The Evolving Texas Megaregion: Developing a Sustainable Megaregion Mobility Planning Blueprint

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16. Abstract: With the megaregional trend growing in the U.S., it is becoming increasingly important to recognize and reorient the scale of the mobility planning towards the megaregions for sustainable and equitable growth of regions. In 2013, European Union developed a new transportation planning process called Sustainable Urban Mobility Planning (SUMP). The raison d'être for this was to put the needs of people and their quality of life, including social equity, health, and environmental equity, and economic viability at the planning document's core. SUMP has scalability for the megaregion dimension. As the major actor responsible for regional planning in the U.S., MPOs offer the expertise, flexibility, and a collaborative network to formulate a cross-jurisdictional planning framework like SUMP. Taking Texas Triangle megaregion as a case study, this report looks into the legal and procedural requirements of the planning processes of the MPOs in the anchor areas of Houston, Dallas Fort Worth, Austin, and San Antonio to conceptualize the efficacy of the potential application of the SUMP model and the opportunities to scale up for megaregional planning applications.		
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Executive Summary

With the megaregional trend growing in the U.S., it is becoming increasingly important to recognize and reorient the scale of the mobility planning paradigm of the U.S. toward the megaregions for the sustainable and equitable growth of cities and regions. In 2013, the European Union (EU) developed a new transportation planning process called Sustainable Urban Mobility Planning (SUMP). The raison d'être for this was to put the needs of people and their quality of life, including social equity, health, and environmental equity, and economic viability at the planning document's core. We believe that SUMP has scalability for the megaregion dimension. Being the major actor of regional planning in the U.S., Metropolitan Planning Organizations (MPO) offer expertise, flexibility, and a collaborative network to formulate a cross-jurisdictional and comprehensive planning framework like SUMP. Taking the Texas Triangle megaregion as a case study, this report looks into the legal and procedural requirements of the planning processes of the MPOs in the anchor areas of the Texas Triangle – Houston, Dallas – Fort Worth, Austin, and San Antonio – to conceptualize the efficacy of potential application of the SUMP model in planning and, if it could be scaled up for megaregional planning application. We identified key steps that are imperative for Texas Triangle MPOs to be able to leverage the SUMP guideline to codify a megaregional approach towards sustainable and equitable mobility planning, these include

1. Amending federal legislation to enable a megaregional planning focus in MPOs scope of work,
2. Adding new funding streams or sources to support the megaregional planning initiatives,
3. A comprehensive guiding framework for MPOs inspired by the EU's poly-SUMP and SUMP for megaregional planning,
4. Developing a comprehensive plan to engender effective and collaborative public participation at different parts of the planning process and,
5. New funding streams and amended resources for monitoring and evaluation of the planning efforts and project outputs.

Chapter 1. Introduction

Megaregions have been characterized as "a network of urban clusters and their surrounding areas, connected by the existing economic, social, and infrastructure relationships".[1] "This broader definition of megaregions is subjected to different interpretations. Megaregions have been viewed as "highly populated regions that reflect powerful economic success and attract population growth either within a state or across state lines".[2] Though not formally recognized in governance structure, megaregions generate large sub-systems of production and consumption resulting in movements of people and goods that affect the relationships namely as "environmental systems and geography, infrastructure systems, economic linkages, settlement patterns, and land use, shared culture and history".[3]

Census 2020 data shows that percentage of the population has increased in metro areas and in counties in megaregions which corroborates the fact that the megaregional trend is still occurring and thriving (Figures 1 and 2). Among all the 13 megaregions identified by the Federal Highway Administration (FHWA), the Texas Triangle megaregion consisting of the Dallas-Fort Worth, Houston, San Antonio, and Austin metropolitan areas are growing faster than any other megaregion. [4]

[1] "Megaregions", U.S. Department of Transportation, Federal Highway Administration, https://www.fhwa.dot.gov/planning/megaregions/what_are/
[2] "What are Megaregions?", Cooperative Mobility for Competitive Megaregions (CM2), https://sites.utexas.edu/cm2/what-are-megaregions/
[3] Michael Oden, Gian Claudia Sciara and Evan Scott, "Significance and Prospects of Transportation Planning at the Megaregional Scale", *Cooperative Mobility for Competitive Megaregion* (2020): 1-2.
[4] J. H. Cullum Clark, "The Texas Triangle: A rising megaregion unlike all others", *George W. Bush Presidential Center*, May 19, 2021, https://www.bushcenter.org/publications/articles/2021/05/texas-triangle-mega-region.html

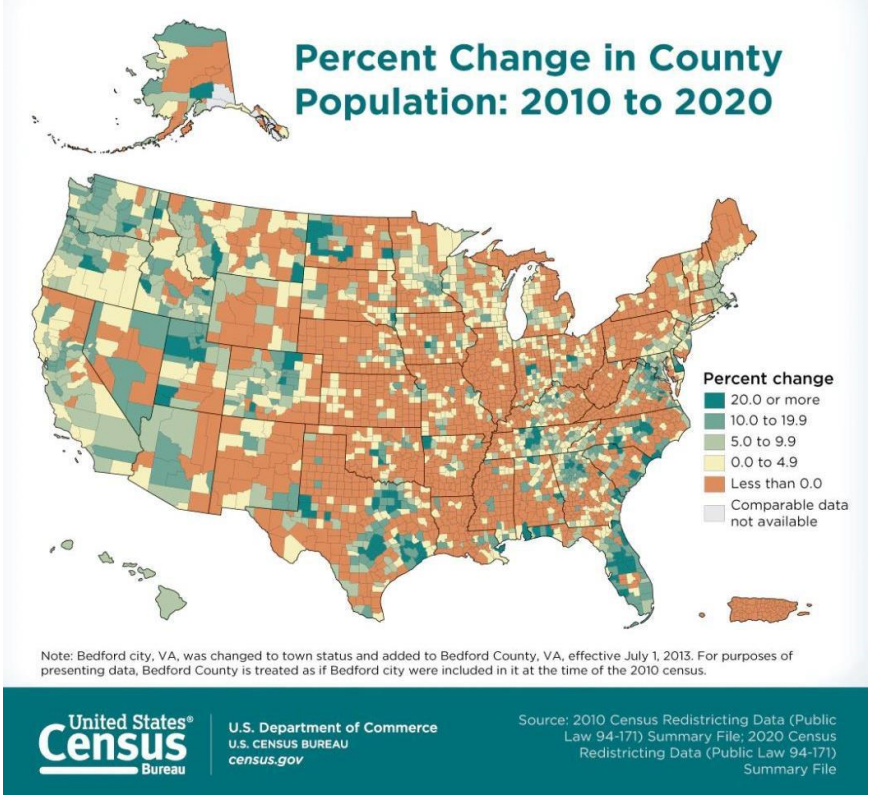

Figure 1: Percent change in County Population: 2010 to 2020; source: U.S. Census Bureau

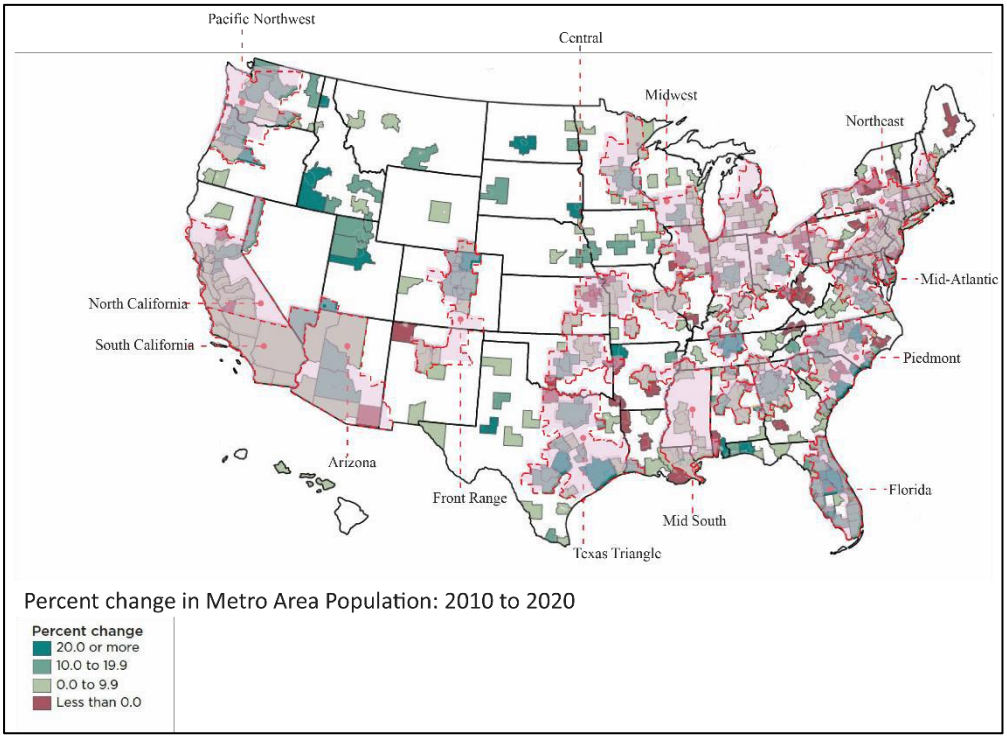

Figure 2: Percent Change in Metro Area Population: 2010 to 2020 overlayed with FHWA's identified Megaregions

Source: U.S. Census Bureau (base map)

The changing demographics of the states are interacting into a globalized and technologically changing economy that has seen massive transformational changes in transportation delivery in the past two decades. Transportation funding rates at the federal level have not been raised since 1993. Forty states have raised their gas taxes since 2000 but, ten states have not raised their gas taxes since the early 1990s. The Covid-19 global pandemic has also laid bare many of the flaws in the current systems of transportation funding and planning. These include:

- Transit agencies saw dramatic plummets in revenue streams while incurring new costs for keeping passengers safe.
- Transportation planning agencies had to find new ways to communicate plans and programs for their short and long-range planning efforts.
- State Departments of Transportation saw initial revenue stream reductions due to reduced driving and thus reduced gas tax.
- Contactless delivery and online purchasing have changed many of our habits and created new forms of congestion.

Covid-19 interjected new challenges to our large city spaces as well as to the rural areas along with equity, environmental justice, and mobility contours further concretizing the case for a paradigm change. Transportation planning post-covid will need to be nimble, flexible, inclusive, and able to more easily adapt to global impacts and emerging technology trends. With two-thirds of the nation's population expected to live in an identified megaregion by 2050, transportation policies, planning, and funding streams also need to be reimagined and reinvented for integration across the megaregion scale if the U.S. is to stay competitive in the remaining seventy years of the twenty-first century and the move into the twenty-second century.

In 2013, the European Commission developed a new transportation planning process called Sustainable Urban Mobility Planning (SUMP). The raison d'être for this was to put the needs of people and their quality of life, including social equity, health, and environmental equity, and economic viability at the planning documents core. It aims to achieve a shift towards sustainable mobility by building on existing planning practices and taking due consideration of integration, participation, and evaluation principles. The SUMP methodology thus proffers an opportunity to develop a more targeted and comprehensive approach to equitable and just mobility planning.

In the U.S., MPOs operate in an intragovernmental environment to collectively make regional transportation decisions in coordination with the state Department of Transportations (DOTs) and other regional agencies including major providers of transportation. Being the major regional actor for transportation planning in the U.S., MPOs can emerge as entities to develop comprehensive, just, and equitable plans on a megaregional scale. Taking Texas Triangle megaregion as a case study, this report looks into the legal and procedural requirements of the planning processes of the MPOs in the anchor areas of Houston, Dallas-Fort Worth, Austin, and San Antonio to conceptualize the efficacy of potential application of the SUMP model in planning and if it could be scaled up for megaregional planning applications.

Chapter 2. Background

2.1. Sustainable Urban Mobility Planning (SUMP)

The European Commission published an Urban Mobility Package at the end of 2013 where they introduced the concept of SUMP that lays out the guiding principles of the planning process and topics to be addressed to meet the "EU goals for a competitive and resource-efficient European transport system".[5]. SUMP guidelines and recommendations for preparing a SUMP were updated in 2019. SUMP was undertaken as a comprehensive, strategic, and bottom-up approach that goes beyond the traditional transportation planning approach (Figure 3) to effectively confront the complexities of urban transport across Europe that actively engages different stakeholders throughout the planning process. In comparison to the U.S., the novel part of SUMP is 'evaluation' principles, which review activities after they are completed (i.e. constructed). The official definition outlined in the SUMP guideline is:

> *"A Sustainable Urban Mobility Plan is a strategic plan designed to satisfy the mobility needs of people and businesses in cities and their surroundings for a better quality of life. It builds on existing planning practices and takes due consideration of integration, participation, and evaluation principles".*[6]

SUMP is described " not as a recipe book, but a method".[7] that can be adapted to the local context to achieve its long-term goal of accessibility and quality of life through sustainable mobility.

[5] Rupprecht Consult (editor), "Guidelines for Developing and Implementing a Sustainable Urban Mobility Plan", (Second edition, 2019), 9.
[6] Rupprecht Consult, SUMP Guideline, 9.
[7] Rupprecht Consult, SUMP Guideline, 21.

Traditional Transport Planning		Sustainable Urban Mobility Planning
Focus on traffic	→	Focus on **people**
Primary objectives: Traffic flow capacity and speed	→	Primary objectives: **Accessibility** and **quality of life**, including social equity, health and environmental quality, and economic viability
Mode-focussed	→	**Integrated development of all transport modes** and shift towards sustainable mobility
Infrastructure as the main topic	→	**Combination** of infrastructure, market, regulation, information and promotion
Sectoral planning document	→	Planning document **consistent with related policy areas**
Short and medium-term delivery plan	→	Short and medium-term delivery plan embedded in a **long-term vision and strategy**
Covering an administrative area	→	Covering a **functional urban area** based on travel-to-work flows
Domain of traffic engineers	→	**Interdisciplinary** planning teams
Planning by experts	→	Planning with the **involvement of stakeholders and citizens** using a transparent and participatory approach
Limited impact assessment	→	Systematic **evaluation** of impacts to facilitate **learning** and improvement

Figure 3: Difference between traditional transportation planning and SUMP;

Source: SUMP guideline, 2019

2.1.1. SUMP Principles:

The eight guiding principles form the base of SUMPare:

1. Plan for sustainable mobility in the “functional urban area”
2. Cooperate across institutional boundaries
3. Involve citizens and stakeholders
4. Assess current and future performance
5. Define a long-term vision and a clear implementation plan
6. Develop all transport modes in an integrated manner
7. Arrange for monitoring and evaluation
8. Assure quality

2.1.2. Governance Framework for SUMP

The successful implementation of SUMP requires coordination and cooperation between national, regional, and local levels of government within the EU member states. Unless coordinated, the policy decisions taken at these different levels of government will produce a risk of inconsistency

and redundancy among planning approaches leading to less effective outcomes. Support from all levels of government can help SUMP to confront significant barriers in planning including lack of cooperation, challenges of sustained funding, absence of adequate professional guidance, and inadequate evaluation. As mobility planning and policy decisions and outcomes have significant impacts on other policies and planning for environment, equity, health, safety, energy, coordinated support is estimated to help EU member states to achieve not only country-specific but EU-specific sustainability and climate change goals.

