TØI rapport 1508/2016

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NORSULP Logistikkplaner i by

Transportøkonomisk institutt
Stiftelsen Norsk senter for samferdselsforskning

Bærekraftige bylogistikkplaner i Europa - En litteraturstudie

NORSULP Leveranse 1.1

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Sammendrag:

Målet med denne litteraturstudien er å vurdere allerede eksisterende europeiske bylogistikkplaner (Sustainable Urban Logistics Plan's) og godsrelaterte mobilitetsplaner (Sustainable Urban Mobility Plan's) for deretter å identifisere erfaringer og fellestrekk relevant for utvikling av tilsvarende planer i Norge. Studien viser at bruken av bylogistikkplaner i skandinavisk- og engelsktalende europeiske land er begrenset, men økende. Videre indikerer funnene at nasjonale og/eller regionale planføringer samtidig som gods inkluderes i en overordnet mobilitetsplan eller byutviklingsstrategi kan øke oppmerksomheten rundt denne typen problemstillinger. Fellestrekk relevant å bygge videre på ved utviklingen av norske bylogistikkplaner er at mange av de identifiserte planene er en kombinasjon av godsstrategier og handlingsplaner der oppbygning av planinnholdet følger en relativt standardisert struktur. Bylogistikkplaner kan gi en langsiktig visjon til kommunen for å kunne utvikle policytiltak og praksis som sikrer en økt andel bærekraftig urban varetransport.

Summary:

This study aim to identify current European Sustainable Urban Logistics Plans (SULP) and freight related Sustainable Urban Mobility Plans (SUMP) with the purpose of reviewing and extracting lessons for future freight planning practices in Europe. The results suggest that the use of urban freight plans, in Europe is limited but increasing. SULP's are freight strategies, action plans or part of a mobility plan, which provide a long-term vision for local urban freight activities. The plans follow a structure of identifying the current situation and defining the strategic context, vision, targets and objectives using selected policy measures depending on the geographical scope. The methodological structure of the SUTP, SUMP and SULP are used in existing European urban freight plans and a further standardisation could provide a conceptually common understanding. Combining urban freight and existing sustainable development strategies and legally binding local, regional and national guidelines are important for further increased attention on urban freight.

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Forord

NORSULP-prosjektet (Sustainable Urban Logistics Plans in Norway) har som hovedmål å lage veiledning til bruk ved utarbeidelse og etablering av bylogistikkplaner i norske kommuner. Ved implementering av logistikkplaner kan det tilrettelegges for effektiv og miljøvennlig avvikling av godstransport i byer og byområder. Prosjektet er finansiert av Norges forskningsråds Transport 2025-program og Statens vegvesen, Vegdirektoratet. Ni norske bykommuner (Bergen, Bodø, Drammen, Fredrikstad, Kristiansand, Oslo, Stavanger, Trondheim og Tromsø) deltar i prosjektet, mens privat sektor er involvert gjennom referansegruppen. Transportøkonomisk institutt (TØI) leder prosjektet og samarbeider med SINTEF Transportforskning om gjennomføring av forskningsoppgavene.

Foreliggende rapport utgjør Leveranse 1.1 fra NORSULP-prosjektet. TØI har gjennomført en litteraturstudie for å kartlegge eksisterende logistikkplaner i Europeiske byer og trekke ut erfaringer og fellestrekk relevant for utvikling av tilsvarende planer i Norge.

Karin Fossheim har vært hovedansvarlig for litteraturstudien og har skrevet det meste av rapporten med bistand fra Jardar Andersen.

Oslo, desember 2016
Transportøkonomisk institutt

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direktør

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Innhold

Sammendrag:

Bærekraftige bylogistikkplaner i Europa - En litteraturstudie

TØI rapport 1508/2016
Forfattere: Karin Fossheim og Jardar Andersen
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Bruken av og interessen for bylogistikkplaner for å sikre effektiv og miljøvennlig godstransport i byer er begrenset, men økende både i Norge og ute i Europa. Nasjonale føringer og inkludering av gods i overordnete byutviklingsstrategier og mobilitetsplaner blir stadig viktigere. Dette kombineres gjerne med egne strategier og standardiserte handlingsplaner for godshåndtering. Disse fellestrekkene kommer fram i denne litteraturstudien og kan være relevante ved utviklingen av bylogistikkplaner i Norge. Slike planer i utlandet kan inspirere norske kommuner til å utvikle policytiltak og praksis som sikrer økt bærekraftig avvikling av vare-, avfall- og utstyrstransport inn til, ut av, gjennom eller innenfor et urban område.

Hittil har planleggingen av varetransporten i både i norske og europeiske byer vært ad hoc med mål om å oppnå raske løsninger, sterkt påvirket av gjeldende politisk agenda. Et økende fokus fra EU på mobilitetsplaner, helhetlig byplanlegging og urban varetransportplanlegging har skapt begrepet Sustainable Urban Logistics Plans (SULP) eller bylogistikkplaner. En slik plan kan defineres som en helhetlig plan for logistikk og varedistribusjon der målet er å sikre effektiv og miljøvennlig avvikling av godstransporten i et byområde. Dette konseptet har medført økt oppmerksomhet rundt godsplanlegging i byer samtidig som det er et behov for å utvikle en felles og mer helhetlig forståelse for innholdet i bylogistikkplaner. Med dette som utgangspunkt går denne systematiske litteraturstudien først gjennom allerede eksisterende bylogistikkplaner i europeiske byer for deretter å identifisere erfaringer og fellestrekk relevant for utvikling av tilsvarende planer i Norge.

Denne litteraturgjennomgangen er en del av forskningsprosjektet Sustainable Urban Logistics Plans in Norway (NORSULP) der målsetningen er å utvikle veiledninger for bylogistikkplaner i norske byer. Dette dokumentet er opprinnelig skrevet som en engelsk artikkel og det norske sammendraget er inkludert for å oppsummere funnene fra denne artikkelen.

