Ashworth Road, 1st to 19th Reconfiguration Study

Eric Petersen, PE

City of West Des Moines
Principal Traffic Engineer

Background

- Minor arterial
- Spans the entire city
- Parallel route to I-235

Need for Improvements
1st Street to 50th Street

Council workshops in Nov. 2022/Jan. 2023

- **Multi-year, multi-phase project**
- **Pavement conditions**
- **Traffic safety issues**
- **Rebuild to current design standards (including lane widths)**
- **Improvements to traffic signals, railroad crossing, and sidewalks**
- **Sidepath trail**

Need for Improvements
1st Street to 50th Street

Council workshops in Nov. 2022/Jan. 2023

- **4-to-3 lane conversion for most of the corridor**
  - **Creates center left-turn lane that does not exist today**
  - **Widens lanes to meet current standards**

Trial Phase

- **Trial phase between 1st and 19th**
- **Study the performance before/after the 4-to-3 lane conversion**

Trial Phase, 1st to 19th

- **Funding and design in 2023**
  - **Including temporary transitions, modifications to signals, signs, and markings**
- **Collection of “Before” data**
  - **Crash data**
  - **Traffic count and speed data**
  - **Traffic flow observations on different seasons/days/times**

Trial Phase, 1st to 19th

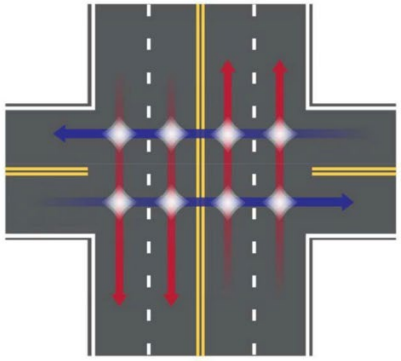
- Conversion was completed in Oct. 2023
- Collection of “After” data for comparison
- Also gathered feedback from road users
  - Residents
  - WDM Schools
  - DART
  - Police, Fire/EMS

Results - Crashes

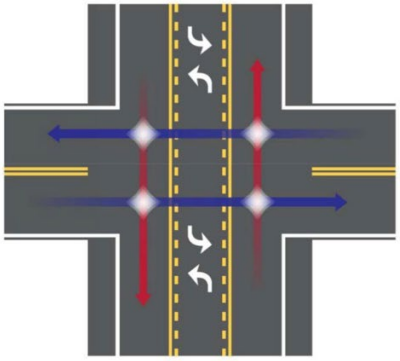
- **Research**

DECREASING CONFLICT POINTS

FOUR-LANE UNDIVIDED

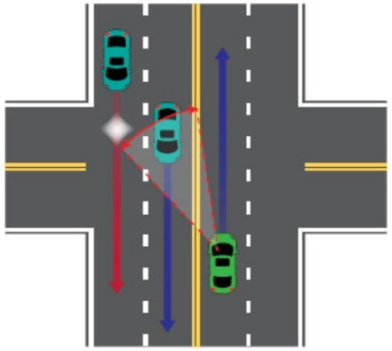


THREE-LANE

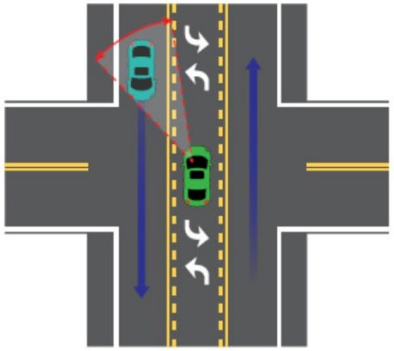


SEEING ON-COMING VEHICLES

FOUR-LANE
Outside Lane Traffic Hidden
by Inside Lane vehicles



THREE-LANE
No Hidden Vehicles



Results - Crashes

- Crash data from the Iowa DOT and accident reports from WDM Police
- Does not include crashes that were not reported
- Does not include crashes resulting from snow/ice, deer, alcohol/impairment, or other abnormal situations
- Also does not include crashes at 1st St or 8th St, where left-turn lanes already existed

Results - Crashes

Before

- **7 crashes per year**
  - **The narrow lanes and lack of a left-turn lane contributed to at least 40% of collisions**

Results - Crashes

Before

- **7 crashes per year**
  - **The narrow lanes and lack of a left-turn lane contributed to at least 40% of collisions**

