

Butler University Sunset Avenue Roadway Enhancements



Presented by:

John Hazlett- LEED AP O+M



WILLIAMS CREEK
CONSULTING

Butler University

- Founded in 1855
- 295 acre campus
- Located 5 miles north of downtown Indianapolis
- 60 major academic fields and 19 graduate programs
- Current enrollment:
~5,000 students





Parking on Campus: Designated visitor parking and metered parking is available throughout campus. If you are unable to find a visitor parking space, a temporary parking permit is available from the Office of Admission (47) or the Butler University Police Department (6).

- VP – Visitor Parking
- MP – Metered Parking

Butler Campus Map

- | | | | | | |
|-----------------------------------|---|---|---|---|-----------------------------------|
| 1. Alpha Chi Omega | 12. Cornerstone Plaza | 20. Facilities Management | 28. Holcomb Observatory and Planetarium | 37. Lambda Chi Alpha | 47. Robertson Hall |
| 2. Alpha Phi | 13. Davey Athletic Complex | 21. Fairbanks Center for Communication and Technology | 29. Holcomb Pond | 38. Lilly Hall | 48. Ross Residence Hall |
| 3. Apartment Village | 14. Delta Delta Delta | 22. Gallahue Hall | 30. Howard L. Schrott Center for the Arts | 39. Norris Plaza | 49. Schwitzer Residence Hall |
| 4. Atherton Union | 15. Delta Gamma | 23. Health and Recreation Complex | 31. Indianapolis Greenway Canal and Path | 40. North Mall | 50. Sigma Chi |
| 5. Bookstore/Starbucks | 16. Delta Tau Delta | 24. Hinkle Fieldhouse | 32. Irwin Library | 41. Pharmacy and Health Sciences Building | 51. Sigma Nu |
| 6. BU Police Department | 17. East Mall (Butler Way Mall) | 25. Holcomb Building | 33. Jordan College Annex | 42. Phi Delta Theta | 52. South Mall (Atherton Mall) |
| 7. Butler Athletic Fields | 18. Efroymson Center for Creative Writing | 26. Holcomb Gardens | 34. Jordan Hall | 43. Phi Kappa Psi | 53. Tennis Courts |
| 8. Butler Bowl | 19. Eidson-Duckwall Recital Hall | 27. Holcomb Memorial Carillon | 35. Kappa Alpha Theta | 44. Pi Beta Phi | 54. University Terrace Apartments |
| 9. Butler Campus Farm | | | 36. Kappa Kappa Gamma | 45. President's House | 55. West Mall |
| 10. Center for Faith and Vocation | | | | 46. Residential College (ResCo) | |
| 11. Clowes Memorial Hall | | | | | |



**BUTLER
SUSTAINABILITY**



AMERICAN
COLLEGE & UNIVERSITY
PRESIDENTS
CLIMATE
COMMITMENT

CUE

CENTER FOR URBAN ECOLOGY
BUTLER UNIVERSITY



Existing Campus GI



Porous Pavement – West Parking



Rain Garden – Schrott Center



Rain Garden – Clowes Hall



City of Indianapolis-Complete Streets Policy

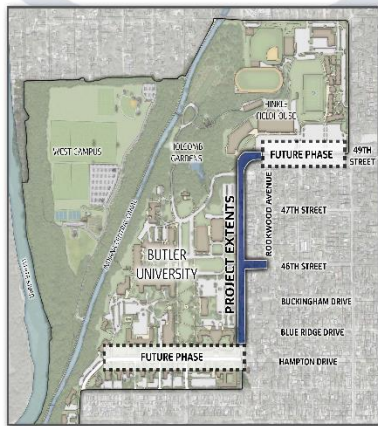
City's Policy Element	Butler's Project Goals
Support integrated multimodal transportation	Accommodate future public transportation
Promote pedestrian safety	Traffic calming and connectivity
Accommodate bicyclists	Enhance bike safety

