URBAN DATA PIONEERS

Urban Data Pioneers is a program developed by the City of Tulsa, Oklahoma that brings together community members and city staff to analyze data and better understand and address public problems.

ABOUT
THE PROGRAM

Cities have large data sets that can be used to help officials make decisions and inform policy, including crime statistics, utility data, and housing information. But with limited budgets and staff, many cities cannot afford to effectively make use of this data.

Through Urban Data Pioneers, the city works with citizens to help cities analyze their data and make better decisions. City leaders create teams of citizens and city staff and provide data sets, tools, and training. These teams analyze public problems using that data and present insights to decision-makers who can then create more effective solutions.

With low overhead costs, Urban Data Pioneers can easily be implemented by cities of any size. The program provides professional development opportunities to city staff members, including training in data analysis. Additionally, Urban Data Pioneers connects citizens to their city government, which can lead to long-term engagement and stronger cities.

ENGAGED CITIES AWARD
BY **CITIES OF SERVICE**

Tulsa, Oklahoma was one of three winners of the inaugural Engaged Cities Award in 2018 for its Urban Data Pioneers initiative. The award recognizes the diverse and creative ways city leaders are collaborating with citizens to solve problems. Learn more at **engagedcitiesaward.org**.

BACKGROUND

Urban Data Pioneers was developed by the City of Tulsa, Oklahoma, because Mayor G.T. Bynum was committed to making Tulsa a data-driven city. The city did not have the budget or staff capacity to fully explore the data it had on hand, but there were a number of citizens motivated to help their community. The city created

Urban Data Pioneers, inviting citizens to join the city as partners to examine some of the city's most pressing challenges together. The program now includes more than 120 volunteer data scientists, technical professionals, city staff, and representatives from nonprofit organizations. These teams have delved into the data to help the city address more than a dozen public problems, from efficiently prioritizing street repairs to increasing per-capita income and reducing blight.
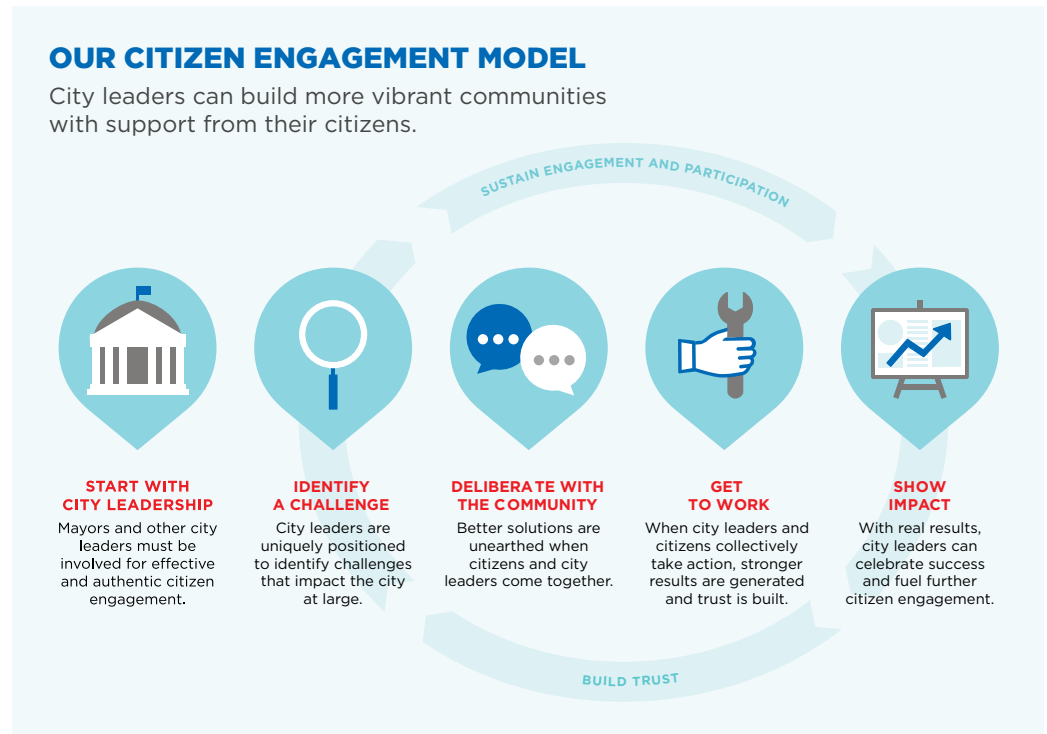
HOW IT WORKS

For Urban Data Pioneers to be successful, the initiative must be led by the city. The program is most effective when it includes the following steps:

1. Identify a set of problems or issues that the Urban Data Pioneers can examine. These should align with the priorities of the mayor or city chief executive.

