

# Data Field Guide: Atlanta Tree Canopy

This field guide has a focus on the Accela dataset more than the Trees Atlanta file. Please refer to Linda Zhang's field guide for more information about the Trees Atlanta data context and standards.

## Overview

The purpose of this guide is to explain the setting and context of this data set. The data pertains to the Atlanta tree canopy and consists of four files:

1. Trees Atlanta plantings (from Trees Atlanta organization)
2. A record dead/dying/damaged tree removal permits (from Accela database)
3. Building permit plans in Atlanta (from Accela database)
4. A list of complaints filed by citizens (empty, but you can pull it from Accela)



The latter three have been pulled from the Accela Citizen Access servers database, which is maintained and updated by the City of Atlanta. The Trees Atlanta plantings file was collected from the Trees Atlanta organization directly.

The dates on the Accela files are from November 30th, 2009, which is the earliest date available in the database, to March 13th, 2016, which is the date that the data was originally pulled. The Trees Atlanta plantings data is only timestamped by year, but ranges from 1994 to 2014.

The purpose of this data set appears to be tracking the tree canopy growth/decline. The planting data shows records of new trees, while the tree removal and building permits indicate where trees will be removed. The list of complaints also represents removed trees, but these are specifically the trees that have been unofficially (i.e., illegally) removed and only discovered through a citizen complaint being filed.

There are some problems with the files, specifically the last three. Through my interview process I no longer believe the building permit data is the best representation of trees removed by construction, the arborist complain file is completely blank, and the dead/dying/hazardous tree permit file does not specify how many trees are being removed per permit. These issues will be elaborated on later in the guide, under the Practices section.

From what information is available, this data set appears to still give a good approximation of tree population changes. It is important to note that not all removed or added trees may be accounted for in this data, due to the fact that some illegally removed trees may not necessarily be reported, and that some plantings will happen naturally and without record.

## Access

This data set was acquired from Dr. Yanni Loukissas as part of LMC 6312, a data walk studio course. The data set was received directly from the Resource folder on T-Square and can be downloaded there if you have access to the site, or requested from Dr. Loukissas or another participant in the course. Once downloaded, the files can be viewed in Excel or another spreadsheet program. The readme file is a simply text file and can be opened with any text editor.

Given that the Arborist Complaints file is blank, which was likely a collection mistake, I would recommend pulling the data for yourself from the Atlanta Citizen Access Accela database, located here: [https://aca3.accela.com/atlanta\\_ga/](https://aca3.accela.com/atlanta_ga/). Simply make a free account, log in, go to the Building tab, and search by Arborist Complaint in the Permit Type dropdown menu. The date range on the other Accela files is from November 30th, 2009 to March 13th, 2016, so I would also recommend pulling the data with those date ranges to ensure consistency.

## Standards

Having been pulled from a database or requested as a file from Trees Atlanta, this data set is static and out of date currently. This is not only due to the fact that the Accela data was pulled in March of 2016, but also that it is no longer tied to the database in order to be updated. Many of the permits retrieved from Accela may no longer have accurate statuses. While the plantings data will remain true, there is a gap between 2014 and 2016 where there is tree removal data but no planting records.

I did not research much into the Trees Atlanta side of the data, but the three Accela data files seem to be fairly standardized. Below is a sample of the first line of the dead/dying/hazardous tree file and plan review file:

Date	Record Num	Record Type	Address	Description	Permit Name	Status	latitude	longitude	place_id	display_name	npu	parcel_id	utc	npu_id	land_use	neighborhood	stream_name	npu_uid	area
3/13/16	BA-2016016	Arborist Dea	1762 INVERNESS AVE NE, ATLANTA GA	ACA Pending			33.8024124	-84.345852	120893320	1762, Invern	F	18 056 04 06	96.95	619	Single Family	Morningside	No stream	11438	967.913169

Date	Record Num	Record Type	Address	Description	Permit Name	Status	latitude	longitude	place_id	display_name	npu	parcel_id	utc	npu_id	land_use	neighborhood	stream_name	npu_uid	area
3/16/16	BA-2016017	Building/Arb	198 TAFT ST SW, ATLANTA DEMO	Closed - App			33.7102549	-84.395452	ChJd9lVklUC9YgRkoRgwj	Y		14 00720004	56.3	575	Data not ava	Joyland	No stream	19296	542.528166

As you can see (and also indicated in the Codebook section of this guide), the fields for these two different types of datasets are the same. As I discovered during my interview with an Accela

administrator (found in the Practices section), many of the data are automatically pulled from other databases when permits are entered into Accela. For this reason, a standard set of fields with common defaults on their public visibility are assigned to new permits and influence what the output looks like. As also indicated in the Codebook section below, only some of these fields are relevant for public use.

