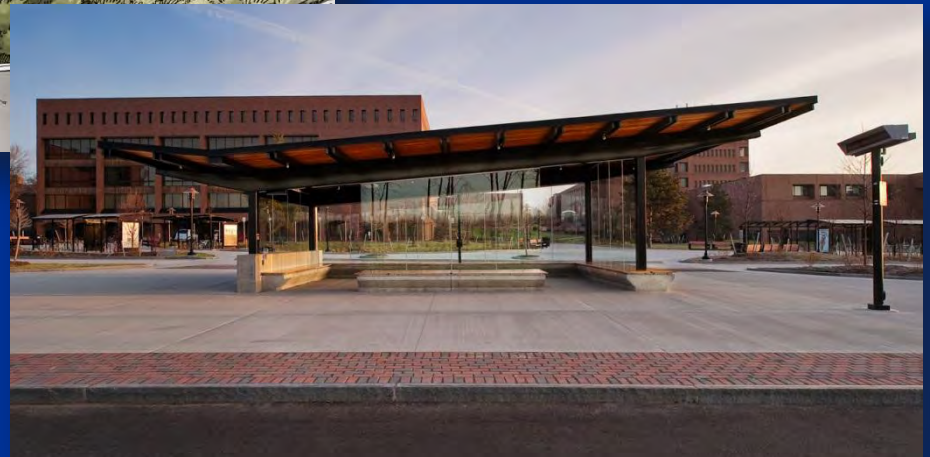
RIT GLEASON CIRCLE TRANSIT PLAZA

The centerpiece of the Active Transportation Improvements is the establishment of the Gleason Circle Transit Plaza.

Gleason Circle Transit Plaza: image sketch

The expanded plaza provides improved ADA parking and access, reduced conflicts between vehicles and pedestrians, and a main concourse with bicycle parking shelters.

The landscape architect continued an on-going partnership with a local architect to create a new bus shelter for the Plaza. The shelter provides improved comfort and capacity in support of mass transit. A cantilevered butterfly roof channels water to a rain garden. The elegant new structure helps define an alternative transportation vocabulary at RIT.

KEY

1. LIBRARY DROP-OFF
2. CROSS-WALKS
3. RAISED SPEED TABLES
4. BICYCLE PARKING SHELTERS
5. PLAZA BENCHES
6. HEATED BUS SHELTER
7. SOUTH BICYCLE CONCOURSE
8. INFORMAL TREE PLANTING
9. FORMAL TREE PLANTING
10. CONCOURSE LIGHTING
11. BIO-FILTRATION WETLAND BASINS
12. RESTORED WOODED WETLAND

GLEASON TRANSIT PLAZA CONCEPT PLAN

SITE CROSS-SECTION A-A'

RIT GLEASON CIRCLE TRANSIT PLAZA

The Gleason Transit Plaza explores a synergy between Active Transportation and Universal Design. The overall objectives were to maintain existing levels of service, improve safety through reduction of conflict points, and provide a more positive balance between transportation modes.

SUSTAINABILITY OPPORTUNITIES
NEW RIT BIKEWAY CONSTRUCTION

ROOT PRODUCTION METHOD (RPM*)
TREE BENEFITS

* INCREASED CARBON SEQUESTRATION
* REDUCED MAINTENANCE
* INCREASED WATER & NUTRIENT UPTAKE
* EARLIER & INCREASED HABITAT UNITS
* EARLIER FLOWER & MAST PRODUCTION
* ACCELERATED GROWTH
* HIGH SURVIVAL RATES
* ACCLIMATED TO LOCAL CONDITIONS

TREE CANOPY
BENEFITS

* ONE ACRE OF TREES ELIMINATES AS MUCH CARBON DIOXIDE AS PRODUCED FROM DRIVING A CAR 26,000 MILES
*40 TREES REMOVE 80 POUNDS OF AIR POLLUTANTS ANNUALLY
* ONE TREE REDUCES 4,000 GALLONS OF STORMWATER RUNOFF ANNUALLY
* TREES PREVENT EROSION THROUGH ROOTS STABILIZING THE SOIL
* SHADE REDUCES THE HEAT ISLAND EFFECT (LEED CREDIT SS 7.1)
* RESTORE HABITAT (LEED CREDIT SS 5.1)

