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# 1 INTRODUCTION

The purpose of this technical memorandum is to document the methodology and assumptions used to screen corridor strategies using a scoring tool. This Excel-based tool was developed for the MLIP in order to screen managed lane strategies and corridor segments.

# 2 METHODOLOGY

### 2.1 INPUTS AND OUTPUTS

The projects were evaluated based on a set of six themes that consisted of individual metrics (performance measures). These themes and metrics are mentioned below. More details on themes are provided in **Chapter 7**.

- 1. Transportation mobility
  - a. Person throughput
  - b. Travel time
  - c. Reduction in vehicle delay
  - d. Facilitation of transit options
- 2. Financial feasibility
  - a. Revenue per mile
  - b. Cost per mile
  - c. Project Financeability Index (PFI)
- 3. System connectivity and economic growth
  - a. Managed Lane System Connectivity
  - b. Connectivity to major employment centers
  - c. Access to jobs
- 4. System preservation and environmental sustainability
  - System preservation
  - b. Flexible lane management
  - c. Level of environmental impacts
- Project Support and Readiness
  - a. Project readiness
  - b. General constructability and schedule

The inputs required are the values of each individual performance measure in each theme for every strategy. Based on the ordinal rating scheme discussed in **Chapter 7**, a score was assigned for each performance measure for each strategy. The next step was to select a





Scheme or Scenario, which contains different weighting factors for each theme. There were nine scenarios evaluated, and the weights of themes in each of these scenarios are shown in **Table 1**. The weights of the individual performance measure within the theme are shown in **Table 2**.

**Table 1: Theme Weights by Scoring Scheme** 

	Scheme							
	1	2	3	4	5	6	7	8
Themes	Stakeholder	GID	Average of Stakeholder/CID	Transportation Mobility	Financial Feasibility	System Connectivity and Economic Growth	System Preservation and Environmental Sustainability	Project Support and Readiness
Transportation Mobility	35%	30%	30%	60%	10%	10%	10%	10%
Financial Feasibility	15%	15%	15%	10%	60%	10%	10%	10%
System Connectivity and Economic Growth	25%	45%	35%	10%	10%	60%	10%	10%
System Preservation and Environmental Sustainability	20%	5%	15%	10%	10%	10%	60%	10%
Project Support and Readiness	5%	5%	5%	10%	10%	10%	10%	60%
Total	100%	100%	100%	100%	100%	100%	100%	100%

**Table 2: Weights of Performance Measures within Theme** 





#### APPENDIX G: SCREENING OF CORRIDOR SEGMENT & STRATEGIES METHODOLOGY

Theme	Performance Measure	Weight	
	Person Throughput	25%	
Transportation Mobility	Travel Time Savings	25%	
Transportation mobility	Corridor Reduction of Vehicle Delay	25%	
	Facilitation of Transit Options	25%	
	Revenue/mile	33%	
Financial Feasibility	Cost/mile	33%	
	Project Financing Index (PFI)	33%	
	Managed Lane System Connectivity	33%	
System Connectivity and economic growth	Connectivity to Major Employment Centers	33%	
g	Jobs accessed within 45 Minutes of travel by car or transit	33%	
	System Preservation	33%	
System preservation and environmental sustainability	Flexible Lane Management	33%	
	Level of Environmental Impacts	33%	
Project Support and Readiness	Project Readiness		
Project Support and neadiness	General Constructability and Schedule	50%	

For each corridor segment and a chosen scheme, the weighted score of the performance measure was estimated by multiplying the score with the weight of the theme and by weight of the measure within the theme. The weighted scores for all the performance measures were summed up to estimate the points, which were eventually used to screen corridor segments and strategies.

$$Points_{measure} = Score \times Weight_{measure} \times Weight_{theme}$$
 
$$Points_{Project} = \sum Points_{measure}$$

### 2.2 STRATEGY SCREENING AND RESULTS

A total of 49 corridors segments and strategies were scored. Rankings were obtained by selecting individual scenarios as well as multiple scenarios that provided aggregated results. **Table 3** provides the rankings based on each of the 8 scenarios discussed in **Chapter 7**.







