

Multimodal Transportation Impact Assessment for Site Development

An ITE Recommended Practice Update

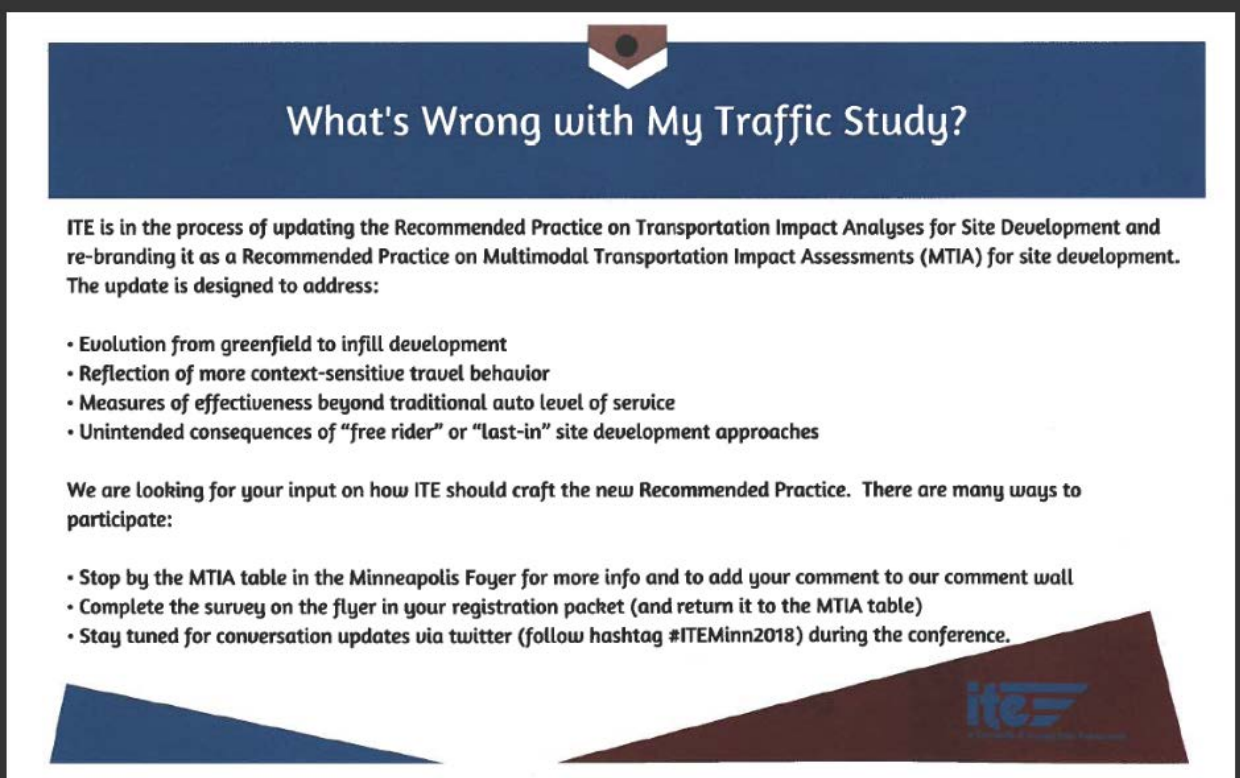
2018 Annual Meeting Packet Introduction

This packet provides an August 2018 Annual Meeting status report on the volunteer effort led by the Transportation Planning Council and involving other technical councils to update the ITE Recommended Practice on Transportation Impact Analyses for Site Development.

This packet includes:

- The eight-page Purpose and Need Statement for the project
- A page showing the proposed relationship between the proposed Multimodal Transportation Impact Assessment (MTIA) Recommended Practice and the existing TIASD
- A page summarizing of the MTIA concepts developed to date by the volunteer workgroup
- Individual concept sheets for the MTIA as presented on the idea wall at the 2018 Annual Meeting.

These materials are intended to spur conversation during the Annual Meeting and generate both new ideas and direction for committee efforts during fall 2018.




What's Wrong with My Traffic Study?

ITE is in the process of updating the Recommended Practice on Transportation Impact Analyses for Site Development and re-branding it as a Recommended Practice on Multimodal Transportation Impact Assessments (MTIA) for site development. The update is designed to address:

- Evolution from greenfield to infill development
- Reflection of more context-sensitive travel behavior
- Measures of effectiveness beyond traditional auto level of service
- Unintended consequences of "free rider" or "last-in" site development approaches

We are looking for your input on how ITE should craft the new Recommended Practice. There are many ways to participate:

- Stop by the MTIA table in the Minneapolis Foyer for more info and to add your comment to our comment wall
- Complete the survey on the flyer in your registration packet (and return it to the MTIA table)
- Stay tuned for conversation updates via twitter (follow hashtag #ITEMinn2018) during the conference.



Multimodal Transportation Impact Assessment for Site Development

An ITE Recommended Practice Update

Purpose and Need – August 9, 2017 DRAFT

This article describes the purpose and need for updating the ITE Recommended Practice on Transportation Impact Analyses for Site Development. The article proposes the evolution of the document to address emerging industry considerations which include both alternative approaches for public and private sector contributions to planned transportation infrastructure and services as well as a greater focus on multimodal measures of effectiveness. This article serves as an introduction to the topic for conversations at the ITE 2017 Annual Meeting and is intended to help raise ITE member awareness of the project. The following paragraphs answer several questions that ITE members and the communities they serve may ask about the state of the art in transportation impact analyses for site development and ITE's role in providing guidance on the topic.

1) Why should we update ITE's recommended practice on transportation impact analyses?

The past decade has fostered changes in how many communities are approaching economic development and the coordination between public sector and private sector partnership in providing transportation system capacity, mobility, accessibility, and safety. The first two editions of the ITE Recommended Practice on Transportation Impact Analyses (TIASD) in 1996 and 2010 focused on describing details within the traditional "bread and butter" transportation impact analysis approach commonly used throughout the USA and Canada (the 2010 recommended practice was based on a review of some 200 jurisdictions; a similar effort supported the 1996 edition).

ITE members consistently provide feedback to leadership that guidance documents such as Recommended Practices are among the most valuable products for providing both pragmatic and peer-reviewed "how to" guides as well as for promoting progressive, state-of-the-practices approaches and techniques.



Figure 1. Significant changes in market conditions and community objectives are driving the need to update the current Recommended Practice.

Interest in innovative approaches to assessing the effects of new development on transportation systems, and the ways in which communities should address those changes, has increased for several reasons:

- A shift in many communities from predominantly greenfield development to an increasing share of infill development due to both market forces and growth management policies (particularly relating to fiscal costs of growth outwards from centers of transportation system investment and other community infrastructure)
- An increasing understanding of differences in travel behavior across a variety of land use types and contexts from urban to rural
- An interest in measures of effectiveness beyond traditional auto Level of Service (LOS) developed at federal, regional, state, and local policies
- A recognition that traditional level of service measures based on roadway capacity thresholds often result in “free rider” or “last-in” concerns that affect the equitability and predictability of the transportation system exaction process

Communities and practitioners alike are seeking guidance on how to evaluate the opportunities and constraints with innovative approaches to rethinking traditional TIASD approaches. The timing is therefore appropriate for a new Multimodal Transportation Impact Assessment (MTIA) Recommended Practice to update, and replace, the TIASD. The MTIA should achieve the following key objectives:

- Broaden the understanding of TIASD strategies to help practitioners and decisionmakers assess the pros and cons of a variety of approaches for addressing the relationship between the approval of new development and the maintenance of transportation system performance.
- Reflect current and emerging technologies in both measuring transportation system
- Promote context-sensitive solutions from policy and planning perspectives
- Support strategies for implementing transportation systems across all modes

2) How should a community select a multimodal transportation impact assessment approach?

The updated MTIA will recognize that there is not a “one size fits all” approach towards assessing the benefits and impacts that private-sector economic development has on the need for, and provision of, multimodal transportation systems.

The MTIA will include a detailed discussion on how communities might consider developing new policies, or adapting existing policies, in the event they find that their current TIASD approaches aren’t right-sized for their current needs. The MTIA will help communities ask some key questions to tailor their development review approach to meet their needs.

a) *What's right for my community?*

The selection of a MTIA approach and the development of parameters for that approach, depend on how detailed a community's vision for both public sector and private sector investment is over time, and the degree to which the achievement of that vision is being measured, or might be measured. A diagnosis of the roles of both community vision and the MTIA role in helping achieve the vision might include exploring the following questions:

- i. What is the community vision for economic development? Are the levels and types of desired land use changes clearly documented in adopted planning and policy statements? Are the transportation system needs similarly well-defined? Is the current implementation of those plans proceeding with an appropriate balance of precision (so that the infrastructure and services are implemented) and flexibility (so that detailed designs and operations can be approached in a context-sensitive manner)?
- ii. How is success of the vision being measured? Are there adopted measures of effectiveness that include transportation goals and objectives, and are they current? Does the community consider auto congestion the primary concern of residents, businesses, and visitors? How does the concern regarding auto congestion compare to other concerns regarding community character, accessibility, safety, walkability, bikability, transit service, equity, sense of place, and economic development?
- iii. What role does the community see for land development or redevelopment in achieving their goals and objectives? How much of the success should be attributable to new development as contrasted with existing businesses, residents, and visitors? How might that assessment vary across life-cycle costs of transportation system investment from implementation to operation to replacement? What is the relationship between the transportation impact assessment and other development needs assessments or cost/benefit analyses?
- iv. Is the community experiencing or anticipating unintended consequences of traditional TIASD approaches, such as:
 - 1) A "free rider" or "last-in" effect of the "lumpiness" of many traditional development exaction approaches, wherein the first developer to provide a significant infrastructure element utilizes only some of its capacity; a second developer can be a "free rider" who utilizes remaining capacity without

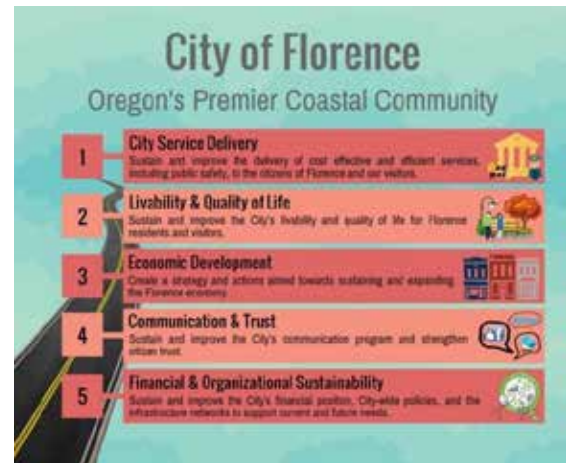


Figure 2. Transportation system performance objectives should dovetail with broader outcome-based community vision and goals.

- providing additional capacity, and a third developer caught by being “last in” may generate just enough demand to cross a legislative threshold triggering significant investment disproportionate to the need.
- 2) A concern that community design may be suffering from the phenomenon of only “managing what’s measured”. For instance, if the community vision stresses walkability but the TIASD process only measures auto congestion, the process is not designed to deliver walkability.
 - v. Finally, there are many parameters that might typically be included in an MTIA process which are far more subtly related to a community vision. Examples include horizon year (is the community vision for ten years or 25, and how does that relate to the expected life cycle of the proposed development and its contributions to the transportation system?) and partnerships (what is the role of the state, region, and adjacent communities in contributing to vision achievement)?

b) What might be considered a meaningful impact that warrants requiring private-sector participation?

The establishment of community visions and measurable objectives, in conjunction with the role of new development in achieving those objectives, should help define the conditions under which new development should participate in either:

- Proactive: contributing to the provision of the planned system and/or
- Reactive: mitigating adverse impacts that would inhibit the achievement of the vision.

Many communities in the US have, at least implicitly, viewed these two approaches as separate, but connected steps. Impact fees or taxes are commonly assessed as essentially “hook-up” fees so that new development pays a portion of the cost to develop a planned community-wide transportation system, typically measured in terms of roadway lane-miles. The TIASD process has been viewed as a means for requiring specific design details in the vicinity of a site to customize those lane-miles to function according to adopted measures of effectiveness, typically for intersection or roadway segment operations for development that generates a certain threshold of travel (such as 50 peak hour vehicle trips).

