

4th, 5th, and 6th Street Conversion Study

City Council Work Session

April 3, 2023

4th, 5th, and 6th Street Conversion Study

- Project History / Scope
- Existing Data
- Proposed Conversion
- Planning Level Cost Estimates
- Other 4th Street Options Discussed
- Traffic Analysis
- Next Steps

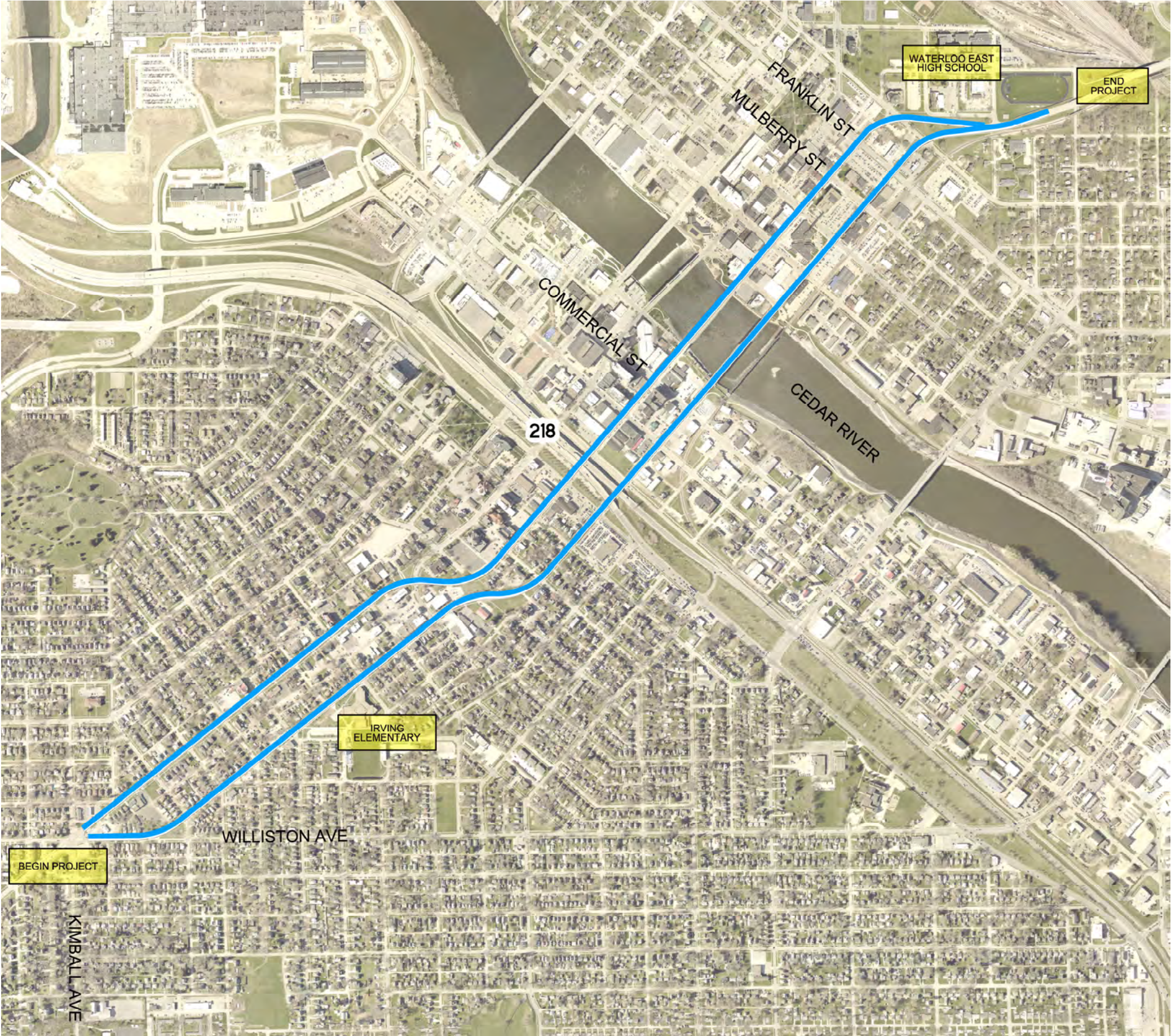
4th, 5th, and 6th St. Conversion

Project History

- One-Way Couplets of 5th and 6th Streets Developed in the 1980s.
- Facilitate Traffic from Six Corners to the Northeast Industrial Area.
- System Designed to Carry Over 20,000 VPD (Traffic Hasn't Matched Projections – Now Approximately 11,000 VPD).
- 2016 Grant from Iowa DOT to Make Safety Improvements from Washington to Franklin Streets.
- Communities Across the Country Reevaluating One-Way Couplets and Affects to Businesses and Economic Development.
- City Hired AECOM to Complete Study for the 4th, 5th and 6th Street Corridors.

Project Scope

- Evaluation of Existing Traffic
- Existing Conditions Analysis
- Crash Analysis
- Development of Alternatives
- Traffic Analysis
 - Traffic Distribution Two-Way Traffic
 - Level of Service Comparative Analysis
 - Travel Time Analysis
- Project Management Team Meetings
- Stakeholder / Public Information Meeting
- Final Report



Existing Conditions

- Traffic Counts 2017 and 2021
- Traffic Signal Timing (Actuated vs Fixed-Time)
- Parking
- MET Transit Routes / Stops
- Number of Lanes / Street Widths
- 2045 MPO Bikeway Plan
- Crash Analysis

Existing Conditions

4 th Street / 5 th Street Corridor			
Six Corners to Randolph Street	2 Lanes	Width: 41'	0.9 Miles
Randolph Street to NB Washington Street	2 Lanes	Width: 49'	0.2 Miles
NB Washington Street to Water Street	3 Lanes	Width: 51-53'	0.4 Miles
Water Street to Franklin Street	2 Lanes	Width: 51-53'	0.3 Miles
Franklin Street to Barclay Street	3 Lanes	Width: 41'	0.1 Miles
Williston Avenue / 5 th Street / 6 th Street Corridor			
Six Corners to Bayard Street	2 Lanes	Width: 31'	0.2 Miles
Bayard Street to Lafayette Street	3 Lanes	Width: 49-53'	1.4 Miles
Lafayette Street to Franklin Street	2 Lanes	Width: 53'	0.1 Miles
Franklin Street to Barclay Street	3 Lanes	Width: 49'	0.2 Miles

