BALTIMORE METROPOLITAN COUNCIL

Project 22T04:
Transportation Impact Study (TIS) Guidelines – Phase II

SAMPLE
Completed Case Studies

September 14, 2022

Prepared By:

AECOM

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Note: this document is not intended to be part of the TIS Guidelines – Phase II Final Report. Rather, it is being provided as a stand-alone supplement for BMC reference.

In preparation for the August 26, 2022 Steering Committee meeting to review the TIS Guidelines – Phase II Draft Report, AECOM and ORGA completed each of the eight evaluation templates for the six case studies that were developed. This exercise was undertaken to verify that the templates were complete and to ensure that the direction provided to the Steering Committee to work through the evaluation templates using the case studies was appropriate.

The completed evaluation tables for each of the case studies are attached to this document. The table below presents the results.

Jurisdiction Case Study Summary Table

Parameter/Topic		Include This Parameter/Topic, Based on This Case Study? (Yes/No)						Overall Jurisdiction Recommendations
#	Description	Rural		Suburban		Urban		
		1	2	3	4	5	6	
1	Safety Analyses	Yes	Yes	Yes	Yes	Yes	Yes	Include as a mix of qualitative and quantitative
2	Controlling Speeds	Yes	Yes	Yes	Yes	Yes	Yes	Include as quantitative
3	De-Prioritizing Vehicular Throughput	No	No	Yes	Yes	Yes	Yes	Include as a mix of qualitative and quantitative
4	Multi-Modal Analyses	No	No	Yes	Yes	Yes	Yes	Include as a mix of qualitative and quantitative
5	Multiple Proposed Developments	No	No	Yes	Yes	Yes	Yes	Include as quantitative
6	Balancing Housing/Business/Traffic	No	No	No	No	Yes	Yes	Include as quantitative
7	Post-Development Audit	No	No	No	No	No	Yes	Applicable in only one case study scenario. Include as a mix of qualitative and quantitative
8	Variable TIS Requirements	No	No	No	No	No	No	Not applicable

As discussed with the Steering Committee, AECOM and ORGA recognize that working through the evaluation templates involves many judgment calls and that the tables may be filled in differently from jurisdiction to jurisdiction, or even from person to person, within the same jurisdiction.

Case Study 1 – Rural

Assessment of Parameter/Topic: Safety Analyses

Analyst: AECOM **Date:** 8/18/22 **Project:** Case Study 1 - Rural

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Number of crashes (per year)	• *Yes*	• Compliance with Statewide Strategic Highway Safety Plan	• *Yes*	• For intersections, use rates per entering vehicle?	• *No*
	• Crash severity	• *No*	• Compliance with BMC's Strategic Highway Safety Plan	• *No*	• Other performance metrics could be considered	• *Not applicable*
	• Crash rate (per 100 million vehicle miles (MVM), or per entering vehicle)	• *No*	• Compliance with Jurisdiction's Strategic Highway Safety Plan	• *Yes*		
	• Number of fatalities	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *No*		
	• Number of serious injuries	• *Yes*	• Extent to which the project implements the member jurisdiction's Vision Zero Statement	• *No*		
	• Fatality rate per 100 million vehicle miles traveled (VMT)	• *No*	• Presence of project within known High Crash Location	• *Yes*		
	• Serious injury rate per 100 million VMT	• *No*	• Compliance with design standards	• *Yes*		
	• Number of non-motorized fatalities and serious injuries	• *No*				
	• Number of crashes involving pedestrians and/or bicyclists	• *Yes*				
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with performance metric(s) described above	• *Yes*	• Document how the proposed improvements within the study area will address identified safety issues?	• *Yes*
	• Highway Safety Manual procedures	• *Yes*			• Other means of assessment could be considered	• *Not applicable*
	• Road safety audits	• *Yes*				
Threshold of Acceptability	• Decrease, or at least no increase, in performance metrics	• *Yes*	• Full compatibility	• *Yes*	• Other thresholds could be considered	• *Not applicable*
Data Availability / Expense	• Historic crash data available from MDOT SHA for counties; available from Baltimore City DOT for City	• *Yes*	• Not applicable	• *Not applicable*	• Time required for obtaining data may be a concern	• *No concern*
					• Level of detail of data may be a concern	• *Agree that level of detail for data is a concern*
					• Legality of providing data to developers may be a concern	• *To be discussed with Legal*

Assessment of Parameter/Topic: Safety Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease / Standardization of Analysis	• Require use of Interactive Highway Safety Design Model (IHSDM)? • Require use of HCS Module?	• *No* • *Yes*	• Straightforward	• *Agree*	• Other types of analysis could be considered	• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Not applicable*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *To be determined*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Agree*	• Easy	• *Agree*	• Quantitative analyses could be challenging to review, particularly at outset of program	• *Agree*
Likely Challenges	• Accurate assessment of performance metrics	• *None*	• Difficult to assess meaningfully	• *None*	• Past experiences by member agencies could be instructive	• *Agree – to be discussed internally*
					• Including safety as part of the TIS process would potentially require jurisdictions to change their Adequate Public Facilities Ordinance	• *To be examined/discussed*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	**X**
Quantitative Measurement:	
Both:	
Not Applicable:	

Jurisdiction Staff Discussion of Recommendation:

Include as qualitative for now. Migrate to quantitative in the future.

Assessment of Parameter/Topic: Controlling Speeds

Analyst: ORGA **Date:** 8/22/22 **Project:** Case Study 1 – Rural

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Compliance with posted speed limit	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *No*	• For "difference in mean speed", the greater the differential is, the greater the potential is for conflict	• *The assumption is that for rural setting, modal split would be skewed towards vehicles*
	• Design speed of new roadways	• *Yes*				
	• Difference in mean speed among modes	• *No*				
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with performance metric described above	• *No*	• To simplify data collection, a mean speed for pedestrians and for bicycles could be assumed	• *Not applicable*
	• Mean speed of roadway vehicles	• *Yes*				
	• Mean speed of all modes	• *No*				
	• Percentage of vehicles exceeding posted speed limit	• *Yes*				
Threshold of Acceptability	• Increase in compliance with posted speed limit; decrease in other performance metrics	• *Yes*	• Full compatibility with the performance metric described above	• *No*		• *Not applicable*
	• Compliance with design standards for new roadways	• *Yes*				
Data Availability / Expense	• Standard traffic data collection	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
Ease / Standardization of Analysis	• Straightforward	• *Agree*	• Straightforward	• *Agree*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Some mitigation strategies may lead to modal conflicts (i.e., a positive effect on one mode of travel may adversely impact another)	• *Agree. However, this may not be a concern for rural setting, given that the predominant mode is vehicles*
					• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *Agree*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *No*

Assessment of Parameter/Topic: Controlling Speeds (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy	• *Agree*	• Easy	• *Agree*		• *Not applicable*
Likely Challenges	• Other than compliance with design standards, this performance metric requires before/after studies	• *None*		• *Not applicable*		• *Not applicable*
	• For before/after studies, would need to identify conditions and durations for data collection (peak/off-peak, 24-hour, free-flow/congested, etc.)	• *None*				

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	**X**
Both:	
Not Applicable:	

Jurisdiction Staff Discussion of Recommendation:

Include as quantitative. *(However, it must be noted that the implementation of speed enforcement strategies typically lie with the jurisdiction.)*

Assessment of Parameter/Topic: De-Prioritizing Vehicular Throughput

Analyst: ORGA **Date:** 8/22/22 **Project:** Case Study 1 – Rural

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Level of Service (LOS)	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *No*	• Considering LOS may be counter-intuitive; worsening LOS would decrease throughput, but increase congestion	• *Not applicable in rural setting*
	• Traffic volumes	• *Yes*			• May not be applicable in more rural areas; would require evaluation on a case-by-case basis	• *Not applicable*
	• Theoretical roadway capacity	• *Yes*			• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *Metrics such as delay is typically not a concern in rural setting*
	• Design speed of new roadways	• *Yes*				
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with performance metric described above	• *No*		• *Not applicable*
	• Highway Capacity Manual (HCM)	• *Yes*				
	• Traffic volume forecasts	• *Yes*				
	• Roadway capacity reduction	• *Yes*				
Threshold of Acceptability	• Decrease in performance metrics	• *Yes*	• Full compatibility	• *No*	• Other thresholds could be considered	• *No*
	• Compliance with design standards for new roadways	• *Yes*			• Variable thresholds could be considered based on area type (urban/suburban/rural)	• *Yes*
Data Availability / Expense	• Standard traffic data collection	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Regional travel demand model	• *No*				
Ease / Standardization of Analysis	• Straightforward	• *Agree*	• Straightforward	• *Not applicable*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• TDM features may discourage vehicle trips	• *Not applicable*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Agree*
			• Transportation Demand Management (TDM) strategies	• *No*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *Agree*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *No*	• Impact fees	• *No*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*

Assessment of Parameter/Topic: De-Prioritizing Vehicular Throughput (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy	• *Agree*	• Easy	• *Agree*		• *Not applicable*
Likely Challenges		• *None*		• *None*	• If vehicles are discouraged from using one roadway, another roadway may need to accommodate those vehicles	• *Not applicable*
					• It may be advisable to consider this topic/parameter in conjunction with other topics/parameters	• *Not applicable*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	
No:	**X**

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	
Not Applicable:	**X**

Jurisdiction Staff Discussion of Recommendation:

Given that roadway capacity is seldom a concern for rural settings, this parameter may not be considered for TIS's supporting developments in rural areas.

Assessment of Parameter/Topic: Multi-Modal Analyses

Analyst: ORGA		**Date:** 8/22/22		**Project:** Case Study 1 – Rural		

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Vehicles o Level of Service (LOS) o Travel time reliability	• *Yes* o *No* o *No*	• Vehicles o Extent to which the project implements the member jurisdiction's Complete Streets policies o Compliance with relevant master or comprehensive plans, including bicycle, pedestrian, and trail accommodations	• *No* o *No* o *No*	• Current quantitative performance metrics available for roadway vehicles, transit, bicycles and pedestrians must be assessed on a mode-by-mode basis, which complicates the analysis	• *Not applicable*
	• Transit o Travel speed (Highway Capacity Manual, Sixth Edition – HCM6) o Transit LOS score (HCM6)	• *No* o *No* o *No*	• Transit o Presence/absence of transit amenities (such as shelters)	• *No* o *No*	• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *No*
	• Pedestrian o Pedestrian travel speed (HCM6) o Pedestrian space (HCM6) o Pedestrian LOS (HCM6) o Pedestrian delay	• *No* o *No* o *No* o *No* o *No*	• Pedestrian o Pedestrian Level of Comfort (PLOC) o ADA compliance for intersection ramps, sidewalk widths, etc. o Presence/absence of street lighting, countdown pedestrian signals, crosswalks, etc.	• *No* o *No* o *No* o *No* o *No*	• A mix of quantitative and qualitative performance metrics, by mode, might be worth considering	• *Not applicable*
	• Bicycle o Bicycle travel speed (HCM6) o Bicycle LOS (HCM6)	• *No* o *No* o *No*	• Bicycle o Level of Traffic Stress (LTS)	• *No* o *No*	• Some metrics may not be appropriate for all scenarios (i.e. it may not be necessary to assess micro-mobility in a rural environment)	• *Not applicable*
	• Micro-Mobility?	• *No*	• Micro-Mobility o Presence/absence of micro-mobility accommodations (such as scooter charging stations)	• *No* o *No*		

Assessment of Parameter/Topic: Multi-Modal Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with Complete Streets policies and other area plans	• *No*	• HCM analysis can be accomplished by either Highway Capacity Software (HCS) or Synchro/SimTraffic	• *Agree*
	• HCM	• *Yes*	• Documentation of PLOC and LTS	• *No*	• Require VISSIM for freeways and transit-specific analysis?	• *Not applicable*
			• Documentation of other performance metric(s) described above	• *No*		
Threshold of Acceptability	• Improvement (or at least no worsening) in performance metrics	• *Yes*	• Full compatibility with Complete Streets policies	• *No*	• Improving a performance metric for one mode may lead to a decrease for other modes.	• *Not applicable*
			• Acceptable levels of PLOC and LTS based on jurisdiction's standards/guidelines	• *No*	• Varying the threshold of acceptability for individual modes, depending upon the urban/suburban/rural setting, may be desirable	• *Agree*
Data Availability / Expense	• Standard traffic data collection for vehicles	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Additional data collection for transit, pedestrian, bicycle, and micro-mobility	• *No*				
Ease / Standardization of Analysis	• Straightforward, but not commonly used for modes other than vehicles	• *Agree*	• Straightforward	• *Not applicable*	• A technique would need to be established regarding prioritization of modes/which mode "governs" in a certain situation, along with how much degradation will be tolerated in the non-governing mode(s)	• *Agree. However, this is not applicable to rural settings*
	• Require use of HCS, Synchro, SimTraffic, and/or VISSIM?	• *Yes*				
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*		
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *No*	• Impact fees	• *No*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*

Assessment of Parameter/Topic: Multi-Modal Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Agree*	• Easy	• *Agree*	• Quantitative analyses could be challenging to review, particularly at outset of program	• *Agree*
Likely Challenges	• Analysis of multiple modes requires additional effort	• *Not applicable in this setting*	• Assessment is subjective for some performance metrics	• *Agree. However, not applicable in this setting*	• A physical or operational improvement that benefits one mode may actually work to the detriment of another mode	• *Agree*
					• Some factors such as travel time reliability may be too detailed for TISs at this time and may not be understood by the public as well as LOS or delay	• *Agree. In addition, control delay is typically not a major concern in rural setting*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	
No:	**X**

Jurisdiction Staff Discussion of Recommendation:

Given that the predominant mode of travel in the rural setting is (personal) vehicles, this parameter may not be considered for this TIS.

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	
Not Applicable:	**X**

Assessment of Parameter/Topic: Multiple Proposed Developments

Analyst: ORGA **Date:** 8/22/22 **Project:** Case Study 1 – Rural

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• All other proposed developments within X distance of subject development. (Differing values of X desirable for urban vs. suburban vs. rural conditions)	• *No*	• All other proposed developments identified during Study Scoping Process	• *No*	• Needs to be firmly identified during the Study Scoping Process	• *<u>NOTE:</u> Since the case scenario notes that there are no background developments in the study area, this parameter may not be applicable*
	• All other proposed developments with roadway access within TIS study area of subject development	• *No*			• If another proposed development does not require a TIS, perhaps incorporate that development via background growth rate	• *Not applicable*
	• All other proposed developments whose TIS study areas overlap the TIS study area of the subject development	• *No*			• If Quantitative Measurement is to be used, allow for flexibility, for unusual conditions	• *Not applicable*
Means of Assessment	• Number of other developments included	• *No*	• Number of other developments included	• *No*		• *Not applicable*
Threshold of Acceptability	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Data Availability / Expense	• Information readily available from jurisdiction's files	• *No*	• Information readily available from jurisdiction's files	• *No*		• *Not applicable*
Ease / Standardization of Analysis	• Standardization of identifying other developments is straightforward.	• *Not applicable*	• Will be based on jurisdiction's judgment. Strictly speaking, standardization of identifying other developments is not possible.	• *Not applicable*		• *Not applicable*
	• Analysis of other developments in TIS is straightforward	• *Not applicable*	• Analysis of other developments in TIS is straightforward	• *Not applicable*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Alternatives if No Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Not applicable*	• Moderate	• *Not applicable*		• *Not applicable*

Assessment of Parameter/Topic: Multiple Proposed Developments (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Likely Challenges	• Unusual roadway network/access conditions may lead to unreasonable requirements	• *Not applicable*	• May result in appearance of inequitable treatment of different developments	• *Not applicable*		• *Not applicable*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	
No:	**X**

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	
Not Applicable:	**X**

Jurisdiction Staff Discussion of Recommendation:

Since the case scenario notes that there are no background developments within the study area, this parameter may not be applicable.