The consideration of measures of effectiveness and impact thresholds can encompass a variety of measures. In evaluating potential measures, coordination between appropriate federal, regional, and locally adopted performance measures should be considered. Some evolving measures to be evaluated in the MTIA Recommended Practice include:

- i. Multimodal Level of Service (LOS) and Quality of Service (QOS) metrics, including, but not limited, to techniques included in the Highway Capacity Manual or specific adaptations such as the Florida DOT Q/LOS Manual, with certain

measures and monitoring approaches such as described in ITE's Transit Impact Analysis Informational Report

- ii. Vehicle miles of travel (VMT), such as promoted by the California Office of Policy Research (OPR) and explored within many jurisdictions as part of California's Senate Bill (SB) 375
- iii. Accessibility metrics, including accessibility to multimodal services and access to jobs, housing, and other key destinations once those services are accessed.
- iv. Connectivity indices, such as intersection density measures, Route Directness Index, or Level of Traffic Stress for assessing bicycle networks
- v. Traveler safety across all modes
- vi. Healthy community objectives, whether directly associated with elements such as transportation safety, or indirectly linked to outcomes such as obesity or equitable access to health care.

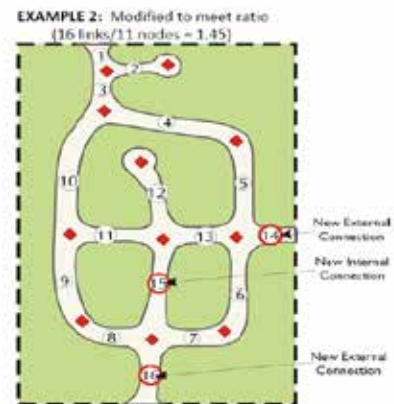


Figure 3. Connectivity is one of a variety of measures worthy of greater exploration.

c) What strategies provide appropriate private-sector participation in plan implementation?

The MTIA Recommended Practice will include a variety of private-sector participation approaches, including, but not limited to the following types:

- i. Impact tax/fee. Many jurisdictions already use impact taxes and fees as part of the exaction process for new development. The 1996 and 2010
- ii. Pro-rata share district concepts (as described further below)
- iii. Multimodal transportation impact study. The 1996 and 2010 Recommended Practice focused on providing "how to" guides for each step of the impact assessment. The new Recommended Practice will retain this function, updated to reflect today's conditions and tomorrow's opportunities, as well as expanded to better incorporate information on multiple modes, such as described in the conclusions of the ITE Transit Impact Assessment Informational Report.
- iv. Other approaches that may be defined during the Recommended Practice development process.

3) What is a Pro-rata Share District and how might it be appropriate?

A pro-rata share district leverages the private sector role towards implementing a comprehensive plan holistically, rather than incrementally. In a pro-rata share district, each development contributes resources (whether facility construction or funding) towards a well-defined set of projects with the contribution defined in proportion to the relative level of demand contributed by that development. The pro-rata share concept can be expressed as a fraction in which the numerator is the private sector

funding for total system supply and the denominator is the unit of development demand. Beyond this basic concept, the details of defining the numerator and denominator vary from place to place; they are dependent upon the physical, environmental, and political context.

The primary advantages of a pro-rata share district are to:

- Limit the “free rider” or “last in” problem associated with typical threshold-based TIA approaches in which exactions are based more on timing than impact (i.e., 95% of available or remaining system supply might be used by the free-riders with the full burden of improvement imposed upon the applicant using the last 5%),
- Focus exaction efforts on planned system improvements rather than identifying ad-hoc improvements (even though based logically on TIAs) that may not contribute to the desired end state, and
- Measure success more through implementation of both the planned private infrastructure (planned land development per zoning) and public infrastructure (a multimodal transportation network in a comprehensive plan) than by mitigation based on site-specific level of service (LOS) or quality of service (QOS) objectives.

The principal argument against a pro-rata share district is that its establishment and maintenance requires a significant amount of up-front collaboration among a variety of stakeholders to define how the contributions will be defined and administered over time. Successful pro-rata share districts share several common elements:

- A compact geographic area, generally several hundred acres in size, that is large enough to leverage participation among multiple property owners but small enough to focus administrative efforts on specific implementation objectives at a high level of detail
- An inventory of unbuilt transportation system needs and expected levels of private development that facilitates the definition of an appropriate relationship between future supply and demand
- A reflection of the needs and interests of constituents including public sector agencies, the residences and businesses they represent, and the development community
- Coordination with state, regional, and local implementers and operators, as the pro-rata share district will typically, but not necessarily, be designed to address facilities that are the responsibility of the local jurisdiction

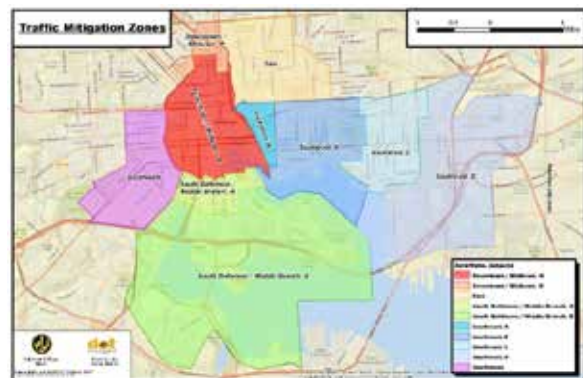


Figure 4. Pro-rata share districts are generally compact with well-defined objectives for public and private participation in transportation plan implementation.

- Regular monitoring and revision processes and schedules, typically on a regular four to six-year cycle that establishes a relative level of predictability for the development market yet is designed to incorporate changes to local and regional variables over time.

The MTIA Recommended Practice will describe several pro-rata share districts, including examples from Middletown, DE; Destin and Kissimmee, FL; Baltimore City and Montgomery County, MD; and Portland, OR.

4) Multimodal transportation assessment study approaches

The new sections in the MTIA Recommended Practice will help communities perform a development review diagnosis to evaluate whether changes to their exaction processes are desirable. For many communities, particularly where community visions rely on greenfield economic development at relatively low densities, the Multimodal Transportation Impact Assessment will likely remain a practical approach. While this purpose and need describes the value of including a variety of approaches in addition to the traditional site impact evaluation, the MTIA RP is expected to focus on:

- a) Defining adequacy/concurrence, with consideration of local community objectives; enabling legislative authority granted by state, provincial, or federal entities; and the rational nexus test
- b) Defining land use, with consideration to synthesizing efforts such as ITE's development of the 10th Edition of Trip Generation to emphasize land use context as well as update land use type descriptions
- c) Defining and managing demand (TDM)
- d) Site circulation and access by all modes, including consideration of last-mile access for transit trips and goods movement and parking / curbspace management strategies
- e) Development staging, including strategies for synchronizing adequacy approaches with other development approvals to match the level of detail and precision associated with each step
- f) Traditional four step processes for trip generation, trip distribution, modal split, and trip assignment, as well as alternatives such as leveraging the increasing availability of Activity-Based Models
- g) Considering the degree of accuracy and precision in the forecasting process and how post-occupancy monitoring can help inform or refine the MTIA approach
- h) Applying context-sensitivity throughout the process, so that jurisdictions with a wide range of development patterns may have different performance standards or thresholds depending on site location or development intensity

5) How should new trends or emerging interests be incorporated in the new recommended practice?

The transportation planning and engineering professions are experiencing a wave of new ideas and technologies that may affect the way in which new development generates travel demand and how communities may look to the private sector to help address that demand. These include:

- a) Market trends for development: (emerging land uses, local contexts, and demographics)
- b) Market trends for travel: (shared vehicle economy and automated vehicles)
- c) Multimodal trip generation: (including the consideration of the production-consumption link within goods movement planning)
- d) Transportation systems management and operations considerations, particularly regarding the potential for “big data” from both public sector and third-party providers to help measure and monitor existing conditions, forecast future conditions, and mitigate impacts.
- e) Reliability, both regarding the appropriateness of data samples for performance measures and as a potential measure of effectiveness
- f) Resiliency

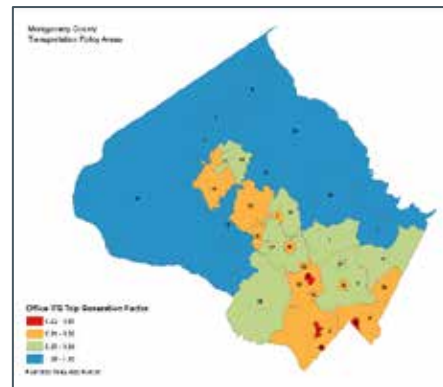


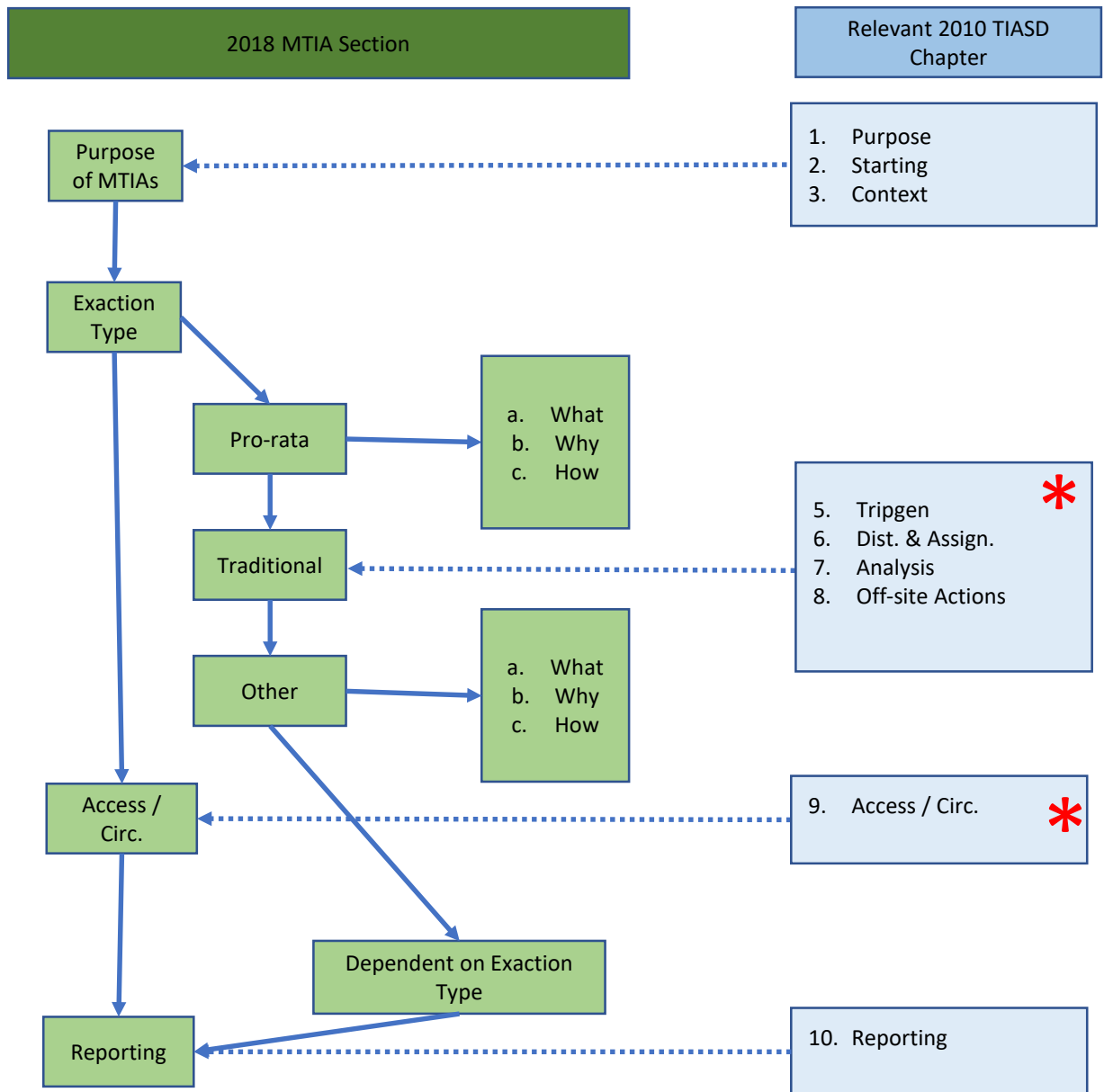
Figure 5. Trip generation resources are increasingly context-sensitive and multimodal.

ITE formally kicked off the development of the MTIA as part of the ITE Annual Meeting activities in August 2017. The process for developing and adopting a Recommended Practice has been streamlined so that a Proposed Recommended Practice should be ready for review and comment before the 2018 Annual Meeting. Stay tuned to ITE Community and other outreach tools for opportunities to get involved in, or just stay in touch with, the development of this updated Recommended Practice.