Sec 431-803 (c): “The City shall foster partnerships with neighboring communities, businesses and school districts to develop facilities that further the City’s Complete Streets Policy”



Sunset Avenue

Streetscape and Green Infrastructure



For Questions Contact:

City of Indianapolis:
Department of Public Works
200 E. Washington Street
Indianapolis, Indiana 46204

Civil Engineering and Design:
First Group Engineering, Inc.
5925 Lakeside Boulevard
Indianapolis, Indiana 46278

Williams Creek Consulting
619 N. Pennsylvania Street
Indianapolis, Indiana 46204

Contractor:

Milestone Contractors, L.P.
5950 South Belmont Avenue
Indianapolis, Indiana 47217



Project Background



City of Indianapolis \$1.5M

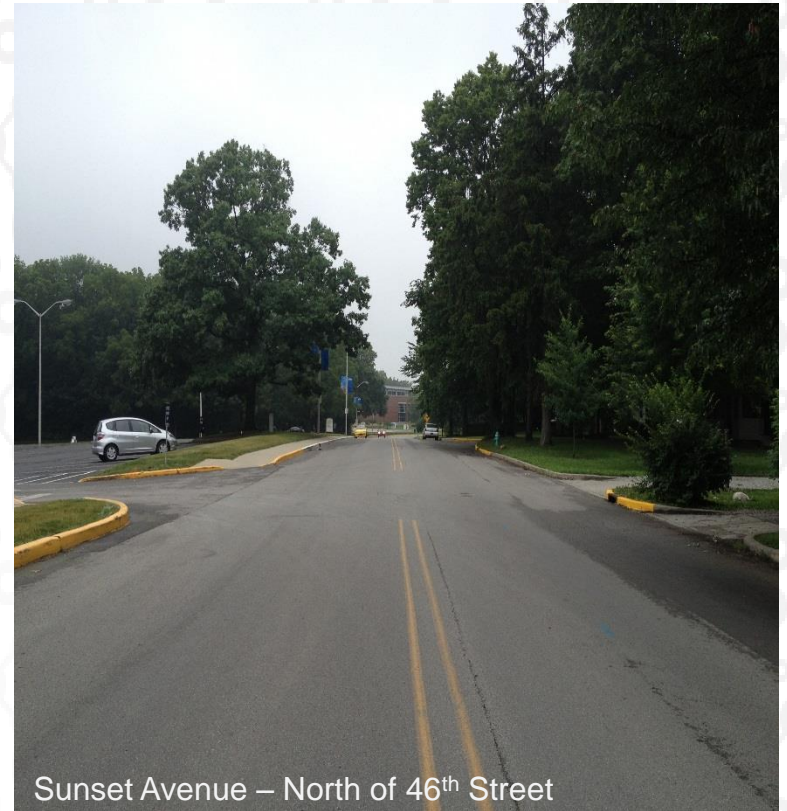
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Butler University \$1.5M