Assessment of Parameter/Topic: Balancing Housing/Business/Traffic

Analyst: ORGA **Date:** 8/22/22 **Project:** Case Study 1 – Rural

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Reduced vehicular trip generation	• *No*	• Provision/participation in program(s) to discourage vehicular trip generation	• *No*	• Actual changes in trip generation could only be assessed in a Post-Development Audit	• *Not applicable*
	• Increased transit, micro-mobility, bicycle and/ or pedestrian trip generation	• *No*			• Consider allowing more vehicular congestion to encourage use of other modes	• *Not applicable, since congestion is typically not a major concern in the rural setting*
	• Provision of infrastructure to discourage vehicular trip generation	• *No*				
Means of Assessment	• Post-Development Audit	• *No*	• Financial commitment for program(s) to discourage vehicular trip generation	• *No*		• *Not applicable*
	• Design plans for infrastructure	• *No*				
Threshold of Acceptability	• Reduced vehicular trip generation	• *Not applicable*	• Financial commitment	• *No*	• Actual changes in trip generation could only be assessed in a Post-Development Audit	• *Not applicable*
	• Additional infrastructure	• *Not applicable*			• How much infrastructure/financial commitment would be "acceptable"?	• *Not applicable*
Data Availability / Expense	• Readily available for compliance with infrastructure design standards	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Dependent upon criteria for Post-Development Audit, for changes in trip generation	• *Not applicable*				
Ease / Standardization of Analysis	• Straightforward, for compliance with infrastructure design standards	• *Not applicable*	• Straightforward	• *Not applicable*	• Infrastructure/financial requirements would need to be developed.	• *Not applicable*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Not applicable*			• Requirements would need to vary by location. (For example, provision of a sidewalk in a rural location, without connections to other sidewalks, may not be practical or even desirable. However, reservation of right-of-way for a future system of sidewalks could be appropriate.)	• *Agree*

Assessment of Parameter/Topic: Balancing Housing/Business/Traffic (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Availability of Reasonable Mitigation Strategies	• None, for compliance with infrastructure design standards	• *Not applicable*	• None	• *Not applicable*		• *Not applicable*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Not applicable*				
Alternatives if No Reasonable Mitigation Strategies	• Not applicable, for compliance with infrastructure design standards	• *Not applicable*	• Impact fees	• *Not applicable*		• *Not applicable*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Not applicable*				
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy, for compliance with infrastructure design standards	• *Not applicable*	• Moderate	• *Not applicable*	• Likely to require qualitative judgment of “acceptable” in some cases	• *Not applicable*
	• For changes in trip generation, dependent upon procedures for Post-Development Audit	• *Not applicable*				
Likely Challenges	• Dependent upon procedures for Post-Development Audit	• *Not applicable*	• Development of standards	• *Not applicable*		• *Not applicable*
			• Consistency in application of standards	• *Not applicable*		

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: No: **X**

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	
No:	**X**

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	
Not Applicable:	**X**

Jurisdiction Staff Discussion of Recommendation:

This parameter is not relevant to this development setting, and therefore may not be considered for the TIS.

Assessment of Parameter/Topic: Post-Development Audit

Analyst: ORGA **Date:** 8/22/22 **Project:** Case Study 1 – Rural

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Net site trip generation by mode (proffered in selected horizon year)	• *No*	• Compliance with proffered TDM/mitigation measure(s)	• *No*	• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *<u>NOTE:</u> This parameter is not considered relevant for this development setting and context*
	• Trip distribution pattern	• *No*	• Compliance with Conditions of Approval	• *No*		
	• Levels of service	• *No*				
	• Traffic growth – study area roadway network	• *No*				
	• Proffered/required off-site improvements	• *No*				
Means of Assessment	• Various site trip generation and mode split surveys/driveway counts	• *No*	• Comparison of predicted versus actual operational situations	• *No*	• A mix of both quantitative and qualitative assessment may be useful	• *Not applicable*
	• Intersection turning movement counts and capacity analysis	• *No*	• Evaluation of effectiveness of TDM/mitigation measures	• *No*		
	• Review of broad-base data reflecting growth trends, such as SHA AADT database	• *No*				
Threshold of Acceptability	• Established vehicle trip generation limits (“trip caps”)	• *No*	• Compliance with proposed TDM measures	• *No*	• A mix of both quantitative and qualitative assessment may be useful	• *Not applicable*
	• Projected Levels of Service	• *No*	• Compliance with other Conditions of Approval	• *No*		
	• Projected trip distribution pattern	• *No*				
Data Availability / Expense	• Previously approved TIS document	• *No*	• Previously approved TIS and other supporting documents available from jurisdiction’s records	• *No*	• Ease of obtaining the data will be an important consideration (i.e., can the data be easily accessed online or through a time-consuming process?)	• *Not applicable*
	• Archived traffic data (from MDOT SHA or jurisdiction)	• *No*				
	• New traffic count data	• *No*				
Ease / Standardization of Analysis	• Analysis procedure based on traffic engineering and transportation planning principles considered straightforward	• *Not applicable*	• Procedure for evaluating compliance is somewhat straightforward	• *Not applicable*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*	• Post development audit can be considered as an “after the fact” type of evaluation. Therefore, this factor may not be applicable	• *Not applicable*
Alternatives if No Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*	• Post development audit can be considered as an “after the fact” type of evaluation. Therefore, this factor may not be applicable	• *Not applicable*

Assessment of Parameter/Topic: Post-Development Audit (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Not applicable*	• Easy	• *Not applicable*	• Review process involves a comparison of predicted vs. actual situations. (i.e., case of comparing apples with apples)	• *Not applicable*
Likely Challenges	• Some of the metrics are difficult to quantify, considering that traffic volumes typically fluctuate daily	• *Not applicable*	• Conditions stipulated in an accompanying resolution will have to be highly specific	• *Not applicable*	• Would this be completed by the jurisdiction or the developer? (It would probably be the jurisdiction.)	• *Not applicable*
	• Establishing a "degree of allowance/acceptability" with respect to analysis thresholds	• *Not applicable*	• Potential need for revision of Adequacy of Public Facilities Ordinance	• *Not applicable*	• Who would pay for the audit? (A developer "escrow" account could be used.)	• *Not applicable*
	• Potential for deterring private sector development/investment	• *Not applicable*			• Will this be a requirement for all types of development, regardless of the location and size?	• *Not applicable*
					• Would this requirement be on a case-by-case basis?	• *Not applicable*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: No: **X**

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	
No:	**X**

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	
Not Applicable:	**X**

Jurisdiction Staff Discussion of Recommendation:

This parameter is not considered relevant to this development setting, and therefore may not be included in this TIS.

Assessment of Parameter/Topic: Variable Transportation Impact Study Requirements

Analyst: ORGA	**Date:** 8/22/22	**Project:** Case Study 1 – Rural

1. Is there a compelling reason to have variable TIS requirements?

A single type of TIS may fail to account for some desirable performance metrics in some, but not all situations. For example, consideration of parking management may be desirable in a dense urban setting, but may not be particularly relevant in a rural setting.

Jurisdiction Staff Discussion:

Not applicable

2. Does the master plan or other planning document(s) offer a straightforward method of establishing the different types of TIS to be identified?

If not, the type of TIS could perhaps be identified as part of the Study Scoping Process.

Jurisdiction Staff Discussion:

Not applicable

3. How many different types of TIS would be appropriate?

The larger the number of different types, the larger the number of types of review.

Jurisdiction Staff Discussion:

Not applicable

4. How would Performance Metrics, Means of Assessment and Thresholds of Acceptability vary by type of TIS?

For example, an LOS of "E" or even "F" might be acceptable in a dense urban setting, but not in a rural setting.

Jurisdiction Staff Discussion:

Not applicable

Assessment of Parameter/Topic: Variable TIS Requirements (Continued)

5. **How would Data Availability/Expense, Ease/Standardization of Analysis, Availability of Reasonable Mitigation Strategies and Alternatives if No Reasonable Mitigation Strategies vary by type of TIS?**

Inclusion of an additional Performance Metric would require consideration of each of these items as well.

Jurisdiction Staff Discussion:

Not applicable

6. **How will Ease of Review by Jurisdiction be affected by variable types of TIS?**

Strictly speaking, additional types of TIS will make the efforts of reviewers more complicated. However, the added complexity would not necessarily be extensive.

Jurisdiction Staff Discussion:

Not applicable

7. **What are the Likely Challenges to implementing variable TIS requirements?**

In addition to the items noted above, there could be resistance from TIS preparers regarding any additional complexity involved. Also, including variable TIS requirements could potentially require jurisdictions to change their Adequate Public Facilities Ordinances.

Jurisdiction Staff Discussion:

Not applicable

8. **From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?**
   Yes: No: **X**

Jurisdiction Staff Recommendation for Including Parameter/Topic:

Yes:	
No:	

Jurisdiction Staff Discussion of Recommendation:

Not applicable

Case Study 2 – Rural

Assessment of Parameter/Topic: Safety Analyses

Analyst: ORGA **Date:** 8/22/22 **Project:** Case Study 2 - Rural

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Number of crashes (per year)	• *Yes*	• Compliance with Statewide Strategic Highway Safety Plan	• *Yes*	• For intersections, use rates per entering vehicle?	• *No*
	• Crash severity	• *No*	• Compliance with BMC's Strategic Highway Safety Plan	• *No*	• Other performance metrics could be considered	• *Not applicable*
	• Crash rate (per 100 million vehicle miles (MVM), or per entering vehicle)	• *No*	• Compliance with Jurisdiction's Strategic Highway Safety Plan	• *Yes*		
	• Number of fatalities	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *No*		
	• Number of serious injuries	• *Yes*	• Extent to which the project implements the member jurisdiction's Vision Zero Statement	• *No*		
	• Fatality rate per 100 million vehicle miles traveled (VMT)	• *No*	• Presence of project within known High Crash Location	• *Yes*		
	• Serious injury rate per 100 million VMT	• *No*	• Compliance with design standards	• *Yes*		
	• Number of non-motorized fatalities and serious injuries	• *No*				
	• Number of crashes involving pedestrians and/or bicyclists	• *Yes*				
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with performance metric(s) described above	• *Yes*	• Document how the proposed improvements within the study area will address identified safety issues?	• *Yes*
	• Highway Safety Manual procedures	• *Yes*			• Other means of assessment could be considered	• *Not applicable*
	• Road safety audits	• *Yes*				
Threshold of Acceptability	• Decrease, or at least no increase, in performance metrics	• *Yes*	• Full compatibility	• *Yes*	• Other thresholds could be considered	• *Not applicable*
Data Availability / Expense	• Historic crash data available from MDOT SHA for counties; available from Baltimore City DOT for City	• *Yes*	• Not applicable	• *Not applicable*	• Time required for obtaining data may be a concern	• *No concern*
					• Level of detail of data may be a concern	• *Agree that level of detail for data is a concern*
					• Legality of providing data to developers may be a concern	• *To be discussed with Legal*

Assessment of Parameter/Topic: Safety Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease / Standardization of Analysis	• Require use of Interactive Highway Safety Design Model (IHSDM)? • Require use of HCS Module?	• *No* • *Yes*	• Straightforward	• *Agree*	• Other types of analysis could be considered	• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Not applicable*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *To be determined*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Agree*	• Easy	• *Agree*	• Quantitative analyses could be challenging to review, particularly at outset of program	• *Agree*
Likely Challenges	• Accurate assessment of performance metrics	• *None*	• Difficult to assess meaningfully	• *None*	• Past experiences by member agencies could be instructive	• *Agree – to be discussed internally*
					• Including safety as part of the TIS process would potentially require jurisdictions to change their Adequate Public Facilities Ordinance	• *To be examined/discussed*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	**X**
Quantitative Measurement:	
Both:	
Not Applicable:	

Jurisdiction Staff Discussion of Recommendation:

Include as qualitative for now. Migrate to quantitative in the future.

Assessment of Parameter/Topic: Controlling Speeds

Analyst: ORGA **Date:** 8/22/22 **Project:** Case Study 2 – Rural

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Compliance with posted speed limit	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *No*	• For "difference in mean speed", the greater the differential is, the greater the potential is for conflict	• *The assumption is that for rural setting, modal split would be skewed towards vehicles*
	• Design speed of new roadways	• *Yes*				
	• Difference in mean speed among modes	• *No*				
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with performance metric described above	• *No*	• To simplify data collection, a mean speed for pedestrians and for bicycles could be assumed	• *Not applicable*
	• Mean speed of roadway vehicles	• *Yes*				
	• Mean speed of all modes	• *No*				
	• Percentage of vehicles exceeding posted speed limit	• *Yes*				
Threshold of Acceptability	• Increase in compliance with posted speed limit; decrease in other performance metrics	• *Yes*	• Full compatibility with the performance metric described above	• *No*		• *Not applicable*
	• Compliance with design standards for new roadways	• *Yes*				
Data Availability / Expense	• Standard traffic data collection	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
Ease / Standardization of Analysis	• Straightforward	• *Agree*	• Straightforward	• *Agree*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Some mitigation strategies may lead to modal conflicts (i.e., a positive effect on one mode of travel may adversely impact another)	• *Agree. However, this may not be a concern for rural setting, given that the predominant mode is vehicles*
					• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *Agree*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *No*

Assessment of Parameter/Topic: Controlling Speeds (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy	• *Agree*	• Easy	• *Agree*		• *Not applicable*
Likely Challenges	• Other than compliance with design standards, this performance metric requires before/after studies	• *None*		• *Not applicable*		• *Not applicable*
	• For before/after studies, would need to identify conditions and durations for data collection (peak/off-peak, 24-hour, free-flow/congested, etc.)	• *None*				

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	**X**
Both:	
Not Applicable:	

Jurisdiction Staff Discussion of Recommendation:

Include as quantitative. *(However, it must be noted that the implementation of speed enforcement strategies typically lie with the jurisdiction.)*

Assessment of Parameter/Topic: De-Prioritizing Vehicular Throughput

Analyst: ORGA **Date:** 8/22/22 **Project:** Case Study 2 – Rural

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Level of Service (LOS)	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *No*	• Considering LOS may be counter-intuitive; worsening LOS would decrease throughput, but increase congestion	• *Not applicable in rural setting*
	• Traffic volumes	• *Yes*			• May not be applicable in more rural areas; would require evaluation on a case-by-case basis	• *Not applicable*
	• Theoretical roadway capacity	• *Yes*			• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *Metrics such as delay is typically not a concern in rural setting*
	• Design speed of new roadways	• *Yes*				
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with performance metric described above	• *No*		• *Not applicable*
	• Highway Capacity Manual (HCM)	• *Yes*				
	• Traffic volume forecasts	• *Yes*				
	• Roadway capacity reduction	• *Yes*				
Threshold of Acceptability	• Decrease in performance metrics	• *Yes*	• Full compatibility	• *No*	• Other thresholds could be considered	• *No*
	• Compliance with design standards for new roadways	• *Yes*			• Variable thresholds could be considered based on area type (urban/suburban/rural)	• *Yes*
Data Availability / Expense	• Standard traffic data collection	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Regional travel demand model	• *No*				
Ease / Standardization of Analysis	• Straightforward	• *Agree*	• Straightforward	• *Not applicable*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• TDM features may discourage vehicle trips	• *Not applicable*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Agree*
			• Transportation Demand Management (TDM) strategies	• *No*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *Agree*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *No*	• Impact fees	• *No*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*

Assessment of Parameter/Topic: De-Prioritizing Vehicular Throughput (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy	• *Agree*	• Easy	• *Agree*		• *Not applicable*
Likely Challenges		• *None*		• *None*	• If vehicles are discouraged from using one roadway, another roadway may need to accommodate those vehicles	• *Not applicable*
					• It may be advisable to consider this topic/parameter in conjunction with other topics/parameters	• *Not applicable*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	
No:	**X**

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	
Not Applicable:	**X**

Jurisdiction Staff Discussion of Recommendation:

Given that roadway capacity is seldom a concern for rural settings, this parameter may not be considered for TIS's supporting developments in rural areas.