The EU has had a strong focus on regional mobility planning since its inception in 1957 under the Treaty of Rome and has focused upon regional policy as an economic development mechanism ever since. Articles 158-162 of the Treaty establishing the European Communities stipulated that the Union should promote an overall harmonious development and strengthen economic and social cohesion by reducing development disparities between the regions. For the 2007-2013 period, policies to pursue these objectives were underpinned by a legal basis of five regulations adopted by the European Council and the European Parliament in July 2006. These were Council Regulation EC 1083/2006, which set out general provisions for the European Regional Development Fund, the European Social Fund (EC 1081/2006); the Cohesion Fund (EC 1084/2006), and two other regulations regarding the Territorial Cooperation and Pre-Accession Assistance. Implementing Regulation was found in Commission Regulation 1828/2006 (which set out rules for implementation of 1083/2006; and also for EC 1080/2006 of the European Parliament and Council on the European Regional Development Fund[8]. The Council of the European Union, European Commission, and European Parliament develop laws and policies. The hierarchy of EU laws can be seen in Figure 4.

[8] EC, European Structural and Investment Funds. Not dated. URL: //ec.europa.eu/regional_policy/en/funding/

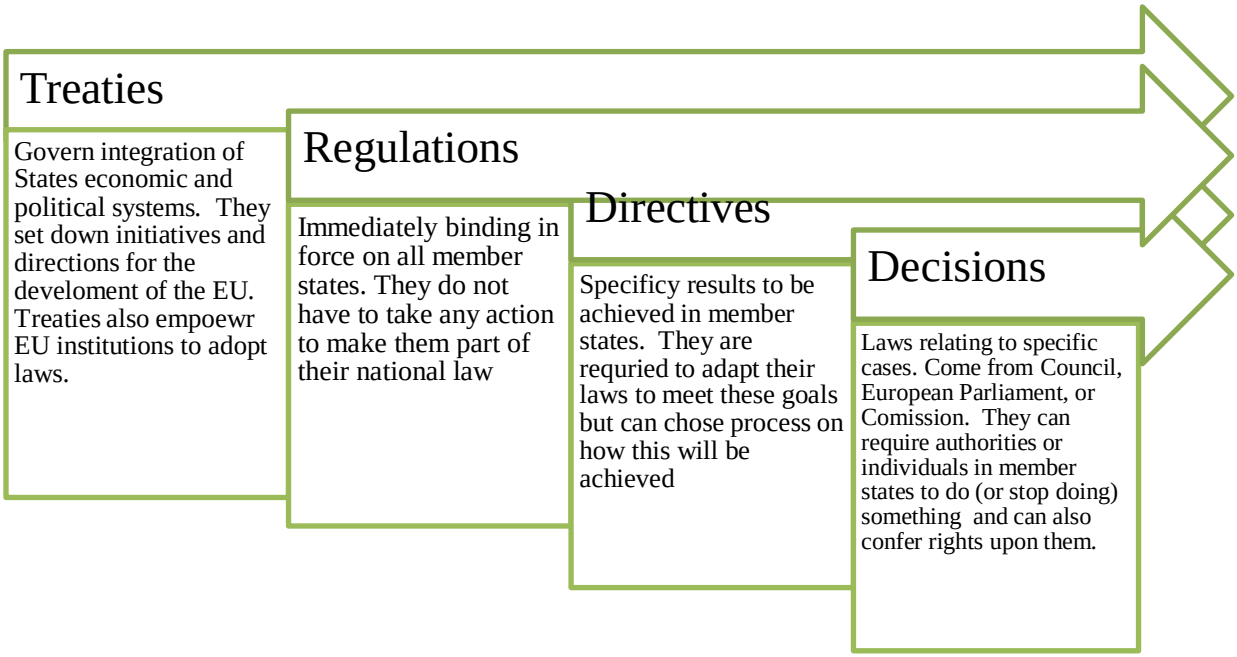

Figure 4: Hierarchy of EU laws

The SUMP guidelines strongly suggest that all EU countries develop a national level framework to guide their implementation processes of SUMP – which flows in essence from the underlying philosophical underpinnings of the EU and its policies. It suggests that the government intervention for SUMP take-up falls into four main levels, which build upon each other (Figure 5). Figure 6 shows how national measures can be developed to support a SUMP framework.

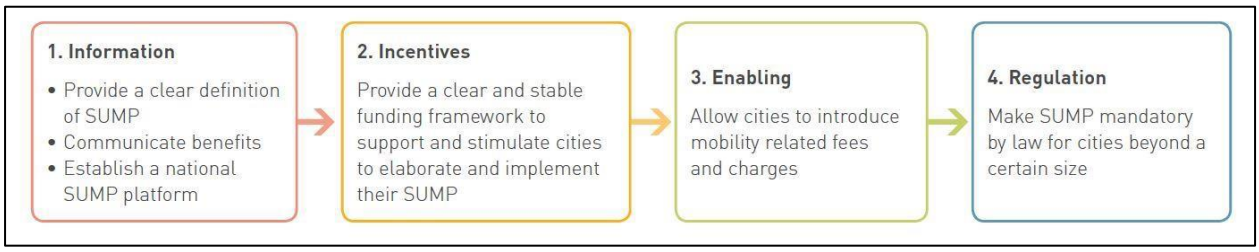

Figure 5: 04 (Four) levels of government intervention for SUMP take-up

Source: SUMP guideline, 2019

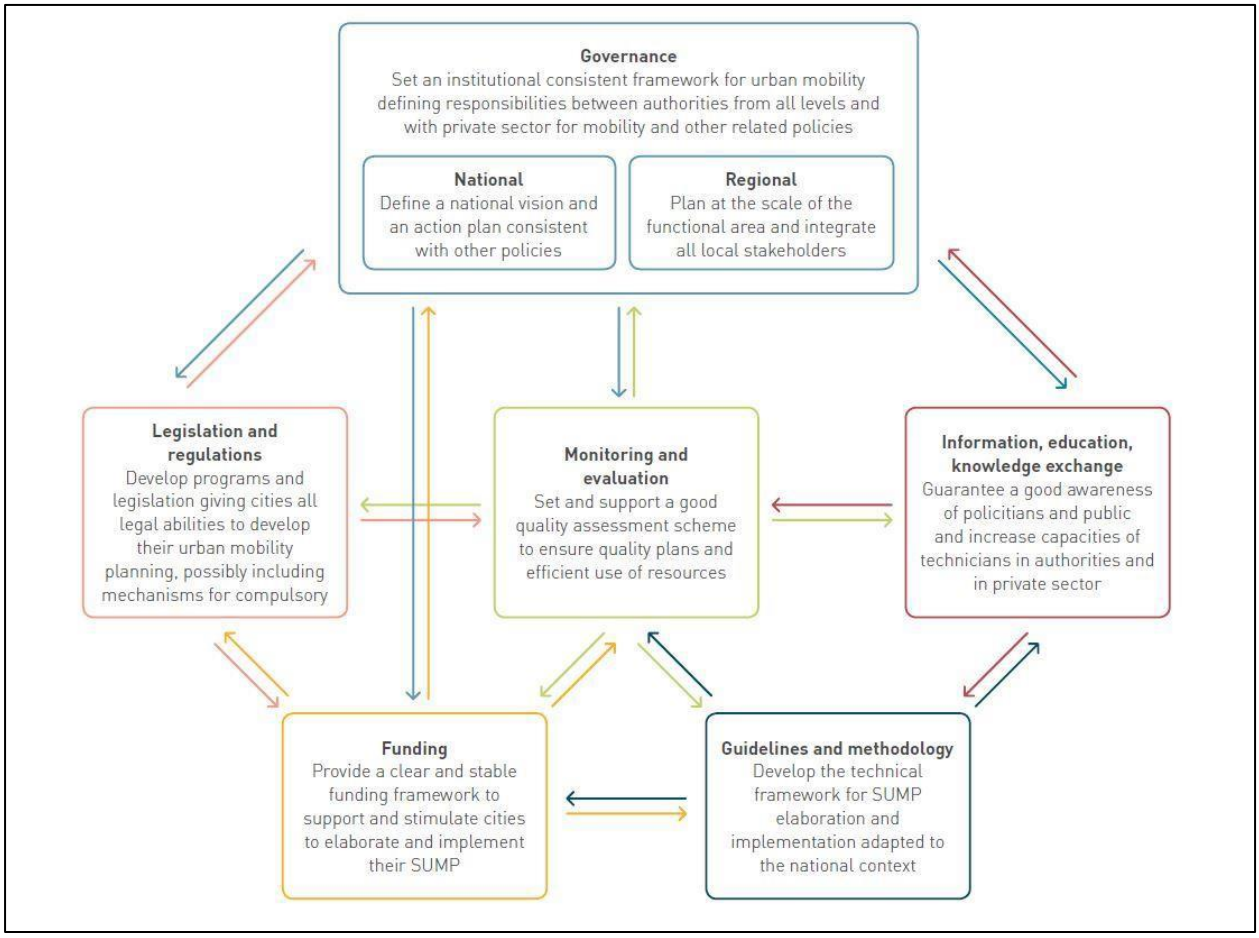

Figure 6: National level measures to foster the uptake of SUMP and their main relations

Source: SUMP guideline, 2019

2.1.3. SUMP Cycle

The guideline that outlines the process of preparing and implementing a SUMP is termed the 'SUMP cycle' (Figure 7). It consists of four (04) phases, with 12 main steps that require 32 activities. The guideline also provides a relative timeline for the SUMP phases (Figure 8). Though the activities are put in a cyclical order for the sake of simplified representation, often an activity may need to be conducted in parallel with the other, or tasks may need to adapt depending on the panning needs and context (Figure 9).

Figure 7: The 12 steps of Sustainable Urban Mobility Planning – A decision maker's overview

Source: SUMP guideline, 2019

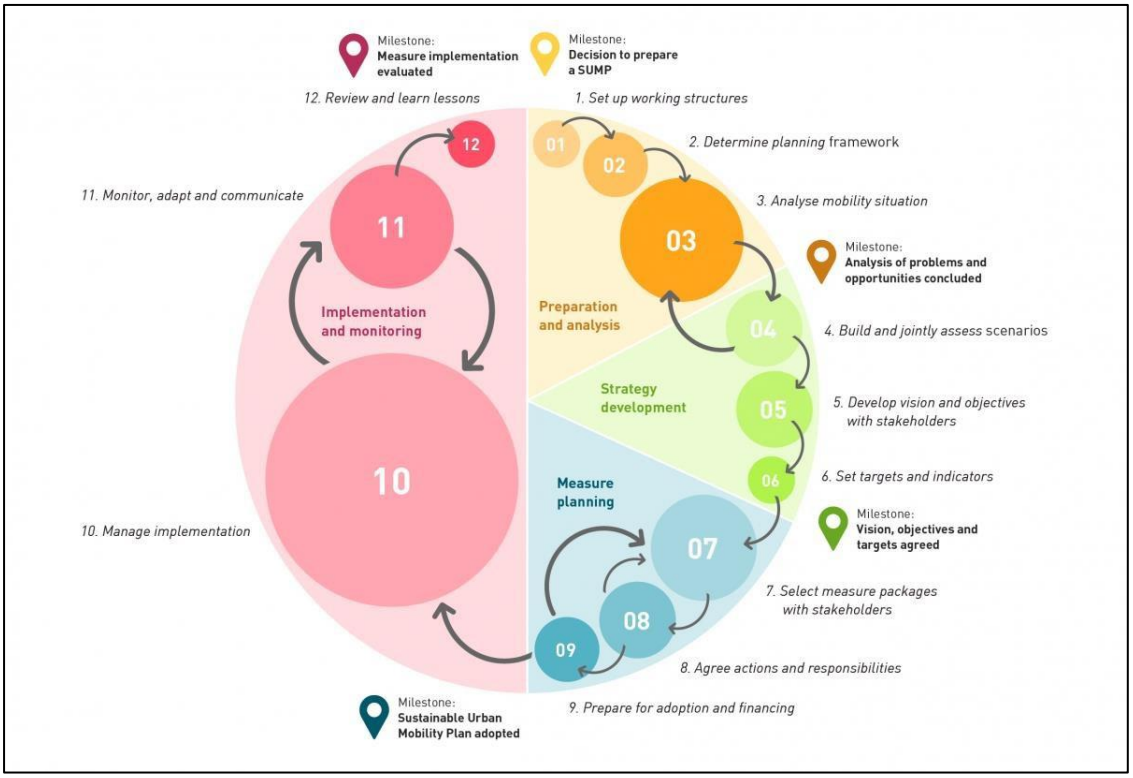

Figure 8: Relative importance of the SUMP steps

Source: SUMP guideline, 2019

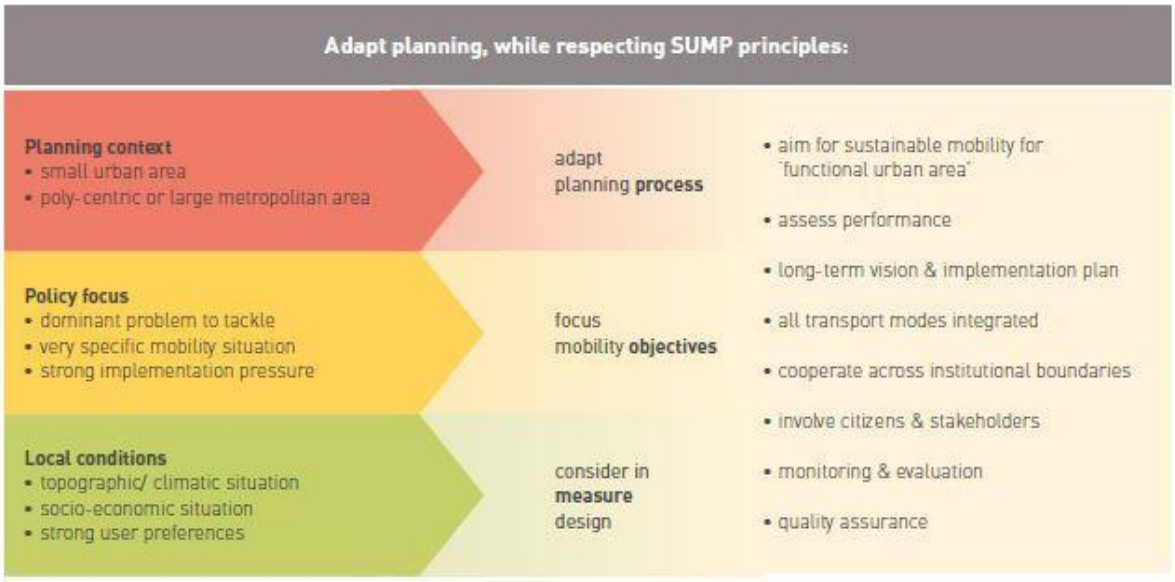

Figure 9: Identification of adaptation needs of the planning process

Source: SUMP guideline, 2019

The next section takes the readers through the SUMP process.

