MEMO

TO: Jane Canada, Justin Stuehrenberg & Ben Smith (IndyGo)

CC: Will Tolbert & Matt Duffy (WSP)

FROM: Ericka Miller (WSP)

SUBJECT: Blue Line BRT Traffic Analysis Summary

DATE: September 27, 2018

The purpose of this memo is to summarize traffic analysis completed to-date related to IndyGo's Blue Line BRT project.

Traffic operations were evaluated using a rating system called Level of Service (LOS). These LOS ratings are measured in terms of average delay, where delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. LOS A is the best operating condition, and LOS F has the longest delays, therefore being the worst operating condition. LOS D or better is considered acceptable in most urban settings, and LOS E is sometimes tolerated at high-volume locations. The LOS criteria for signalized intersections is provided in the 2010 Highway Capacity Manual and summarized in the table below.

LEVEL OF SERVICE	Description	Average Control Delay Per Vehicle (seconds)
A	Little or no delay.	≤ 10.0
B	Short traffic delays.	> 10.0 and ≤ 20.0
C	Average traffic delays.	> 20.0 and ≤ 35.0
D	Long traffic delays.	> 35.0 and ≤ 55.0
E	Very long traffic delays.	> 55.0 and ≤ 80.0
F	Demand exceeds capacity resulting in extreme delays and queuing.	> 80.0

Overall intersection LOS was evaluated for every signalized intersection along the Blue Line corridor, for the AM and PM peak hours, using Synchro software. Existing traffic volumes were obtained in 2018 and adjusted to reflect anticipated conditions of the 2022 construction year, based on the following assumptions:

- No growth in traffic volumes
- Reduction in traffic volumes due to "mode-shift" – the concept that some people who currently drive vehicles on the corridor will ride the BRT; based on STOPS model output
- Diversion from Washington Street to I-70, based on Indianapolis MPO model output

Based on these assumptions, reduction factors (summarized below) were applied to all traffic volumes along the corridor except cross-street through movements. Separate memos detail the methodology related to the development of these reduction factors; these memos are attached for reference.

SEGMENT	AM PEAK HOUR			PM PEAK HOUR		
	Mode-Shift	Diversion	Total	Mode-Shift	Diversion	Total
HIGH SCHOOL TO HARDING	10%	14%	24%	15%	14%	29%
HARDING TO TRANSIT CENTER	10%	3%	13%	15%	3%	18%
TRANSIT CENTER TO I-465	14%	3%	17%	19%	3%	22%
I-465 TO CUMBERLAND	4%	3%	7%	6%	3%	9%

For intersections where U-turn movements will be accommodated in the proposed scenario, U-turn volumes were estimated based on the number of access points along the corridor adjacent to each intersection. Pedestrian phases were modeled on recall where crosswalks are proposed within I-465. Outside of I-465, pedestrian phases were modeled on recall across side-streets and across station legs. Given this criteria, the intersection of Washington Street & Post Road will require a two-stage pedestrian crossing across the station leg, in order to maintain acceptable LOS. It should also be noted that a 5sec leading pedestrian interval was modeled at the intersection of Washington Street & West Street, for the Cultural Trail crossing across the north leg of the intersection. Cycle lengths were optimized and generally vary between 90sec and 120sec; a few intersections are modeled with 150sec cycle lengths due to minimum green times for pedestrian crossings.

Per guidance from IndyGo, DPW and INDOT, overall intersection LOS was considered acceptable for the build scenario if it was the same or better than existing LOS, or if it was LOS D or better; it should be noted that criteria was not associated with individual movement LOS. Given the current locally preferred alternative (LPA), the intersections that do not meet the overall intersection LOS criteria are:

- Washington Street & Sherman Drive,
- Washington Street & Emerson Avenue, and
- Washington Street & Arlington Avenue

Under existing conditions, the intersection of Washington Street & Sherman Drive operates at LOS C during the AM peak hour and LOS D during the PM peak hour; under proposed conditions, the intersection is projected to operate at LOS E during both the AM and PM peak hours. Under existing conditions, the intersection of Washington Street & Emerson Avenue operates at LOS C during both the AM and PM peak hours; under proposed conditions, the intersection is projected to operate at LOS E during the AM peak hour and LOS D during the PM peak hour. Under existing conditions, the intersection of Washington Street & Arlington Avenue operates at LOS D during both the AM and PM peak hours; under proposed conditions, the intersection is projected to operate at LOS E during both the AM and PM peak hours.