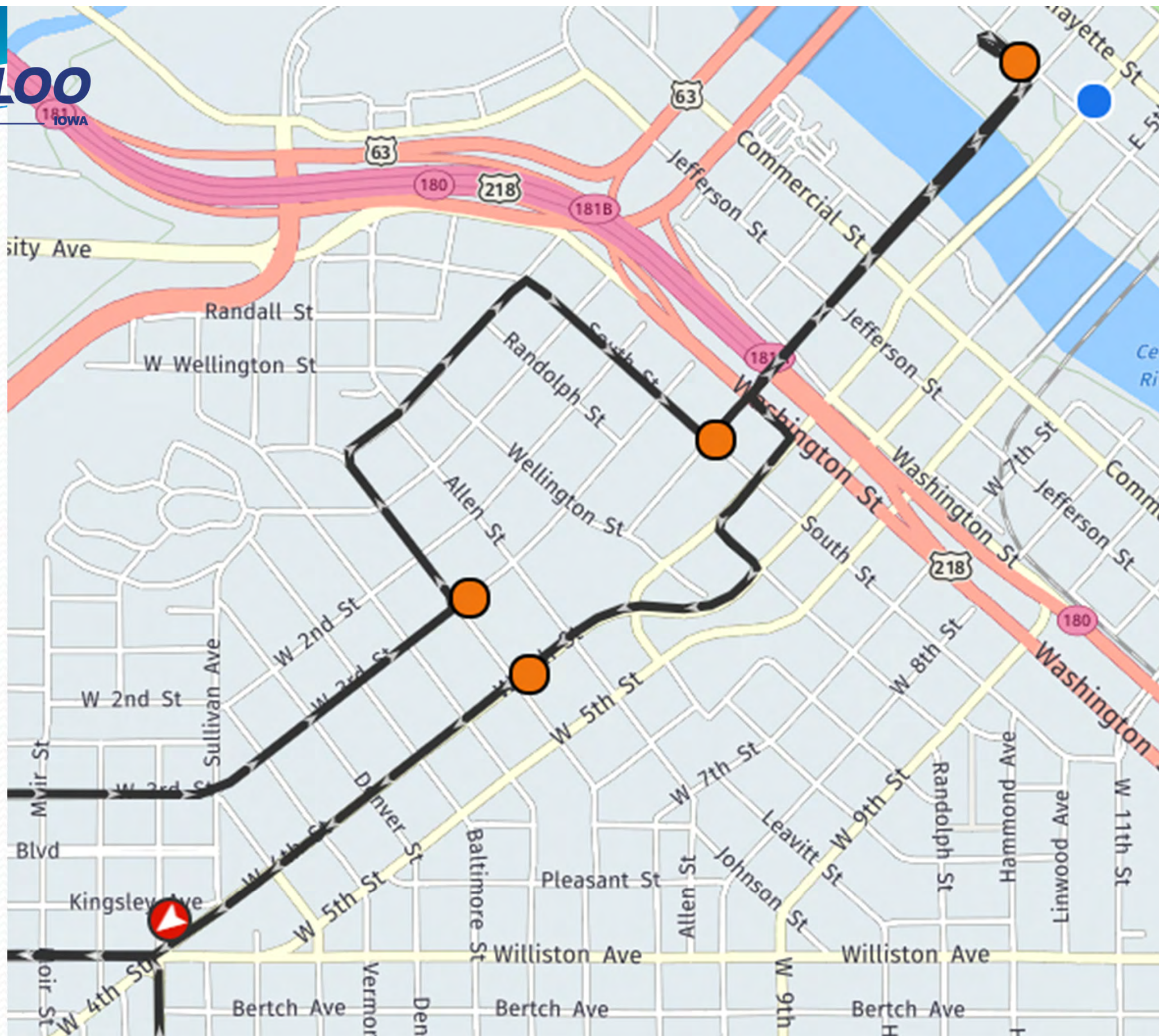
Existing Conditions



Existing Conditions



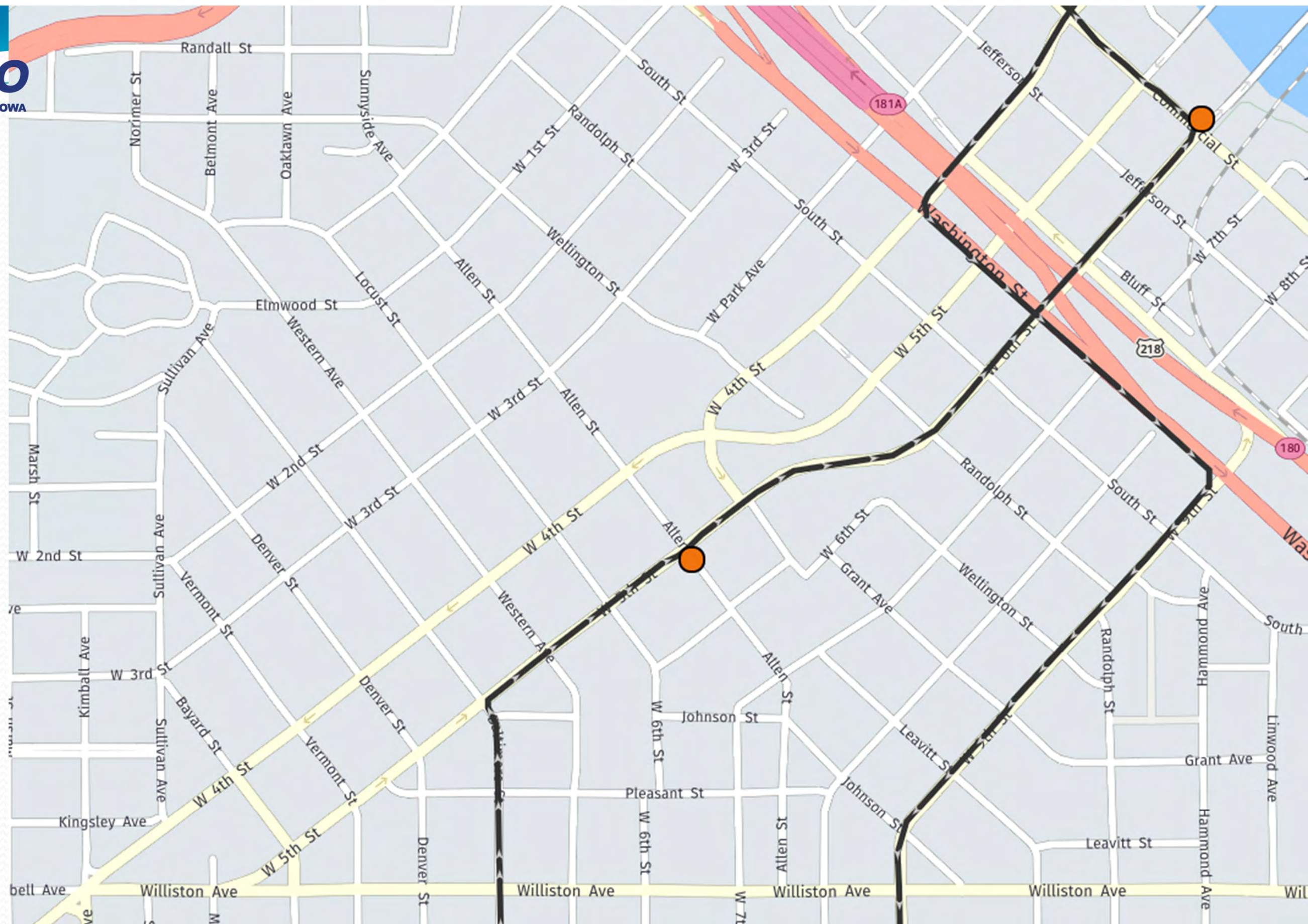
Stops Unmarked w/ No Benches





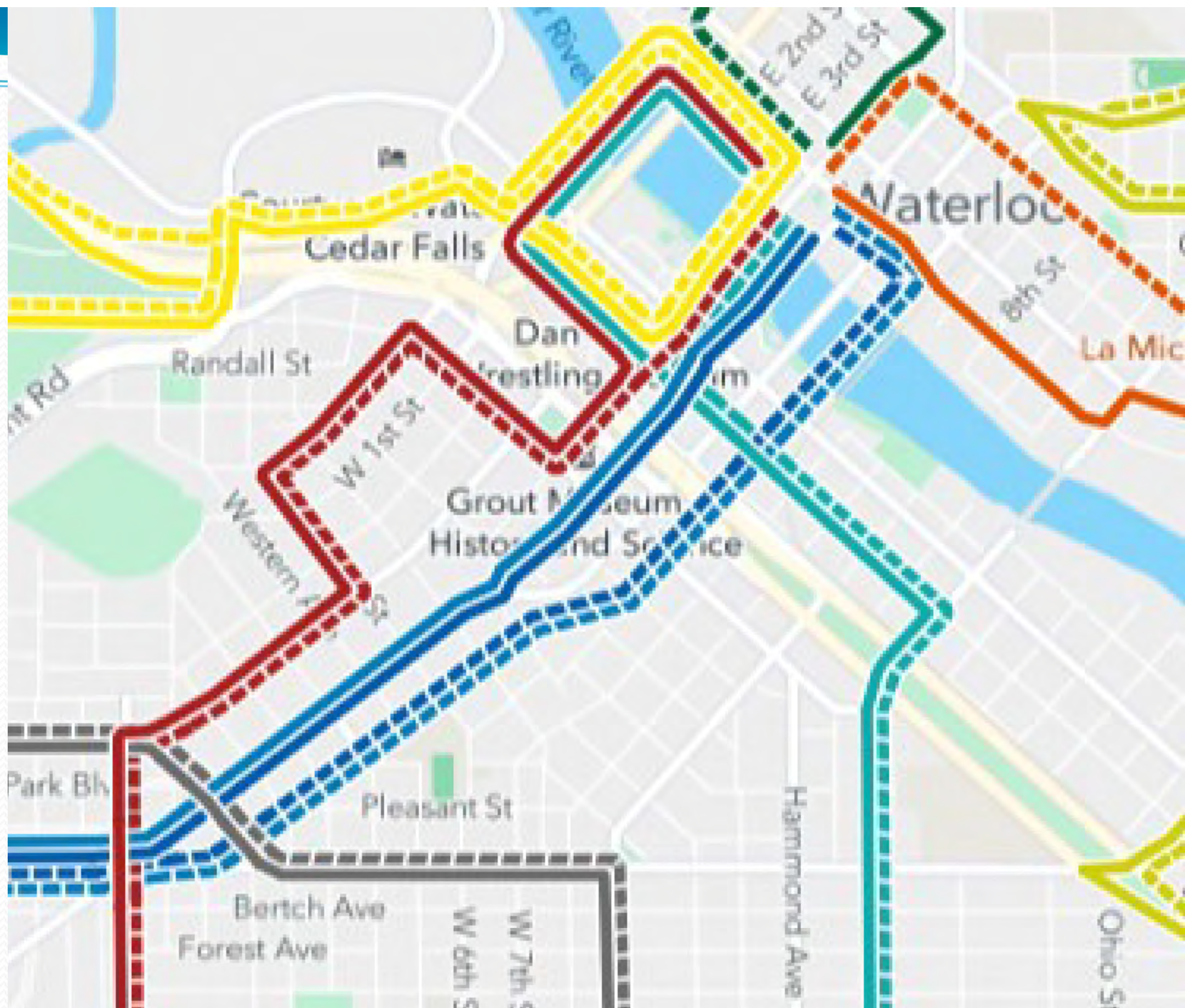
MET Transit Route 2 – West / Red

Stops
Unmarked w/
No Benches

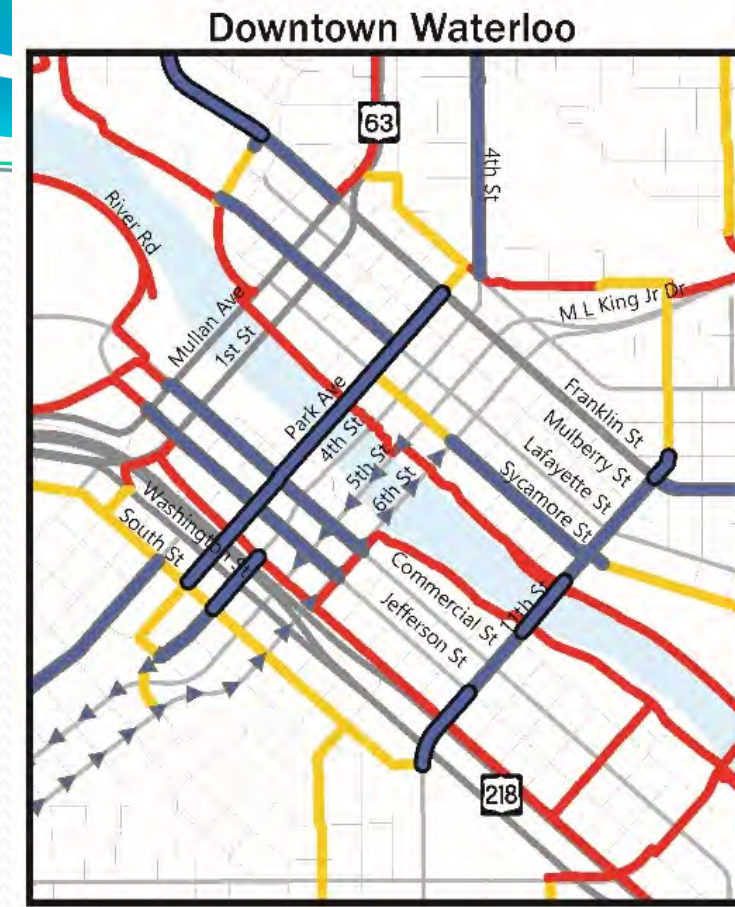




MET Transit Route Restructuring Plan



2045 MPO Bikeway Plan



Legend

- Buffered Bike Lanes
- Bike Lanes
- Paved Shoulders
- One-Way Bike Lane
- Uphill Bike Lane, Downhill Sharrows
- Sharrows
- Planned Signed Bike Route
- Trail
- On-Road Path
- City Boundaries

Data Source: INRCOG

Crash Analysis

- More vehicular crashes occurred on the downtown corridors of 5th and 6th Street (224) than on the West 4th, 5th and 6th Street corridors from Six Corners to SB Washington Street (163).
- More pedestrian and bicycle crashes have been reported on the West 4th, 5th and 6th Street corridors (9) than on the downtown corridors of 5th and 6th Street (2).
- A pedestrian fatality occurred in November of 2021 at the intersection of West 4th Street and Allen Street which is outside the designated timeframe of the crash data analysis.