Assessment of Parameter/Topic: Multi-Modal Analyses

Analyst: ORGA		**Date:** 8/22/22		**Project:** Case Study 2 – Rural		

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Vehicles o Level of Service (LOS) o Travel time reliability	• *Yes* o *No* o *No*	• Vehicles o Extent to which the project implements the member jurisdiction's Complete Streets policies o Compliance with relevant master or comprehensive plans, including bicycle, pedestrian, and trail accommodations	• *No* o *No* o *No*	• Current quantitative performance metrics available for roadway vehicles, transit, bicycles and pedestrians must be assessed on a mode-by-mode basis, which complicates the analysis	• *Not applicable*
	• Transit o Travel speed (Highway Capacity Manual, Sixth Edition – HCM6) o Transit LOS score (HCM6)	• *No* o *No* o *No*	• Transit o Presence/absence of transit amenities (such as shelters)	• *No* o *No*	• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *No*
	• Pedestrian o Pedestrian travel speed (HCM6) o Pedestrian space (HCM6) o Pedestrian LOS (HCM6) o Pedestrian delay	• *No* o *No* o *No* o *No* o *No*	• Pedestrian o Pedestrian Level of Comfort (PLOC) o ADA compliance for intersection ramps, sidewalk widths, etc. o Presence/absence of street lighting, countdown pedestrian signals, crosswalks, etc.	• *No* o *No* o *No* o *No*	• A mix of quantitative and qualitative performance metrics, by mode, might be worth considering	• *Not applicable*
	• Bicycle o Bicycle travel speed (HCM6) o Bicycle LOS (HCM6)	• *No* o *No* o *No*	• Bicycle o Level of Traffic Stress (LTS)	• *No* o *No*	• Some metrics may not be appropriate for all scenarios (i.e. it may not be necessary to assess micro-mobility in a rural environment)	• *Not applicable*
	• Micro-Mobility?	• *No*	• Micro-Mobility o Presence/absence of micro-mobility accommodations (such as scooter charging stations)	• *No* o *No*		

Assessment of Parameter/Topic: Multi-Modal Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with Complete Streets policies and other area plans	• *No*	• HCM analysis can be accomplished by either Highway Capacity Software (HCS) or Synchro/SimTraffic	• *Agree*
	• HCM	• *Yes*	• Documentation of PLOC and LTS	• *No*	• Require VISSIM for freeways and transit-specific analysis?	• *Not applicable*
			• Documentation of other performance metric(s) described above	• *No*		
Threshold of Acceptability	• Improvement (or at least no worsening) in performance metrics	• *Yes*	• Full compatibility with Complete Streets policies	• *No*	• Improving a performance metric for one mode may lead to a decrease for other modes.	• *Not applicable*
			• Acceptable levels of PLOC and LTS based on jurisdiction's standards/guidelines	• *No*	• Varying the threshold of acceptability for individual modes, depending upon the urban/suburban/rural setting, may be desirable	• *Agree*
Data Availability / Expense	• Standard traffic data collection for vehicles	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Additional data collection for transit, pedestrian, bicycle, and micro-mobility	• *No*				
Ease / Standardization of Analysis	• Straightforward, but not commonly used for modes other than vehicles	• *Agree*	• Straightforward	• *Not applicable*	• A technique would need to be established regarding prioritization of modes/which mode "governs" in a certain situation, along with how much degradation will be tolerated in the non-governing mode(s)	• *Agree. However, this is not applicable to rural settings*
	• Require use of HCS, Synchro, SimTraffic, and/or VISSIM?	• *Yes*				
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*		
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *No*	• Impact fees	• *No*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*

Assessment of Parameter/Topic: Multi-Modal Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Agree*	• Easy	• *Agree*	• Quantitative analyses could be challenging to review, particularly at outset of program	• *Agree*
Likely Challenges	• Analysis of multiple modes requires additional effort	• *Not applicable in this setting*	• Assessment is subjective for some performance metrics	• *Agree. However, not applicable in this setting*	• A physical or operational improvement that benefits one mode may actually work to the detriment of another mode	• *Agree*
					• Some factors such as travel time reliability may be too detailed for TISs at this time and may not be understood by the public as well as LOS or delay	• *Agree. In addition, control delay is typically not a major concern in rural setting*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	
No:	**X**

Jurisdiction Staff Discussion of Recommendation:

Given that the predominant mode of travel in the rural setting is (personal) vehicles, this parameter may not be considered for this TIS.

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	
Not Applicable:	**X**

Assessment of Parameter/Topic: Multiple Proposed Developments

Analyst: ORGA **Date:** 8/22/22 **Project:** Case Study 2 – Rural

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• All other proposed developments within X distance of subject development. (Differing values of X desirable for urban vs. suburban vs. rural conditions)	• *No*	• All other proposed developments identified during Study Scoping Process	• *No*	• Needs to be firmly identified during the Study Scoping Process	• *<u>NOTE:</u> Since the case scenario notes that there are no background developments in the study area, this parameter may not be applicable*
	• All other proposed developments with roadway access within TIS study area of subject development	• *No*			• If another proposed development does not require a TIS, perhaps incorporate that development via background growth rate	• *Not applicable*
	• All other proposed developments whose TIS study areas overlap the TIS study area of the subject development	• *No*			• If Quantitative Measurement is to be used, allow for flexibility, for unusual conditions	• *Not applicable*
Means of Assessment	• Number of other developments included	• *No*	• Number of other developments included	• *No*		• *Not applicable*
Threshold of Acceptability	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Data Availability / Expense	• Information readily available from jurisdiction's files	• *No*	• Information readily available from jurisdiction's files	• *No*		• *Not applicable*
Ease / Standardization of Analysis	• Standardization of identifying other developments is straightforward.	• *Not applicable*	• Will be based on jurisdiction's judgment. Strictly speaking, standardization of identifying other developments is not possible.	• *Not applicable*		• *Not applicable*
	• Analysis of other developments in TIS is straightforward	• *Not applicable*	• Analysis of other developments in TIS is straightforward	• *Not applicable*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Alternatives if No Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Not applicable*	• Moderate	• *Not applicable*		• *Not applicable*

Assessment of Parameter/Topic: Multiple Proposed Developments (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Likely Challenges	• Unusual roadway network/access conditions may lead to unreasonable requirements	• *Not applicable*	• May result in appearance of inequitable treatment of different developments	• *Not applicable*		• *Not applicable*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	
No:	**X**

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	
Not Applicable:	**X**

Jurisdiction Staff Discussion of Recommendation:

Since the case scenario notes that there are no background developments within the study area, this parameter may not be applicable.

Assessment of Parameter/Topic: Balancing Housing/Business/Traffic

Analyst: ORGA **Date:** 8/22/22 **Project:** Case Study 2 – Rural

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Reduced vehicular trip generation	• *No*	• Provision/participation in program(s) to discourage vehicular trip generation	• *No*	• Actual changes in trip generation could only be assessed in a Post-Development Audit	• *Not applicable*
	• Increased transit, micro-mobility, bicycle and/ or pedestrian trip generation	• *No*			• Consider allowing more vehicular congestion to encourage use of other modes	• *Not applicable, since congestion is typically not a major concern in the rural setting*
	• Provision of infrastructure to discourage vehicular trip generation	• *No*				
Means of Assessment	• Post-Development Audit	• *No*	• Financial commitment for program(s) to discourage vehicular trip generation	• *No*		• *Not applicable*
	• Design plans for infrastructure	• *No*				
Threshold of Acceptability	• Reduced vehicular trip generation	• *Not applicable*	• Financial commitment	• *No*	• Actual changes in trip generation could only be assessed in a Post-Development Audit	• *Not applicable*
	• Additional infrastructure	• *Not applicable*			• How much infrastructure/financial commitment would be "acceptable"?	• *Not applicable*
Data Availability / Expense	• Readily available for compliance with infrastructure design standards	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Dependent upon criteria for Post-Development Audit, for changes in trip generation	• *Not applicable*				
Ease / Standardization of Analysis	• Straightforward, for compliance with infrastructure design standards	• *Not applicable*	• Straightforward	• *Not applicable*	• Infrastructure/financial requirements would need to be developed.	• *Not applicable*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Not applicable*			• Requirements would need to vary by location. (For example, provision of a sidewalk in a rural location, without connections to other sidewalks, may not be practical or even desirable. However, reservation of right-of-way for a future system of sidewalks could be appropriate.)	• *Agree*

Assessment of Parameter/Topic: Balancing Housing/Business/Traffic (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Availability of Reasonable Mitigation Strategies	• None, for compliance with infrastructure design standards	• *Not applicable*	• None	• *Not applicable*		• *Not applicable*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Not applicable*				
Alternatives if No Reasonable Mitigation Strategies	• Not applicable, for compliance with infrastructure design standards	• *Not applicable*	• Impact fees	• *Not applicable*		• *Not applicable*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Not applicable*				
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy, for compliance with infrastructure design standards	• *Not applicable*	• Moderate	• *Not applicable*	• Likely to require qualitative judgment of "acceptable" in some cases	• *Not applicable*
	• For changes in trip generation, dependent upon procedures for Post-Development Audit	• *Not applicable*				
Likely Challenges	• Dependent upon procedures for Post-Development Audit	• *Not applicable*	• Development of standards	• *Not applicable*		• *Not applicable*
			• Consistency in application of standards	• *Not applicable*		

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: No: **X**

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	
No:	**X**

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	
Not Applicable:	**X**

Jurisdiction Staff Discussion of Recommendation:

This parameter is not relevant to this development setting, and therefore may not be considered for the TIS.

Assessment of Parameter/Topic: Post-Development Audit

Analyst: ORGA **Date:** 8/22/22 **Project:** Case Study 2 – Rural

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Net site trip generation by mode (proffered in selected horizon year)	• *No*	• Compliance with proffered TDM/mitigation measure(s)	• *No*	• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *<u>NOTE:</u> This parameter is not considered relevant for this development setting and context*
	• Trip distribution pattern	• *No*	• Compliance with Conditions of Approval	• *No*		
	• Levels of service	• *No*				
	• Traffic growth – study area roadway network	• *No*				
	• Proffered/required off-site improvements	• *No*				
Means of Assessment	• Various site trip generation and mode split surveys/driveway counts	• *No*	• Comparison of predicted versus actual operational situations	• *No*	• A mix of both quantitative and qualitative assessment may be useful	• *Not applicable*
	• Intersection turning movement counts and capacity analysis	• *No*	• Evaluation of effectiveness of TDM/mitigation measures	• *No*		
	• Review of broad-base data reflecting growth trends, such as SHA AADT database	• *No*				
Threshold of Acceptability	• Established vehicle trip generation limits (“trip caps”)	• *No*	• Compliance with proposed TDM measures	• *No*	• A mix of both quantitative and qualitative assessment may be useful	• *Not applicable*
	• Projected Levels of Service	• *No*	• Compliance with other Conditions of Approval	• *No*		
	• Projected trip distribution pattern	• *No*				
Data Availability / Expense	• Previously approved TIS document	• *No*	• Previously approved TIS and other supporting documents available from jurisdiction’s records	• *No*	• Ease of obtaining the data will be an important consideration (i.e., can the data be easily accessed online or through a time-consuming process?)	• *Not applicable*
	• Archived traffic data (from MDOT SHA or jurisdiction)	• *No*				
	• New traffic count data	• *No*				
Ease / Standardization of Analysis	• Analysis procedure based on traffic engineering and transportation planning principles considered straightforward	• *Not applicable*	• Procedure for evaluating compliance is somewhat straightforward	• *Not applicable*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*	• Post development audit can be considered as an “after the fact” type of evaluation. Therefore, this factor may not be applicable	• *Not applicable*
Alternatives if No Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*	• Post development audit can be considered as an “after the fact” type of evaluation. Therefore, this factor may not be applicable	• *Not applicable*

Assessment of Parameter/Topic: Post-Development Audit (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Not applicable*	• Easy	• *Not applicable*	• Review process involves a comparison of predicted vs. actual situations. (i.e., case of comparing apples with apples)	• *Not applicable*
Likely Challenges	• Some of the metrics are difficult to quantify, considering that traffic volumes typically fluctuate daily	• *Not applicable*	• Conditions stipulated in an accompanying resolution will have to be highly specific	• *Not applicable*	• Would this be completed by the jurisdiction or the developer? (It would probably be the jurisdiction.)	• *Not applicable*
	• Establishing a "degree of allowance/acceptability" with respect to analysis thresholds	• *Not applicable*	• Potential need for revision of Adequacy of Public Facilities Ordinance	• *Not applicable*	• Who would pay for the audit? (A developer "escrow" account could be used.)	• *Not applicable*
	• Potential for deterring private sector development/investment	• *Not applicable*			• Will this be a requirement for all types of development, regardless of the location and size?	• *Not applicable*
					• Would this requirement be on a case-by-case basis?	• *Not applicable*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: No: **X**

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	
No:	**X**

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	
Not Applicable:	**X**

Jurisdiction Staff Discussion of Recommendation:

This parameter is not considered relevant to this development setting, and therefore may not be included in this TIS.

Assessment of Parameter/Topic: Variable Transportation Impact Study Requirements

Analyst: ORGA	**Date:** 8/22/22	**Project:** Case Study 2 – Rural

1. Is there a compelling reason to have variable TIS requirements?

A single type of TIS may fail to account for some desirable performance metrics in some, but not all situations. For example, consideration of parking management may be desirable in a dense urban setting, but may not be particularly relevant in a rural setting.

Jurisdiction Staff Discussion:

Not applicable

2. Does the master plan or other planning document(s) offer a straightforward method of establishing the different types of TIS to be identified?

If not, the type of TIS could perhaps be identified as part of the Study Scoping Process.

Jurisdiction Staff Discussion:

Not applicable

3. How many different types of TIS would be appropriate?

The larger the number of different types, the larger the number of types of review.

Jurisdiction Staff Discussion:

Not applicable

4. How would Performance Metrics, Means of Assessment and Thresholds of Acceptability vary by type of TIS?

For example, an LOS of "E" or even "F" might be acceptable in a dense urban setting, but not in a rural setting.

Jurisdiction Staff Discussion:

Not applicable

Assessment of Parameter/Topic: Variable TIS Requirements (Continued)

5. **How would Data Availability/Expense, Ease/Standardization of Analysis, Availability of Reasonable Mitigation Strategies and Alternatives if No Reasonable Mitigation Strategies vary by type of TIS?**

Inclusion of an additional Performance Metric would require consideration of each of these items as well.

Jurisdiction Staff Discussion:

Not applicable

6. **How will Ease of Review by Jurisdiction be affected by variable types of TIS?**

Strictly speaking, additional types of TIS will make the efforts of reviewers more complicated. However, the added complexity would not necessarily be extensive.

Jurisdiction Staff Discussion:

Not applicable

7. **What are the Likely Challenges to implementing variable TIS requirements?**

In addition to the items noted above, there could be resistance from TIS preparers regarding any additional complexity involved. Also, including variable TIS requirements could potentially require jurisdictions to change their Adequate Public Facilities Ordinances.

Jurisdiction Staff Discussion:

Not applicable

8. **From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?**
   Yes: No: **X**

Jurisdiction Staff Recommendation for Including Parameter/Topic:

Yes:	
No:	

Jurisdiction Staff Discussion of Recommendation:

Not applicable

Case Study 3 – Suburban

Assessment of Parameter/Topic: Safety Analyses

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 3 – Suburban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Number of crashes (per year)	• *Yes*	• Compliance with Statewide Strategic Highway Safety Plan	• *Yes*	• For intersections, use rates per entering vehicle?	• *Yes*
	• Crash severity	• *Yes*	• Compliance with BMC's Strategic Highway Safety Plan	• *No*	• Other performance metrics could be considered	• *Not applicable*
	• Crash rate (per 100 million vehicle miles (MVM), or per entering vehicle)	• *Yes*	• Compliance with Jurisdiction's Strategic Highway Safety Plan	• *Yes*		
	• Number of fatalities	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *No*		
	• Number of serious injuries	• *Yes*	• Extent to which the project implements the member jurisdiction's Vision Zero Statement	• *Yes*		
	• Fatality rate per 100 million vehicle miles traveled (VMT)	• *No*	• Presence of project within known High Crash Location	• *No*		
	• Serious injury rate per 100 million VMT	• *No*	• Compliance with design standards	• *Yes*		
	• Number of non-motorized fatalities and serious injuries	• *Yes*				
	• Number of crashes involving pedestrians and/or bicyclists	• *Yes*				
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with performance metric(s) described above	• *Yes*	• Document how the proposed improvements within the study area will address identified safety issues?	• *Yes*
	• Highway Safety Manual procedures	• *Yes*			• Other means of assessment could be considered	• *Not applicable*
	• Road safety audits	• *No*				
Threshold of Acceptability	• Decrease, or at least no increase, in performance metrics	• *Yes*	• Full compatibility	• *Yes*	• Other thresholds could be considered	• *Not applicable*
Data Availability / Expense	• Historic crash data available from MDOT SHA for counties; available from Baltimore City DOT for City	• *Yes*	• Not applicable	• *Not applicable*	• Time required for obtaining data may be a concern	• *Data request turnaround may be a concern*
					• Level of detail of data may be a concern	• *No concern*
					• Legality of providing data to developers may be a concern	• *No concern*

Assessment of Parameter/Topic: Safety Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease / Standardization of Analysis	• Require use of Interactive Highway Safety Design Model (IHSDM)?	• *No*	• Straightforward	• *Agree*	• Other types of analysis could be considered	• *Not applicable*
	• Require use of HCS Module?	• *Yes*				
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Not applicable*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *To be determined*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Agree*	• Easy	• *Agree*	• Quantitative analyses could be challenging to review, particularly at outset of program	• *Agree*
Likely Challenges	• Accurate assessment of performance metrics	• *None*	• Difficult to assess meaningfully	• *None*	• Past experiences by member agencies could be instructive	• *Agree*
					• Including safety as part of the TIS process would potentially require jurisdictions to change their Adequate Public Facilities Ordinance	• *To be examined/discussed*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	**X**
Not Applicable:	

Jurisdiction Staff Discussion of Recommendation:

Include as both qualitative and quantitative. *(Perhaps to be determined on a case by case basis.)*

Assessment of Parameter/Topic: Controlling Speeds

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 3 – Suburban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Compliance with posted speed limit	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *Yes*	• For "difference in mean speed", the greater the differential is, the greater the potential is for conflict	• *Agree*
	• Design speed of new roadways	• *Yes*				
	• Difference in mean speed among modes	• *No*				
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with performance metric described above	• *Yes*	• To simplify data collection, a mean speed for pedestrians and for bicycles could be assumed	• *Yes*
	• Mean speed of roadway vehicles	• *Yes*				
	• Mean speed of all modes	• *Yes*				
	• Percentage of vehicles exceeding posted speed limit	• *Yes*				
Threshold of Acceptability	• Increase in compliance with posted speed limit; decrease in other performance metrics	• *Yes*	• Full compatibility with the performance metric described above	• *Yes*		• *Not applicable*
	• Compliance with design standards for new roadways	• *Yes*				
Data Availability / Expense	• Standard traffic data collection	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
Ease / Standardization of Analysis	• Straightforward	• *Agree*	• Straightforward	• *Agree*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Some mitigation strategies may lead to modal conflicts (i.e., a positive effect on one mode of travel may adversely impact another)	• *Agree*
					• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *To be determined*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *To be considered*

Assessment of Parameter/Topic: Controlling Speeds (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy	• *Agree*	• Easy	• *Agree*		• *Not applicable*
Likely Challenges	• Other than compliance with design standards, this performance metric requires before/after studies	• *None*		• *Not applicable*		• *Not applicable*
	• For before/after studies, would need to identify conditions and durations for data collection (peak/off-peak, 24-hour, free-flow/congested, etc.)	• *None*				

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Discussion of Recommendation:

Include as a mix of qualitative and quantitative.