Phase 1: Preparation and Analysis

This phase starts with the decision by policymakers to take a SUMP approach to tackle a mobility problem and includes the following steps: setting up working structures, determining the planning framework, analyze the mobility situation. This phase helps with exploring the available capacities and resources, understanding the planning contexts, identifying the stakeholders, creating inter and intra-departmental core teams, and assessing the major problems and opportunities for mobility planning. Laying out plans and timing for effective stakeholder and citizen engagement throughout the SMUP process is also an important step of this phase. Figure 10 details all the activities included in Phase 1 (one) of SUMP.

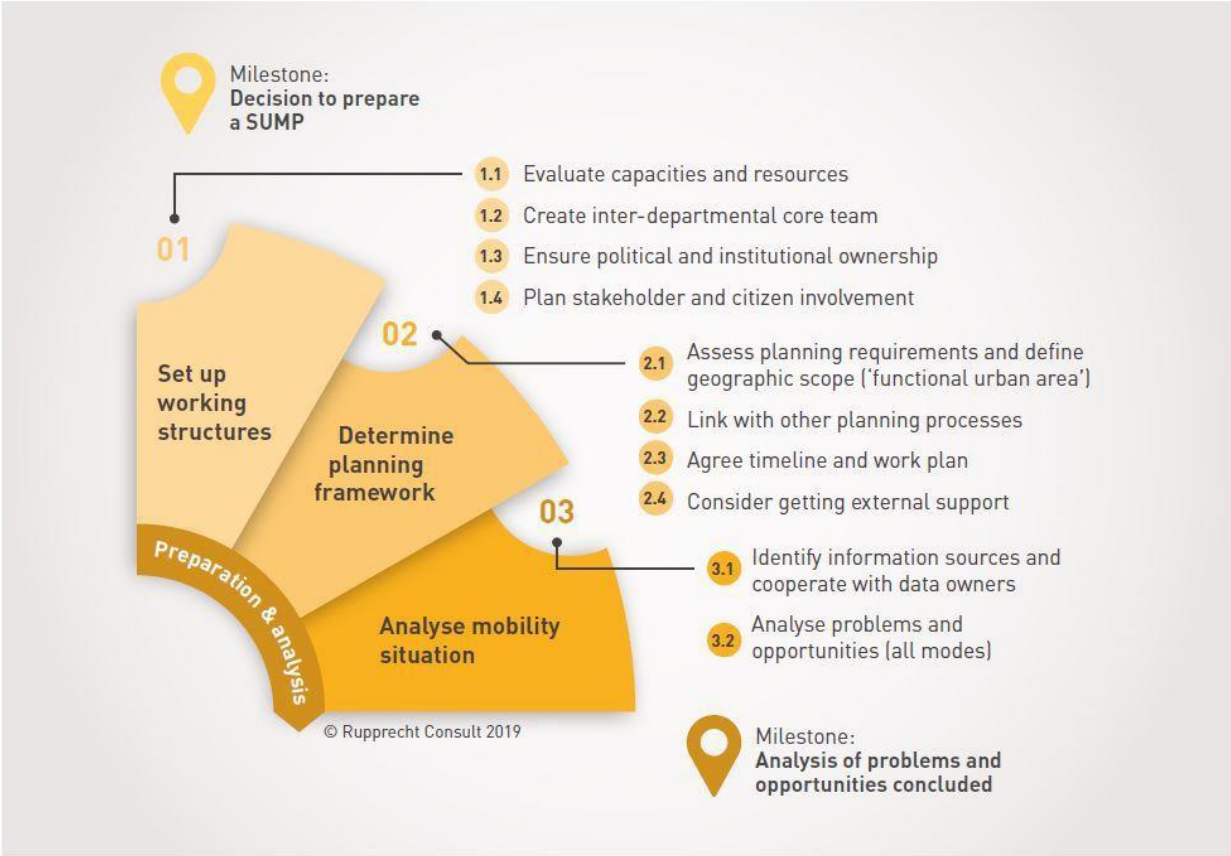

Figure 10: Phase 1 (one) of the SUMP process: preparation and analysis; source

Source: SUMP guideline, 2019

Phase 2: Strategy Development

After phase 1 where actors and factors of the planning processes have been analyzed, the goal of this phase is to determine the strategic direction of SUMP with citizens and stakeholders by exploring the options for the future by building and jointly assessing scenarios, visioning the type of city all want, and determining the metrics of success to achieve targeted goals. Figure 11 details all the steps and activities included in Phase 2(two) of SUMP.

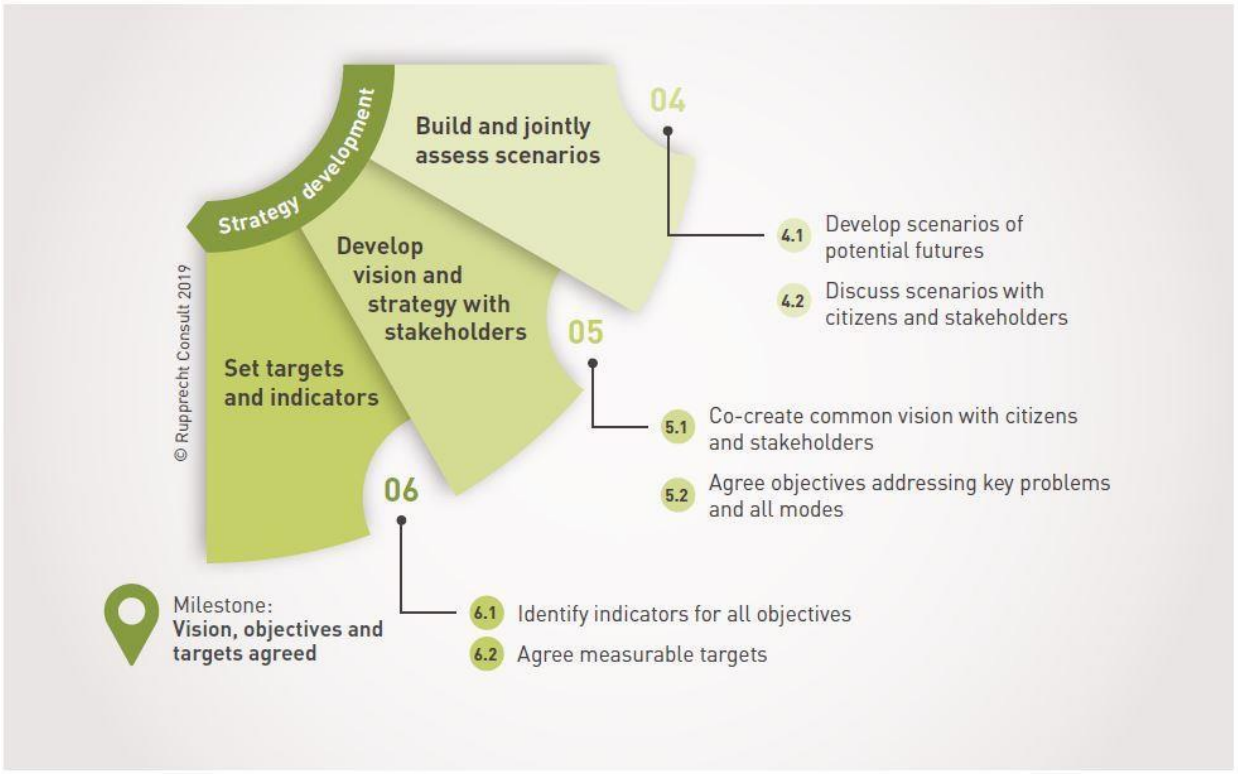

Figure 11: Phase 2(two) of the SUMP process: strategy development; source

Source: SUMP guideline, 2019

Phase 3: Measure Planning

From this phase onward, more focus is given towards the operational level than the strategic level. In this phase, efforts are concentrated on selecting measure package with stakeholders, building consensus on actions and responsibilities, and preparing for adoption and financing. SUMP starts crystalizing in this phase by delegating tasks among partners and stakeholders. Steps and activities related to this phase are detailed in Figure 12.

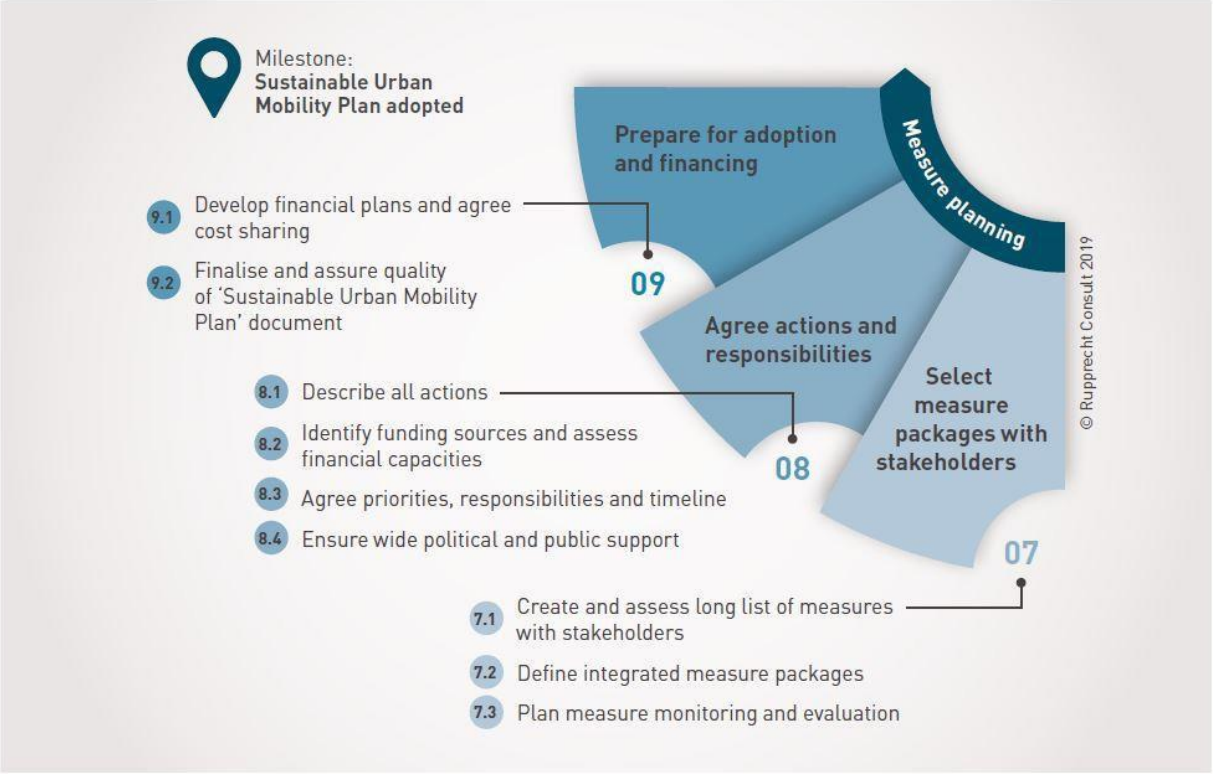

Figure 12: Phase 3 (three) of the SUMP process: measure planning; source

Source: SUMP guideline, 2019

Phase 4: Implementation and Monitoring

In this final phase of SUMP, actions are put into practice by managing implementation through procuring goods and services, monitoring, adapting, and communicating with citizens and stakeholders, and reviewing results of actions and learning lessons from them by analyzing successes and failures. The specifics of phase 4 are detailed below in Figure 13.

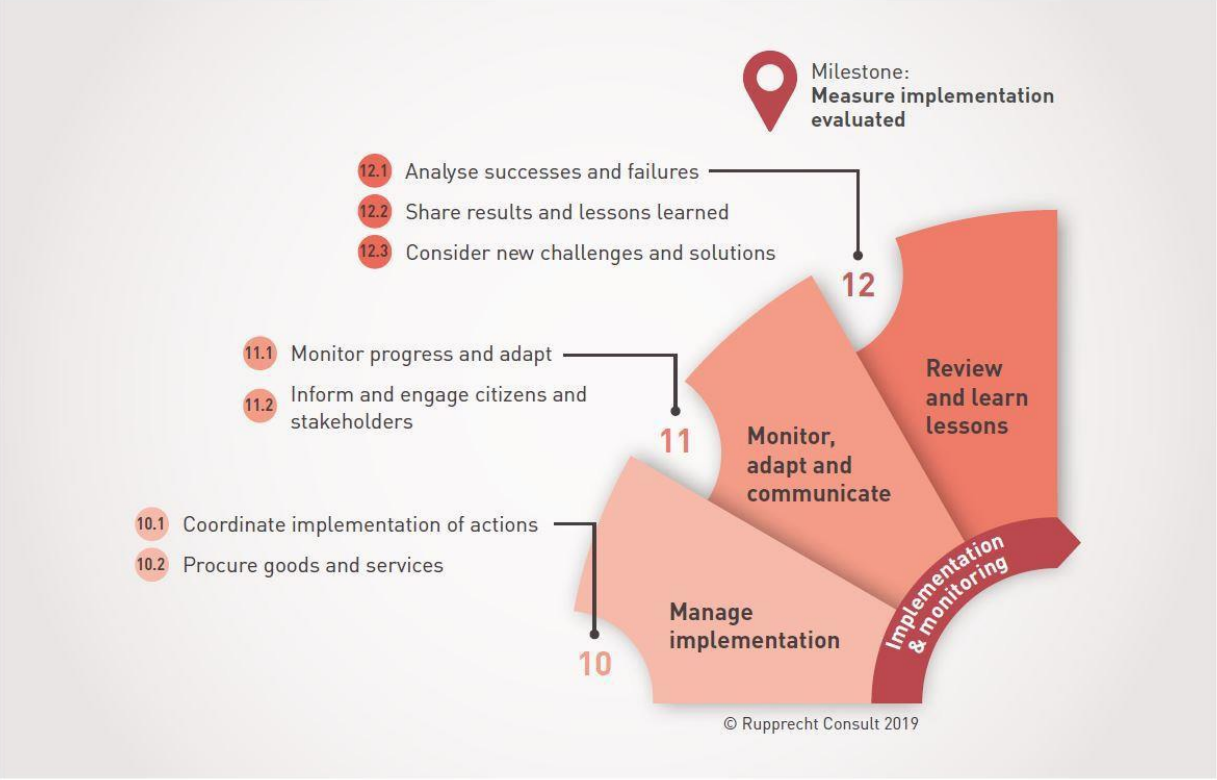

Figure 13: Phase 04 (four) of the SUMP process: implementation and monitoring

Source: SUMP guideline, 2019

2.1.4. Poly-SUMP

Apart from this generic guideline, there is also a guideline to develop SUMP for the polycentric region, Poly-SUMP (Adell & Ljungberg, 2014). In SUMP, a poly-centric region is defined as "networks of medium-to-small cities and peri-urban villages in a relatively compact area – an area that could be traveled with a commuting time not exceeding one hour each way – and not dominated by a central large metropolitan city" (SUMP 2019, p. 5). In the European context, the assumption is a larger polycentric region has a population of fewer than 200,000 while a smaller polycentric region has a population of fewer than 100,000.