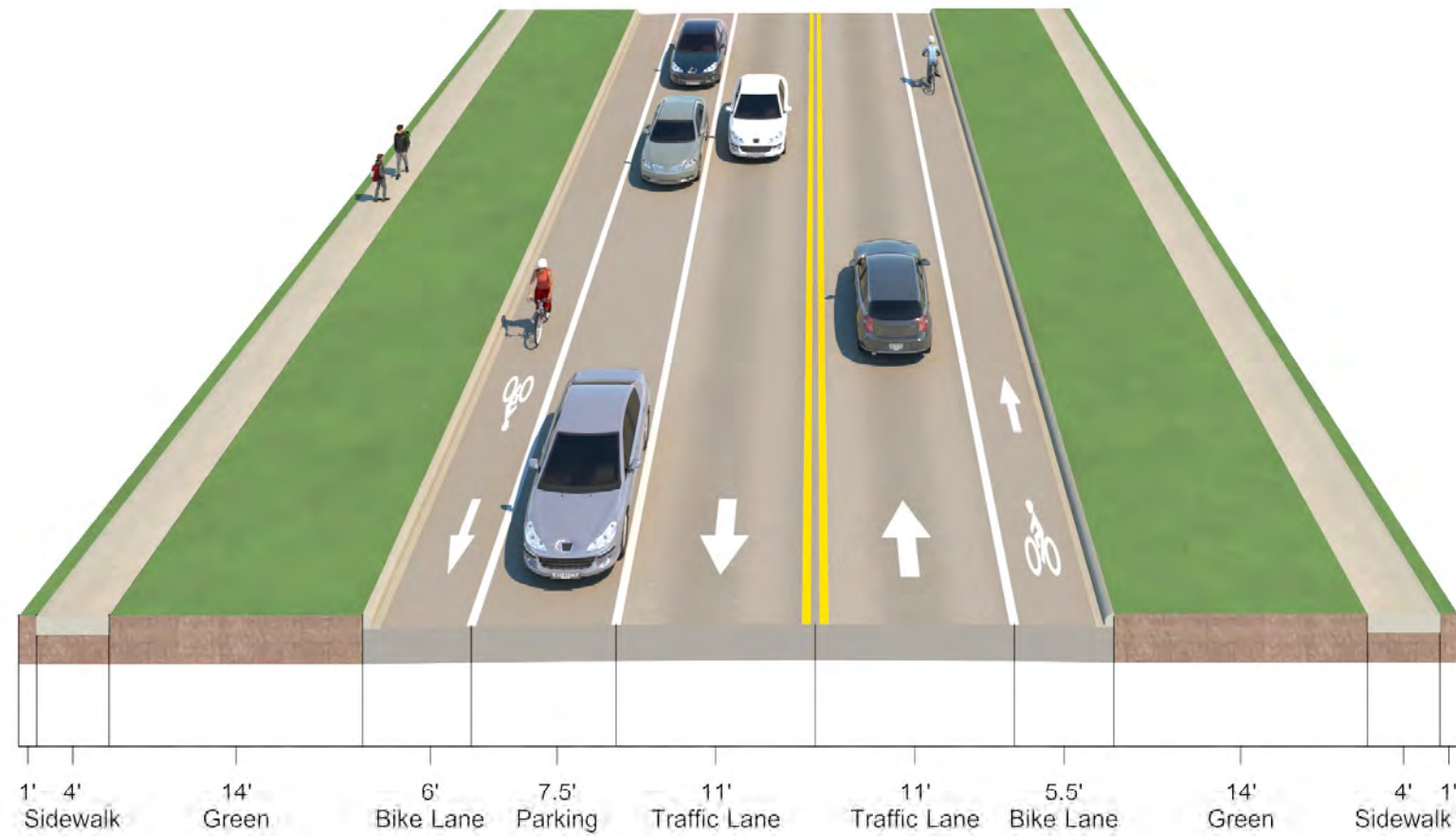
Proposed Conversion

- Roundabout at Six Corners
- Bike Lanes on 4th Street From Six Corners to NB Washington Street with No Left Turn Lanes
- Allows Parking on One Side, Same as Today
- 5th Street and 6th Street – Two Lanes with Center Left Turn Lanes
- Street Reconstruction – Walnut Street / Franklin Street Area