ECO-SWALE
STORMWATER MANAGEMENT
BENEFITS

* REDUCES SOIL EROSION
* REMOVES POLLUTANTS
* INCREASES GROUNDWATER RENEWAL
* SUPPORTS BIODIVERSITY
* CONSERVES WATER
* ASSISTS ACHIEVEMENT OF LEED CREDITS SS 6.1 & 6.2

10' WIDE BIKEWAY

BIKEWAY POTENTIAL
FEATURES

SURFACE:
* PERVIOUS PAVING OPTIONS OR PAVING MATERIALS WITH >29 SOLAR REFLECTANCE INDEX (LEED CREDIT SS 7.1)

BASE:
* RECYCLED MILLINGS FROM LOCAL ROAD PROJECTS AND/OR USE LOCAL LIMESTONE

EDUCATIONAL
CLASS & SIGNAGE OPPORTUNITIES

* CREATE TREE & PLANT BIODIVERSITY FOR COORDINATION WITH CLASS LEARNING OPPORTUNITIES
* ADAPT EXISTING RIT EDUCATIONAL SIGNAGE TO EXHIBIT SUSTAINABLE TOPICS

METHODS & MATERIALS

RESTORED POCKET WETLAND

CU Structural Soil

CU Structural Soils:
First application on RIT campus.
470 cubic yards installed.
Provides improved root zone for trees &
structural support for rigid pavements.

RAIN GARDEN

12' 3' 3'

MAIN CONCOURSE

Pervious concrete

UNDER DRAINS TO
RAIN GARDENS

Pervious Concrete:
First application on RIT campus.
3600 square feet installed. Under
drained to rain gardens.

Pervious concrete

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A S L A

RIT South Pathway
Pathway design is context-sensitive and responds to the character of different campus zones. In all cases, design follows best practices and existing multi-use pathway construction standards including AASHTO, FHWA and NYSDOT.