2.1.4.1. Poly-SUMP methodology

The Poly-SUMP methodology is grounded in the conventional SUMP methodology, but adapted to meet the needs of the poly-centric regions by focusing on three steps: preparing well by understanding your region; create common ground and vision, and use the outcomes and elaborate the plan- all of these are embedded in phase 1 of the SUMP process. Figure 14 shows how the poly-SUMP process overlays with the conventional SUMP process.

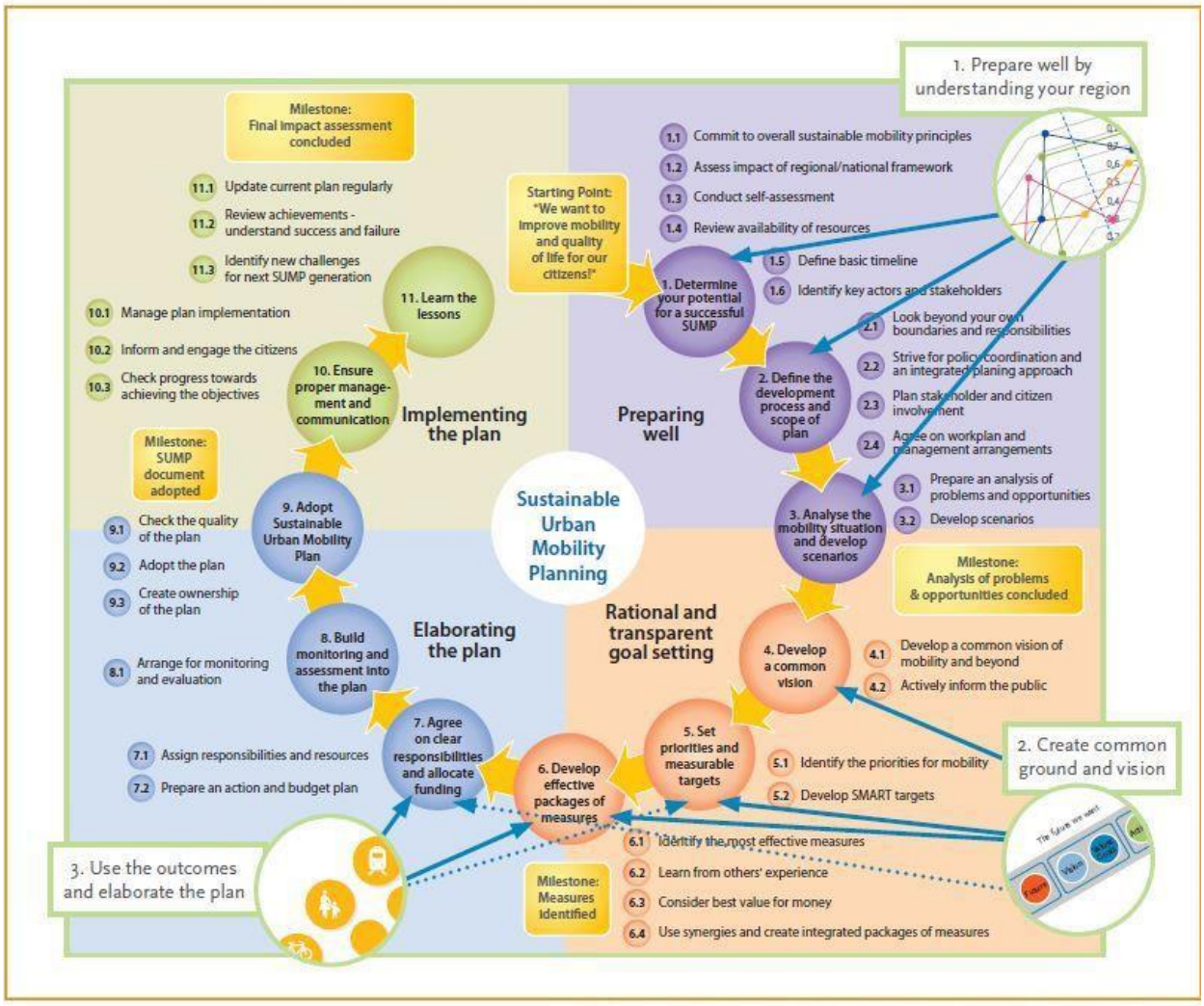

Figure 14: Poly-SUMP approach over the conventional SUMP process

Source: The Poly-SUMP methodology guideline 2014

The activities in Poly-SUMP are also similar to those in conventional SUMP, but provide specific direction for defining the region and collecting regional data. The steps and tasks within the Poly-SUMP guidelines are outlined below:

Phase 1: Prepare well by understanding your region

Step 1: Assess the urban mobility planning context and practices

1.1. Define the region

1.2. Identify current framework condition

1.3. Collect policy content

1.4. Understand the current processes

1.5. Identify stakeholders and competences

1.6. Analyse drivers, barriers, and possibilities

Step 2: Profile polycentricity and mobility patterns

2.1. Collect data

2.2. Create the regional profile

2.3. Understand the indicators

2.4. Interpret the regional profile

Phase 2: Create common ground and vision

Step 3: The Future Search Workshop

3.1. Prepare the Future Search Workshop

3.2. Carry out the Future Search Workshop

3.3. Summarise the workshop

3.4. Evaluate the workshop

Phase 3: Use the outcomes and elaborate the plan

Step 4: Follow up the workshop and refine the actions

4.1. Prioritise actions and assess change in mind-set

4.2. Refine actions

Step 5: Prepare the SUMP and use the outcomes

5.1. Use the outcomes

5.2. Stimulate stakeholders to work with action

2.1.4.2. Poly-SUMP tools

In addition to these guidelines, poly-SUMP also provides a web tool to help the planning staff to create a regional profile data that collects data on the region's population, work and labor data, trip distance within and between poles of the region, data on public transport and transport mode, data on the share of mono-motorized mobility, and the number of trips between poles. The collected data is used to develop ten indicators that help to analyze the regional transport structure and create a score to determine the interdependency of the region and inform the public transportation policy decisions in the polycentric region.

Another tool that is recommended by poly-SUMP is the 'Future Search Workshop'. All relevant stakeholders gather for three days to create a common ground for future work and a vision to produce concrete action. The seven parts of the workshop are divided into three stages: diagnosis of the past, present, and future; vision and related values and goals for the future wanted; and the action plan. For every stage, a plan is developed to determine commitments, the division of responsibilities, follow-up procedures, and the creation of local action-based groups.

2.1.5. SUMP in the Metropolitan Region

SUMP also provides a topic guide for planning in the metropolitan region. In the European context, metropolitan regions are urban areas with a population of at least 250,000,

> *"typically transport nodes of European and national importance and they often have a complex, multi-modal urban transport system consisting of rail services; trams and/or metros; buses; cycling and walking as well as individual motorized transport infrastructure".*[9]

As metropolitan regions often are widespread across different regional and administrative boundaries, non-rigid and non-exclusive types of metropolitan governance systems can be used for SUMP planning. SUMP outlies four types of metropolitan governance structure:

i. *The informal and soft types of coordination*: all municipalities have similar importance and informally share support among themselves.
ii. *The inter-municipal structure*: these are official authorities and costs and responsibilities are shared among the participating municipalities, often other levels of governments and sectoral organizations.
iii. *Supra-municipal authorities*: these are ad-hoc structures above municipalities and exclusively created for addressing transport, territorial planning, and other relevant challenges at the most relevant and effective scale.
iv. *The special status of metropolitan cities*: international megalopolises with a big population and broader competencies. Since this type of metropolitan area does not exist in Europe at this moment, the SUMP guideline does not provide any direction for this.

[9] Matilde Chinellato and Maria Morfoulaki, "Sustainable Urban Mobility Planning in Metropolitan Region: Sustainable urban mobility planning and governance models in EU metropolitan regions" (2019), 8.

2.1.6. Stakeholder and Citizen involvement planning process in SUMP

Clear definitions of 'Citizens' and 'Stakeholders' are delineated in SUMP:

- **Citizens:** interchangeably used with people, residents, and the public and refers to "all people living and/or working in the functional urban area for which SUMP is being prepared".
- **Stakeholders:** mainly refers to institutional stakeholders- public authorities, political parties, citizen and community groups, business organizations, transport operators, and research institutions.
- **Key stakeholders** get more involved in the SUMP process than the general public, thus it is stressed to ensure participation of underrepresented hard-to-reach stakeholder groups in the process. These hard-to-reach groups may include:
    - Children and young people
    - Elderly people, especially isolated older people
    - Single parents
    - Minority ethnic communities
    - Language minorities
    - Disabled people
    - People with specific health issues
    - People with a low literacy level
    - Faith communities
    - People on low incomes

Steps where citizen participation is needed:

According to SUMP, steps where citizen engagement is imperative:

- Discussion of Scenarios (Activity 4.2 of SUMP)
- Development of Visions (Activity 5.1 of SUMP)
- Selection and validation of measure packages (Activity 7.2 of SUMP)
- Implementation (Activity 11.2 of SUMP)

SUMP can also benefit from citizen participation in the following stages:

- Problem analysis of mobility situation (Activity 3.2 of SUMP)
- Ensuring public support for the planned actions (Activity 8.4 of SUMP)
- Evaluating successes and failures (Activity 12.1)

Rules of citizen participation:

1. ***Diverse engagement channels***- Using different channels of engagement to reach all groups of citizens like traditional formats of the paper survey as well as online surveys and being critical of the engagement methods.
2. ***Communicating the implications of the engagement process***: Communicating how the results of citizen engagements are being used in the process.
3. ***Accessible language***: Avoiding technical jargon and conveying messages in multiple languages so it becomes easier to reach communities whose first language is not English.
4. ***Location of public meetings:*** Choosing convenient, easily accessible, barrier-free, reachable by public transport locations for public meetings. Well-lit rooms with good acoustics as well as seating arrangements that do not imply power hierarchies should also be considered.
5. ***Time of public meeting:*** Being considerate of people's various time schedules while organizing an event so that all subset of the population can join (SUMP suggests organizing events in the evening.
6. ***Moderation:*** Ensuring professional and respectful moderation.

Levels of participation:

SUMP follows the widely used IAP2 classification of participation level (Figure 15) to define its participation attempts:

Inform: Outcomes of all stages of SUMP development are provided to the citizens and the stakeholder, though only informing the public is not considered as participation.

Consult: Citizens and stakeholders are informed about the planning process. The planning authority listens to them, acknowledges their concerns, and provides feedback on how public input influenced the decision. All the inputs received during a consultation process do not necessarily directly reflected in the final decision-making process.

Involve: Citizens, stakeholders, and the planning authority continue working together throughout the SUMP stages to ensure all issues and concerns are directly reflected as well as participants are informed how their inputs have shaped the planning decision.

Collaborate: Stakeholders are invited to directly contribute to the planning process through their advice and innovative ideas for concrete solutions. The planning authority needs to commit that inputs will be incorporated to the maximum extent possible into the final decisions.

Empower: The decision-making power lies in the hand of the citizens and stakeholders, the planning authority will implement what citizens or stakeholders decide. However, if citizens and stakeholders are not genuinely involved in the process, this level of involvement cannot bring about outcomes that are in line with democratic principles.

IAP2's Public Participation Spectrum

	Inform	Consult	Involve	Collaborate	Empower
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

Figure 15: IAP2 Public Participation Spectrum

Source: International Association for Public Participation, 2018

Tasks for citizen participation:

1. Including citizen participation as an integral part of the planning process and identify steps where participation is needed (Figure 16) as well as the methods to be used for participation and what is the expected level of engagement in those participation processes (Figure 17).
2. Setting up a permanent steering group consists of related important politicians and key stakeholders.
3. Developing communication and engagement strategy and timeline and strategies for PR activities.
4. Being proactive about sharing information and aiming for greater interactive involvement.
5. Making sure all the marginalized and disadvantaged communities are being engaged in the process while being careful of lobby groups who can create obstacles in the process.
6. Using a combination of different communication tools to spread information about the SUMP process.