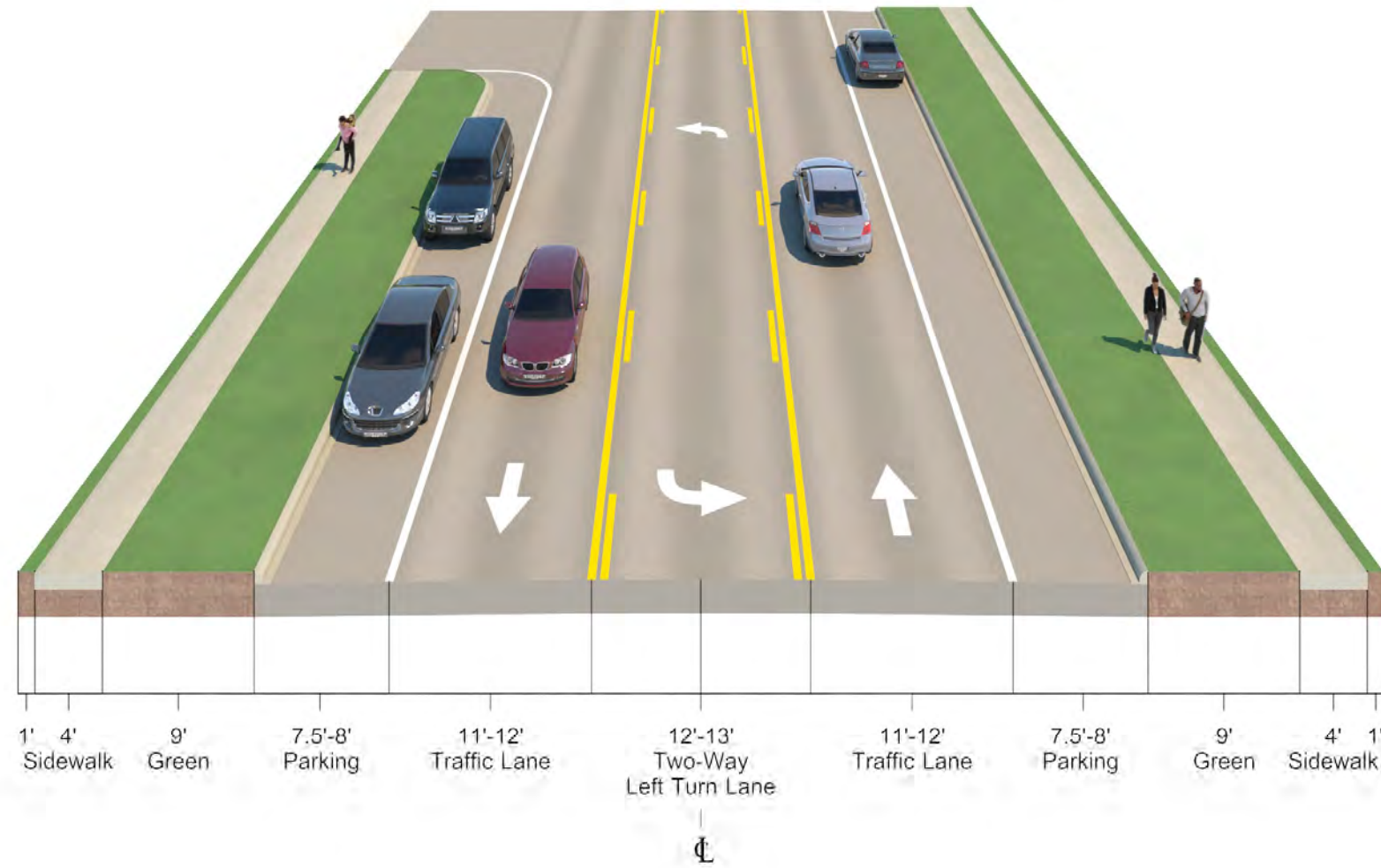
West 4th Street

41' Wide Street with Bike Lanes
79' ROW



West 5th Street

49'-53' Wide Street with Two-Way Center Left Turn Lane
77'-81' ROW





5th/6th Street - Downtown



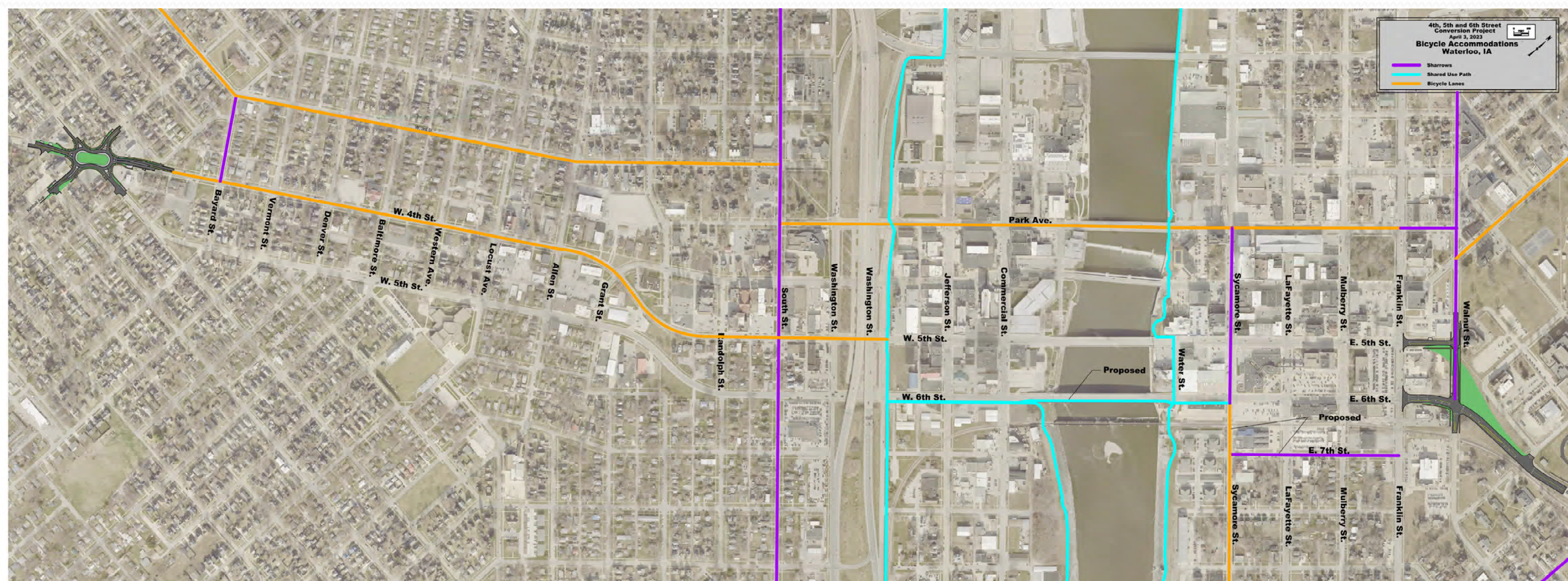


Phased Approach

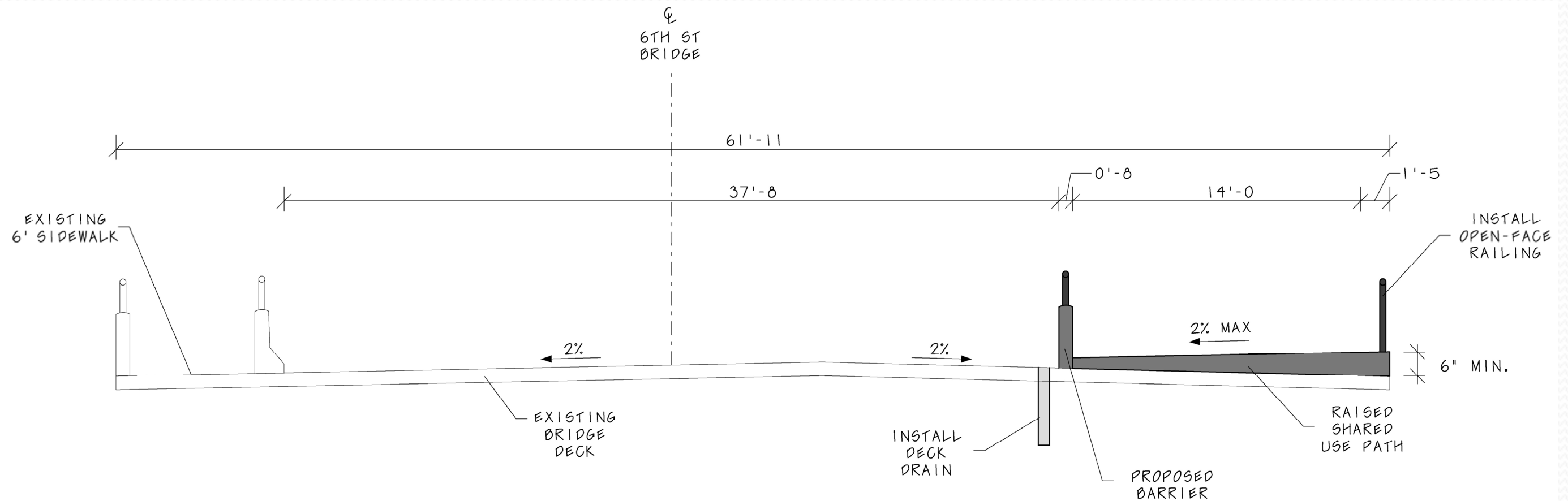
- **Phase 1 (Downtown)** – SB Washington Street to Barclay Street
 - Two-Way Conversion from SB Washington Street to East High School
 - One-Way Traffic Remains on W. 4th and W. 5th from Six Corners to SB Washington Street
 - 5th Street and 6th Street – Two Lanes with Center Left Turn Lanes
- **Phase 2 (West Side)** – Six Corner to SB Washington Street



Bicycle Accommodation



Bicycle Accommodation



PROPOSED TYPICAL SECTION

Planning Level Cost Estimate

Conversion

- Conversion Using Space Between Curbs
- Traffic Signal Modifications
- Street Reconstruction on Each End

Needed

- Maintenance / Overlay
- ADA Sidewalk Improvements

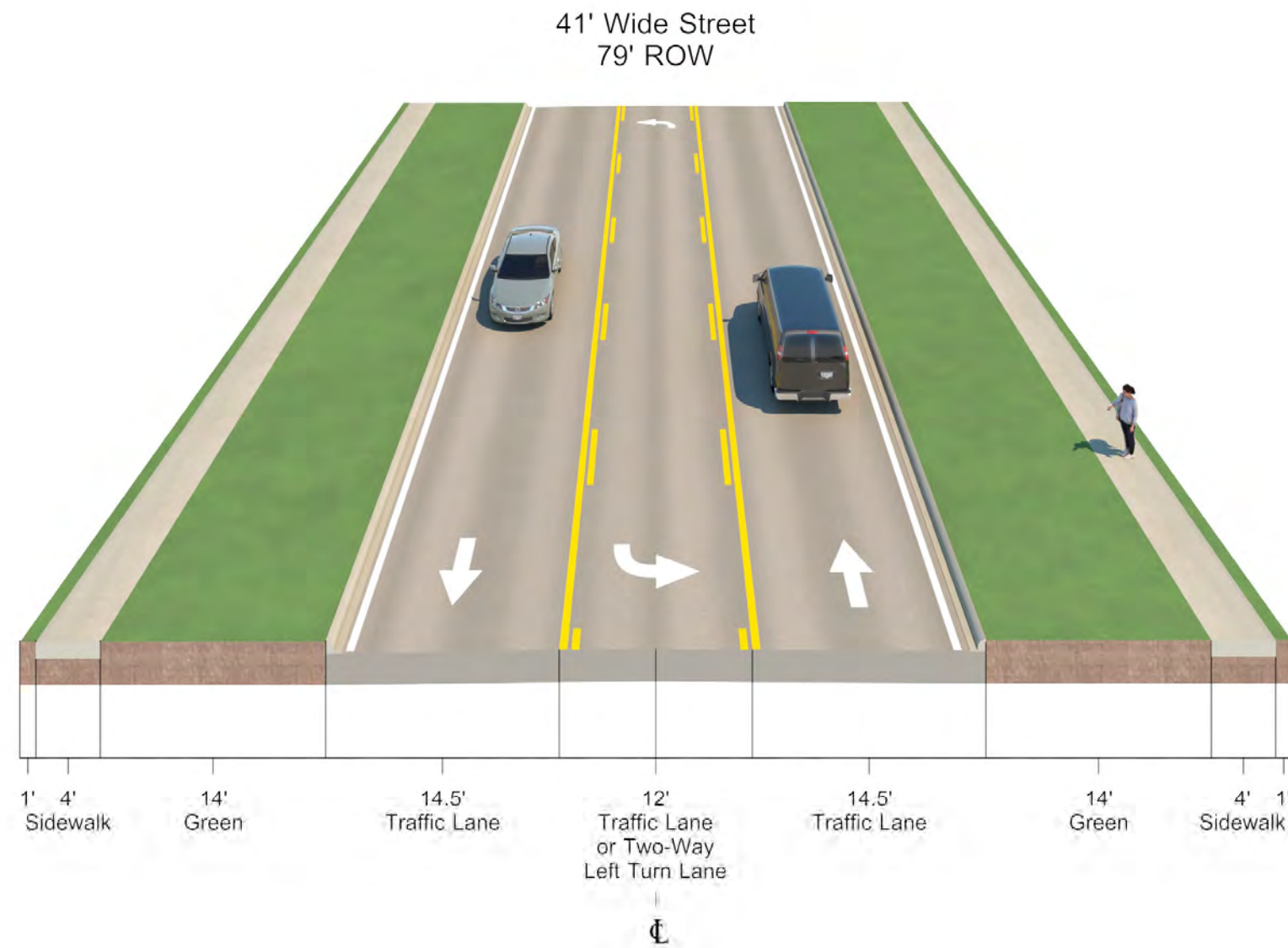
Planning Level Cost Estimate

	Street Reconstruction, Signals, Pavement Markings and Signing	ADA Curb Ramps and Overlay	Total
Phase 1 (5th and 6th Street - SB Washington to Franklin)	\$5,014,000	\$4,326,200	\$9,340,200
Phase 2 (4th, 5th and 6th Street - Six Corners to SB Washington)	\$3,055,600	\$1,124,000	\$4,179,600
Shared Use Path on 6th Street Bridge			\$1,061,000

Other 4th Street Option

- 4th Street with Center Left Turn Lane
- No Bike Lanes on 4th Street
- Removes Parking on 4th Street
- Provides Additional Traffic Capacity

Other Option on W. 4th Street





Other 4th Street Option

- Provide Parking on Both Sides of W. 4th Street
- No Bike Lanes on W. 4th Street
- No Center Left Turn Lane on W. 4th Street