Relationship of 2010 TIASD and 2018 MTIA

(April 16 DRAFT)

Solid line indicates flow of 2018 MTIA. Dashed line indicates 2010 Chapters to be updated and used to inform 2018 MTIA



Areas of new technical focus include: Transit (Informational Report contents), bicycle, pedestrian, freight, safety, TDM, mobility-as-a-service. emerging analysis tools

New resources include: example ordinances, linkages to multimodal and context-sensitive tripgen

ITE MTIA: 2018 Annual Meeting Table of Concepts

Note: Where ID numbers are skipped, the initial concept was ultimately incorporated within another concept

ID	Concept Title	Evaluating Current Practices		Seeking Emerging Practices
		Pro Rata Share	Traditional	
1	Replace vehicle-trip study thresholds with person-trip thresholds		X	
2	Replace auto LOS with VMT		X	
3	Replace LOS or spot-delay with tour-based/trip-based travel time			X
4	Incorporate multimodal QOS		X	
5	Incorporate bicycle level of traffic stress		X	
6	Incorporate safety mitigation			X
7	Incorporate Quality of Life impacts			X
8	Context-sensitive trip generation		X	
9	Multimodal trip generation		X	
10	Incorporation of TNC and MAAS		X	
11	Vehicle impact on non-auto QOS		X	
12	CV/AV evolutionary impacts			X
13	EV needs (access/circulation, power sources, etc.)			X
15	LOS/QOS thresholds by functional class or modal emphases		X	
16	Range of acceptable trip-generation thresholds			X
17	Ranges of acceptable LOS within jurisdictions		X	
19	Boundary between capital and operating costs for mitigation			X
20	Acceptable impacts to established residential neighborhoods		X	
21	Alternative intersection designs			X
22	Incorporate pro-rata share districts	X		
23a	When to create pro-rata share district	X		
23b	When to change pro-rata share district	X		
24	Equitable district boundaries	X		
25	Incorporate Transit Quality of Service criteria		X	
30	Service standards for districts	X		
31	District infrastructure fee program	X		
32	Monitoring program for districts	X		
34	Incorporate Pedestrian Crossing Permeability		X	
35	Transit agencies proactive in process		X	
36	Freight trip generation			X
37	Reliability and resiliency			X
38	Connectivity and multimodal accessibility			X

What is the Concept?

Replace use of vehicle-trips in TIA with **person-trips** in MTIA

Description

Premise: You'll get what you measure. Vehicle-only metrics yield vehicle-only impacts and mitigation. Person trip metrics are inherently multimodal and based on variable land use context. Mitigation Nexus could range from maintenance of to enhancement of pre-development project multimodal conditions via TDM strategies to reduce SOVs.

Augment or Replacing TIASD page?

Replace traditional TIA vehicle-only metrics

Where does it fit in MTIA?

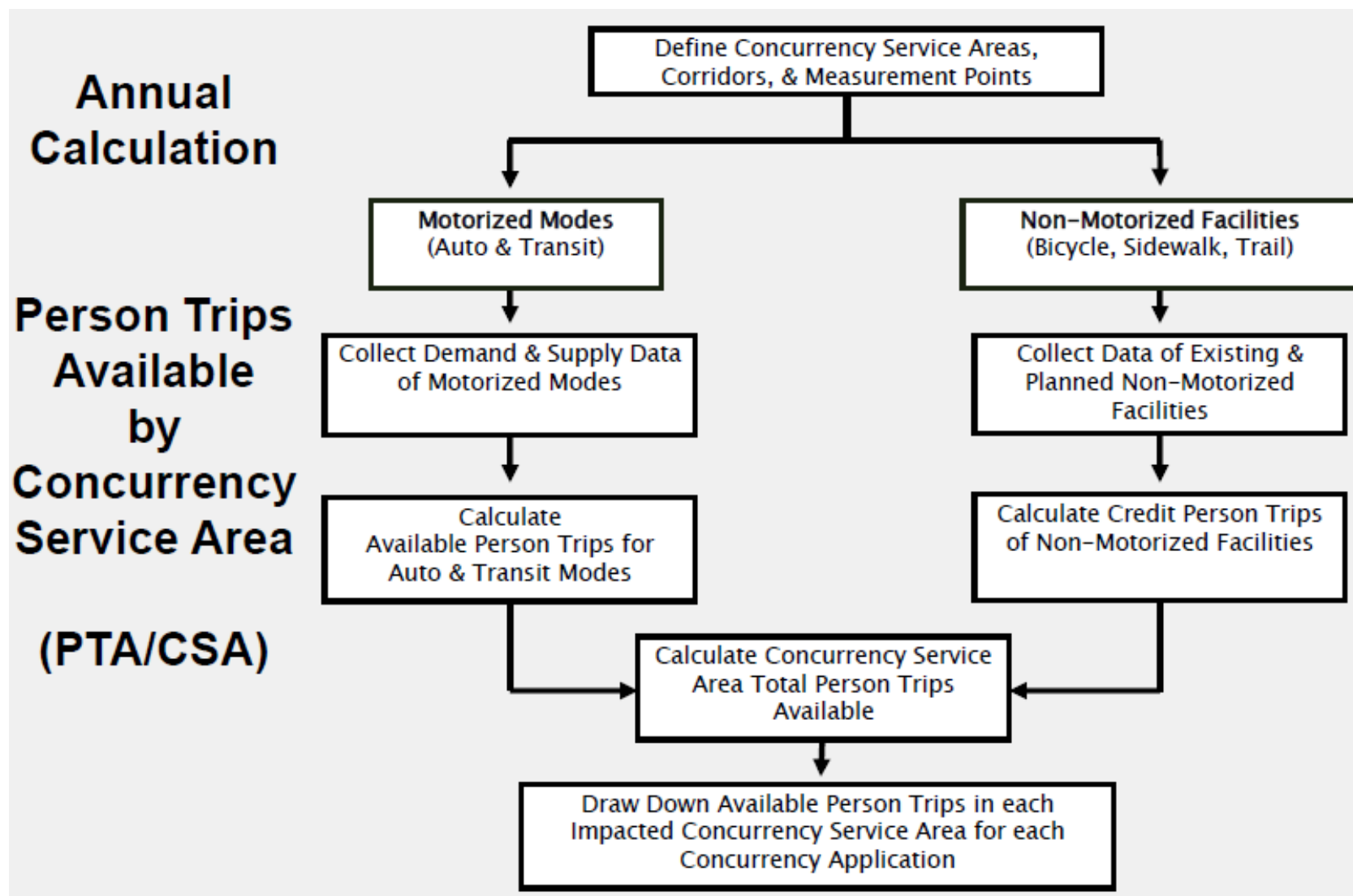
Within "Accepted Methodology" section

Are there emerging/ best practices?

- Montgomery County, MD: (LATR Guidelines)
- Bellingham, WA: Multimodal Transportation Concurrency Program
- Bellingham, WA: Transportation Report on Annual Mobility (TRAM)
- Portland, OR: Person Trip-based Transportation System Development Charges

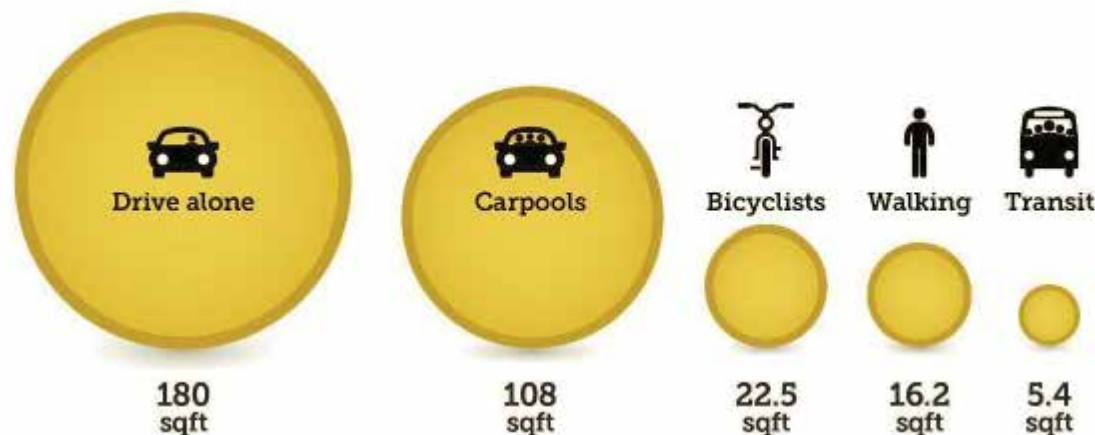
Links

Montgomery County, MD: http://montgomeryplanning.org/wp-content/uploads/2017/12/LATR-Guidelines-Production-Final_122017-PRODUCTION-WEB.pdf
 Bellingham, WA: <https://www.cob.org/services/planning/transportation/Pages/multi-modal-trac.aspx>
 Bellingham, WA TRAM: <https://www.cob.org/services/planning/transportation/Pages/Transportation-Reports-on-Annual-Mobility.aspx>
 Portland, OR: <https://www.portlandoregon.gov/transportation/46210>



Bellingham, WA Multimodal Transportation Concurrency Program Calculation of Person Trips

Figure 4-2: Comparison of Street Capacity Use by Mode



Drive Alone trips take up 180 square feet on average, based on a typical passenger vehicle. Compared to a drive alone trip:

- **Carpools** take up 60% less space than driving alone per person trip. This was estimated using the regional travel model estimate that the average carpool carries 2.4 people.
- **Bicyclists** use 87.5% less space per person trip. This estimate was developed using a very conservative assumption that bicycles are roughly a quarter the size of a car and no more than half of cyclists are using arterial travel lanes (the remaining cyclists are using existing exclusive facilities, which include trails, cycle tracks, and bike lanes).
- **Walking** takes 91% less space than drive alone travel. Since most pedestrian travel occurs outside of arterial travel lanes in existing sidewalks, pedestrian usage of arterial travel lanes would be limited to locations where the pedestrian realm extends into the roadway, such as crosswalks and bulb outs.
- **Transit** requires roughly 97% less space per person trip than driving alone. This was based on each full bus requiring 5 square feet of space per passenger⁴.

Portland, OR – Calculation of Person Trips Based on Amount of Physical Transportation Space Used

What is the Concept?

Augment or replace auto LOS with **Vehicle Miles of Travel**

Description

Use VMT in determining traffic impact by defining impact as relatively high levels of VMT with mitigation focused on VMT reduction strategies

Augment or Replacing TIASD page?

Augment

Where does it fit in MTIA?

Within MTIA “Other” section

**Are there emerging/
best practices?**

California Office of Planning and Research (OPR) - recommendation
California Environmental Quality Act (CEQA) – removal of auto LOS as requirement
City of Pasadena - implementation

Links

<http://opr.ca.gov/ceqa/updates/sb-743/>
<https://ww5.cityofpasadena.net/transportation/.../Current-Practice-and-Guidelines.pdf>
<https://ncst.ucdavis.edu/wp-content/uploads/2016/08/Kaylor-Report.pdf>
<http://www.fehrandbeers.com/sb743/>

What is the Concept?

LOS impacts based on full trip rather than intersection-specific

Description

Are there types of development sufficiently low impact (e.g., infill residential in a jobs-only activity center?) to warrant different *de minimis* status not requiring analysis?

Augment or Replacing TIASD page?