Figure 16: Citizen involvement in the SUMP process

Source: SUMP guidelines 2019

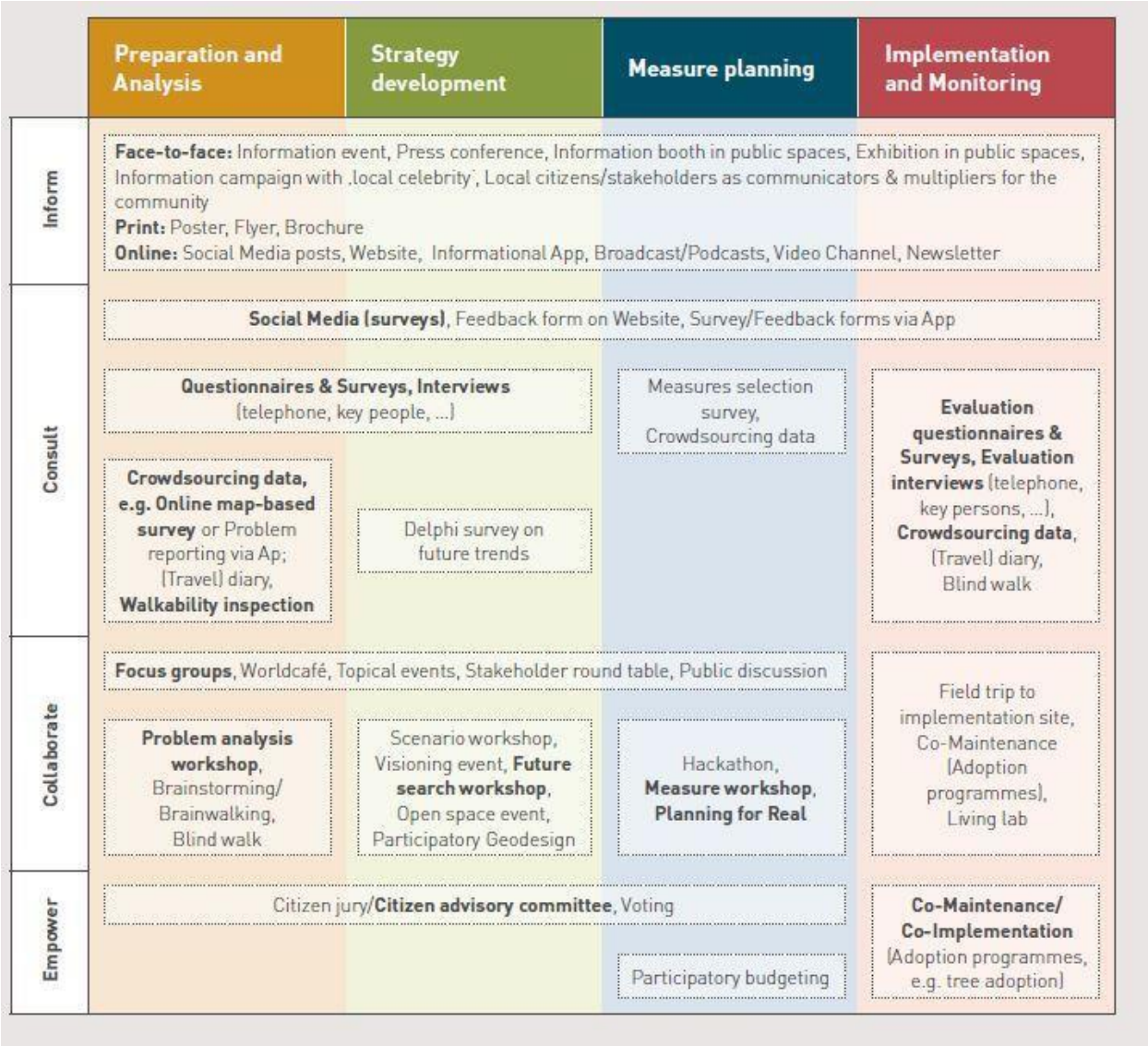

Figure 17: Expected level of engagement in the SUMP process

Source: SUMP guidelines 2019

Evaluation of the participation process:

To measure the effectiveness of a SUMP participation process, the following aspects are examined:

Involvement: an appropriate level of involvement of citizens and stakeholders, appropriate methods used, organization and management of activities, the effectiveness of communication messaged and materials.

Representativeness and results: involvement of all affected parties and people, achievement of the right balance between stakeholders and citizens, availability of the range of views.

Resources and skills: availability of sufficient budget and personnel resources, the appropriate level of skills of the engagement team

Outcomes: impact of participation on SUMP process, level of support generated for SUMP process, quality improvement of SUMP through the participation process, the impact of participation on organizations.

2.2. Metropolitan Planning Organization (MPO)

Metropolitan Planning Organizations (MPOs) are federally mandated planning organizations that are created and designed to carry out the transportation planning process. Urbanized areas with a population of over 50,000 determined by the U.S. census are designated as MPOs by agreement between its state governor and local governments representing 75% or more of the region's population. MPOs with a population of more than 200,000 are designated as Transportation Management Areas (TMA). MPOs are usually governed by boards known as MPO board, governing board, or policy board. Federal laws allow flexibility of MPO board composition, with the condition that MPO-board should be represented largely by elected officials of local jurisdictions.[10]

There lies significant heterogeneity among the MPOs. The smallest MPO (Grand Island Area MPO) has a population of around 52,000 while the largest one (Southern California Association of Government) has a population of over 18 million. Thus the voting seats also vary accordingly, the smallest one has 3 voting seats while the largest one has 112 voting seats. [11] Many MPOs are part of the Council of Governments (COG) that existed before the formation of MPOs. Many MpOs can be a part of the regional planning agency whose scope of work is not limited to transportation planning only. Other MPOs are independent and not a part of any regional agency. An MPO board is composed of a variety of representatives where the majority where majority share is officials from local governments (city and county). Other members of the board may

[10] Alexander Bond, and Jeff Kramer. "Governance of metropolitan planning organizations: Board size, composition, and voting rights." *Transportation research record* 2174, no. 1 (2010): 19-24.
[11] Gian-Claudia Sciara, Mashrur Rahman, and Rydell Walthall. "A Seat at the Table? Transit Representation in US Metropolitan Planning." *Transport Policy* (2021).

include representatives from transit operators, school boards, tribal governments, colleges or universities, and representatives from the private sector. [12] MPOs are also assisted by different advisory committees that provide technical assistance for specific plans and stakeholder inputs from different MPO activities.

For their planning activities, MPOs receive funding from federal sources, though they do not directly flow from federal sources to MPOs. Funds are first distributed to the State based on populations and then the States redistribute the funds to the MPOs based on a formula. At least 20% of the federal funds should also be matched by the State and local governments. Federal and local governments oversee the planning activities of MPOs. All MPOs, irrespective of TMA and non-TMA, have to certify that their planning activities meet the federal requirement. At the federal level, the federal certification review is done jointly by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) to assess if the TMAs have carried out their planning according to the federal laws and how well they are coordinating with the state department of transportation, local governments, and other stakeholders to meet the regulatory requirements of the planning process. At the state level, state DOTs review and approve MPO's Transportation Improvement Plan (TIP) and upon approval, they are included in the state TIP (STIP). Without state DOT's approval and failure to be included in the STIP, MPO TIP would not be eligible for federal funding.

While SUMP plan for sustainable mobility in the "functional urban area"- that can be a city and its surrounding peri-urban area, can be an entire polycentric region or other constellation of municipalities depending on the "population density to identify urban cores, and on travel-to-work flows to identify the hinterlands whose labor market is highly integrated with the cores",[13] MPOs plan for distinct Metropolitan Planning Areas (MPAs) whose boundaries are determined by the Census-defined urbanized areas along with the contiguous areas expected to become urbanized within next 20-25 years. Thus for MPOs to play an instrumental role in megaregional planning, improved coordination processes will be critical. In 2016, FHWA proposed regulatory changes to improve MPO coordination and reform designated planning areas through boundary

[12] Bond and Kramer, "Governance of metropolitan planning organizations", 2010
[13] Rupprecht Consult, SUMP Guideline, 11

consolidation.[14] Among the proposed changes was a definitional change to MPAs, potentially requiring MPOs existing within a single Urbanized Zone (UZA) to merge after the 2020 Census, and for MPOs to begin creating unified planning work products if they co-exist within a single MPA.[15] State DOTs and MPO associations extensively confronted this proposed rule by citing administrative and financial burden, difficulty in coordinating across state lines, and the successful implementation of processes and projects under current regulations. The American Association of State Highway and Transportation Officials specifically recognized the difficulty of merging planning documents between MPOs with different air quality conformity requirements, noting that "two MPOs, each in a different nonattainment/maintenance area, or nonattainment/maintenance to different criteria pollutants, would face a complex situation when demonstration conformity of a combined or coordinated TIP or plan to meet various attainment deadlines, standards, or Motor Vehicle Emission Budgets".[16] Notwithstanding this push, the MPO consolidation rule was rescinded by statute with overwhelming bi-partisan support.

In the present context, MPOs can leverage the poly-SUMP tools and methodologies as well as the governance framework outlined in the topic guide "Sustainable Urban Mobility Planning in the Metropolitan region" to enhance coordination among themselves to comprehensively assess the resources available within and across regions and set equitable goals through an action plan for megaregional planning. MPOs fall in between two of the metropolitan governance structures – the intra-municipal structure and the supra-municipal authority- outlined by SUMP (See Section 2.1.5 of this report). To accommodate cooperation and coordination among these official and ad-hoc authorities, the poly-SUMP tool, 'Future Search Workshop' can be instrumental. By bringing all stakeholders of the planning process together in the same space, MPOs can facilitate effective and equitable megaregional planning by creating a common ground for sharing visions, outlining future goals, and establishing a common course of action for achieving those.

[14] "Metropolitan Planning Organization Coordination and Planning Area Reform Final Rule," U.S. Department of Transportation/Federal Highway Administration, December 15, 2016, https://www.fhwa.dot.gov/planning/mpocoordination.cfm.
[15] Ibid
[16] "Proposed Rule Revisions to the Transportation Planning Regulations to Promote More Effective Regional Planning by States and Metropolitan Planning Organizations," September 23, 2016, https://www.federalregister.gov/documents/2016/09/23.

2.3. Texas Triangle

Texas triangle, one of the 13 US megaregions identified by the FHWA, is formed by the state's four main urban centers: Houston, Dallas-Fort Worth, San Antonio, and Austin, and all municipal areas between these five cities. We also reviewed El Paso's MPO plans. CM[2]'s principal leaders Ming Zhang, Robert Harrison, Lisa Loftus-Otway, and Carol Lewis in a 2012 report[17] conducted for TxDOT argued that the Texas Triangle should be changed to include other areas of the state that have been rapidly growing since 2008, including El Paso, the Lower Rio Grande Valley and, the Midland Odessa. They suggested that the state's megaregion could be changed into the Texas Trapezoid (Figure 18). As Figure 19 shows, between 2010 and 2020, these Texas cities and suburbs have boomed, where 44% of the growth took place in Harris, Dallas, Tarrant, Bexar, and Travis counties – the five largest counties of the state and the highest growth, 53.4% was experienced in Hays county- between Austin and San Antonio- where its population doubled in the last decade. [18] Both the Midland Odessa region and Lower Rio Grande Valley region have also experienced growth – 25.9% and 12.4% respectively[19] - and thus the conviction of Texas Trapezoid still holds greater weight.

[17] Robert Harrison et al., *Megaregion Fright Planning: A Synopsis*, Research Report 0-6627-1, CTR, TX. (March 2012).
[18] Carla Astudillo et al., "People of Color Make up 95% of Texas' Population Growth, and Cities and Suburbs Are Booming, 2020 Census Shows," The Texas Tribune (The Texas Tribune, August 12, 2021), https://www.texastribune.org/2021/08/12/texas-2020-census/.
[19] Ibid

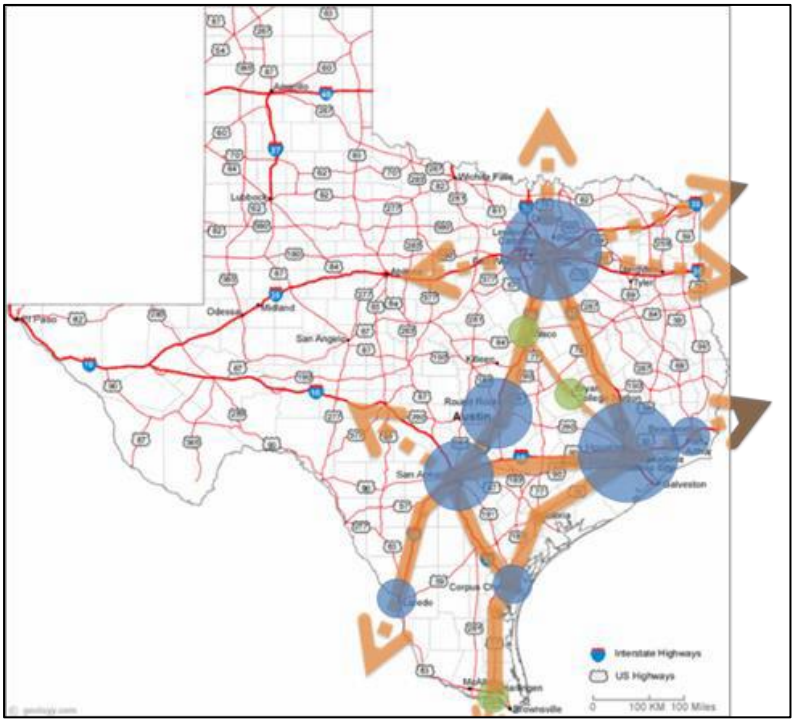

Figure 18: The proposed Texas Trapezoid;

Source: Harrison et al., 2012

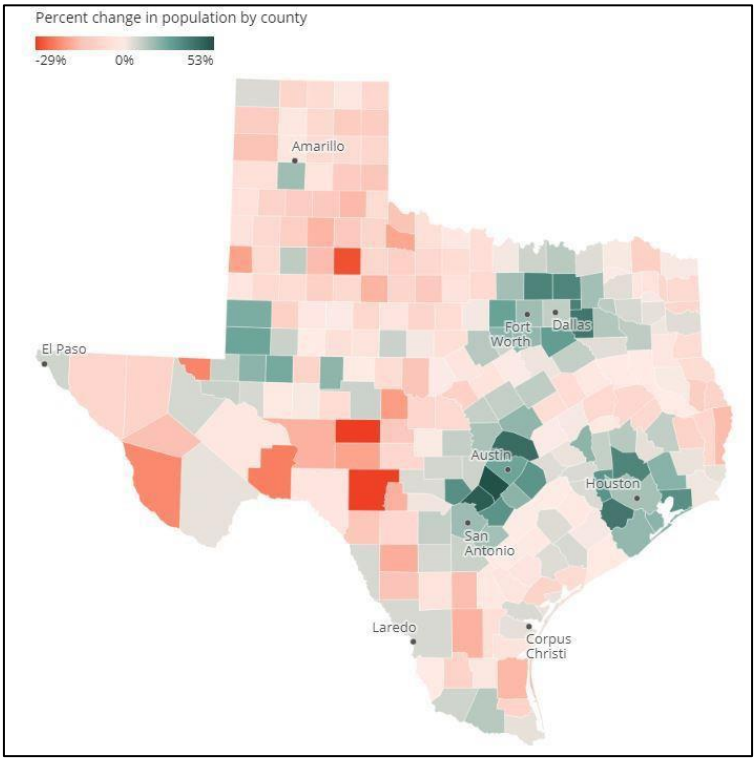

Figure 19: Percent change in county population in Texas from 2010 to 2020;

Source: Jason Kao, The Texas Tribune

Chapter 3: Methodology

This study attempts to analyze the legal and procedural structures of the MPO planning process to explore its potential to adopt the SUMP methodology to develop a more targeted and comprehensive approach to the traditional mobility planning required. Thus to achieve this, we first analyze the existing legal structures at the Federal level (23 Code of Federal Regulations (CFR) Part 450) and the state level (Texas Administrative Code for MPO Planning) that shape the MPO Planning process to assess how much they conform to the guiding principles of SUMP. This is because the engagement of citizens and stakeholders in the planning process is crucial to the effective implementation of the SUMP process. Also, as a federally sponsored agency, MPOs are mandated to incorporate policies and procedures of Environmental Justice mandated by the Title VI of the Civil Rights Act of 1964; Executive Order (E.O.) 13166, Improving Access to Services for Persons with Limited English Proficiency"; and Executive Order (E.O.) 12898 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations". Thus we scan the 5 (five) Texas MPO Public Participation plans to assess how much of their existing participation strategies conform to the principles of Environmental Justice as well as SUMP guidelines for effective participation.