W. 4th St.

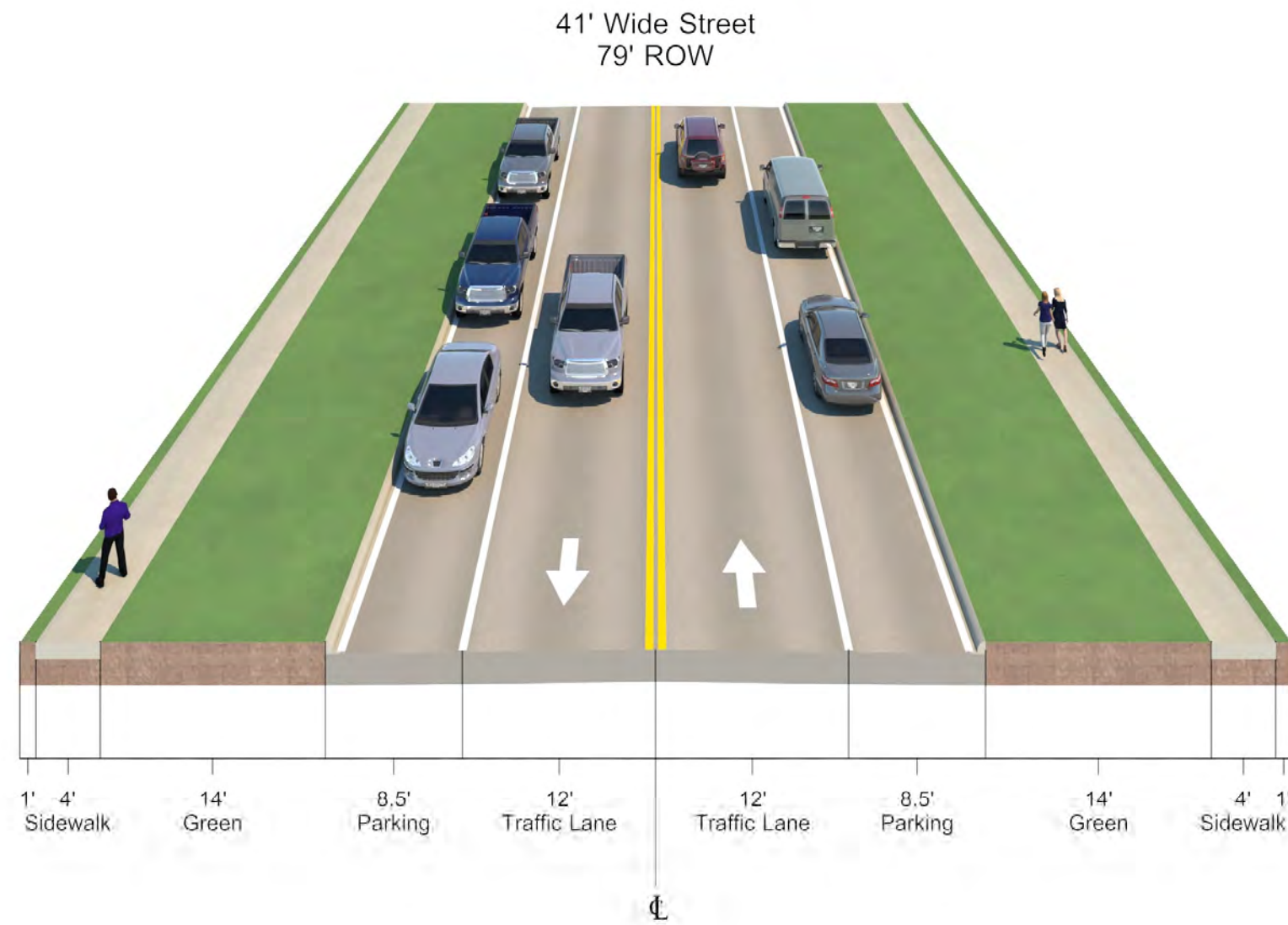
Baltimore St.

Western Ave.

Locust Ave.

W. 5th St.

Other Option on W. 4th Street

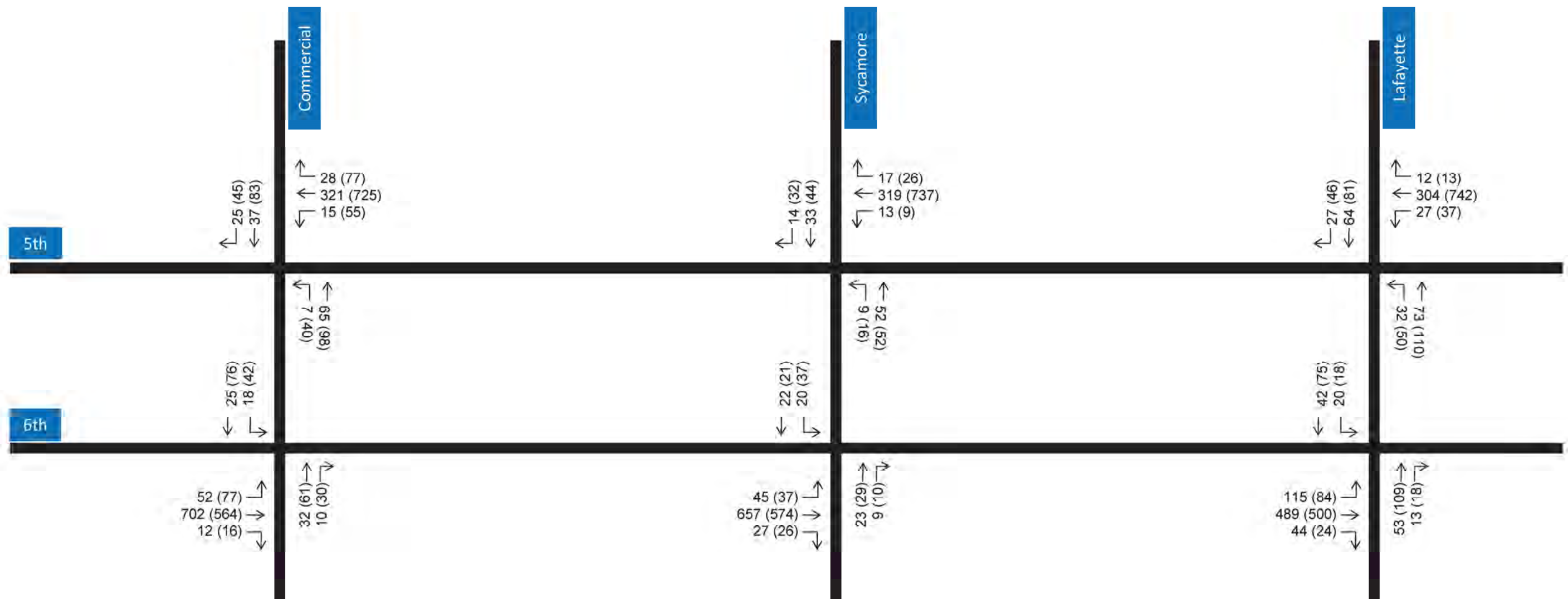


Traffic Analysis

- Allocated Traffic from One-Way to Two-Way
- Analyzed Existing and Proposed Traffic Conditions
- Evaluated Level of Service at Each Intersection in the Downtown Area
- Developed Travel Time Estimates for Comparison

Traffic Allocation

- Process of Traffic Distribution on the New Road Network
- Split 6th Street Traffic and Allocated Traffic to new NE Bound 5th Street
- Split 5th Street Traffic and Allocated Traffic to new SW Bound 6th Street

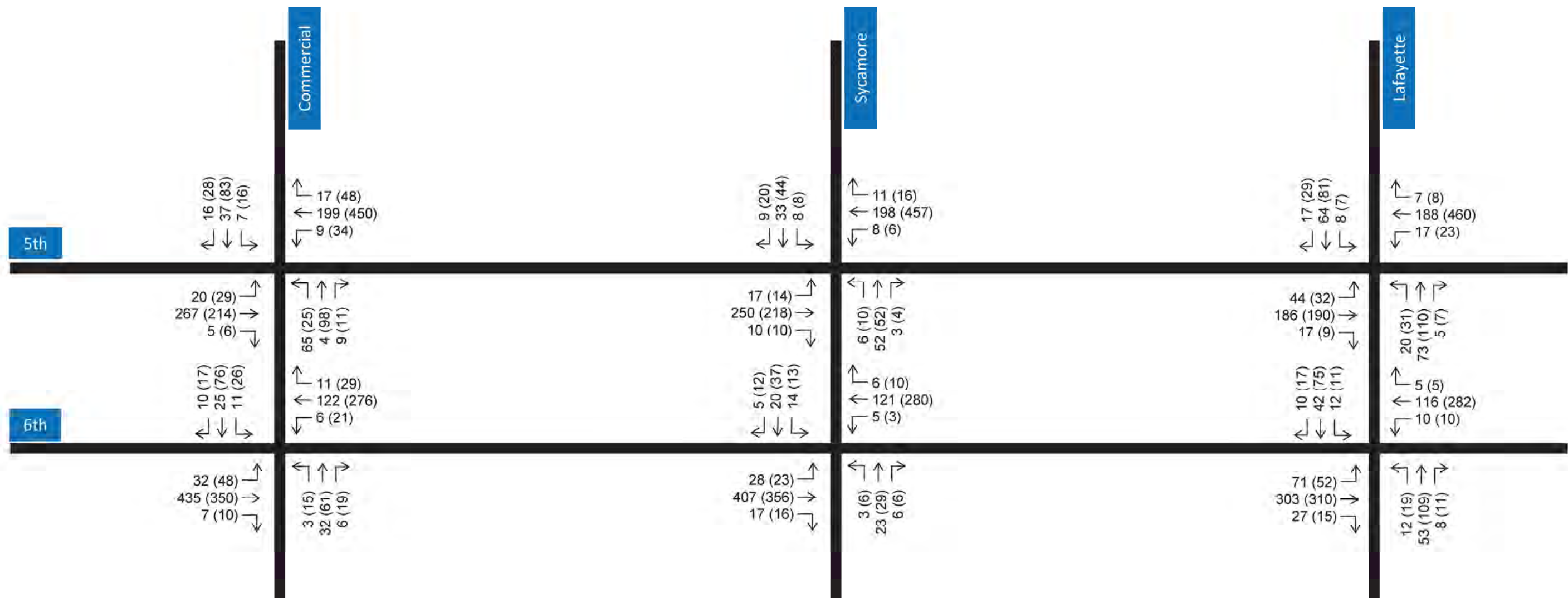


2017 Traffic Counts



LEGEND

- 00 AM Peak Hour Volume
- (00) PM Peak Hour Volume
- Roadway
- ↑ Turn Movement Directions



