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MID GRANT SUMMARY REPORT

PLAYBOOK

LEARN ABOUT:

The SMART Curb Collaborative is a group of cities united in using innovative technologies to better manage the curb to improve safety, reduce traffic congestion, and enhance livability and equity. Each of these member cities are recipients of USDOT's Strengthening Mobility and Revolutionizing Transportation (SMART) grant program, which provides funding to build data and technology capacity across the US.

This report reflects the learnings to date from the Collaborative.

THE **SMART CURB**
COLLABORATIVE

OVERVIEW

The SMART Curb Collaborative (referred to throughout this report as the Collaborative) is a group of cities united in using innovative technologies to better manage the curb to improve safety, reduce traffic congestion, and enhance livability and equity. Each of these member cities are recipients of USDOT's Strengthening Mobility and Revolutionizing Transportation (SMART) grant program, which provides funding to build data and technology capacity across the US.

The Open Mobility Foundation (OMF) Curb Data Specification (CDS) lies at the heart of every project in the Collaborative. CDS is an open-source data specification stewarded by the OMF. At its core, CDS is a set of Application Programming Interfaces (APIs) that allow cities to digitally represent their curb space and dynamically communicate with curb users for a variety of purposes.

Members of the Collaborative actively share and learn from each other about implementing new tools, technologies, and approaches, tackling common issues alongside peers. **The collaborative model is a force multiplier. Through collective learning, the Collaborative amplifies the impact of the SMART program by also producing resources for cities beyond the grant program to learn from and adopt.** In this way, the Collaborative is advancing the state of practice for curb management worldwide.

This report reflects the learnings to date from the Collaborative.

MEMBERS



PARTNERS



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URBAN FREIGHT LAB
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THE SMART CURB
COLLABORATIVE

THE COLLABORATIVE COMMUNITY

The Collaborative is a unique community of cities spanning several regions of the United States representing a total population of over 13 million residents. The Collaborative's success is largely credited to the trust and open lines of communication established amongst grantee cities (and one county!). Collaborative members reach out frequently as questions arise and communicate directly to the advisory team or other members through email, Slack, or bi-weekly or ad hoc calls. Aside from these channels of communication, OMF also hosts a monthly public Curb Working Group and webinars such as "[CDS for Policymakers](#)," available to the Collaborative cities.

The Collaborative is committed to knowledge sharing. Members have access to a library of resources that include project summaries, data plans, and community engagement plans. To support the adoption of best practices, the Collaborative has produced several resources, all housed within the [SMART Curb Collaborative Resource Hub](#), including:

- [SMART Curb Collaborative City Showcases](#): Collaborative members can publicly share details of their projects.
- [Curb User Engagement Guidance](#): A framework for identifying, engaging, and supporting local stakeholders meaningfully and productively.
- [CDS for Policymakers Webinar](#): An hour-long webinar showcasing how digital curbs help cities optimize curb space, lessons from agency leaders on curb digitization projects, and why policy is the key to advancing data standards to protect public interest.
- [Streamlined Procurement for Smarter Curb Management](#): A blog post detailing strategies to address procurement difficulties and offering software provider recommendations with a willingness to support CDS.
- [Performance Metrics: Guidance and Menu of Options](#): A tool to help cities identify who to engage, the type of engagement, and how to communicate the curb management vision in their jurisdictions.
- [CDS 101 Webinar](#): A webinar that provides an overview of CDS and how it can be used to digitally share regulations, determine real-time curb status, and other applications.

BENEFITS AND LEARNINGS

1. POLICY AND REGULATIONS

Each Collaborative city has had to contemplate policy revisions to operationalize the curb management innovations demonstrated in Stage 1. This first-of-its-kind policy development might have been a major stumbling point but for the community of practice established by the Collaborative. Through the Collaborative, cities have shared approaches and considerations that have accelerated policy and regulation development to enable and support the SMART-funded demonstration(s).

Historically, curb management only entailed parking personal vehicles at the curb. Today, the curb is used for passenger and goods pick-ups and drop-offs, food delivery, transit and paratransit, shared mobility fleets, bike lanes, outdoor dining, and parklets, as well as parking. For most cities, municipal code, agency regulations, and internal policies never contemplated these uses, or the frequency and relatively short duration of some of these curb stops.