The tables included at the end of this memo summarize overall intersection Level of Service (LOS) for the current LPA, given the assumptions summarized above. Separately, traffic volumes that would be necessary to obtain LOS D at the three "hotspot" intersections listed above were considered:

INTERSECTION	AM PEAK HOUR		PM PEAK HOUR	
	Current % Volume Reduction	% Reduction Needed to Achieve LOS D	Current % Volume Reduction	% Reduction Needed to Achieve LOS D
Washington St & Sherman Dr	17%	25%	22%	33%
Washington St & Emerson Ave	17%	30%	22%	-
Washington St & Arlington Ave	17%	35%	22%	26%

The percent reductions shown above, needed to achieve LOS D at the three "hotspot" intersections, equate to reductions of approximately 182 westbound vehicles (max) in the AM peak hour and approximately 135 eastbound vehicles (max) in the PM peak hour, along Washington Street. Given the proposed changes to lane configuration along the Blue Line corridor, it is reasonable to assume that there may be some amount of diversion to local routes, in addition to the diversion from Washington Street to I-70 that was considered.

As part of another project, IndyGo contracted with Shrewsberry & Associates LLC to develop Synchro models of Michigan Street and New York Street on the east side of Indianapolis, assuming that the streets

will be converted to accommodate two-way traffic. These models were evaluated with additional traffic to assess the potential of Michigan and New York Streets accommodating traffic diversion from Washington Street. Shrewsberry added 200 vehicles per hour westbound during the AM peak hour and 150 vehicles per hour eastbound during the PM peak hour to the Synchro models. It was assumed that these vehicles would divert at State Street (eastbound) and Arlington Avenue (westbound), and the stated volume was split evenly between Michigan Street and New York Street. With this additional traffic, all intersections along Michigan Street and New York Street are still projected to operate at LOS C or better during the AM and PM peak hours, assuming two-way operation. Therefore, if motorists decide to divert away from Washington Street to avoid congestion associated with the three "hotspot" intersections listed above, it is possible that traffic volumes will be reduced such that the intersections will operate at acceptable LOS after an equilibrium is reached; and based on the analysis conducted by Shrewsberry, there is enough additional capacity on Michigan and New York Streets to accommodate such volumes.

The above consideration/discussion about diversion to local routes is hypothetical in nature. The LOS results summarized in the attached tables only account for mode-shift and diversion to I-70; in an effort to be conservative, no reduction was applied to traffic volumes to account for potential diversion to local routes.

Overall Intersection LOS Results for LPA

Intersection (west to east)	Existing 2018		Build 2022	
	AM	PM	AM	PM
W Perimeter Rd & S Service Rd	A	A	Same as Existing	
W Perimeter Rd & N Service Rd	A	C		
Perimeter Rd & High School Rd	A	B		
High School Rd & Turner Dr	A	B		
High School Rd & Sam Jones Expy	B	B		
High School Rd & Raymond St	A	A		
High School Rd & Minnesota St	A	C		
W Washington St & High School Rd	A	B	D	D
W Washington St & I-465 SB JCT	C	C	B	B
W Washington St & I-465 NB JCT	B	B	B	B
W Washington St & Morris St	D	F	D	F
W Washington St & Lynhurst Dr	C	D	D	D
W Washington St & Westgate Plaza (Kroger)	A	B	B	C
W Washington St & Auburn St	A	A	B	A
W Washington St & Fleming St	A	A	A	B
W Washington St & Holt Rd	C	D	D	D
W Washington St & S Tibbs Ave	B	C	A	A
W Washington St & Rockville Rd	B	B	B	B
W Washington St & North Tibbs Ave	B	B	B	C
W Washington St & Central Greens Blvd	A	A	B	B
W Washington St & Warman Ave	B	B	B	C

Overall Intersection LOS Results for LPA, Continued

Intersection (west to east)	Existing 2018		Build 2022	
	AM	PM	AM	PM
W Washington St & Belleview Pl	A	A	A	A
W Washington St & Tremont St	A	A	B	C
W Washington St & Belmont Ave	C	C	C	C
W Washington St & Harding St	B	C	D	C
W Washington St & N White River Pkwy W Dr	B	C	C	C
W Washington St & Zoo	A	A	C	B
W Washington St & S White River Pkwy W Dr	C	B	B	C
W Washington St & Schumacher Way	A	B	A	B
W Maryland St & Schumacher Way	B	C	A	A
W Washington St & West St	C	D	C	D
W Maryland St & West St	F	C	E	C
W Washington St & Missouri St	A	D	A	C
W Maryland St & Missouri St	B	B	A	B
W Washington St & Senate Ave	A	A	A	A
W Washington St & Capitol Ave	B	B	B	B
W Maryland St & Capitol Ave	B	B	A	A
W Washington St & Illinois St	C	B	B	B
W Maryland St & Illinois St	B	C	B	B
Washington St & Meridian St	B	C	B	C
Maryland St & Meridian St	B	B	B	B
E Washington St & Pennsylvania St	B	B	B	B