Chapter 4: Analysis

4.1. A comparative framework of SUMP, Federal regulations, and State codes for MPO Planning

At the Federal level, 23 CFR 450 Part C outlines the regulations informing the comprehensive planning process of the MPOs. It outlines the purpose, applicability, definitions, scopes, area boundaries, interested parties, and development and content to be included in the MPO plans. Rule 16.51 of the Texas Administrative Code also outlines the responsibilities of Texas MPOs per 23 CFR 450. Table 1 shows a comparative framework for analyzing the purpose, goals, and scope, geographical boundaries, coordination among agencies, participation, assessment, transportation equity, and monitoring and evaluation criteria delineated in SUMP and Federal and State regulations for MPO Planning to explore MPO planning applicability in the megaregional scale.

Table 1: A comparative framework SUMP, Federal regulations, and State codes for MPO Planning

Metrics	**SUMP**	**Code of Federal Regulation for MPO Planning Programming**	**Texas Administrative Code for MPO Planning**
Purpose	Designed to satisfy the mobility needs of people and businesses in cities and their surroundings for a better quality of life. It builds on existing planning practices and takes due consideration of integration, participation, and evaluation principles.	Metropolitan Transportation Plan (MTP) and Transportation Improvement Program (TIP) encourages and promotes the safe and efficient development, management, and operation of surface transportation systems to serve the mobility needs of people and freight (including bike/ped access/facilities and intermodal facilities supporting intercity transportation) fosters economic growth and development, and takes into consideration resiliency needs, while minimizing transportation-related fuel consumption and air pollution.	Not specified
Goals and scope	Define a long-term vision and a clear implementation plan - A SUMP contains a plan for the short-term implementation of objectives and targets through measure packages. Includes an implementation timetable and budget and clear allocation of responsibilities and outline of the resources required.	MTP should address no less than 20 years planning horizon, including long and short-range studies, review and update every 4/5 years, validate data. TIP covers a period of no less than 4 years.	Develop Unified Planning Work Program (UPWP), Metropolitan Transportation Plan (MTP), Transportation Improvement Program (TIP).

Geographical boundaries	Plan for sustainable mobility in the functional area - population density to identify urban cores, and on travel-to-work flows to identify the hinterlands whose labor market is highly integrated with the cores.	MPO shall be designated for each urbanized area with a population >50,000. FHWA and FTA shall identify as a TMA for each urbanized area (UA) with a population > 200,000. FHWA and FTA shall designate any UA as a TMA if requested by Governor and the MPO. More than one MPO can serve a UA if the Governor and existing MPO, determines size and complexity make designation appropriate. At a minimum, MPO boundaries shall encompass the entire existing urbanized area plus the contiguous area expected to become urbanized within the MTP 20-year forecast period.	Approval of the boundaries of a designated metropolitan planning area by the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA) is not required. The MPO must provide the governor and the department with appropriate documentation and the rationale supporting any recommended boundary change - depends on MPO, the rationale would be fixed by MPO only.
Coordination among agencies	Cooperate across institutional boundaries- Cooperation to ensure the consistency and complementarity of the SUMP with policies and plans in sectors related to transport (e.g. land use and spatial planning, social services, health, energy, education, enforcement, and policing).	MPO, State DOT, and public transit operators should have an agreement, "affected local agencies" should be a party to an agreement when MPA does not include the entire nonattainment or maintenance area.	MPO, in cooperation with DOT and public transport operators, will be responsible for the MPO planning process. If multiple MPOs have authority over an area, a clear agreement between the MPOs, the DOT is required- TCEQ and local air quality agencies will also be parties in that agreement - only mentions transportation agencies and department and air quality control agencies, does not include Land development agencies, Planning Commission, Housing Department.
Participation	Involve citizens and stakeholders	Local elected officials, public agency officials that administer/ operate major	Membership: local elected officials, officials of public agencies that administer or

		modes of transportation in the metropolitan area. A proactive public involvement process that provides complete information, timely public notice, full public access to key decisions, and supports early and continuing involvement of the public in developing plans. A documented participation plan should be developed.	operate major modes of transportation in the metropolitan planning area, and appropriate state transportation officials, public participation criteria will referee to 23 CFR 450.
Assessment	Assess current and future performance- assess the current situation and establishes a baseline against which progress can be measured.	(i) Programmatic Mitigation Plan to measure environmental impacts, (ii) Congestion Management Process- integrated management and operation of multimodal transportation system, (iii) Transportation planning studies and Project Development - multi-modal, system-levels corridor, or sub-area, (iv) Major Investment Study - evaluate effectiveness/cost-effectiveness of alternative investments or strategies in attaining local/state/national goals and objectives.	Not specified
Transportation equity	Develop all transport modes in an integrated manner - includes Intelligent Transport System (ITS).	Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.	Not specified
Monitoring and evaluation	Arrange for monitoring and evaluation.	Performance targets should address the performance measures or standards established under 23 CFR part 490, 49 U.S.C. 5326(c),	Agreements between agencies should follow the criteria in 23 CFR part 450. Agreement between agencies should define how to develop

		and 5329(d) to use in tracking progress toward attainment of critical outcomes for the region of the MPO. The Congestion Management Process should include methods to monitor/evaluate the performance of a multi-modal transportation system to identify the causes of recurring and non-recurring congestion.	and share information related to transportation performance data, selection of performance targets, reporting of performance targets, used in tracking progress toward MPO attainment of critical outcomes, and data collection for state asset management plans for the national highway system. There is no requirement for monitoring and evaluation.
Quality assurance	Assure quality - assurance of data quality and risk management.	No explicitly mentioned criteria	The MPOs and the department shall work collaboratively to evaluate the availability, consistency, and quality of data needed for performance-based planning and project selection - only in the planning stage, there is no mention of the quality assurance in the implementation stage.

4.2. Public Participation strategies in MPO plans

Citizen and stakeholder participation from the onset of the process is the cornerstone of the bottom-up planning approach of SUMP. Key stakeholders from different entities in MPOs take part in the planning process through Transportation Policy Boards (TPB). The TPB in every MPOs makes the decision the planning policies and the funding. Bylaws for the MPO Policy Boards decide the size and composition of the board and that has implications for transportation planning decisions as the TPBs vary in size and representation across different MPOs in the same region. Also, our previous study[20] has found that there lies overlap in the constituent representation in TPB, such as city and county representatives from the same area while some TPB members often have no direct constituents like TxDOT representatives. There also has considerable variation in board sizes and representation of the areas in TPB – for example, though NCTCOG has 44 voting members and AAMPO has 18, each member in NCTCOG represents a larger number of citizens than their AAMPO counterparts because of the MPO's size.[21] Apart from these direct representations, there lie significant obstacles because of the existing compositional differences in different TPBs as participation in the TPB discussions does not ensure voting rights for certain types of indirect representatives members, for example, non-voting transit authority members in some TPBs.[22] Thus MPO bylaws and planning agreements need to be accommodating equal representation of key stakeholders to facilitate megaregional planning.

Apart from this representation at the macro-scale through TPB, Federal laws require MPOs to create a planning process that accommodates public involvement, participation, and consultation throughout the transportation planning process of MPOs. In this section, a desktop review of the Public Participation Plan's (PPP) from the anchor MPOs of the Texas Triangle and El Paso is presented. The policies and any rules they have created for citizen participation in the planning process were compared with SUMP's process (see Section 2.1.6 of this report) to determine if or how they align or converge with SUMP goals.

[20] Lisa Loftus-Otway, Stephanie Levine and Paulina Urbanowicz-Pollock. "Identifying organizational changes to facilitate MPO Megaregion Planning". CM2. (2019).
[21] Ibid
[22] Sciara. "A seat at the table?". (2021)

4.2.1. Capital Area Metropolitan Planning Organization Public Participation Plan (CAMPO-PPP)

The Capital Area Metropolitan Planning Organization (CAMPO) is the designated Metropolitan Planning Organization (MPO) for Bastrop, Burnet, Caldwell, Hays, Travis, and Williamson counties. CAMPO is designated as a Transportation Management Area (TMA). According to 2020 Census data, CAMPO serves a population of 2,332,431. CAMPO is similar in governance structure to the San Antonio MPO in that it is not an MPO that sits within a Council of Governments that has other jurisdictional authorities and duties. In the CAMPO-PPP, it is stated that CAMPO has a responsibility to serve the community and stakeholders and provide equitable access to participate and provide input in the decision-making process", the document does not delineate the definitions of community and stakeholders.

The CAMPO-PPP emphasizes "providing a fair and equal opportunity to participate" and incorporating "policies and procedures of Environmental Justice and Limited English Proficiency" in its planning studies and programs.[23] The objective of the CAMPO-PPP is delineated to "provide a forum that empowers all stakeholders and demographics with equitable access to participate and provide input in the transportation planning and decision-making process".[24]

Steps where public participation is required and minimum requirements

1. Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP) amendments (two or more in-person public meetings, and at least one community meeting in a location easily accessible by the people affected by the proposed change; an online open house on the website during the public comment period)
2. CAMPO studies (surveys; at least one in-person public meeting in a location easily accessible by the people affected by the proposed change; an online open house on the website during the public comment period)
3. TIP adoption (in-person public meetings in each of the six CAMPO counties; an online open house on the website during the public comment period).

[23] CAMPO. "2019 Public Participation Plan". 2019.
[24] Ibid, 4.

4. RTP adoption (at least one press release, ads, posters, social media posts, and ads, earned media stories, notification flyers to invite public comments; small community meetings and events for population groups who traditionally do not participate in planning processes; an online open house on the website during the public comment period).

In all cases, translation for non-English speakers, materials for the visually impaired, services for the deaf and hard of hearing are provided upon request.

Strategies for public participation

Table 2 shows participation strategies outlined in CAMPO-PPP in comparison with SUMP.

Table 2:Participation strategies of CAMPO-PPP in comparison with SUMP

Metrics	SUMP	CAMPO-PPP
Diverse engagement channels	Using different channels of engagement to reach all groups of citizens like traditional formats of the paper survey as well as online surveys and being critical of the engagement methods.	Using different avenues of communication channels to notify people about public participation activities.
Communicating the implications of the engagement process	Communicating to the wider public how the results of citizen engagements are being used in the process.	Demonstrating explicit consideration and response to public input received during the development of the RTP and TIP, but it does not mention how this would be communicating to the wider public.
Accessible language	Avoiding technical jargon and conveying messages in multiple languages so it becomes easier to reach communities whose first language is not English.	Using visualizations and clear, concise, non-technical language to delineate proposed changes.
Location of public meetings	Choosing convenient, easily accessible, barrier-free, reachable by public transport locations for public meetings. Well-lit rooms with good acoustics as well as seating arrangements that do not imply power hierarchies should also be considered.	Holding public open houses at convenient times and locations accessible to people who do not have an automobile.

Time of public meetings	Being considerate of people's varied time schedules while organizing an event so that all subsets of the population can join (SUMP suggests organizing events in the evening).	Holding public open houses at convenient times and locations.
Moderation	Ensuring professional and respectful moderation.	Not specified

Participation Toolbox for CAMPO-PPP

Several tools are mentioned to enrich the public participation process which includes

i) identifying demographics (income and English proficiency) of the study area;

ii) using visualization techniques like photo simulation, illustrations, mapping;

iii) making all documents and public outreach accessible via the website through the online open house, online surveys, Wiki map, Facebook Live, webinars;

iv) conducting surveys during bus rides and community festivals, events, libraries; using different media channels like radio television, print media, social media;

v) maintaining electronic communication and contact list

vi) holding community meetings and open houses

vii) informational outreach and speakers bureau

viii) advisory and stakeholders meetings (it is unclear who can become part of the advisory committee).

Engagement methods and levels in CAMPO-PPP

Though the C-PPP suggests maximizing engagement opportunities, they primarily emphasize providing diverse channels of communication for the public, for example, face-to-face meetings, offering in-person or online input opportunities, using traditional and electronic notification channels like a news release, postal mail, email, social media post, notice on CAMPO website, etc. Assessing the language of the goals of the public participation of planning processes of CAMPO, it is found that the level of public engagement remains limited to only 'Inform' and 'Consult'. Some examples are provided in Table 3.

Table 3: Methods and level of public engagement of CAMPO-PPP in comparison with SUMP

Public participation strategies of CAMPO	**Level of engagement in comparison to SUMP**
"*Notify and provide access to information* about transportation issues and processes in a timely fashion, using various print and electronically accessible formats" (p.5)	Inform
" CAMPO conducts extensive public outreach at key milestones throughout the study *to inform* the public about the study purpose and goals and to *gather feedback* on the community's needs and ideas" (p.8)	Inform and consult
"TPB (Transportation Planning Board) meetings are typically held monthly and include an open public comment period, as well as the opportunity for the public *to comment on action items* on the TPB's agenda" (p.8)	Consult
"These sessions will provide opportunities for the *exchange of information* between citizens and staff" (p. 26)	Inform and consult
"Stakeholder committees are kept well-informed of the phases of the planning process and are *encouraged to share* that information with people in their communities. Stakeholder committees are essential *for spreading awareness and knowledge* of planning efforts to a great number of people in their spheres of influence and ensuring a variety of needs are represented in CAMPO's planning programs" (p.27)	Inform and consult

Monitoring and evaluation

Evaluation metrics are quantitative in nature, for example, numbers of community meetings held, electronic newsletters sent, social media updates, number of surveys developed, media releases distributed are all metrics that are counted. However, how many people participated in the meetings in person or have taken part in the online discussion forums, if representatives of all affected parties have attended or not if the resources were sufficient for the participation process if the planning staff was fully equipped with knowledge and skills - are not measured for gauging the effectiveness of public participation compared to SUMPs requirements. Nor there are any qualitative feedback mechanisms detailed to determine the effectiveness – either quantitatively or qualitatively – of the public participation processes.

4.2.2. Alamo Area Metropolitan Planning Organization Public Participation Plan (AAMPO-PPP)

The Alamo Area Metropolitan Planning Organization (AAMPO) is the MPO that covers the greater San Antonio area – which comprises Bexar, Comal, Guadalupe, and a part of Kendall County. AAMPO is similar in governance structure to CAMPO in that it is not an MPO that sits within a Council of Governments that has other jurisdictional authority and duties. AAMPO serves a population of about 2,358,531 according to the 2020 Census data estimate.