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	**X**
Not Applicable:	

Assessment of Parameter/Topic: De-Prioritizing Vehicular Throughput

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 3 – Suburban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Level of Service (LOS)	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *Yes*	• Considering LOS may be counter-intuitive; worsening LOS would decrease throughput, but increase congestion	• *Agree*
	• Traffic volumes	• *Yes*			• May not be applicable in more rural areas; would require evaluation on a case-by-case basis	• *Agree*
	• Theoretical roadway capacity	• *Yes*			• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *To be considered*
	• Design speed of new roadways	• *Yes*				
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with performance metric described above	• *Yes*		• *Not applicable*
	• Highway Capacity Manual (HCM)	• *Yes*				
	• Traffic volume forecasts	• *Yes*				
	• Roadway capacity reduction	• *Yes*				
Threshold of Acceptability	• Decrease in performance metrics	• *Yes*	• Full compatibility	• *Yes*	• Other thresholds could be considered	• *No*
	• Compliance with design standards for new roadways	• *Yes*			• Variable thresholds could be considered based on area type (urban/suburban/rural)	• *Yes*
Data Availability / Expense	• Standard traffic data collection	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Regional travel demand model	• *No*				
Ease / Standardization of Analysis	• Straightforward	• *Agree*	• Straightforward	• *Agree*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• TDM features may discourage vehicle trips	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Agree*
			• Transportation Demand Management (TDM) strategies	• *Yes*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *Agree*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *No*	• Impact fees	• *No*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*

Assessment of Parameter/Topic: De-Prioritizing Vehicular Throughput (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy	• *Agree*	• Easy	• *Agree*		• *Not applicable*
Likely Challenges		• *None*		• *None*	• If vehicles are discouraged from using one roadway, another roadway may need to accommodate those vehicles	• *Detouring not considering in this context*
					• It may be advisable to consider this topic/parameter in conjunction with other topics/parameters	• *To be considered*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	**X**
Quantitative Measurement:	
Both:	
Not Applicable:	

Jurisdiction Staff Discussion of Recommendation:

Included as qualitative.

Assessment of Parameter/Topic: Multi-Modal Analyses

Analyst: ORGA		**Date:** 8/25/22		**Project:** Case Study 3 – Suburban		

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Vehicles o Level of Service (LOS) o Travel time reliability	• *Yes* o *Yes* o *No*	• Vehicles o Extent to which the project implements the member jurisdiction's Complete Streets policies o Compliance with relevant master or comprehensive plans, including bicycle, pedestrian, and trail accommodations	• *Yes* o *Yes* o *Yes*	• Current quantitative performance metrics available for roadway vehicles, transit, bicycles and pedestrians must be assessed on a mode-by-mode basis, which complicates the analysis	• *To be considered in this context*
	• Transit o Travel speed (Highway Capacity Manual, Sixth Edition – HCM6) o Transit LOS score (HCM6)	• *Yes* o *Yes* o *Yes*	• Transit o Presence/absence of transit amenities (such as shelters)	• *No* o *No*	• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *Yes*
	• Pedestrian o Pedestrian travel speed (HCM6) o Pedestrian space (HCM6) o Pedestrian LOS (HCM6) o Pedestrian delay	• *Yes* o *Yes* o *Yes* o *Yes* o *Yes*	• Pedestrian o Pedestrian Level of Comfort (PLOC) o ADA compliance for intersection ramps, sidewalk widths, etc. o Presence/absence of street lighting, countdown pedestrian signals, crosswalks, etc.	• *Yes* o *Yes* o *Yes* o *Yes*	• A mix of quantitative and qualitative performance metrics, by mode, might be worth considering	• *Agree*
	• Bicycle o Bicycle travel speed (HCM6) o Bicycle LOS (HCM6)	• *Yes* o *Yes* o *Yes*	• Bicycle o Level of Traffic Stress (LTS)	• *Yes* o *Yes*	• Some metrics may not be appropriate for all scenarios (i.e. it may not be necessary to assess micro-mobility in a rural environment)	• *Agree. However, micro-mobility would not be considered for this TIS*
	• Micro-Mobility?	• *No*	• Micro-Mobility o Presence/absence of micro-mobility accommodations (such as scooter charging stations)	• *No* o *No*		

Assessment of Parameter/Topic: Multi-Modal Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with Complete Streets policies and other area plans	• *Yes*	• HCM analysis can be accomplished by either Highway Capacity Software (HCS) or Synchro/SimTraffic	• *Yes*
	• HCM	• *Yes*	• Documentation of PLOC and LTS	• *Yes*	• Require VISSIM for freeways and transit-specific analysis?	• *No*
			• Documentation of other performance metric(s) described above	• *No*		
Threshold of Acceptability	• Improvement (or at least no worsening) in performance metrics	• *Yes*	• Full compatibility with Complete Streets policies	• *Yes*	• Improving a performance metric for one mode may lead to a decrease for other modes.	• *Agree*
			• Acceptable levels of PLOC and LTS based on jurisdiction's standards/guidelines	• *Yes*	• Varying the threshold of acceptability for individual modes, depending upon the urban/suburban/rural setting, may be desirable	• *Not required for this context*
Data Availability / Expense	• Standard traffic data collection for vehicles	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Additional data collection for transit, pedestrian, bicycle, and micro-mobility	• *Yes*				
Ease / Standardization of Analysis	• Straightforward, but not commonly used for modes other than vehicles	• *Agree*	• Straightforward	• *Not applicable*	• A technique would need to be established regarding prioritization of modes/which mode "governs" in a certain situation, along with how much degradation will be tolerated in the non-governing mode(s)	• *Agree*
	• Require use of HCS, Synchro, SimTraffic, and/or VISSIM?	• *Yes*				
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*		
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *No*	• Impact fees	• *No*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*

Assessment of Parameter/Topic: Multi-Modal Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Agree*	• Easy	• *Agree*	• Quantitative analyses could be challenging to review, particularly at outset of program	• *Agree*
Likely Challenges	• Analysis of multiple modes requires additional effort	• *Agree*	• Assessment is subjective for some performance metrics	• *Agree*	• A physical or operational improvement that benefits one mode may actually work to the detriment of another mode	• *Agree*
					• Some factors such as travel time reliability may be too detailed for TISs at this time and may not be understood by the public as well as LOS or delay	• *Agree*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Discussion of Recommendation:

A mix of qualitative and qualitative assessments may be considered.

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	**X**
Not Applicable:	

Assessment of Parameter/Topic: Multiple Proposed Developments

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 3 – Suburban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• All other proposed developments within X distance of subject development. (Differing values of X desirable for urban vs. suburban vs. rural conditions)	• *Yes*	• All other proposed developments identified during Study Scoping Process	• *Yes*	• Needs to be firmly identified during the Study Scoping Process	• *Agree*
	• All other proposed developments with roadway access within TIS study area of subject development	• *Yes*			• If another proposed development does not require a TIS, perhaps incorporate that development via background growth rate	• *To be considered*
	• All other proposed developments whose TIS study areas overlap the TIS study area of the subject development	• *No*			• If Quantitative Measurement is to be used, allow for flexibility, for unusual conditions	• *To be determined*
Means of Assessment	• Number of other developments included	• *Yes*	• Number of other developments included	• *Yes*		• *Not applicable*
Threshold of Acceptability	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Data Availability / Expense	• Information readily available from jurisdiction's files	• *Yes*	• Information readily available from jurisdiction's files	• *Yes*		• *Not applicable*
Ease / Standardization of Analysis	• Standardization of identifying other developments is straightforward.	• *Disagree*	• Will be based on jurisdiction's judgment. Strictly speaking, standardization of identifying other developments is not possible.	• *Agree*		• *Not applicable*
	• Analysis of other developments in TIS is straightforward	• *Agree*	• Analysis of other developments in TIS is straightforward	• *Agree*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Alternatives if No Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Agree*	• Moderate	• *Agree*		• *Not applicable*

Assessment of Parameter/Topic: Multiple Proposed Developments (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Likely Challenges	• Unusual roadway network/access conditions may lead to unreasonable requirements	• *Disagree*	• May result in appearance of inequitable treatment of different developments	• *Agree*		• *Not applicable*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	**X**
Both:	
Not Applicable:	

Jurisdiction Staff Discussion of Recommendation:

Include as quantitative. To be analyzed as part of background traffic considerations.

Assessment of Parameter/Topic: Balancing Housing/Business/Traffic

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 3 – Suburban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Reduced vehicular trip generation	• *Yes*	• Provision/participation in program(s) to discourage vehicular trip generation	• *No*	• Actual changes in trip generation could only be assessed in a Post-Development Audit	• *Not applicable*
	• Increased transit, micro-mobility, bicycle and/ or pedestrian trip generation	• *Yes*			• Consider allowing more vehicular congestion to encourage use of other modes	• *Not applicable*
	• Provision of infrastructure to discourage vehicular trip generation	• *Yes*				
Means of Assessment	• Post-Development Audit	• *No*	• Financial commitment for program(s) to discourage vehicular trip generation	• *No*		• *Not applicable*
	• Design plans for infrastructure	• *Yes*				
Threshold of Acceptability	• Reduced vehicular trip generation	• *Yes*	• Financial commitment	• *No*	• Actual changes in trip generation could only be assessed in a Post-Development Audit	• *Not applicable*
	• Additional infrastructure	• *Yes*			• How much infrastructure/financial commitment would be "acceptable"?	• *Not applicable*
Data Availability / Expense	• Readily available for compliance with infrastructure design standards	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Dependent upon criteria for Post-Development Audit, for changes in trip generation	• *Not applicable*				
Ease / Standardization of Analysis	• Straightforward, for compliance with infrastructure design standards	• *Yes*	• Straightforward	• *Not applicable*	• Infrastructure/financial requirements would need to be developed.	• *To be determined*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Not applicable*			• Requirements would need to vary by location. (For example, provision of a sidewalk in a rural location, without connections to other sidewalks, may not be practical or even desirable. However, reservation of right-of-way for a future system of sidewalks could be appropriate.)	• *Agree*

Assessment of Parameter/Topic: Balancing Housing/Business/Traffic (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Availability of Reasonable Mitigation Strategies	• None, for compliance with infrastructure design standards	• *Agree*	• None	• *Not applicable*		• *Not applicable*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Not applicable*				
Alternatives if No Reasonable Mitigation Strategies	• Not applicable, for compliance with infrastructure design standards	• *Agree*	• Impact fees	• *Yes*		• *Not applicable*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Not applicable*				
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy, for compliance with infrastructure design standards	• *Agree*	• Moderate	• *Not applicable*	• Likely to require qualitative judgment of “acceptable” in some cases	• *Not applicable*
	• For changes in trip generation, dependent upon procedures for Post-Development Audit	• *Not applicable*				
Likely Challenges	• Dependent upon procedures for Post-Development Audit	• *None*	• Development of standards	• *None*		• *Not applicable*
			• Consistency in application of standards	• *None*		

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: No: **X**

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	
No:	**X**

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	
Not Applicable:	**X**

Jurisdiction Staff Discussion of Recommendation:

This parameter is strongly linked with Post Development Audit, and not considered relevant to this development setting. Therefore may not be included in the TIS.

Assessment of Parameter/Topic: Post-Development Audit

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 3 – Suburban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Net site trip generation by mode (proffered in selected horizon year)	• *No*	• Compliance with proffered TDM/mitigation measure(s)	• *No*	• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *<u>NOTE:</u> This parameter is not considered relevant for this development setting and context*
	• Trip distribution pattern	• *No*	• Compliance with Conditions of Approval	• *No*		
	• Levels of service	• *No*				
	• Traffic growth – study area roadway network	• *No*				
	• Proffered/required off-site improvements	• *No*				
Means of Assessment	• Various site trip generation and mode split surveys/driveway counts	• *No*	• Comparison of predicted versus actual operational situations	• *No*	• A mix of both quantitative and qualitative assessment may be useful	• *Not applicable*
	• Intersection turning movement counts and capacity analysis	• *No*	• Evaluation of effectiveness of TDM/mitigation measures	• *No*		
	• Review of broad-base data reflecting growth trends, such as SHA AADT database	• *No*				
Threshold of Acceptability	• Established vehicle trip generation limits (“trip caps”)	• *No*	• Compliance with proposed TDM measures	• *No*	• A mix of both quantitative and qualitative assessment may be useful	• *Not applicable*
	• Projected Levels of Service	• *No*	• Compliance with other Conditions of Approval	• *No*		
	• Projected trip distribution pattern	• *No*				
Data Availability / Expense	• Previously approved TIS document	• *No*	• Previously approved TIS and other supporting documents available from jurisdiction’s records	• *No*	• Ease of obtaining the data will be an important consideration (i.e., can the data be easily accessed online or through a time-consuming process?)	• *Not applicable*
	• Archived traffic data (from MDOT SHA or jurisdiction)	• *No*				
	• New traffic count data	• *No*				
Ease / Standardization of Analysis	• Analysis procedure based on traffic engineering and transportation planning principles considered straightforward	• *Not applicable*	• Procedure for evaluating compliance is somewhat straightforward	• *Not applicable*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*	• Post development audit can be considered as an “after the fact” type of evaluation. Therefore, this factor may not be applicable	• *Not applicable*
Alternatives if No Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*	• Post development audit can be considered as an “after the fact” type of evaluation. Therefore, this factor may not be applicable	• *Not applicable*

Assessment of Parameter/Topic: Post-Development Audit (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Not applicable*	• Easy	• *Not applicable*	• Review process involves a comparison of predicted vs. actual situations. (i.e., case of comparing apples with apples)	• *Not applicable*
Likely Challenges	• Some of the metrics are difficult to quantify, considering that traffic volumes typically fluctuate daily	• *Not applicable*	• Conditions stipulated in an accompanying resolution will have to be highly specific	• *Not applicable*	• Would this be completed by the jurisdiction or the developer? (It would probably be the jurisdiction.)	• *Not applicable*
	• Establishing a "degree of allowance/acceptability" with respect to analysis thresholds	• *Not applicable*	• Potential need for revision of Adequacy of Public Facilities Ordinance	• *Not applicable*	• Who would pay for the audit? (A developer "escrow" account could be used.)	• *Not applicable*
	• Potential for deterring private sector development/investment	• *Not applicable*			• Will this be a requirement for all types of development, regardless of the location and size?	• *Not applicable*
					• Would this requirement be on a case-by-case basis?	• *Not applicable*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: No: **X**

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	
No:	**X**

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	
Not Applicable:	**X**

Jurisdiction Staff Discussion of Recommendation:

This parameter is not considered relevant to this development setting, and therefore may not be included in the TIS.

Assessment of Parameter/Topic: Variable Transportation Impact Study Requirements

Analyst: ORGA	**Date:** 8/25/22	**Project:** Case Study 3 – Suburban

1. Is there a compelling reason to have variable TIS requirements?

A single type of TIS may fail to account for some desirable performance metrics in some, but not all situations. For example, consideration of parking management may be desirable in a dense urban setting, but may not be particularly relevant in a rural setting.

Jurisdiction Staff Discussion:

Not applicable

2. Does the master plan or other planning document(s) offer a straightforward method of establishing the different types of TIS to be identified?

If not, the type of TIS could perhaps be identified as part of the Study Scoping Process.