Overall Intersection LOS Results for LPA, Continued

Intersection (west to east)	Existing 2018		Build 2022	
	AM	PM	AM	PM
E Maryland St & Pennsylvania St	A	A	A	A
E Washington St & Delaware St	C	D	B	C
E Maryland St & Delaware St / Virginia Ave	D	E	D	C
E Washington St & Alabama St	B	B	B	B
E Maryland St & Alabama St	B	D	A	B
E Washington St & New Jersey St	C	C	B	C
E Washington St & East St	C	E	C	D
E Washington St & Park Ave	C	A	B	C
E Washington St & College Ave	A	B	B	B
E Washington St & Davidson St / I-65 SB JCT	B	D	C	C
E Washington St & Pine St / I-65 NB JCT	B	D	C	C
E Washington St & Southeastern Ave / Cruse St	C	B	C	D
E Washington St & Oriental Ave	A	B	A	B
E Washington St & Arsenal Ave	A	A	B	A
E Washington St & State St	B	B	D	D
E Washington St & Hamilton Ave	A	A	A	A
E Washington St & Keystone Ave	A	A	B	B
E Washington St & Rural St	B	C	C	C
E Washington St & LaSalle St	A	A	A	B
E Washington St & Sherman Dr	C	D	E	E
E Washington St & Gladstone Ave	A	A	A	A

Overall Intersection LOS Results for LPA, Continued

Intersection (west to east)	Existing 2018		Build 2022	
	AM	PM	AM	PM
E Washington St & Linwood Ave	A	A	B	A
E Washington St & Wallace Ln	A	A	B	B
E Washington St & Emerson Ave	C	C	E	D
E Washington St & Hawthorne Ln	A	A	B	B
E Washington St & Ritter Ave	B	B	D	C
E Washington St & Audubon Rd	B	A	B	B
E Washington St & Arlington Ave	D	D	E	E
E Washington St & Sheridan Ave	A	A	A	A
E Washington St & Ridgeview Dr	A	A	B	B
E Washington St & Kitley Ave	B	A	C	C
E Washington St & Shortridge Rd	B	C	C	C
E Washington St & Sadlier Dr	A	B	A	C
E Washington St & Mitchner Ave / Old Trail Dr	B	B	B	B
E Washington St & I-465 SB JCT	B	B	B	B
E Washington St & I-465 NB JCT	C	C	B	B
E Washington St & Franklin Rd	C	C	C	D
E Washington St & Cecil Ave	A	A	A	A
E Washington St & Fenton Ave	C	D	C	D
E Washington St & Post Rd	A	B	A	D
E Washington St & Toys R Us	B	C	C	C
E Washington St & Cherry Tree Plaza	A	A	B	A

Overall Intersection LOS Results for LPA, Continued

Intersection (west to east)	Existing 2018		Build 2022	
	AM	PM	AM	PM
E Washington St & Mitthoefer Rd	C	D	C	C
E Washington St & Washington Square	A	B	B	C
E Washington St & Washington Market / Kroger	A	A	A	B
E Washington St & Walmart driveway	A	B	B	B
E Washington St & German Church Rd	D	C	C	C
E Washington St & Hugo St	A	A	A	B

MEMO

TO: Justin Stuehrenberg, Jane Canada, and Ben Smith; IndyGo

FROM: Greg Saur, WSP

CC: Will Tolbert, Ericka Miller, and Matt Duffy; WSP

SUBJECT: IndyGo Blue Line BRT: Mode-Shift Factor

DATE: September 17, 2018

INTRODUCTION

The proposed IndyGo Blue Line BRT (Bus Rapid Transit) will provide high capacity transit along Washington Street/US 40 through Indianapolis, Indiana. Along the route, some general-purpose travel lanes will be converted into dedicated, transit only lanes or business access and transit (BAT) lanes. Implementation of these runningways will result in a decrease in roadway capacity and potentially worsen level of service (LOS) at intersections along the route.

At the same time, the fast, frequent, and reliable BRT service will attract and serve four distinct types of riders:

1. Transit Dependent - those who reside in a household without access to a vehicle and must use transit service to travel beyond reasonable walking or biking distances and are:
    a. Not currently using transit OR
    b. Currently using transit – most likely the existing Route 8 service
2. Non-Transit Dependent - those who reside in a household with access to one or more vehicles and can elect to use a vehicle or transit service to travel distances beyond reasonable walking or biking distances and are:
    a. Not currently using transit OR
    b. Currently using transit – most likely the existing Route 8 service

An increase in type 2b riders, or non-transit dependent riders who are not currently using transit, will result in a travel mode-shift from personal vehicle to BRT usage. This will result in a decrease in the number of vehicles along the corridor.

PURPOSE

The purpose of this memorandum is to explain how existing vehicle volumes, existing local service transit ridership information, and forecasted BRT ridership information was used to develop “mode-shift factors”. The mode-shift factors quantify the number of travelers who currently travel by vehicle but would be attracted to the new BRT service and would elect to instead travel by transit. These factors were applied to existing vehicle volumes along the corridor to account for the reduction in vehicle travel at intersections along the route. The process described below was used to determine appropriate mode-shift factors along the

Blue Line route. It presents the approach that was used for estimating the nexus between an increase in BRT ridership and decrease in vehicle travel.

