



# **TRANSFORMING, CONNECTING & REVITALIZING UNIVERSITY AVENUE**

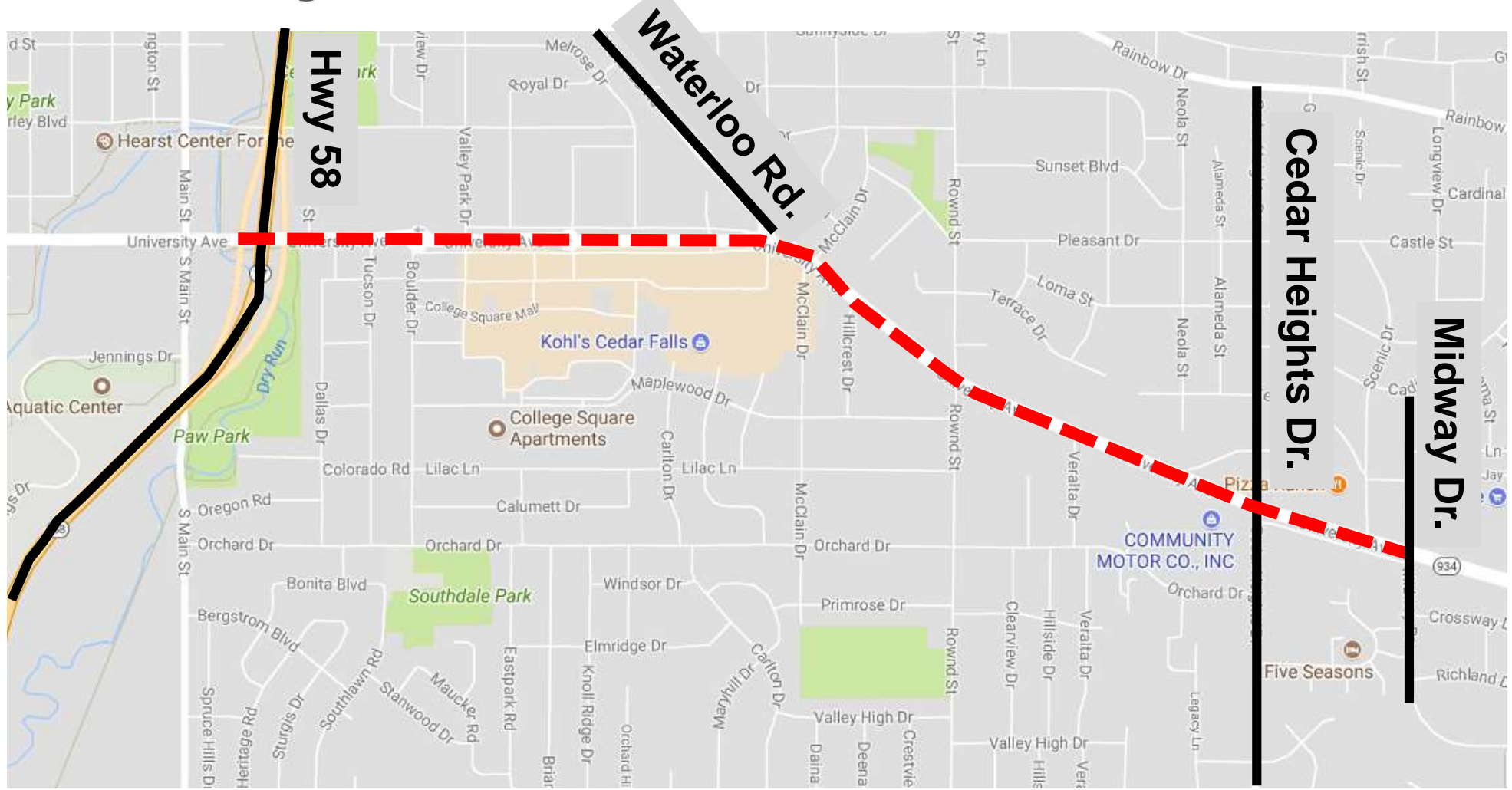
**Sustainable City Network Conference**  
**October 3, 2017**

# Presentation Overview

- Corridor History
- Complete Streets support
- Project Priorities
- Evaluation of Sustainability Outcomes
- Phase 1 Completion

