HANSON

Engineering | Architecture | Planning | Allied Services

Complete Streets
&
Maintenance Projects

Transportation Engineering Association of Missouri

March 9, 2017

Project Development

Project Development


Modal Hierarchy
Typology
Key
Complete Streets
Themes
Procedures
Design Values


Transforming the Core of our Community
MCORE
Multimodal Corridor Enhancement Project
@MCOREProject
MCORECU


DOWNTOWN
CHAMPAIGN
University Avenue
WHITE STREET
PROJECT 3
MIDTOWN
Springfield Ave.
DOWNTOWN
URBANA
Neil Street
GREEN STREET
CAMPUSTOWN
PROJECT 2
WRIGHT STREET
PROJECT 4
ILLINOIS
UNIVERSITY OF
GREEN STREET
PROJECT 1
PROJECT 5
Race St.
ARMORY AVE
City of
CHAMPAIGN
CITY OF
URBANA
ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
MTD


Modal Hierarchy
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Project Development


Modal Hierarchy
Typology
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Key Complete Streets Themes
10,000 - 12,000
ADT ON GREEN STREET
20 / 35
DAYTIME ROUTES & BUS STOPS
325
CRASHES IN 5 YEARS (~5% K/A)
28,000
DAILY BOARDINGS & ALIGHTINGS
2,500
PEDS/HOUR WRIGHT & GREEN
6,000
BICYCLISTS ON CAMPUS

Urbana/Champaign, IL
MCORE Project


MITCHELL FABRICS


Modal Hierarchy
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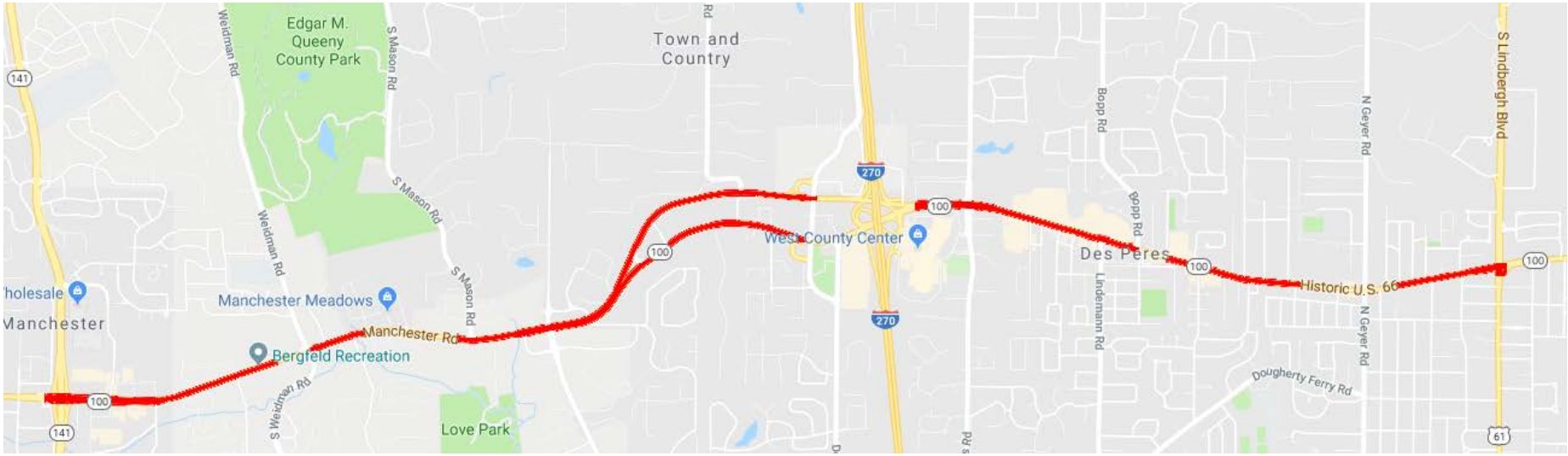
Complete Streets
Themes

Project Development

Manchester Road (Route 100)

- MoDOT St. Louis District
- Route 141 to Lindbergh Blvd (US 61)
- Approximately 6 miles broken into two projects



Manchester Road (Route 100)

- Existing Conditions
  - Varying cross section of 4 to 8 lanes
  - Open and closed drainage systems
  - Bus Stops without sidewalk access
  - Older sidewalk and ramps (PROWAG)
  - Outdated signals (PROWAG)
  - Short segments with marked bike lanes
  - Some newer developments

Manchester Road (Route 100)

- Primary Work is mill and overlay of roadway
- What else must be done?
  - PROWAG Section R201.1 Scope

    "All newly constructed facilities, ***altered*** portions of existing facilities, and elements added to existing facilities for pedestrian circulation and use located in the public right-of-way shall comply with the requirements in this document."
  - As stated in EPG 642:

    "…when an ***alteration*** is made to a roadway on which pedestrian facilities (sidewalks, pedestrian grade separations, curb ramps, etc.) exist on Missouri Highways and Transportation Commission (MHTC) right of way, each altered element or space within the limits or scope of the project shall comply with the applicable requirements for new construction to the maximum extent feasible."