Augment

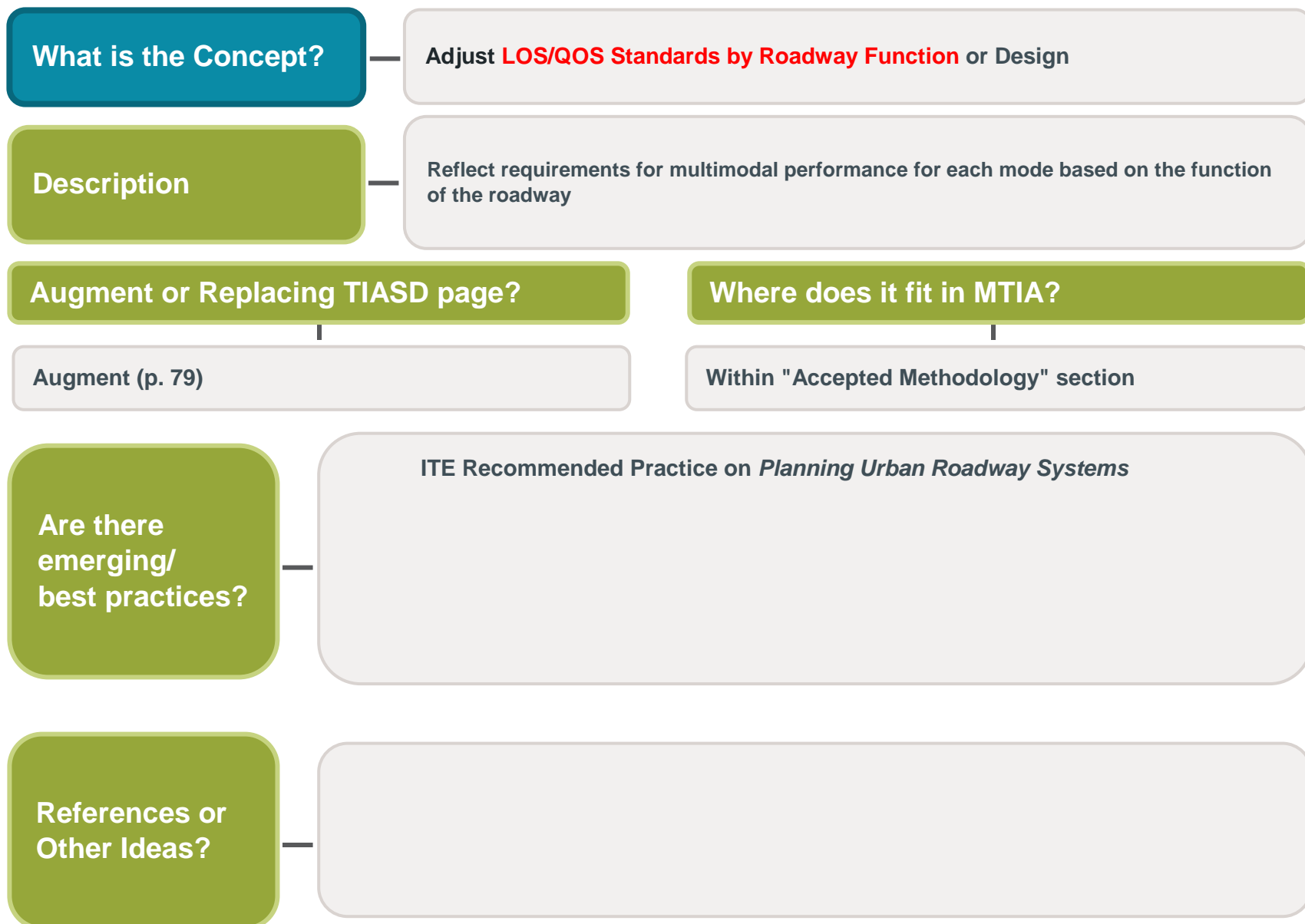
Where does it fit in MTIA?

Within MTIA “Traditional” section

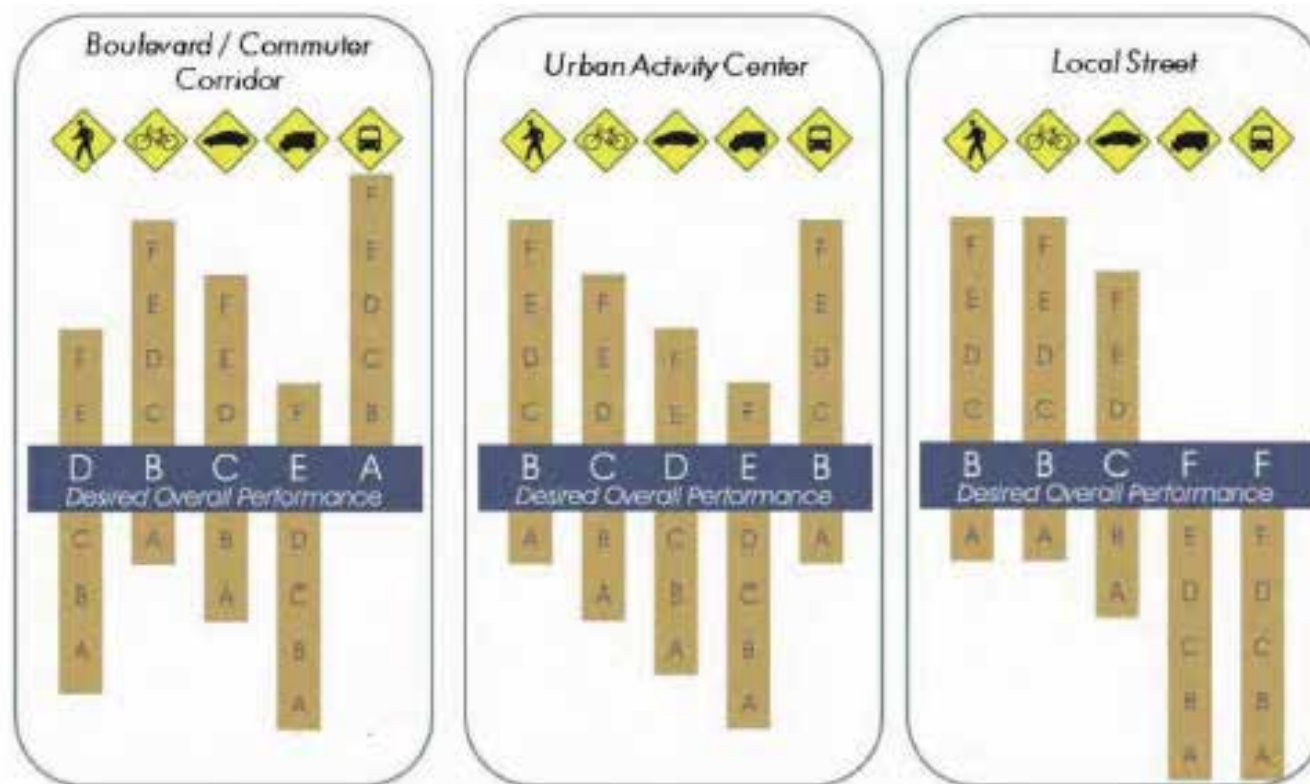
Are there emerging/
best practices?

Montgomery County considers effect on network-wide performance, rather than each intersection/segment, in urban areas. Could this approach be applied to the effect on door-to-door travel?

References or
Other Ideas?



ITE Recommended Practice on Planning Urban Roadway Systems



The identification of context-sensitive quality-of-service objectives for each mode of travel is one way to consider modal emphasis. Source: Institute of Transportation Engineers, 2014

What is the Concept?

Incorporate **Bicycle Level of Traffic Stress** in MTIA

Description

Traditional TIAs with vehicle-only metrics do not measure the impact of development-based new vehicle trips on the existing sidewalk and bicycle facilities that the City has invested in. Mitigation Nexus: Maintain or enhance pre-development bicycle level of traffic stress conditions via TDM strategies to reduce SOVs.

Augment or Replacing TIASD page?

Augment traditional TIA vehicle-only metrics

Where does it fit in MTIA?

Within "Required Baseline Data" section of MTIA

Are there emerging/ best practices?

- Seattle, WA: Bicycle Master Plan
- Bellingham, WA: Bicycle Master Plan
- Mineta Transportation Institute

Links

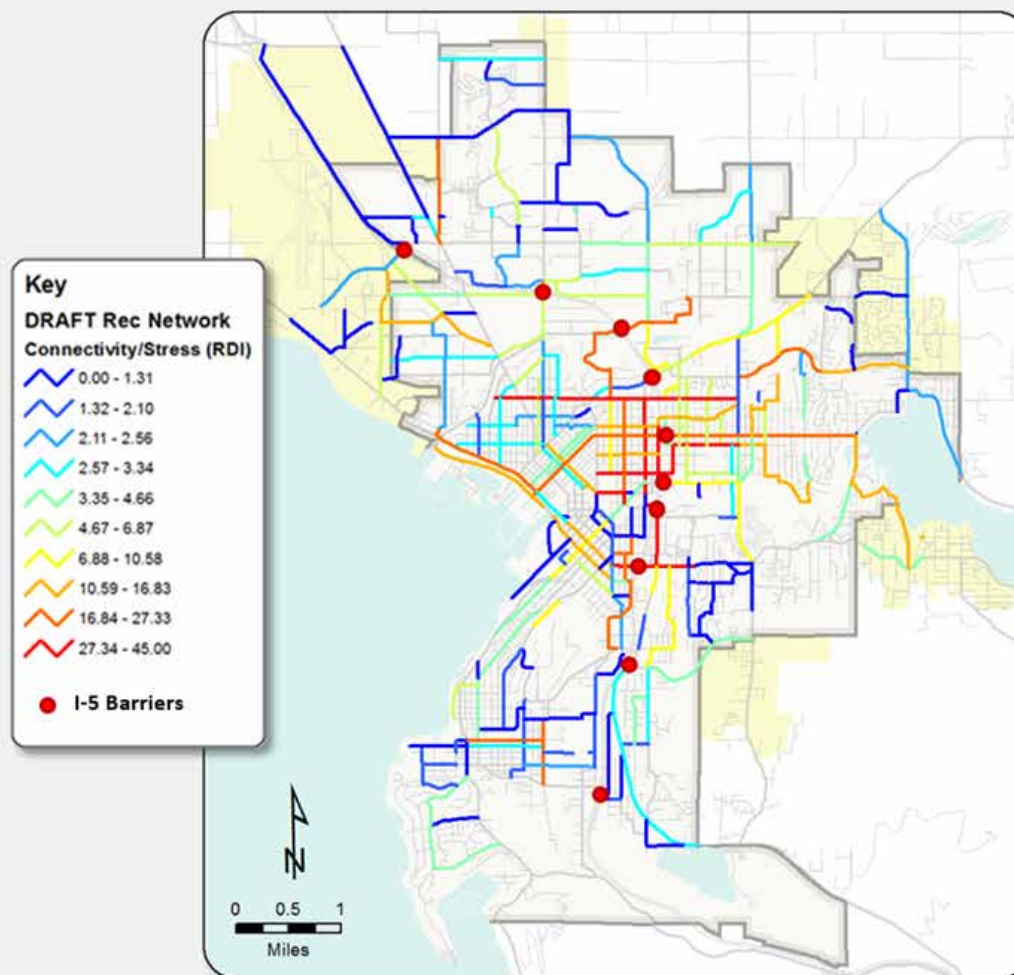
Seattle, WA: <http://www.seattle.gov/transportation/projects-and-programs/safety-first/vision-zero/resources/bicycle-level-of-traffic-stress>
 Bellingham, WA: <https://www.cob.org/services/planning/transportation/pages/bike-master-planning.aspx>
 Mineta Transportation Institute: <https://transweb.sjsu.edu/research/low-stress-bicycling-and-network-connectivity>

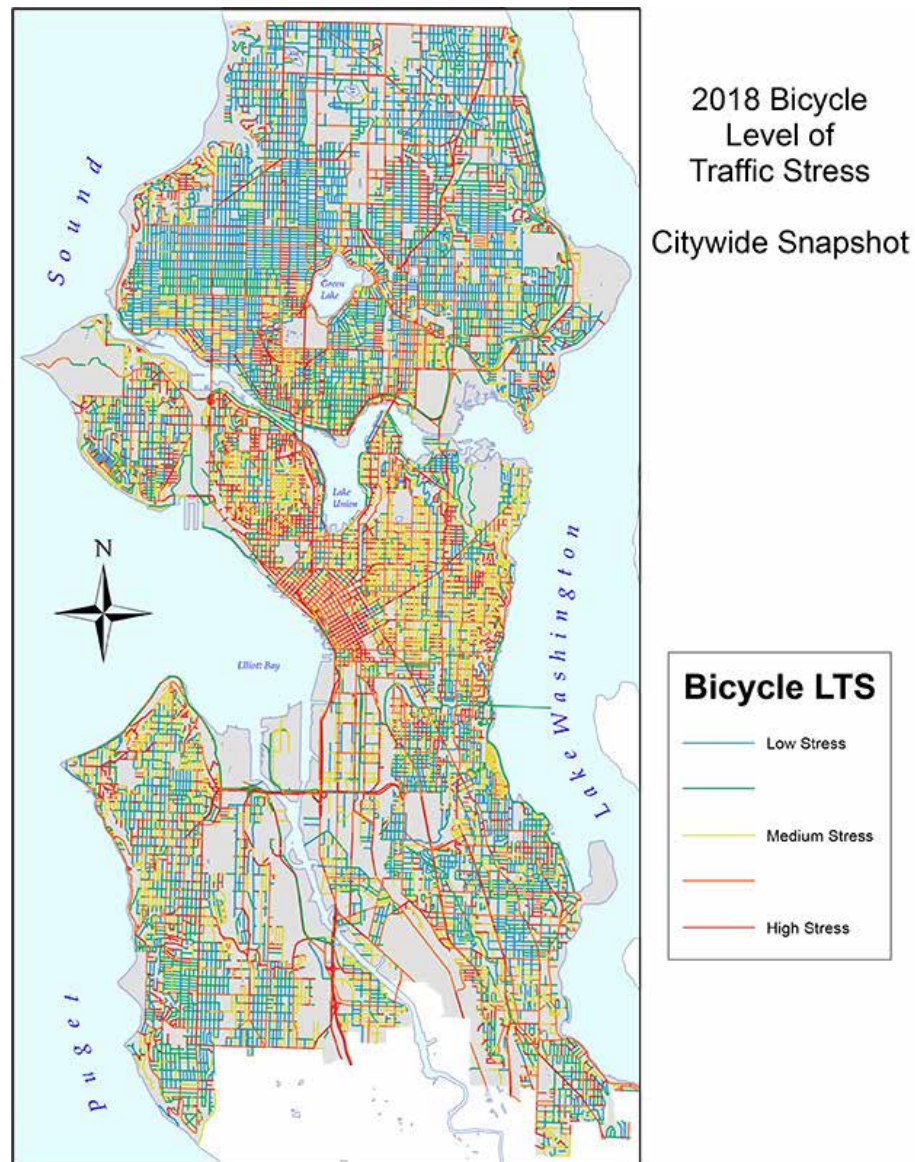
Prioritization Factors

Connectivity/Stress

- Connectivity
- Vehicle Presence
- Slopes

Measuring the relative change in connectivity and stress between the baseline network measurement and the recommended network measurement.