2. Design the program, including creating a timeline, identifying data sets, and securing meeting space.

3. Recruit city staff and citizen volunteers. While the city will need to recruit subject matter experts and data analysis experts, not all volunteers need expertise to participate.

4. Launch the program with a kickoff meeting to introduce the program parameters, select projects, and set expectations.

5. Form teams of 10 or fewer participants, including at least one subject matter expert, one data analyst, and one team leader. These teams will be formed at the kickoff meeting based on shared interest in a problem.

6. Work with teams to refine the problem they are examining and scope their projects.

7. Provide tools for data analysis and train participants to use them.

8. Present findings from the Urban Data Pioneers teams to city leaders and other city staff.

9. Measure the impact of the program.

10. Celebrate successes and provide feedback to participants.
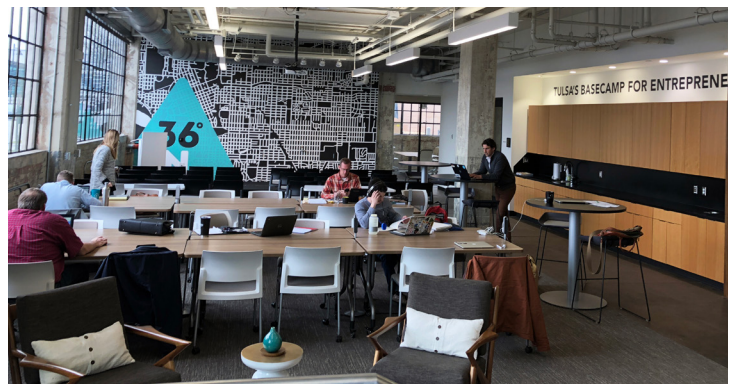
The Cities of Service Citizen Engagement Model Urban Data Pioneers exemplifies the Cities of Service citizen engagement model. The model helps leaders work with their citizens to solve problems and helps build trust within communities and between city leaders and their residents.

OUR CITIZEN ENGAGEMENT MODEL

City leaders can build more vibrant communities with support from their citizens.

SUSTAIN ENGAGEMENT AND PARTICIPATION

START WITH CITY LEADERSHIP
Mayors and other city leaders must be involved for effective and authentic citizen engagement.

IDENTIFY A CHALLENGE
City leaders are uniquely positioned to identify challenges that impact the city at large.

DELIBERATE WITH THE COMMUNITY
Better solutions are unearthed when citizens and city leaders come together.

GET TO WORK
When city leaders and citizens collectively take action, stronger results are generated and trust is built.

SHOW IMPACT
With real results, city leaders can celebrate success and fuel further citizen engagement.

BUILD TRUST

STEP 1: IDENTIFY PROBLEMS

Based on the mayor's priorities, city leaders identify a set of problems or issues for Urban Data Pioneers to explore using data, such as reducing violent crime, increasing the population, or reducing traffic collisions.

In order for the city to make use of the information provided by the Urban Data Pioneers teams, most of the problems examined should align with the mayor's priorities or inform a problem that a department or agency leader has identified. The teams use these priorities to formulate questions that can be examined using available data. For example: What locations have a higher rate of vehicle crashes and what are the most common causes? Where are the areas of the city that have vacant properties?

Giving the teams some flexibility in selecting their projects ensures that they remain engaged with the problems they are examining and gives them freedom to explore new avenues of inquiry. Some teams may choose to examine a problem that falls outside the mayor's priorities. While this may mean the information is not utilized immediately, it allows for unexpected findings that may be useful for city staff in their day-to-day work.

City staff may want to reach out to citizens to identify project ideas in advance. In this case, the city may wish to create a survey which can be sent to city staff and made available on social media to solicit ideas from citizens, or invite citizens to submit ideas via email, which can be listed in promotion materials.