Planmessig rammeverk for urban godstransport

Det er flere planmessige rammeverk for bylogistikken, én kategori er planene utviklet på et overordnet europeisk nivå gjennom EU-regler eller EU-baserte prosjekter. Denne typen planer er gjerne teoretiske retningslinjer, utviklingsmetoder eller politiske støttedokumenter brukt for å implementere godstiltak. Den første gruppen slike planer er Sustainable Urban Transport Plans (SUTP). Dette er en tilnærming med målsetning om å koordinere planleggingen mellom alle transportmidler ved å samarbeide på tvers av administrative grenser og mellom myndigheter. En annen europeisk tilnærming til transportplanlegging er bruk av Sustainable Urban Mobility Plans (SUMP) eller mobilitetsplaner. Dette er en strategisk overordnet plan med hensikt å tilfredsstille mobilitetsbehovet til alle brukerne av det urbane området. Denne planleggingen bygger på eksisterende praksis og vektlegger integrering av alle transportmidler, deltakelse og evaluering. Begge disse plantypene dekker både person og gods transport. Basert på disse mobilitetsplanene er det fremhevet at man må utvikle Sustainable Urban Logistics Plans. Dette er planer som fokuserer på godstransport, men integreres med eksisterende arealplanlegging. Gjennom Intelligent Energy Europe (IEE) initiativet ENCLOSE er det utformet en veiledning

for en bylogistikkplan basert på tilsvarende europeiske retningslinjer for Sustainable Urban Mobility Plans.

Alle de nevnte plantypene inneholder en metode for hva en mobilitets- eller bylogistikkplan kan inneholde og hvordan man skal gå frem for å utvikle slike planer. Sentrale punkter nevnt i alle planene er å identifisere dagens logistikksituasjon, visjon, målsetninger, prioriteringer, policytiltak og oppfølging. I noen tilfeller utgjør bylogistikkplanenen en del av byens eller kommunenes mobilitetsplan, fremkommelighetsplan, mobilitetsstrategi eller overordnende byplan. Bylogistikk er i disse planene sidestilt med andre transportrelaterte strategier som gange, sykkel, parkering og luftkvalitet. I disse tilfellene er planene ikke lovfestet, men planutformingen er gjerne igangsatt av byen eller kommunen selv noe som gir grunnlag for økt oppslutning om den endelig planen.

Et annet rammeverk for bylogistikken er nasjonale, regionale og i noen tilfeller overordnede kommunale veiledende dokumenter. Nasjonale veiledninger kan fremheve viktigheten av problematikken for kommunene, komme med anbefalinger for design av en slik plan og støtte den lokale utviklingsprosessen. Disse dokumentene kan også presentere best praksis-eksempler for hva som har fungert i Norge eller andre land og ideer til hvordan tiltak kan tilpasses en lokal kontekst. Eksempelvis kan klima- og miljøstrategier, regionstrategier, EU White Paper on Transport, nasjonalt utviklede transportplanleggingsveiledere, støystrategier og maritime strategier være et gode utgangspunkt for hva en bylogistikkplan kan inneholde.

I flere tilfeller er de eksisterende planene som omfatter varetransport i byer, deler av eller tillegg til lokale planer, da gjerne lokale transportplaner. Innholdet i disse lokale planene blir da rammeverket som veileder bylogistikkplanene. De lokale transportplanene har et langsiktig perspektiv og kan sees på som lovfestede transportpolitiske rammedokumenter der gods i urbane områder inkluderes. Godstransporten og vareleveringen i byer inngår i disse planene som strategiske planer der man setter målsetninger, bestemmer overordnede tiltak for å nå disse målene og mobiliserer ressurser for å utføre de nødvendige handlingene. Med andre ord kan en bylogistikkplan være en strategisk plan for varelevering i det urbane området. I tillegg eksisterer det i mange tilfeller en handlingsplan for varelevering i by som supplement til den eksisterende godsstrategien. Denne planen kan eksistere som et selvstendig dokument eller integreres som en del av den strategiske planen. Handlingsplanen er en detaljert plan som beskriver hvilke politiske tiltak som trengs for å nå de identifiserte målsetningene i strategien. Godsstrategiene og handlingsplanene i seg selv er ikke lovfestede dokumenter påbudt i en kommune, men de er en del av den lokale transportplanen som i seg selv er lovfestet.

Oppsummert er rammeverket for å utvikle bylogistikkplaner bestemt av europeiske veiledninger, nasjonale eller regionale strategier og kommunale/lokale transportplaner.

Intensjon og målsetninger med bylogistikkplaner

De identifiserte bylogistikkplanene tar i stor grad utgangspunkt i en felles oppbygning, gjerne basert på SUTP-, SUMP- og SULP-veiledningene. Hovedmålsettingene for varetransporten er i planene spesifisert med konkrete politiske tiltak. Oppsummert kan man si at intensjonen med en bylogistikkplan er å:

- Identifisere eksisterende utfordringer og analysere logistiske hovedtrekk for varetransporten i område planen er ment å dekke. I noen tilfeller kan mobilitetssituasjonen være relevant for bylogistikken.
- Gi en langsiktig visjon for godstransporten i det urbane området der man definerer potensialet, omfanget av planen og utvikler fremtidsscenarier for logistikken.

- Definere lokale og/eller regionale målsetninger, prioriteringer og strategiske områder for varetransporten i det urbane området, byen eller kommunen.
- Identifisere politiske tiltak som støtter opp under de overnevnte punktene og som påvirker logistikken - organisering, forretningsmodeller og kontrakter.
- Tilfredsstille næringslivet og folks behov for godstransport i byområder.
- Fordele ansvar og budsjett for å sørge for gjennomføring i forhold til ressurser, veikart, implementering og fremtidig oppfølging.

En felles intensjon nevnt i de fleste identifiserte planene er aktørsamarbeid. Dette er i flere av planene allerede benyttet ved evaluering eller utvikling av en allerede eksisterende plan. Ved å inkludere relevante aktører gjennom hele planprosessen sikrer man oppslutning om planen, kvalitetssikrer at innholdet gagner berørte aktører og på denne måten øker planens legitimitet.