## Codebook

### **TreesAtlanta:**

Genus: Genus of planted tree

Species: Species of planted tree

Cultivarname: Common name of planted tree

Latitude: Location data

Longitude: Location data

Year: When tree was planted

### **ArboristDeadDamaged\_03\_13\_16\_joined:**

Date: Month/Day/Year of when this entry was last updated

Record Number: Internal database information about this specific data entry

Record Type: Internal database information, categorizes for search

Address: Location data

Description: Details of surrounding the permit, if applicable

Permit Name: Type of permit

Status: Status of permit (accepted, issued, terminated, etc)

latitude: Location data

longitude: Location data

place\_id: Internal database information about location

display\_name: Optional field for how to display address

npu: Neighborhood Planning Unit (Atlanta has 25, named alphabetically)

parcel\_id: Internal database information about location

utc: Ranges from 0 to 100; not sure what this field means though

npu\_id: Internal database information about which NPU

land\_use: Type of land (single family home, commercial, etc)

neighborhood: Common name of neighborhood

stream\_name: Which stream, if any, this area is a watershed for

npu\_uid: Internal database information about which NPU

area: Square footage of property area

### **PlanReview\_03\_13\_16\_joined:**

Date: Month/Day/Year of when this entry was last updated

Record Number: Internal database information about this specific data entry

Record Type: Internal database information, categorizes for search

Address: Location data

Description: Details of surrounding the permit, if applicable

Permit Name: Type of permit

Status: Status of permit (open, closed, pending, revisions needed, etc)

latitude: Location data

longitude: Location data

place\_id: Internal database information about location

display\_name: Optional field for how to display address

npu: Neighborhood Planning Unit (Atlanta has 25, named alphabetically)

parcel\_id: Internal database information about location

utc: Ranges from 0 to 100; not sure what this field means though

npu\_id: Internal database information about which NPU

land\_use: Type of land (single family home, commercial, etc)

neighborhood: Common name of neighborhood

stream\_name: Which stream, if any, this area is a watershed for

npu\_uid: Internal database information about which NPU

area: Square footage of property area

### **ArboristComplaint\_03\_13\_16\_geotagged:**

The provided file is blank, but if you follow the instructions under the Access section of the guide and pull a new file, this codebook refers to the fields that will be in that file.

Date: Month/Day/Year of when this entry was last updated

Record Number: Internal database information about this specific data entry

Record Type: Internal database information, categorizes for search

Address: Location data

Description: Details of surrounding the permit, if applicable

Permit Name: Type of permit / complaint

Status: Status of permit (completed, closed, in compliance, investigation, etc)

Short Notes: Optional notes about complaint

## **Practices**

For insight into practice surrounding the tree canopy data, I interviewed an Accela database administrator who works for the City of Atlanta. I chose to focus on the Accela portions of the tree dataset because there are more unanswered questions, such as how exactly they relate to tree removal, what many of the fields mean, and any errors that may be present.

Getting to the point at which I could conduct the interview was difficult. For anyone looking to ask questions about Accela, I would recommend first contacting the Department of Planning and Community Development to ask for contacts. After several dead-ends, I was eventually transferred to a person in the Department of Planning & Community Development who directed

me to an Accela administrator. I sent him the Accela data spreadsheets so that he could look at the specific fields I had questions about.

My interviewee was an Accela administrator who has been working with Accela for about 3 years. His job is to configure the database for a variety of departments, each of which have “their own business system analyst who will determine what’s the best use for what they need to track and what they need to report on.”