Manchester Road (Route 100)

- Alterations (EPG 642)
  - "A change that affects or could affect the usability of all or part of a building or facility. Alterations of streets, roads, or highways include activities such as reconstruction, rehabilitation, resurfacing, widening, and projects of similar scale and effect."
  - All barriers to access between curb ramps, steep cross slopes, or steep running sloped areas will be addressed.
  - All existing pedestrian facilities disturbed will be replaced.
  - Signal projects should include curb ramps and/or island cut through, detectable warnings, and ADA-compliant pushbuttons at a minimum.

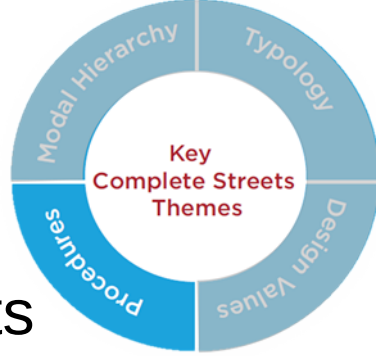
PROWAG Background

- PROWAG - Public Rights of Way Accessibility Guidelines
  - ADA Accessibility Guidelines focus mainly on facilities or sites.
  - New guidelines for public rights-of-way address various issues, including access for blind pedestrians at street crossings, wheelchair access to on-street parking, and various constraints posed by space limitations, roadway design practices, slope, and terrain.
  - The new guidelines will cover pedestrian access to sidewalks and streets, including crosswalks, curb ramps, street furnishings, pedestrian signals, parking, and other components of public rights-of-way.
  - These guidelines ensure that access for persons with disabilities is provided wherever a pedestrian way is newly built or altered, and that the same degree of convenience, connection, and safety afforded the public generally is available to pedestrians with disabilities.

Manchester Road (Route 100)

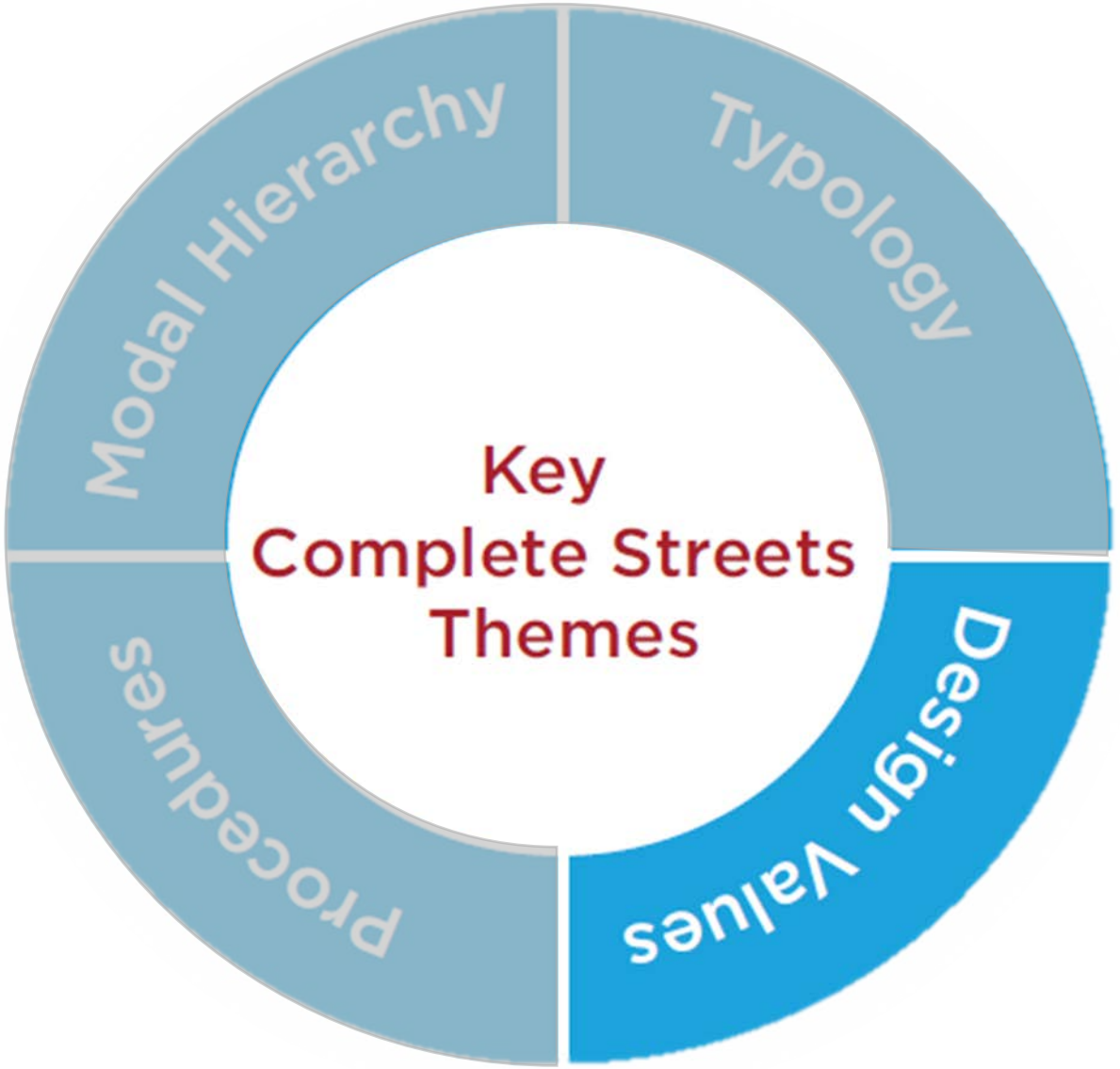
- Proposed PROWAG Sidewalk Improvements
  - Replacement of 4’ and narrower sidewalk
  - Replacement of sidewalk ramps
  - Addition of raised detectible warnings
  - Provide paths through intersection islands
  - Connect bus stops to sidewalk
  - Add segments to improve route continuity
  - Identify other hazards