# Corridor History

## University Ave. Location



# Corridor History

## University Ave. Roadway Condition

- 60 years old
- 18 years for 1<sup>st</sup> improvement
- 20 more years for major resurfacing



Core 1



Core 1



Core 2



Core 2

# Corridor History

## University Ave. Roadway Condition



# Corridor History

## University Ave. Project Timeline

### DOT:

- 2008-2010: Corridor Study (2 public meetings)
- 2011: Environmental Assessment (3 public meetings)
- 2013: EA completed
- 2014: Finding of No Significant Impact

### City:

- 2009: City resolution on Complete Streets
- 2014: July-ownership to City & design contract
- 2015: Public Meeting & ROW acquisition
- 2016: Phase 1 construction

# Complete Streets Support

- 2009: Complete Streets Policy Adopted
- July 2013: Complete Streets Policy Updated
  1. Vision: mobility, safety, enhancements to community
  2. All Users: safety, access & convenience for all
  3. All Projects: integrate as possible: affordable, responsible & equitable
  4. Exceptions: cost/health, use by all not achievable, alternate facilities, legal constraints
  5. Creates a Network: connectivity needed to promote pedestrian, bicycle & public transportation
  6. Application: Applies to all local and private developments
  7. Design Criteria: Anticipate future demand by all users
  8. Context Sensitivity: Land uses, transportation options, barriers, connectivity
  9. Performance Measures: Develop, apply & report
  10. Implementation: Annual recommendations

# Project Priorities

## University Avenue

1. A design that is safe & efficiently moves traffic
2. Design of new roadway: \$4 million
3. 4 lanes and utility relocation
4. Efficient roadway connections to private property, minimize ROW need
5. Construct safe pedestrian/bike links and corridors
6. Master corridor landscaping plan
7. Include Complete Street structural elements where safe, efficient and cost effective
8. On road bike lanes



# Evaluation of Sustainability Outcomes

1. Traffic Signal Operations
2. Travel time
3. Gas Savings
4. Vehicle emissions
5. Safety: Reduced Crashes
6. Level of Service: Time travel through corridor

# Alternatives

Alternative	2B	2C	4C
	All Signals	Signals + RAB	RAB + Signals
Hwy 58 Interchange	SPUI	SPUI	Teardrop
Hwy 58 to Boulder	4 lanes w/ turn lanes	4 lanes w/ turn lanes	4-lanes
Signals	8	6	2
Roundabout	0	2	6
Major Changes	<ul style="list-style-type: none"> <li>• SPUI @ 58</li> <li>• Eliminate Blackhawk signal</li> <li>• Full access @ Waterloo</li> <li>• No bike lanes</li> </ul>	<ul style="list-style-type: none"> <li>• Same as 2B</li> <li>• Except RAB @ Waterloo and Cedar Heights</li> <li>• No bike lanes</li> </ul>	<ul style="list-style-type: none"> <li>• Revised RAB geometry to save US Bank and Amigos</li> <li>• No bike lanes</li> </ul>

# Alternative Comparison

## Outcome 1: Traffic Signal Operations

	2B	2C	4C
Signal Systems	8	6	2
Annual Signal Operations & Maintenance Costs @ \$8,500/signal system	\$68,000	\$51,000	\$17,000
<b>Annual Maintenance Cost Savings</b>	<b>\$0</b>	<b>\$17,000</b>	<b>\$51,000</b>