Active + Mass transportation
The Rochester-Genesee Regional Transportation Authority (RGRTA) oversees public transportation for a seven-county area. The bus stop at Gleason Circle is the busiest in the RGRTA system, servicing an average of over 500 riders per hour on weekdays.
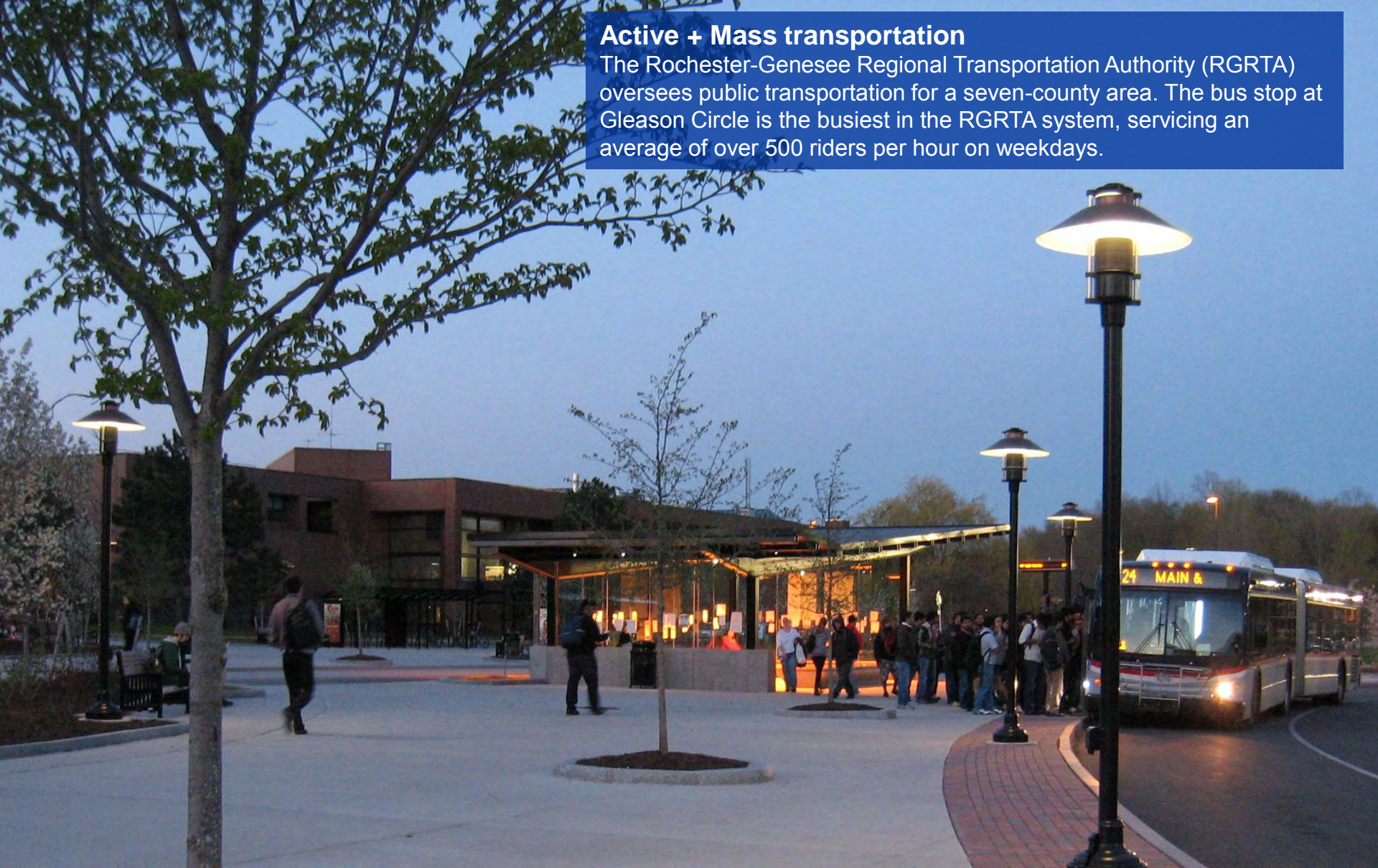
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Identifying User Groups

Characteristics of different user groups were studied during design development.

Walkers, runners, manual and powered wheelchairs, skateboarders and bicyclists of various skill levels all co-exist within the RIT Active Transportation System.