When asked what Accela’s data is typically used for, he responded that Accela is “a data warehouse for all of the permit information” with an end user interface that internal city employees can use to look up permit information. The city ordinance, passed by the city council, determines what data must be collected. This is why such data can vary by city and state; in fact, the interviewee previously worked in Chattanooga and mentioned that “Atlanta collects a lot more information overall,” particularly in terms of water pollution prevention.

The permit applications are generally handwritten forms which are then semi-manually entered into the system. The interviewee noted that some aspects of data entry are automatically completed once the manual information is entered – “GIS data, where it gets the parcel number and the address and the owner information – all of that is automated.” When asked what types of errors may occur, he responded that it would primarily just be typos, but entering incorrect information is rare due to the automated processes and how the “people who do intake for these applications will verify the information at the counter.” Personally, I did notice this to be true, but I also noticed some empty fields as well.

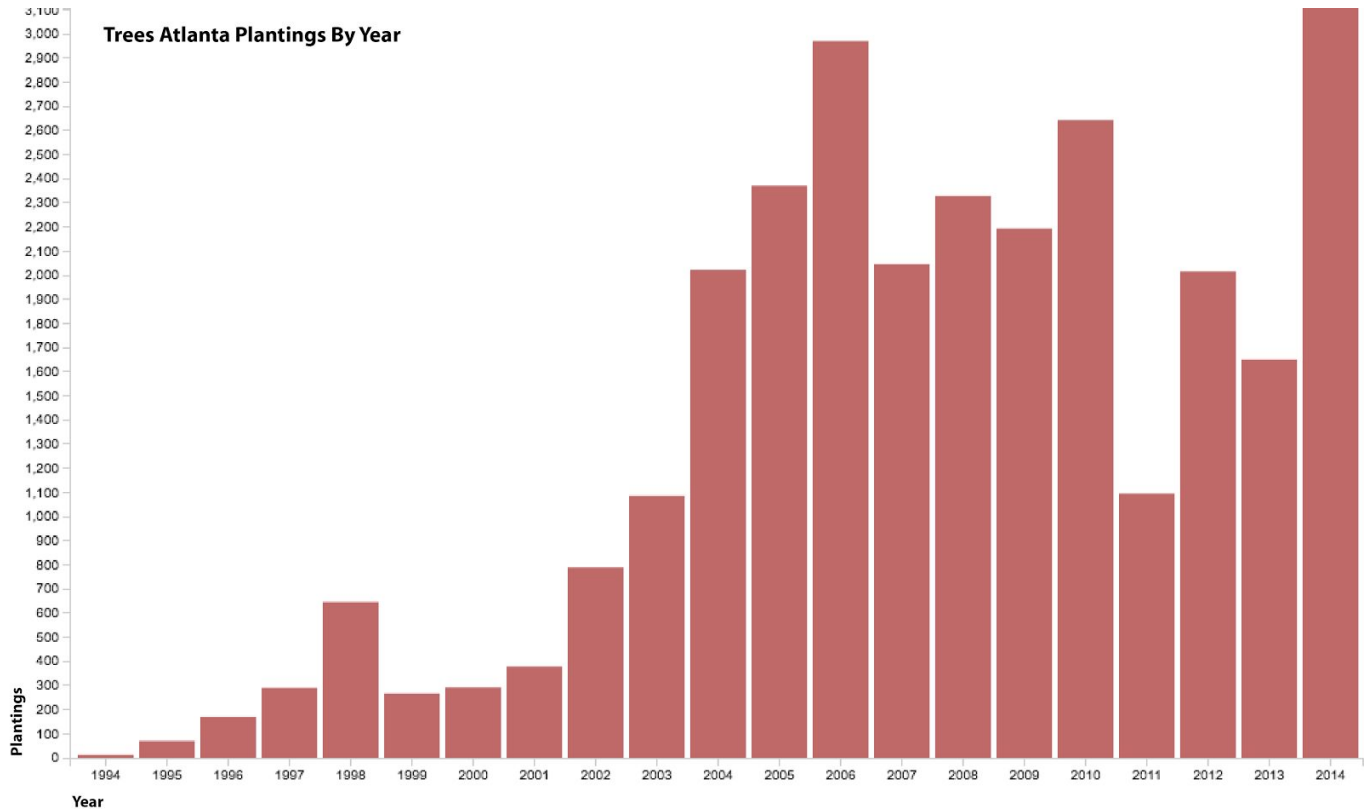
Finally, I asked specific questions about the pulled Accela data in this data set. I learned that the Dead, Dying, and Hazardous Tree permits can refer to multiple trees. The interviewee has “personally seen up to 12” on one permit, but he is unsure if there is a limit. He mentioned also that they do have access to the information of how many trees are included in a permit, but it didn’t appear to be in the citizen access data. For this information, one should submit and open records request to get the full range of data that is collected with these permits.