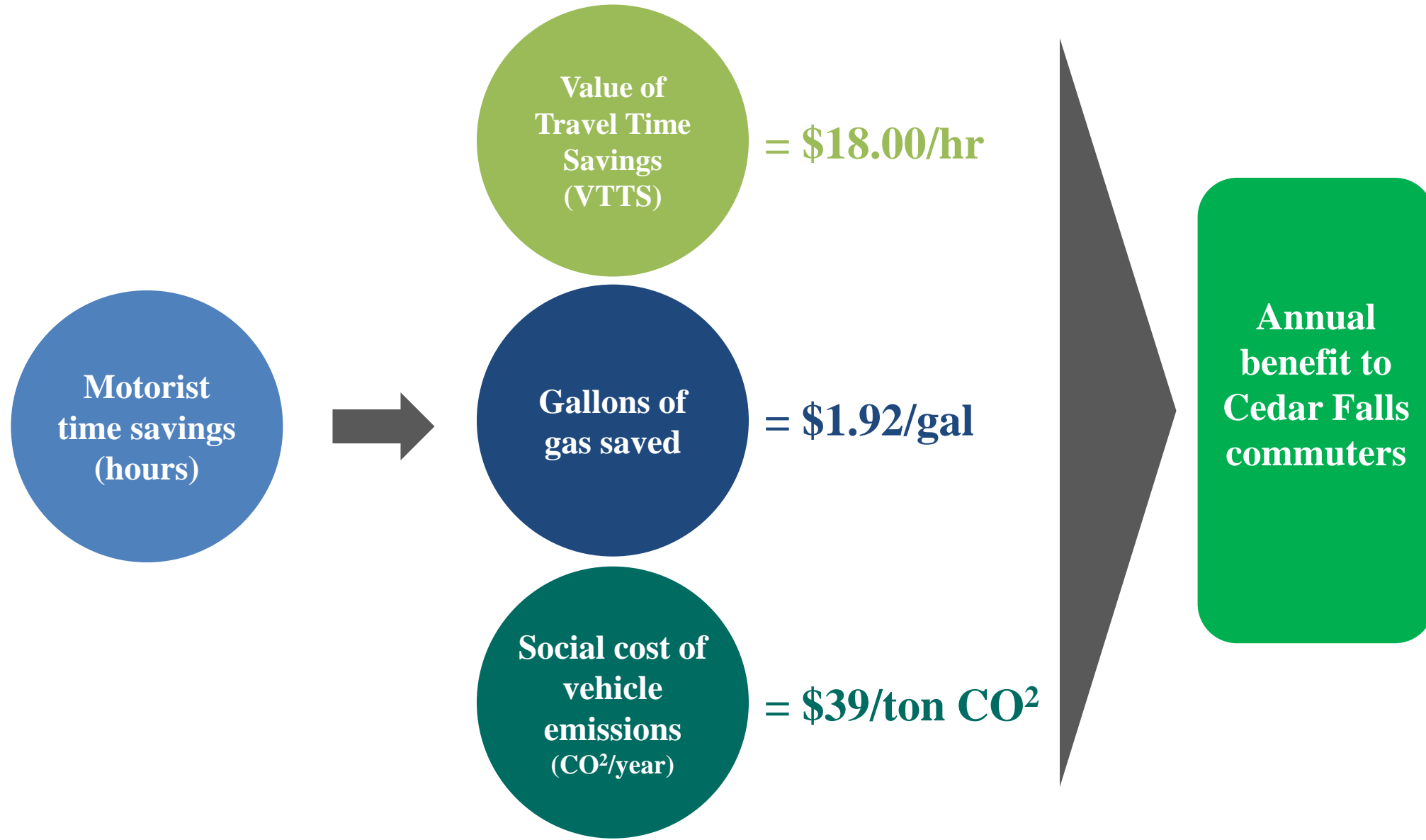
# Alternative Comparison

## Outcomes 2-4: Travel Time, Gas Emissions

	2B	2C	4C
Motorist Time Savings (hrs)	0	26,871	60,288
<b>Value of Travel Time Savings</b>	<b>\$0</b>	<b>\$483,678</b>	<b>\$1,085,184</b>
Gas Savings (gal)	0	5,374	12,058
<b>Value of Gas Savings</b>	<b>\$0</b>	<b>\$10,318</b>	<b>\$23,151</b>
Vehicle Emission Reduction (tons)	0	48	107
<b>Value of Emission Reduction</b>	<b>\$0</b>	<b>\$1,872</b>	<b>\$4,173</b>
<b>Total =</b>	<b>\$0</b>	<b>\$495,868</b>	<b>\$1,112,508</b>

# Travel Time Reduction

## Annual Savings



# Safety

## Outcome 5: Reduced Crashes

	2B		
Total Crashes	111		
Property Damage Only	72		
Personal Injury	39		
Severe Crashes	62		
	2B	2C	4C
Roundabout Intersections Benefit/Cost Ratio > 1	n/a	Yes	Yes
Present Value of Crashes Avoided*	\$0	\$2,263,711	\$4,369,706

*\*Present value of savings over the 20 year design life*

# Corridor Level of Service




## Outcome 6: Time travel

Hwy 58 to  
Waterloo Rd.

