

Travel Time Comparisons

Duke Street in Motion

May 2023

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Transportation Modeling Overview

- The following pages show traffic modeling results for the worst hour in the AM and PM peak in each direction.
- The **PM peak period has more congestion** than the AM, which is why the project team prioritized that period initially.
- The findings here are informative to compare the concepts, but there are many factors that are not fully captured, such as:
 - Change in vehicle route choice given changing volumes on Duke Street and the surrounding region.
 - Change in Duke Street volumes that could be attributed to some trips being taken using the BRT instead of cars.
 - Further improvements that may be possible as we finalize the design
 - Enforcement of bus lanes

Overall Takeaways

- While there is some negative impact to vehicle travel in certain directions, if you go east in the AM and west in the PM or vice versa, the model indicates you will see a **net improvement for vehicle travel** on Duke Street for either concept.
- The model is generally showing similar travel time benefits for buses in the AM and PM peak between Concept A and B, with **Concept A performing slightly better overall due to improvements westbound.**

Eastbound PM Peak Period Travel Time Model Results by Timepoint

BUS TRAVEL TIMES	Length (mi)	2030 Business as Usual (min)	2030 Concept A Travel Time Change (min)		2030 Concept B Travel Time Change (min)	
Van Dorn to Jordan	1.1	13	- 7		- 6 ½	
Jordan to Quaker	1.1	5	- ½		- 1	
Quaker to Callahan	1.3	7	- 2		- 2	
Eastbound TOTAL	3.6	25	- 9 ½		- 9 ½	











**Travel Time Improvement*
Compared to Business as Usual**











**Travel Time Deterioration*
Compared to Business as Usual**

*Totals and segment times rounded to the nearest ½ minute. Icon next to 0 change indicates directionality prior to rounding.

PASSENGER CAR TRAVEL TIMES	Length (mi)	2030 Business as Usual (min)	2030 Concept A Travel Time Change (min)		2030 Concept B Travel Time Change (min)	
Van Dorn to Jordan	1.2	12	- 5		- 5	
Jordan to Quaker	1.1	3	1		½	
Quaker to Callahan	0.5	4 ½	½		1	
Eastbound TOTAL	3.6	19 ½	- 4		- 4	









- Bus travel times improve by almost 40% for both.
- Vehicle travel times improve by almost 20%

Westbound PM Peak Period Travel Time Model Results by Timepoint

BUS TRAVEL TIMES	Length (mi)	2030 Business as Usual (min)	2030 Concept A Travel Time Change (min)		2030 Concept B Travel Time Change (min)	
Callahan to Quaker	1.3	10	- 4		- 3	
Quaker to Jordan	1.1	7	- 2 ½		- ½	
Jordan to Van Dorn	.9	5 ½	0		- 2	
Eastbound TOTAL	3.6	25	- 7		- 5 ½	

-  **Travel Time Improvement* Compared to Business as Usual**
-  **Travel Time Deterioration* Compared to Business as Usual**

*Totals and segments rounded to the nearest ½ minute. Icon next to 0 change indicates directionality prior to rounding.

PASSENGER CAR TRAVEL TIMES	Length (mi)	2030 Business as Usual (min)	2030 Concept A Travel Time Change (min)		2030 Concept B Travel Time Change (min)	
Callahan to Quaker	1.2	7 ½	- 2		- 2	
Quaker to Jordan	1.1	3 ½	0		1 ½	
Jordan to Van Dorn	0.9	3 ½	1 ½		2	
Eastbound TOTAL	3.6	15	- ½		1 ½	

- Bus travel time improvement is about 1.5 min greater in Concept A.
- Vehicle travel times improve slightly in concept A and get about 10% worse in Concept B.

Eastbound AM Peak Period Travel Time Model Results by Timepoint

BUS TRAVEL TIMES	Length (mi)	2030 Business as Usual (min)	2030 Concept A Travel Time Change (min)		2030 Concept B Travel Time Change (min)	
Van Dorn to Jordan	1.2	7	-1 ½	●	-2	●
Jordan to Wheeler	1.1	6	-2	●	-2	●
Wheeler to Roth	0.5	3 ½	-½	●	-½	●
Roth to Callahan	0.8	3	0	●	0	●
Eastbound TOTAL	3.6	19	-4	●	-4 ½	●



**Travel Time Improvement*
Compared to Business as Usual**













**Travel Time Deterioration*
Compared to Business as Usual**

*Totals and segments rounded to the nearest ½ minute. Icon next to 0 change indicates directionality prior to rounding.

PASSENGER CAR TRAVEL TIMES	Length (mi)	2030 Business as Usual (min)	2030 Concept A Travel Time Change (min)		2030 Concept B Travel Time Change (min)	
Van Dorn to Jordan	1.2	2	-½	●	-1 ½	●
Jordan to Wheeler	1.1	2 ½	0	■	0	■
Wheeler to Roth	0.5	2	-½	●	0	●
Roth to Callahan	0.8	4	0	■	0	●
Eastbound TOTAL	3.6	10 ½	-1	●	-1 ½	●











- Bus travel time improvement is about 30 sec better in Concept B – more than 20% better for both.
- Vehicle travel times improve slightly more in Concept B, but improve in both.

Westbound AM Peak Period Travel Time Model Results by Timepoint

BUS TRAVEL TIMES	Length (mi)	2030 Business as Usual (min)	2030 Concept A Travel Time Change (min)		2030 Concept B Travel Time Change (min)	
Callahan to Roth	0.8	5	- 2		1	
Roth to Wheeler	0.5	4	- 1		½	
Wheeler to Jordan	1.1	6	- 2 ½		- 2	
Jordan to Van Dorn	1.2	5.5	-1 ½		- 2	
Eastbound TOTAL	3.6	21	- 6 ½		- 5 ½	

-  **Travel Time Improvement* Compared to Business as Usual**
-  **Travel Time Deterioration* Compared to Business as Usual**

*Totals and segments rounded to the nearest ½ minute. Icon next to 0 change indicates directionality prior to rounding.

PASSENGER CAR TRAVEL TIMES	Length (mi)	2030 Business as Usual (min)	2030 Concept A Travel Time Change (min)		2030 Concept B Travel Time Change (min)	
Callahan to Roth	1.2	4	1 ½		- ½	
Roth to Wheeler	1.1	2	½		0	
Wheeler to Jordan	0.5	3	0		½	
Jordan to Van Dorn	0.8	2	½		0	
Eastbound TOTAL	3.6	10 ½	2 ½		½	

- Bus travel time improvement is about 1 min. better in Concept A.
- Vehicle travel times get worse in both, but are worse in Concept A.
- Overall travel times are still several minutes better than PM.