Politiske tiltak vektlagt i planene

Tiltakene det er fokusert på i bylogistikkplanene er tilpasset hver enkelt kommune, men en hovedtendens er at det geografiske området som planen dekker legger føringer på hvilke tiltak som er anvendt. Godsplanenes omfang påvirker om den vektlegger urbane eller rurale godstransporttiltak. De godstransportplanene som er regionalt rettet har et sterkere fokus på langtransporten gjennom regionen sammen med luft- og sjøtransport. I disse tilfellene forsvinner det urbane fokuset, noe som tilsier at en bylogistikkplan heller bør dekke kommuner/byer enn regioner. Samtidig er det viktig å ha et mer overordnet perspektiv enn gatenivå for ikke å miste helheten i planlegging av varetransporten. Dersom man ønsker flere detaljer kan dette spesifiseres i eventuelle handlingsplaner for transportene.

Politiske tiltak innenfor hovedkategoriene nevnt under, er inkludert i de allerede etablerte bylogistikkplaner identifisert i denne studien:

- Planlegging av infrastruktur,
- Parkering, laste- og losse-områder
- Kjøretøyrelaterte strategier,
- Trafikkstyring,
- Prising, incentiver og skatter,
- Logistikkstyring,
- Styring av transportetterspørsel og arealbruk,
- Involvering av berørte aktører

Trafikkstyring er det politiske tiltaket som oftest er nevnt i planene analysert i denne studien, noe som kan tilsi at løsninger for å endre trafikkforholdene forekommer oftest når en ønsker å redusere varetransporten både lokalt og regionalt.

Overførbare fellestrekk og erfaringer

I utviklingen av veiledningen til de norske bylogistikkplanene kan det være aktuelt for hver by å legge vekt på følgende områder:

- Organiseringen av bylogistikkplanene som godsstrategier med detaljerte handlingsplaner for varetransporten i urbane områder. I tillegg er det viktig at den urbane godsstrategien inngår som en del av en overordnet byplan for eksempel som en lokal transportplan, eller en mobilitetsplan for byen.
- Av de identifiserte internasjonale og nasjonale erfaringene ser vi at det ofte er et behov for nasjonale føringer for å inkludere vareleveringene i by inn i arealplanleggingen. Dette ligger allerede til grunn for eksisterende planer. For å sikre implementering av politiske tiltak rettet mot varetransport i by, er det viktig at den langsiktige strategien for bylogistikken er forankret i en overordnet bærekraftig utviklingsstrategi, klima- og energistrategi eller liknende.
- Felles planstruktur allerede utviklet gjennom europeiske veiledninger kan benyttes når man utvikler slike planer. Eventuelt kan en standardisert planstruktur også fastsettes gjennom nasjonale standarder. På denne måten er det enklere å sammenligne muligheter, overføre erfaringer, evaluere planene og identifisere fungerende løsninger for andre norske byer.
- Videre er det en fordel om bylogistikkplanene dekker et relativt likt geografisk omfang slik at de enten dekker byer (uansett størrelse) eller har et mer regionalt perspektiv. Dersom man utvider disse planene til å dekke begge deler vil man kunne miste byfokuset og dermed også i mindre grad prioritere utfordringene man møter i byer. For eksempel kan man i større grad få et sterkt fokus på langtransport.
- Aktørinvolvering og samarbeid mellom eller internt i kommunene er viktig for å spre kunnskapen og erfaringene med varetransporten. I tillegg bør en definere en visjon og et rammeverk for fremtidig utvikling av området. Ved bruk av aktørinvolvering i planleggingsprosessen vil ulike interesser bli ivaretatt og man får et økt eierskap til planen. Dette medfører også økt legitimitet noe som sikrer at planen faktisk blir gjennomført i praksis.

Avslutningsvis er et viktig element, som kanskje i mindre grad vektlegges, etablering av et system for oppfølging og evaluering av planene. Slike evalueringer kan i ettertid fungere som veiledninger eller retningslinjer for planleggere når nye bylogistikkplaner utvikles.

Summary:

Planning for Sustainable Urban Logistics in Europe – a Review

TØI Report 1508/2016
Authors: Karin Fossheim og Jardar Andersen
Oslo 2016, 21 pages

Considering EUs emphasis on Sustainable Urban Mobility Plans (SUMP), Sustainable Urban Logistics Plan (SULP) and increased attention on urban freight planning this research aim to identify current European SULP's and freight related SUMP's with the purpose of reviewing and extract lessons for future freight planning practices in Europe.

This study applies a systematic literature review approach to identify relevant literature, articles, plans and public documentation based on the predefined inclusion criteria: mobility, freight, urban, plan. One benefit of using this method is that it reduces researcher knowledge bias since the concepts and findings are extracted based on a specific research question.

The results indicate that use of urban freight plans, in Europe, is limited but increasing. Today the SULP's are organised as freight strategies, action plans or part of an overall city mobility plan. They follow a structure of identifying the current situation and defining the strategic context, vision, targets and objectives using selected policy measures. Which policy measures that are included in the plans depends on the geographical scope, however, traffic management measures occurred most frequently.

In conclusion, the SULP's should provide a long-term vision on practices for local urban freight activities. Findings suggest that the methodological structure of the existing SUTP, SUMP and SULP methodologies are to some degree used in existing European urban freight plans. Additionally, further structural standardising could provide increased common understanding of the SULP concept. Another important finding for transferring freight plans to new locations is to include urban freight in other planning procedures or sustainable development strategies. The identified UK plans suggest that legally binding local, regional and national guidelines influence the public attention paid to freight plans, however, few of the identified freight plans are evaluated, crucial when identifying the effect. Finally, stakeholder consultation is essential for increasing the legitimacy and further developments of urban freight plans.

1 Introduction

Urban areas represent challenges for national and international freight transport, both in terms of logistical performance and environmental impacts. Goods, waste and service trips in urban areas impose negative traffic and environmental impacts and take place in space shared with many other actors including public transport operators, private car users, taxis, cyclists and pedestrians. The European Commission [1] pointed out several key challenges of urban logistics:

1. A lack of focus and strategy on urban logistics, and few cities have an individual in authority responsible for urban logistics;
2. A lack of co-ordination among actors involved in urban logistics, and in many cases, insufficient dialogue between city authorities and private actors who operate there;
3. A lack of data and information which makes it difficult to improve operational efficiency and long-term planning.