STEP 2: DEVELOP AND DESIGN THE PROGRAM AND MATERIALS

Before launching the program, city leaders prepare materials and determine milestones for the Urban Data Pioneers. These include:

Charter: Each Urban Data Pioneers team fills out a charter — a short, simple form that includes basic information about the team and their project. The form helps the teams clarify the question they are examining and identify team members. The charter includes the guiding question or hypothesis, background information about the topic, and goals. It also lists information about the team. See citiesofservice.org/resource/urban-data-pioneers for an example of a charter from Tulsa that could be adapted for your city.

Prepare Data: City leaders identify data sets that are already available for teams to use. This does not need to be a comprehensive list. Having in mind a number of data sets that will likely be used — such as crime, housing, and utility statistics — will make the teams more effective and efficient. Teams may also wish to request additional data from city departments and other agencies.

The mayor and department heads are essential to the success of Urban Data Pioneers. Their open commitment to the program will make city agencies more willing to share data with the teams.

Data Sharing Agreement: Safely sharing information is essential to the success of the program. In many cities, a large amount of data is publicly available. Some data sets may contain information, such as street addresses, that may not be distributed publicly. Before the program begins, city leaders may wish to develop a data sharing agreement for participants to sign that will allow teams to use non-public data. See citiesofservice.org/resource/urban-data-pioneers for the example of Tulsa's agreement.

Timeframe and Milestones: City leaders determine the timeframe for the teams to explore their questions and develop a presentation. Ten weeks is generally sufficient time for examining a problem. If team members need significant training or more time to gather additional data, the city may want to extend this period by two or three weeks.

In general, because teams are formed by volunteers who have an interest in the problem, they function well with minimal oversight. Teams determine when and how often they will meet and how they will communicate. Providing a few milestones can be helpful, however. These might include a date by which teams should have their data results prepared and a date by which to have a draft of the presentation completed.

POTENTIAL DATA SETS

We recommend working with publicly available data. In the case that a team needs to work with more sensitive data, you may need to work with your legal department to develop a non-disclosure agreement and conduct background checks on participants. Some examples of potential data sets include:

- **Tax Assessor Records**
- **Crime Data**
- **Nuisance and Code Enforcement Data**
- **Traffic Crash Data**
- **Utility Data**
- **311 Call Center Data**
- **Public Transportation Ridership Data**

Meeting Space: City leaders identify physical and virtual meeting space for teams. This might include setting aside meeting space in city hall or other public buildings, such as libraries. The city may also partner with nonprofit organizations and local businesses to provide meeting space. Tulsa partnered with a downtown nonprofit co-working space, for example, as well as a local architecture and engineering firm to reserve rooms.

Many teams may choose to meet virtually, via conference calls, email, and other electronic communication. City leaders may wish to set up virtual communication avenues using tools such as Slack, which is easy to use and searchable. The free plan will be sufficient for most cities.

STEP 3: RECRUIT VOLUNTEERS

City leaders recruit volunteers from both outside and inside city hall. A press release is an effective way to begin recruitment, along with promoting the program on social media. The press release may mention some issues Urban Data Pioneers will explore, though it should make clear that the city is open to ideas from citizens. See citiesofservice.org/resource/urban-data-pioneers for Tulsa's press release.

Volunteers should also be recruited from city departments. Multiple emails may be required to make staff aware of the opportunity. Again, commitment from city leadership is essential. City staff are more likely to volunteer their time with Urban Data Pioneers and managers are more likely to give them time to participate if the initiative is a priority of the mayor.

No expertise in data analysis is required to participate. However, each team will need a subject matter expert and data visualization or analysis expert to help examine the problem.

The data analysis expert will need knowledge of data analysis techniques such as intermediate Excel, data visualization, basic coding in R or Python, and geographic information systems (GIS). Some city staff will have these skills, such as crime analysts, utility analysts, or staff in accounting or finance. Subject matter experts will help the teams identify data sets and refine the questions they are exploring. For example, a team exploring blighted neighborhoods should include a member from the code enforcement department or a nonprofit that works in housing, and a team looking at health issues should include a member who works for the health department or a hospital.

ENGAGING PARTNERS IN TULSA

Tulsa relied on several organizations to help recruit volunteers, including Code for Tulsa, which was already working with the city on other projects. Code for Tulsa is the local chapter of Code for America, a nationwide volunteer organization that helps cities use technology more effectively. Other tech nonprofits, such as Tulsa Data Science, also helped them recruit volunteers after learning about the program through social media.

Partners can also provide additional data. The U.S. Census Bureau is a source of useful data, including demographic and economic statistics. Other city and county agencies, such as transportation or health agencies may have additional data that could be useful to Urban Data Pioneers teams.