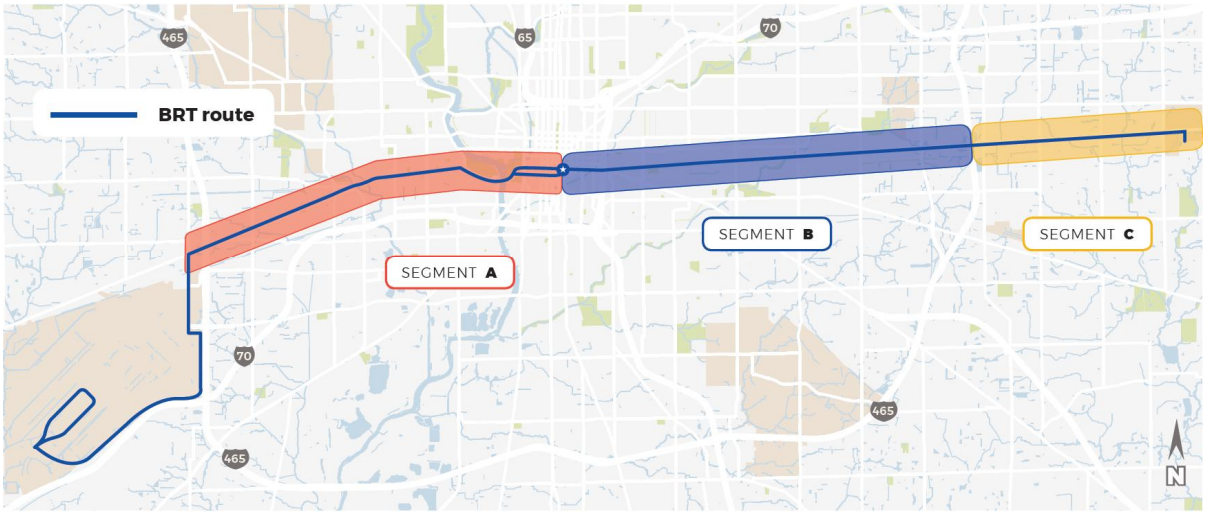
APPROACH

The approach used to determine the mode-shift factors along the Blue Line corridor was separated into the following sections: geography, assumptions, inputs, calculations, and results. Key information on these sections is summarized below; for additional details, refer to the attached spreadsheet.

GEOGRAPHY

The following three segments were identified for separate mode-shift factors based on their distinct land uses, distance to I-465, travel patterns, and traffic volumes:

1. Segment A: The route east of S. High School Rd. and west of the downtown transit center
2. Segment B: The route east of the downtown transit center and west of I-465
3. Segment C: The route east of I-465



ASSUMPTIONS

The following assumptions were made when calculating the mode-shift factors on each of the four segments on the Blue Line Route:

1. Existing traffic data along the corridor is reasonable and representative of a typical weekday
2. Existing transit data along the corridor is reasonable and representative of a typical weekday
3. Forecasted transit data along the corridor is reasonable and representative of a typical weekday
4. A 2-hour vehicle peak period and a 3-hour transit peak period are comparable because the length of transit trip travel times include starting and/or ending a trip outside of the 2-hour vehicle peak period, in addition to the travel time during the vehicle peak period
5. Forecasted transit ridership in the AM peak period is directed to the downtown transit center
6. Forecasted transit ridership in the PM peak period is directed from the downtown transit center
7. Forecasted transit ridership in Segment A represents boardings at all stations within that segment and west of Segment A (Indianapolis International Airport, FedEx, and Infosys)

8 Forecasted transit ridership in Segment B represents boardings at all stations within that segment and Segment C
9 Forecasted transit ridership in Segment C represents boardings at all stations within that segment
10 Forecasted transit ridership is based on preliminary FTA Simplified Trips-on-Project Software (STOPS) results that assume a BRT operating in dedicated lanes for a majority of the route
11 Mode-shift factors must only account for type 2b riders, or non-transit dependent riders who are not currently using transit, but will elect to shift from personal vehicle to BRT usage
12 Separete mode-shift factors must be applied to AM and PM peak hour traffic volumes

INPUTS

Data and Sources

1 Existing Route 8 ridership (provided by IndyGo)
   a Daily ridership
   b AM peak period ridership (6:00 AM – 9:00 AM)
   c PM peak period ridership (3:00 PM – 6:00 PM)

Peak Period	Percent of Daily Ridership
AM	16%
PM	23%

2 Existing intersection traffic counts (collected by WSP)
   a AM peak hour traffic counts (7:15 AM – 8:15 AM)
   b AM peak period traffic counts (7:00 AM – 9:00 AM)
   c PM peak hour traffic counts (4:30 PM – 5:30 PM)
   d PM peak period ridership (4:30 PM – 6:30 PM)