Specifically, most cities' existing frameworks do not allow or are ambiguous as to the use of cameras or sensors to collect data to inform the allocation and regulation of curb space. The Collaborative has worked together to develop and share policy language to clearly authorize cities to use technology to better manage the curb, including:

- Updating code or policy to clearly authorize the use of cameras and sensors to collect ongoing curb data in anticipation of the SMART project.
- Modernizing code and policies to establish formal data retention or data management policy for curb-related data.
- Authorizing demand-based pricing and dynamic curb management (e.g., curb use changing based on time of day).

2. PROCUREMENT

One of the earliest issues the Collaborative tackled was how to quickly buy (procure) the necessary software and services for their projects. For cities, the procurement process can take months before a vendor is selected, and months more to onboard and implement the chosen product or solution. Municipal procurement is rigid by design. While this does help to protect public dollars from being spent with bias or irresponsibility, it also is a significant hindrance to innovation. **This project has reinforced that there must be streamlined procurement paths for cities to embrace innovation and best serve their residents.**

That said, the Collaborative cities knew procurement timelines might be a hindrance for short, 18-month demonstration projects and worked diligently to identify and share accelerated procurement approaches, including:

Collaborative Procurement. One of the strategies that stood out was collaborative procurement: the practice of multiple organizations coming together to order the common goods and services they share. The Collaborative utilized [Sourcewell](#) to develop and manage a competitive RFP for “Curb Management Technologies with Related Services.” Sourcewell awarded supplier contracts to 17 companies. Ultimately, only two of the nine cities contracted through Sourcewell, but all of the cities benefited from Sourcewell’s process and the vetting of vendors. The RFP language, information about and ranking of 17 curb management vendors, sample contract language, and pricing are publicly available and can be accessed by any city engaged in curb management work.

Sole Source Justifications. Another key procurement tool for technology pilots is to use sole source justifications when there is only one vendor that can supply the technology or suite of technologies needed for the project. The Collaborative worked together to develop and share sole source language, ultimately accelerating the contract process for several cities.

The Collaborative also worked together to identify opportunities to [incorporate CDS requirements into RFP language](#) and more formally through updating code and policy to ensure that CDS is being adopted across agencies and departments for all projects that will impact or collect data on curb activity.

3. TECHNOLOGY SUITABILITY

Because modern curb management technologies and services are still somewhat nascent, there are a limited number of vendors available with whom to work. This means that several Collaborative cities are partnering with the same vendor(s). Cities working with a shared vendor can discuss their experiences, share data accuracy, and brainstorm creative solutions to overcome any unexpected challenges or technology limitations. This level of collaboration not only benefits cities, but it can also result in accelerated technology development, as the vendors are getting product feedback from the perspective of multiple client cities with a range of users, geographies, and curb demands.

The Collaborative also benefited from learning from each other when things didn't go to plan. For instance, after beginning to research and vet vendors, Seattle learned that their preferred technology type (a V2C data connection with a unique curb asset to track permit holder usage) did not exist. They had to get creative in matching vendors that together could work towards Seattle's project goals.

4. DATA ANALYSIS AND GOVERNANCE

The curb generates a lot of data. Through these projects, the cities have had to figure out how to capture, convert, store, analyze, and share curb data. Some cities aim to do this in-house, while others are utilizing vendors or products to manage and analyze curb data, and they are all using CDS. Key learnings related to data analysis and governance include:

Data analysis – All Collaborative cities are converting at least some portion of their curb inventory into a digital format: CDS [Curbs API](#). In doing so, cities can compare their curb infrastructure and policy, providing valuable benchmarking opportunities and understanding how different curb attributes and allocations can maximize impact. Additionally, many cities have conducted curb utilization studies using the CDS [Events API](#) and CDS [Metrics API](#) formats to provide baseline assessments of curb demand in their study areas. These learnings will provide novel insights on curb usage between different land uses and geographies.

Integration with Existing Systems – A main challenge for cities “coding” their curb is understanding how to capture information in existing systems so it can be converted to a public CDS feed, and how to create a data pipeline to generate this CDS data. To achieve this, cities have used internal teams to write code, hired vendors in the ecosystem, and ESRI has created a tool that allows cities to store information in CDS format. Results from various approaches will be shared at the conclusion of the projects to compare strengths and weaknesses of each approach.