TULSA URBAN DATA PIONEERS MISSION, VISION, AND PURPOSE

Tulsa's Urban Data Pioneers purpose, mission, and vision may be adapted by other cities implementing the program:

Purpose: Create multidisciplinary learning teams of city employees and non-employees to deeply understand problems that can be informed by data analysis.

Mission: Improve the use of data throughout the City of Tulsa.

Vision: Urban Data Pioneers are the trailblazers within the City of Tulsa who lead the way in identifying best ways to utilize data, educating others and delivering results based upon data.

Partner organizations and other agencies can assist with recruitment. These include nonprofit organizations, community groups, businesses, and universities. City leaders may wish to reach out to partners with whom they have existing relationships, organizations that work on specific priority issues, and those that work in the area of data analysis.

Advertising materials and social media posts can also be used to invite partner organizations to participate. You may want to develop materials to help partners recruit on your behalf, such as flyers and graphics to be shared on social media.

STEP 4: LAUNCH THE PROGRAM

City leaders launch the program with a kickoff meeting. All volunteers and city staff who are interested in participating should attend. Attendance by a high-level leader, particularly the mayor, demonstrates the city's commitment to the program and appreciation for the work of the pioneers. Be sure to heavily publicize the event.

Begin by explaining the program, including its purpose and parameters. This is also a good time to talk about milestones and meeting space. See citiesofservice.org/resource/urban-data-pioneers for a sample kickoff meeting agenda from Tulsa.

It is important to emphasize that the primary goal of the Urban Data Pioneers teams is not to identify solutions but rather to better understand the problem and present that information to city staff. This does not mean, however, that the teams cannot propose solutions and recommend next steps.

The Urban Data Pioneers teams will also be formed during this meeting.

STEP 5:
FORM TEAMS

Urban Data Pioneers teams include 10 or fewer city staff and community members interested in a particular problem or issue. Most teams can be formed at the kickoff event. City leaders can also connect individuals after the meeting as necessary. The teams are formed around shared interest in a public problem, such as blight or traffic accidents.

While most of the problems put forward should reflect the priorities of city leadership, some may be submitted by citizens and city staff. Ideally, these will be submitted before the kickoff meeting so that the city can review them and ensure that they are practical.

The easiest way to form teams is to post the public problems for teams to explore on flip chart paper around the room. Participants can simply gather around the problem that interests them and form a team. City leaders may wish to develop other methods for forming the teams, depending on the number and interests of volunteers, the mayor's preferences, and other factors.

Team Makeup: The volunteer teams will be made up of both city staff and community members, with 10 or fewer members. With the exception of the subject matter experts, team members do not need to have prior knowledge of the problem they are exploring.

If teams do not initially include a subject matter and data analysis expert, then city staff can help them identify those experts. Partner organizations, such as nonprofit organizations, businesses, and universities can also help the city recruit volunteer experts.

Each team also identifies a team leader. This person coordinates team meetings and facilitates communication. The teams determine their own meeting schedule and meeting location. In Tulsa, many teams met early in the morning or during lunch hour, while others communicated primarily via Slack and email.

The teams fill out the charter at the kickoff meeting.

STEP 6:
REFINE THE SCOPE
OF THE PROJECTS

Teams may need assistance determining an appropriate scope for the question they are examining. City leaders should work with team members to ensure that they have refined their query so that it will yield helpful information, and help teams identify data sets and variables that will be useful as they explore the problem. The city may wish to consult with data experts at local nonprofit organizations and businesses familiar with Census and city data to help teams identify relevant variables.

Projects should be focused and achievable within 10 weeks. Avoid projects whose scope involves many data sets due to the complexity of analyzing multiple data sets. Make sure there is a clear definition of success in the project scope. For example: We want to map where blight and violent crime overlap with a heat map.

Many companies are looking for ways to involve skilled volunteers in their communities. Urban Data Pioneers is a perfect match for many of these businesses. Consider reaching out to corporations, universities, and other organizations to provide training and encourage their skilled employees to participate in Urban Data Pioneers teams.

STEP 7: PROVIDE YOUR TEAMS WITH TOOLS AND TRAINING

Tools: City leaders identify tools that Urban Data Pioneers can use. There are a number of low-cost tools. These include:

- **Microsoft Excel:** Most individuals will have access to Excel, which is a powerful analytics tool.