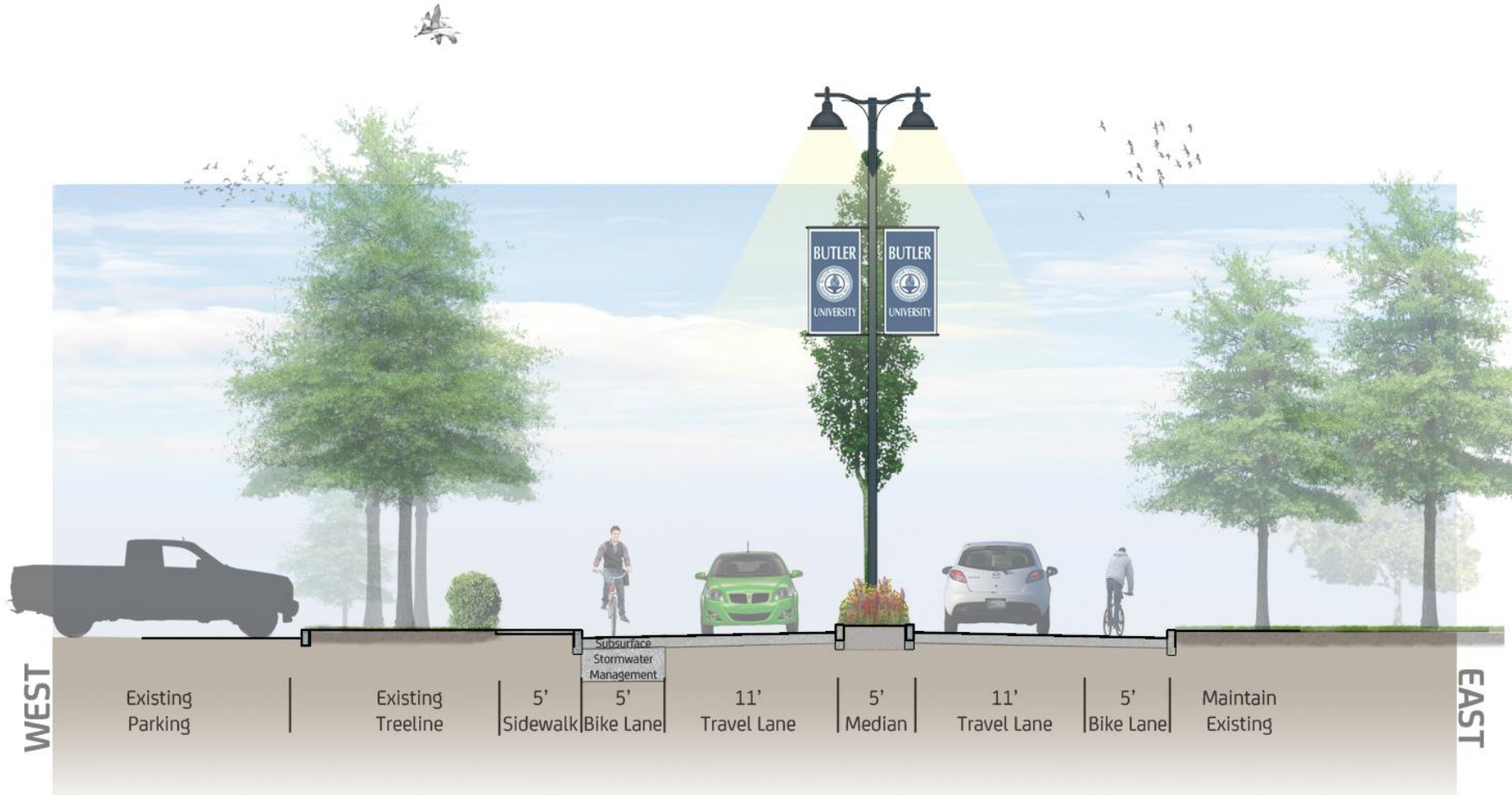
=\$3M Streetscape Project



Sunset Avenue -Existing Conditions



Sunset Avenue-Streetscape Retrofit South of 46th Street



Sunset Avenue-Streetscape Retrofit GI Application: Porous Pavement & Subsurface Storage



- Travel Lane Remains Asphalt
- Bike Lane (southbound) is Permeable – 5,500 sf
- Captures Runoff from West Side of Sunset Avenue
- Curb Turnouts & Subsurface Hydraulic Connection Divert Runoff to Rain Gardens

Sunset Avenue-Streetscape Retrofit North of 46th Street



Sunset Avenue-Streetscape Retrofit GI Application: Linear Rain Gardens



- Native Plant Material
- Species Selection:
 - Salt Tolerance
 - Limited Diversity for Urban Application
 - Showy Species vs. Wild & Wooly
- Curb Turnouts & Subsurface Hydraulic Connection Divert Runoff to Rain Gardens