There is thus a need for improved urban freight planning. The European Commission [2] even emphasised that urban logistics should be among the different components of a Sustainable Urban Mobility Plan (SUMP) where one goal is to improve the accessibility of urban areas and provide high-quality, sustainable mobility and transport to, through and within the urban area. Furthermore, the EU stated that urban freight plans should present measures to improve the efficiency of urban logistics, including urban freight delivery, while also reducing related externalities including greenhouse gas emissions and noise. Thus, the concept of Sustainable Urban Logistics Plan (SULP) was launched, to deal with the logistics component of a SUMP. Following this increased attention to SUMP, the development of Sustainable Urban Logistics Plans in European cities and the increasing number of research initiatives, there is a need to identify the current international state-of-practice of SULPs and freight-related SUMPs, in which this paper aims to contribute [2].

So far cooperative development of a SULP between local authorities, regions, logistics operators and other businesses to improving planning have been relatively uncoordinated. Thus, a more systematic and holistic approach is needed at city level to improve the situation and cope with the challenges now faced by many cities. The purpose of this paper is therefore: first, to review current practices in local freight planning in Europe; and second, to extract lessons for future sustainable urban logistics planning. Structuring existing literature achieved in this review might provide an increased common understanding of the SULP concept, thus ensuring further developments to move in the same direction. By analysing current European experiences and extracting findings relevant for further SULP developments there is a possibility to avoid repeating other cities' failures and learn from their best practices.

The findings can contribute to establish what, in practice today, is an effective way of planning for and managing urban freight. For cities and regions this can potentially result in reduced number of trips and/or vehicles which free up space used for logistics purposes to other activities such as public transport or recreational activities making cities more attractive. Hence, the identified current urban freight planning practices can benefit others, improving plans for better use of space in increasingly denser cities. Increased awareness on urban logistics in the public sector will in turn facilitate a viable and competitive business community in urban centres. Very few other reviews of urban freight planning have been identified. The already existing

findings focus on stakeholder perceptions rather than the plan content or they assess freight plans in one, or a few, cities rather than with a comparative European perspective that this review aims to provide [3]–[6].

The work is undertaken as part of a national research project (NORSULP – Sustainable Urban Logistics Plans in Norway) aiming to help the largest cities in Norway develop sustainable urban logistics plans. NORSULP will contribute to improved mobility for all users of urban transport infrastructure and urban mobility systems [7].

The remainder of this study is structured as follows. Section 2 describes the research methodology, while European plans and guidelines for urban freight planning are described in Section 3, and the review of the literature is presented in section 4. Finally, based on the review, potential for transfer and common features are summarised and discussed in section 5 followed by a conclusion of the main findings in section 6.

2 Methodology

The review performed in this paper applies a systematic review, which is an explicit systematic method for reviewing literature based on certain predefined criteria by attempting to identify, appraise and synthesize all relevant studies in order to answer a particular question [8]. In this case the predefined inclusion criterion are: mobility, freight, urban and plan (or words that are synonyms). These concepts are thematically selected based on the research question and the existing definitions of SULP and SUMP. The governmental documents, books, scientific journal articles, websites and plans analysed will preferably include all, and at least three, of these concepts to identify the existing experiences and compare European SULP initiatives. Since this review is concerned with the current practice on urban logistics plans the selected criteria will systematically limit the conceptual framework and the scope of the study. The main advantage of applying this method compared to a traditional review is the potential to reduce researcher knowledge bias. Using concepts identified from the research question will pinpoint available data, guide the collected data and limit subjective assessments, thus providing a structured and critical evaluation of validity and reliability. In addition, this method is highly applicable in answering a specific question or a hypothesis rather than summarising a thematic area, which is the aim of this paper [9]. The methodology is described in the figure below.

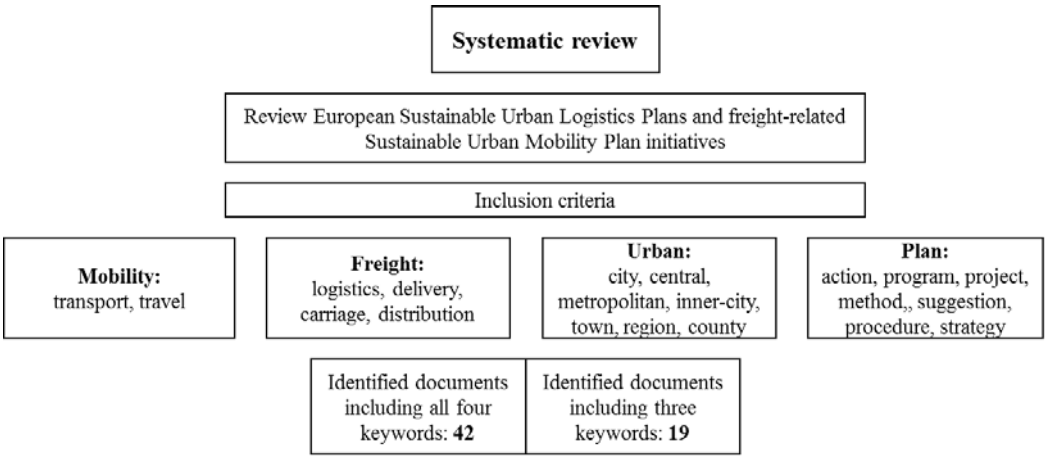

Figure 1: Inclusion criteria of selected urban freight-related documents

The search to identify city plans, public documents and reports was completed between January-September 2016 and done through Google Scholar and Google search engine. The literature identified is written in either English, Swedish, Norwegian or Danish language, which for instance excludes the Paris Plan de Déplacements Urbains (PDU) [10] and other important sources written in European languages. We are aware of relevant plans outside of Europe such as Portland Freight Master Plan [11] and the Oregon Freight Plan as part of the Oregon Transport Plan [12], however, the scope of this article is limited to European English or Scandinavian written planning cases. The review separate between overall European plans and guidelines and more specific existing plans. The latter category is again divided into to: i) regional- and ii) local and city level urban freight plans. In this review logistics, or city/urban

logistics, is seen as the system or strategy of ensuring efficient urban freight movements, while urban freight concerns the transportation of goods in an urban area. This review focuses on goods distribution in an urban area or region, hence the concept of freight is applied [13], [14]. Moreover, the identified plans don't explicitly say *sustainable logistics* but the policy instruments listed indicate an aim at sustainable urban freight transport within their area.