- **Tableau:** Tableau is an easy-to-use data visualization tool that many organizations use. There is a public version available for free, but it has some significant limitations. A license costs less than $1,000.

- **Programming Languages:** Python and R are programming languages that can be used to analyze data. They require training, but are otherwise free to use.

Training: City staff provides training to team members in using data analysis software and programming languages.

Although at least one team member should already know how to use the data analysis tools, giving other members basic training will increase the team's effectiveness and provide valuable professional development to both city staff and community members. This will also aid the sustainability and growth of Urban Data Pioneers, increasing the number of trained community members and city staff who can participate on teams.

The city may recruit expert volunteers or city staff with data analysis expertise to offer training or pay external trainers if the city has sufficient funds. Partner organizations, such as universities and businesses with data scientists on staff, may also be available to provide training for free or at a discount.

ASSESSING BIAS

Even when dealing with data, biases can creep into analysis. This can happen in a number of ways, including the way questions are formulated and the data sets selected and excluded. It is helpful for teams to check their assumptions. Whenever possible, teams should have a diverse makeup. Ideally, teams will include people who are affected by the problems they are addressing. If this is not possible, they should have a discussion about potential biases and reach out to people from affected communities for their input.

**STEP 8:
PRESENT THE DATA**

At the end of the allotted time period, city leaders organize a showcase at which teams present their findings. All senior staff should attend these meetings if possible, as should any staff who are interested. The more leaders in attendance, the more likely the new information discovered will be used to inform decision-making.

Presentations are short slide presentations that last less than 10 minutes. Each presentation explains both the process the team used to examine the data and its findings. The presentations may also include suggested next steps. A short Q&A follows to allow attendees to ask questions of the presenting team.

City leaders may wish to make these presentations publicly available. See citiesofservice.org/resource/urban-data-pioneers for examples of presentations from Tulsa.

**STEP 9:
MEASURE IMPACT**

City leaders determine metrics to track throughout the program. How will city staff track whether policies change or new programs are initiated because of new information that is unearthed? A survey of city staff may be a helpful way to do this. It may be administered by email or while staff are gathered for the presentations. The city may also wish to send a survey to participants to assess whether they had learned new skills during the process.

Additional metrics to track could include the number of participants in the program, the number of problems examined, and the number of city staff exposed to the data that is unearthed.

**STEP 10:
CELEBRATE SUCCESS**

City leaders share the outcomes of the Urban Data Pioneers work with participants. If their presentations are being used to inform policy or have resulted in tools that the city is using, be sure to tell team members and share with constituents. The knowledge that their work is being used creates goodwill with the participants and increases the likelihood that they continue to participate in Urban Data Pioneers and other programs. Publicizing outcomes also demonstrates that the city is engaging residents to address public challenges.

Cities may find other ways to celebrate the work of participants. These might include a newsletter, a celebratory gathering, or a note from the mayor acknowledging their work.

RESOURCES

For additional resources, visit citiesofservice.org/resource/urban-data-pioneers or contact us at info@citiesofservice.org. Available resources include a sample charter, press release, data sharing agreement, kickoff meeting agenda, and presentations.

Cities of Service is an independent nonprofit organization that helps mayors and city leaders tap the knowledge, creativity, and service of citizens to solve public problems and create vibrant cities. We work with cities to build city-led, citizen-powered initiatives that target specific needs, achieve long-term and measurable outcomes, improve the quality of life for residents, and build stronger cities. Founded in 2009 by New York City Mayor Michael R. Bloomberg, Cities of Service supports a coalition of more than 250 cities, representing more than 73 million people across the Americas and Europe.

Join us at **citiesofservice.org** or follow us on Twitter **@citiesofservice**.

THE ENGAGED CITIES AWARD

The Cities of Service Engaged Cities Award shines a light on cities that are collaborating with citizens to meet pressing local challenges in diverse and creative ways. Tulsa, Oklahoma was one of three winners of the inaugural Engaged Cities Award in 2018 for its Urban Data Pioneers Program.

Each year, Cities of Service recognizes cities that are effectively involving their citizens to do things like reduce community violence, produce better budgets, create safer streets, and build stronger communities. The strategies of the Engaged Cities Award winners and finalists are models for other cities around the world to learn from, adapt, and improve upon. Cities of Service works with winners and finalists to develop resources to share with other cities so they can implement similar programs in their own communities.