The Plan Review data was revealed to be a list of permits undergoing review and their statuses. These generally have comments about what revisions are needed, though this was not a field in my version of the data. There are typically many permit reviews occurring in parallel, which could explain any multiple occurrences of the same address in the file. Interesting enough, though, this file is not directly related to the removal of trees. While some trees may need to be removed for new building permits that can be found in this data, there is no information about how many, if any at all, are removed. The Dead, Dying, and Hazardous Tree Permits do not overlap with new construction tree removal. To get the information about tree removal for new construction, the interviewee recommended I look at the “Arborist Review under building permits” on the Accela Citizen Access website.

## Visualizations

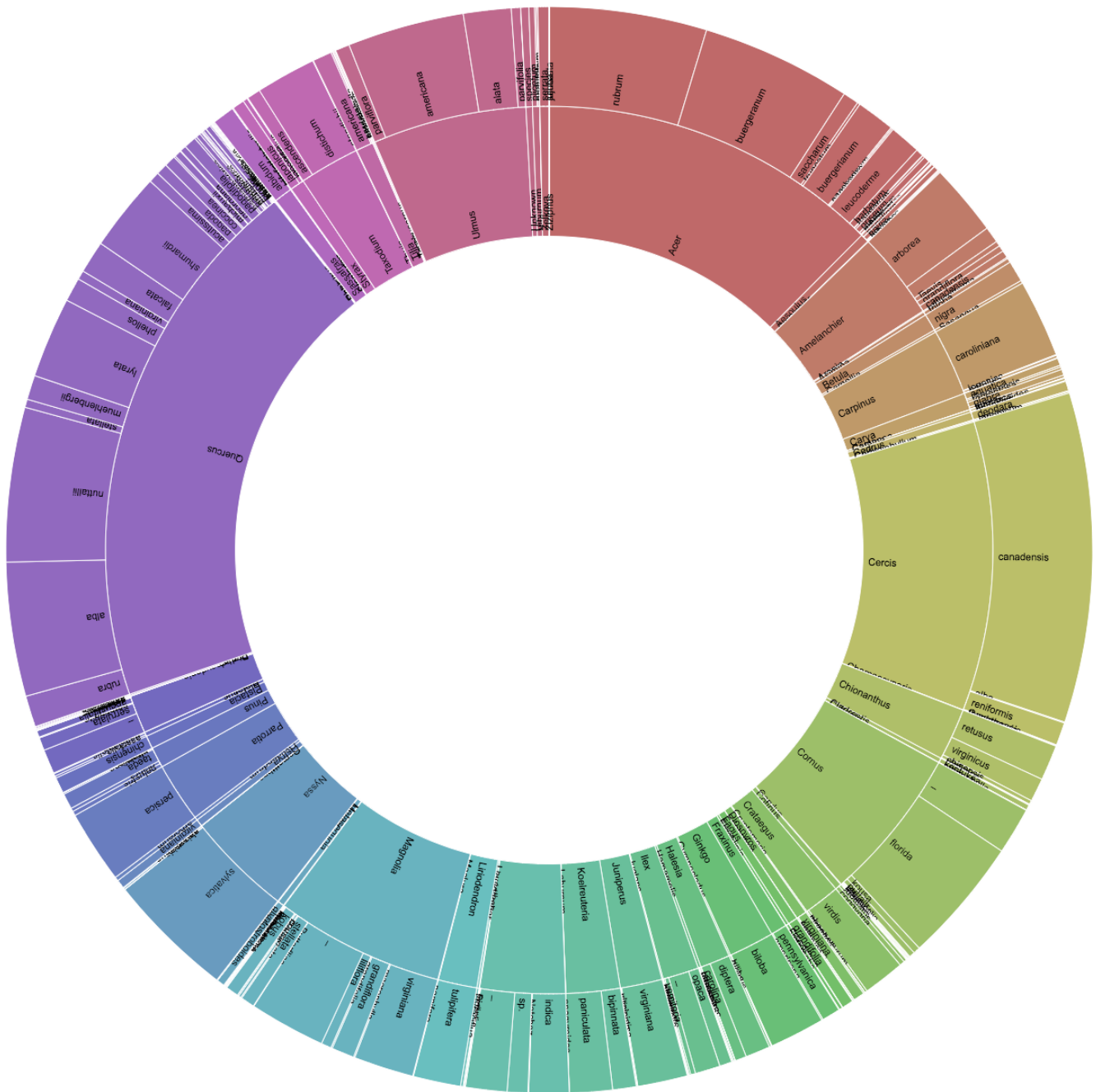
This section focuses on visualizing Trees Atlanta data, which is the planting side of the full dataset. The Accela data is not visualized here.