Jurisdiction Staff Discussion:

Not applicable

3. How many different types of TIS would be appropriate?

The larger the number of different types, the larger the number of types of review.

Jurisdiction Staff Discussion:

Not applicable

4. How would Performance Metrics, Means of Assessment and Thresholds of Acceptability vary by type of TIS?

For example, an LOS of "E" or even "F" might be acceptable in a dense urban setting, but not in a rural setting.

Jurisdiction Staff Discussion:

Not applicable

Assessment of Parameter/Topic: Variable TIS Requirements (Continued)

5. **How would Data Availability/Expense, Ease/Standardization of Analysis, Availability of Reasonable Mitigation Strategies and Alternatives if No Reasonable Mitigation Strategies vary by type of TIS?**

Inclusion of an additional Performance Metric would require consideration of each of these items as well.

Jurisdiction Staff Discussion:

Not applicable

6. **How will Ease of Review by Jurisdiction be affected by variable types of TIS?**

Strictly speaking, additional types of TIS will make the efforts of reviewers more complicated. However, the added complexity would not necessarily be extensive.

Jurisdiction Staff Discussion:

Not applicable

7. **What are the Likely Challenges to implementing variable TIS requirements?**

In addition to the items noted above, there could be resistance from TIS preparers regarding any additional complexity involved. Also, including variable TIS requirements could potentially require jurisdictions to change their Adequate Public Facilities Ordinances.

Jurisdiction Staff Discussion:

Not applicable

8. **From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?**
   Yes: No: **X**

Jurisdiction Staff Recommendation for Including Parameter/Topic:

Yes:	
No:	

Jurisdiction Staff Discussion of Recommendation:

Not applicable

Case Study 4 – Suburban

Assessment of Parameter/Topic: Safety Analyses

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 4 – Suburban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Number of crashes (per year)	• *Yes*	• Compliance with Statewide Strategic Highway Safety Plan	• *No*	• For intersections, use rates per entering vehicle?	• *Yes*
	• Crash severity	• *No*	• Compliance with BMC's Strategic Highway Safety Plan	• *Yes*	• Other performance metrics could be considered	• *No*
	• Crash rate (per 100 million vehicle miles (MVM), or per entering vehicle)	• *Yes*	• Compliance with Jurisdiction's Strategic Highway Safety Plan	• *Yes*		
	• Number of fatalities	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *No*		
	• Number of serious injuries	• *Yes*	• Extent to which the project implements the member jurisdiction's Vision Zero Statement	• *Yes*		
	• Fatality rate per 100 million vehicle miles traveled (VMT)	• *No*	• Presence of project within known High Crash Location	• *Yes*		
	• Serious injury rate per 100 million VMT	• *No*	• Compliance with design standards	• *No*		
	• Number of non-motorized fatalities and serious injuries	• *Yes*				
	• Number of crashes involving pedestrians and/or bicyclists	• *Yes*				
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with performance metric(s) described above	• *Yes*	• Document how the proposed improvements within the study area will address identified safety issues?	• *Yes*
	• Highway Safety Manual procedures	• *Yes*			• Other means of assessment could be considered	• *Not applicable*
	• Road safety audits	• *Yes*				
Threshold of Acceptability	• Decrease, or at least no increase, in performance metrics	• *Yes*	• Full compatibility	• *Yes*	• Other thresholds could be considered	• *Not applicable*
Data Availability / Expense	• Historic crash data available from MDOT SHA for counties; available from Baltimore City DOT for City	• *Yes*	• Not applicable	• *Not applicable*	• Time required for obtaining data may be a concern	• *Data request turnaround may be a concern*
					• Level of detail of data may be a concern	• *No concern*
					• Legality of providing data to developers may be a concern	• *No concern*

Assessment of Parameter/Topic: Safety Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease / Standardization of Analysis	• Require use of Interactive Highway Safety Design Model (IHSDM)?	• *No*	• Straightforward	• *Agree*	• Other types of analysis could be considered	• *No*
	• Require use of HCS Module?	• *Yes*				
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *To be determined*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Agree*	• Easy	• *Agree*	• Quantitative analyses could be challenging to review, particularly at outset of program	• *Agree*
Likely Challenges	• Accurate assessment of performance metrics	• *None*	• Difficult to assess meaningfully	• *None*	• Past experiences by member agencies could be instructive	• *Agree*
					• Including safety as part of the TIS process would potentially require jurisdictions to change their Adequate Public Facilities Ordinance	• *To be examined/discussed*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Discussion of Recommendation:

Include as a mix of both qualitative and quantitative.

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	**X**
Not Applicable:	

Assessment of Parameter/Topic: Controlling Speeds

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 4 – Suburban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Compliance with posted speed limit	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *No*	• For "difference in mean speed", the greater the differential is, the greater the potential is for conflict	• *Agree*
	• Design speed of new roadways	• *No*				
	• Difference in mean speed among modes	• *No*				
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with performance metric described above	• *No*	• To simplify data collection, a mean speed for pedestrians and for bicycles could be assumed	• *Yes*
	• Mean speed of roadway vehicles	• *Yes*				
	• Mean speed of all modes	• *No*				
	• Percentage of vehicles exceeding posted speed limit	• *Yes*				
Threshold of Acceptability	• Increase in compliance with posted speed limit; decrease in other performance metrics	• *Yes*	• Full compatibility with the performance metric described above	• *No*		• *Not applicable*
	• Compliance with design standards for new roadways	• *No*				
Data Availability / Expense	• Standard traffic data collection	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
Ease / Standardization of Analysis	• Straightforward	• *Agree*	• Straightforward	• *Agree*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Some mitigation strategies may lead to modal conflicts (i.e., a positive effect on one mode of travel may adversely impact another)	• *Agree*
					• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *To be determined*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *To be considered*

Assessment of Parameter/Topic: Controlling Speeds (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy	• *Agree*	• Easy	• *Agree*		• *Not applicable*
Likely Challenges	• Other than compliance with design standards, this performance metric requires before/after studies	• *None*		• *Not applicable*		• *Not applicable*
	• For before/after studies, would need to identify conditions and durations for data collection (peak/off-peak, 24-hour, free-flow/congested, etc.)	• *None*				

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Discussion of Recommendation:

Include as quantitative.

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	**X**
Both:	
Not Applicable:	

Assessment of Parameter/Topic: De-Prioritizing Vehicular Throughput

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 4 – Suburban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Level of Service (LOS)	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *No*	• Considering LOS may be counter-intuitive; worsening LOS would decrease throughput, but increase congestion	• *Agree*
	• Traffic volumes	• *Yes*			• May not be applicable in more rural areas; would require evaluation on a case-by-case basis	• *Agree*
	• Theoretical roadway capacity	• *Yes*			• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *To be considered*
	• Design speed of new roadways	• *No*				
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with performance metric described above	• *No*		• *Not applicable*
	• Highway Capacity Manual (HCM)	• *Yes*				
	• Traffic volume forecasts	• *Yes*				
	• Roadway capacity reduction	• *Yes*				
Threshold of Acceptability	• Decrease in performance metrics	• *Yes*	• Full compatibility	• *No*	• Other thresholds could be considered	• *No*
	• Compliance with design standards for new roadways	• *No*			• Variable thresholds could be considered based on area type (urban/suburban/rural)	• *Yes*
Data Availability / Expense	• Standard traffic data collection	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Regional travel demand model	• *No*				
Ease / Standardization of Analysis	• Straightforward	• *Agree*	• Straightforward	• *Agree*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• TDM features may discourage vehicle trips	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Agree*
			• Transportation Demand Management (TDM) strategies	• *No*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *Agree*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*

Assessment of Parameter/Topic: De-Prioritizing Vehicular Throughput (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy	• *Agree*	• Easy	• *Agree*		• *Not applicable*
Likely Challenges		• *None*		• *None*	• If vehicles are discouraged from using one roadway, another roadway may need to accommodate those vehicles	• *Detouring not considering in this context*
					• It may be advisable to consider this topic/parameter in conjunction with other topics/parameters	• *To be considered*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	**X**
Both:	
Not Applicable:	

Jurisdiction Staff Discussion of Recommendation:

Included as quantitative.

Assessment of Parameter/Topic: Multi-Modal Analyses

Analyst: ORGA		**Date:** 8/25/22		**Project:** Case Study 4 – Suburban		

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Vehicles o Level of Service (LOS) o Travel time reliability	• *Yes* o *Yes* o *No*	• Vehicles o Extent to which the project implements the member jurisdiction's Complete Streets policies o Compliance with relevant master or comprehensive plans, including bicycle, pedestrian, and trail accommodations	• *Yes* o *No* o *Yes*	• Current quantitative performance metrics available for roadway vehicles, transit, bicycles and pedestrians must be assessed on a mode-by-mode basis, which complicates the analysis	• *To be considered in this context*
	• Transit o Travel speed (Highway Capacity Manual, Sixth Edition – HCM6) o Transit LOS score (HCM6)	• *Yes* o *Yes* o *Yes*	• Transit o Presence/absence of transit amenities (such as shelters)	• *No* o *No*	• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *Yes*
	• Pedestrian o Pedestrian travel speed (HCM6) o Pedestrian space (HCM6) o Pedestrian LOS (HCM6) o Pedestrian delay	• *Yes* o *Yes* o *Yes* o *Yes* o *Yes*	• Pedestrian o Pedestrian Level of Comfort (PLOC) o ADA compliance for intersection ramps, sidewalk widths, etc. o Presence/absence of street lighting, countdown pedestrian signals, crosswalks, etc.	• *Yes* o *Yes* o *Yes* o *Yes*	• A mix of quantitative and qualitative performance metrics, by mode, might be worth considering	• *Agree*
	• Bicycle o Bicycle travel speed (HCM6) o Bicycle LOS (HCM6)	• *Yes* o *Yes* o *Yes*	• Bicycle o Level of Traffic Stress (LTS)	• *Yes* o *Yes*	• Some metrics may not be appropriate for all scenarios (i.e. it may not be necessary to assess micro-mobility in a rural environment)	• *Agree*
	• Micro-Mobility?	• *No*	• Micro-Mobility o Presence/absence of micro-mobility accommodations (such as scooter charging stations)	• *No* o *No*		

Assessment of Parameter/Topic: Multi-Modal Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with Complete Streets policies and other area plans	• *Yes*	• HCM analysis can be accomplished by either Highway Capacity Software (HCS) or Synchro/SimTraffic	• *Yes*
	• HCM	• *Yes*	• Documentation of PLOC and LTS	• *Yes*	• Require VISSIM for freeways and transit-specific analysis?	• *No*
			• Documentation of other performance metric(s) described above	• *No*		
Threshold of Acceptability	• Improvement (or at least no worsening) in performance metrics	• *Yes*	• Full compatibility with Complete Streets policies	• *No*	• Improving a performance metric for one mode may lead to a decrease for other modes.	• *Agree*
			• Acceptable levels of PLOC and LTS based on jurisdiction's standards/guidelines	• *Yes*	• Varying the threshold of acceptability for individual modes, depending upon the urban/suburban/rural setting, may be desirable	• *Not required for this context*
Data Availability / Expense	• Standard traffic data collection for vehicles	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Additional data collection for transit, pedestrian, bicycle, and micro-mobility	• *Yes*				
Ease / Standardization of Analysis	• Straightforward, but not commonly used for modes other than vehicles	• *Agree*	• Straightforward	• *Not applicable*	• A technique would need to be established regarding prioritization of modes/which mode "governs" in a certain situation, along with how much degradation will be tolerated in the non-governing mode(s)	• *Agree*
	• Require use of HCS, Synchro, SimTraffic, and/or VISSIM?	• *Yes*				
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*		
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*

Assessment of Parameter/Topic: Multi-Modal Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Agree*	• Easy	• *Agree*	• Quantitative analyses could be challenging to review, particularly at outset of program	• *Agree*
Likely Challenges	• Analysis of multiple modes requires additional effort	• *Agree*	• Assessment is subjective for some performance metrics	• *Agree*	• A physical or operational improvement that benefits one mode may actually work to the detriment of another mode	• *Agree*
					• Some factors such as travel time reliability may be too detailed for TISs at this time and may not be understood by the public as well as LOS or delay	• *Agree*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Discussion of Recommendation:

A mix of qualitative and qualitative assessments may be considered.

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	**X**
Not Applicable:	

Assessment of Parameter/Topic: Multiple Proposed Developments

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 4 – Suburban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• All other proposed developments within X distance of subject development. (Differing values of X desirable for urban vs. suburban vs. rural conditions)	• *No*	• All other proposed developments identified during Study Scoping Process	• *Yes*	• Needs to be firmly identified during the Study Scoping Process	• *Agree*
	• All other proposed developments with roadway access within TIS study area of subject development	• *Yes*			• If another proposed development does not require a TIS, perhaps incorporate that development via background growth rate	• *To be considered*
	• All other proposed developments whose TIS study areas overlap the TIS study area of the subject development	• *No*			• If Quantitative Measurement is to be used, allow for flexibility, for unusual conditions	• *To be determined*
Means of Assessment	• Number of other developments included	• *Yes*	• Number of other developments included	• *Yes*		• *Not applicable*
Threshold of Acceptability	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Data Availability / Expense	• Information readily available from jurisdiction's files	• *Yes*	• Information readily available from jurisdiction's files	• *Yes*		• *Not applicable*
Ease / Standardization of Analysis	• Standardization of identifying other developments is straightforward.	• *Disagree*	• Will be based on jurisdiction's judgment. Strictly speaking, standardization of identifying other developments is not possible.	• *Agree*		• *Not applicable*
	• Analysis of other developments in TIS is straightforward	• *Agree*	• Analysis of other developments in TIS is straightforward	• *Agree*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Alternatives if No Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Agree*	• Moderate	• *Agree*		• *Not applicable*

Assessment of Parameter/Topic: Multiple Proposed Developments (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Likely Challenges	• Unusual roadway network/access conditions may lead to unreasonable requirements	• *Disagree*	• May result in appearance of inequitable treatment of different developments	• *Agree*		• *Not applicable*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	**X**
Both:	
Not Applicable:	

Jurisdiction Staff Discussion of Recommendation:

Include as quantitative. To be analyzed as part of background traffic considerations.

Assessment of Parameter/Topic: Balancing Housing/Business/Traffic

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 4 – Suburban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Reduced vehicular trip generation	• *Yes*	• Provision/participation in program(s) to discourage vehicular trip generation	• *No*	• Actual changes in trip generation could only be assessed in a Post-Development Audit	• *Not applicable*
	• Increased transit, micro-mobility, bicycle and/ or pedestrian trip generation	• *Yes*			• Consider allowing more vehicular congestion to encourage use of other modes	• *Not applicable*
	• Provision of infrastructure to discourage vehicular trip generation	• *No*				
Means of Assessment	• Post-Development Audit	• *No*	• Financial commitment for program(s) to discourage vehicular trip generation	• *No*		• *Not applicable*
	• Design plans for infrastructure	• *No*				
Threshold of Acceptability	• Reduced vehicular trip generation	• *Yes*	• Financial commitment	• *No*	• Actual changes in trip generation could only be assessed in a Post-Development Audit	• *Not applicable*
	• Additional infrastructure	• *No*			• How much infrastructure/financial commitment would be "acceptable"?	• *Not applicable*
Data Availability / Expense	• Readily available for compliance with infrastructure design standards	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Dependent upon criteria for Post-Development Audit, for changes in trip generation	• *Not applicable*				
Ease / Standardization of Analysis	• Straightforward, for compliance with infrastructure design standards	• *Yes*	• Straightforward	• *Not applicable*	• Infrastructure/financial requirements would need to be developed.	• *To be determined*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Not applicable*			• Requirements would need to vary by location. (For example, provision of a sidewalk in a rural location, without connections to other sidewalks, may not be practical or even desirable. However, reservation of right-of-way for a future system of sidewalks could be appropriate.)	• *Agree*

Assessment of Parameter/Topic: Balancing Housing/Business/Traffic (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Availability of Reasonable Mitigation Strategies	• None, for compliance with infrastructure design standards	• *Agree*	• None	• *Not applicable*		• *Not applicable*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Not applicable*				
Alternatives if No Reasonable Mitigation Strategies	• Not applicable, for compliance with infrastructure design standards	• *Agree*	• Impact fees	• *Yes*		• *Not applicable*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Not applicable*				
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy, for compliance with infrastructure design standards	• *Agree*	• Moderate	• *Not applicable*	• Likely to require qualitative judgment of “acceptable” in some cases	• *Not applicable*
	• For changes in trip generation, dependent upon procedures for Post-Development Audit	• *Not applicable*				
Likely Challenges	• Dependent upon procedures for Post-Development Audit	• *None*	• Development of standards	• *None*		• *Not applicable*
			• Consistency in application of standards	• *None*		

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: No: **X**

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	
No:	**X**

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	
Not Applicable:	**X**

Jurisdiction Staff Discussion of Recommendation:

Not considered relevant to this development setting, and may not be included in the TIS.