Seattle Bicycle Master Plan

What is the Concept?

Incorporate **Safety Impacts and Mitigation** Into Analysis

Description

Consider means for incorporating the increased exposure from trip generation into an assessment of traffic safety impacts requiring mitigation.

Augment or Replacing TIASD page?

Augment TIASD (p. 76)

Where does it fit in MTIA?

Within "Traditional Methodology" section

**Are there emerging/
best practices?**

Montgomery County, MD requires applicant to address offsite ADA issues if pedestrian trip generation is greater than 50 per hour. **What are the opportunities for expanding to address other offsite safety deficiencies?**

**References or
Other Ideas?**

What is the Concept?

Incorporate other **Quality of Life elements**

Description

What opportunities exist to incorporate other definitions of health, safety, and welfare that are linked to transportation performance?

Augment or Replacing TIASD page?

Augment

Where does it fit in MTIA?

Within MTIA “Traditional” section

**Are there emerging/
best practices?**

Sustainability ratings programs (e.g., INVEST, Greenroads)? How best to define either acceptable criteria or mitigation?

**References or
Other Ideas?**

What is the Concept?

Incorporate **Context-sensitive and multimodal trip generation rates**

Description

Conduct analyses on each travel mode depending upon modal trip generation that is sensitive to the land use and transportation environment and responsive to TDM treatments

Augment or Replacing TIASD page?

Augment TIASD (p.40)

Where does it fit in MTIA?

Within "Traditional Methodology" section

**Are there emerging/
best practices?**

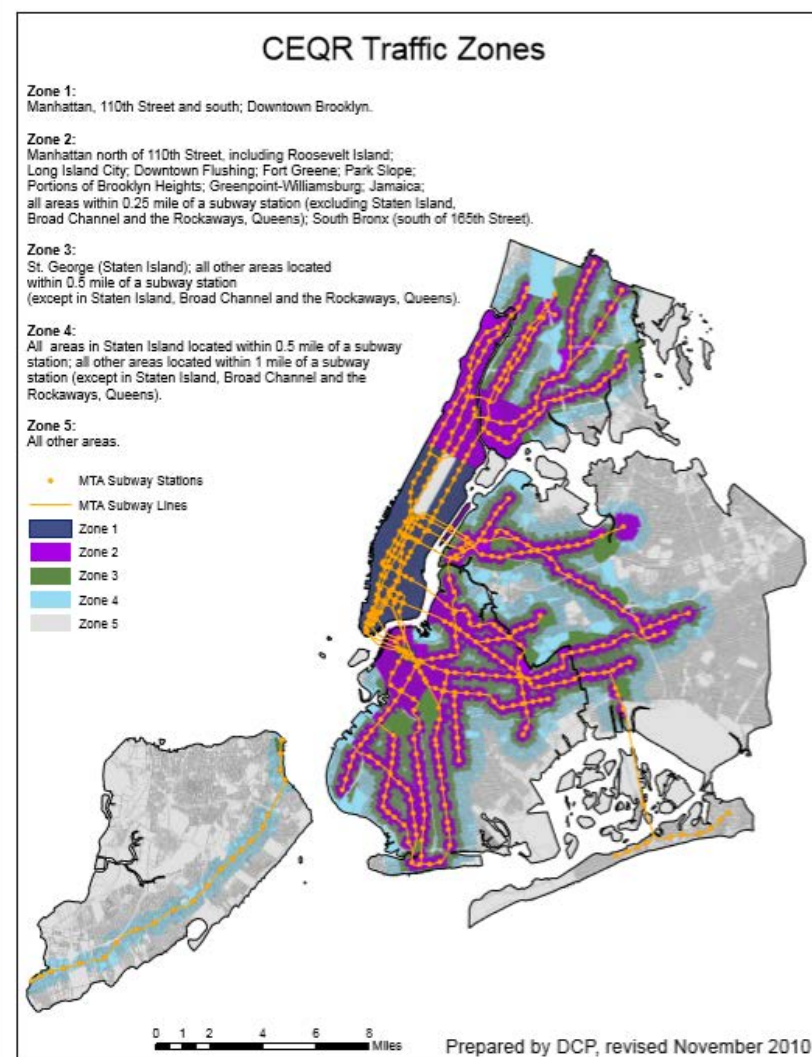
Montgomery County, MD and New York City have geographically-specific trip generation and mode split factors.

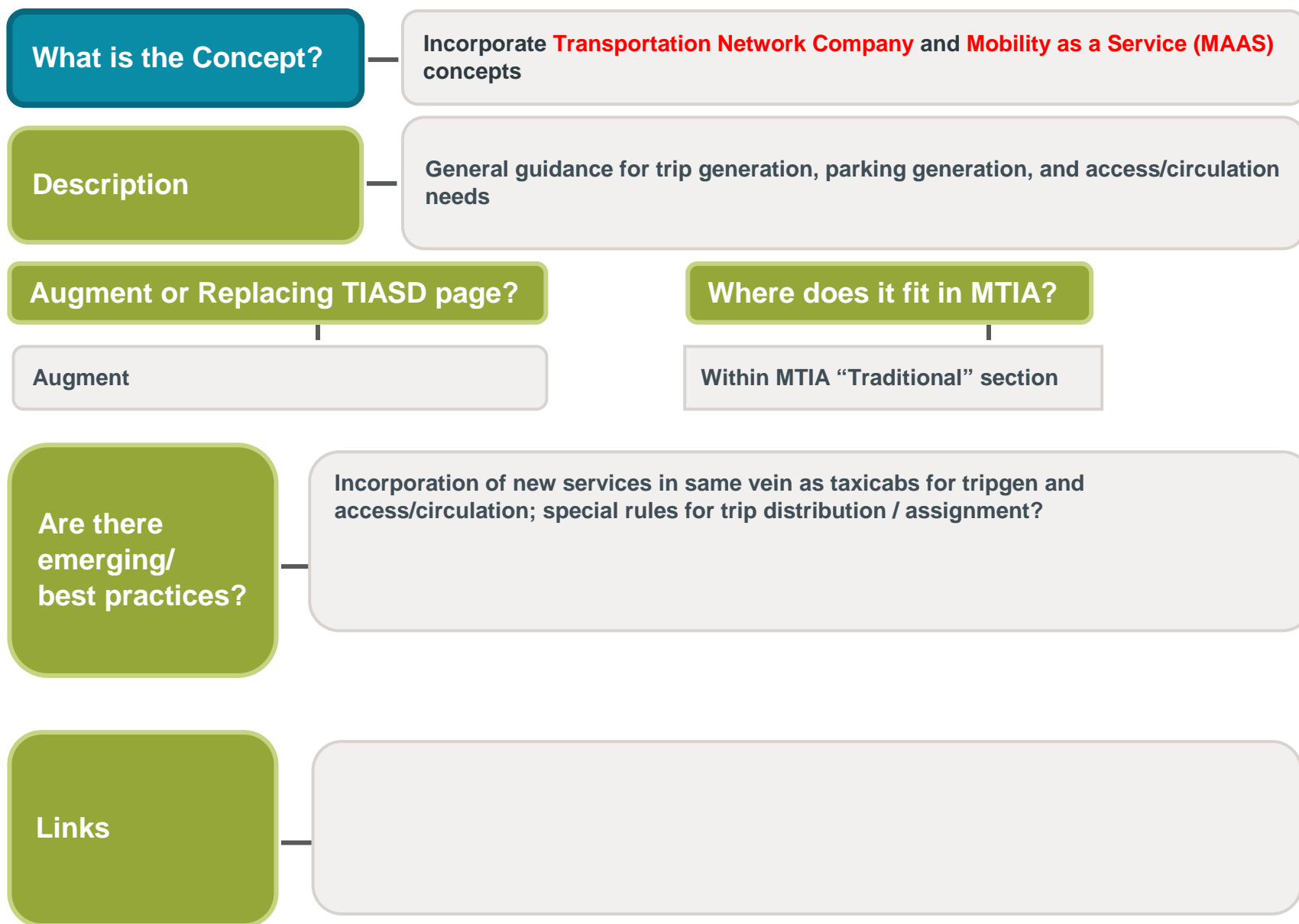
Links

http://montgomeryplanning.org/wp-content/uploads/2017/12/LATR-Guidelines-Production-Final_122017-PRODUCTION-WEB.pdf

https://www1.nyc.gov/assets/oec/technical-manual/16_Transportation_2014.pdf

Table 1. LATR Guidelines Appendix References for Trip Generation			
Appendix	Title/Purpose	Primary Use	Example Case
Table 1a	Institute of Transportation Engineers (ITE) Vehicle Trip Rate Adjustment Factors	Adjust ITE estimate of site-generated vehicle trips	Using the average rates from pages 1260 and 1261 of the ITE 9th Edition Trip Generation Manual and Appendix Table 1a, the site is estimated to generate $156 \times 0.95 = 148$ a.m. peak-hour vehicle trips and $149 \times 0.95 = 142$ p.m. peak-hour vehicle trips. The a.m. peak hour is the critical peak hour for person-trip generation analysis as the ITE vehicle-trip rate is higher for the a.m. peak hour than for the p.m. peak hour.
Table 1b	Mode Split Assumptions by Policy Area	Identify which modes require quantitative analysis by considering the number of person trips generated by each mode for the subject policy area.	<p>The number of person trips generated by a travel mode is the total number of person trips multiplied by the mode share for that mode.</p> <p>The first step is to convert ITE vehicle trips to policy-area specific total person trips. For the a.m. peak hour, the total number of person trips is the number of vehicle trips divided by the Appendix Table 1b auto driver mode share ($148 / 72.1\% = 205$).</p> <p>The number of person trips exceeds the threshold of 50 so that a quantitative auto analysis is required.</p> <p>The next steps are to calculate person trips by transit and non-motorized modes for considering transit system adequacy, pedestrian system adequacy and bicycle system adequacy.</p> <p>The number of transit trips ($205 \times 1.8\% = 4$) is fewer than the threshold of 50 so that a quantitative transit analysis is not required.</p> <p>The number of non-motorized trips ($205 \times 5.0\% = 10$) plus the number of transit trips (4, from above) totals 14, or fewer than the threshold of 50, so a quantitative pedestrian analysis is not required.</p> <p>The number of non-motorized trips (10, as shown above) is fewer than the threshold of 50, so a quantitative bicycle analysis is not required, regardless of whether the site is within a quarter mile of an educational institution or an existing or planned bike parking area or bikeshare station.</p>





What is the Concept?

Incorporate **effect of new vehicle trips on multimodal performance** measures in MTIA

Description

Traditional TIAs with vehicle-only metrics do not measure the impact of development-based new vehicle trips on the existing sidewalk and bicycle facilities that the City has invested in. Mitigation Nexus could range from maintenance of to enhancement of pre-development project multimodal conditions via TDM strategies to reduce SOVs.

Augment or Replacing TIASD page?

Augment traditional TIA vehicle-only metrics

Where does it fit in MTIA?