Estimated two-way traffic based on 2017 traffic counts



LEGEND

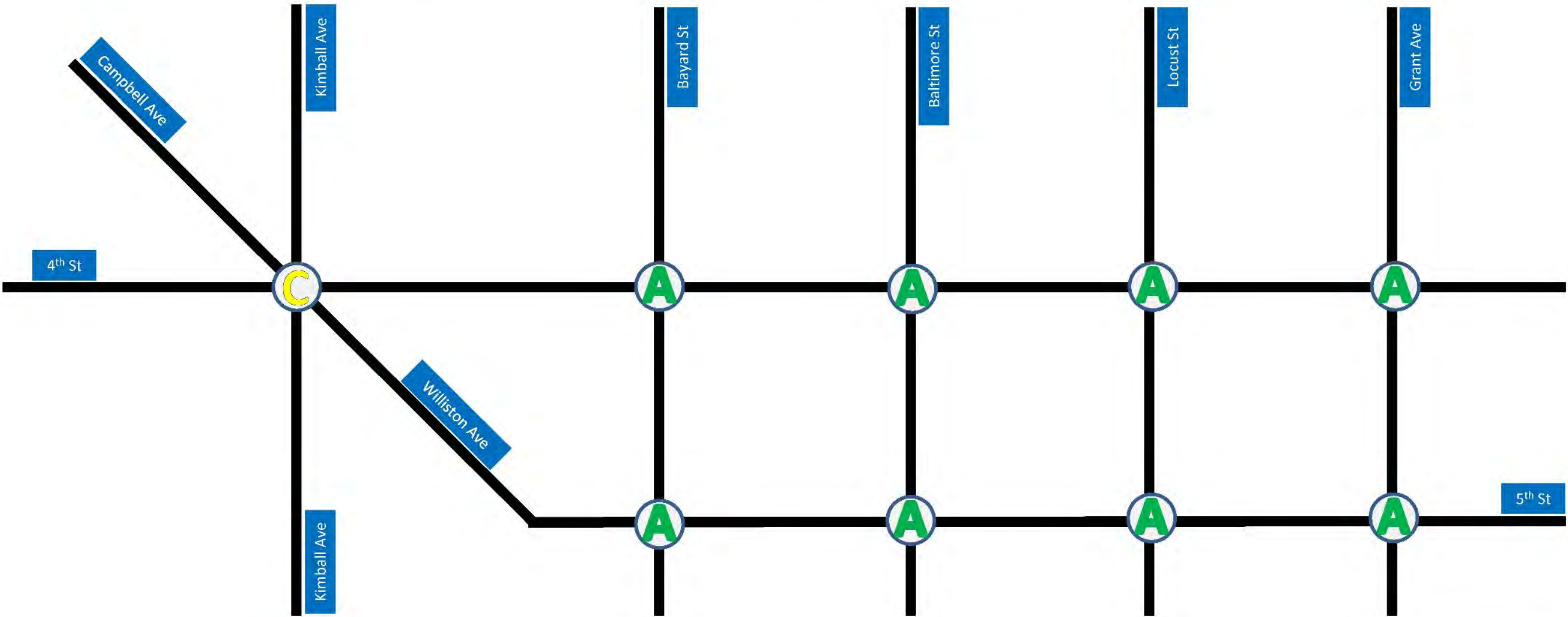
- 00 AM Peak Hour Volume
- (00) PM Peak Hour Volume
- Roadway
- ↑ Turn Movement Directions

Traffic Analysis

- Intersection Level of Service Criteria

	Traffic lights	Stop signs /roundabout
Level of service	Delay (s/veh)	Delay (s/veh)
A	0-10	0-10
B	10-20	10-15
C	21-35	16-25
D	36-55	26-35
E	56-80	36-50
F	>80	>50

Vistro Results – West Portion – Existing AM (2021)



LEGEND

A

B

C

D

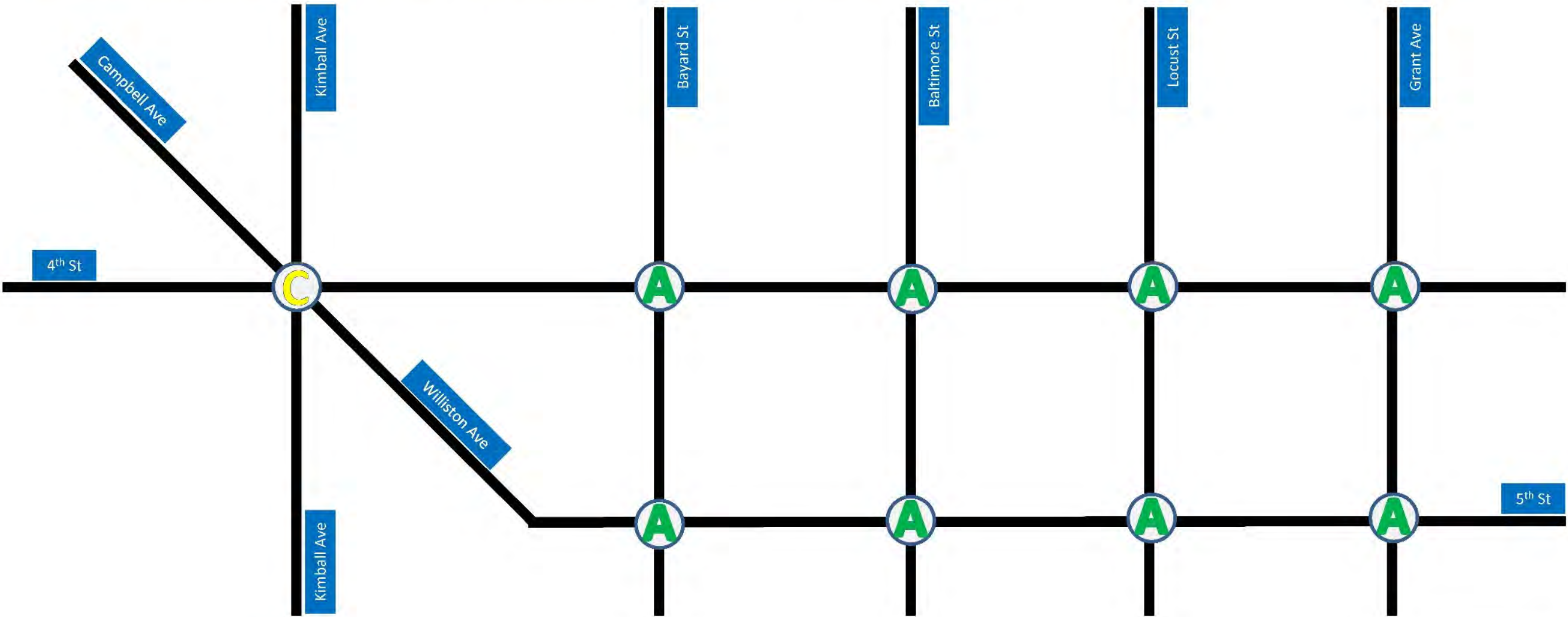
E

F

Level of Service

Roadway

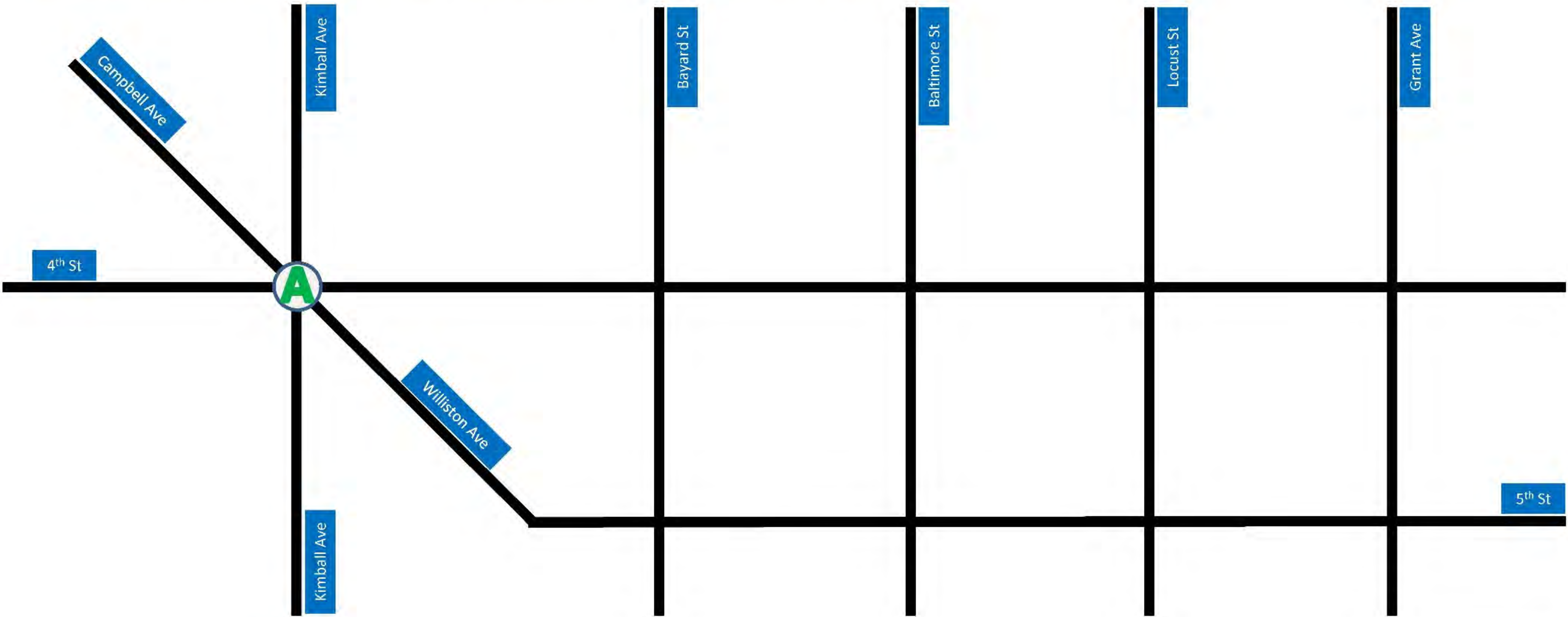
Vistro Results – West Portion – Existing PM (2021)