The public participation plan[25] for AAMPO was formulated to provide a guide for the MPO staff to involve the public in the planning process. The goals for AAMPO-PPP include:

1. Engaging people in the transportation planning process following the goals identified by the plan and applicable laws
2. Keeping people informed of transportation news
3. Encouraging everyone, especially the traditionally underserved group in the study area to get involved
4. Striving to improve public participation
5. Working closely with other transportation agencies

The plan also lists (not exhaustively) target audiences and key stakeholder groups as well as traditionally underserved (low-income and minority populations) and groups protected by Federal laws. Protected groups include minority (Black, Hispanic, Asian, American Indian, and Alaskan Native), low-income population, older adults (persons over the age of 65), people with disabilities, people with limited English proficiency, low literacy populations, and zero car households.

Steps where public participation is required and minimum requirements

The AAMPO-PPP does not mention any minimum requirements for public participation. They seek public comments in the following planning steps:

1. TIP/MTP development process and adoption of the TIP/MTP
2. Routine amendments to the TIP/MTP occurring between annual updates
3. Transportation conformity
4. Adoption of the UPWP

[25] AAMPO. “Public Participation Plan”.

5. Public Participation Plan
6. Performance measures and targets

The public can give feedback in the following boards and committee meetings:

- Technical Advisory Committee (TAC)
- Bicycle Mobility Advisory Committee (BMAC)
- Pedestrian Mobility Advisory Committee (PMAC)
- Transportation Policy Board (TPB)

These committees are supported by MPO staff and the meetings follow Open Meetings Act Procedures.

Strategies for public participation

Table 4 shows participation strategies outlined in AAMPO-PPP in comparison with SUMP

Table 4: Participation Strategies of AAMPO-PPP in comparison with SUMP

Metrics	SUMP	AAMPO-PPP
Diverse engagement channels	Using different channels of engagement to reach all groups of citizens like traditional formats of the paper survey as well as online surveys and being critical of the engagement methods.	Providing people with a variety of ways to participate through both offline methods like public meetings, open houses, pop-up outreach, phone, press release as well as online mediums like website, e-newsletter, online surveys, social media, crowdsourcing, etc.
Communicating the implications of the engagement process	Communicating to the wider public how the results of citizen engagements are being used in the process.	Not specified
Accessible language	Avoiding technical jargon and conveying messages in multiple languages so it becomes easier to reach communities whose first language is not English.	Using information and graphics that are easy to understand; provide interpreters (spoken or sign) if requested at least 5 working days in advance of meetings.
Location of public meetings	Choosing convenient, easily accessible, barrier-free, reachable by public transport locations for	Holding meetings at accessible places.

	public meetings. Well-lit rooms with good acoustics as well as seating arrangements that do not imply power hierarchies should also be considered.	
Time of public meetings	Being considerate of people's varied time schedules while organizing an event so that all subsets of the population can join (SUMP suggests organizing events in the evening).	Holding meetings at a convenient time, date, and location.
Moderation	Ensuring professional and respectful moderation.	Not specified.

Engagement methods and levels in AAMPO-PPP

The AAMPO-PPP outlines four guiding principles for communication with the public:

- Informative: AAMPO will provide information, but will not advocate an issue.
- Concise: AAMPO will provide clear and concise information.
- Clear: AAMPO will use easy to understand text and graphics.
- Engaging: AAMPO will hold meetings that are fun, interactive, and meaningful.

The plan also uses IAP2's Spectrum of Public Participation as SUMP to define their participation efforts. The level of participation in most in-person meetings or speaking engagement tools ranges from informing to involvement. Very few of the communication tools like project workshops or open houses, live webinars encourage participation at the collaboration level. Most online/electronic tools, and outreach tools are mostly informative in nature. Some examples are given below in Table 5.

Table 5: Methods and level of public engagement of AAMPO-PPP in comparison with SUMP

Public participation strategies of AAMPO	**Level of engagement in comparison to SUMP**
"Public meetings - An organized large-group meeting usually used to make a presentation and give the public an opportunity to ask questions and give comments. Public meetings are open to the public at large. They are set up to be welcoming and as receptive as possible to ideas and opinions. This format allows for greater interaction between technical staff and the public".	Inform Consult Involve Collaborate

(p.12)	
"MPO exhibit tables - MPO staff attend other agency events and staff tables or booths. These include activities, maps, charts, and informational brochures. Exhibit tables may also be used at malls or other public venues" (p.12).	Inform and consult
"Fast track e-newsletter- The MPO publishes an electronic newsletter on a bi-weekly basis and distributes it according to the database e-mail list. Citizens are added to the distribution list at their own request. Opportunities to be added to the list occur during public meetings hosted by the MPO, during public events attended by the MPO, on the MPO website, and when citizens contact MPO staff. Each issue of the newsletter includes staff contact information, upcoming meeting schedules, the MPO website address, project highlights, and current planning project status reports. Information regarding significant transportation issues, MPO awards, and other one-time activities are also included " (p.13).	Inform
"Live webinars- Meetings that occur online and/or live-streamed. These meetings combine telephone and video technology to allow people to see each other and view information online using web-based technology" (p.15).	Inform Consult Involve Collaborate
"Project-specific website - For individual projects, project-specific websites may be used. These sites are used when project information is too extensive to be included on the MPO site. Project websites can contain study area maps, meeting announcements, descriptions of alternatives, comment forms, user surveys, and project team contact information. Links to project sites are provided from the MPO site " (p.14)	Inform Consult Involve

Monitoring and Evaluation:

The goals of the plan are evaluated against different public involvement tools mostly in quantitative ways, like the number of total attendees, the geographic distribution of meeting attendees in public meetings, workshops, public hearings; unique visitors on the website, unique clicks on E-newsletter, etc. The plan only mentions one qualitative measurement of goals 1,2 and 3 by analyzing the nature of comments and meeting evaluations received during public meetings, open houses, workshops, pop-up outreach, MPO exhibit tables, and public hearings. However, the

plan does not outline any measures to evaluate the effectiveness of the participation tools themselves.

4.2.3. North Central Texas Council of Governments Public Participation Plan (NCTCOG-PPP)

The transportation department at the North Central Texas Council of Governments (NCTCOG) serves as the MPO for the 12 county Dallas-Fort Worth region. The counties include Collin, Dallas, Delta, Denton, Ellis, Hunt, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise. The MPO serves a total of the population 7, 642,617 as per the 2020 Census Data estimate. The NCTCOG public participation plan[26] was outlined to inform and involve individuals and communities in the NCTCOG transportation planning process and outlines principles, goals, and strategies to engage the broader public in the efforts. Following are the guiding principles of the public participation plan:

1. Consistent and comprehensive communication: clear and continuous communication with the public through multiple channels to accomplish mobility and air quality goals in compliance with federal standards.
2. Commitment to diversity and inclusiveness: ensure consistency with federal requirements, address environmental justice concerns, aim to increase the number and diversity of people reached through different communication and outreach strategies like media outreach, paid advertising, language translation, community networks, business outreach, and nonprofit coordination.
3. Collaboration with audiences and stakeholders: reasonably inform and involve affected parties in the planning process.

Goals of public participation outlined in NCTCOG-PPP:

1. Inform and educate
2. Engage diverse audiences and encourage continued participation
3. Evaluate public participation strategies and efforts

[26] NCTCOG. “NCTCOG Transportation Public Participation Plan”. (2018)

Steps where public participation is required and minimum requirements:

1. Development and update of the public participation plan
2. Update to one or more public participation plan appendices or legislative references in the document
3. Development of UPWP
4. Modification of UPWP, TIP revisions requiring RTC approval
5. Development and update of MTP, MTP amendment
6. Development of the TIP,
7. Transportation conformity
8. Draft programs of projects for Urbanized Area Formula Program funds
9. Funding recommendations for other Federal Transit Administration formula programs
10. Development of the congestion management process

Minimum public involvement opportunities, length of the comment period, and minimum notification of opportunity are mentioned for each step. However, some participation opportunities are not inclusive as they are offered through online media only and cannot accommodate hard-to-reach population groups.

Strategies for public participation

Table 6 shows participation strategies outlined in AAMPO-PPP in comparison with SUMP.

Table 6: Participation Strategies of NCTCOG-PPP in comparison with SUMP

Metrics	SUMP	NCTCOG-PPP
Diverse engagement channels	Using different channels of engagement to reach all groups of citizens like traditional formats of the paper survey as well as online surveys and being critical of the engagement methods.	Using multiple streams of communication channels including the website, social media, video, print, and digital publications, public meetings, workshops, roundtables, forums, community events, mail and email, advertising, surveys, and keypad polling, stakeholder interviews, telephone town halls, and community networks to inform and gather input from the public.

Communicating the implications of the engagement process	Communicating to the wider public how the results of citizen engagements are being used in the process.	Disseminating results of the public participation process throughout the project and documenting it in final reports.
Accessible language	Avoiding technical jargon and conveying messages in multiple languages so it becomes easier to reach communities whose first language is not English.	Using information and graphics that are easy to understand; providing translation, interpreters (spoken or sign), handouts in large print, and Braille if requested at least 3 working days in advance of meetings. A supporting Language Assistant Plan is also developed to guide the assistance efforts.
Location of public meetings	Choosing convenient, easily accessible, barrier-free, reachable by public transport locations for public meetings. Well-lit rooms with good acoustics as well as seating arrangements that do not imply power hierarchies should also be considered.	Holding public meetings at accessible locations, preferably near transit lines or routes, and in buildings that comply with the American Disability Act (ADA) act of 1960.
Time of public meetings	Being considerate of people's varied time schedules while organizing an event so that all subsets of the population can join (SUMP suggests organizing events in the evening).	Holding public meetings at a convenient time, both at day and evening times.
Moderation	Ensuring professional and respectful moderation.	Not specified.

Engagement methods and levels in NCTCOG-PPP

The plan does not explicitly mention the expected level of public engagement through the use of different engagement tools. However, the language used in the plan regarding the use of different tools and the expected outcome of different tools used indicates that in most cases, engagement remains limited to inform, consult and involve. Some examples are given in Table 7.

Table 7: Methods and level of public engagement of NCTCOG-PPP in comparison with SUMP

Public participation strategies of NCTCOG	**Level of engagement in comparison to SUMP**
"The NCTCOG Transportation Department develops publications designed to educate the public on transportation issues and encourage their active involvement" (p. 21).	Inform Involve
"As needed, the NCTCOG Transportation Department will host these events to gather input and build consensus among various transportation stakeholders." (p. 23)	Inform and consult
"In an effort to educate the public and increase public awareness of transportation plans and programs, NCTCOG distributes information and engages in discussion at a variety of community events throughout the year such as events organized by local governments and c.school districts, Earth Day celebrations, bike rallies, etc." (p.24).	Inform Consult Involve

NCTCOG plans to use nonprofit organizations and community networks to reach hard-to-reach populations, use of approaches like these has the potential to elevate the engagement level to the 'collaborate' stage, however, as it is not mentioned how these communication processes would unfold, it becomes difficult to ascertain their engagement levels.

Monitoring and Evaluation:

Different outreach strategies are evaluated against some performance metrics and reporting criteria that are quantitative in nature, for example, the number of public meetings, average attendee per meeting, etc. However, the level of community representativeness, the sufficiency of resources necessary for public participation processes, or the skills of the planning staff to facilitate the process are not measured.

4.2.4. Houston Galveston Area Council and The Transportation Policy Council Public Participation Plan (H-GAC TPC-PPP)

For the Houston transportation management area – Harris, Montgomery, Liberty, Chambers, Galveston, Brazoria, Fort Bend, and Waller county – the Houston-Galveston Area Council (H-GAC) and the Transportation Policy Council (TPC) serve as the Metropolitan Planning Organization (MPO). The MPO area has a total population of 7,074,073 as per the 2020 Census estimate. The H-GAC Public Participation Plan (PPP)[27] was outlined to "ensure a continuing, comprehensive, and coordinated" process for stakeholders to engage in the development and review of regional transportation plans and programs. The H-GAC PPP does not explicitly mention any guiding principles that inform the plan. The goal of public participation outlined in H-GAC PPP is "to promote understanding and participation in the regional planning process".

Steps where public participation is required and minimum requirements

1. Development of RTP
2. Development of TIP
3. Development of UPWP

Minimum public involvement opportunities, length of the comment period, and minimum notification of opportunity are mentioned for each step.

Strategies for public participation

Table 8 shows participation strategies outlined in H-GAC-PPP in comparison with SUMP.

Table 8: Participation Strategies of H-GAC PPP in comparison with SUMP

Metrics	SUMP	H-GAC PPP
Diverse engagement channels	Using different channels of engagement to reach all groups of citizens like traditional formats of the paper survey as well as online surveys and being critical of the engagement methods.	Making public information (technical information and meeting notices) available in electronically accessible formats and means such as the Internet; making information on transportation projects and programs available in a variety of formats, mediums, and languages to reach a larger audience.

[27] H-GAC. "Public Participation Plan".

Communicating the implications of the engagement process	Communicating to the wider public how the results of citizen engagements are being used in the process.	Demonstrating explicit consideration and response to public input received during the development of plans and programs. Responses to comments are posted on the department of transportation website, and a report of comments received is included in the final transportation plans. Employing advanced visualization techniques and innovative communication tools to engage the public and stakeholders in the metropolitan transportation planning process.
Accessible language	Avoiding technical jargon and conveying messages in multiple languages so it becomes easier to reach communities whose first language is not English.	Employing standards and guidelines for ensuring that language is not a barrier to services and meaningful participation in the eight-county transportation planning area as well as identifying early the need for language assistance services and provide timely and effective notice of its availability to persons in need of these services.
Location of public meetings	Choosing convenient, easily accessible, barrier-free, reachable by public transport locations for public meetings. Well-lit rooms with good acoustics as well as seating arrangements that do not imply power hierarchies should also be considered.	Holding public meetings at convenient and accessible locations and times. Meetings can be held virtually if feasible.
Time of public meetings	Being considerate of people's varied time schedules while organizing an event so that all subsets of the population can join (SUMP suggests organizing events in the evening).	Holding public meetings at convenient and accessible locations and times. Meetings can be held during the week or on weekends, whichever is convenient for the community.
Moderation	Ensuring professional and respectful moderation.	Not specified.

Engagement methods and levels in H-GAC-PPP

The plan does not explicitly mention the expected level of public engagement through the use of different engagement tools. However, the language used in the plan regarding the use of different tools and the expected outcome of different tools used indicates that in most cases, engagement remains limited to inform and consult. Some examples are given in Table 9.