3 Plans and Guidelines for Urban Freight on a European Level

Among the identified plans targeted at urban freight one group can be categorised as those developed at a European level with the purpose of being theoretical guidelines, planning methodology or policy support documents in planning, developing and implementing urban freight measures. These are often a result of European projects within urban mobility e.g. ENCLOSE [15], [16]. The main such plans are: i) Sustainable Urban Transport Plans (SUTP) [17], [18], ii) Sustainable Urban Mobility Plans (SUMP) [19] and, iii) Sustainable Urban Logistics Plans (SULP) [20].

The Sustainable Urban Transport Plan (SUTP) developed and tested in the project BUSTRIP and PILOT is '*an integrated approach with the goal of overcoming deficits in the coordination and cooperation across administrative borders, as well as between authorities in national hierarchies'*. These plans seek to develop a comprehensive method targeting all transport modes in urban areas [21]. When designing SUTPs the planning principles to ensure policy implementation is a long-term urban freight transport strategy embedded in an overall sustainable development strategy. Besides, the plans should have a regional scope and be developed through stakeholder consultation to secure acceptance and legitimacy. Finally, actor cooperation and policy coordination can ensure integration between transport modes and capacity building can ensure necessary skills [3], [4], [21]–[23]. Running the SULP process can be separated into five tasks before being adopted:

- Status analysis and scenario development,
- vision, objectives and targets,
- action and budget plan,
- assessing responsibilities and resources and
- monitoring and evaluation [18].

A Sustainable Urban Mobility Plan (SUMP) 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'* [19], [24]. As mentioned, it is a varying degree to which extent freight, in particular urban freight, has been emphasised or even included in these guidelines. However, the methodology and the experiences of developing such plans can be of importance in urban freight planning. There might be potential for transfer from EU-projects (see for example ADVANCE, Poly-SUMP, SUMPs-Up, ENDURANCE and FormelM[1]) where they all develop guidelines, tools and handbooks on how participating cities can develop SUMPs. Of the 11 steps of developing a SUMP the following can summarised as the planning steps which potentially can be transferred to urban freight plans:

- Define the potential, development process and scope of the plan,
- analyse the mobility situation, develop scenarios and visions,
- set priorities/targets and develop effective packages of measures and

[1] These are just a selection of SUMP related EU-projects. For more projects on this topic see http://www.eltis.org/mobility-plans.

- clarify responsibilities, allocate budgets and build systems for monitoring and assessment into the plan [19].

In addition, the Poly-SUMP methodology consists of three elements developed from the SUMP methodology: prepare well by understanding your region; create common ground and vision; and use the outcomes and elaborate the plan [25]. This indicates that the SUMP methodology has reached a common understanding and is being used in most projects regarding SUMPs. In the Stockholm Urban Mobility Strategy [26] some of the planning steps from the methodology above can be identified e.g. overall strategy defining the potential, objectives setting visions and aims targeted by effective packages of measures. Aberdeen [27] has developed a SUMP which essentially is a transport masterplan looking at the way people move around by different modes of transport together with the Aberdeen City Local Transport Strategy [28], [29].

The final category of theoretical guidelines, Sustainable Urban Logistics Plans, is a *holistic planning strategy for urban freight which ensures efficient and sustainable logistics operations within urban areas* [7]. The IEE initiative ENCLOSE contributed to the development of SULPs in a set of small and mid-sized European towns, pursuing the same logic as the SUMP initiatives including the following tasks to be carried out by each town [5], [15]:

- Analysing the logistics baseline and scenario development,
- setting the vision, objective and targets/priorities,
- identify policy measures impacts and service design - organisation, business model and contracting and
- assign responsibilities and arrange for implementation roadmap and monitoring plan.

The ENCLOSE project highlights the importance of accounting for the perspectives of different actors involved in urban freight: Institutional Level: legal framework, rules; Political Level: consensus among the different city actors and stakeholders; Operational Level: freight distribution schemes and services, integration in the mobility management plan and technological framework and; Infrastructures/Technology: ICT platform, systems, innovative vehicles, web services, etc.

Comparing these methodologies, the baseline logistics situation, vision, objective, and policy measures seems are all important considerations to be included when developing an urban freight plan. The question is therefore: are any of these methodological elements today used in existing urban freight planning.

4 Existing Regional, Local and City Freight Plans in European Urban Areas

In this section, the identified existing freight and logistics plans are discussed. The first subsection assesses planning types used in urban freight, the second describe the organisational structure in relation to the European guidelines and the final subsection categorise the policy measures suggested in each identified plan. Our findings suggest that urban freight planning is a political process providing guidance and facilitating for freight-related activities and making land-use, infrastructure and investment decisions affecting freight in urban areas. The content of these plans includes tools and processes to allow local authorities and other stakeholders to manage these activities [30]. Within the language limitations this paper identifies sustainable urban logistics plans in England, Scotland, Sweden and Denmark[2]. Each region or city with such plans are identified in Table 1.

Table 1: Urban Freight Plans Categorised by Regional, Local and City Plans

	Sweden	*Denmark*	*England*	*Scotland*	*Belgium*
Regional level	Västra Götaland [31]		Northamptonshire [32] Surrey [33] Staffordshire [34] Somerset [35] Kent [36] West Midlands [37] Merseyside [38] South Hampshire [39]		Brussels region [40]
Local and city level	Malmö [41] Stockholm [16]	Aalborg Århus Odense Copenhagen Kolding [42]	Bedford [43] London [44] West Berkshire [45]	Aberdeen [46] Dundee [47]	

[2] Freight transport plans have been identified in Germany, however, most of these plans have limited focus on urban freight.