After

- **1 crash in the 9.5 months after the roadway was converted to 3 lanes**
  - **Driver not yielding when turning right onto Ashworth Rd, not due to the 3-lane configuration**

Results - Speed

- Research has shown a decrease in speeds (particularly excessive speeds) in most 4-to-3 lane conversions
- Speeds were collected at the same 2 locations before and after conversion
  - Near 6th St
  - Near 16th St

Results - Speed

- Speeds are slightly lower at both locations for the 3-lane configuration
- Percentage of excessive speeding is also reduced

Ashworth Road near 6th Street

	Before	After
85th-Percentile Speed	40	38
Average Speed	35	34
% > Speed Limit	51%	36%
% 6+ > Speed Limit	13%	5%
% 11+ > Speed Limit	2%	0.5%
% 16+ > Speed Limit	0.3%	0.1%

Ashworth Road near 16th Street

	Before	After
85th-Percentile Speed	42	40
Average Speed	37	36
% > Speed Limit	71%	64%
% 6+ > Speed Limit	24%	12%
% 11+ > Speed Limit	4%	1%
% 16+ > Speed Limit	0.5%	0.2%

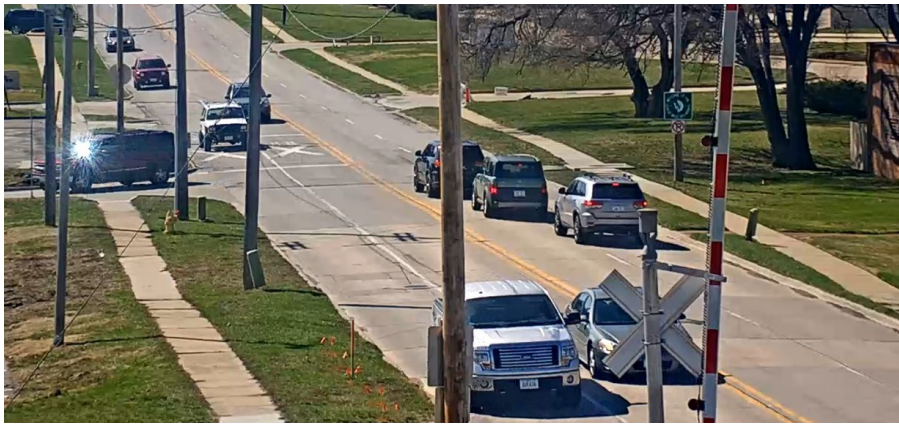
Results – Traffic flow

- Traffic cameras at 1st, 8th, and 19th
- Recording video over multiple days/times during the school year and the summer
- Drive-throughs and field observation

Results – Traffic flow

Before

- **Drivers not staying in lanes**
- **Passing in oncoming lane**
- **Inside lanes blocked by left-turning traffic**
- **Fire truck forced to use opposing inside thru lanes**