### Plantings By Year (bar chart)



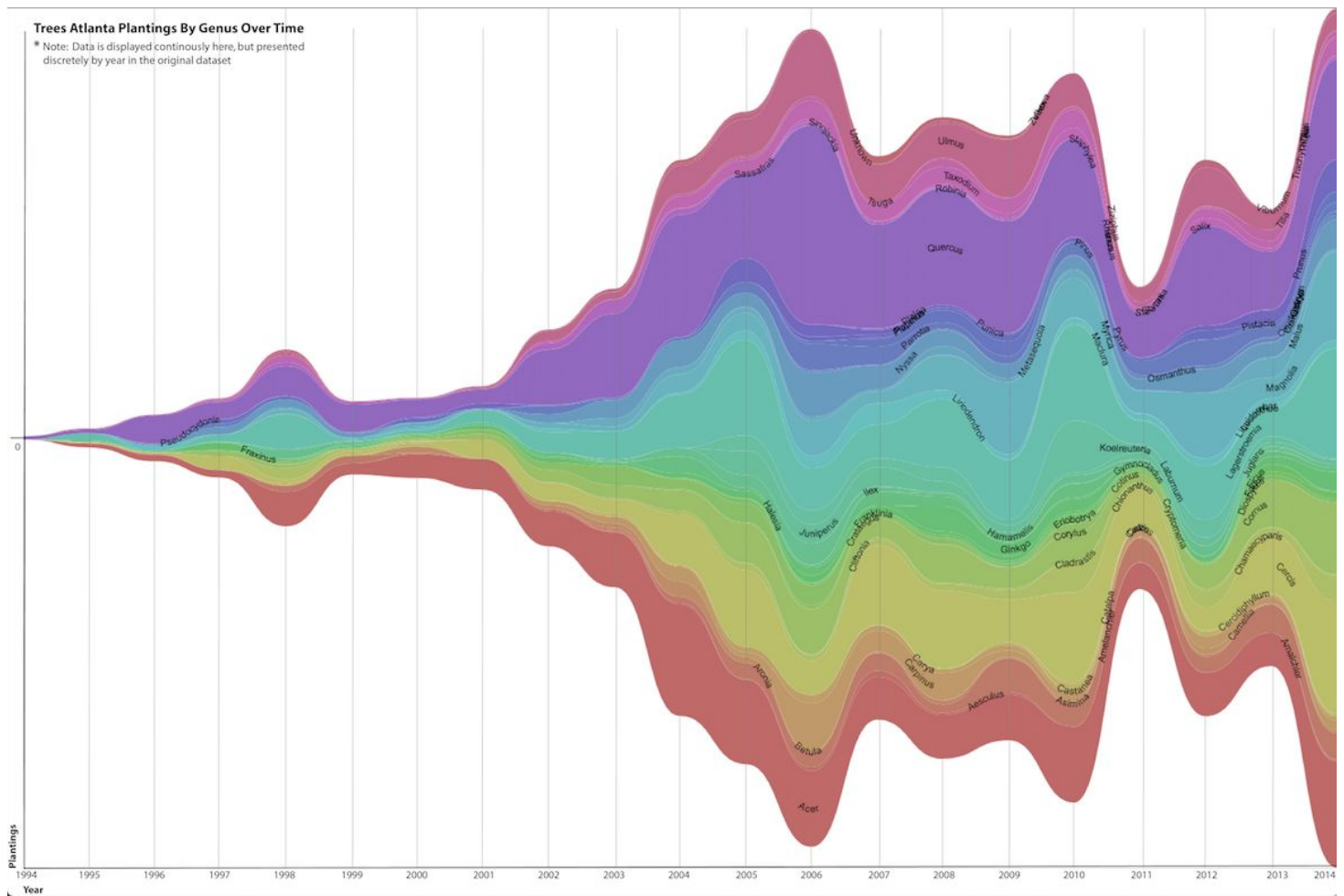
This chart was created with RawGraphs.io and labeled in Illustrator. It provides a good sense of how many plantings there are over time and puts the following visualizations in better context. As you can see, there has been a large and mostly steady increase in plantings over the years.