Sunset Avenue-Streetscape Retrofit 49th Street Curve Realignment



BEFORE – Looking South along Sunset Avenue

- Vehicular & Pedestrian Safety
- Creation of Bus Turnout
 - Athletic Facility Dropoff
 - Future IndyGo Stop
- Previous Drainage Issue Alleviated
 - Runoff From Hinkle Parking
 - Standing Water in Intersection
 - Outfall to Combined Sewer



AFTER – Bus Turnout

Sunset Avenue-Streetscape Retrofit GI Application: Permeable Pavers & Subsurface Storage



- Captures Hinkle Fieldhouse Runoff
- Permeable Pavers – 5,000 sf
 - Incorporated into Median Design for Continuous Project Aesthetic
 - Campus Standard Paver – Use on other GI Projects Throughout Campus

Sunset Avenue-Streetscape Retrofit

GI Application: Rain Gardens



- Captures Hinkle Fieldhouse Runoff
- Subsurface Connection to Permeable Pavers

Species Selection:

- Salt Tolerance
- Limited Diversity for Urban Application
- Showy Species vs. Wild & Wooly



GI Operations and Maintenance

Sunset Avenue - Indianapolis, Indiana Operations and Maintenance Manual



Prepared for:
City of Indianapolis and Butler University

Prepared by:
Williams Creek Consulting Inc.
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WILLIAMS CREEK
CONSULTING

February 2014

Sunset Avenue | INDIANAPOLIS, INDIANA

RAINGARDEN/INFILTRATION BASIN INSPECTION CHECKLIST

Site Name _____

BMP - ID _____

"As Built" Plans Available? _____

Inspection Date _____ Inspection Time _____

Days Since Previous Rainfall _____ Depth of Previous Rainfall _____

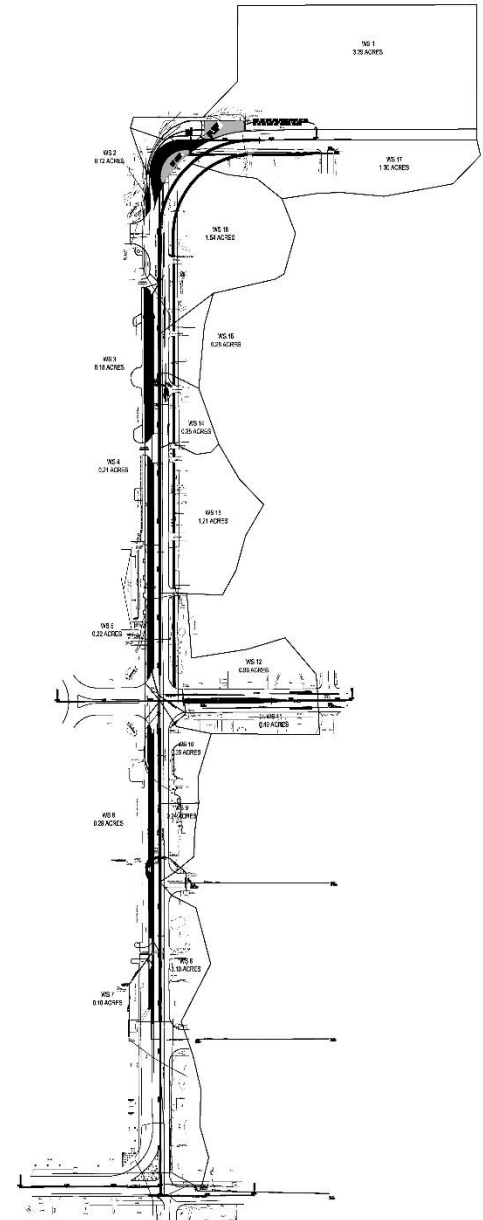
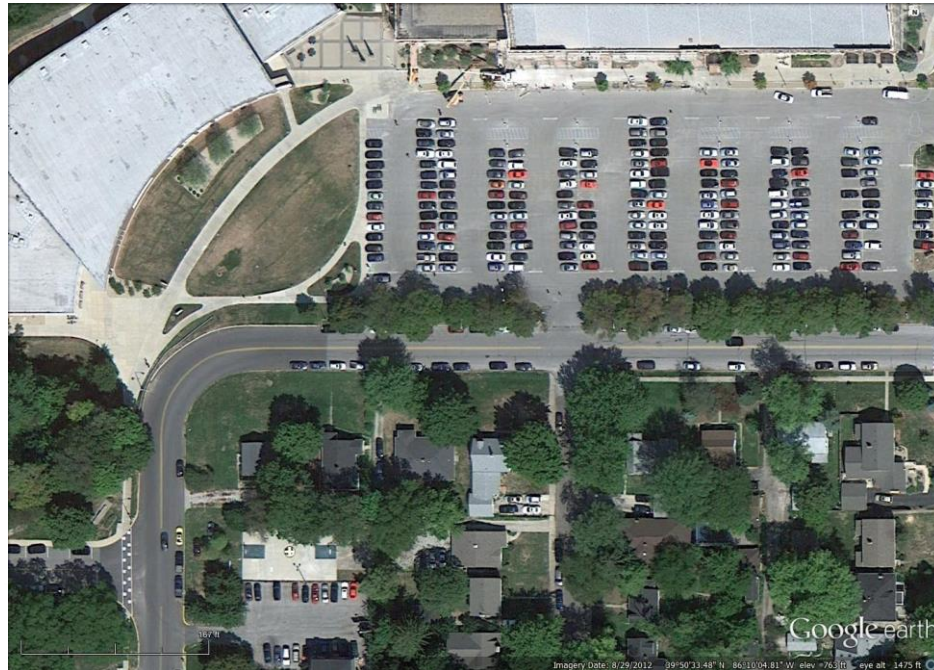
Inspector _____ Inspector Signature _____