Assessment of Parameter/Topic: Post-Development Audit

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 4 – Suburban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Net site trip generation by mode (proffered in selected horizon year)	• *No*	• Compliance with proffered TDM/mitigation measure(s)	• *No*	• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *<u>NOTE:</u> This parameter is not considered relevant for this development setting and context*
	• Trip distribution pattern	• *No*	• Compliance with Conditions of Approval	• *No*		
	• Levels of service	• *No*				
	• Traffic growth – study area roadway network	• *No*				
	• Proffered/required off-site improvements	• *No*				
Means of Assessment	• Various site trip generation and mode split surveys/driveway counts	• *No*	• Comparison of predicted versus actual operational situations	• *No*	• A mix of both quantitative and qualitative assessment may be useful	• *Not applicable*
	• Intersection turning movement counts and capacity analysis	• *No*	• Evaluation of effectiveness of TDM/mitigation measures	• *No*		
	• Review of broad-base data reflecting growth trends, such as SHA AADT database	• *No*				
Threshold of Acceptability	• Established vehicle trip generation limits (“trip caps”)	• *No*	• Compliance with proposed TDM measures	• *No*	• A mix of both quantitative and qualitative assessment may be useful	• *Not applicable*
	• Projected Levels of Service	• *No*	• Compliance with other Conditions of Approval	• *No*		
	• Projected trip distribution pattern	• *No*				
Data Availability / Expense	• Previously approved TIS document	• *No*	• Previously approved TIS and other supporting documents available from jurisdiction’s records	• *No*	• Ease of obtaining the data will be an important consideration (i.e., can the data be easily accessed online or through a time-consuming process?)	• *Not applicable*
	• Archived traffic data (from MDOT SHA or jurisdiction)	• *No*				
	• New traffic count data	• *No*				
Ease / Standardization of Analysis	• Analysis procedure based on traffic engineering and transportation planning principles considered straightforward	• *Not applicable*	• Procedure for evaluating compliance is somewhat straightforward	• *Not applicable*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*	• Post development audit can be considered as an “after the fact” type of evaluation. Therefore, this factor may not be applicable	• *Not applicable*
Alternatives if No Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*	• Post development audit can be considered as an “after the fact” type of evaluation. Therefore, this factor may not be applicable	• *Not applicable*

Assessment of Parameter/Topic: Post-Development Audit (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Not applicable*	• Easy	• *Not applicable*	• Review process involves a comparison of predicted vs. actual situations. (i.e., case of comparing apples with apples)	• *Not applicable*
Likely Challenges	• Some of the metrics are difficult to quantify, considering that traffic volumes typically fluctuate daily	• *Not applicable*	• Conditions stipulated in an accompanying resolution will have to be highly specific	• *Not applicable*	• Would this be completed by the jurisdiction or the developer? (It would probably be the jurisdiction.)	• *Not applicable*
	• Establishing a "degree of allowance/acceptability" with respect to analysis thresholds	• *Not applicable*	• Potential need for revision of Adequacy of Public Facilities Ordinance	• *Not applicable*	• Who would pay for the audit? (A developer "escrow" account could be used.)	• *Not applicable*
	• Potential for deterring private sector development/investment	• *Not applicable*			• Will this be a requirement for all types of development, regardless of the location and size?	• *Not applicable*
					• Would this requirement be on a case-by-case basis?	• *Not applicable*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: No: **X**

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	
No:	**X**

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	
Not Applicable:	**X**

Jurisdiction Staff Discussion of Recommendation:

This parameter is not considered relevant to this development setting, and therefore may not be included in the TIS.

Assessment of Parameter/Topic: Variable Transportation Impact Study Requirements

Analyst: ORGA	**Date:** 8/25/22	**Project:** Case Study 4 – Suburban

1. Is there a compelling reason to have variable TIS requirements?

A single type of TIS may fail to account for some desirable performance metrics in some, but not all situations. For example, consideration of parking management may be desirable in a dense urban setting, but may not be particularly relevant in a rural setting.

Jurisdiction Staff Discussion:

Not applicable

2. Does the master plan or other planning document(s) offer a straightforward method of establishing the different types of TIS to be identified?

If not, the type of TIS could perhaps be identified as part of the Study Scoping Process.

Jurisdiction Staff Discussion:

Not applicable

3. How many different types of TIS would be appropriate?

The larger the number of different types, the larger the number of types of review.

Jurisdiction Staff Discussion:

Not applicable

4. How would Performance Metrics, Means of Assessment and Thresholds of Acceptability vary by type of TIS?

For example, an LOS of "E" or even "F" might be acceptable in a dense urban setting, but not in a rural setting.

Jurisdiction Staff Discussion:

Not applicable

Assessment of Parameter/Topic: Variable TIS Requirements (Continued)

5. **How would Data Availability/Expense, Ease/Standardization of Analysis, Availability of Reasonable Mitigation Strategies and Alternatives if No Reasonable Mitigation Strategies vary by type of TIS?**

Inclusion of an additional Performance Metric would require consideration of each of these items as well.

Jurisdiction Staff Discussion:

Not applicable

6. **How will Ease of Review by Jurisdiction be affected by variable types of TIS?**

Strictly speaking, additional types of TIS will make the efforts of reviewers more complicated. However, the added complexity would not necessarily be extensive.

Jurisdiction Staff Discussion:

Not applicable

7. **What are the Likely Challenges to implementing variable TIS requirements?**

In addition to the items noted above, there could be resistance from TIS preparers regarding any additional complexity involved. Also, including variable TIS requirements could potentially require jurisdictions to change their Adequate Public Facilities Ordinances.

Jurisdiction Staff Discussion:

Not applicable

8. **From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?**
   Yes: No: **X**

Jurisdiction Staff Recommendation for Including Parameter/Topic:

Yes:	
No:	

Jurisdiction Staff Discussion of Recommendation:

Not applicable

Case Study 5 – Urban

Assessment of Parameter/Topic: Safety Analyses

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 5 – Urban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Number of crashes (per year)	• *Yes*	• Compliance with Statewide Strategic Highway Safety Plan	• *Yes*	• For intersections, use rates per entering vehicle?	• *Yes*
	• Crash severity	• *No*	• Compliance with BMC's Strategic Highway Safety Plan	• *No*	• Other performance metrics could be considered	• *No*
	• Crash rate (per 100 million vehicle miles (MVM), or per entering vehicle)	• *Yes*	• Compliance with Jurisdiction's Strategic Highway Safety Plan	• *Yes*		
	• Number of fatalities	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *Yes*		
	• Number of serious injuries	• *No*	• Extent to which the project implements the member jurisdiction's Vision Zero Statement	• *Yes*		
	• Fatality rate per 100 million vehicle miles traveled (VMT)	• *No*	• Presence of project within known High Crash Location	• *Yes*		
	• Serious injury rate per 100 million VMT	• *No*	• Compliance with design standards	• *Yes*		
	• Number of non-motorized fatalities and serious injuries	• *Yes*				
	• Number of crashes involving pedestrians and/or bicyclists	• *Yes*				
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with performance metric(s) described above	• *Yes*	• Document how the proposed improvements within the study area will address identified safety issues?	• *Yes*
	• Highway Safety Manual procedures	• *Yes*			• Other means of assessment could be considered	• *Not applicable*
	• Road safety audits	• *Yes*				
Threshold of Acceptability	• Decrease, or at least no increase, in performance metrics	• *Yes*	• Full compatibility	• *Yes*	• Other thresholds could be considered	• *Not applicable*
Data Availability / Expense	• Historic crash data available from MDOT SHA for counties; available from Baltimore City DOT for City	• *Yes*	• Not applicable	• *Not applicable*	• Time required for obtaining data may be a concern	• *Data request turnaround may be a concern*
					• Level of detail of data may be a concern	• *No concern*
					• Legality of providing data to developers may be a concern	• *No concern*

Assessment of Parameter/Topic: Safety Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease / Standardization of Analysis	• Require use of Interactive Highway Safety Design Model (IHSDM)?	• *No*	• Straightforward	• *Agree*	• Other types of analysis could be considered	• *No*
	• Require use of HCS Module?	• *Yes*				
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *To be determined*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Agree*	• Easy	• *Agree*	• Quantitative analyses could be challenging to review, particularly at outset of program	• *Agree*
Likely Challenges	• Accurate assessment of performance metrics	• *None*	• Difficult to assess meaningfully	• *None*	• Past experiences by member agencies could be instructive	• *Agree*
					• Including safety as part of the TIS process would potentially require jurisdictions to change their Adequate Public Facilities Ordinance	• *To be examined/discussed*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Discussion of Recommendation:

Include as a mix of both qualitative and quantitative.

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	**X**
Not Applicable:	

Assessment of Parameter/Topic: Controlling Speeds

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 5 – Urban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Compliance with posted speed limit	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *Yes*	• For "difference in mean speed", the greater the differential is, the greater the potential is for conflict	• *Agree*
	• Design speed of new roadways	• *No*				
	• Difference in mean speed among modes	• *No*				
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with performance metric described above	• *Yes*	• To simplify data collection, a mean speed for pedestrians and for bicycles could be assumed	• *Yes*
	• Mean speed of roadway vehicles	• *Yes*				
	• Mean speed of all modes	• *Yes*				
	• Percentage of vehicles exceeding posted speed limit	• *Yes*				
Threshold of Acceptability	• Increase in compliance with posted speed limit; decrease in other performance metrics	• *Yes*	• Full compatibility with the performance metric described above	• *Yes*		• *Not applicable*
	• Compliance with design standards for new roadways	• *No*				
Data Availability / Expense	• Standard traffic data collection	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
Ease / Standardization of Analysis	• Straightforward	• *Agree*	• Straightforward	• *Agree*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Some mitigation strategies may lead to modal conflicts (i.e., a positive effect on one mode of travel may adversely impact another)	• *Agree*
					• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *To be determined*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *To be considered*

Assessment of Parameter/Topic: Controlling Speeds (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy	• *Agree*	• Easy	• *Agree*		• *Not applicable*
Likely Challenges	• Other than compliance with design standards, this performance metric requires before/after studies	• *None*		• *Not applicable*		• *Not applicable*
	• For before/after studies, would need to identify conditions and durations for data collection (peak/off-peak, 24-hour, free-flow/congested, etc.)	• *None*				

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Discussion of Recommendation:

Include as quantitative.

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	**X**
Both:	
Not Applicable:	

Assessment of Parameter/Topic: De-Prioritizing Vehicular Throughput

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 5 – Urban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Level of Service (LOS)	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *Yes*	• Considering LOS may be counter-intuitive; worsening LOS would decrease throughput, but increase congestion	• *Agree*
	• Traffic volumes	• *Yes*			• May not be applicable in more rural areas; would require evaluation on a case-by-case basis	• *Agree*
	• Theoretical roadway capacity	• *Yes*			• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *To be considered*
	• Design speed of new roadways	• *No*				
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with performance metric described above	• *Yes*		• *Not applicable*
	• Highway Capacity Manual (HCM)	• *Yes*				
	• Traffic volume forecasts	• *Yes*				
	• Roadway capacity reduction	• *Yes*				
Threshold of Acceptability	• Decrease in performance metrics	• *Yes*	• Full compatibility	• *Yes*	• Other thresholds could be considered	• *No*
	• Compliance with design standards for new roadways	• *No*			• Variable thresholds could be considered based on area type (urban/suburban/rural)	• *Yes*
Data Availability / Expense	• Standard traffic data collection	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Regional travel demand model	• *No*				
Ease / Standardization of Analysis	• Straightforward	• *Agree*	• Straightforward	• *Agree*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• TDM features may discourage vehicle trips	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Agree*
			• Transportation Demand Management (TDM) strategies	• *No*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *Agree*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*

Assessment of Parameter/Topic: De-Prioritizing Vehicular Throughput (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy	• *Agree*	• Easy	• *Agree*		• *Not applicable*
Likely Challenges		• *None*		• *None*	• If vehicles are discouraged from using one roadway, another roadway may need to accommodate those vehicles	• *Detouring not considering in this context*
					• It may be advisable to consider this topic/parameter in conjunction with other topics/parameters	• *To be considered*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	**X**
Both:	
Not Applicable:	

Jurisdiction Staff Discussion of Recommendation:

Included as quantitative.

Assessment of Parameter/Topic: Multi-Modal Analyses

Analyst: ORGA		**Date:** 8/25/22		**Project:** Case Study 5 – Urban		

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Vehicles o Level of Service (LOS) o Travel time reliability	• *Yes* o *Yes* o *No*	• Vehicles o Extent to which the project implements the member jurisdiction's Complete Streets policies o Compliance with relevant master or comprehensive plans, including bicycle, pedestrian, and trail accommodations	• *Yes* o *Yes* o *Yes*	• Current quantitative performance metrics available for roadway vehicles, transit, bicycles and pedestrians must be assessed on a mode-by-mode basis, which complicates the analysis	• *To be considered in this context*
	• Transit o Travel speed (Highway Capacity Manual, Sixth Edition – HCM6) o Transit LOS score (HCM6)	• *Yes* o *Yes* o *Yes*	• Transit o Presence/absence of transit amenities (such as shelters)	• *No* o *No*	• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *Yes*
	• Pedestrian o Pedestrian travel speed (HCM6) o Pedestrian space (HCM6) o Pedestrian LOS (HCM6) o Pedestrian delay	• *Yes* o *Yes* o *Yes* o *Yes* o *Yes*	• Pedestrian o Pedestrian Level of Comfort (PLOC) o ADA compliance for intersection ramps, sidewalk widths, etc. o Presence/absence of street lighting, countdown pedestrian signals, crosswalks, etc.	• *Yes* o *Yes* o *Yes* o *Yes*	• A mix of quantitative and qualitative performance metrics, by mode, might be worth considering	• *Agree*
	• Bicycle o Bicycle travel speed (HCM6) o Bicycle LOS (HCM6)	• *Yes* o *Yes* o *Yes*	• Bicycle o Level of Traffic Stress (LTS)	• *Yes* o *Yes*	• Some metrics may not be appropriate for all scenarios (i.e. it may not be necessary to assess micro-mobility in a rural environment)	• *Agree*
	• Micro-Mobility?	• *Yes*	• Micro-Mobility o Presence/absence of micro-mobility accommodations (such as scooter charging stations)	• *Yes* o *Yes*		

Assessment of Parameter/Topic: Multi-Modal Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with Complete Streets policies and other area plans	• *Yes*	• HCM analysis can be accomplished by either Highway Capacity Software (HCS) or Synchro/SimTraffic	• *Yes*
	• HCM	• *Yes*	• Documentation of PLOC and LTS	• *Yes*	• Require VISSIM for freeways and transit-specific analysis?	• *No*
			• Documentation of other performance metric(s) described above	• *Yes*		
Threshold of Acceptability	• Improvement (or at least no worsening) in performance metrics	• *Yes*	• Full compatibility with Complete Streets policies	• *Yes*	• Improving a performance metric for one mode may lead to a decrease for other modes.	• *Agree*
			• Acceptable levels of PLOC and LTS based on jurisdiction's standards/guidelines	• *Yes*	• Varying the threshold of acceptability for individual modes, depending upon the urban/suburban/rural setting, may be desirable	• *Not required for this context*
Data Availability / Expense	• Standard traffic data collection for vehicles	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Additional data collection for transit, pedestrian, bicycle, and micro-mobility	• *Yes*				
Ease / Standardization of Analysis	• Straightforward, but not commonly used for modes other than vehicles	• *Agree*	• Straightforward	• *Not applicable*	• A technique would need to be established regarding prioritization of modes/which mode "governs" in a certain situation, along with how much degradation will be tolerated in the non-governing mode(s)	• *Agree*
	• Require use of HCS, Synchro, SimTraffic, and/or VISSIM?	• *Yes*				
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*		
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*

Assessment of Parameter/Topic: Multi-Modal Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Agree*	• Easy	• *Agree*	• Quantitative analyses could be challenging to review, particularly at outset of program	• *Agree*
Likely Challenges	• Analysis of multiple modes requires additional effort	• *Agree*	• Assessment is subjective for some performance metrics	• *Agree*	• A physical or operational improvement that benefits one mode may actually work to the detriment of another mode	• *Agree*
					• Some factors such as travel time reliability may be too detailed for TISs at this time and may not be understood by the public as well as LOS or delay	• *Agree*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Discussion of Recommendation:

A mix of qualitative and qualitative assessments may be considered.