### Plantings by Genus and Species (sunburst chart)



This chart was also created in RawGraphs.io to get a quick look at the data. It breaks down the genus and species of planted trees to look for patterns in common tree types. As you can see, the plantings have a fair amount of diversity but two or three genres are particularly common.

### Plantings Over Time By Genus (streamgraph)



This chart was created with RawGraphs.io and labeled in Illustrator. It aims to provide a combined view of the two graphs above to see if any trends in genus plantings occur over time. It reveals that the relative proportions of tree types planted remains relatively stable, even when total plantings change dramatically.

It is important to note that this final graph displays data in a continuous flow, but the data it draws from is discrete; plantings are labeled by year but not month or day. As such, a segmented bar chart would likely be a better display format for this graph.



# Data Workflow

This diagram shows the lifecycle of a permit and how the Accela database is interacted with during this process over time.

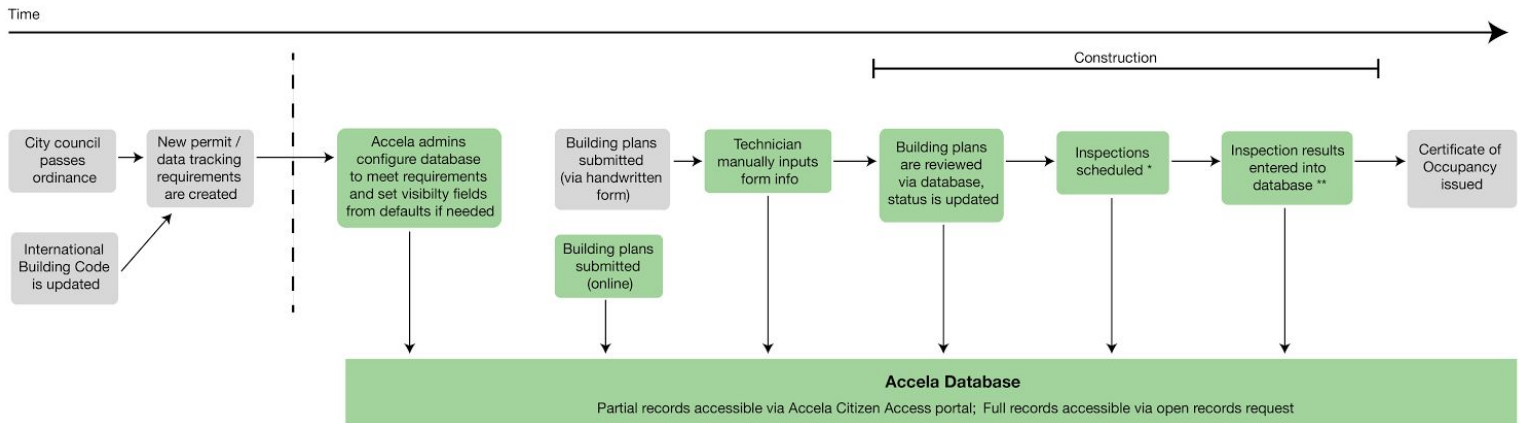
## Accela Database Workflow

Lifecycle of permits in the Accela database; how they are determined, processed, updated, and retrieved