Segment	AM Peak Hour Percent of Peak Period Vehicle Traffic	PM Peak Hour Percent of Peak Period Vehicle Traffic
A	54%	53%
B	55%	53%
C	52%	52%

3. Existing roadway segment traffic counts (obtained from the Indiana Department of Transportation traffic count database)
    a. Annual average daily traffic (AADT) counts
    b. K factor (max hour of traffic density)

Segment	Average AADT	K Factor
A	22,283	10%
B	20,842	10%
C	23,823	10%

4. Preliminary transit ridership forecasts from STOPS (calculated by WSP)
    a. Net new daily transit ridership on the BRT – both transit and non-transit dependent
    b. Net new daily transit dependent ridership on the BRT – only transit dependent

Segment	Net New Daily Transit Ridership on the BRT	Net New Daily Transit Dependent Ridership on the BRT
A	4,162	1,562
B	4,340	2,009
C	1,997	753

5. Existing vehicle occupancy factor (obtained from the Indianapolis Metropolitan Planning Organization)
    a. Vehicle occupancy factor = 1.1 persons per vehicle

CALCULATIONS

Traffic Volumes

Input/Calculation	Variable	Formula	Unit
Annual Average Daily Traffic (Total volume of vehicle traffic on a road for a year divided by 365 days)	AADT	N/A	Vehicles per Day
K Factor (Proportion of AADT occurring in the Max hour of traffic density)	K	N/A	Percent of AADT
Peak Hour Traffic (Total volume of vehicle traffic on a road for the Max hour of traffic density)	PHT	AADT * (K / 100)	Vehicles per Hour
Peak Hour vs. Peak 2-Hour Traffic (AM)	P2KAM	(Vehicles Counted Max hour) / (Vehicles Counted Peak 2-Hours)	Percent of Peak 2-Hours
Peak 2-Hour Traffic (AM)	P2HTAM	PHT / P2KAM	Vehicles per 2-Hours
Peak Hour vs. Peak 2-Hour Traffic (PM)	P2KPM	(Vehicles Counted Max hour) / (Vehicles Counted Peak 2-Hours)	Percent of Peak 2-Hours
Peak 2-Hour Traffic (PM)	P2HTPM	PHT / P2KPM	Vehicles per 2-Hours
Vehicle Occupancy Factor (Average number of persons per vehicle)	VOC	N/A	Persons per Vehicle
Annual Average Daily Person Trips (Total number of daily persons on a road)	AADPT	AADT * VOC	Person Trips per Day
Peak Hour Person Trips (Total number of peak hour persons on a road)	PHPT	PHT * VOC	Person Trips per Hour
Peak 2-Hour Person Trips AM (Total number of peak 2-hour persons on a road)	P2HPTAM	P2HTAM * VOC	Person Trips per 2-Hours
Peak 2-Hour Person Trips PM (Total number of peak 2-hour persons on a road)	P2HPTPM	P2HTPM * VOC	Person Trips per 2-Hours

Transit Ridership

Input/Calculation	Variable	Formula	Unit
Net New Daily Ridership (Total number of daily new riders on the BRT - previously did not use transit)	NNDR	N/A	Riders per Day
Net New Daily Ridership from 0 Car Households (Total number of daily new riders on the BRT from Transit Dependent households)	NNDR0	N/A	Riders per Day
Net New Daily Non-Transit Dependent Ridership	NNDRTD	NNDR - NND0R	Riders per Day
Peak Factor AM (Proportion of daily ridership occurring in the peak period of service)	PAM	N/A	Percent of NNDR
Net New AM Peak Non-Transit Dependent Ridership (Total number of daily new riders on the BRT during the peak period)	NNTDPRA	NNDRTD * PAM	Riders per 3-Hours
Peak Factor PM (Proportion of daily ridership occurring in the peak period of service)	PPM	N/A	Percent of NNDR
Net New PM Peak Non-Transit Dependent Ridership (Total number of daily new riders on the BRT during the peak period)	NNTDPRP	NNDRTD * PPM	Riders per 3-Hours
AM Peak Mode-Shift Factor (Total percentage of existing vehicles that will be removed)	MSAM	(Existing Vehicle Trips – Vehicle Trips Remaining) / Existing Vehicle Trips)	Percent of Existing Vehicle Trips Removed
PM Peak Mode-Shift Factor (Total percentage of existing vehicles that will be removed)	MSPM	(Existing Vehicle Trips – Vehicle Trips Remaining) / Existing Vehicle Trips)	Percent of Existing Vehicle Trips Removed