Integrating RIT's commitment to sustainability into the soft and hardscapes

Bio-filtration basins integrated into the landscape provide treatment for approximately 600,000 gallons of run-off per year from 38,500 sf of impervious surface. Planting schemes are based on landscape application of native plant communities, emphasizing botanical and structural diversity. 38 species of native plants were used in the project. The storm water wetlands and landscape design provide an important connection point between the built campus environment and the ecological context of RIT.
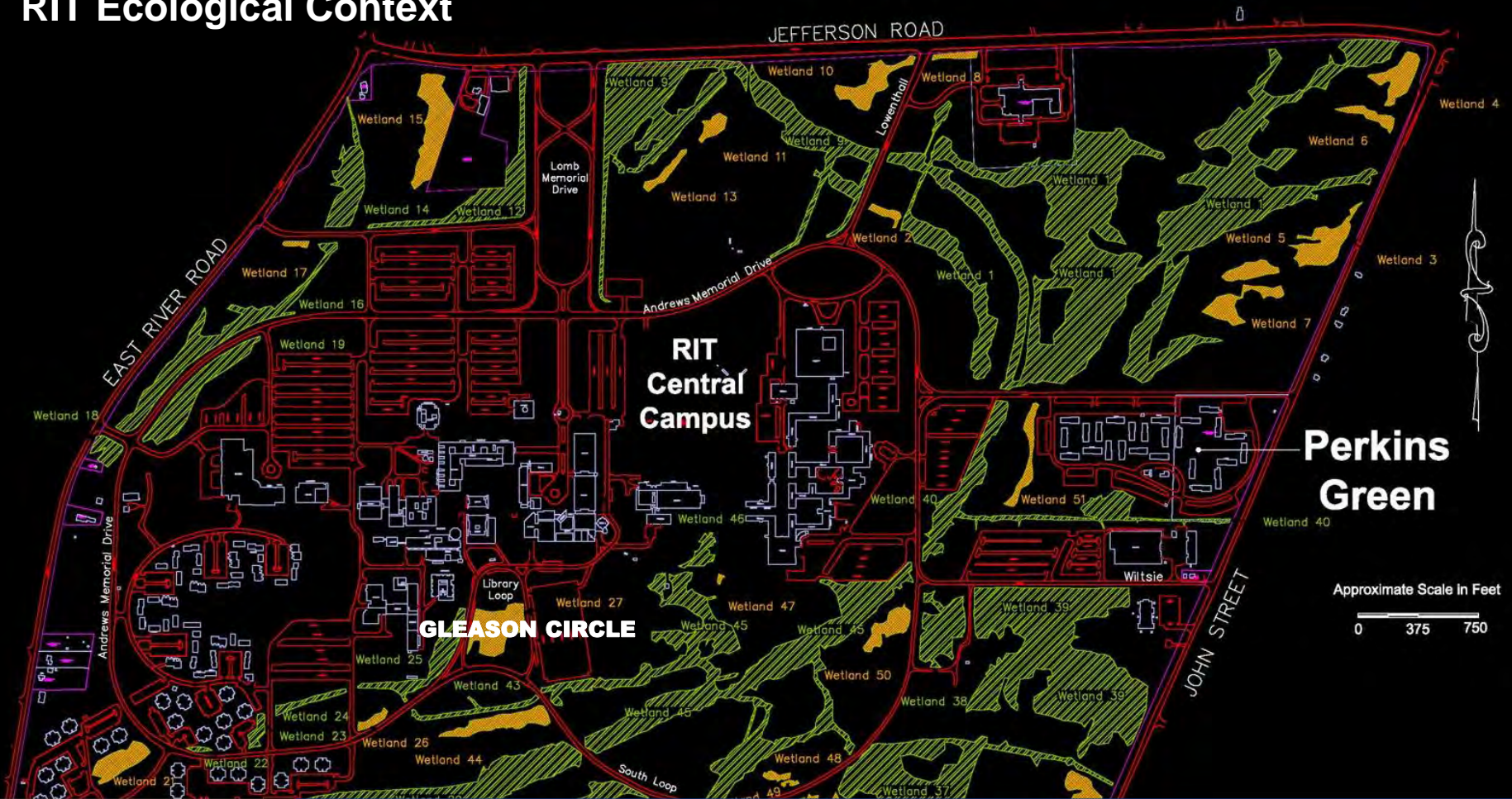
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RIT Ecological Context

The RIT campus is embedded within a robust system of emergent marsh and forested wetlands. The wetland complex drains to the West Branch of Red Creek, the Genesee River and the Great Lakes freshwater system. Active Transportation at RIT can help enhance the environmental sustainability of the campus, which is connected to ecosystem services of global significance.

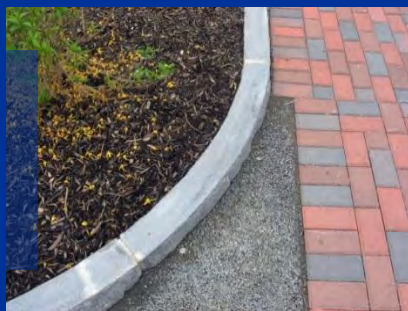*New York Upstate Chapter – American Society of Landscape Architects*

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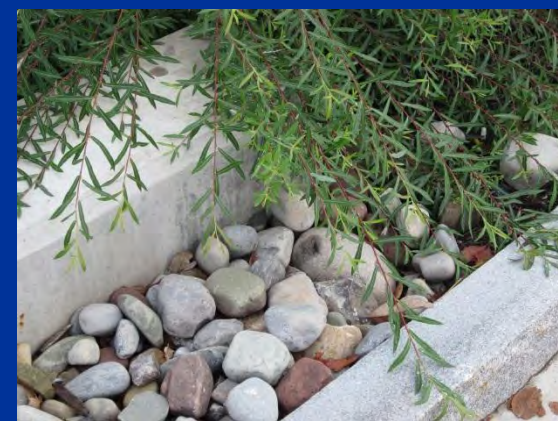
Built Design

Design:
Materials on the ground plane help to define user zones and identify circulation patterns.

