

Identifying Promising Intersections for High-Congestion-Benefit/ Low-Cost Improvements

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CMP- System Perf. document (Oct. 2014)

“Potential for Intersection Congestion Alleviation”

- “**PICA**”, for short
- roadway segments with **more delay than one would expect** given their:
 - volume per lane
 - location/type
 - e.g. rural, high design speed vs. urban, low design speed

PICA = Highest Pk Period Travel Time Index – Predicted Pk Period Travel Time Index

High PICA Segments- AM

Table 9 - Roadway Segments with the Highest Potential for Intersection Congestion Alleviation (PICA) Values - 2013 AM PEAK PERIOD

JURIS-DICTION	FACILITY NAME	SEGMENT FROM	SEGMENT TO	DIR	HIGHEST PICA
NOR/PORT	MIDTOWN TUNNEL ●	MLK FWY/WESTERN FREEWAY	BRAMBLETON AVE	NB	1.11
VB	INDIAN RIVER RD	FERRELL PKWY	KEMPSVILLE RD	WB	0.70
HAM	PEMBROKE AVE	SETTLERS LANDING RD	LA SALLE AVE	EB	0.64
VB	NORTHAMPTON BLVD ●	DIAMOND SPRINGS RD	WESLEYAN DR/NORFOLK CL	WB	0.64
NOR	NORTHAMPTON BLVD ●	WESLEYAN DR/VA BEACH CL	I-64	WB	0.61
VB	INDEPENDENCE BLVD	I-264	BAXTER RD	SB	0.58
SH	ROUTE 35	ROUTE 671	GRAYS SHOP RD (RTE 673)	NB	0.57
VB	NORTHAMPTON BLVD	WESLEYAN DR/NORFOLK CL	DIAMOND SPRINGS RD	EB	0.54
VB	INDEPENDENCE BLVD	HOLLAND RD	BAXTER RD	NB	0.53
NOR	NORTHAMPTON BLVD	I-64	WESLEYAN DR/VA BEACH CL	EB	0.52
HAM	ABERDEEN RD	MERCURY BLVD	TODDS LA	NB	0.50
VB	WITCHDUCK RD	I-264	VA BEACH BLVD	NB	0.43
VB	KEMPSVILLE RD	PROVIDENCE RD	PRINCESS ANNE RD	EB	0.38
HAM	MERCURY BLVD	I-64	POWER PLANT PKWY	WB	0.38
CHES	KEMPSVILLE RD	GREENBRIER PKWY	CHESAPEAKE EXPRESSWAY	WB	0.36
NOR	ST PAULS BLVD ●	BRAMBLETON AVE	MONTICELLO AVE	NB	0.36
NOR	CHESAPEAKE BLVD	CROMWELL DR	LAFAYETTE BLVD	SB	0.35
CHES	MILITARY HWY/GILMERTON BRIDGE	CANAL DR	BAINBRIDGE BLVD	EB	0.34
NOR	PRINCESS ANNE RD	LLEWELLYN AVE	COLLEY AVE	WB	0.34
CHES	GEORGE WASHINGTON HWY	MILL CREEK PKWY	I-64	NB	0.34

Source: HRTPO analysis of INRIX and VDOT data. The Potential for Intersection Congestion Alleviation (PICA) is defined as Highest Peak Period Travel Time Index - Predicted Peak Period Travel Time Index at a similar facility. ● indicates a roadway with a high PICA that is caused by nearby bottlenecks such as tunnel approaches.

High PICA Segments- PM

Table 10 – Roadway Segments with the Highest Potential for Intersection Congestion Alleviation (PICA) Values – 2013 PM PEAK PERIOD

JURIS-DICTION	FACILITY NAME	SEGMENT FROM	SEGMENT TO	DIR	HIGHEST PICA
NOR	4TH VIEW ST ●	OCEAN VIEW AVE	I-64	WB	1.30
NOR	HAMPTON BLVD ●	BRAMBLETON AVE	21ST ST	SB	1.24
VB	INDIAN RIVER RD	I-64	CENTERVILLE TNPK	EB	1.23
VB	INDIAN RIVER RD	CENTERVILLE TNPK	KEMPSVILLE RD	EB	1.05
NOR	BRAMBLETON AVE ●	COLLEY AVE	HAMPTON BLVD	WB	0.87
CHES	MILITARY HWY ●	I-464	BAINBRIDGE BLVD	WB	0.69
VB	WITCHDUCK RD	I-264	PRINCESS ANNE RD	SB	0.68
NOR	NEWTOWN RD	I-264	VA BEACH BLVD	NB	0.61
VB	INDIAN RIVER RD	I-64	PROVIDENCE RD	WB	0.60
VB	INDEPENDENCE BLVD	I-264	BAXTER RD	SB	0.57
JCC/WMB	ROUTE 199	JOHN TYLER HWY (RTE 5)	JAMESTOWN RD	EB	0.55
NOR	ST PAULS BLVD ●	BRAMBLETON AVE	I-264 RAMP/MACARTHUR MALL	SB	0.53
CHES	GEORGE WASHINGTON HWY ●	I-64	MILL CREEK PKWY	SB	0.53
CHES	BATTLEFIELD BLVD	GREAT BRIDGE BLVD/KEMPSVILLE RD	CEDAR RD	SB	0.51
CHES	GREENBRIER PKWY	EDEN WAY	VOLVO PKWY	SB	0.50
VB	WITCHDUCK RD	I-264	VA BEACH BLVD	NB	0.50
NOR	CHESAPEAKE BLVD	I-64	LITTLE CREEK RD	NB	0.49
VB	INDIAN RIVER RD	FERRELL PKWY	KEMPSVILLE RD	WB	0.47
VB	INDIAN RIVER RD	I-64	PROVIDENCE RD	EB	0.46
NOR	NEWTOWN RD	I-264	KEMPSVILLE RD	SB	0.45

Source: HRTPO analysis of INRIX and VDOT data. The Potential for Intersection Congestion Alleviation (PICA) is defined as Highest Peak Period Travel Time Index – Predicted Peak Period Travel Time Index at a similar facility. ● indicates a roadway with a high PICA that is caused by nearby bottlenecks such as tunnel approaches.

Building on PICA Tables in CMP

Staff:

- **examined** each high-PICA segment
- **identified** the promising intersections
 - i.e. those likely to receive major benefit from minor improvement
- **recommended** response
 - e.g. analysis of delay benefit from additional left-turn lane
- **presented** analysis and recommendations to Aug 11 HRT0
- **gathered** comments from affected cities
- **revised** recommendations
- **presented** revised analysis and rec's to Oct 13 HRT0

Example: Pembroke / LaSalle Intersection



Recommendation

use Synchro to test:

- EB Pembroke lane **conversion**
 - Convert one thru lane to left (or thru-left)
- EB Pembroke lane **addition**:
 - Add left turn lane to EB Pembroke
 - (and therefore add left turn lane to WB Pembroke)

Results

- City comments
 - Already looking at some of these improvements
 - Willing to examine the others

Next Steps

- public review
 - Review and provide comments by **Wednesday Nov 18**
- for approval
 - Jan. 6 TTAC
 - Jan. 21 HRTPO