RESULTS

Daily

		Segment A	Segment B	Segment C
Person Trips	Existing	24,511	22,926	26,205
	Net New Non-Transit Dependent	2,958	3,575	1,244
	Remaining	21,553	19,351	24,961
Vehicle Occupancy Factor		1.1	1.1	1.1
Vehicle Trips	Existing	22,283	20,842	23,823
	Net New Non-Transit Dependent	2,689	3,250	1,131
	Remaining	19,594	17,592	22,692
Mode-Shift Factor		12%	16%	5%

AM Peak Hour

		Segment A	Segment B	Segment C
Person Trips	Existing	4,539	4,168	5,039
	Net New Non-Transit Dependent	473	572	199
	Remaining	4,066	3,596	4,840
Vehicle Occupancy Factor		1.1	1.1	1.1
Vehicle Trips	Existing	4,126	3,789	4,581
	Net New Non-Transit Dependent	430	520	181
	Remaining	3,696	3,269	4,400
Mode-Shift Factor		10%	14%	4%

PM Peak Hour

		Segment A	Segment B	Segment C
Person Trips	Existing	4,624	4,325	5,039
	Net New Non-Transit Dependent	680	822	286
	Remaining	3,944	3,503	4,753
Vehicle Occupancy Factor		1.1	1.1	1.1
Vehicle Trips	Existing	4,204	3,932	4,581
	Net New Non-Transit Dependent	618	747	260
	Remaining	3,586	3,185	4,321
Mode-Shift Factor		15%	19%	6%

CONCLUSION

The process described above is theoretically sound and represents a reasonable approach for estimating the nexus between an increase in BRT ridership and decrease in vehicle travel. The resulting mode-shift factors will be applied to existing vehicular volumes along the corridor to account for the reduction in vehicle travel at intersections along the route; mode-shift factors will be applied to all movements along Washington Street except cross-street through volumes.

MEMO

TO: 188458 Project Files

FROM: Steve Ruegg, WSP

SUBJECT: Analysis of Trip Diversion to I-70 for Blue Line BRT Lane Reduction – Revised to Include the Entire Corridor, Revised to Modify Segment 1

DATE: September 13, 2018

INTRODUCTION

This memorandum describes the methodology and results of a diversion analysis related to the proposed Blue Line BRT. Since the BRT will require removal of one lane in each direction along the BRT line, the capacity of Washington Street, the focus of this analysis, will be reduced and will result in traffic being diverted to parallel roadways. The proposed BRT line lane reduction extends along Washington Street from High School Road on the west to Hugo Street on the east; this analysis includes this entire section.

METHODOLOGY

The regional model was run for future planning year 2025 by the staff of the Indianapolis MPO. Two scenarios were executed, including a base plan year that included current lanes on Washington Street and a modified network scenario, different only in that one lane in each direction was removed from Washington Street between the endpoints described above. For both scenarios, the full model was run, meaning that the distribution of trips, mode choice and assignment were subject to change. The assignment gap criteria for both assignments was 0.00001. Both scenarios used the same transit network, meaning that the Blue Line BRT was included in each.

The resulting loaded networks, with daily assigned volumes, were transmitted to WSP for further processing. A "difference plot" was created by merging the two networks, geographically tagging the links. Daily build scenario (one less lane on Washington Street) volumes were subtracted from the base, or no-build scenario volumes and saved to create difference flows on each network. The corridor was divided into three segments, as follows:

Segment 1: High School Road to Harding Street (two sub-segments)

Segment 2: Harding Street to I-65 (three sub-segments)

Segment 3: I-65 to East of Post Road (six sub-segments)

The difference in daily volumes were averaged for each segment and sub-segment for both Washington Street and I-70 and used to estimate the diversion and diversion share as a portion of the no-build flows on the same segments on Washington Street. Finally, plots showing the diversion for each segment were produced.

RESULTS

Table 1 shows the diversion results for Segment 1 by sub-segment and summed and averaged for the corridor from High School Road to Harding Street.

Table 1: Diversion on Segment 1 from High School Road to Harding Street as a Result of Washington Street BRT Lane Reduction, Year 2025, Daily Volumes

	HIGH SCHOOL ROAD TO HOLT RD	HOLT RD TO HARDING ST	TOTAL	AVERAGE	DISTANCE-WEIGHTED AVERAGE
I-70 NB	82,288	119,477	201,765	100,883	100,115
I-70 BD	85,971	122,616	208,587	104,294	103,537
Change	3,683	3,139	6,822	3,411	3,422
Diversion Share	18%	11%	14%	14%	14%
Washington NB	20,871	27,314	48,185	24,092	23,959
Washington BD	11,862	11,993	23,855	11,927	11,925
Change	-9,009	-15,321	-24,330	-12,165	-12,035

Table 2 shows the diversion results for Segment 2 by sub-segment and summed and averaged for the corridor from Harding Street to I-65.