LEGEND

<div><div>A</div><div>B</div><div>C</div></div>	Level of Service
<div><div>D</div><div>E</div><div>F</div></div>	
<div><div></div><div></div><div></div></div>	Roadway

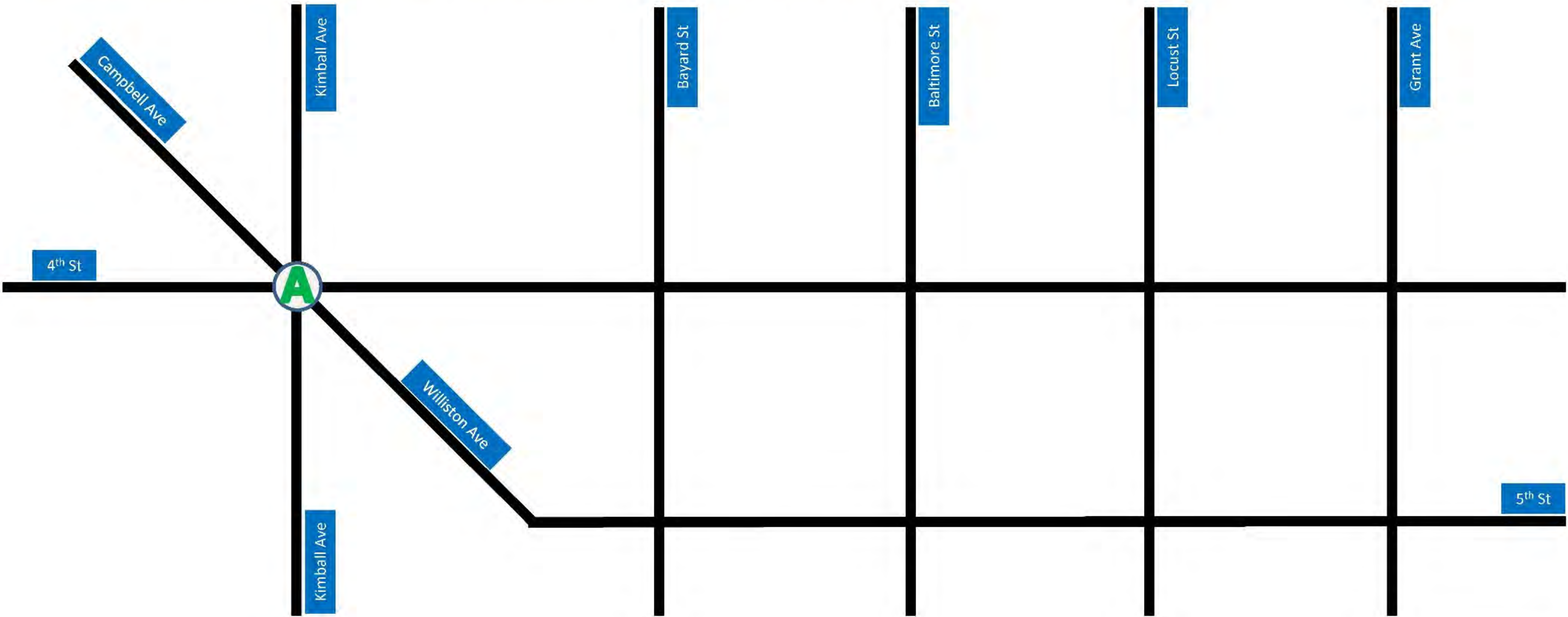
Vistro Results – West Portion – Build AM (2021)



LEGEND

A	B	C	Level of Service
D	E	F	
			Roadway

Vistro Results – West Portion – Build PM (2021)



Not to Scale

LEGEND

A

B

C

D

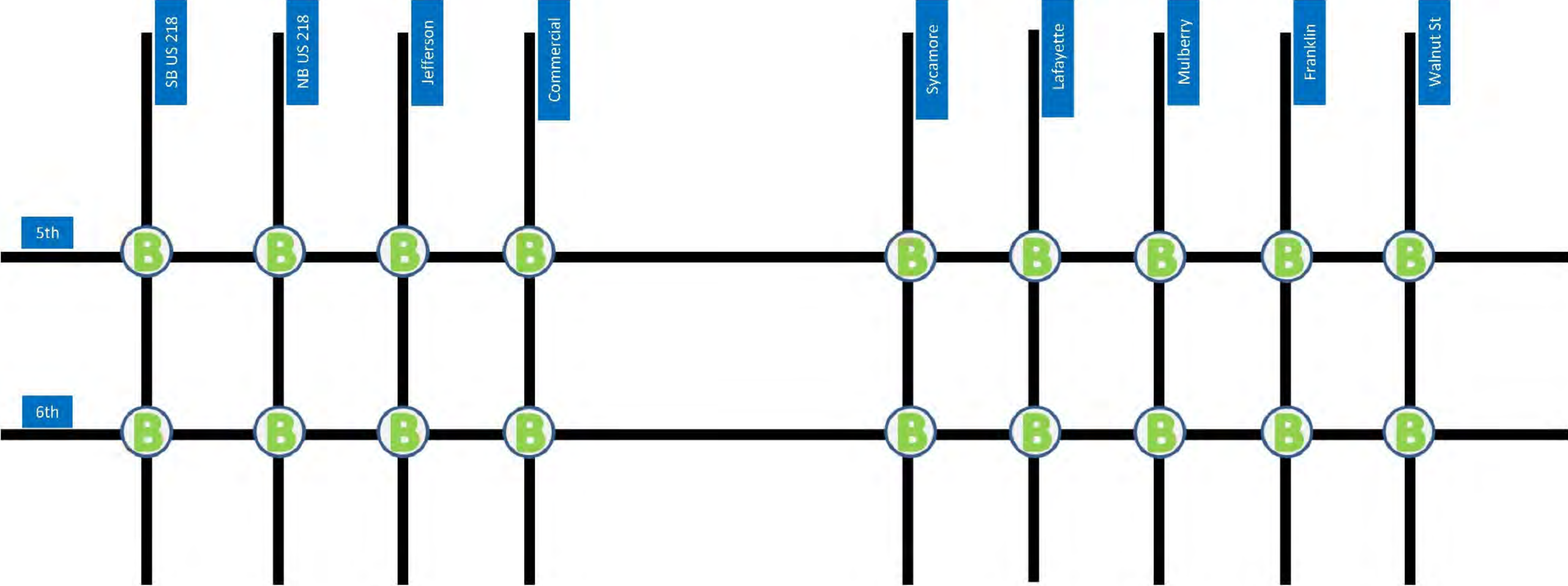
E

F

Level of Service

Roadway

Vistro Results – East Portion – Existing AM (2017)



LEGEND

A

B

C

D

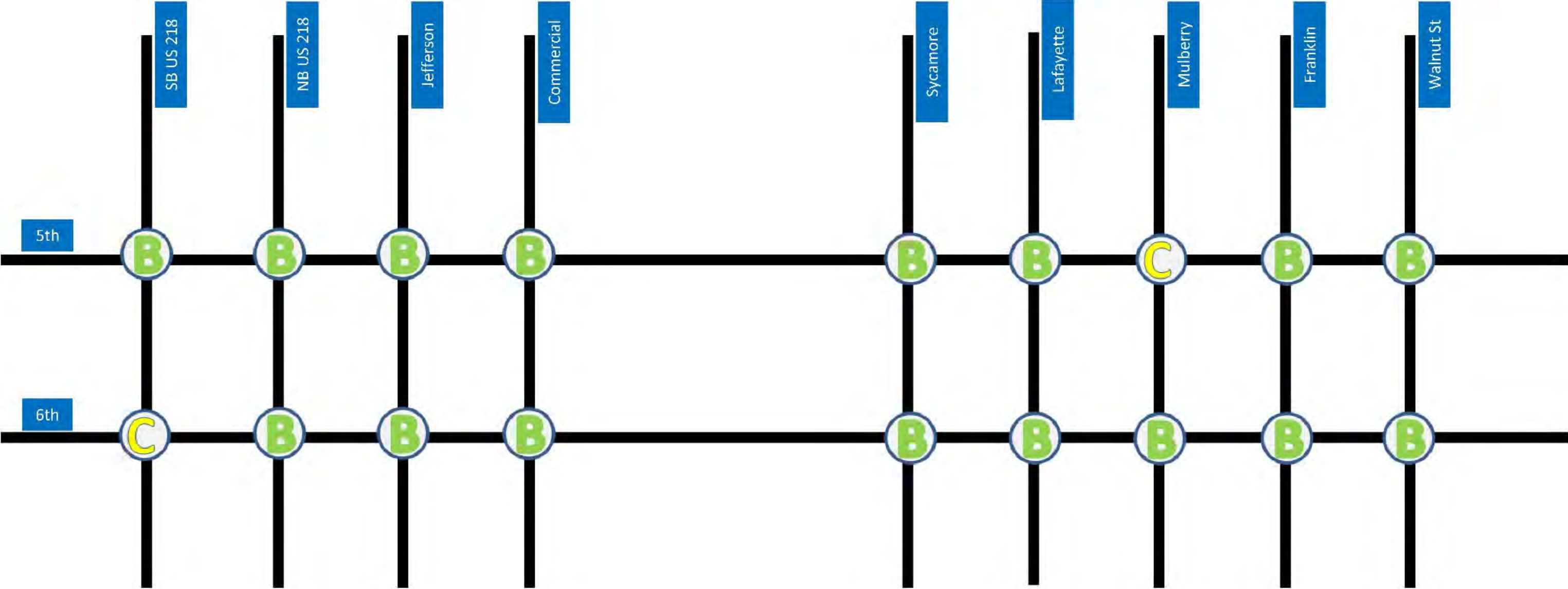
E

F

Level of Service

Roadway

Vistro Results – East Portion – Existing PM (2017)