4.1 Urban Freight Strategies and Action Plans

The existing UK freight plans are in most cases supporting elements of an overall Local Transport Plan (LTP), often as freight strategies which sometimes includes a freight action plan [28], [43], [45], [47] e.g. the strategic plan for transport in Kent can be found in their third Local Transport Plan [36]. The Local Transport Plan is the local authorities key freight guiding policy document that incorporates freight issues in a wider transport context of other transport strategies [34], [48]. For example in Somerset it sets out how to improve the way freight is moved around the region [35]. The use of local plans when regulating and planning for urban freight have been emphasized in the Danish cities both in terms of physical planning and planning the road network [42]. The strategic freight plans cover objectives, visions and status of freight and urban freight within a geographical area. The action plan of the strategic freight plan provides detailed links between the selected measures and action point to the identified objectives in each region [36]. In addition, the LTP is a long-term statutory transport policy framework document setting out a vision and framework for the future development of the area through stakeholder consultation in the planning process [49][3]. For instance, the West Midlands Local Transport Plan (LTP) is the statutory strategic transport policy framework document for the metropolitan area [37]. The Freight Strategies and its supporting documents are non-statutory meaning that the plan does not have to be adopted by the Council Members [31]. However, the freight plans has been developed to implement the LTP which is itself a statutory document [44].

In Stockholm and Malmö, the local freight plans are organized differently. The Stockholm Freight Plan, which summarises freight delivery-related goals and presents concrete actions, is a part of the city's 'Urban Mobility Strategy' [16], [26]. Similarly, in Malmö the freight program constitutes a part of their new 'Traffic and Mobility plan'[50]. In addition, related to the British cases the identified Swedish and Belgium freight strategies have developed or will develop an action plan which in more detail will link specific measures to the overall freight objectives [16], [40], [41], [51]. In some plans, the strategic plan for goods traffic is combined with the action plan with specifies measures rather than being specified as a separate documents [30], [40]. In these cases the legal status of the planning document are unknown, however the Västra Götaland Freight Strategy have been implemented by the regional board in Västra Götaland [31] and in Malmö the plans has been politically adopted in the city council. Furthermore, CLOSER, a national forum provides cooperation in transport efficiency, contributing with planning guidance [41], [50], [52]. An overview of the type of planning document, plan additions and their contextual framework are listed in Table 2 where starting from Malmö the plans are at a local/city level.

[3] Required by the Transport Act 2008.

Table 2: Planning Overview Regional, Local and City Level Urban Freight Plans

	Type of Plan	*Plan addition*	*Planning context*
Brussels Capital Region	Strategic plan for goods traffic	Includes an Action plan	
Västra Götaland	Freight strategy	Action plan	National and regional infrastructure/transport plans
Northamptonshire	Road freight strategy	Includes selected policy measures	Part of Northamptonshire Transportation Plan (LTP)
Surrey	Freight strategy	Includes Freight strategy toolkit	Part of Surrey Third Local Transport Plan
Staffordshire	Freight strategy	Includes selected policy measures	Part of Staffordshire Local Transport Plan
Somerset	Freight strategy	Includes an Action plan	Support document of Somerset's Future Transport Plan
Kent	Freight action plan		Part of Kent Local Transport Plan
West Midlands	Freight strategy	Action plan	Part of the West Midlands Local Transport Plan
Merseyside	Freight strategy	Action plan	Part of the third Local Transport Plan for Merseyside
South Hampshire	Transport for South Hampshire freight strategy	Includes a Freight strategy action plan	Local Transport Plan 2 set out in Solent Transport Strategy
Malmö	Freight program	Action plan	Part of Skåne regional urban freight strategy + Malmö Traffic and Mobility plan
Stockholm	Freight strategy	Action plan	Part of 'The Urban Mobility Strategy' Stockholm
Aalborg, Århus, Odense, København, Kolding	Urban freight analysis		Report Department for Transport
Bedford	Freight strategy	Action plan	Part of Bedfordshire Local Transport Plan
London	London Freight Plan		Part of Mayor's Transport Strategy (LTP)
West Berkshire	Freight strategy	Action plan	Part of West Berkshire Local Transport Plan
Dundee	Sustainable Urban Logistics Plan	Action plan	Developed in ENCLOSE
Aberdeen	Freight action plan (FAP2)		An outcome of the Regional Transport Strategy (RTS)

These identified LTP, their supporting freight strategies and detailed freight actions plans are developed based on national government guidelines, recommendations, visions and targets intended to advise and inform design and development. These national documents provides examples of UK best practice on freight [53] and sets out goals for transport planning in a defined planning period, which can provide ideas of measures and visions adjusted to fit each local context. Merseyside applies the following from Department for Transport national freight policies: 'Guidance on Local Transport Plans' [54], 'Delivering a Sustainable Transport System: the Logistics Perspective' [55] and 'White Paper – Creating Growth, Cutting carbon' [38], [56][4]. In Sweden, the national documents which promotes urban mobility are not, as in the UK, directly targeted at urban freight. In Västra Götaland the following documents have been of importance: Vision Västra Götaland 2020, Climate Strategy Västra Götaland, EU 2011 White Paper on Transport, Gothenburg 2035 Near Metropolitan Traffic Strategy and Västra Götaland Maritime Strategy [31]. Combining national guiding documents and the creation of an Sustainable Urban Mobility Strategy is another approach [41]. In Stockholm the freight strategy has been developed from a City of Stockholm initiative within the context of the City Plan, which is an overall urban mobility plan including freight as one of seven mobility topics [16]. Furthermore, EU-projects have also acted as guiding supervisors in some of the plans identified in this paper e.g. Brussels (SUGAR), Dundee (ENCLOSE).

These findings suggest that statutory local transport plans and several national guidelines, with a logistics perspective, are developed to support this planning process it might be a prerequisite to increase the development of such plans since many identified freight plans were found in UK where these conditions are present. This introduces a number of important principles for developing urban freight strategies [61]. It might be that a national pressure of developing freight plans increase the up-take and improve the awareness among public authorities of the need for such plans.

4.2 Urban Freight Plan Contents Framework

Overall most of the identified freight strategies have a vision for freight in their region specified by several objectives and followed by measures targeting these objectives. The strategies begin with developing an aim and several objectives that balances the impacts of freight transport, e.g. *'To facilitate the safe and efficient transportation of freight into, out of and within the TfSH sub-region, supporting a competitive local and regional economy, whilst taking into account the existing and future needs of our society and the environment'*. [39]. It then sets out the challenges expected to be faced in meeting these objectives before describing a number of measures for resolving them followed by an action plan for implementing this preferred strategy [35].

4 Other such guiding documents are e.g. 'Scottish Government Transportation Noise Action Plan'[57] and 'National Planning Policy Framework' [58], 'Tactran Regional Transport Strategy' [59] and 'Local Development Management Strategy' [60].