Manchester Road (Route 100)



- Proposed PROWAG Traffic Signal Improvements
  - Add pedestrian heads for each crossing
  - Add Audible Pedestrian Signals (APS)
  - Provide buttons for each direction crossed
  - Correct vertical/horizontal button placement

Project Development



Buses and Pavement Design

- How do we design for bus loadings?
- Can we assume they are no worse than a multi-unit truck?

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=

Impact of Fully Loaded CUMTD Buses vs Typical Assumption of a Multi-Unit Truck		
Bus Length	Gross Vehicle Weight (Loaded)	Actual % Increase in Traffic Factor vs MU Truck
40 Feet	42,350 lbs.	377%
60 Feet	66,790 lbs.	531%

Buses and Pavement Design

- **Existing Pavement Structure**
  - 8” PCC Base
  - 4” HMA Overlay
  - Current Condition = Poor
- **Proposed Options Based on Bus = Multi-Unit Truck (MU)**

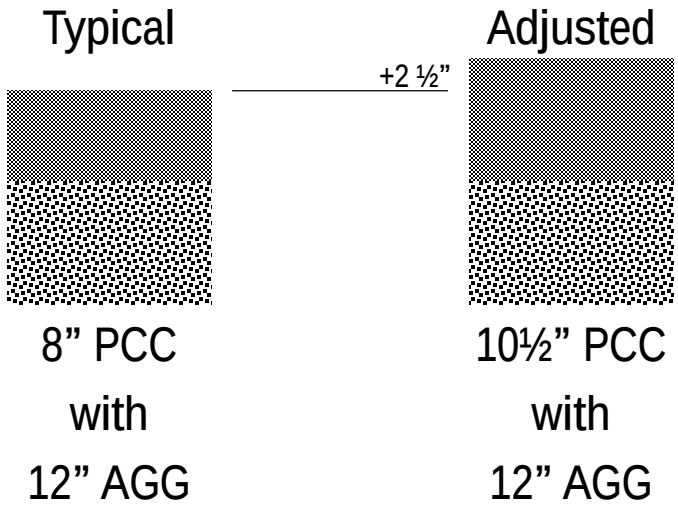
Initial Pavement Alternatives	Alt-1 Mill 6" + HMA Overlay	Alt-2 Mill 4" + Rubbelize PCC + HMA Overlay	Alt-3 Complete Recon PCC	Alt-4 Complete Recon HMA
Patching	X	X		
Mill 4" HMA	X	X		
Mill 2" PCC	X			
Rubbelize PCC		X		
8" HMA Overlay	X			
9" HMA Overlay		X		
8" PCC Pavement			X	
13" Full Depth HMA				X
Estimated Cost	**$ 1,183,438**	**$ 1,039,261**	**$ 1,528,072**	**$ 1,464,930**

Buses and Pavement Design

Rigid Pavement Traffic Factor Triples

ADT 14,000 (2027)			Traffic Factors		
Vehicle	**Volume**	**Percentage of ADT**	**Typical Bus = MU**	**Adjusted Bus Load Factors**	**Percent Increase**
P	12,846	91.7%	0.012	0.012	0%
MU	280	2.0%	1.755	1.755	0%
40’ Bus	461	3.3%	2.889	12.105	319%
60’ Bus	413	3.0%	2.589	15.276	490%
		Total Traffic Factor	**7.245**	**29.149**	**302%**

Pavement Structure Increases



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Thank You!