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	**X**
Not Applicable:	

Assessment of Parameter/Topic: Multiple Proposed Developments

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 5 – Urban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• All other proposed developments within X distance of subject development. (Differing values of X desirable for urban vs. suburban vs. rural conditions)	• *Yes*	• All other proposed developments identified during Study Scoping Process	• *Yes*	• Needs to be firmly identified during the Study Scoping Process	• *Agree*
	• All other proposed developments with roadway access within TIS study area of subject development	• *Yes*			• If another proposed development does not require a TIS, perhaps incorporate that development via background growth rate	• *To be considered*
	• All other proposed developments whose TIS study areas overlap the TIS study area of the subject development	• *No*			• If Quantitative Measurement is to be used, allow for flexibility, for unusual conditions	• *To be determined*
Means of Assessment	• Number of other developments included	• *Yes*	• Number of other developments included	• *Yes*		• *Not applicable*
Threshold of Acceptability	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Data Availability / Expense	• Information readily available from jurisdiction's files	• *Yes*	• Information readily available from jurisdiction's files	• *Yes*		• *Not applicable*
Ease / Standardization of Analysis	• Standardization of identifying other developments is straightforward.	• *Disagree*	• Will be based on jurisdiction's judgment. Strictly speaking, standardization of identifying other developments is not possible.	• *Agree*		• *Not applicable*
	• Analysis of other developments in TIS is straightforward	• *Agree*	• Analysis of other developments in TIS is straightforward	• *Agree*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Alternatives if No Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Agree*	• Moderate	• *Agree*		• *Not applicable*

Assessment of Parameter/Topic: Multiple Proposed Developments (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Likely Challenges	• Unusual roadway network/access conditions may lead to unreasonable requirements	• *Disagree*	• May result in appearance of inequitable treatment of different developments	• *Agree*		• *Not applicable*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	**X**
Both:	
Not Applicable:	

Jurisdiction Staff Discussion of Recommendation:

Include as quantitative. To be analyzed as part of background traffic considerations.

Assessment of Parameter/Topic: Balancing Housing/Business/Traffic

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 5 – Urban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Reduced vehicular trip generation	• *Yes*	• Provision/participation in program(s) to discourage vehicular trip generation	• *No*	• Actual changes in trip generation could only be assessed in a Post-Development Audit	• *Not applicable*
	• Increased transit, micro-mobility, bicycle and/ or pedestrian trip generation	• *Yes*			• Consider allowing more vehicular congestion to encourage use of other modes	• *Not applicable*
	• Provision of infrastructure to discourage vehicular trip generation	• *Yes*				
Means of Assessment	• Post-Development Audit	• *No*	• Financial commitment for program(s) to discourage vehicular trip generation	• *No*		• *Not applicable*
	• Design plans for infrastructure	• *No*				
Threshold of Acceptability	• Reduced vehicular trip generation	• *Yes*	• Financial commitment	• *No*	• Actual changes in trip generation could only be assessed in a Post-Development Audit	• *Not applicable*
	• Additional infrastructure	• *Yes*			• How much infrastructure/financial commitment would be "acceptable"?	• *Not applicable*
Data Availability / Expense	• Readily available for compliance with infrastructure design standards	• *Agree*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Dependent upon criteria for Post-Development Audit, for changes in trip generation	• *Not applicable*				
Ease / Standardization of Analysis	• Straightforward, for compliance with infrastructure design standards	• *Agree*	• Straightforward	• *Not applicable*	• Infrastructure/financial requirements would need to be developed.	• *To be determined*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Not applicable*			• Requirements would need to vary by location. (For example, provision of a sidewalk in a rural location, without connections to other sidewalks, may not be practical or even desirable. However, reservation of right-of-way for a future system of sidewalks could be appropriate.)	• *Agree*

Assessment of Parameter/Topic: Balancing Housing/Business/Traffic (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Availability of Reasonable Mitigation Strategies	• None, for compliance with infrastructure design standards	• *Agree*	• None	• *Not applicable*		• *Not applicable*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Not applicable*				
Alternatives if No Reasonable Mitigation Strategies	• Not applicable, for compliance with infrastructure design standards	• *Agree*	• Impact fees	• *Yes*		• *Not applicable*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Not applicable*				
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy, for compliance with infrastructure design standards	• *Agree*	• Moderate	• *Not applicable*	• Likely to require qualitative judgment of “acceptable” in some cases	• *Not applicable*
	• For changes in trip generation, dependent upon procedures for Post-Development Audit	• *Not applicable*				
Likely Challenges	• Dependent upon procedures for Post-Development Audit	• *None*	• Development of standards	• *None*		• *Not applicable*
			• Consistency in application of standards	• *None*		

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: No: **X**

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Discussion of Recommendation:

Include as quantitative.

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	**X**
Both:	
Not Applicable:	

Assessment of Parameter/Topic: Post-Development Audit

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 5 – Urban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Net site trip generation by mode (proffered in selected horizon year)	• *No*	• Compliance with proffered TDM/mitigation measure(s)	• *No*	• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *<u>NOTE:</u> This parameter is not considered relevant for this development setting and context*
	• Trip distribution pattern	• *No*	• Compliance with Conditions of Approval	• *No*		
	• Levels of service	• *No*				
	• Traffic growth – study area roadway network	• *No*				
	• Proffered/required off-site improvements	• *No*				
Means of Assessment	• Various site trip generation and mode split surveys/driveway counts	• *No*	• Comparison of predicted versus actual operational situations	• *No*	• A mix of both quantitative and qualitative assessment may be useful	• *Not applicable*
	• Intersection turning movement counts and capacity analysis	• *No*	• Evaluation of effectiveness of TDM/mitigation measures	• *No*		
	• Review of broad-base data reflecting growth trends, such as SHA AADT database	• *No*				
Threshold of Acceptability	• Established vehicle trip generation limits (“trip caps”)	• *No*	• Compliance with proposed TDM measures	• *No*	• A mix of both quantitative and qualitative assessment may be useful	• *Not applicable*
	• Projected Levels of Service	• *No*	• Compliance with other Conditions of Approval	• *No*		
	• Projected trip distribution pattern	• *No*				
Data Availability / Expense	• Previously approved TIS document	• *No*	• Previously approved TIS and other supporting documents available from jurisdiction’s records	• *No*	• Ease of obtaining the data will be an important consideration (i.e., can the data be easily accessed online or through a time-consuming process?)	• *Not applicable*
	• Archived traffic data (from MDOT SHA or jurisdiction)	• *No*				
	• New traffic count data	• *No*				
Ease / Standardization of Analysis	• Analysis procedure based on traffic engineering and transportation planning principles considered straightforward	• *Not applicable*	• Procedure for evaluating compliance is somewhat straightforward	• *Not applicable*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*	• Post development audit can be considered as an “after the fact” type of evaluation. Therefore, this factor may not be applicable	• *Not applicable*
Alternatives if No Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*	• Post development audit can be considered as an “after the fact” type of evaluation. Therefore, this factor may not be applicable	• *Not applicable*

Assessment of Parameter/Topic: Post-Development Audit (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Not applicable*	• Easy	• *Not applicable*	• Review process involves a comparison of predicted vs. actual situations. (i.e., case of comparing apples with apples)	• *Not applicable*
Likely Challenges	• Some of the metrics are difficult to quantify, considering that traffic volumes typically fluctuate daily	• *Not applicable*	• Conditions stipulated in an accompanying resolution will have to be highly specific	• *Not applicable*	• Would this be completed by the jurisdiction or the developer? (It would probably be the jurisdiction.)	• *Not applicable*
	• Establishing a "degree of allowance/acceptability" with respect to analysis thresholds	• *Not applicable*	• Potential need for revision of Adequacy of Public Facilities Ordinance	• *Not applicable*	• Who would pay for the audit? (A developer "escrow" account could be used.)	• *Not applicable*
	• Potential for deterring private sector development/investment	• *Not applicable*			• Will this be a requirement for all types of development, regardless of the location and size?	• *Not applicable*
					• Would this requirement be on a case-by-case basis?	• *Not applicable*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: No: **X**

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	
No:	**X**

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	
Not Applicable:	**X**

Jurisdiction Staff Discussion of Recommendation:

This parameter is not considered relevant to this development setting, and therefore may not be included in the TIS.

Assessment of Parameter/Topic: Variable Transportation Impact Study Requirements

Analyst: ORGA	**Date:** 8/25/22	**Project:** Case Study 5 – Urban

1. Is there a compelling reason to have variable TIS requirements?

A single type of TIS may fail to account for some desirable performance metrics in some, but not all situations. For example, consideration of parking management may be desirable in a dense urban setting, but may not be particularly relevant in a rural setting.

Jurisdiction Staff Discussion:

Not applicable

2. Does the master plan or other planning document(s) offer a straightforward method of establishing the different types of TIS to be identified?

If not, the type of TIS could perhaps be identified as part of the Study Scoping Process.

Jurisdiction Staff Discussion:

Not applicable

3. How many different types of TIS would be appropriate?

The larger the number of different types, the larger the number of types of review.

Jurisdiction Staff Discussion:

Not applicable

4. How would Performance Metrics, Means of Assessment and Thresholds of Acceptability vary by type of TIS?

For example, an LOS of "E" or even "F" might be acceptable in a dense urban setting, but not in a rural setting.

Jurisdiction Staff Discussion:

Not applicable

Assessment of Parameter/Topic: Variable TIS Requirements (Continued)

5. **How would Data Availability/Expense, Ease/Standardization of Analysis, Availability of Reasonable Mitigation Strategies and Alternatives if No Reasonable Mitigation Strategies vary by type of TIS?**

Inclusion of an additional Performance Metric would require consideration of each of these items as well.

Jurisdiction Staff Discussion:

Not applicable

6. **How will Ease of Review by Jurisdiction be affected by variable types of TIS?**

Strictly speaking, additional types of TIS will make the efforts of reviewers more complicated. However, the added complexity would not necessarily be extensive.

Jurisdiction Staff Discussion:

Not applicable

7. **What are the Likely Challenges to implementing variable TIS requirements?**

In addition to the items noted above, there could be resistance from TIS preparers regarding any additional complexity involved. Also, including variable TIS requirements could potentially require jurisdictions to change their Adequate Public Facilities Ordinances.

Jurisdiction Staff Discussion:

Not applicable

8. **From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?**
   Yes: No: **X**

Jurisdiction Staff Recommendation for Including Parameter/Topic:

Yes:	
No:	

Jurisdiction Staff Discussion of Recommendation:

Not applicable

Case Study 6 – Urban

Assessment of Parameter/Topic: Safety Analyses

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 6 – Urban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Number of crashes (per year)	• *Yes*	• Compliance with Statewide Strategic Highway Safety Plan	• *Yes*	• For intersections, use rates per entering vehicle?	• *Yes*
	• Crash severity	• *Yes*	• Compliance with BMC's Strategic Highway Safety Plan	• *No*	• Other performance metrics could be considered	• *No*
	• Crash rate (per 100 million vehicle miles (MVM), or per entering vehicle)	• *Yes*	• Compliance with Jurisdiction's Strategic Highway Safety Plan	• *Yes*		
	• Number of fatalities	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *Yes*		
	• Number of serious injuries	• *Yes*	• Extent to which the project implements the member jurisdiction's Vision Zero Statement	• *Yes*		
	• Fatality rate per 100 million vehicle miles traveled (VMT)	• *Yes*	• Presence of project within known High Crash Location	• *Yes*		
	• Serious injury rate per 100 million VMT	• *No*	• Compliance with design standards	• *Yes*		
	• Number of non-motorized fatalities and serious injuries	• *Yes*				
	• Number of crashes involving pedestrians and/or bicyclists	• *Yes*				
Means of Assessment	• Before/after studies	• *Yes*	• Written Statement of Compatibility with performance metric(s) described above	• *Yes*	• Document how the proposed improvements within the study area will address identified safety issues?	• *Yes*
	• Highway Safety Manual procedures	• *Yes*			• Other means of assessment could be considered	• *Not applicable*
	• Road safety audits	• *Yes*				
Threshold of Acceptability	• Decrease, or at least no increase, in performance metrics	• *Yes*	• Full compatibility	• *Yes*	• Other thresholds could be considered	• *Not applicable*
Data Availability / Expense	• Historic crash data available from MDOT SHA for counties; available from Baltimore City DOT for City	• *Yes*	• Not applicable	• *Not applicable*	• Time required for obtaining data may be a concern	• *Data request turnaround may be a concern*
					• Level of detail of data may be a concern	• *No concern*
					• Legality of providing data to developers may be a concern	• *No concern*

Assessment of Parameter/Topic: Safety Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease / Standardization of Analysis	• Require use of Interactive Highway Safety Design Model (IHSDM)?	• *Yes*	• Straightforward	• *Agree*	• Other types of analysis could be considered	• *No*
	• Require use of HCS Module?	• *Yes*				
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *To be determined*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Agree*	• Easy	• *Agree*	• Quantitative analyses could be challenging to review, particularly at outset of program	• *Agree*
Likely Challenges	• Accurate assessment of performance metrics	• *None*	• Difficult to assess meaningfully	• *None*	• Past experiences by member agencies could be instructive	• *Agree*
					• Including safety as part of the TIS process would potentially require jurisdictions to change their Adequate Public Facilities Ordinance	• *To be examined/discussed*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Discussion of Recommendation:

Include as a mix of both qualitative and quantitative.

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	**X**
Not Applicable:	

Assessment of Parameter/Topic: Controlling Speeds

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 6 – Urban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Compliance with posted speed limit	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *Yes*	• For "difference in mean speed", the greater the differential is, the greater the potential is for conflict	• *Agree*
	• Design speed of new roadways	• *No*				
	• Difference in mean speed among modes	• *No*				
Means of Assessment	• Before/after studies	• *No*	• Written Statement of Compatibility with performance metric described above	• *Yes*	• To simplify data collection, a mean speed for pedestrians and for bicycles could be assumed	• *Yes*
	• Mean speed of roadway vehicles	• *Yes*				
	• Mean speed of all modes	• *Yes*				
	• Percentage of vehicles exceeding posted speed limit	• *Yes*				
Threshold of Acceptability	• Increase in compliance with posted speed limit; decrease in other performance metrics	• *Yes*	• Full compatibility with the performance metric described above	• *Yes*		• *Not applicable*
	• Compliance with design standards for new roadways	• *No*				
Data Availability / Expense	• Standard traffic data collection	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
Ease / Standardization of Analysis	• Straightforward	• *Agree*	• Straightforward	• *Agree*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Some mitigation strategies may lead to modal conflicts (i.e., a positive effect on one mode of travel may adversely impact another)	• *Agree*
					• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *To be determined*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *To be considered*

Assessment of Parameter/Topic: Controlling Speeds (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy	• *Agree*	• Easy	• *Agree*		• *Not applicable*
Likely Challenges	• Other than compliance with design standards, this performance metric requires before/after studies	• *None*		• *Not applicable*		• *Not applicable*
	• For before/after studies, would need to identify conditions and durations for data collection (peak/off-peak, 24-hour, free-flow/congested, etc.)	• *None*				

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Discussion of Recommendation:

Include as quantitative.

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	**X**
Both:	
Not Applicable:	

Assessment of Parameter/Topic: De-Prioritizing Vehicular Throughput

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 6 – Urban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Level of Service (LOS)	• *Yes*	• Extent to which the project implements the member jurisdiction's Complete Streets policies	• *Yes*	• Considering LOS may be counter-intuitive; worsening LOS would decrease throughput, but increase congestion	• *Agree*
	• Traffic volumes	• *Yes*			• May not be applicable in more rural areas; would require evaluation on a case-by-case basis	• *Agree*
	• Theoretical roadway capacity	• *Yes*			• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *To be considered*
	• Design speed of new roadways	• *No*				
Means of Assessment	• Before/after studies	• *Yes*	• Written Statement of Compatibility with performance metric described above	• *Yes*		• *Not applicable*
	• Highway Capacity Manual (HCM)	• *Yes*				
	• Traffic volume forecasts	• *Yes*				
	• Roadway capacity reduction	• *Yes*				
Threshold of Acceptability	• Decrease in performance metrics	• *Yes*	• Full compatibility	• *Yes*	• Other thresholds could be considered	• *No*
	• Compliance with design standards for new roadways	• *No*			• Variable thresholds could be considered based on area type (urban/suburban/rural)	• *Yes*
Data Availability / Expense	• Standard traffic data collection	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Regional travel demand model	• *Yes*				
Ease / Standardization of Analysis	• Straightforward	• *Agree*	• Straightforward	• *Agree*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• TDM features may discourage vehicle trips	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Physical/operational improvements may not always be possible, or cost effective	• *Agree*
			• Transportation Demand Management (TDM) strategies	• *Yes*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *Agree*
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*

Assessment of Parameter/Topic: De-Prioritizing Vehicular Throughput (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy	• *Agree*	• Easy	• *Agree*		• *Not applicable*
Likely Challenges		• *None*		• *None*	• If vehicles are discouraged from using one roadway, another roadway may need to accommodate those vehicles	• *Detouring not considering in this context*
					• It may be advisable to consider this topic/parameter in conjunction with other topics/parameters	• *To be considered*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	**X**
Both:	
Not Applicable:	

Jurisdiction Staff Discussion of Recommendation:

Included as quantitative.