Looking at the European guidelines, the urban freight plans applies essential components of the SUTP, SUMP and the further developed SULP methodology. The recommendations to include the current situation, strategic context, vision, targets, key objectives and policy measures are followed in both regional and local/city level plans. E.g. in Västra Götaland the following five elements are main headlines in the freight strategy:

- Freight strategy vision, objectives and targets,
- current situation of urban freight in Västra Götaland,
- freight trends and forecasts,
- regional challenges and
- strategic areas [31].

One common feature listed in the content of these urban freight plans or strategies is the use of consultation. This is also highlighted as a key element in the SUTP, SUMP and SULP methodology. In Västra Götaland a freight strategy reference group with representatives from municipalities, municipal associations, businesses, academia, research institutes, NGOs and government agencies is involved in the planning [31]. Additionally, Merseyside ensures that their Freight Strategy best serves the needs of both the freight industry and local communities, by consulting with local authorities, representatives of the freight and logistics community through the Freight Quality Partnership, Freight Working Group and our Planning for the Future Forum. The SUTP process emphasis that including all relevant stakeholders in the planning process will secure acceptance and legitimacy of the plan. This is acknowledged in Merseyside where the Freight Quality Partnership is increasing the likelihood of the main elements of the plan delivering its full potential benefits [38].

4.3 Planned Urban Freight Policy Measures

As identified in Table 2 above, nearly all the identified freight strategies either includes an action plan or has it developed as a separate document identifying policy measures on how to reach the plans' objectives. The measures in the identified plans depends on the freight-related issues faced in each region, the political transport, freight and environmental ambitions, interest groups and evaluation/achievements of previous transport plans [62]. Table 3 and Table 4 identify the highlighted policy measures in regional and local and city level urban freight plans, respectively[5].

[5] The categorisation of the urban freight measures is based on the NCFRP Report 33 «Improving Freight System Performance in Metropolitan Areas: A Planning Guide", 2015 [63].

Table 3: Policy Measures in Regional Level Urban Freight Plans

		Västra Götaland	Brussels region	Northamptonshire	Surrey	Staffordshire	Somerset	Kent	West Midlands	Merseyside	South Hampshire
Infrastructure Management	New and/or upgraded terminals (ports and road)	X								X	
	New and upgraded infrastructure for urban freight	X								X	
	Road safety (vulnerable road users)			X	X	X			X		
	Potential for other freight modes – pipeline, waterborne and airborne	X			X		X		X	X	X
Parking/ Loading Areas Management	Upgrade and improve parking areas (overnight) and loading docs		X	X	X	X	X	X	X	X	X
	Vehicle rest facilities			X							
Vehicle-Related Strategies	Emission standards - low and zero-emission vehicles		X						X	X	X
	Low noise delivery programs/regulations		X								X
Traffic Management	Reliable delivery times (night time deliveries), minimising delays		X					X	X	X	X
	Time, weight, height, noise and access restrictions	X		X	X	X					X
	Traffic control, efficiency of freight movements (load), reliable deliveries and minimising delays				X	X		X	X		X
	Local/regional truck routes, advisory rout signs, road network			X	X	X	X	X			X
Logistical Management	Technology, ITS, satellite navigation system			X	X	X	X	X		X	X
	Cargo Consolidation	X	X	X		X					X
Freight Demand and Land Use Management	Integrating freight into land use, infrastructure and regulatory planning process – develop regional plans e.g. delivery/construction plans or regional land use plan	X	X	X	X		X	X		X	X
	Mapping out logistic real estate and setting aside space		X								
Stakeholder Engagement	Create/continue freight quality partnership					X	X	X			X
	Raise awareness and knowledge/information transfer	X		X			X				X

Table 4: Policy Measures in Local and City Level Urban Freight Plans

		Malmö	Stockholm	Aalborg, Århus, Odense, Copenhegen, Kolding	Bedford	London	West Berkshire	Aberdeen	Dundee
Infrastructure Management	New and upgraded terminals (ports and road)	X		X					
	New and upgraded infrastructure for urban freight							X	
	Road safety				X		X	X	
	Potential for other freight modes – pipeline, waterborne and airborne								
Parking/ Loading Areas Management	Upgrade and improve parking areas and loading zones		X		X		X	X	
	Vehicle rest facilities				X				
Vehicle-Related Strategies	Cycle logistics	X							
	Low and zero-emission vehicles	X	X	X					X
Traffic Management	Reliable delivery times (off-peak), minimising delays and truck routes		X						
	Time and access restrictions			X	X				
	Traffic control, efficiency of freight movements, reliable deliveries and minimising delays			X	X	X		X	X
	Local truck routes, road network				X		X	X	
Pricing, Incentives, and Taxation	Freight incentives			X		X	X	X	
Logistical Management	Technology, ITS, satellite navigation system			X	X		X		X
	Cargo Consolidation		X		X	X	X		X
Freight Demand and Land Use Management	Integrating freight into land use planning process, review existing regulations			X		X			
Stakeholder engagement	Create a freight quality partnership - cooperation with stakeholders and municipalities	X	X	X	X		X		
	Educate elected officials	X							
	Resolve conflicts with Vulnerable Road Users				X			X	

The countrywide local freight measures can be differentiated between rural and urban transport measures [33]. The identified urban freight strategies covering a regional geographical area, such as Surrey, Staffordshire and Västra Götaland, focus less on urban freight and more on such rural transport measures. The selected policy measures in the regional freight plans are to a larger degree targeted at long haul transport, aviation, sea and rail transport in the region.

Overall, physical planning, land use planning and transport plans impact the selection of freight policy measures [64]. The local and city level plans, such as Malmö, Bedford and Dundee, focus on these urban transport measures but includes a limited number of rural measures to provide insights to the overall transport picture within the region they are situated.

When comparing the strategies of Stockholm and Staffordshire these differences are evident. Stockholm focus on low and zero-emission vehicles, off-peak delivery times, cargo consolidation and Freight Quality Partnership. Whereas Staffordshire highlights for example truck routs, satellite navigation, ITS, infrastructure and regulatory planning process, and potential for other freight modes. Hence, the plan has a greater long haul transport perspective across municipal borders.