Bicycle Parking

The Landscape Architect worked with RIT Parking and Transportation staff to acquire data on bicycle travel patterns and identify desired locations for bike parking clusters. Counts indicated that it is not unusual to have 600+ bicycles parked in the academic core.

RIT sought to encourage bicycle use to help alleviate campus parking pressures. At the same time, reduction of visual clutter caused by haphazard bike parking at building entrances was desired.

16 new bike parking shelters with racks were strategically located, providing a total of 192+ new covered spaces. All new bike parking spaces are within 80 yards of a building entrance (vs. LEED NC credit 4.2 maximum of 200 yards). An advertising contract through a national media firm off-set the cost of the shelters.

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RIT is pursuing opportunities to utilize the campus environments as part of curricula.

Active Transportation Planning Course

In Fall Quarter 2010, the LA project manager was invited by RIT to teach a special course on Active Transportation Planning (ATP). Students explored the links between Active Transportation and environmental, social and economic sustainability. The course was structured around a number of local case studies, with a focus on the on-campus Active Transportation Improvements. A new direction uncovered by the students was the synergy between Active Transportation and Universal Design. The class included two students in wheelchairs. RIT is a leader in the development of assistive technology for the mobility-impaired, and a vision for campus sustainability embraces a level of accessibility that transcends ADA compliance.

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A S L A

KEY:
- SK 1 OFF-ROAD TRAILS
- SK 2 OFF-ROAD/ON-STREET BICYCLE FACILITY
- SK 3 ON-STREET BICYCLE FACILITY
- EXISTING 5' PATHWAYS
- EXISTING 10' MULTI-USE TRAILS
- FEDERAL WETLAND
- PROPOSED BRIDGE
- PROPOSED BOARDWALK
- PROPOSED TRAIL DESTINATIONS
- SIGNAGE CROSSING AREA
- SIGNALED CROSSING AREA

Campus Community Connections

LEHIGH VALLEY TRAIL

BRIGHTON-HENRIETTA TOWN LINE RD.

JEFFERSON ROAD

PARK POINT

University of Rochester   2.0 miles
Downtown Rochester   4.5 miles

LOWENTHAL ROAD

Wetland

Wetland

CREEK

Wetland

Wetland

Wetland

Wetland

JOHN STREET

NORTH

50'   100'   200'
0
SCALE IN FEET

THE PROVINCE

ANDREWS MEMORIAL DR.

ROCHESTER INSTITUTE OF TECHNOLOGY

PERKINS ROAD

PERKINS GREEN

2010 Project: Eastern terminus

WILTSIE ROAD

NEXT STEPS

RIT is an economic and innovation leader in the Greater Rochester Area. Changes on the campus can be a catalyst in the surrounding community. Plans are evolving to extend the Active Transportation system with new pathways that connect the core campus to peripheral residential complexes that house over 3000 students. The RIT system can be easily linked to the nearby Lehigh Valley Trail and the emerging Greater Rochester Active Transportation System (GRATS) which is being supported by advocates from RIT, the Rochester Cycling Alliance, and other local groups.