Within "Required Baseline Data" section of MTIA

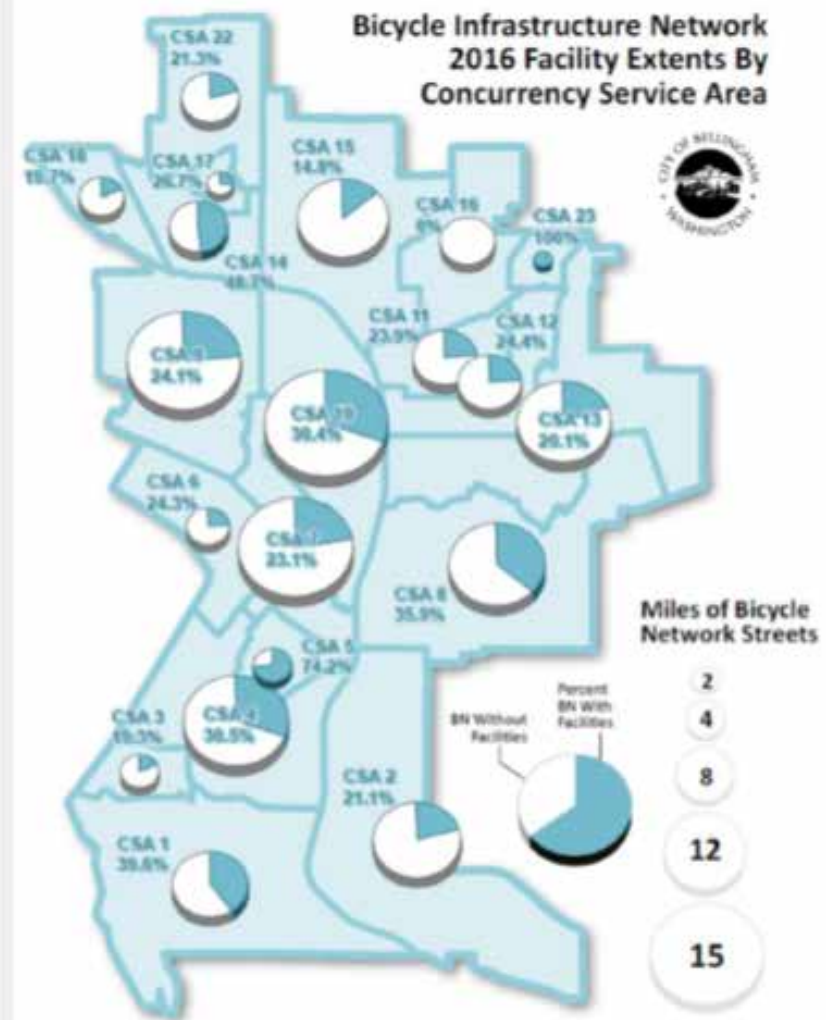
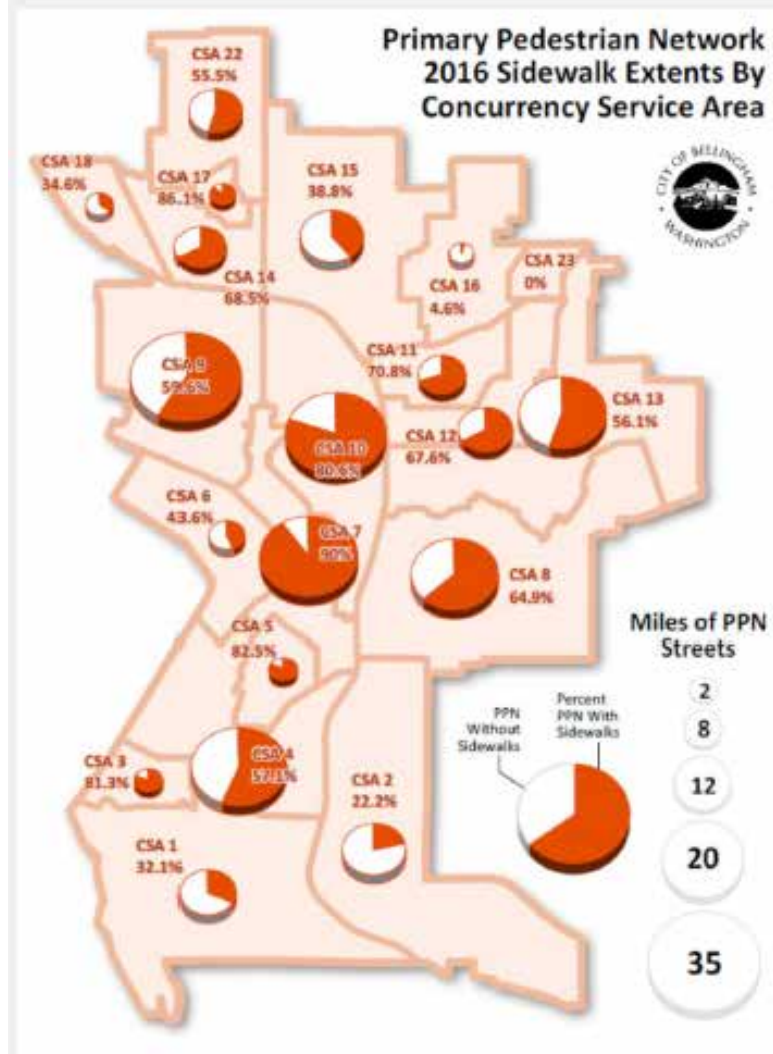
Are there emerging/ best practices?

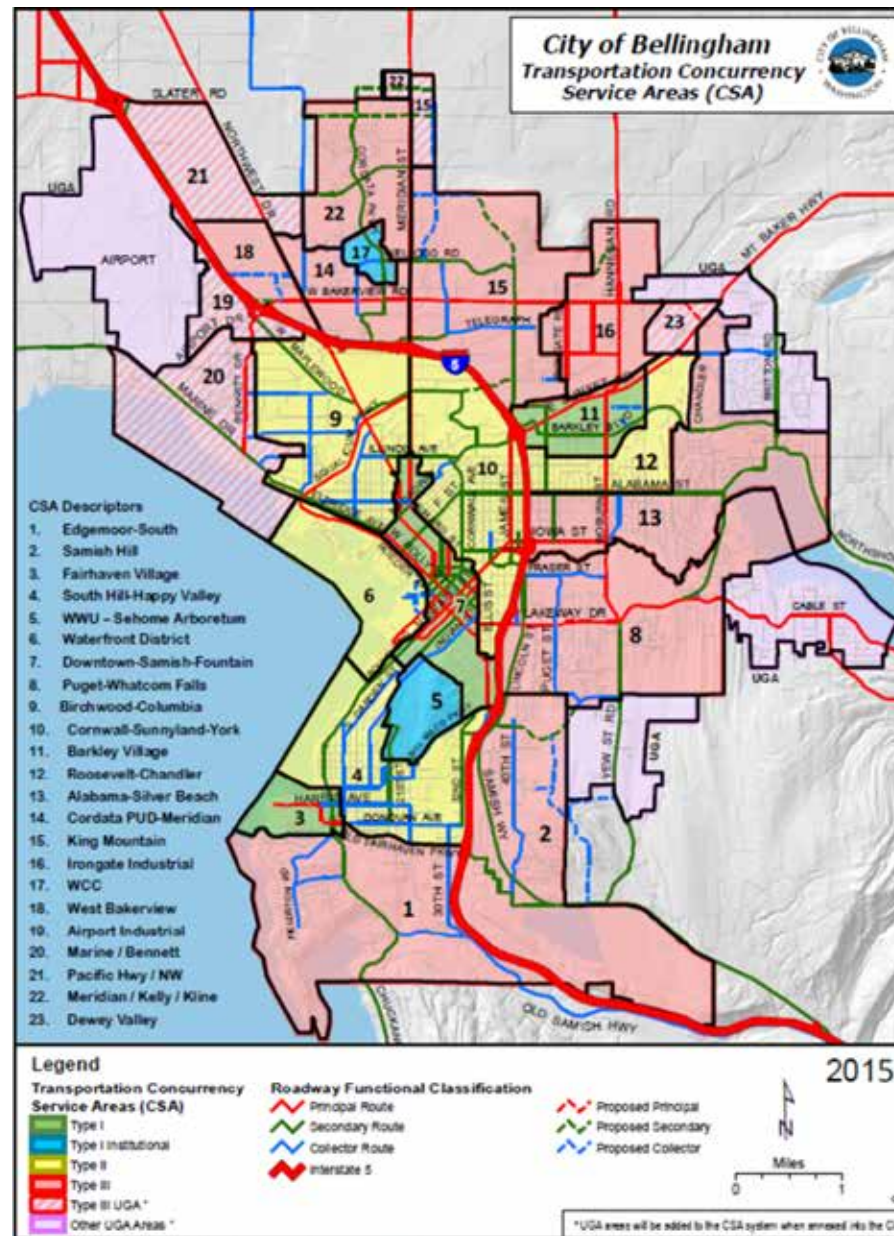
- Bellingham, WA: Multimodal Transportation Concurrency Program
- Bellingham, WA: Transportation Report on Annual Mobility (TRAM)
- Portland, OR: Person Trip-based Transportation System Development Charges

Links

Bellingham, WA: <https://www.cob.org/services/planning/transportation/Pages/multi-modal-trac.aspx>
 Bellingham, WA TRAM: <https://www.cob.org/services/planning/transportation/Pages/Transportation-Reports-on-Annual-Mobility.aspx>
 Portland, OR: <https://www.portlandoregon.gov/transportation/46210>

Pedestrian & Bicycle Network Completeness by CSA





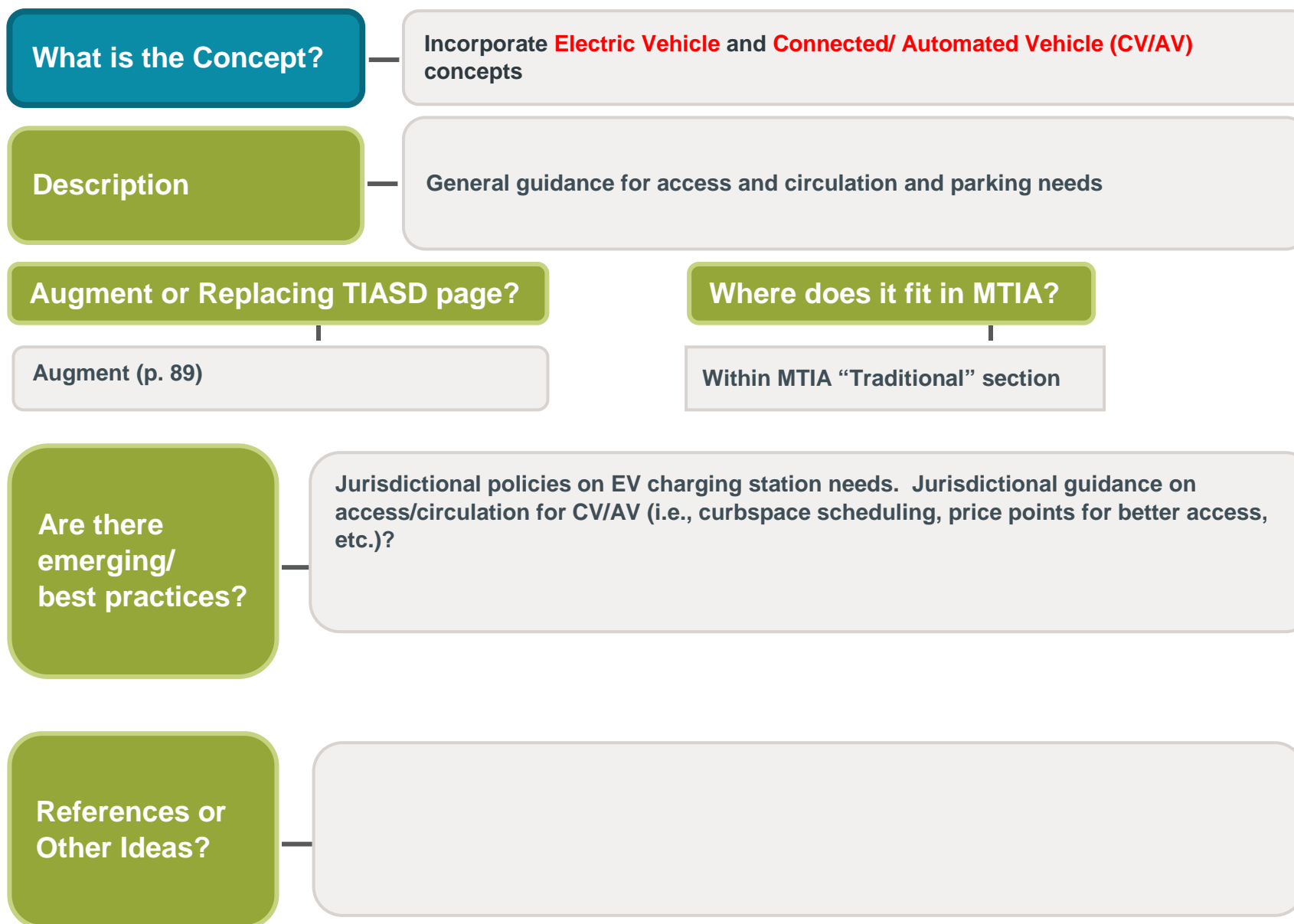
“Policy Dials”

Mode Weight Factors

Based on Land Use Typology

	Transportation Concurrency Service Areas		
Mode	Type 1 ¹	Type 2 ²	Type 3 ³
<i>Motorized</i>			
Auto			
Mode weight factor ⁴	0.70	0.80	0.90
Transit			
Mode weight factor ⁵	1.00	1.00	0.80
<i>Non-Motorized</i>			
Pedestrian			
Percent threshold for minimum system complete ⁶	50%	50%	50%
Person trip credit for 1% greater than minimum threshold ⁷	20	20	20
Mode weight factor ⁸	1.00	0.90	0.80
Bicycle			
Percent threshold for minimum system complete	50%	50%	50%
Person trip credit for 1% greater than threshold	20	20	20
Mode weight factor ⁹	1.00	0.90	0.80
Multi-Use Trails ¹⁰			
Person trip credit for 1% greater than threshold ¹¹	10	10	10
Mode weight factor ¹²	1.00	0.90	0.80

Bellingham, WA Multimodal Transportation Concurrency Program



What is the Concept?