*EB/WB*

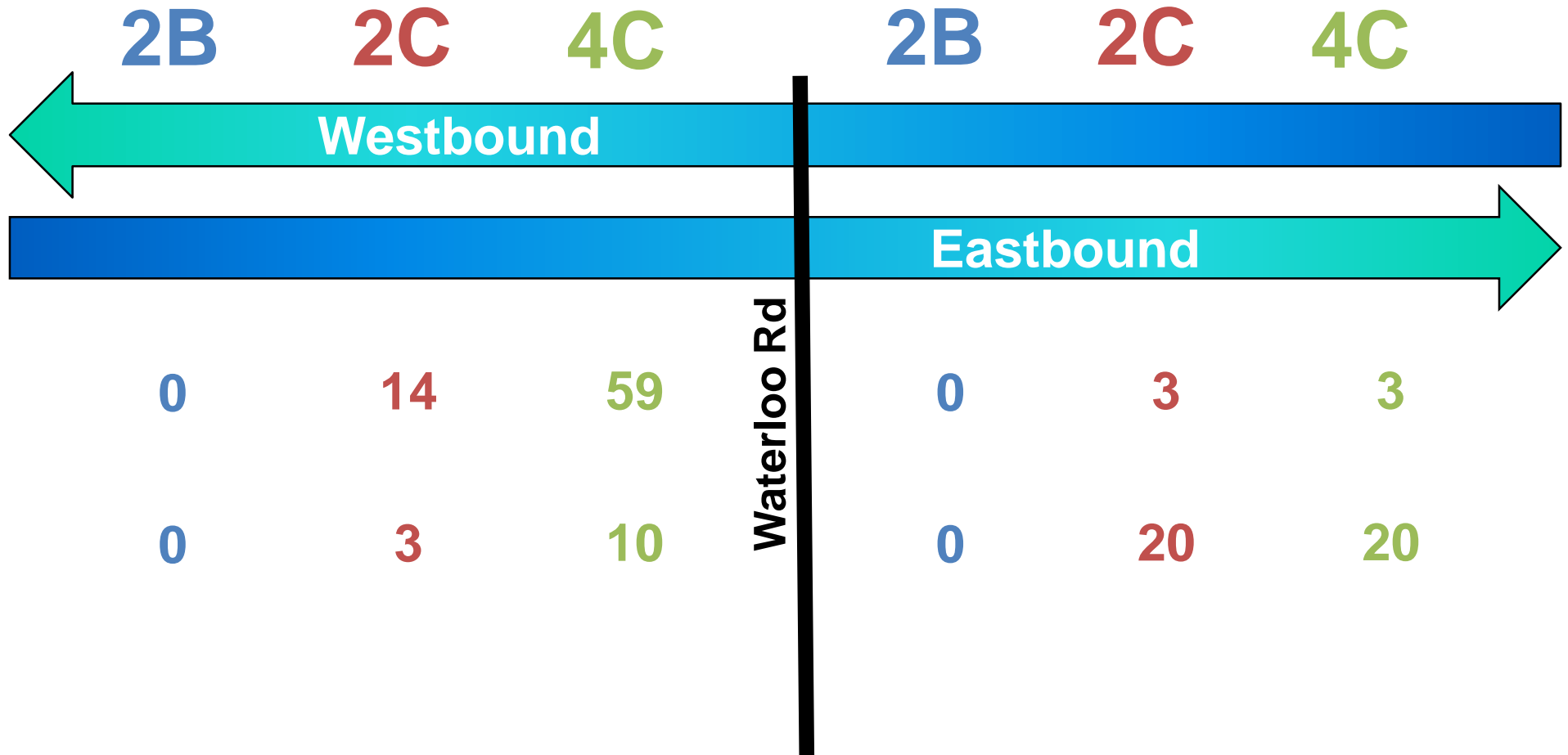
Waterloo Rd. to  
Midway Blvd

*EB/WB*

<p>2B 8 0</p>  <p>RAB</p>	D/C	B/B
<p>2C 6 2</p>  <p>RAB</p>	C/C	B/B
<p>4C 2 6</p>  <p>RAB</p>	C/C	B/A