Table 2: Diversion on Segment 2 from Harding Street to I-65 as a Result of Washington Street BRT Lane Reduction, Year 2025, Daily Volumes

	HARDING ST TO WEST ST	WEST ST TO PENNSYLVANIA ST	PENNSYLVANIA ST TO I-65	TOTAL	AVERAGE	DISTANCE-WEIGHTED AVERAGE
I-70 NB	131,886	102,561	128,224	362,671	120,890	124,041
I-70 BD	134,844	102,752	127,389	364,985	121,662	125,303
Change	2,958	191	-835	2,314	771	1,262
Diversion Share	7%	0%	-3%	2%	2%	3%
Washington NB	40,043	46,457	30,167	116,667	38,889	38,800
Washington BD	27,366	38,270	24,733	90,369	30,123	29,176
Change	-12,677	-8,187	-5,434	-26,298	-8,766	-9,624

Table 3 shows the diversion results for Segment 3 by sub-segment and summed and averaged for the corridor east of I-65.

Table 3: Diversion on Segment 3 East of I-65 as a Result of Washington Street BRT Lane Reduction, Year 2025, Daily Volumes

	I-65 TO RURAL ST	RURAL ST TO EMERSON AVE	EMERSON AVE TO SHADELAND AVE	SHADELAND AVE TO I-465	I-465 TO POST RD	EAST OF POST RD	TOTAL	AVERAGE	DISTANCE-WEIGHTED AVERAGE
I-70 NB	181,771	163,462	151,875	152,225	127,815	69,860	847,008	141,168	134,234
I-70 BD	181,492	164,342	152,848	153,306	129,119	71,383	852,490	142,082	135,189
Change	-279	880	973	1,081	1,304	1,523	5,482	914	955
Diversion Share	-1%	6%	5%	5%	3%	4%	3%	3%	3%
Washington NB	24,729	15,348	20,161	22,497	46,458	40,055	169,247	28,208	28,298
Washington BD	14,673	8,024	12,821	16,505	40,560	30,916	123,498	20,583	20,319
Change	-10,056	-7,324	-7,341	-5,992	-5,898	-9,138	-45,748	-7,625	-7,979

Segment 1 shows the largest diversion of trips to I-70, both in relative and absolute terms, averaging about 3,400 daily trips diverted. Segments 2 and 3 show a relative diversion to I-70 of 3 percent, with about 1,250 vehicles per day diverted to I-70 in Segment 2 and about 950 vehicles per day diverted to I-70 in Segment 3, with the implementation of the Blue Line. It should be noted that the two sub-segments from Pennsylvania Street to I-65 and from I-65 to Rural Street show a slight negative change in diversion. This may be due to fluctuations in the model results, lack of through traffic in the CBD and/or the diversion to nearby New York Street that may be carrying relatively short trips, and leaving I-70 largely unaffected. The Segment 1 diversion is the largest due to fewer parallel routes besides I-70 compared with Segments 2 and 3.

Figure 1 shows the diversion graphically for Segment 1, with red showing increases in volume, and green showing decreases in volume.

Figure 1: Year 2025 Trip Diversion Due to Blue Line BRT Lane Reduction in Segment 1 from High School Road to Harding Street