Range of development thresholds triggering TIS depending on site context

Description

Are there types of development sufficiently low impact (e.g., infill residential in a jobs-only activity center?) to warrant different *de minimis* status not requiring analysis?

Augment or Replacing TIASD page?

Augment

Where does it fit in MTIA?

Within MTIA “Traditional” section

Are there emerging/
best practices?

This concept originates from California’s SB 743 focus on VMT; if development generates trips but has minimal effect on VMT, can a VMT-oriented finding be accepted as basis for different *de minimis* finding on travel impacts?

References or
Other Ideas?

What is the Concept?

Context-sensitive acceptable LOS ranges for portions of jurisdictions

Description

Acceptable LOS varies by jurisdiction, and by area within a jurisdiction. Discussion of range of acceptable LOS and considerations in selecting appropriate criteria

Augment or Replacing TIASD page?

Augment (p. 79)

Where does it fit in MTIA?

Within MTIA “Traditional” section

Are there emerging/ best practices?

NYC DOT – different analytic rules for each of five types of zones

Montgomery County MD – Seconds of delay per vehicle thresholds established for each policy area ranging from 41 seconds in rural areas to 120 seconds in most urban areas

Links

http://www.nyc.gov/html/oec/downloads/pdf/2014_ceqr_tm/2014_ceqr_tm_ch16_transportation_traffic_citywide.pdf

http://montgomeryplanning.org/wp-content/uploads/2017/12/LATR-Guidelines-Production-Final_122017-PRODUCTION-WEB.pdf

What is the Concept?

Providing operational solutions to mitigate impacts beyond TDM operations

Description

Negotiated terms (6 years, 12 years, etc.) for TDM strategies to reduce vehicle trip impacts are fairly widespread. Should the concept be expanded to roadway (ITS) or transit operations? What is the nexus?

Augment or Replacing TIASD page?

Augment (p.74)

Where does it fit in MTIA?

Within MTIA “Traditional” section

**Are there emerging/
best practices?**

FDOT guidance on funding transit operations with development mobility fees
<http://www.fdot.gov/transit/Pages/FinalMobilityFeeGuidebook111816.pdf>

**References or
Other Ideas?**

What is the Concept?

Alternative measures for **quality of life impacts on sensitive neighborhoods**

Description

Use alternative measures for determining traffic impact on sensitive neighborhoods such as established residential areas, historic districts, etc.

Augment or Replacing TIASD page?

Augment

Where does it fit in MTIA?

Within MTIA “Traditional” section

**Are there emerging/
best practices?**

City of Pasadena – switching to VMT per California SB 743 but retaining auto LOS for community protection purposes

Links

<https://ww5.cityofpasadena.net/transportation/.../Current-Practice-and-Guidelines.pdf>

What is the Concept?

Guidance on applicability of **innovative intersection mitigation**

Description

Should guidance on when to consider certain types of innovative intersections such as roundabouts, displaced left turn (DLT), restricted-crossing U-turn (RCUT), or median U-turns (MUT) be incorporated?

Augment or Replacing TIASD page?

Augment (p. 64, 85, 96 on roundabouts)

Where does it fit in MTIA?

Within MTIA “Traditional” section

**Are there emerging/
best practices?**

Cross referencing to roundabout design guides exists; are other references available and appropriate?

**References or
Other Ideas?**

What is the Concept?

Incorporate **pro-rata share districts**.

Description

While Special Assessment Districts (SADs) of various types have existed for some time, pro-rata share districts, also known as impact fee districts, are relatively recent, originating in Florida and California in the late 1970's. They are distinguishable from other SADs primarily by the fact there is a rational nexus between the impact of a new development on the infrastructure and the fee paid. To the extent that everyone pays, regardless of whether they are developing, the fees are not proportionate to the development impact or use of the fees is not limited to addressing development impacts, SADs are tax districts, as opposed to fee districts, and do not fit the model addressed here.

Augment or Replacing TIASD page?

Augment TIASD

Where does it fit in MTIA?

Within "Pro-rata Share Districts" section

**Are there emerging/
best practices?**

Operating examples include:
The White Oak Local Area Transportation Improvement Program and, to a lesser degree, the White Flint Special Taxing District, both in Montgomery County, Maryland; The Westtown and Southern New Castle County Transportation Improvement Districts (TIDs) in Delaware; The Mercer County Transportation Development District in New Jersey; South Leawood and the 135th Street Corridor in Leawood, Kansas; Palo Alto, California; and Bellingham, Washington.

Links

http://montgomeryplanning.org/wp-content/uploads/2017/12/LATR-Guidelines-Production-Final_122017-PRODUCTION-WEB.pdf
<http://udspace.udel.edu/bitstream/handle/19716/16845/TID-Guide-2015-Final-Web.pdf>
https://www.deldot.gov/Business/subdivisions/pdfs/changes/Development_Coordination_Manual-Chapter_2.pdf?041116
<https://www.cutr.usf.edu/oldpubs/Fairshare%20Report.pdf#page=17>
<https://www.cob.org/documents/pw/transportation/practicing-planner-case-study.pdf>

What is the Concept?**Conditions for when to create a **pro rata share district******Description**

Creation of a pro rata share district, should be considered when individual Transportation Impact Assessments are not achieving desired results. Such situations include:

- Areas experiencing or expected to experience sudden growth, where the unified planning effort associated with a district can better assess impacts.
- Areas with large infrastructure needs, where a district can serve as an administrative tool to focus developer contributions where they are most needed and, as appropriate, to supplement them with public funds.
- Areas with developments of varying sizes, where a district can assure that costs are distributed more equitably.
- Areas with concurrency requirements, where a district may be a desirable alternative to allow the creation of denser development within the district and ease pressure on rural areas outside the district.

Augment or Replacing TIASD page?

Augment TIASD

Where does it fit in MTIA?

Within "Pro-rata Share Districts" section

**Are there emerging/
best practices?**

Transportation Improvement Districts: A Guide for Delaware Local Governments, page 5.

Links

<http://udspace.udel.edu/bitstream/handle/19716/16845/TID-Guide-2015-Final-Web.pdf>

What is the Concept?**When to change a *pro rata share district***

Typically the creation of a pro rata share district originates with the adoption of a comprehensive plan and a subsequent land use and transportation planning study. Therefore a significant change to the comprehensive plan should prompt an update to the planning study and changes, as necessary, to the district.

Also, inevitably, there will be conditions that were not addressed by the planning study for the district:

- Planned infrastructure will be delayed or its cost will increase.
- Some developments will generate more or less traffic than was assumed in planning for the district.
- Some developments will occur late, relative the horizon year for the district, and have their full impacts in a situation beyond what was addressed in the initial planning study.
- Regardless of the fee basis, some developments will have a disproportionately higher or lower impact than would be expected on that basis.

A district should have procedures for addressing the need for change.

Description**Augment or Replacing TIASD page?**

Augment TIASD

Where does it fit in MTIA?

Within "*Pro-rata Share Districts*" section

**Are there emerging/
best practices?**

As an example, in Montgomery County's White Oak Local Area Transportation Improvement Program, the impact fee is recalculated in odd-numbered years to reflect changes in the cost of projects in the program and the program of projects and the calculation of peak-hour vehicle-trips is comprehensively reviewed every six years, or sooner if the White Oak Master Plan is significantly amended.

Links

http://montgomeryplanning.org/wp-content/uploads/2017/12/LATR-Guidelines-Production-Final_122017-PRODUCTION-WEB.pdf

What is the Concept?

Equitable **Pro-Rata Share District** Boundaries

Description

Often a pro-rata share district is created for an entire municipality, e.g. Palo Alto, California or Bellingham, Washington. For smaller areas, there can be a question of how to create district boundaries that adequately capture development impacts, fairly assess costs, and influence development patterns only as desired.

Augment or Replacing TIASD page?

Augment TIASD

Where does it fit in MTIA?

Within "Pro-rata Share Districts" section

Are there emerging/best practices?

Delaware Department of Transportation Development Coordination Manual. Section 2.4.2.3.

Links

http://montgomeryplanning.org/wp-content/uploads/2017/12/LATR-Guidelines-Production-Final_122017-PRODUCTION-WEB.pdf
https://www.deldot.gov/Business/subdivisions/pdfs/changes/Development_Coordination_Manual-Chapter_2.pdf?041116

What is the Concept?

Incorporate **transit Quality of Service** in a multimodal transportation impact study

Description

Utilize accepted methodologies such as derived from the TRB Transit Capacity and Quality of Service Manual to consider and evaluate public transit, including both impacts and mitigation measures.

Augment or Replacing TIASD page?

Augment throughout (i.e., p. 32, 88)

Where does it fit in MTIA?

Within “Traditional Methodology” approaches

Are there emerging/ best practices?

MassDOT Transit Quality of Service
Fort Collins Multimodal Level of Service Manual
City of San Francisco Transportation Impact Guidelines for Environmental Review
Florida DOT Transportation Site Impact Handbook
New York City Environmental Quality Review Technical Manual

Links

https://www.massdot.state.ma.us/Portals/17/docs/DevelopmentReview/TIA_Guidelines_3_13_2014.pdf
<https://www.fcgov.com/drg/pdf/los-manual.pdf?1209741683>
http://default.sfplanning.org/publications_reports/Transportation_Impact_Analysis_Guidelines.pdf
<http://sf-planning.org/transportation-impact-analysis-guidelines-environmental-review-update>
http://www.fdot.gov/planning/systems/programs/sm/siteimp/PDFs/TSIH_April_2014.pdf
http://www.nyc.gov/html/oec/downloads/pdf/2014_ceqr_tm/2014_ceqr_technical_manual_rev_04_27_2016.pdf

Transit QOS Criteria	Examples of QOS Applied by Agencies	Specific methodology cited in TIS guidelines?
Transit Multimodal LOS (Bus Route and Segment QOS)	MassDOT (in certain cases)	HCM 2010 Transit MMLOS
	VDOT (in certain cases)	TC&QOS Manual (TCRP report no.165)
Headway / Service Frequency	Oakland, Halifax, Washington DC, Waterloo, MassDOT, FDOT	none
Hours of Service	Oakland, Washington DC, MassDOT, Waterloo	none
Transit - auto travel time difference	San Francisco	N/A
Change in average dwell time	VDOT, MassDOT	TC & QOS manual 2 nd edition
Diminish Transit Speeds/ increase transit travel time/ increase transit delay	Required by the following agencies in the impacts section: Oakland, Ottawa, Waterloo, MassDOT	none
Passenger Load (passengers per seat or passengers per square foot)	Waterloo, MassDOT, New York, Washington DC (if >30 peak hour transit trips are generated)	none

What is the Concept?

Service standards for **pro-rata share districts**

Description

In planning transportation infrastructure within a district, it is essential to define how adequacy will be measured. Automobile-oriented Level of Service (LOS) is essential but in an area where creation of a district is being considered, other modes of transportation, e.g. walking, bicycling and transit, are also relevant.