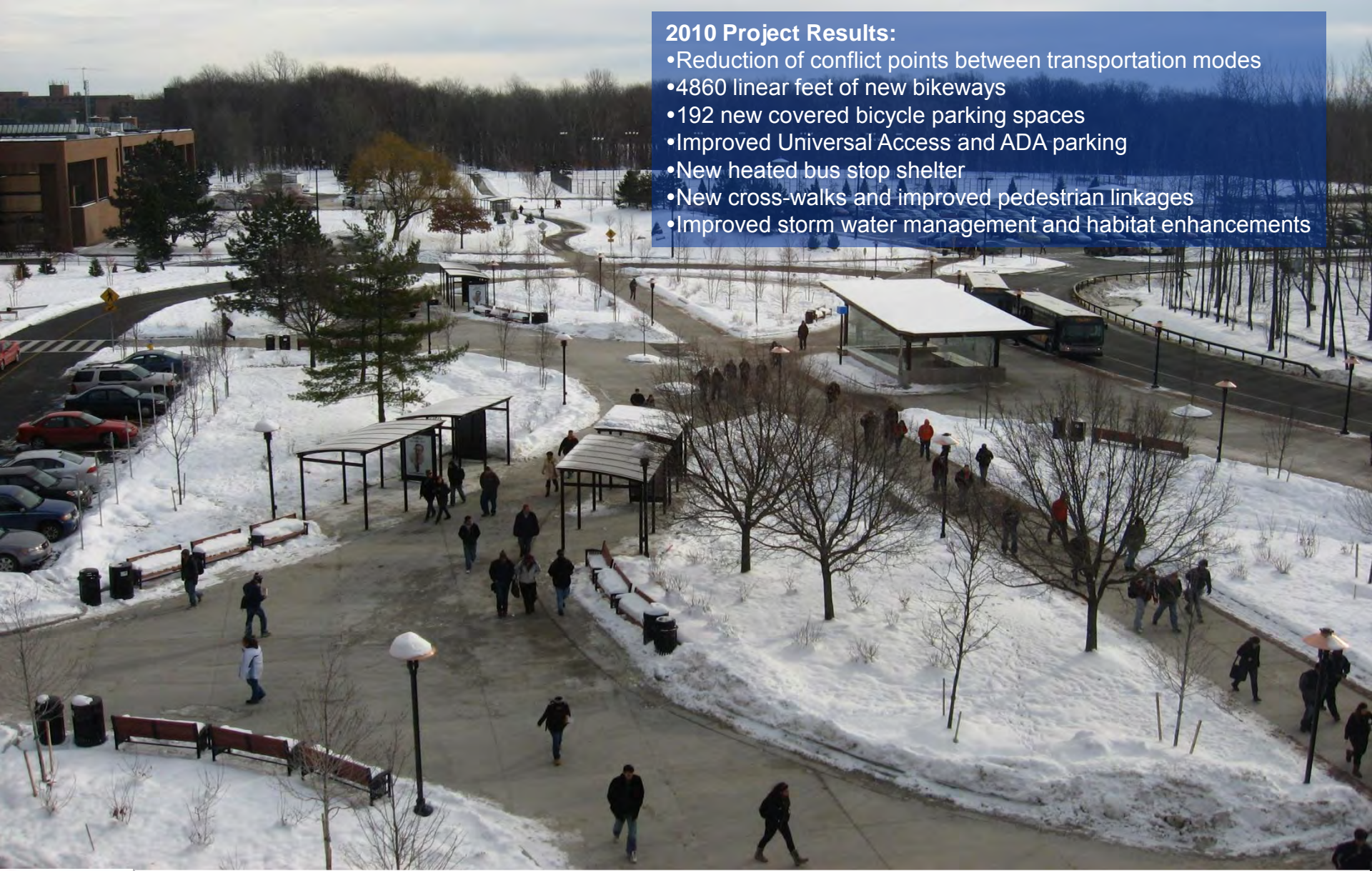*New York Upstate Chapter – American Society of Landscape Architects*   2011 Awards Program

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ASLA

2010 Project Results:
- Reduction of conflict points between transportation modes
- 4860 linear feet of new bikeways
- 192 new covered bicycle parking spaces
- Improved Universal Access and ADA parking
- New heated bus stop shelter
- New cross-walks and improved pedestrian linkages
- Improved storm water management and habitat enhancements

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ASLA