Assessment of Parameter/Topic: Multi-Modal Analyses

Analyst: ORGA		**Date:** 8/25/22		**Project:** Case Study 6 – Urban		

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Vehicles o Level of Service (LOS) o Travel time reliability	• *Yes* o *Yes* o *No*	• Vehicles o Extent to which the project implements the member jurisdiction's Complete Streets policies o Compliance with relevant master or comprehensive plans, including bicycle, pedestrian, and trail accommodations	• *Yes* o *Yes* o *Yes*	• Current quantitative performance metrics available for roadway vehicles, transit, bicycles and pedestrians must be assessed on a mode-by-mode basis, which complicates the analysis	• *To be considered in this context*
	• Transit o Travel speed (Highway Capacity Manual, Sixth Edition – HCM6) o Transit LOS score (HCM6)	• *Yes* o *Yes* o *Yes*	• Transit o Presence/absence of transit amenities (such as shelters)	• *No* o *No*	• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *Yes*
	• Pedestrian o Pedestrian travel speed (HCM6) o Pedestrian space (HCM6) o Pedestrian LOS (HCM6) o Pedestrian delay	• *Yes* o *Yes* o *Yes* o *Yes* o *Yes*	• Pedestrian o Pedestrian Level of Comfort (PLOC) o ADA compliance for intersection ramps, sidewalk widths, etc. o Presence/absence of street lighting, countdown pedestrian signals, crosswalks, etc.	• *Yes* o *Yes* o *Yes* o *Yes*	• A mix of quantitative and qualitative performance metrics, by mode, might be worth considering	• *Agree*
	• Bicycle o Bicycle travel speed (HCM6) o Bicycle LOS (HCM6)	• *Yes* o *Yes* o *Yes*	• Bicycle o Level of Traffic Stress (LTS)	• *Yes* o *Yes*	• Some metrics may not be appropriate for all scenarios (i.e. it may not be necessary to assess micro-mobility in a rural environment)	• *Agree*
	• Micro-Mobility?	• *Yes*	• Micro-Mobility o Presence/absence of micro-mobility accommodations (such as scooter charging stations)	• *Yes* o *Yes*		

Assessment of Parameter/Topic: Multi-Modal Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Means of Assessment	• Before/after studies	• *Yes*	• Written Statement of Compatibility with Complete Streets policies and other area plans	• *Yes*	• HCM analysis can be accomplished by either Highway Capacity Software (HCS) or Synchro/SimTraffic	• *Yes*
	• HCM	• *Yes*	• Documentation of PLOC and LTS	• *Yes*	• Require VISSIM for freeways and transit-specific analysis?	• *Yes*
			• Documentation of other performance metric(s) described above	• *Yes*		
Threshold of Acceptability	• Improvement (or at least no worsening) in performance metrics	• *Yes*	• Full compatibility with Complete Streets policies	• *Yes*	• Improving a performance metric for one mode may lead to a decrease for other modes.	• *Agree*
			• Acceptable levels of PLOC and LTS based on jurisdiction's standards/guidelines	• *Yes*	• Varying the threshold of acceptability for individual modes, depending upon the urban/suburban/rural setting, may be desirable	• *Not required for this context*
Data Availability / Expense	• Standard traffic data collection for vehicles	• *Yes*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Additional data collection for transit, pedestrian, bicycle, and micro-mobility	• *Yes*				
Ease / Standardization of Analysis	• Straightforward, but not commonly used for modes other than vehicles	• *Agree*	• Straightforward	• *Not applicable*	• A technique would need to be established regarding prioritization of modes/which mode "governs" in a certain situation, along with how much degradation will be tolerated in the non-governing mode(s)	• *Agree*
	• Require use of HCS, Synchro, SimTraffic, and/or VISSIM?	• *Yes*				
Availability of Reasonable Mitigation Strategies	• Geometric improvements	• *Yes*	• Geometric improvements	• *Yes*	• Some mitigation strategies (such as changes to signing/pavements markings and automated enforcement), may be suggested in the TIS, but can only be implemented by the jurisdiction	• *Agree*
	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*	• Operational improvements (including signing/pavement markings and lighting)	• *Yes*		
Alternatives if No Reasonable Mitigation Strategies	• Impact fees	• *Yes*	• Impact fees	• *Yes*	• Can improvements for other parameters/topics be used for an offset?	• *To be determined*

Assessment of Parameter/Topic: Multi-Modal Analyses (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Agree*	• Easy	• *Agree*	• Quantitative analyses could be challenging to review, particularly at outset of program	• *Agree*
Likely Challenges	• Analysis of multiple modes requires additional effort	• *Agree*	• Assessment is subjective for some performance metrics	• *Agree*	• A physical or operational improvement that benefits one mode may actually work to the detriment of another mode	• *Agree*
					• Some factors such as travel time reliability may be too detailed for TISs at this time and may not be understood by the public as well as LOS or delay	• *Agree*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Discussion of Recommendation:

A mix of qualitative and qualitative assessments may be considered.

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	**X**
Not Applicable:	

Assessment of Parameter/Topic: Multiple Proposed Developments

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 6 – Urban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• All other proposed developments within X distance of subject development. (Differing values of X desirable for urban vs. suburban vs. rural conditions)	• *No*	• All other proposed developments identified during Study Scoping Process	• *No*	• Needs to be firmly identified during the Study Scoping Process	• *<u>NOTE:</u> Since the case scenario notes that there are no background developments in the study area, this parameter may not be applicable*
	• All other proposed developments with roadway access within TIS study area of subject development	• *No*			• If another proposed development does not require a TIS, perhaps incorporate that development via background growth rate	• *Not applicable*
	• All other proposed developments whose TIS study areas overlap the TIS study area of the subject development	• *No*			• If Quantitative Measurement is to be used, allow for flexibility, for unusual conditions	• *Not applicable*
Means of Assessment	• Number of other developments included	• *No*	• Number of other developments included	• *No*		• *Not applicable*
Threshold of Acceptability	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Data Availability / Expense	• Information readily available from jurisdiction's files	• *No*	• Information readily available from jurisdiction's files	• *No*		• *Not applicable*
Ease / Standardization of Analysis	• Standardization of identifying other developments is straightforward.	• *Not applicable*	• Will be based on jurisdiction's judgment. Strictly speaking, standardization of identifying other developments is not possible.	• *Not applicable*		• *Not applicable*
	• Analysis of other developments in TIS is straightforward	• *Not applicable*	• Analysis of other developments in TIS is straightforward	• *Not applicable*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Alternatives if No Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*		• *Not applicable*
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Not applicable*	• Moderate	• *Not applicable*		• *Not applicable*

Assessment of Parameter/Topic: Multiple Proposed Developments (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Likely Challenges	• Unusual roadway network/access conditions may lead to unreasonable requirements	• *Not applicable*	• May result in appearance of inequitable treatment of different developments	• *Not applicable*		• *Not applicable*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: **X** No:

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	
No:	**X**

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	
Not Applicable:	**X**

Jurisdiction Staff Discussion of Recommendation:

Given the location of this development in a downtown area, and the proposed use, it is assumed that congestion would be a significant issue. Consideration of background developments may therefore not be relevant.

Assessment of Parameter/Topic: Balancing Housing/Business/Traffic

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 6 – Urban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Reduced vehicular trip generation	• *Yes*	• Provision/participation in program(s) to discourage vehicular trip generation	• *Yes*	• Actual changes in trip generation could only be assessed in a Post-Development Audit	• *Not applicable*
	• Increased transit, micro-mobility, bicycle and/ or pedestrian trip generation	• *Yes*			• Consider allowing more vehicular congestion to encourage use of other modes	• *Not applicable*
	• Provision of infrastructure to discourage vehicular trip generation	• *Yes*				
Means of Assessment	• Post-Development Audit	• *Yes*	• Financial commitment for program(s) to discourage vehicular trip generation	• *Yes*		• *Not applicable*
	• Design plans for infrastructure	• *Yes*				
Threshold of Acceptability	• Reduced vehicular trip generation	• *Yes*	• Financial commitment	• *Yes*	• Actual changes in trip generation could only be assessed in a Post-Development Audit	• *Not applicable*
	• Additional infrastructure	• *Yes*			• How much infrastructure/financial commitment would be "acceptable"?	• *Not applicable*
Data Availability / Expense	• Readily available for compliance with infrastructure design standards	• *Agree*	• Not applicable	• *Not applicable*		• *Not applicable*
	• Dependent upon criteria for Post-Development Audit, for changes in trip generation	• *Agree*				
Ease / Standardization of Analysis	• Straightforward, for compliance with infrastructure design standards	• *Agree*	• Straightforward	• *Agree*	• Infrastructure/financial requirements would need to be developed.	• *To be determined*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Agree*			• Requirements would need to vary by location. (For example, provision of a sidewalk in a rural location, without connections to other sidewalks, may not be practical or even desirable. However, reservation of right-of-way for a future system of sidewalks could be appropriate.)	• *Agree*

Assessment of Parameter/Topic: Balancing Housing/Business/Traffic (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Availability of Reasonable Mitigation Strategies	• None, for compliance with infrastructure design standards	• *Agree*	• None	• *Not applicable*		• *Not applicable*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Agree*				
Alternatives if No Reasonable Mitigation Strategies	• Not applicable, for compliance with infrastructure design standards	• *Agree*	• Impact fees	• *Yes*		• *Not applicable*
	• Dependent upon procedures for Post-Development Audit, for changes in trip generation	• *Agree*				
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Easy, for compliance with infrastructure design standards	• *Agree*	• Moderate	• *Agree*	• Likely to require qualitative judgment of “acceptable” in some cases	• *Agree*
	• For changes in trip generation, dependent upon procedures for Post-Development Audit	• *Agree*				
Likely Challenges	• Dependent upon procedures for Post-Development Audit	• *None*	• Development of standards	• *None*		• *Not applicable*
			• Consistency in application of standards	• *None*		

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: No: **X**

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Discussion of Recommendation:

Include as a mix of both quantitative and qualitative.

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	**X**
Not Applicable:	

Assessment of Parameter/Topic: Post-Development Audit

Analyst: ORGA **Date:** 8/25/22 **Project:** Case Study 6 – Urban

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Performance Metric(s)	• Net site trip generation by mode (proffered in selected horizon year)	• *Yes*	• Compliance with proffered TDM/mitigation measure(s)	• *Yes*	• Measures of traffic performance other than LOS, such as delay and queuing, could be considered	• *To be considered*
	• Trip distribution pattern	• *No*	• Compliance with Conditions of Approval	• *Yes*		
	• Levels of service	• *Yes*				
	• Traffic growth – study area roadway network	• *No*				
	• Proffered/required off-site improvements	• *Yes*				
Means of Assessment	• Various site trip generation and mode split surveys/driveway counts	• *Yes*	• Comparison of predicted versus actual operational situations	• *Yes*	• A mix of both quantitative and qualitative assessment may be useful	• *Agree*
	• Intersection turning movement counts and capacity analysis	• *Yes*	• Evaluation of effectiveness of TDM/mitigation measures	• *Yes*		
	• Review of broad-base data reflecting growth trends, such as SHA AADT database	• *Yes*				
Threshold of Acceptability	• Established vehicle trip generation limits (“trip caps”)	• *Yes*	• Compliance with proposed TDM measures	• *Yes*	• A mix of both quantitative and qualitative assessment may be useful	• *Agree*
	• Projected Levels of Service	• *Yes*	• Compliance with other Conditions of Approval	• *Yes*		
	• Projected trip distribution pattern	• *No*				
Data Availability / Expense	• Previously approved TIS document	• *Yes*	• Previously approved TIS and other supporting documents available from jurisdiction’s records	• *Yes*	• Ease of obtaining the data will be an important consideration (i.e., can the data be easily accessed online or through a time-consuming process?)	• *Agree*
	• Archived traffic data (from MDOT SHA or jurisdiction)	• *Yes*				
	• New traffic count data	• *Yes*				
Ease / Standardization of Analysis	• Analysis procedure based on traffic engineering and transportation planning principles considered straightforward	• *Agree*	• Procedure for evaluating compliance is somewhat straightforward	• *Agree*		• *Not applicable*
Availability of Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*	• Post development audit can be considered as an “after the fact” type of evaluation. Therefore, this factor may not be applicable	• *Not applicable*
Alternatives if No Reasonable Mitigation Strategies	• Not applicable	• *Not applicable*	• Not applicable	• *Not applicable*	• Post development audit can be considered as an “after the fact” type of evaluation. Therefore, this factor may not be applicable	• *Not applicable*

Assessment of Parameter/Topic: Post-Development Audit (Continued)

	Quantitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Qualitative Measurement	Jurisdiction Staff Assessment: Should this line item be incorporated into TISs?	Comments	Jurisdiction Staff Assessment of Comments Column
Ease of Review by Jurisdiction (Easy, Moderate, Difficult)	• Moderate	• *Agree*	• Easy	• *Agree*	• Review process involves a comparison of predicted vs. actual situations. (i.e., case of comparing apples with apples)	• *Agree*
Likely Challenges	• Some of the metrics are difficult to quantify, considering that traffic volumes typically fluctuate daily	• *Agree*	• Conditions stipulated in an accompanying resolution will have to be highly specific	• *Agree*	• Would this be completed by the jurisdiction or the developer? (It would probably be the jurisdiction.)	• *To be determined*
	• Establishing a "degree of allowance/acceptability" with respect to analysis thresholds	• *Agree*	• Potential need for revision of Adequacy of Public Facilities Ordinance	• *Disagree*	• Who would pay for the audit? (A developer "escrow" account could be used.)	• *To be determined*
	• Potential for deterring private sector development/investment	• *Agree*			• Will this be a requirement for all types of development, regardless of the location and size?	• *Not applicable*
					• Would this requirement be on a case-by-case basis?	• *Not applicable*

From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?
Yes: No: **X**

Jurisdiction Staff Recommendation for Including This Parameter/Topic:

Yes:	**X**
No:	

Jurisdiction Staff Discussion of Recommendation:

Include as a mix of both qualitative and quantitative.

Jurisdiction Staff Recommendation for Measurement Type:

Qualitative Measurement:	
Quantitative Measurement:	
Both:	**X**
Not Applicable:	

Assessment of Parameter/Topic: Variable Transportation Impact Study Requirements

Analyst: ORGA	**Date:** 8/25/22	**Project:** Case Study 6 – Urban

1. Is there a compelling reason to have variable TIS requirements?

A single type of TIS may fail to account for some desirable performance metrics in some, but not all situations. For example, consideration of parking management may be desirable in a dense urban setting, but may not be particularly relevant in a rural setting.

Jurisdiction Staff Discussion:

Not applicable

2. Does the master plan or other planning document(s) offer a straightforward method of establishing the different types of TIS to be identified?

If not, the type of TIS could perhaps be identified as part of the Study Scoping Process.

Jurisdiction Staff Discussion:

Not applicable

3. How many different types of TIS would be appropriate?

The larger the number of different types, the larger the number of types of review.

Jurisdiction Staff Discussion:

Not applicable

4. How would Performance Metrics, Means of Assessment and Thresholds of Acceptability vary by type of TIS?

For example, an LOS of "E" or even "F" might be acceptable in a dense urban setting, but not in a rural setting.

Jurisdiction Staff Discussion:

Not applicable

Assessment of Parameter/Topic: Variable TIS Requirements (Continued)

5. **How would Data Availability/Expense, Ease/Standardization of Analysis, Availability of Reasonable Mitigation Strategies and Alternatives if No Reasonable Mitigation Strategies vary by type of TIS?**

Inclusion of an additional Performance Metric would require consideration of each of these items as well.

Jurisdiction Staff Discussion:

Not applicable

6. **How will Ease of Review by Jurisdiction be affected by variable types of TIS?**

Strictly speaking, additional types of TIS will make the efforts of reviewers more complicated. However, the added complexity would not necessarily be extensive.

Jurisdiction Staff Discussion:

Not applicable

7. **What are the Likely Challenges to implementing variable TIS requirements?**

In addition to the items noted above, there could be resistance from TIS preparers regarding any additional complexity involved. Also, including variable TIS requirements could potentially require jurisdictions to change their Adequate Public Facilities Ordinances.

Jurisdiction Staff Discussion:

Not applicable

8. **From a technical analysis perspective, can this parameter generally be accommodated within existing TIS frameworks?**
   Yes: No: **X**

Jurisdiction Staff Recommendation for Including Parameter/Topic:

Yes:	
No:	

Jurisdiction Staff Discussion of Recommendation:

Not applicable