Green boxes indicate direct interaction with database

\* Inspections scheduled via:  
1) Call to operator  
2) Call to automated system  
3) Citizen access portal  
4) Contractor Central app

\*\* Inspection results can be entered via:  
1) In the field via Accela Inspector app  
2) Manually in office after transcribing notes from journal



## Context

The operational context I will elaborate on is the Accela Civic Platform, which is specifically applied to Atlanta's Accela Citizen Access platform. The Accela Civic Platform as a whole is a customizable software service created by Accela, Inc for government agencies. The solutions they provide are for a range of tasks including managing permitting, civic engagement, and maintaining transparency and accessibility of public information. Accela offers cloud-based solutions, APIs, and mobile apps which can address several areas of need for local governments. These areas may include services such as utility billing, environmental health, and legislative management. As each city's needs are different, the services provided are customizable to each government's needs, including the selection of which software packages they wish to subscribe to. Accela lists many counties from all over the United States on its customer page, indicating that this operational context is on a national level.

For Atlanta specifically, the Accela Citizen Access portal is used to primarily deal with permits and complaints, including building permits/complaints, planning applications, fire permits, code enforcement complaints, and general property information. People can use this tool to apply for new permits, schedule inspections, and check the status of existing permit requests. It is

integrated with several apps and APIs that aren't all visible to public, including the Contractor Central app and Accela Inspector, but the primary public interface is Accela Citizen Access.

The primary intended analytical context is for checking the status of existing permits / complaints, or applying for a new permit. The city provides these services in an effort to save time and money as well as increase public satisfaction through providing more electronic services. However, not all types of permits are possible to apply for in this way and some handwritten paperwork is still required depending on what you wish to do. Electrical and plumbing, mechanical, and water heater and sprinkler permits are examples of fully electronically issuable permits offered by the city of Atlanta.

The discursive context is one of public government data. The information is admittedly, according to the Atlanta city website, available in part to increase transparency and can be used in any way the public desires. Various dataset types can be searched for, downloaded, and compared. Examples include permits for tree removal, building construction/renovation, electrical, outdoor events, large signs, and commercial permits such as alcohol licenses.

However, not all parts of the records are available via the Accela Citizen Access portal. Sensitive data such as social security numbers are hidden, as well as information deeming unnecessary and cluttering, such as plan storage bin number, deposit amounts on permits, and inspection zone information. The full records can be acquired through an open records request but not on the portal.

Permits can be searched for by category, data, name, location, and building type, among others. The search results are then ordered by most recent date and can be downloaded into an Excel spreadsheet. The display of the data is very concrete with only a few levels of permit status, such as "issued," "accepted," "closed," and "denied" in the case of arborist permits. Anything in-between these is not displayed on the site and therefore not searchable. These levels are also presented without much further explanation or opportunity for easy inquiry. For example, alcohol license permits may have statuses such as "passed," "approved," "open," and "building inspection required," but no information on when the inspections may be or why open permits have still not been approved. Additionally, it is not immediately obvious if you can narrow searches only by permit status, so it may be necessary to download bulk information and sort it yourself.

Aside from these issues, the way the Accela Citizen Access website presents information is very straight forward. I did not encounter many ethical issues since most private information is removed, but I could imagine instances where people may not want their permit or complaint information to be public. This is particularly true of the complaints, which could be embarrassing to have on public record about particular individuals or their property. For example, I have seen public complaint records about individuals parking on grass, placing debris in neighbors yards, or having too much "junk" in their yard. Property complaints may also be embarrassing, such as infestations, mold, junk vehicles, squatters, and dog breeding complaints. All of these data are

available at a local level and refinable by address, so this is an important aspect to consider regarding the public database.

## Sources

Accela. 2017. "Software Solutions Connecting Citizens and Government." Accessed October 16, 2017. <https://www.accela.com/solutions>

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## Author Details

My name is Stephanie Dykes and at the time of writing this guide I am a 2nd year M.S. Digital Media student enrolled in Dr. Yanni Loukissas's project studio course. I am also conducting my master's project on a closely related subject involving physical visualization of the Atlanta tree canopy data.

I can be contacted at [stephanie.n.dykes@gmail.com](mailto:stephanie.n.dykes@gmail.com) if you have any questions about this data or something mentioned in the guide.