Results – Traffic flow

After

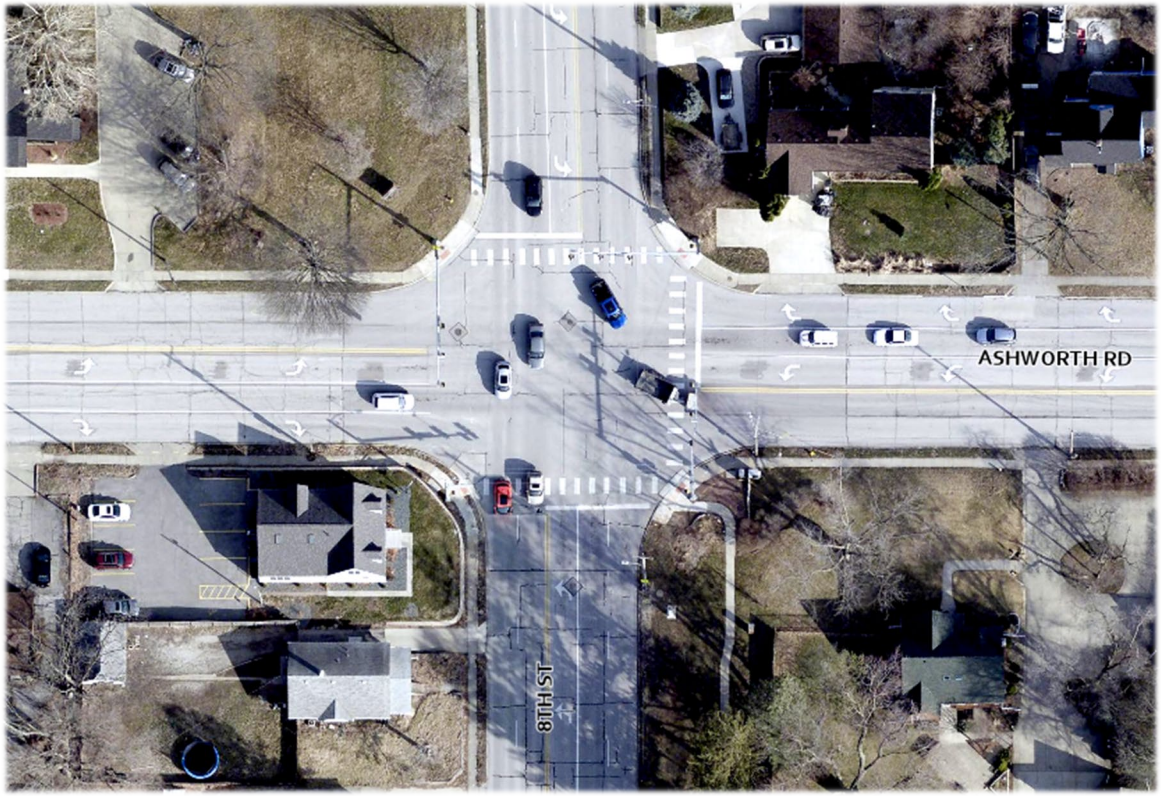
- **No major backups have been observed**
- **Minor delays and passing in center left-turn lane if vehicles are temporarily stopped**
- **Drivers are better able to stay in their lanes**

Results – Capacity

- Capacity of a 3-lane road like Ashworth is ~ 15,000 veh/day
- Currently about 7,000-9,000 veh/day
- Future traffic growth is possible as redevelopment and in-fill development occurs, and as drivers avoid more congested roadways such as I-235.
    - Future traffic models have predicted up to 13,000-14,000 veh/day
    - Still below capacity

Results – Capacity

- Traffic signal at 8th & Ashworth
  - Previously 2 thru lanes for EB/WB traffic
  - Modified to 1 thru lane and a right-turn lane for EB/WB traffic
  - Traffic analysis software was used to analyze delay
  - Analyzed different scenarios
- Slight increases to delay, but still within acceptable range – even with future traffic growth



Scenario		4-Lane	3-Lane + RT Lanes
Existing AM Peak Hour (School Day)	Overall	B	B
	Delay (s)	18.6	19.4
AM Peak Hour on 6/11/2024 (I-235 Incident)	Overall	C	C
	Delay (s)	22.4	25.8
Existing PM Peak Hour (School Day)	Overall	C	C
	Delay (s)	20.5	22.0
Future PM Peak Hour (Full-Build)	Overall	D	D
	Delay (s)	37.5	45.0

Results – Feedback

- **Public feedback that we have received has been very positive**
- **Residents, drivers, bus drivers, and emergency responders have been pleased with the 3-lane configuration and the slightly wider lanes**
- **Negative comments were primarily related to the lack of a sidepath trail**

"I was skeptical of the switch to three lanes…and I have to say how much I appreciate that change!" – West Des Moines resident

"[DART drivers] feel it is safe to board and alight passengers with this format….(and) have unanimously agreed that the increased lane widths have helped." – DART

"It slows traffic and allows more room versus the 4 lanes which does not allow enough room." – Bus driver for the West Des Moines School District

"[The 3-lane configuration] makes it easier for emergent response to take the center lane with traffic moving off the other two lanes." – West Des Moines Firefighter

"A multi-use trail along the north side of Ashworth Rd would be a great idea!" – Anonymous comment received during MPO's Safety Action Plan outreach

Conclusions

- **The 4-to-3 lane conversion has been a success.**
- **The corridor has fewer crashes, lower speeds, and the 3-lane configuration has enough capacity to handle the expected traffic levels.**

Questions


9th and Ashworth 03/23/23 04:38:40 PM
SPEED LIMIT 35


9th and Ashworth 05/14/24 04:40:59 PM
SPEED LIMIT 35