LEGEND

A

B

C

D

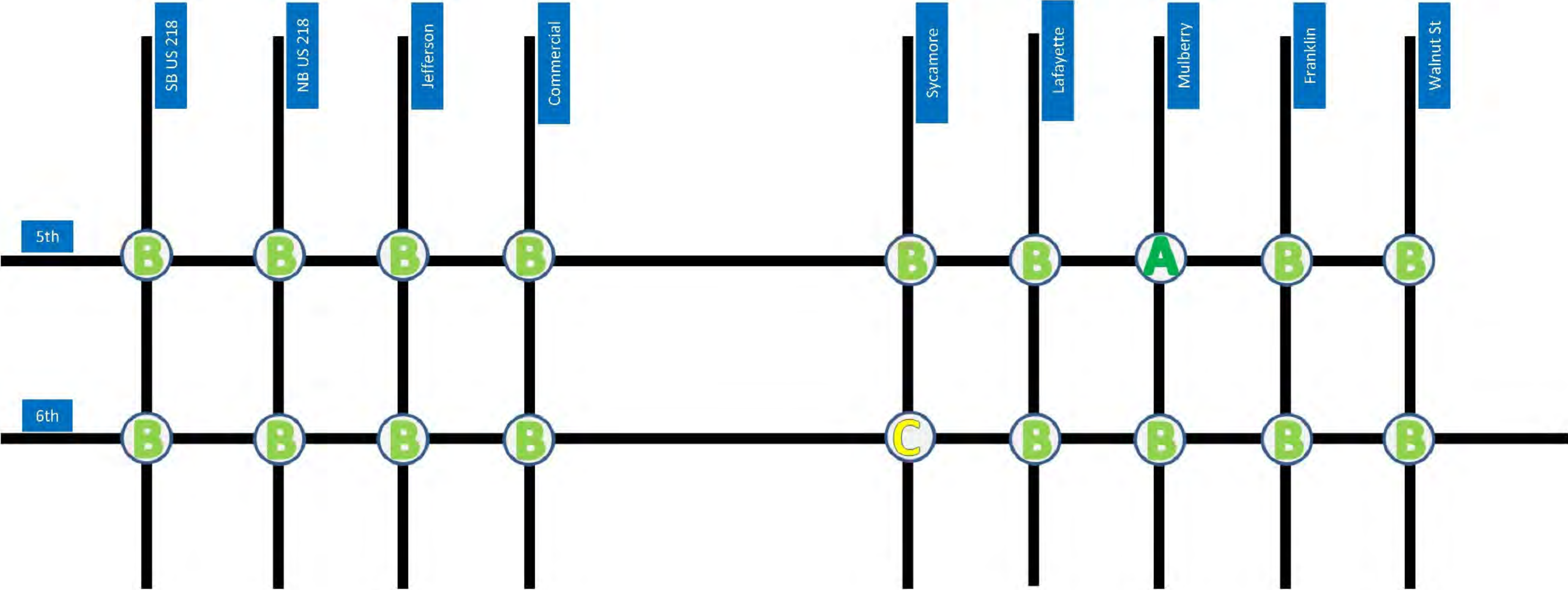
E

F

Level of Service

Roadway

Vistro Results – East Portion – Build AM (2017)



LEGEND

A

B

C

D

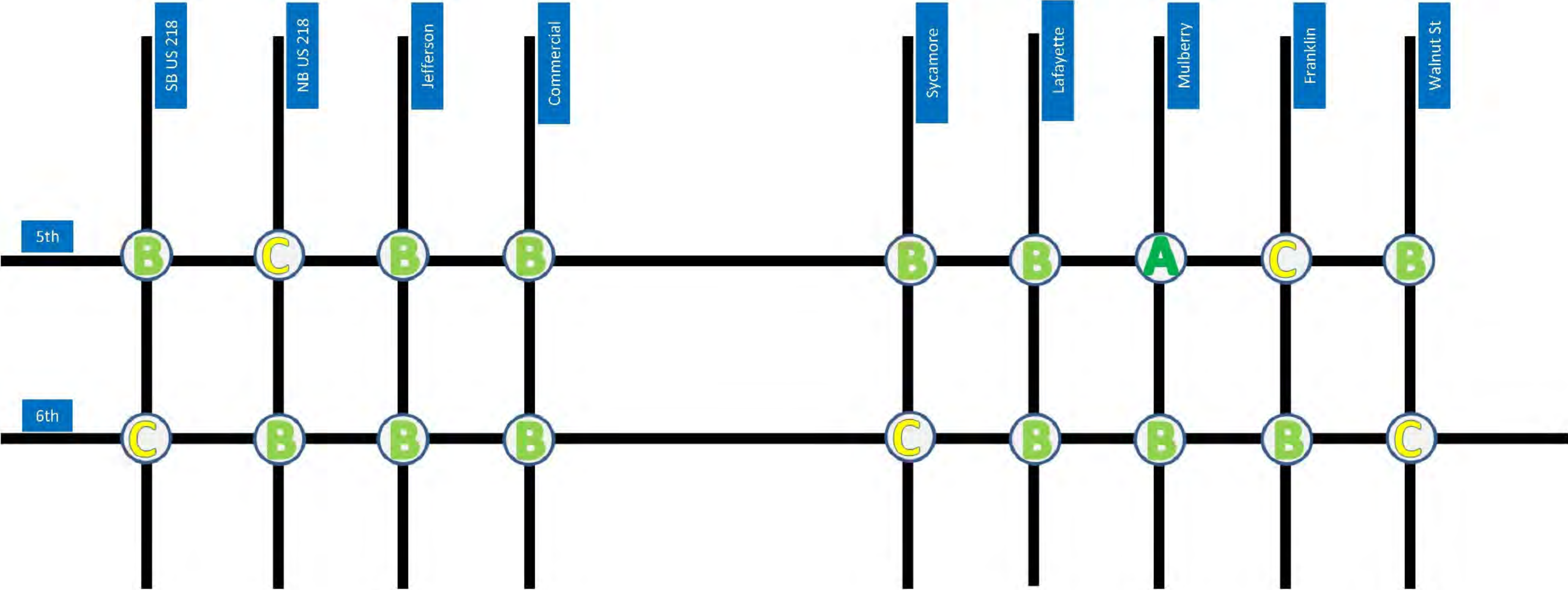
E

F

Level of Service

Roadway

Vistro Results – East Portion – Build PM (2017)



LEGEND

A

B

C

D

E

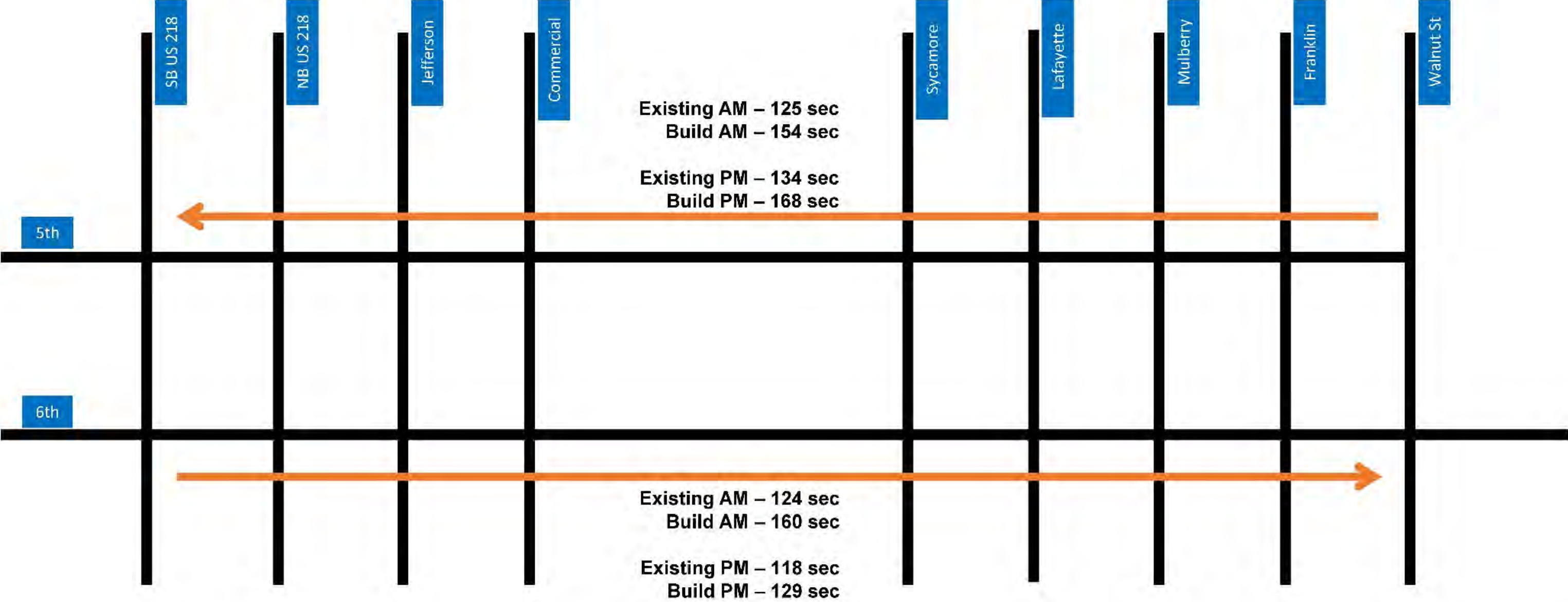
F

Level of Service

—

Roadway

Vissim Travel Time – East Portion



LEGEND

Travel Time Direction

Roadway

Traffic Analysis – 4th Street w/ Bike Lanes (Alternative 1) or Parking Both Sides (Alternative 3)

Signalized Intersection	Existing Level of Service (PM)	Build Level of Service (PM)
4 th Street and Bayard Street	A	A
4 th Street and Locust Street	A	A
4 th Street and Grant Avenue	A	A

Next Steps

- Final Report

4th, 5th and 6th Conversion Study

Questions/Comments

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Thank you for your time and
interest!