Maintenance Item	Satisfactory or Unsatisfactory	Notes
Vegetation		
Vegetation is healthy		
Specified vegetation is present		
Invasive species identified		
Plants are watered as needed		
Other: _____		
Dewatering		
Bioretention dewateres within 48 hours		
Other: _____		
Debris		
Remove floatable debris		
Remove debris from overflow devices		
Remove shoreline pollution (trash, oil liquids)		
Note visible pollution (oily sheen, discoloration)		
Other: _____		
Erosion		
Inspect inlet for erosion/ undercutting		
Inspect slope of bioretention for sliding/ scouring		
Other: _____		
Embankments		
Inspect for animal burrows		
Other: _____		
Actions to be taken:		
To be Completed by (Date):		



Project Watersheds

Watershed	AREA (SF)	100YR PEAK (CFS)		
		PRE	POST	
WS 1	143,447	34.74	15.18	56%
WS 2	31,580			
WS 3	7,831	1.55	0.69	55%
WS 4	9,272	1.84	0.83	55%
WS 5	9,723	1.93	0.87	55%
WS 6	12,722	2.52	1.15	54%
WS 7	4,421	0.88	0.75	15%
WS 8	47,788	9.48	9.48	0%
WS 9	10,371	2.06	2.06	0%
WS 10	15,150	3.01	3.01	0%
WS 11	21,474	4.26	4.26	0%
WS 12	41,917	8.32	8.32	0%
WS 13	52,707	10.46	10.46	0%
WS 14	15,082	2.99	2.99	0%
WS 15	12,264	2.43	2.43	0%
WS 16	66,899	13.28	13.28	0%
WS 17	56,526	12.47	12.47	0%





Lessons Learned

- Communicate design expectations
- In house maintenance requirements
- Cost saving opportunities through stormwater credits
- Utilization of Public Private Partnership model

Thank You!
www.williams creek.net

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