Table 9: Methods and level of public engagement of H-GAC-PPP in comparison with SUMP

Public participation strategies of H-GAC	**Level of engagement in comparison to SUMP**
"Provide adequate public notice of public participation activities with sufficient time for public review and comment on key decisions, including opportunities to comment on the proposed adoption of the RTP and TIP and any necessary amendments." (p. 5).	Inform Consult
"Information workshops are held on topics associated with regional transportation planning. In addition to the bi-monthly Brown Bag Lunch series, these workshops are designed to educate participants about specific topics such as mobility, Intelligent Transportation Systems, freight and safety issues, project submission and implementation, and air quality." (p. 6)	Inform
"The public is encouraged to attend and submit comments at all public meetings." (p.9).	Consult

Monitoring and Evaluation:

H-GAC periodically reviews the effectiveness of the public participation processes and the strategies employing different quantitative metrics, such as number of meeting notices distributed via email, number of open houses/informational meetings, the quantity of media coverage including the number of media alerts and displays ads in newspapers and more. They also employ different qualitative measures like direct mail evaluation surveys, focus groups, individual interviews, online surveys, comment cards, and a toll-free voice mail number to receive feedback about the effectiveness of the public participation process. The level of community representativeness, the sufficiency of resources necessary for public participation processes, or the skills of the planning staff to facilitate the process are not measured.

4.2.5. El Paso Metropolitan Planning Organization Public Participation Plan (EPMPO-PPP)

El Paso Metropolitan Planning Organization (EPMPO)'s planning area includes El Paso county of Texas, southern Dona Ana County, and a small portion of Otero County in New Mexico and serves a population of about 1,153,057 as per the 2020 Census estimate. This plan[28] serves as the guide for the public participation process of El Paso MPO and outlines policies and principles to guide its communication and coordination efforts. Following are the principles that shape this plan:

1. Equal access is an essential part of the public involvement process
2. No major public policy decision is reached or a large project implemented without significantly affecting someone.
3. Professionals do not have a monopoly on good solutions
4. People are much more willing to live with a decision that affects different interests unequally if the decision-making process is open, objective, and considers all viewpoints.
5. Interacting with an official representative of an organization or group is no substitute for interacting directly with that organization or group.
6. Effective public notification and participation takes time and effort, and can be expensive, yet is essential to sound decision-making.

Steps where public participation is required and minimum requirements

1. Development, update, and amendment of Metropolitan Transportation Plan (MTP)
2. Development, update, and amendment of Transportation Improvement Program (TIP)
3. Development, update, and amendment of Unified Planning Work Program (UPWP)
4. Transportation conformity Report
5. Development of Congestion Management Process
6. Development and amendment of Public Participation Plan
7. Program management plan

Length of the comment period and minimum notification of opportunity are mentioned. However, those participation opportunities are not inclusive as they are offered through online media only and excludes the consideration of hard-to-reach population groups.

[28] EPMPO. "Public Participation Plan".

Strategies for public participation

Table 10 shows participation strategies outlined in EPMPO-PPP in comparison with SUMP.

Table 10: Participation Strategies of EPMPO-PPP in comparison with SUMP

Metrics	SUMP	EPMPO-PPP
Diverse engagement channels	Using different channels of engagement to reach all groups of citizens like traditional formats of the paper survey as well as online surveys and being critical of the engagement methods.	Offering a variety of communication formats are including website, social media, video, media outlets, public meetings, transportation policy board and subcommittee meetings, print, and digital publications.
Communicating the implications of the engagement process	Communicating to the wider public how the results of citizen engagements are being used in the process.	Not specified
Accessible language	Avoiding technical jargon and conveying messages in multiple languages so it becomes easier to reach communities whose first language is not English.	Using information and graphics that are easy to understand; providing translation, interpreters (spoken or sign), handouts in large print, and Braille if requested at least 10 working days in advance of meetings. A supporting Language Assistant Plan for population groups with limited English proficiency is also developed to guide the assistance efforts.
Location of public meetings	Choosing convenient, easily accessible, barrier-free, reachable by public transport locations for public meetings. Well-lit rooms with good acoustics as well as seating arrangements that do not imply power hierarchies should also be considered.	Holding public meetings at accessible locations, preferably near transit lines or routes, and in buildings that comply with the ADA act of 1960.

Time of public meetings	Being considerate of people's varied time schedules while organizing an event so that all subsets of the population can join (SUMP suggests organizing events in the evening).	Holding public meetings at a convenient time, both at day and evening times.
Moderation	Ensuring professional and respectful moderation.	Not specified.

Engagement methods and participation levels in EPMPO-PPP

The plan does not explicitly mention the expected level of public engagement through the use of different engagement tools. However, the language used in the plan regarding the use of different tools indicates that in most cases, engagement remains limited to inform and consult. Some examples are given below in Table 11.

Table 11:Methods and level of public engagement of H-GAC-PPP in comparison with SUMP

Public participation strategies of EPMPO	**Level of engagement in comparison to SUMP**
"All public listening sessions/open house notices will be sent to a selected newspaper to ensure regional coverage. When possible, radio and television will be used to reach a larger audience" (p.15)	Inform
"As needed, EPMPO will host these events to gather input and build consensus among various transportation stakeholders." (p. 23)	Inform and consult
"All public listening sessions/open house notices will be sent to selected newspapers to ensure regional coverage. When possible, radio and televisions will be used to reach a larger audience" (p.15).	Inform

Monitoring and Evaluation:

No monitoring or evaluation criteria were mentioned in the EPMPO-PPP plan.

Chapter 5: Discussions

From the first part of our analysis section (see section 4.1), we have found that SUMP bases its goals and actions on the existing planning discourses, and following that principle, MPOs can leverage their existing planning documents and agreements to plan for Megaregions. SUMP also plans for 'functional urban area'- in the U.S. context that can be read as Megaregions in some contexts. MPOs, including Texas ones, formulate their planning goals and actions for MPAs- the MPA boundaries are reviewed by the MPOs after each Census to determine whether there is a need to change the boundary definition to match with the new and updated UZAs.[29] However, Federal law does not require MPOs to consolidate boundaries but requires that "at a minimum, the MPA boundaries shall encompass the entire existing UZA (as defined by the Bureau of the Census) plus the contiguous area expected to become urbanized within a 20-year forecast period for the metropolitan transportation plan".[30] Thus, unlike SUMP, MPOs do not have the legal flexibility to formulate an integrated mobility plan for a 'functional urban area' vis-à-vis Megaregion in this context.

From Table 1, we can see that, where there is a lack of direction from the Federal level, State regulations can compensate for that to achieve the goals of SUMP, for example in the case of quality assurance. In the absence of any direction from the Federal level, Texas Administrative Codes have formulated guidance to assure quality in the transportation planning projects in planning stages, though they have not set criteria for quality assurance in the implementation phases of projects. The main gap at the Federal and State level directions is in the performance assessment of the transportation planning projects. SUMP suggests that assessing both the current situation and establishing a baseline against it to assess the future outcomes is necessary. However, while there is Federal direction for MPOs to assess the assumed impacts of the proposed projects during the planning phase, there is no direction or incentives for MPOs to assess the actual outcomes or impacts of those projects after completion. Thus this missed opportunity of outcome-based learning is a potential barrier to achieving the path of sustainable planning in MPOs and may impact the potential to scale up to the megaregional level.

[29] 23 CFR §450.312
[30] 23 CFR §450.312 (a) (1)

Apart from these legal challenges to megaregional planning for MPOs, there are procedural challenges in furthering opportunities for public participation in MPO processes that can impede the potential to conduct megaregional planning following the SUMP process. The MPO PPPs reviewed in Section 4.2 reveal that all these plans conform to the criteria for public participation detailed in SUMP:

- using diverse channels of engagement;
- using simple languages and providing translations for groups of the population whose first language is not English;
- choosing convenient, barrier-free, and easy to access locations for public meetings; and
- being considerate of people's schedules and holding the public meeting at times when all subsets of the population can join.

However, one or more MPO PPPs fail to meet the standard of the public participation criteria in SUMP in several ways:

1. Two major sectors where PPPs have failed to meet the SUMP criteria:
    a. *Communicating the implications of engagement in the broader planning scenario*: apart from the Dallas- Fort Worth MPO, the other MPOs do not effectively have a plan to communicate the implications of the engagement process to the wider public. The lack of this knowledge can discourage the public to participate in the process as they remain unaware of the value of participation, can take it only as a 'ticking the box' step in the planning process, and feel unnecessary to invest their time and energy behind this.
    b. *Moderation*: none of the PPPs have mentioned strategies to ensure professional and respectful moderation which is crucial for conflict mediation in a participatory process.
2. In most cases, public participation remains limited to providing comments and feedback to a draft plan. Major participation components of SUMP like the problem analysis of mobility situations, discussion of planning scenarios, development of visions, selection,

and validation of measure packages, evaluating success and failures of planning processes are missing in all PPPs.

3. As public participation plans are heavily tailored to inform the public and getting feedback from them, the level of engagement in public participation processes remains limited to 'inform' and 'consult' stages. Given the current strategies outlined in the plans, it is not possible to reach the 'empower' level through the engagement processes that SUMP recommends. Other than Alamo MPO PPP, no PPPs have attempted to define and shape their public participation efforts following the public participation spectrum.
4. Addressing the environmental justice concerns remains limited to providing language assistance and other support services upon request, and the requesting period varied for different MPOs making the process convoluted for disadvantaged population groups.
5. Historically low-income and minority populations have been underserved by the regional transportation planning decision and receive fewer benefits while bearing disproportionate burdens of the planning outcomes.[31] The plans lack proactive measures to address the contentious relationships between planning organizations and these underserved populations. . Other than Dallas-Fort Worth MPO, none have involved nonprofit organizations – that have built a relationship of trust with these communities - in the engagement process that can be utilized to gain access and encourage underserved communities to take an active part in the transportation planning process.
6. The metrics used for evaluating the effectiveness of the participation strategies are mostly quantitative and they focus on measuring 'efforts' for example, the number of meetings held rather than measuring 'impacts' (for example, reworking engagement techniques so that the percentage of the minority and low-income population taking part in the meaningful conversations and giving new solutions grows).
7. SUMP emphasizes creating a 'steering committee' with major stakeholders and representatives from different affected population groups to inform the engagement process with interests from all affected groups. None of the PPP mentions creating such a group.

[31] Alex Karner and Richard A. Marcantonio. "Achieving transportation equity: Meaningful public involvement to meet the needs of underserved communities." *Public Works Management & Policy* 23, no. 2 (2018): 105-126.

However, it should also be considered that the political structure and the planning contexts are different in the U.S. and Europe. In Europe, the broader goals of SUMP are supported and funded by the EU and its member states. Thus the possibility of implementing SUMP becomes higher and the cohesiveness of the scopes of the projects at different levels is also ensured. In addition to that, member states can create their respective SUMP framework and European Commission incentivizes those efforts through funding and other resources.

In the US context, transportation planning takes place mostly at the local and sub-regional levels, guided by federal statutes and amendments in each transportation bill. This has led to piecemeal changes by and large, although there have been dramatic increases and decreases in the number and types of elements that MPOs have been required to focus upon over the past twenty-five years. The U.S. Department of Transportation (USDOT) oversees funding for large-scale transportation projects that span across multiple states, it is not authorized under the U.S. constitutional structure to manage local-level transportation planning. Thus transportation planning efforts in the U.S. are extremely fragmented and are not easily scalable from a megaregional perspective under the current legal construct. As U.S. 2020 Census data shows the megaregion trend is continuing in the 13 megaregions that FHWA has identified. However, under current laws and regulations within the United States Code and Code of Federal Regulations megaregions are not formally recognized. In this context, MPOs, therefore, offer expertise, flexibility, and a collaborative network to formulate a cross-jurisdictional and comprehensive planning framework like SUMP.[32] However, federal policies and funding mechanisms do not provide sufficient support to realize these goals. Lack of specifically targeted funding and the absence of a cohesive framework and metrics to formulate and evaluate the participation strategies also make the EJ concerns unaddressed through the MPO planning efforts. Thus the potential effectiveness of SUMP that largely comes from its bottom-up participatory planning approaches and coordination of different agencies cannot be fully realized by the MPOs if those issues are not addressed. The broader goals of advancing transportation equity and environmental justice will also remain repressed for a long time.

[32] Alexander Hunn, Roxanne Lin and Lisa Loftus-Otway. "The Right Structure for the Right Incentives for Multimodal Transportation in America's Growing Region". CM2. (2019)

Chapter 6: Recommendations

With the megaregional trend growing in the U.S., it is becoming increasingly important to recognize and reorient the scale of the mobility planning paradigm of the U.S. toward the megaregions for the sustainable and equitable growth of cities and regions. In the current politico-legal paradigm, MPOs offer the potential flexibility and skill set to support the megaregional planning goals within a SUMP-oriented process. In our analysis of MPOs in assessing their applicability for planning for the Texas Triangle megaregion, we identified key steps for Texas Triangle MPOs to leverage the SUMP guideline to codify a megaregional approach towards sustainable and equitable mobility planning. Recommendations are given below:

- **Federal legislation enabling MPOs to do megaregional planning following SUMP**

To accommodate megaregional planning, the recognition and legitimization of megaregions at the Federal level is necessary. As federally created and funded organizations MPOs need distinct and coherent directions from the federal level on how to incorporate megaregional planning within their short and long-term scopes of planning following the SUMP guideline. Without any instrumental change in the federal level policy directions, megaregional planning following the SUMP guideline cannot come to fruition in the U.S. context.

- **Added funding sources to support the megaregional planning initiatives at the state level**

At the state level, there is a need to identify additional revenue sources (e.g. gas tax, set aside) to support the megaregional planning projects. Revision of the state and federal level funding formulas for MPOs is also needed to accommodate the effective implementation of megaregional planning.

- **A comprehensive guiding framework inspired by poly-SUMP and SUMP for metropolitan planning**

The idea, tools, and methodology used in poly-SUMP and SUMP for metropolitan planning can be instrumental in formulating a guideline for megaregional planning due to the similarity in the conceptualization of the connectivity of spaces along with different scales. The poly-SUMP tool Future Search Workshop can be used as an effective icebreaking approach to initiate the dialogue

among different entities operating at different scales, to align their mobility planning priorities, and to set up a regional vision for sustainable megaregional mobility planning

- **A comprehensive plan for ensuring public participation at different levels of planning**

The success of SUMP is built upon its bottom-up participatory planning process, where citizens and stakeholders take part in the process from the onset and continue to contribute to the planning policies, goals, and processes by impactful, active participation. A comprehensive public participation plan that ensures the equitable representation and contribution of affected communities – especially minority and traditionally underserved communities – is needed. This would outline the necessary levels of engagement at different phases. It should create mechanisms to monitor and evaluate the effectiveness of the participation processes using quantitative and qualitative ways metrics. This will ensure that sustainable megaregional planning advances broader goals of mobility justice.

- **Funding and resources for monitoring and evaluation of the planning efforts at different levels**

Long and short-term monitoring and evaluation of transportation planning processes and outcomes are currently absent in existing U.S. policy and law. Allocation of funding and resources are necessary for the monitoring and evaluation as they would provide learning opportunities – both from successes and failures – and that would aid in supporting the goals of equitable and sustainable megaregional planning.

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