Maintenance and Upkeep – After ensuring a city’s internal asset management systems can support the detail needed to align with the CDS format, cities must have internal buy-in and a well-defined workflow to maintain this system as a single source of truth. For example, in both San Francisco and Portland, teams are retraining employees to use new storage methods, fields, and data formats in a way that maintains data integrity.

Discovering New Use Cases – As cities and their vendors use CDS, they uncover gaps, discover new use cases, and find new opportunities based on their specific needs, policies, and technologies. These challenges and opportunities are brought to the Collaborative, discussed, and channeled into suggested improvements to CDS through the Curb Working Group. Through the OMF’s unique, open source process, these improvements are evaluated and incorporated into the next version of the specification, resulting in a stronger, more useful data standard for all.

5. INNOVATION CAPACITY

For cities, taking risks or trying untested ideas requires innovation capacity. Innovation capacity includes time, resources, and technology literacy. Cities generally have low innovation capacity and aren’t properly staffed to execute projects like SMART grants; however, the need for innovative solutions to city problems (like curb management) remains. Projects like SMART are often thrust on existing staff on top of their daily responsibilities. While SMART grants offer an exciting and needed resource for cities to be innovative, time-consuming recruiting and hiring processes prevented cities from hiring internal staff within the 18-month project timelines, resulting in a high reliance on consultants and technology vendors to carry out the projects.

Much of the capacity and knowledge gained from projects like SMART are lost when the grant concludes, preventing cities from keeping up with the pace of technology and sustaining existing projects. Cities need much greater innovation capacity, and that capacity needs to be sustained long-term for cities to capitalize on investments like the SMART grant. The Collaborative approach will mitigate this challenge by documenting and disseminating the shared learnings and resources long past the grant timelines.

6. CHANGE MANAGEMENT

SMART Grants led by local governments are often much different than those led by state DOTs, as state DOTs often hold full authority over each component of their projects. By contrast, cities and their curb management projects have far-reaching implications and stakeholders and decision-makers beyond the municipal or county DOT. For this reason, **change management has become a significant theme of the Collaborative.**

Curb management often involves reallocating space traditionally used for parking to new purposes. These changes to the curb don't just impact vehicle drivers, but also impact small businesses, cyclists, pedestrians, transit riders, refuse and recycling collection services, and more. Management of the curb often involves the DOT, parking agency, finance department, transit agencies, and public works departments.

For the Collaborative, a heavy lift on the front end of their projects was their stakeholder engagement and (in many cases) changing the perspectives of those stakeholders. To drive change, cities must bring stakeholders along, ensuring they feel ownership of the project and understand their critical role in the process. The cities worked together to map stakeholders and identify what motivates each group. This work resulted in the [Curb Stakeholder Engagement Guidance](#). In addition to this resource, many cities developed stakeholder engagement plans for their projects and shared those with their fellow Collaborative cities, allowing everyone the opportunity to trade best practices and improve their engagement approaches.

7. COMMUNITY IMPACT

The connection between curb management and USDOT's Justice40 goals isn't always obvious. The Collaborative has had ongoing conversations about how their projects can meaningfully support Justice40 communities and their residents. Often, disadvantaged neighborhoods are not areas with dense commercial districts, micromobility hubs, or high volumes of goods deliveries. Collecting curb data or installing a smart loading zone in these disadvantaged neighborhoods will not solve the communities' problems, or enhance their opportunities.

The Collaborative has worked together to identify how the benefits of curb management can directly benefit the **people** who reside in disadvantaged neighborhoods. For instance, in Miami-Dade, the County originally planned to install mobility hubs and provide e-freight devices to small businesses in the Overtown neighborhood; however, the demand was quite low, as not many of the businesses made local deliveries. There are, however, many residents in Overtown who use their own cars or mopeds to make food deliveries in surrounding neighborhoods. Improving curb access in these neighborhoods can improve the safety and efficiency of these gig economy workers, all while reducing emissions, which will have positive impacts on surrounding neighborhoods, like Overtown.