Overall the following policy measures are most often listed the in the regional level freight plans:

- Parking and loading areas management,
- technology, ITS, satellite navigation systems,
- integrating freight into infrastructure planning and the regulatory planning process by developing regional plans e.g. delivery/construction plans or regional land use plans.

Among the freight plans identified at a local geographical area the most often mentioned freight policy measures are:

- Creation of a freight quality partnership and cooperation with stakeholders and other municipalities,
- traffic control, efficiency of freight movements, reliable deliveries and minimising delays.

Similarities between these plans is that in both cases the overall category traffic management are the most mentioned policy initiative. Suggesting that improving traffic conditions are the main solution when targeting increasing freight transport locally and regional. Furthermore, there are more listed policies in the freight plans with the regional perspective potentially due to including a broader spectre of freight-issues when in addition to urban freight targeting long haul transport.

5 Potential for transfer

The organisational planning structure of a Freight Strategy followed by a detailed Freight Action Plan is a common planning structure applied by all the identified cases and can therefore be transferred to other countries. The strategic plan contains overreaching strategic or general guidelines where urban freight objectives for the area are identified. These strategies are complemented by specified action plans containing policy measures for an identified urban area. In most cases the strategy and plan constitutes two separate documents, however, combining them into one document as in Brussels could provide a more detailed thematic overview, thus generating less confusion among city planners.

An important aspect for transfer is that the development of freight plans needs governmental policy guidance and freight-related issues must be emphasised in overall local, regional and national planning strategies. The existence of governmental guidance at local, regional and national level, e.g. on freight, transport, climate, noise, urban development etc., such as the Local Transport Plan, is important for increasing the up-take of local freight plans. With no national requirements one way of integrating the freight strategy in the planning framework is to include the freight strategy into the region or city's sustainable urban mobility plan. The identified urban freight strategies in this paper are all incorporated in an executive urban plan, either a local transport plan or an urban mobility plan. In addition to the freight strategy the local transport plans/urban mobility plans incorporate other specific strategies targeting different urban planning areas such as congestion, biking, road safety, air quality, transport asset management plan and parking strategy [26], [33] . Lindholm and Behrends [3], [4] emphasis in the SUTP analysis that to ensure policy implementation it is important to have a long-term urban freight transport strategy embedded in an overall sustainable development strategy. Our findings support this statement, as most of the identified urban freight plans exist in the UK which, in this case, is the country with the most comprehensive national guidelines or recommendations. In summary, there might be a need for executive recommendations highlighting the incorporation of urban freight in local planning. Hence, national government has an important role through its investment, regulation, overall policy strategies and planning framework in highlighting urban freight [36].

A common feature among these identified plans is the content structure where the plan informs about the status of urban freight in the area as a background for developing such a plan followed by the identified freight challenges, objectives of the plan and finally a selection of policy measures applicable for reducing the identified challenges. Most of the identified existing plans seem to have applied the guidance provided in the European SUTP/SUMP/SULP methodologies. This standardisation of the freight plan content generates a potential for transfer knowing that the applied planning structure already have been implemented and is working for others.

Consultation, e.g. Freight Quality Partnership, is one of the most mentioned policy measures at both geographical levels in the identified urban freight plans, while also being applied in several cases throughout the planning process. Such stakeholder cooperation is important when transferring the development process to other European cities especially when initiated from local authorities. This is highlighted in the SUTP/SUMP/SULP methodologies and already incorporated in the existing planning processes. Targeted consultation on freight issues and

priorities for action as well as consultation on broader transport objectives needs to be undertaken during the planning process. Key group differ but some mentioned are: logistics service providers, suppliers, receivers, Parish Councils, road haulage operators and delivery companies, and heavy goods vehicle drivers. [22].

Urban freight planning is now completed at several geographical levels resulting in differences between regional and local plans where the former has another freight emphasis. The SUTP methodology emphasises that transport plans should have a regional scope, however, the findings in this paper suggests that for urban freight a local or city scope is more valuable. A regional perspective in urban freight plans seem to shift focus from urban issues to heavy goods vehicles and long haul transport resulting in varying use of preferred policy measures. Furthermore, there are country specific differences where the UK plans, which have an established government guidance and planning context, have included more detailed and specific policy measures compared to the Swedish and Brussels plans which to a larger degree focus on general objectives and city targets.

When assessing the potential for transfer evaluation of already existing plans can provide guidance to public authorities when developing new freight plans. The UK transport plan policy process and impact evaluation emphasises that such an evaluation should identify potential contextual changes, whether the policy has met its original aims and objectives, identify what the plan has delivered and thereafter further develop a second version of the plan [65]–[67]. For instance, Merseyside concluded that they needed a greater emphasis on the freight and logistics sector in the Local Transport Plan. Despite these recommendations, very few of the identified plans freight strategies have been evaluated to this degree. Several evaluations are planned to be completed: Västra Götaland will evaluate the freight strategy through performance indicators sales, employment and CO2 emissions [31] am in Stockholm will all completed actions be followed up with measurement evaluations [16].

6 Conclusion

The Urban Freight Plans or Sustainable Urban Logistics Plans should provide a long-term vision for local communities to develop measures and practices that secure more sustainable urban freight and logistics activities. The framework for developing all these urban freight plans are set by master plans, local plans, strategic plans and EU-guidelines. In line with Morfoulak et.al. [5] a Sustainable Urban Logistics Plan (SULP) is within several public sectors across nationalities a strategic freight plan designed to identify current freight challenges and define regional or local objectives specified by selected policy measures to satisfy freight mobility needs of people and business.

The standardisation of a freight plan content framework and the planning structure combining a freight strategy with an action plan are important considerations when developing an urban a freight plan. Other transferable findings are including freight in an overall mobility or sustainable development strategy and the importance of, potentially legally binding, local, regional or national guidelines. Furthermore, the findings indicate that the structural elements of the European SUTP, SUMP and SULP methodology are essential components of the existing European urban freight plans. Steps for increasing the development of these freight strategies involve including freight-related issues in other planning procedures, awareness raising and knowledge building regarding urban freight transport within local authorities and making sure urban freight transport policies and planning are adopted [22].

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