**Table 3: Segment and Strategy Ranking by Scenario** 

				Rank By Scheme						
ID	Corridor	Strategy	1	2	3	4	5	6	7	8
1	I-75 S - Segment 1	Moveable Barrier	33	34	34	34	32	32	19	16
2	I-85 N - Segment 1	Moveable Barrier	41	40	39	45	36	33	25	43
3	I-20 E - Segment 1	Moveable Barrier	40	43	43	25	17	46	26	23
4	I-20 E - Segment 2	Moveable Barrier	44	47	47	40	27	47	24	26
5	I-20 W - Segment 1	Moveable Barrier	42	41	40	42	46	34	27	27
6	I-285 E - Segment 1	Moveable Barrier	39	45	42	32	29	44	22	24
7	I-285 E - Segment 2	Moveable Barrier	43	46	46	39	30	45	23	25
8	I-85 Inside - Segment 1	Moveable Barrier	46	42	44	46	48	39	28	46
9	US 78 - Segment 1	Moveable Barrier	49	49	49	47	49	49	30	49
10	I-285 NW - Segment 1	Moveable Barrier	34	30	32	44	24	24	20	20
11	I-20 Inside - Segment 2	Moveable Barrier	36	38	37	37	37	35	21	22
12	I-75 S - Segment 1	Dynamic Flex Lanes	10	23	14	15	12	21	3	3
13	I-75 S - Segment 3	Dynamic Flex Lanes	38	39	36	48	25	30	15	16
14	I-20 E - Segment 1	Dynamic Flex Lanes	15	35	28	9	2	41	13	10
15	I-20 E - Segment 2	Dynamic Flex Lanes	29	44	38	21	16	43	10	14
16	I-20 W - Segment 1	Dynamic Flex Lanes	23	26	26	28	32	22	14	13
17	I-20 W - Segment 2	Dynamic Flex Lanes	5	19	7	10	10	18	3	6
18	I-20 W - Segment 3	Dynamic Flex Lanes	12	22	18	18	14	20	6	8
19	I-285 E - Segment 1	Dynamic Flex Lanes	16	33	27	13	9	36	7	11
20	I-285 E - Segment 2	Dynamic Flex Lanes	21	36	31	22	4	37	9	12
21	I-285 NW - Segment 1	Dynamic Flex Lanes	2	3	1	17	1	1	1	4
22	I-285 NW - Segment 2	Dynamic Flex Lanes	7	7	5	30	5	2	12	5
23	I-85 Inside - Segment 1	Dynamic Flex Lanes	31	32	33	35	42	31	17	21
24	I-85 Inside - Segment 3	Dynamic Flex Lanes	18	28	24	24	35	28	11	18
25	SR 400 Inside - Segment 1	Dynamic Flex Lanes	25	27	29	33	38	26	15	19
26	US 78 - Segment 1	Dynamic Flex Lanes	45	48	48	41	47	48	18	28
27	SR 400 - Segment 1	Dynamic Flex Lanes	1	8	3	1	7	14	8	1
28	SR 400 - Segment 2	Dynamic Flex Lanes	4	20	6	6	11	17	2	2
29	I-20 Inside - Segment 2	Dynamic Flex Lanes	8	25	15	14	8	25	5	7
30	I-75 S - Segment 1	New Lanes	19	12	16	16	28	10	32	15
31	I-75 S - Segment 3	New Lanes	48	29	41	49	45	22	49	48





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#### APPENDIX G: SCREENING OF CORRIDOR SEGMENT & STRATEGIES METHODOLOGY

				Rank By Scheme						
ID	Corridor	Strategy	1	2	3	4	5	6	7	8
32	I-85 N - Segment 1	New Lanes	20	9	13	27	15	8	35	33
33	I-85 N - Segment 2	New Lanes	3	1	2	2	13	3	29	9
34	I-20 E - Segment 1	New Lanes	28	24	30	8	21	38	46	41
35	I-20 E - Segment 2	New Lanes	37	31	35	19	40	40	41	45
36	I-20 W - Segment 1	New Lanes	26	10	19	20	31	13	45	39
37	I-20 W - Segment 2	New Lanes	14	6	9	12	20	6	34	32
38	I-20 W - Segment 3	New Lanes	22	11	17	22	23	11	36	34
39	I-285 E - Segment 1	New Lanes	8	13	11	4	3	27	31	29
40	I-285 E - Segment 2	New Lanes	11	14	12	5	6	29	33	30
41	I-285 NW - Segment 1	New Lanes	30	15	22	38	39	7	39	40
42	I-285 NW - Segment 2	New Lanes	34	17	23	43	26	9	47	42
43	I-85 Inside - Segment 3	New Lanes	32	21	25	31	44	19	40	44
44	SR 400 Inside - Segment 1	New Lanes	17	5	10	11	34	4	44	36
45	SR 316 - Segment 1	New Lanes	24	16	20	26	22	15	37	37
46	SR 316 - Segment 2	New Lanes	27	18	21	29	19	16	38	38
47	US 78 - Segment 1	New Lanes	47	37	45	36	43	42	48	47
48	SR 400 - Segment 1	New Lanes	6	2	4	3	18	5	42	31
49	SR 400 - Segment 2	New Lanes	13	4	8	7	41	12	43	35

Final screening was based on the heavier weighting for Transportation Mobility and Financial Feasibility as these themes represent the primary principles of priced managed lanes – the ability to provide travel time reliability and travel options for drivers through dynamic pricing. The corridors and strategies that received the higher points received the highest ranking and therefore were assumed to represent the most beneficial managed lanes solutions. **Table 4** provides the total scores for each of the screened managed lane strategies along the study corridors.



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**Table 4: Corridor Strategy Screening** 

Corridor	New Lanes	Moveable Barrier	ynamic Flex Lanes
I-20 E Segment 1	57.7	51.3	71.5
I-20 E Segment 2	45.8	42.7	53.0
I-20 W Segment 1	47.3	32.7	45.2
I-20 W Segment 2	55.2	NA	64.2
I-20 W Segment 3	49.1	NA	56.0
I-285 E Segment 1	72.5	45.1	63.1
I-285 E Segment 2	70.2	41.6	60.3
I-285 NW Segment 1	40.8	40.3	67.2
I-285 NW Segment 2	42.1	NA	58.5
I-75 S Segment 1	50.9	43.9	59.6
I-75 S Segment 3	25.2	NA	38.1
I-85 N Segment 1	52.6	37.3	NA
I-85 N Segment 2	67.3	NA	NA
SR 316 Segment 1	48.5	NA	NA
SR 316 Segment 2	48.4	NA	NA
SR 400 Segment 1	61.8	NA	75.6
SR 400 Segment 2	53.1	NA	66.0
US 78	37.3	26.2	32.5
I-20 Inside Segment 1	NA	41.3	63.0
I-85 Inside Segment 1	NA	28.5	39.1
I-85 Inside Segment 3	38.5	NA	45.3
SR 400 Inside	51.3	NA	42.7

While the corridor strategy screening was based on the qualitative and quantitative criteria discussed previously, it should be noted that the scores are not meant to be the final decision on whether a corridor or strategy should be implemented. Rather, they reflect the relative ranking of each strategy within the study area compared to the other corridors and their managed lane strategies. This information will further provide input and guidance for planners, engineers, and decision-makers.



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