Augment or Replacing TIASD page?

Augment TIASD

Where does it fit in MTIA?

Within "Pro-rata Share Districts" section

Are there emerging/ best practices?

Montgomery County, Maryland's Local Area Transportation Review Guidelines and Bellingham, Washington's Transportation Concurrency Program are relevant for their treatments of multi-modal LOS. Delaware's Development Coordination Manual is relevant for its discussion of creating standards relating to the streetscape, apart from LOS.

Links

http://montgomeryplanning.org/wp-content/uploads/2017/12/LATR-Guidelines-Production-Final_122017-PRODUCTION-WEB.pdf
<https://www.cob.org/services/planning/transportation/Pages/multi-modal-trac.aspx>
<http://udspace.udel.edu/bitstream/handle/19716/16845/TID-Guide-2015-Final-Web.pdf>
https://www.deldot.gov/Business/subdivisions/pdfs/changes/Development_Coordination_Manual-Chapter_2.pdf?041116

What is the Concept?

Pro rata share district infrastructure fee program

Description

Inherent in pro-rata share districts is the concept of pro-rating infrastructure costs per some measure common to the developments within the district. For example, in the White Oak (Montgomery County, MD) Local Area Transportation Improvement Program, the total costs of design, land acquisition, construction, site improvements and utility relocation are apportioned based on a subdivision's share of net additional peak-hour vehicle trips generated by all master planned development in the White Oak Policy Area approved after January 1, 2016. What is included in costs and how they are apportioned varies from one jurisdiction to another. Commonly, for ease of administration, fee tables are developed so that the fees can be assessed per dwelling unit or per non-residential square foot.

Augment or Replacing TIASD page?

Augment TIASD

Where does it fit in MTIA?

Within "Pro-rata Share Districts" section

Are there emerging/ best practices?

A link to Bellingham, Washington's fee program is provided below as an example.

Links

<https://www.cob.org/services/planning/transportation/Pages/transportation-impact-fees.aspx>

What is the Concept?

Monitoring program for **pro-rata share districts**

Description

Creation of a district implies a responsibility for the government creating it to provide infrastructure as needed. When the district is the entire area under the government's jurisdiction, this responsibility is fulfilled by the development of their capital program. Where the district is smaller, a more geographically focused effort is needed.

Augment or Replacing TIASD page?

Augment TIASD

Where does it fit in MTIA?

Within "Pro-rata Share Districts" section

Are there emerging/best practices?

DeIDOT [Development Coordination Manual](#), Section 2.4.3.2.

Links

https://www.deldot.gov/Business/subdivisions/pdfs/changes/Development_Coordination_Manual-Chapter_2.pdf?041116

What is the Concept?

Develop Measurements for **Pedestrian Crossing Permeability** in MTIA

Description

Like “intersection density” as a measure of urban density and connectivity, the number of pedestrian crossings along a corridor indicates how permeable a transportation is from a walking perspective. A index table could list low-to-high permeability base don number and type of crossings (marked or signalized).

Augment or Replacing TIASD page?

Augment traditional TIA vehicle-only metrics

Where does it fit in MTIA?

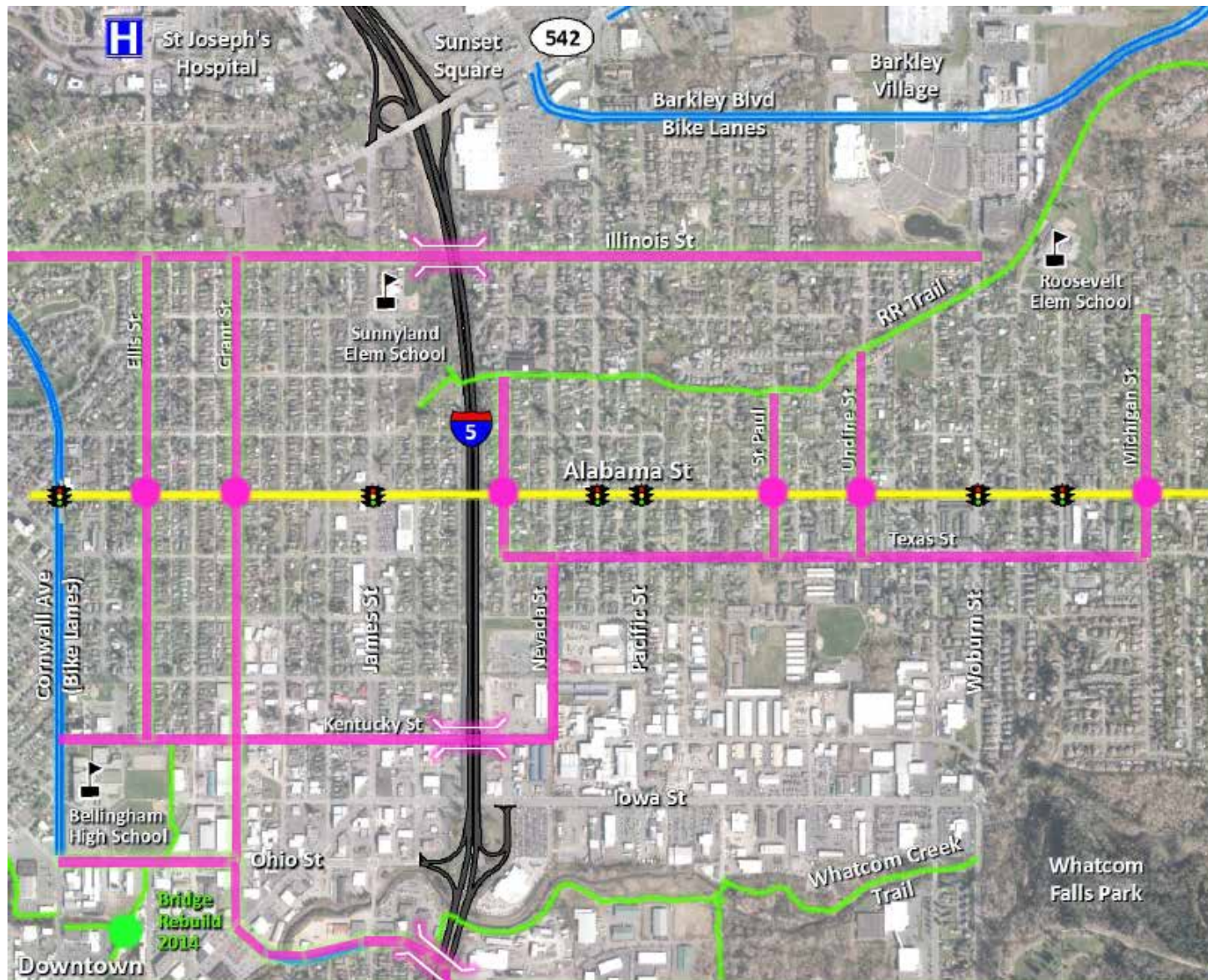
Within "Required Baseline Data" section of MTIA

Are there emerging/ best practices?

- Best practices in United Kingdom, Australia, New Zealand

Links

Australia: <https://www.healthyplaces.org.au/userfiles/file/Connectivity%20June09.pdf>
 Ireland: https://www.nationaltransport.ie/wp-content/uploads/2011/12/NTA_Permability_Report_-_Web.08.20151.pdf
 New Zealand: <https://www.nzta.govt.nz/assets/resources/pedestrian-planning-guide/docs/pedestrian-planning-guide.pdf>



Six New Pedestrian Crossing Signals Installed on Alabama Corridor in Bellingham, WA to Increase Pedestrian Crossing Permeability

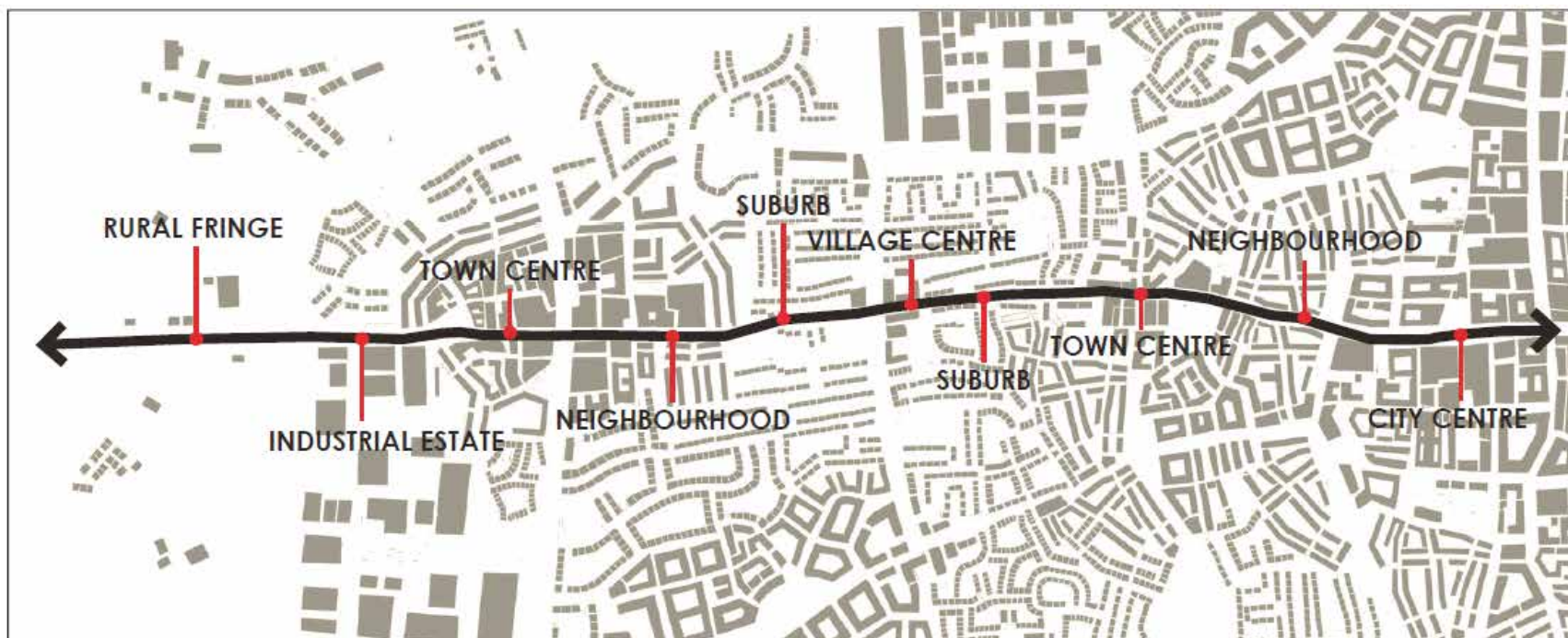


Figure 3.4: A street or road may pass through a number of different contexts along its route. As context changes, the design of streets and roads will need to change accordingly.

Example from Ireland

What is the Concept?

Involve transit agencies proactively in the TIS process

Description

Ensure that impacts on transit service are mitigated through payment of impact fees, provision of infrastructure improvements, enhanced operating funds, or other strategies, with transit agency support of diagnosis and mitigation

Augment or Replacing TIASD page?

Augment throughout (i.e., pp. 4, 32, 88)

Where does it fit in MTIA?

Within “Traditional Methodology” section

**Are there emerging/
best practices?**

City of Pasadena Mobility Impact Fee
City of Pittsburgh
City of San Francisco Transit Impact Development Fee Ordinance
Miami Transit Trust Fund

Links

https://ww5.cityofpasadena.net/transportation/wp-content/uploads/sites/6/2017/07/Fee_FQA_revised-Nov-28-2017-as-of-January-24-2017.pdf
http://forms.sfplanning.org/Impact_Fee_Schedule.pdf
<http://egov.ci.miami.fl.us/Legistarweb/Attachments/82811.pdf>

What is the Concept?

Guidance on sources for **truck trip generation**

Description

Guidance on sources and thresholds for new data sources on truck trip generation

Augment or Replacing TIASD page?

Augment (p.42)

Where does it fit in MTIA?

Within MTIA “Traditional” section

**Are there emerging/
best practices?**

NCFRP Report 37 publication and software:

<http://www.trb.org/NCFRP/Blurbs/175283.aspx>

Quick Response Freight Manual 3 under development

**References or
Other Ideas?**

What is the Concept?

Incorporating **reliability** and **resiliency** concepts in TIS

Description

Reliability and resiliency are emerging planning topics, (how) should they be incorporated within the MTIA

Augment or Replacing TIASD page?

Augment

Where does it fit in MTIA?

Within MTIA “Traditional” section

Are there
emerging/
best practices?

References or
Other Ideas?