# Operational Comparison

## Outcome 6: Time travel



Peak  
Travel Time  
Savings

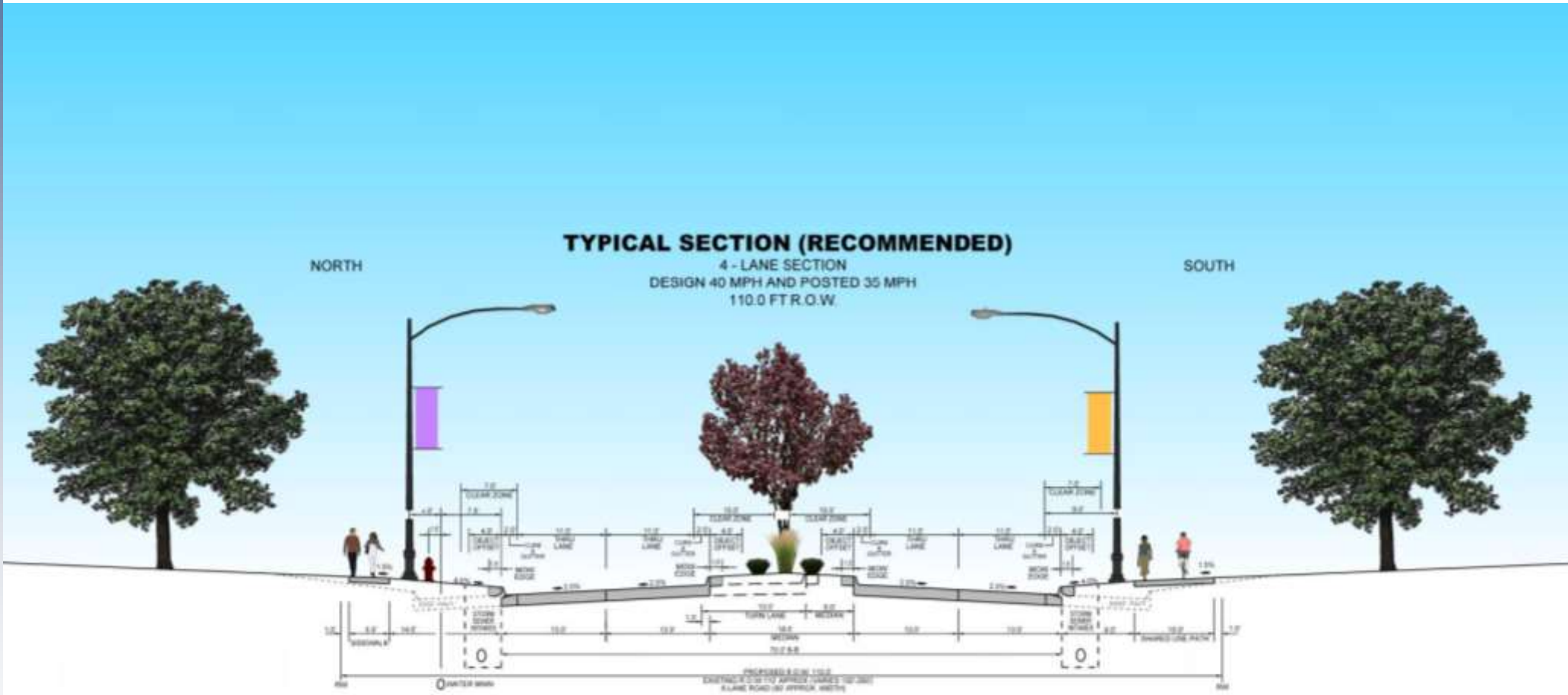
Off-Peak  
Travel Time  
Savings



# Alternative Recommended: 4C

- Least Expensive and Safest
- Efficiently Moves all Forms of Traffic
- Least Operating Cost to Traveling Public  
(time, gas, emissions)
- Meets goals of City's long-range planning  
(2020 Strategic Plan & Comprehensive Plan)
- Best Value for Overall Cost

# 4C Typical Section



# Transformation

## Existing → Alternative 4C

Before



After



# Transformation

## Existing → Alternative 4C

Before



After





# University Avenue Phase 1 Flyover Video of Completed Project

<http://www.cedarfalls-universityaveproject.com/project-overview.html>

[Before & after](#)

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