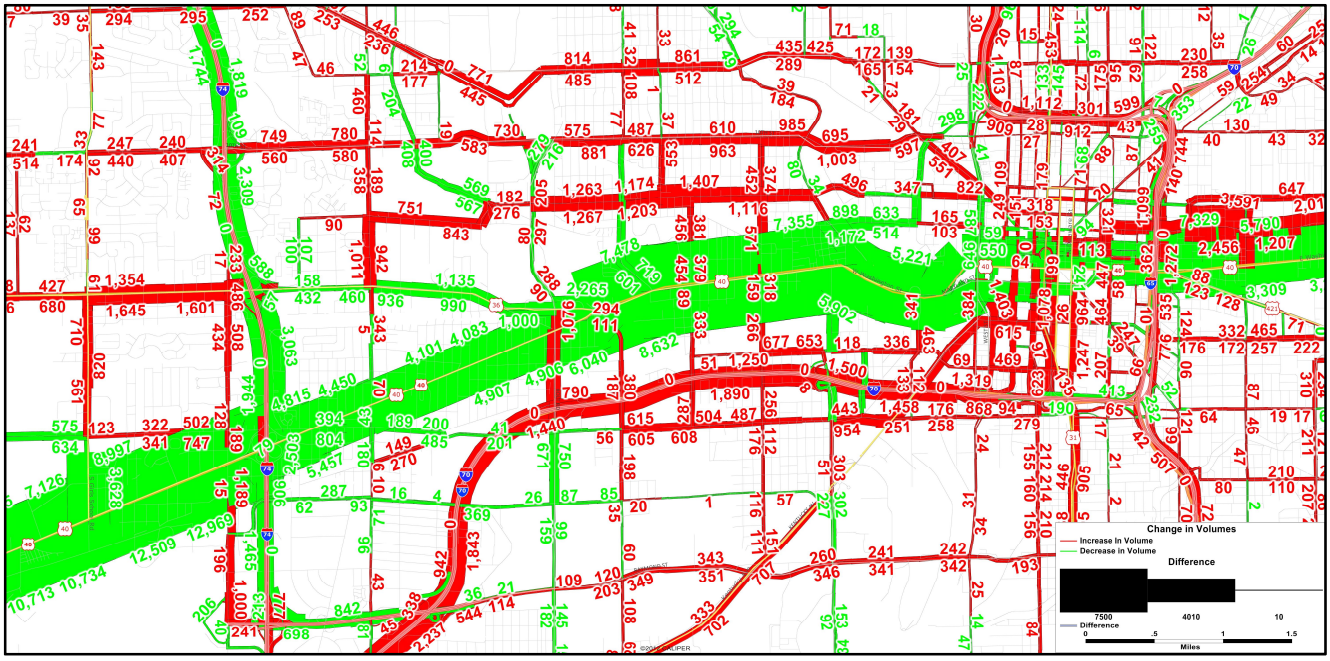


Figure 2 shows the diversion graphically for Segment 2, with red showing increases in volume, and green showing decreases in volume.

Figure 2: Year 2025 Trip Diversion Due to Blue Line BRT Lane Reduction in Segment 2 from Harding Street to I-65

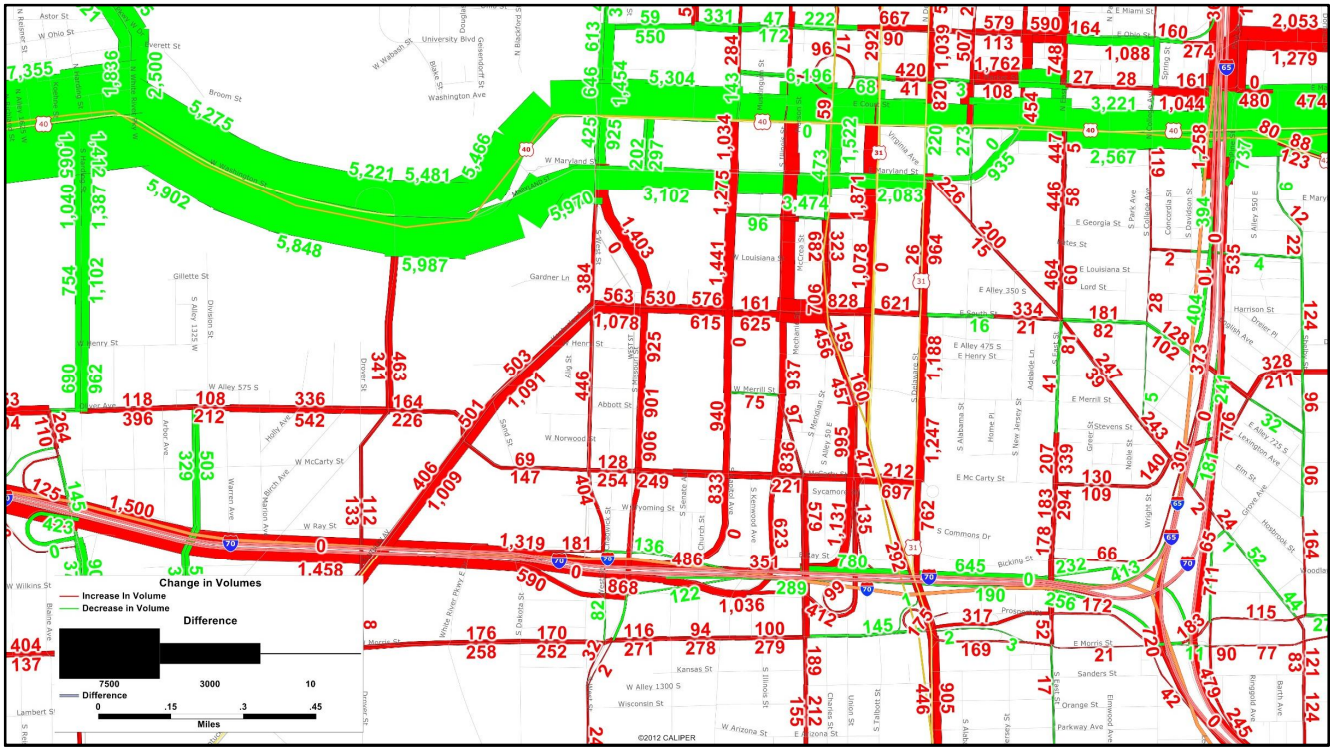


Figure 3 shows the diversion graphically for Segment 3, with red showing increases in volume, and green showing decreases in volume.

Figure 3: Year 2025 Trip Diversion Due to Blue Line BRT Lane Reduction in Segment 3 East of I-65