Two ways to directly benefit disadvantaged neighborhoods is installing protected bike lanes and safer transit stops. Even in places where there isn't a high demand for curb access, there is almost always a need for a connected, protected bike network and well-designed transit stops to ensure safe access. The data collected by many of the Collaborative members can help build the case for transit and bike network investments.

REFLECTIONS TO DATE

The success of the Collaborative hinges on the willingness of participants to be vulnerable, open to guidance, and willing to adapt to unforeseen challenges. The structure of the Collaborative is based on a trusted feedback loop ensuring Collaborative discussions are without judgment and intended to offer space for mutual growth. As much as cities are encouraged to vocalize concerns, it is the responsibility of the advisory team to foster an environment where the cities feel empowered to take risks. To accomplish this, the Collaborative leadership team took on several targeted actions:

Creating a trusted, safe space to have difficult conversations: Established early on, Collaborative members are encouraged to speak openly about their frustrations and successes without fear of judgment. This openness has proven helpful in tackling sensitive issues and receiving constructive feedback from OMF, Cityfi, and UFL, as well as other Collaborative members.

Progress Acceleration Through Peer Connections: A core function of the Collaborative is shared learning. It is advantageous for every member to hear updates and receive guidance from their peers in different regions. While no two projects are identical, the opportunity for members to share where they're running into roadblocks allows other members at different stages to mitigate similar obstacles or create alternate routes for success.

Working Together on Community Engagement: Despite regional differences, Collaborative members have learned strategies from each other in deploying surveys, running focus groups, targeting local stakeholders, and turning qualitative data into actionable policies. From the Collaborative team to the stakeholders targeted for outreach, Collaborative members are taking insights from one another and implementing effective strategies that serve their unique communities.

Leveraging Subject Matter Experts for Ad Hoc Project Support: After the April In-Person Convening, feedback from the cities indicated a pressing need for more informal, “on-call” discussions with subject matter experts. Collaborative members are proceeding to the later stages of their pilots, resulting in more specialized support requests. OMF, Cityfi, and UFL made themselves increasingly available with designated “office hours” to allow Collaborative members to drop in and ask targeted questions without waiting for monthly scheduled calls.

Pivoting to Meet Collaborative Members Where They Are: The April in-person convening made it clear that Collaborative members flourish in environments where they can informally discuss their projects and seek insight. Recognizing this need, the Collaborative structure pivoted from monthly calls to bi-weekly topical calls. Collaborative members are encouraged to come prepared with questions or discussion topics. Often bringing project updates or expressing concerns over grant requirements, Collaborative members can problem-solve on the call and learn how other cities have circumvented similar obstacles.

Additionally, Collaborative members expressed a strong desire for more in-person engagements. The Collaborative structure was reworked to budget for one more in-person convening. Traveling to different regions widens their understanding of curb digitization, and seeing other Collaborative members in person strengthens the bonds and continues to build on existing trust.

ONGOING AND LASTING IMPACT

The Collaborative serves as an essential resource and support system to advance and accelerate progress across the 10 communities. As each project moves from planning and prototyping to evaluating, adjusting, and, for some, preparing to scale, the Collaborative will continue to collectively problem solve, provide technical support, and document and disseminate learnings. The Urban Freight Lab is leading comparative analysis of the SMART projects and will create technical resources on curb demand, curb infrastructure, and curb policy using implementation data from the cities' SMART projects.

Beyond the SMART grants, the Collaborative value will be sustained as the cities have developed meaningful relationships with their peers and can continue to leverage this network to accelerate and fine-tune their curb management programs. The Collaborative will continue to be a force multiplier, as other cities across the country begin exploring curb management technologies and policies with a swath of resources, developed through the Collaborative, at their fingertips to set their foundations, mitigate risks, and accelerate progress. The Collaborative will continue to produce resources into the latter half of the program. Our final report in 2025 will summarize the 18-month program and give guidance on what to expect beyond the SMART pilot period.

Thank You

A special thanks to the members of the Open Mobility Foundation's SMART Curb Collaborative for contributing their time, experience, and dedication to this effort. This project seeks to share learnings and resources for any city or agency to adopt.

This paper was authored by CityFi in collaboration with the Open Mobility Foundation.

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